

# Solid Waste Asset Management Plan 2015-2025



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## EXECUTIVE SUMMARY

The purpose of this Asset Management Plan is to ensure that assets are operated and maintained in a sustainable and cost effective manner, and that they provide the required level of service for present and future customers.

## LEVELS OF SERVICE

Levels of service are driven by customer expectations, compliance with statutory requirements and Council policies.

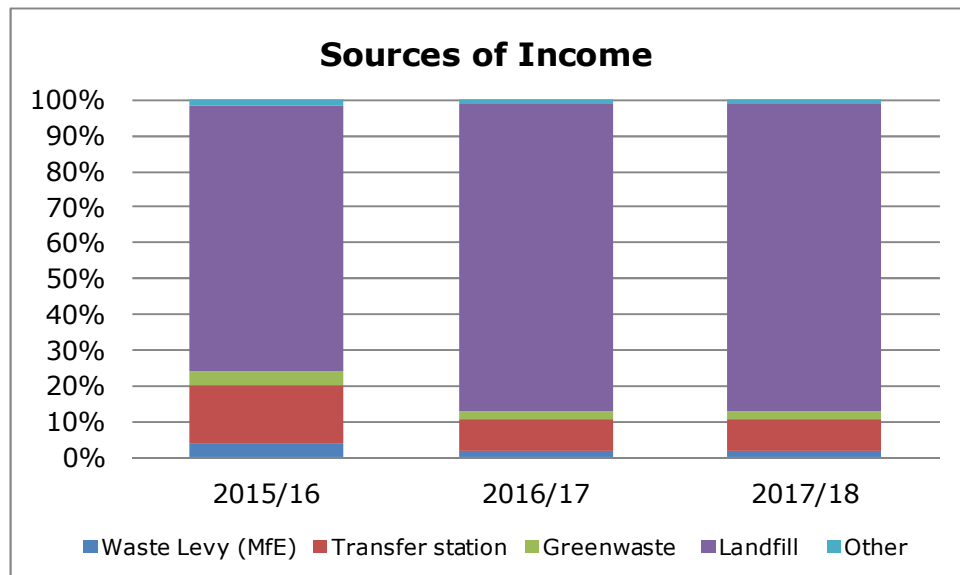
Council carries out the following Solid Waste activities:

- ensures that residual waste generated by residential properties is collected weekly on a user pays basis;
- receives residual waste at York Valley;
- promotes waste minimisation;
- provides a recycling service to residential properties and schools free of charge; and
- receives domestic hazardous waste, refuse and separated green waste at the Pascoe Street Transfer Station.

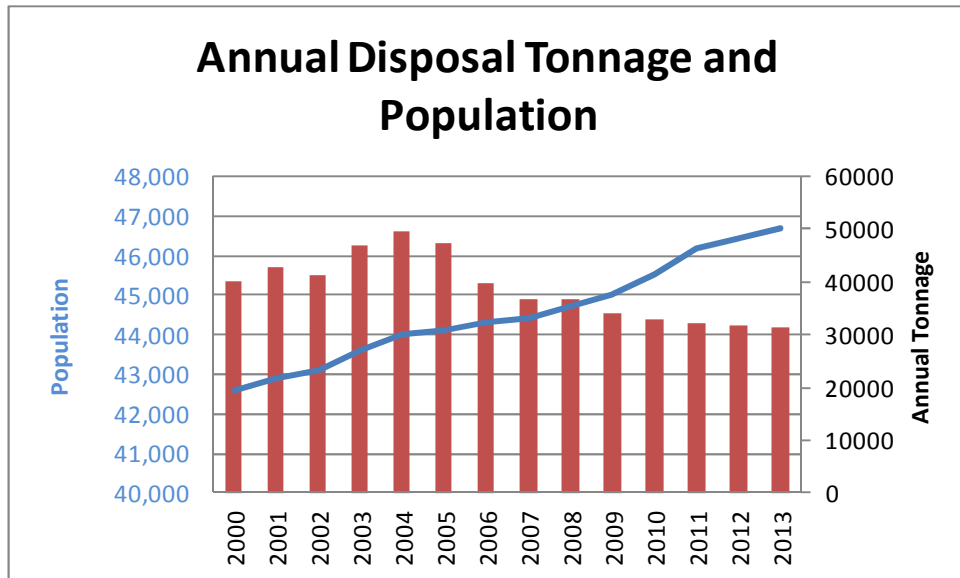
## CURRENT STATE

Council manages \$12M (Including value of land) of solid waste assets on behalf of the community. These assets are mainly associated with York Valley Landfill and Pascoe Street Transfer Station. The value of depreciation is directly related to the replacement cost and useful life of assets. Depreciation is used to renew assets (Renewal) and loan funding is used to create (Upgrade) new assets.

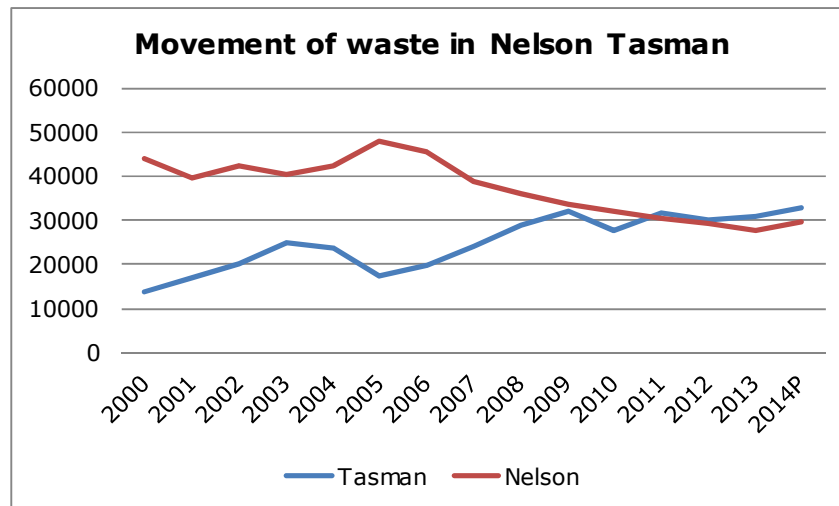
The solid waste activity is basically debt free and activities are mainly funded from landfill charges, transfer station charges and Ministry for the Environment Waste Levy contributions.



The declining trend in tonnage of residual waste per person going to landfill in the Nelson region demonstrates that our waste management and minimisation initiatives meet the objectives of the Waste Minimisation Act. This declining trend is significant when viewed against a steadily increasing population and a region recording economic growth above the national average over the past decade as shown in the following figure.



The policy, services and facilities of one district can dramatically impact on demand for services in neighbouring districts. This is well demonstrated in the Nelson Tasman region, where policy and/or pricing changes have in the past affected the ability of both Councils to improve waste minimisation and improve waste management practices.



Little waste apart from that from the Buller District is believed to originate outside the Nelson Tasman region. Stability in levels of service, pricing and policy is essential for continued delivery of services.

Council’s customer surveys indicate a general satisfaction with services provided. A steady decrease in the cost of dealing with illegally dumped waste material (fly-tipping) suggests that the cost of solid waste services available in Nelson supports the expectations of our community.

A comparison of the waste activities in Nelson compared to a district of similar size showed that:

- the cost of waste disposal in Nelson is significantly lower;
- a wider range of disposal and recycling choices and options are available;
- the opportunity to economise is available;

with no significant compromise in environmental outcomes.



When assessing new waste minimisation opportunities it is important to ensure that the full cost of services are considered.

<b>Costing Model</b>				
Full Cost	=	Financial Cost	+	Environmental Cost

Scientists have spent much effort trying to quantify the environmental component of the Costing Model. A range of these costs have been considered before accepting an indicative value to be used in the development of this plan. (Details can be found in Section 2.10)

	Greenwaste	Recycling	Residual waste	Transfer station
Cost of treatment by Council	\$192,411	\$894,583	\$2,002,417	\$1,342,155
Tonnage managed	1300	3300	61695	5400
Unit cost per tonne	\$148	\$271	\$33	\$249
Indicative Full Cost per tonne	\$33 to \$600*			

While the lowest cost option to deal with residual waste remains responsible land-filling, Council has a duty of care to create an environment where consumers exercise responsible buying behaviour and producers take responsibility for proactive management of waste early in the value chain. This is a value judgment that cannot be made in isolation. The choices made will impact on the behaviour of people, impact on the resources available, impact the environment and the cost of services.

Question
Is our current solid waste strategy the best way to allocate our resources to achieve our ultimate goals

Estimates of Full Costs by economists are of such a range that it does not provide a silver bullet solution. However, there is a societal responsibility that needs to be considered when Nelson City Council decides on the most desirable treatment of residual waste.

While our customer surveys indicate general satisfaction with services provided in the region, the comments received from the "not very satisfied" group and focus groups indicate that the public would like to see Council create an environment where businesses and households reduce consumption and prevent recycled material from entering the landfill.

## CHALLENGES

Over the next 10 years the solid waste activity faces a variety of issues and challenges:

- Changing legislation and compliance requirements:
  - Extensive consultation is required by legislation controlling the solid waste activity;
  - The Waste Minimisation Act 2008 established a waste levy through which central government can influence waste minimisation initiatives;
  - The Emissions Trading Scheme could have a significant impact on solid waste management because the cost of carbon is linked to international commodity markets.

- Growing demand will lead to increased usage and expansion of services:
  - Increasing population, visitors and industry will increase demand for services;
  - The impacts of climate change will increase the demand for investigating and introducing alternative treatment processes;
  - Changes in level of service provided in Tasman District such as the implementation of a three bin system - separation of organic waste, recycling and residual waste into different bins - could place significant pressure on Nelson City Council to match this level of service.
- Increasing customer expectations:
  - Improved communication and consultation will be required;
  - More infrastructure and increased levels of service.
- Improved co-operation with Tasman District Council in terms of waste management and minimisation:
  - Alignment of levels of service;
  - Alignment of policies and procedures.
- Risks:
  - A major risk is the failure, loss of or temporary unavailability of the York Valley Landfill for an extended period, which would require an alternative site for solid waste disposal;
  - Community expectations regarding the location of future landfill activities.

## **SOLID WASTE STRATEGY**

Nelson City Council and Tasman District Council have worked together to find the best way to address issues identified in the 2009 Joint Waste Assessment. Following the adoption of the Joint Nelson Tasman Waste Management and Minimisation Plan (JWMMP) in 2012 the two councils have invested considerable effort investigating the most appropriate landfill strategy for the region.

The JWMMP has as an objective to investigate a joint regional landfill facility for the benefit of both districts. The separate operation of two landfills in the region was identified in the Joint Waste Assessment as the single largest impediment to waste minimisation initiatives in the region.

Studies undertaken to investigate a joint regional landfill strategy, that considered both financial and non-financial criteria, have shown that a single facility would improve sustainability for the region. It would achieve economies of scale, result in the best use and value of the existing landfill assets. The studies carried out during 2013/14 recommended utilising the existing capacity at the Nelson City Council Landfill at York Valley as the regional facility and then developing a next generation regional landfill as the best option. The proposal includes all waste from the region (Nelson and Tasman) going to the York Valley Landfill. Tasman District Council will retain the residual capacity at Eves Valley (of around 2 years) for the remaining life of York Valley as a contingency to allow for events such as severe flooding or an earthquake that may render York Valley inoperable.

The financial modelling of this proposal was reviewed by independent corporate financial specialists who reported that "The results of our 50 year parallel modelling indicate that the proposal is financially beneficial to Nelson City, with Nelson City Council's share of the additional landfill surpluses more than offsetting the impact of NCC incurring costs of replacing the landfill 16 years earlier that it would have otherwise faced."

The implementation of the proposal will allow the two councils to achieve the objectives of the JWMMP.

Council consulted with the community (through a special consultative procedure) on a proposed regional landfill in 2014. This proposal has not yet been implemented. The two

Council’s have jointly commissioned Deloittes to undertake further modelling to test the analysis undertaken by both Council’s to date before implementing a regional landfill.

York Valley Landfill is consented to receive municipal waste until 2034 and has the capacity to receive residual waste well beyond life of the current consent at current disposal tonnages. With the implementation of the regional landfill proposal there is adequate capacity to receive the residual waste generated in the Nelson/Tasman and Buller areas for at least the next 16 years. (At an average tonnage of 65,000 tonne per annum)

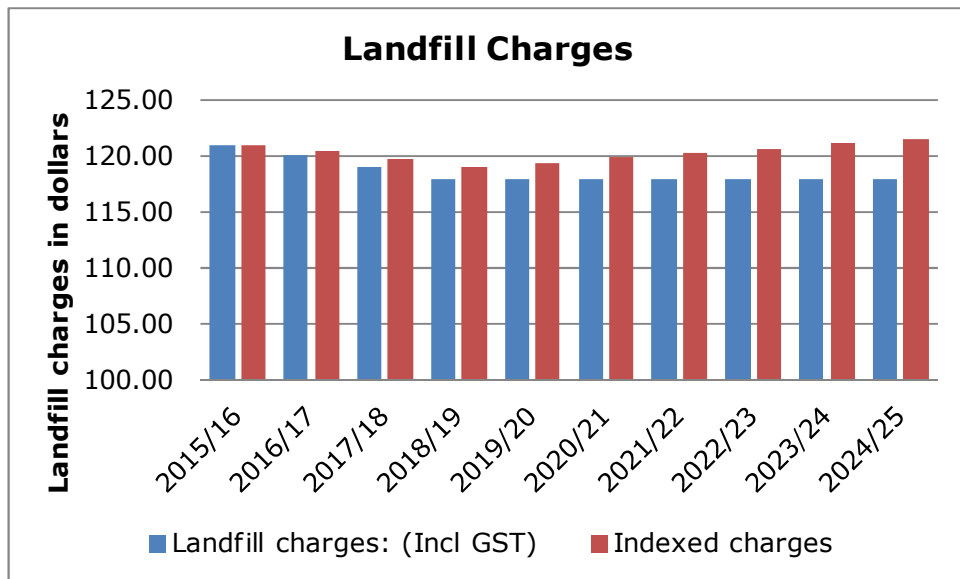
International benchmark for banked landfill  
15 years

The Nelson Tasman area is well positioned in this regard with two designated landfill sites located in the region. It will be prudent to start the process of identifying the most appropriate site for future landfill operations within the next five years.

The implementation of the joint landfill proposal secures opportunities to optimise waste minimisation and management in the region that will serve the communities of Nelson and Tasman well in the future. The development of new strategies is complicated and specialised in nature and will require considerable effort to gain consensus across two councils to implement projects that could require significant subsidisation from the Regional Landfill activity.

**FUNDING OF ACTIVITY**

The activity is managed as a self funding account.



A local waste disposal levy is raised from landfill and transfer station charges to fund waste management and minimisation initiatives that cannot be fully funded from direct user charges. The following table shows the value of subsidies applied.

Subsidized initiatives include kerbside recycling, general and separated greenwaste waste received at the transfer station, waste education, collection of illegally dumped refuse and treatment of domestic hazardous waste etc.

	Greenwaste	Kerbside Recycling	Transfer station general waste
Equivalent Cost per tonne	\$106	\$0	\$112
Value of subsidy from Local Disposal Levy	26%	100%	53%

Subsidies are applied in a way that reflects the cost of the service (user pays philosophy), to encourage residents to use the services and allows Council to achieve its objectives. The differential between the landfill charge and the charge for general waste at the transfer station is not considered to provide an incentive for waste contractors to use the transfer station rather than the landfill.

Inclusive GST	Greenwaste	Transfer station general waste
Current charge per m <sup>3</sup>	\$20	\$40
Charge without subsidy per m <sup>3</sup>	\$25	\$58

Presently the charge for separated greenwaste at the transfer station is higher than the cost of disposal of greenwaste at the landfill. Increasing the subsidy applicable to separated greenwaste will provide an incentive for waste operators and the public to divert more greenwaste away from the landfill and extend the economic life of the York Valley Landfill. However, Council will endeavour to stabilise the green waste recycling capacity within the commercial sector with the aim to phase out the reception of separated green waste at Pascoe Street.

Commercial recycling is based on user pays principles. It is suggested that a significant amount of recycled material that is managed on behalf of businesses, by waste operators, ends up in the landfill. Council can affect this behaviour through banning or providing incentives to waste operators or businesses to ensure that material collected is recycled responsibly.

## RISK ASSESSMENT

The risk assessment demonstrated that the most significant risk to the way in which solid waste is managed in Nelson will be the loss of control of residual landfill activities.

Risk Event	Consequence	Score	Risk
Competition from alternative landfill	Could affect level of service, service delivery model and increase cost to residents	140	Moderate

The establishment of an alternative waste management and disposal philosophy that is based on ease of use, providing a large residual waste receptacle, to customers could compromise the way in which this service is delivered in Nelson, resulting, ultimately, in a requirement to rate Nelson residents for the delivery of solid waste services.

## CONCLUSION

While it appears that properly management landfills continue to provide the lowest cost alternative for the disposal of residual waste, the real benefits lie in implementing a well developed waste strategy that could add significant value to the management of the solid waste activity.

## 1. INTRODUCTION

This solid waste asset management plan combines the management, financial, engineering and technical practices to ensure that the required level of service is provided effectively.

### 1.1 THE PURPOSE OF THIS SOLID WASTE ASSET MANAGEMENT PLAN

The purpose of this Solid Waste Asset Management Plan is to ensure that assets are operated and maintained, so that they provide the required level of service for present and future customers in a sustainable and cost effective manner.

The Solid Waste Asset Management Plan supports the purpose by:

- Demonstrating responsible, sustainable management and operation of solid waste assets which represent a significant, strategic and valuable asset belonging to Nelson City;
- Identifying funding requirements; and
- Demonstrating compliance with Section 94(1) of the LGA 2002 which in summary requires the Long Term Plan to be supported by an audit report on:
  - the quality of the information and assumptions underlying the forecast information;
  - framework for forecast information and performance measures and whether they are appropriate to assess meaningful levels of service;
- Demonstrating clear linkage to community agreed outcomes with stated levels of service.

The overall objective of asset management planning is to:

*Deliver the required level of service to existing and future customers in a sustainable and cost effective manner.*

The contribution of solid waste activity to the Community Outcomes and asset management objectives will be achieved by:

- Reflecting Long Term Plan stakeholder consultation to establish service standards;
- Implementing a programme of inspections and monitoring of the activity to assess asset condition and performance;
- Undertaking a risk based approach to identify operational, maintenance, renewal and capital development needs, and applying strategic prioritisation techniques to select the most cost effective and sustainable work programme;
- Ensuring services are delivered at the right price and quality;
- Achieving the appropriate level and quality of asset management practice.

### 1.2 RELATIONSHIP WITH OTHER PLANS

Asset management plans are a key component of the Council planning process, linking with the following plans and documents:

#### **Long Term Plan**

A plan required by the Local Government Act 2002 to cover a period of at least 10 years. This plan contains key information about the Council's activities, assets, level of service and cost of providing services. It sets out the Council's funding and financial policies and also a financial forecast for the years covered by the plan. Levels of service and financial programmes as given in this document will be key information for the Long Term Plan. The asset management plan provides the detail required to support the financial forecast.

#### **Annual Plan**

Detailed action plan on Council's projects and finances for each particular year. The works identified in the asset management plan form the basis on which annual plans are

prepared. With the adoption of the Long Term Plan the Annual Plan provides an update, highlighting any changes to the solid waste programme, the reasons for changes and the impact on rates.

### **Joint Nelson Tasman Waste Management and Minimisation Plan**

This plan followed a Joint Waste Assessment, carried out under the Waste Minimisation Act 2008, of the solid waste activities in the Nelson Tasman Region. These services include sanitary landfill, solid waste management and waste minimisation activities. The waste assessment was carried out in 2009 in collaboration with Tasman District Council and culminated with the adoption of the Joint Nelson Tasman Waste Management and Minimisation Plan in 2012 by Nelson City Council and Tasman District Council.

### **Nelson Resource Management Plan**

The Nelson Resource Management Plan complies with the requirements of the Resource Management Act. It has implications for the Asset Management Plan in terms of discharge and land use policies and the control of environmental effects for new developments.

### **Ngā Taonga Tuku Iho Ki Whakatū Management Plan**

It is a collective initiative involving five of the six local iwi (Ngati Rarua, Ngati Kuia, Ngati Toa Rangitira, Ngati Te Atiawa, Ngati Koata and Ngati Tama) gives a big picture approach to the management of nga taonga tuku iho (the treasured resources).

### **Nelson 2060**

To embed a culture of sustainability into all areas of Council by having an overarching policy to be given effect through Council decisions, strategies, plans and actions and against which, future Council actions will be evaluated.

### **Biodiversity Strategy**

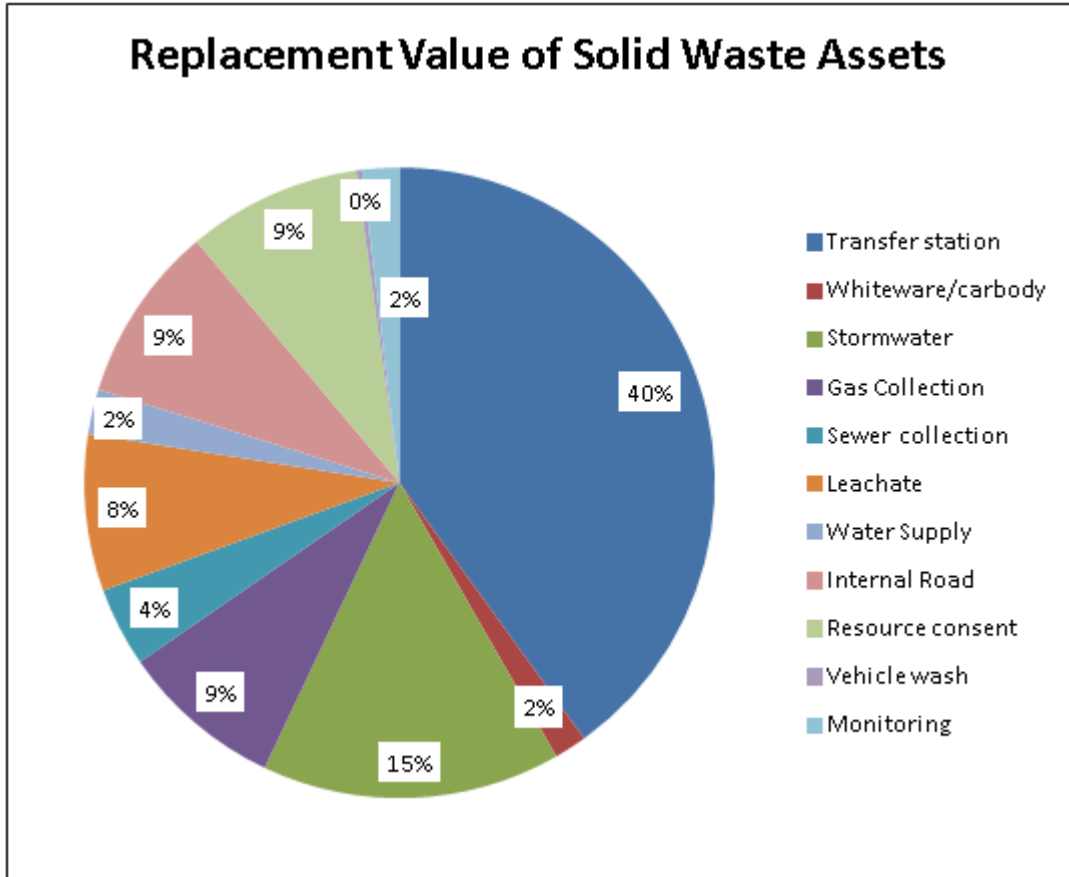
The strategy provides principles for biodiversity management action. These underpin council wide actions and are recognised as inputs into the wastewater activity.

## **1.3**

### **SCOPE OF THE PLAN**

Nelson City Council is responsible for the management of solid waste assets with an approximate replacement value of \$9.4M (Land values are not included) and a projected operating budget in 2015/16 of \$5.85M. Details of the replacement cost of the component groupings are shown over the page.

**Figure 1.3: Replacement Value of Solid Waste Assets**



**1.4 HISTORY OF WASTE MANAGEMENT IN NELSON**

**1.4.1 Landfill**

Prior to the opening of York Valley Landfill in 1987, rubbish was taken to the Atawhai Landfill, which is now the site of Neale Park. In 1998 a gas extraction system was installed to reduce methane emissions from the York Valley landfill. Council has signed an agreement with Energy for Industry, a division of Pioneer Generation Ltd, to reuse the extracted gas for power generation. The landfill has a leachate collection system and strict environmental monitoring conditions and auditing procedures.

Gully 1 is currently in use with gully 3 and 4 potential land for future development. Gully 1 has a capacity of 2,700,000m<sup>3</sup> and is consented to accept municipal waste until 2034. There is significant uncertainty around the geological stability of these two gullies, what is know is that there are geological faults running through both areas.

**Figure 1.4.1: York Valley Landfill**



The York Valley landfill is located approximately 4 km south of the city centre, accessed off Market Road and receives municipal solid waste from the transfer station and approved commercial operators.

The landfill is a valley type landfill and occupies approximately 3.5Ha. The site has been filled in 3m lifts across the site progressing up the valley sides in a controlled manner.

The disposal area has been built up around seven stone chimney drains connected to a stone leachate drain piped into the sewer system. The chimney drains which are extended as the landfill is built up serve as ducts to vent landfill gas from the landfill. The chimney drains were capped in 1998 and connected to the gas extraction system.

#### **1.4.2 Waste Collection**

Up to 1997 Nelson City Council provided a rubbish collection service through NELMAC which included supplying 52 rubbish bags per household per annum. This was funded by a refuse rate. From 1997 the Council stopped charging a refuse rate and households were responsible for purchasing their own bags, or finding an alternative service provider. This structure has meant that private waste companies compete for Nelson's waste collection. Four companies - NELMAC Ltd, Can Plan, Envirowaste Ltd and Transpacific Waste Management - regularly collect rubbish in Nelson.

#### **1.4.3 Greenwaste Processing**

A privately owned composting centre was set up beside the Pascoe Street Transfer Station in 1998 but was discontinued in 2003. Since then, green waste taken to the Transfer Station has continued to be collected in a separate hopper, compacted into containers and transported to Council contracted composting businesses where the green waste is composted. (At present this service is provided by A Miller and Sons)

The competitive nature of commercial composting operators in Nelson provides a wide range of choice to waste collectors and the public.



#### **1.4.4 Recycling Operations**

The Nelson Environment Centre has operated a reuse shop at the Pascoe Street Transfer Station since June 1992. It also provided a drop off recycling centre for aluminium, metals, glass, oil and cardboard until 2002.

In 1996 the Nelson Environment Centre and Council set up a kerbside recycling scheme, which collected plastics, paper, aluminium cans, cardboard and glass. This scheme stopped in 1998 when the local paper market ceased.

In 2001 the Council developed a comprehensive recycling service for Nelson and initially contracted Kahurangi Waste Minimisation Services to deliver a recycling service to Nelson residents. In October 2004 Council contracted with NeIMAC to continue the kerbside recycling scheme and to manage the recycling drop off centre at Council's Pascoe Street premises. (Depicted in figure 1.4.4) NeIMAC collects and processes the recyclable material at Pascoe Street.

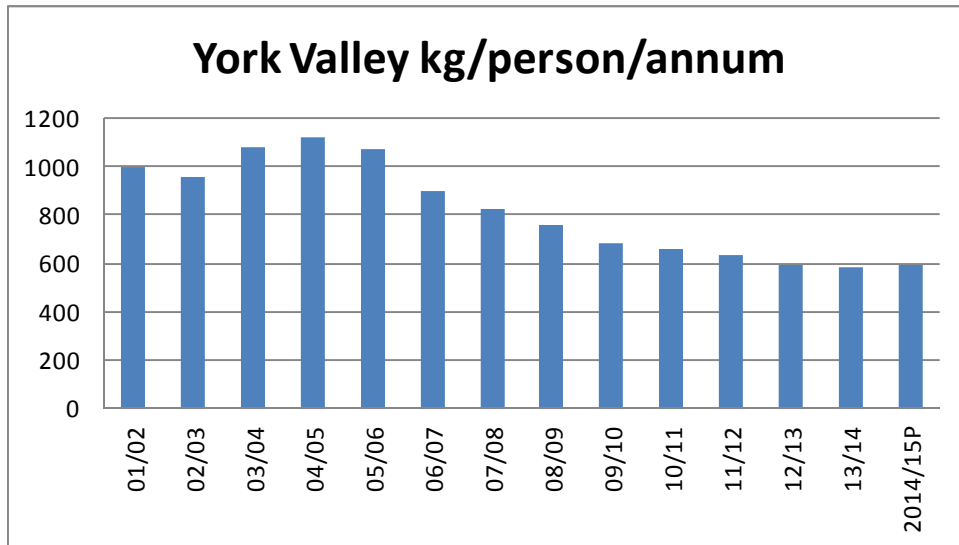
**Figure 1.4.4: Pascoe Street Transfer Station**



## 1.5 SOLID WASTE TRENDS

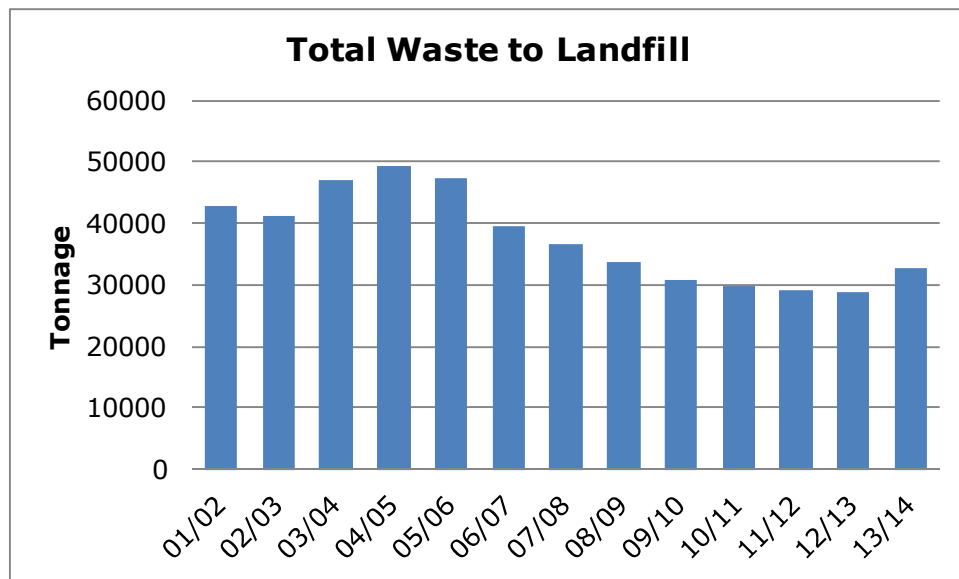
The generation of residual solid waste has historically reflected economic growth. The tonnages of waste disposed of at York Valley since the landfill was established show that interventions such as waste awareness, recycling and user pays strategies do affect the behaviour of people. (Refer to fig 1.5(a))

**Figure 1.5(a): Residual Waste per Person per Annum**



A 47% reduction on residual waste going to landfill has been recorded since 1999. This reduction followed a period during which the Council adopted a user pays philosophy, improvements to recycling and a focus on waste education. Figure 1.5(b) shows the decrease in tonnage of solid waste since 2006. This decrease reflects changes that result from Council intervention and the affects of economic activity etc.

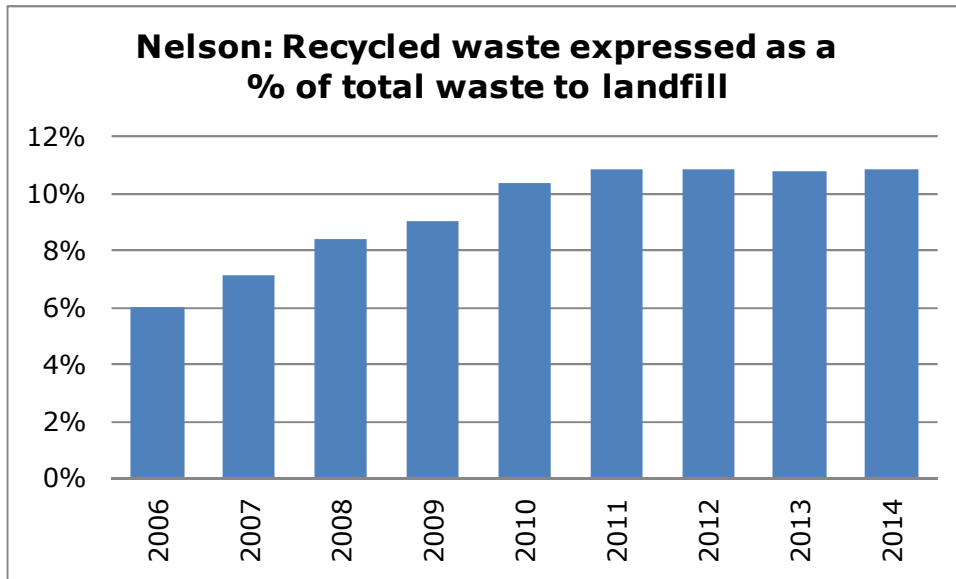
**Figure 1.5(b): Tonnage Waste Disposed of At York Valley**



The diversion of waste through kerbside recycling and acceptance of residential recycling at no charge at the transfer station, expressed as a percentage of residual waste going to landfill, has continued to grow as shown in figure 1.5(c).

The increase in tonnage in 2013/14 is associated with HAIL material associated with the Maitai Walkway project that was disposed of at York Valley.

**Figure 1.5(c): Recycling Trends**



With tonnages of material diverted from the landfill through council recycling initiatives at around 11% of the total waste disposed of at the landfill during 2014 it is clear that waste awareness programmes have a significant impact on the behaviour of people.

Material (tonnes) diverted through Council initiatives in 2013				
Glass	Paper and Cardboard	Plastics and tins	Recycling	Greenwaste
1,425	1,402	298	3,125	1,207

**Figure 1.5(d): Recycling Trends**

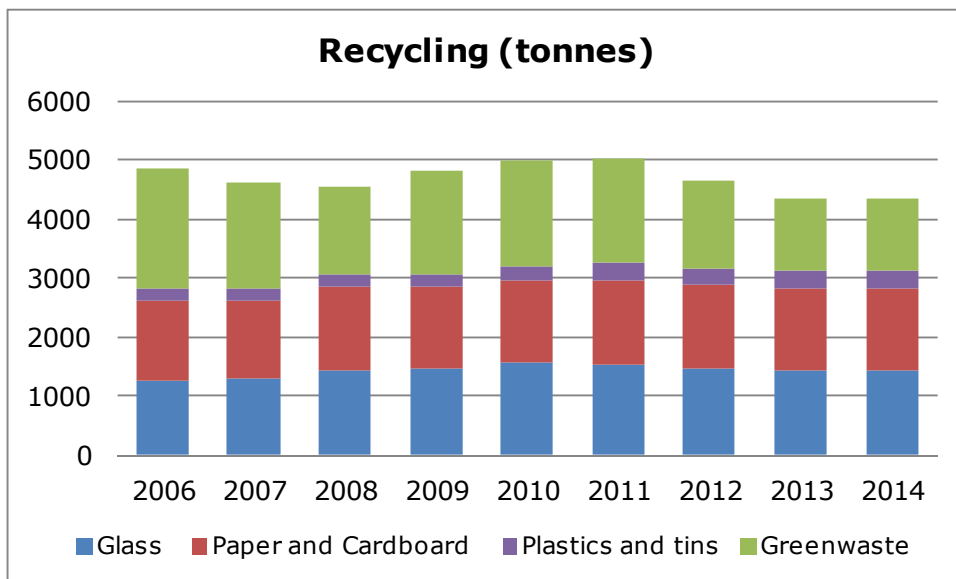
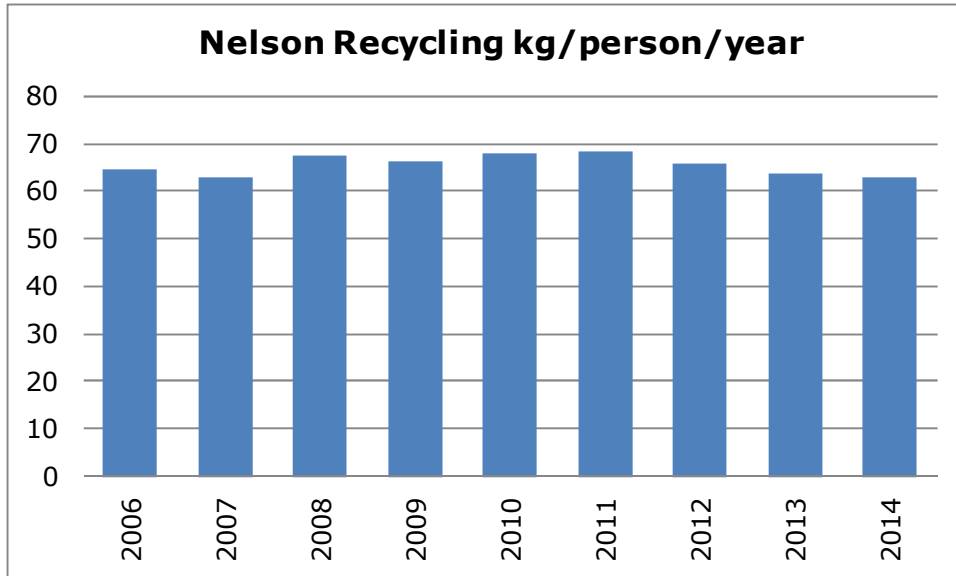


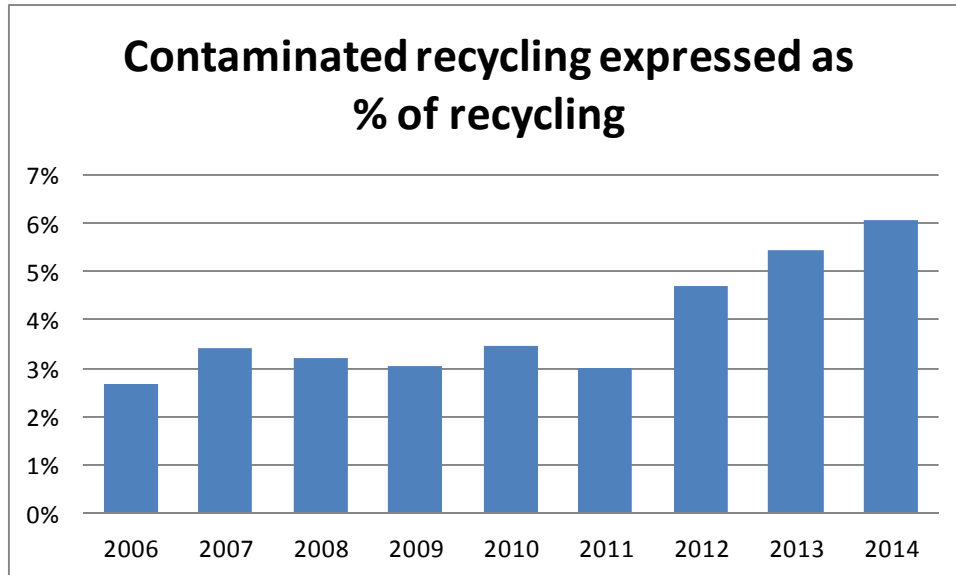
Figure 1.5(d) shows that the actual tonnages of material diverted through Council initiatives have decreased. This decrease mainly results from the fact that separated greenwaste is now more readily received at commercial composting operations, and often at a lower charge than what is applicable at the Pascoe Street transfer station.

**Figure 1.5(e): Recycling Trends**



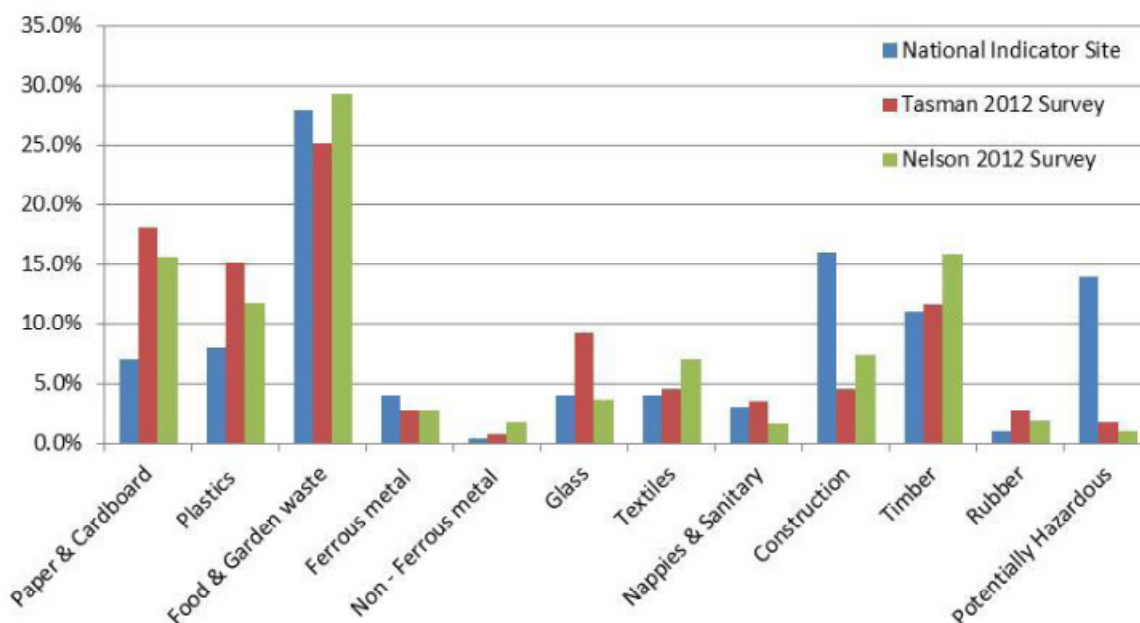
The trends in recycling per person per year, as depicted in figure 1.5(e) does not present any clear patterns other than to suggest that residents continue to see value in recycling. Figure 1.5(f) demonstrates that contamination of recycled material is not an issue that requires additional attention at this time. (There are locations in New Zealand where contaminations rates of over 28% are reported) Just over five percent, 193 tonne during the most recent 12 month period, of material diverted through recycling find their way back to the landfill.

**Figure 1.5(f): Recycling Trends**



A solid waste composition study carried out in 2012 provides the region with good information on which to base future solid waste initiatives. The cost associated with these studies is very high, (over \$120,000 for the 2012 study) and does not encourage this type of benchmarking on a regular basis. A single primary landfill in the Nelson Tasman area will lower the cost of this type of investigation in future.

**Figure 1.5(g): Nelson and Tasman Solid Waste Composition Compared With Ministry for the Environment National Indicator Sites**



The results depicted in figure 1.5(g) show that a higher percentage of recyclable materials such as paper, cardboard and plastics in the Nelson Tasman region than was recorded for the national indicator sites. Putrescibles (food and garden waste) are comparable between the Nelson Tasman region and the indicators sites. Glass shows higher percentages in Tasman District, but the Nelson results are comparable with the indicators sites. Construction material is higher at the indicator sites than the Nelson Tasman region although timber is higher for the Nelson Tasman Region (14%) than recorded at the indicator sites (11%).

## 1.6 CURRENT AND FUTURE PRACTICES

Current solid waste management requires best use of existing facilities and the aftercare for closed landfills.

Through the continued implementation of the Joint Nelson/Tasman Waste Management and Minimisation Plan the two Councils have the opportunity to develop more sustainable and integrated solid waste strategies for the region.

Methods of waste management and minimisation will be considered in the following descending order of importance: reduction, reuse, recycling, recovery, treatment and disposal based on the following six core guiding principles:

### 1.6.1 Global Citizenship

Our responsibility to protect the environment extends beyond Nelson.

This principle recognises our responsibility to consider the consequences of our actions in generating and managing waste and diverted material. For example, well sorted and uncontaminated diverted material produces higher quality recycled materials. Processing high quality recyclables in New Zealand is preferable to sending materials off-shore. Also, methane gas from landfills is a greenhouse gas and greenhouse gases contribute to climate change globally.

### 1.6.2 Kaitiakitanga (Similar To Stewardship/Guardianship)

All members of society are responsible for looking after the environment, and for the impact of products they purchase and wastes they make, use and discard.

The Maori concept of kaitiakitanga expresses an integrated view of the environment and recognises the relationship between all things. Kaitiakitanga represents the obligation of

current generations to maintain the life sustaining capacity of the environment for present and future generations. Stewardship is similar.

This principle overlaps with the general principles contained in the Nga Taonga Tuku Iho Ki Whakatu Management Plan (2004), which include:

- a sense of kinship with all things;
- a regard for natural resources as gifts from the atua (gods);
- a sense of responsibility for natural resources as kaitiaki (guardians);
- a sense of commitment to look after resources for future generations;
- an ethic of giving back what is taken from the environment.

### **1.6.3 Product Stewardship**

Producers, consumers and the wider community have responsibilities for a product throughout the product's life-cycle.

This principle promotes the responsibility of designing products so that the material used in manufacture can be recovered and re-used or returned benignly to the environment, the amount of packaging is minimised and the energy used in production is minimised.

Choices that consumers make have the potential to influence producers in their responsibility towards more sustainable production and packaging. Moreover, consumers have a responsibility to purchase in line with this principle.

### **1.6.4 Full-Cost Pricing**

The environmental effects of production, distribution, consumption and reuse, recycling or disposal of goods and of the associated services should be consistently priced and charged as closely as possible to the point they occur.

This principle encourages minimisation of environmental effects by ensuring full environmental costs are reflected in product and service prices, and paid as closely to their source as possible.

### **1.6.5 Life-Cycle Principle**

Products and substances should be designed, produced and managed so all environmental effects are accounted for and minimised during generation, use, recovery and reuse as a manufacturing resource, or disposal.

This principle requires consideration of all activities and associated environmental effects leading to a product or service, during the life of the product or service, and following the life of the product or service. For example, a product's life starts with the gathering of raw materials from the earth and ends when the materials are returned to the earth. Before the materials are returned to the earth, they may be reused instead of using raw materials. Energy will be used throughout. How much energy is used and whether the energy is renewable or not are components of the life cycle. At the end of a product's life, the product may be disposed in a landfill. Environmental effects may continue. For example, a wood product may decompose and generate landfill gases, which are predominantly greenhouse gases.

### **1.6.6 Precautionary Principle**

Where there is a threat of serious or irreversible damage, lack of full scientific certainty should not be a reason for postponing measures to prevent environmental degradation or potential adverse health effects.

Where decision-makers have limited information or understanding of the possible effects of an activity, and there are significant risks or uncertainties, a precautionary approach should be taken.

## 1.7 PLAN FRAMEWORK

The plan is structured as follows:

- Section 1 Introduction: Sets out the philosophy and geographic scope of the plan.
- Section 2 Levels of Service: Outlines the current and target levels of service with regard to customer expectations, operation and emergency response.
- Section 3 Future Demand: Outlines existing demand, demand projections, demand management, impact of changing demand on assets.
- Section 4 Risk Management: Contains Risk Management Philosophy; Risk Register for Solid Waste Assets; Risk Treatment Plan and Schedule for Solid Waste asset lifelines.
- Section 5 Lifecycle Management Plan: Contains, asset details (including capacity, performance, condition and valuations), maintenance and renewal strategies, capital programme and asset disposal strategy.
- Section 6 Financial Summary: Outlines where funds will be sourced from.
- Section 7 Asset Management Practices: Contains details of the Accounting/ Financial, Geographical Information System, Information Flow, and Asset Management Systems.
- Section 8 Plan Improvement Programme: Provides detail on planning to monitor the performance of the Asset management plan and to improve Asset Management systems that will improve the level of confidence in the Asset management plan, provides details in proposed chronological order of the processes to be improved in the management of the solid waste activity.
- Section 9 Action Plan: Provides a programme for further development of this Plan.

## 1.8 OBJECTIVES OF THE PLAN

Councils are required by the Local Government Act 2002 to have community outcomes, which are a statement of the goals Council is working to achieve in meeting the current and future needs of our community.

In 2014, Nelson City Council and Tasman District Council were involved in a process to develop a set of shared regional outcomes. These are set out below. While the two councils share joint outcomes, the descriptions that accompany them are individual to each council to reflect their community's different needs and aspirations.

These regional outcomes fit with the purpose of local government to guide delivery of services in a way that is efficient, effective and appropriate to present and anticipate future circumstances. Adopting joint outcomes with Tasman District Council demonstrates an understanding that we are one region and need to collaborate to provide the best and most efficient services to our communities.

The solid waste activity contributes to these through:

**Table 1.8: Contribution to Community Outcomes**

<b>How the activity contributes</b>
Provides services and strategies to minimise the negative effect of waste management on the environment.
High quality services and consistent strategic direction provides a stable environment for business development and growth
Provides services and direction for the management and minimisation of waste

Levels of service have been developed with the objective of assisting Council in achieving the community outcomes and the priorities, and are set out in section 2.

## 1.9 BENEFITS OF ASSET MANAGEMENT PLANNING



This Solid Waste Asset Management Plan details how Council's management, financial, engineering and technical processes and procedures relating to solid waste assets will contribute to achieving the Goals of the Joint Waste Management and Minimisation Plan. The benefits of asset management planning are:

- Enhanced service management and customer satisfaction;
- Improved risk management;
- Improved financial efficiency;
- More sustainable decisions.

### **1.10 DEVELOPMENT OF ASSET MANAGEMENT PLANNING**

The Asset Management Plan will continue to evolve in a continuous cycle of review and improvements so that the quality of outputs matches the changing business and legislative needs. The Asset Management Plan will act as a vehicle for the development of advanced asset management practices.

This plan provides budget forecasts for inclusion in the Long Term Plans of Nelson City Council. The Asset Management Plan will be reviewed 3 yearly in advance of the development of the Long Term Plan cycle. Annual amendments or updates will be recorded during intervening years.

The International Infrastructural Management Manual 2006 details criteria for assessing conformity to "core" and "advanced" levels of Asset Management in New Zealand.

In recent years it has been recognised that a new rating level of "Core Plus" is the most appropriate rating for cities of Nelson's size for this activity. This rating reflects that parts of the asset can be managed at a Core level and parts at an Advanced level. This approach will provide an effective asset management tool without becoming unnecessarily expensive.

### **1.11 OVERVIEW OF SUSTAINABILITY**

The Local Government Act 2002 sets out the principles that local authorities must act in accordance with. The legislation requires local authorities to ensure prudent stewardship and the efficient and effective use of its resources in the interests of its district or region; and in taking a sustainable development approach, taking into account:

- The social, economic, and cultural interests of people and communities; and
- The need to maintain and enhance the quality of the environment; and
- The reasonably foreseeable needs of future generations.

Nelson 2060 was adopted by Council in 2013 following an inclusive process called "Framing our Future" and sets out Nelson's sustainability strategy. It identifies ten goals that the Nelson Community said were priorities for action and Council is now working to ensure that these goals and sustainability principles are integrated into all the decisions made about its activities.

Sustainable development actions and approaches are embedded throughout this asset management plan in the sections on: Levels of Service, Demand Management, Lifecycle Management Plans, and Financial. These include the following:

Goal Three - Our natural environment – air, land, rivers and sea – is protected and healthy:

- 100% compliance with resource consent conditions as specified.

Goal Seven - Our economy thrives and contributes to a vibrant and sustainable Nelson:

- Optimal use of available landfill airspace;
- Provide a range of options that will allow users opportunities to economise.

Goal Nine - Everyone in our community has their essential needs met:

- Ensuring that solid waste disposal services are available to all residents.

Goal 10 - We reduce consumption so that resources are shared more fairly:

- Waste awareness programmes;
- Waste education programmes;
- Subsidised charges for problematic waste products.

Actions and issues regarding sustainable development are well aligned with the waste management and minimisation principles embedded into the Joint Nelson/Tasman Waste Management and Minimisation Plan as set out in section 1.6.

Further action in promoting the sustainability is considered to centre on the following areas:

- Integration of waste management and minimisation services;
- Operational and management improvements;
- Ongoing monitoring of streams and groundwater in the affected areas.

### 1.12 KEY RELATIONSHIPS

The levels of service provided depend on the demand by the community. How the services are provided is determined by Council in response to the requirements of stakeholders and legislation. Stakeholders are broadly defined as customers, elected members and other stakeholders.

Council has developed a strategic working relationship with Tasman District Council culminating in the adoption of a Joint Nelson/Tasman Waste Management and Minimisation Plan.

To ensure that household and business solid waste is collected and disposed of responsibly and without significant environmental and health impacts, Council acts as a:

- Service provider and facilitator in providing and operating the Pascoe Street transfer station and the York Valley Landfill.
- Funder of recycling services to residential properties and schools through contracting waste collection contractors to collect recyclables.
- Educator by funding waste awareness educational programmes and waste minimisation initiatives aimed at promoting responsible community behaviour.
- Regulator to enforce the Health and Litter Act.

Solid waste activities contribute to the community well being by ensuring effective management of solid waste to minimise pollution and educating the public in waste awareness.

#### **Te Tau Ihu Treaty Settlements**

The Ngāti Kōata, Ngāti Rārua, Ngāti Tama ki Te Tau Ihu, and Te Ātiawa o Te Waka-a-Māui Claims Settlement Act 2014, Ngāti Apa ki te Rā Tō, Ngāti Kuia, and Rangitāne o Wairau Claims Settlement Act 2014 and the Ngati Toa Rangatira Claims Settlement Act 2014 (The Acts) provides statutory obligations for Council in respect to general decision making processes. The Acts are the culmination of Central Government's resolution of claims lodged by the eight iwi for redress of past wrong's and provides for Cultural, Relationship and Financial redress.

Statutory acknowledgments may impact works programmes within the Asset Management Plan and the eight iwi will potentially be considered as affected parties under section 95E of the Resource Management Act, which the settlement legislation provides for. The proposal to establish a Freshwater Advisory Committee under the settlement legislation would be a potentially effective tool for achieving a forum to involve the iwi of Te Tau Ihu in the development of future asset management planning, infrastructure strategies and Long Term Plans.

## 2. LEVELS OF SERVICE

This section on levels of service is the vital part of the Asset Management Plan. The levels of service determine the amount of resources that are required to manage the solid waste activity in order to provide the community with the levels of service specified. The following was considered:

- Customer Expectations: Information gained from customers, what they value, their needs and what they expect;
- Affordability;
- Community Outcomes (Strategic and Council Goals): These identify the overall direction of Council and provide a framework for the levels of service;
- Compliance Requirements: The statutory and other requirements set the minimum level of service that must be provided;
- Customer expectations, community outcomes and compliance with statutory requirements and Council policies contribute to the development of levels of service from a customer perspective. Targets for levels of service help to set the appropriate expectations of customers and provide a basis for the measuring Council's performance.

### 2.1 OUR CUSTOMERS AND STAKEHOLDERS

It is important to identify and define the customers of and the stakeholders in the solid waste business in order to understand their values, aspirations and expectations.

Solid waste stakeholders are no different from the customers of other Council services. With many stakeholders not ratepayers it is important to ensure that consultation be carried out in a way that all the stakeholders are heard during consultation.

Solid waste assets have the following stakeholders:

#### 2.1.1 External

- Residential, commercial and industrial waste generators;
- Ministry of Economic Development, Ministry for the Environment, Ministry of Health, Department of Conservation, Audit New Zealand;
- Waste Industry service providers;
- Community and voluntary service providers;
- Waste Management Institute of New Zealand, Recycling Operators of New Zealand, Packaging Accord and members;
- Cleanfill Operators;
- Owners of abandoned, unregistered landfills;
- Environmental and Recreational Interest Groups;
- Tasman District Council.

#### 2.1.2 Internal

- Councillors;
- Trade Waste Officer;
- Environmental officers;
- Asset, Operations and Maintenance staff.

## 2.2 HOW WE COMMUNICATE WITH OUR STAKEHOLDERS

While the Long Term Plan consultation process incorporates the levels of service associated with the solid waste activity, Nelson City Council has also undertaken a range of consultation processes over the past few years specifically targeted at gathering

information on preferred levels of service or the extent of infrastructure that Council has/will be required to install. The extent of the historical and additional proposed consultation is detailed in the table below.

**Table 2.2: Solid Waste Consultation Processes**

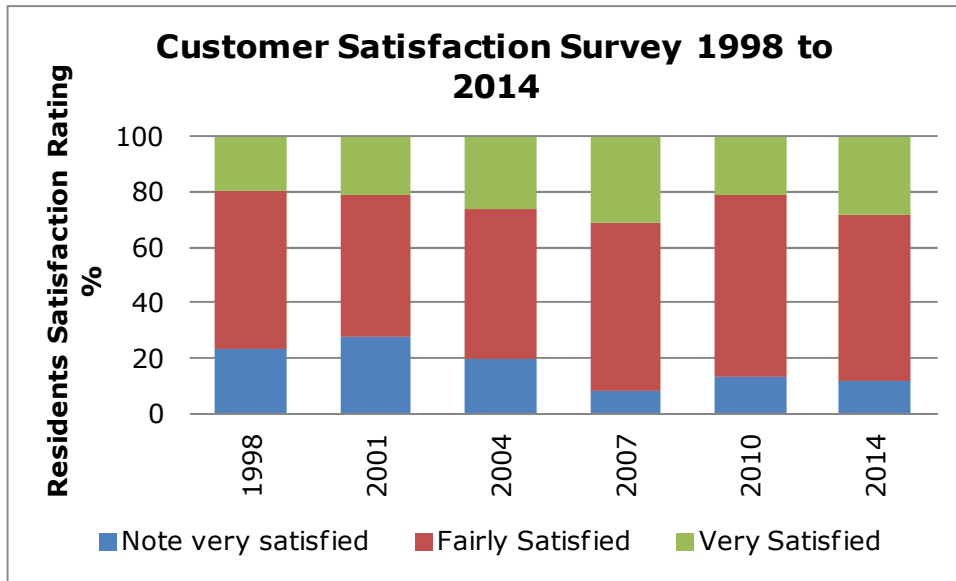
Consultation Process	Date	Reasons for Consultation	Extent of Consultation	Applicable to Which Customer Value
<b>Historical</b>				
Sustainability Forum	2011	Framing our Future	Community workshops	Sustainability
2012-2022 Long Term Plan process	2012	Legislative requirement criteria of Local Government Act 2002	Public, business and industry submissions requested. Advertising in local papers. Submissions heard and considered	Customer satisfaction Environmental Quality Capacity Reliability Customer response
Sustainability Policy	2008	Instigation of the Council's sustainability policy	Special Consultative Process.	Sustainability
Community Survey	Three yearly basis since 1998	Rate satisfaction with services provided by Council	400 residents surveyed by telephone	N/A
Annual Plan	Annually	Legislative requirement criteria of Local Government Act 2002	Public, business and industry submissions requested. Advertising in local papers. Submissions heard and considered	Customer satisfaction Environmental Quality Capacity Reliability Customer response
Joint Waste Management and Minimisation Plan	2011-2012	Waste Minimisation Act 2008	Special consultative process	Sustainability Reliability Capacity
Joint Landfill	2014	Legislative requirement criteria of Local Government Act 2002	Special consultative process	Changes to the delivery of services
<b>Proposed</b>				
2015-2025 Long Term Plan process	2015	Legislative requirement criteria of Local Government Act 2002	Public, business and industry submissions requested Advertising in local papers	Environmental Quality Sustainability Reliability Capacity Responsiveness
Joint Waste Management and Minimisation Plan	2016-2018	Waste Minimisation Act 2008	Special consultative process	Sustainability Reliability Capacity

### 2.3 CUSTOMER SATISFACTION SURVEY

Every 3 years since 1998, a comprehensive survey is undertaken which, among other things, helps to establish relative priorities among the significant activity areas for Council and measures the level of satisfaction with Council performance in each of these areas.

Note: The margin of error on a sample size of 400 is ±4.9% (95% confidence level)

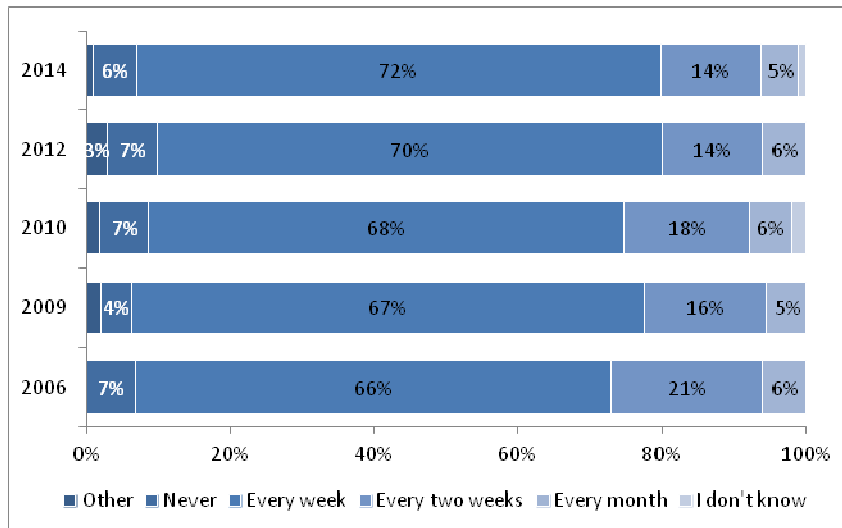
**Figure 2.3 (a): Customer Satisfaction Survey 1998 to 2010**



Eighty two per cent of residents felt that waste minimisation was important for Council to focus on. Concerns regarding waste minimisation were related to Council needing to do more to minimise waste (43%), to improve the recycling system (43%) and do more waste education (15%). From the comments received it is apparent that Nelson City Council needs to lift the profile of the waste minimisation goal of "Avoiding the Creation of Waste". The implementation of a joint waste minimisation strategy for the region will go a long way to improve the image of the solid waste activity.

The following figure shows that there was a steady increase of people using the recycling services.

**Figure 2.3(b): Residents Using Recycling Services**



**2.4 OUTCOME OF CONSULTATION**

The community identified increased residual waste due to a growing population as the challenge for the future and described success in the solid waste activity as follows:

- Nelson City, Businesses and Households aim for zero waste;
- Reduced consumption by Businesses and Households;

- Integrated cradle to grave approach to waste with local producers leading the way;
- Recycling is actively promoted and practised and the community is educated about reducing and recycling;
- Waste minimisation partnerships.

## 2.5 COMMUNITY OUTCOMES

Councils are required by the Local Government Act 2002 to have community outcomes, which are a statement of the goals Council is working to achieve in meeting the current and future needs of our community

- Our unique natural environment is healthy and protected
- *Our urban and rural environments are people-friendly, well planned and sustainably managed*
- *Our infrastructure is efficient, cost effective and meets current and future needs*
- *Our communities are healthy, safe, inclusive and resilient*
- *Our communities have opportunities to celebrate and explore their heritage, identity and creativity*
- *Our communities have access to a range of social, educational and recreational facilities and activities*
- *Our Council provides leadership and fosters partnerships, a regional perspective, and community engagement*
- *Our region is supported by an innovative and sustainable economy*

These inter-related goals guide Nelson City Council to align everything Council does with what the community wants Council to achieve.

## 2.6 COMPLIANCE REQUIREMENTS

Legislation provides the minimum requirements for levels of service. The main legislation driving solid waste activities are:

- Resource Management Act 1991;
- Local Government Act 2002;
- Waste Minimisation Act 2008;
- Climate Change Response Act 2008.

### 2.6.1 The Resource Management Act 1991

The Resource Management Act provides guidelines and regulations for the sustainable management of natural and physical resources. Although it does not specifically define 'waste', the Act addresses waste management and minimisation activities through controls on the environmental effects of waste management and minimisation activities and facilities through national, regional and local policy, standards, plans and consent procedures. In this role, the Resource Management Act exercises considerable influence over facilities for waste disposal, recycling, recovery, treatment and others in terms of the potential impacts of these facilities on the environment.

Under section 31 of the Resource Management Act, regional councils are responsible for controlling the discharge of contaminants into or onto land, air or water.

Under the Resource Management Act, Territorial Authority 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.

In addition, the Resource Management Act provides for the development of national policy statements and for the setting of national environmental standards. The Resource Management (National Environmental Standards Relating to Certain Air Pollutants, Dioxins, and Other Toxics) Regulations 2004 (the national environmental standards for Air Quality) requires certain landfills (e.g. those with a capacity of more than 1 million tonnes of waste) to collect landfill gases and either flare them or use them as fuel for generating power diverting the use of other fuel sources.

Solid waste activities are also subject to the National Environmental Standards for the assessment and management of contaminants in soil. The acceptance of contaminated soils at York Valley requires special attention to protect the people who work with and come into contact with this material. All solid waste sites are considered to contain material on the Hazardous Activities and Industries List (HAIL) and are required to be managed accordingly.

### **2.6.2 The Local Government Act 2002**

The Local Government Act sets out the requirements of Council to deliver services and the responsibility of the Council to make assessment of services provided. This Solid Waste Asset Management Plan constitutes the process by which this assessment is carried out by Council and reported to the public through the Long Term Plan.

The Local Government Act places an obligation on Council to strive towards sustainable development for the City. The Social, Economic, Environmental and Cultural wellbeing of the community must be considered when objectives are developed for the solid waste activity.

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

The Waste Minimisation Act encourages a reduction in the amount of waste generated and disposed of in New Zealand and aims to lessen the environmental harm from waste and aims to benefit the New Zealand economy by encouraging improved use of materials throughout their life. The Waste Minimisation Act sets out to achieve this through the following:

- Places a levy on waste disposal to landfills;
- Funds waste minimisation grants;
- Allows regulations to be made to make it mandatory for territorial authorities and the waste sector to report on waste to improve waste minimisation;
- Manages producer responsibility programmes;
- Directs territorial authorities with respect to waste minimisation responsibilities;
- Set up a Waste Advisory Board to provide independent advice to the Minister for the Environment with respect to waste minimisation.

The enactment of the Waste Minimisation Act in 2008 represented a change in the Government's approach to managing and minimising waste. The Waste Minimisation Act recognises the need to focus efforts higher on the waste hierarchy in terms of reducing and recovering waste earlier in its life cycle, shifting focus away from treatment and disposal. This change in focus is reflected in new tools enabled by the Waste Minimisation Act such as a framework for developing accredited product stewardship schemes and the creation of a national waste disposal levy, half of which is distributed back to councils on a population basis.

The purpose of the Waste Minimisation Act is to "encourage waste minimisation and a decrease in waste disposal in order to protect the environment from harm; and to provide environmental, social, economic and cultural benefits".

The Waste Minimisation Act contains a mechanism for the accreditation and monitoring of product stewardship schemes to minimise waste from products. Product stewardship schemes will be designed to promote reduction of waste at source, as well as make recycling, treatment and disposal safer and more efficient.

Part 4 is fully dedicated to the responsibilities of TAs which “must promote effective and efficient waste management and minimisation within their districts” (s42).

## Waste Management and Minimisation Plan

Nelson City Council has a statutory responsibility to promote effective and efficient waste minimisation and, for this purpose, to adopt a waste management and minimisation plan.

Council carried out a Joint Waste Assessment with Tasman District Council and adopted the Joint Nelson Tasman Waste Management Minimisation Plan in 2012.

The Joint Waste Management and Minimisation Plan sets the direction for waste management and minimisation in Nelson City and Tasman District until a new plan is adopted. The plan needs to be reviewed at intervals not exceeding six years. (The statutory requirement is that a new waste management and minimisation plan will need to be adopted before 30 June 2018)

### 2.6.4 Climate Change Amendment Act 2008

The Climate Change Amendment Act 2008 provides the basis for the New Zealand Greenhouse Gas Emission Trading Scheme. This Act requires landfill owners to purchase emission trading units to cover methane emissions generated from the landfill.

### 2.6.5 Other Legislation

The following is a summary of other legislation that must be considered with respect to waste management and minimisation planning.

- The Hazardous Substances and New Organisms Act 1996 controls the handling and disposal of hazardous substances;
- Civil Defence Emergency Management Act 2002 requires lifeline services to function to the fullest extent during and after an emergency and to have business continuity plans;
- The Health Act 1956 aims to prevent nuisance and promote public health;
- Local Government (rating) Act 2002 allows Council to determine a rate or charge for any activity Council chooses to get involved in;
- The Health and Safety in Employment Act 1992 outlines health and safety responsibilities for the management of hazards in relation to employees and contractors at work. The Act provides for the safe handling and storage of hazardous substances;
- The Building Act 2004 requires building consents for building construction, operation and demolition;
- The Litter Act 1979 (and Amendment Act 2006) provides council with powers to create litter enforcement officers or “Litter Control Officers” who have powers to issue infringement notices, with fines for those who have committed a littering offence.

## 2.7 KEY LEVEL OF SERVICE ISSUES

The rationalisation of regional landfill services from 1 July 2015 provides an appropriate model for the treatment of waste that cannot be funded through the user pays model and improves the security of landfill operations against natural events that can affect the ability to provide continuous services to the communities.

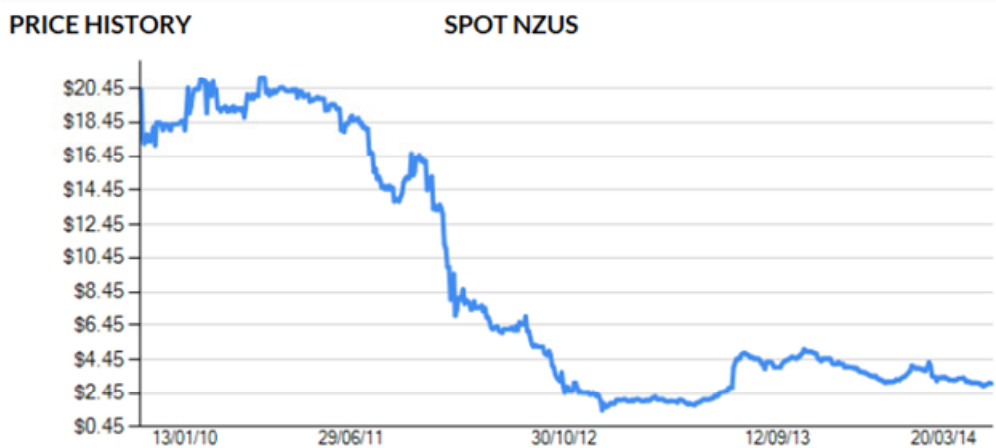
Funding the treatment of waste that is currently not funded through the user pays model, domestic hazardous waste and residential recycling, continues to be at risk if an alternative municipal landfill is established in the region.

The establishment of an alternative landfill in Nelson would likely result in Council adopting a user pay recycling system or raising the revenue required to continue providing these free of charge through addition rates.



There are a number of uncertainties that need to be dealt with that could affect the stability of landfill charges.

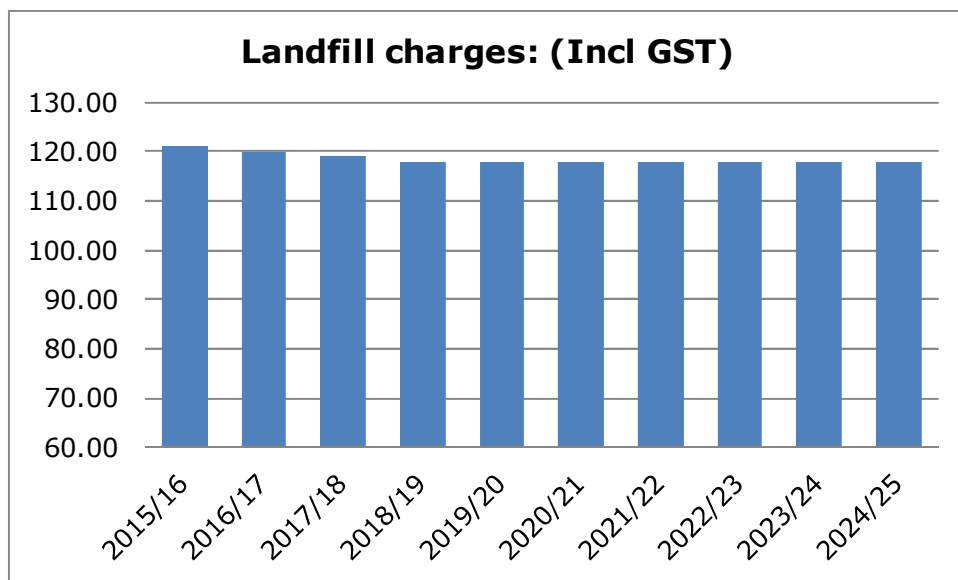
**Figure 2.7(a): Comparison of Landfill Charges**



The volatility of the Carbon market can have a significant impact on landfill charges. Charging models are also sensitive towards changes in tonnages of waste, changes to the Waste Levy and levels of service.

Figure 2.7(b) demonstrates the impact on the landfill charges if the level of service in the Nelson Tasman region stays consistent with current practice. The rationalisation of landfill activities in Nelson Tasman creates a solid foundation for the development of future projects through which the levels of service can be improved if so desired by the Nelson Tasman community or for a decrease in the cost of managing residual solid waste streams.

**Figure 2.7(b): Comparison of Landfill Charges**



All consented landfills are subject to regular monitoring to show compliance with resource consent conditions. York Valley, gully 1, is consented to receive waste until 2034. The current gully has a remaining life exceeding 16 years if the waste disposed at York Valley is maintained at an annual average of 65,000 tonnes. The land designated for landfill purposes neighbouring the York Valley and Eves Valley landfill sites are owned by Nelson City Council and Tasman District Council respectively.

Studies have shown that these areas are large enough to provide significant landfill airspace well into the future. (A desktop study has shown that York Valley gully 4 has a

capacity exceeding 2,700,000m<sup>3</sup>) Geological and geotechnical work will need to be carried out to determine the most effective use of this landfill space.

## 2.8 DEVELOPMENT OF LEVELS OF SERVICE

Levels of Service are “the defined quality for a particular activity or service against which performance may be measured” (Auditor General) and these relate to quality, quantity, reliability, responsiveness, environmental acceptability and cost. Customer Levels of Service reflect how the customer perceives the service. Technical Levels of Service on the other hand, support the Customer Levels of Service and are internal measures that are quantitative.

The objectives and key performance indicators developed are grouped into six strategic themes:

- Impact – Adverse environmental impacts from solid waste activities are minimised;
- Cost – Monitoring and managing the drivers of costs to ensure the provision of affordable services without compromising safety of quality;
- Demand – Development and growth needs in terms of solid waste services are met;
- Safety – Operation of solid waste services does not compromise the safety of community and employees;
- Quality – Provision of quality infrastructure and services;
- Communication – Information made available to customers on levels of service and waste management and minimisation issues.

## 2.9 IMPACTS

The primary objective is to mitigate negative environmental effects that the solid waste activity may cause. The customer view can be paraphrased as: “I want council to minimise harm to the environment.”

### THE CONDITIONS IMPOSED BY RESOURCE CONSENTS ARE COMPLIED WITH

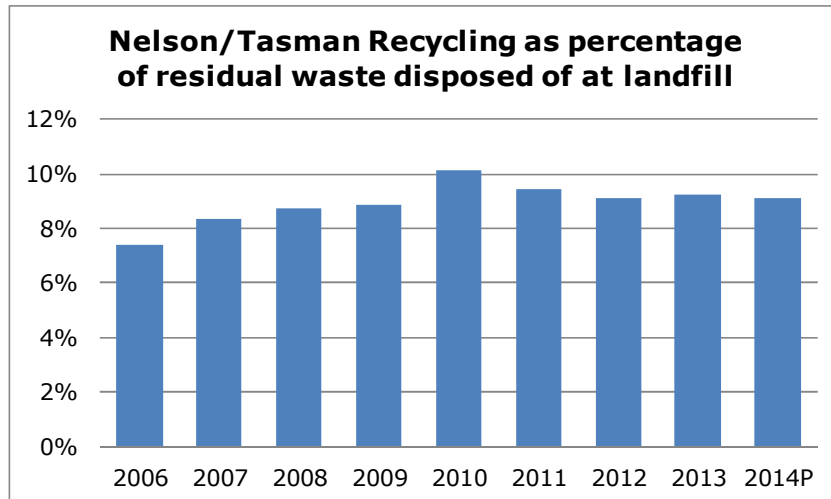
York Valley Landfill is subject to specific conditions under the resource consents issued under the Resource Management Act. The landfill is monitored by staff and consultants to demonstrate compliance. The annual compliance report by independent consultants is also peer reviewed by a second group of consultants to ensure the quality of the monitoring and reporting.

### 2.9.1 Increase in the Tonnages Recycled as a Percentage of Residual Waste disposed of at Landfill

The recycling statistics includes residential and school recycling programmes plus the green waste diversion through the transfer station. The information around commercial recycling is not available as Council has no direct involvement with commercial recycling. 89% of residents use the Council provided recycling service regularly.

Composition studies of York Valley Landfill demonstrate that a significant volume of potentially recyclable material is still being disposed of at the landfill. Council has no direct involvement in managing waste that is recycled by businesses. Businesses are encouraged to reduce waste to landfills through waste avoidance, recycling etc. through education programmes initiated by Council. Waste operators are encouraged through Council education programmes to promote and contract recycling services to businesses in Nelson. Land-filling the recycling material provides the lowest cost solution. This practice distorts the business recycling market and does not allow Council to achieve the desired outcomes.

Figure 2.9.1 shows that the percentage of recyclables as a percentage of the residual waste disposed of at landfill has trended upward since 2006.

**Figure 2.9.1: Recyclables as a Percentage of Residual Waste**

Council can affect behaviour change through initiatives to ban specific materials from the landfill or through providing incentives to businesses or waste operators who provide recycling services to businesses.

Regulation often increases cost of compliance beyond the added value that can be achieved through compliance. Financial incentives could assist Council in achieving the desired outcomes.

The development of incentives requires implementation of innovative ideas to achieve desired policy outcomes. The implementation of well developed incentives often come at a lower cost than regulatory initiatives such as banning specific materials from disposal at landfill.

It is considered that significant gains in diversion from landfill can be made if material recycled by waste contractors on behalf of businesses is in fact diverted away from landfills. Extending the free recycling service applicable to residential properties to business will gain the best diversion rates but will come at a cost of around \$200 to \$250 per tonne. A project to develop a programme to achieve improved outcomes in these areas will be completed during 2015. (AP-10)

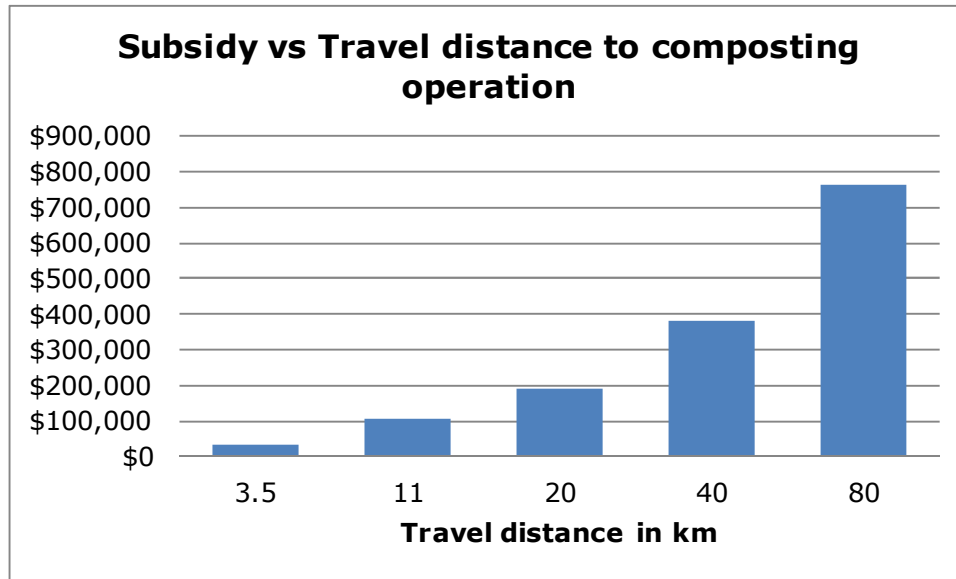
Increasing greenwaste diversion is another area where significant gains can be made. Landfill composition data shows that green waste disposed of at York Valley is higher than what is received at Eves Valley and also significantly higher than national best practice. Pricing for services affects the behaviour of consumers and contractors. If the differential between the cost of disposing of separated greenwaste is lower than the cost of disposing mixed waste at landfill waste operators will use the lowest cost option if they can increase their profit margin and improve their market share. Currently the direct charge for disposal of separated greenwaste for waste operators at the transfer station in Nelson is 7% higher than the cost of disposal of mixed waste at the landfill. There is therefore a financial incentive for waste operators in Nelson to offer a separated greenwaste service and dispose of this waste at York Valley as mixed waste. (AP-6)

Any decision around diversion is complex and figure 2.9.1(a) demonstrates the effect of the loss of opportunity to use a composting contractor that is located close to the source of separated greenwaste. A number of other factors can influence the development of the policy that will provide a sustainable outcome for greenwaste diversion. However;

- Nelsonians have shown that they are prepared to contribute to waste disposal initiatives where net environmental gains can be achieved;
- Significant airspace can be saved if more greenwaste is diverted away from landfill;
- Studies have shown that there is a net benefit for greenwaste composting compared to disposal to landfill;

- A relatively small increase in subsidy for greenwaste disposal could encourage significant additional greenwaste diversion.

**Figure 2.9.1(a) Greenwaste Subsidy**



Once a viable green waste alternative is well established in the region the reception of separated green waste at the transfer station will be phased out over a 3 to 4 year period.

The Joint Waste Management and Minimisation Plan allows adequate leeway to both Councils to investigate, develop and implement incentives or regulatory programmes separately or jointly. However, within the spirit of a joint waste strategy it is considered appropriate that Council creates the environment in which these initiatives has the best opportunity to be successfully implemented. It is therefore of significant importance that the vehicle to investigate, develop and implement policies that affect solid waste management and minimisation initiatives in the Nelson Tasman area be agreed on between the two councils.

There are opportunities to decrease the cost of recycling. These are generally associated with changes in the level of service. One example is the diversion of glass bottles away from the landfill only to end up as a gravel substitute at great cost and inconvenience. The environmental benefits of glass recycling are associated with the decreased need to use more natural resources. The effect of glass bottles in a landfill is very minimal considering its volume weight ratio.

Discontinuing the practice of kerbside glass collection will not prevent residents who wish to recycle glass from disposing of the glass bottles at the Pascoe Street Transfer Station. This glass will stay in the glass cycle and not end up in trenches.

If Council decided to change this level of service NCC will be in a position to negotiate improved contract rates with our recycling contractor and pass the benefit onto landfill users and ultimately the public.

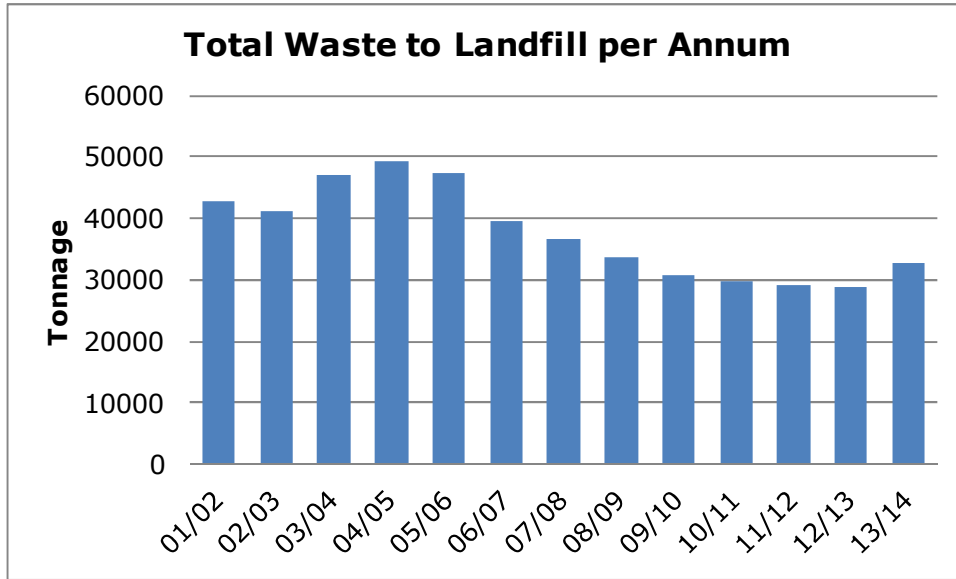
## 2.9.2 Total Tonnage of Waste Disposed of at Landfill

Residual waste disposed of at York Valley has decreased since the initiation of improved recycling and adoption of user pays principles for cost recovery.

Trends:

- Airspace available 31 July 2014: 1,396,000m<sup>3</sup>
- Landfill density: 0.828 tonne/m<sup>3</sup>
- Estimated remaining life: 16 years at 65,000 tonne of waste per annum
- Current consent remaining life: 20 years (31 December 2034)

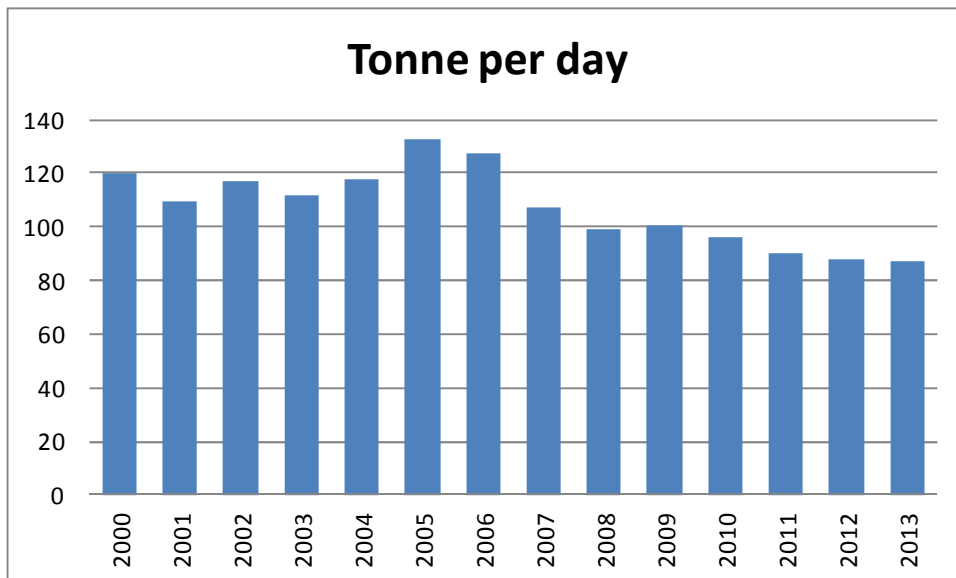
**Figure 2.9.2: Tonnage Disposed Of At York Valley Per Annum**



Tonnage of waste disposed of at landfill is only part of the equation to manage solid waste disposal at landfills. Other components are the composition of waste, compaction, control of moisture in the landfill etc. Each of these contributes to the use of available airspace.

Density management is important as this affect the life of the landfill. The overall density of a landfill increases over time as the over-burden increases. Some of the anomalies in the figure above are associated with surveying rather than the management of the landfill. It is apparent that using the 2014 total density will provide a conservative remaining life expectancy for the landfill.

**Figure 2.9.2(a): Tonnage Disposed of at York Valley per Day**



The Tonnage of residual waste per day (figure 2.9.2) will double when residual waste is received from Tasman. This will effectively decrease the unit cost of effort to optimise compaction of land-filled material and will therefore create new opportunities to improve management of airspace.

**Figure 2.9.3: Tonnage Disposed Of At York Valley Per Annum**

SIZE does matter!

One of the ways to gain value at a landfill is to improve compaction as increased waste density will create additional airspace. Matching the compactor that is currently used at York Valley with daily disposal rates shows that efficiency gains could result from using a heavier compactor under conditions where the tonnage of waste disposed doubles. The benefits of Council owning an appropriately sized compactor should be considered against the current practice of procuring a compactor through a competitive landfill operation contract. It is generally accepted that owning high value infrastructure that has a long economic life and used in a dedicated manner provides the lowest cost outcome.

Investing in a compactor is highly capital intensive but will provide a long term benefit in terms of optimising airspace, lower operational costs and future tender rates. (Action Plan AP-8)

## 2.10 COST

Solid waste services must be affordable in the long term. It is important for customers to understand that costs are acceptable and that the cost of the service will be sustainable over the long term. The customer view can be paraphrased as: "I want Council to provide affordable services."

Opportunities to economise must form an integral part of the activity.

### 2.10.1 Council Provides a Cost Effective and Sustainable Service

Council does not provide kerbside rubbish collection. Consumers have a wide choice of service providers who provide a range of options that allows customers flexibility to manage their waste and economise. The cost of Council waste activities are reflected in the fees charged by private service providers, and through transfer station and landfill fees charged for the disposal of waste.

#### Costing Model

$$\text{Full Cost} = \text{Financial Cost} + \text{Environmental Cost}$$

Determining the Full Cost of solid waste services is complex. Estimating the Environmental Cost component is a major challenge as can be seen from the range of values published for external costs, as shown in the following table.

**Table 2.10.1: Landfill External Cost Estimates**

<b>Landfill external cost estimates</b>		
Study	Year	External cost per tonne
European Commission	2000	€11-20
Netherlands	2004	€ 26
United Kingdom	2005	£6-£7
United States	2006	\$5.38-8.76
New Zealand	2007	\$10-60
Australia	2009	\$1-19
South Africa	2010	R100-120

Economists (using data methodologies accepted by the United States Environmental Protection Agency (USEPA), including the cost of global warming, acidification, eutrophication, human health effects from particulates and toxins, and ecological toxicity) arrived at an economic benefit of US\$517 per tonne of recycled material compared to the cost of the environmental and human health impacts of raw materials extraction and manufacturing distribution.

Economic studies include the following external costs to varying degrees:

- Avoided costs of collection for landfills;
- Avoided financial costs of landfills;
- Disamenity effects (Noise, location, dist etc);
- Emissions to the atmosphere;
- Leachate levels;
- Direct consumer benefit (willingness to pay);
- Value of material recycled.

While it is debatable whether a one size fits all approach provides the best possible outcome in all situations one cannot disregard externalities such as the impact on New Zealand's ("clean green image") and Nelson's image if Council changes to a lowest cost approach. Irrespective of the externalities applicable it is considered prudent to at least divert material away from landfill to those levels that Nelsonians as a community are prepared to pay for and continue to investigate alternatives with an open mind.

## **2.10.2 Contaminated Soil and Sewage Sludge (Biosolids)**

NCC manage acceptance of contaminated soil in a way to minimise the tonnage accepted and mitigate adverse environmental effect through applying acceptance criteria.

Contaminated soil (or Biosolids at 20% dry solid concentration) mixed into municipal waste improves the characteristics of a landfill in terms of the retention of leachate and landfill gas. Mixing these materials into the landfill material increases the density of the landfill. A tonne of contaminated soil consumes less landfill airspace than a tonne of municipal waste.

## **2.11 DEMAND**

Demand relates to the development and growth in the district. The customer view can be paraphrased as: "I want a reliable and regular refuse and recycling collection system."

### **2.11.1 Residential Properties have access to Kerbside Refuse and Recycling Collection Services**

All households within the urban area of Nelson have access to refuse collection on a weekly basis. Refuse collection is provided on a user pays basis.

### **2.11.2 A Growing Proportion of Households are making use of Recycling Services Provided**

Recycling is provided free of charge to households based on the collection of glass and other recyclables on alternative weeks with no restriction on the volume of recycling processed.

## **2.12 SAFETY**

The operation of solid waste services and waste minimisation and management strategies promoted by Council must be safe for staff and the customers of the service. The customer view is: "I want a solid waste service that is safe to use."

### **2.12.1 Meet the Civil Defence Emergency Management Act Requirements**

An annual exercise is conducted with staff and contractors to meet Council's obligations as a key infrastructure lifeline under the Civil Defence Emergency Act 2002.

### **2.12.2 Lost Time Injuries in the Council's Contracted Solid Waste Activities**

Providing a lowest cost service does not necessarily achieve best outcomes for the community. Injuries and health implications to users and contractors are important components of the delivery of solid waste services.

### **2.12.3 Health Related Service Requests received through the Council's Service Request System Responded to within 24 Hours**

Solid waste activities contribute to community well-being. They ensure the effective management of solid waste by minimising pollution and educating the public about waste issues. Council promoted solid waste management and minimisation initiatives are well researched and proper advice provided to the public.

## **2.13 QUALITY**

The way in which the Council achieve the objectives of the solid waste activities must be of high quality. The privatisation of kerb side rubbish collection does not remove the obligation from Council to monitor and ensure that the services provided are a high quality. The customer view can be paraphrased as: "I want a quality service."

### **2.13.1 Number of Requests Regarding Refuse Collection**

Monitoring the requests for service and the complaints provides valuable information around the customer perception of the service provided. Increased numbers of complaints around a specific issue could inform changes to the level of service provided.

### **2.13.2 Residents Satisfaction with the Solid Waste Activities Provided in the City**

It is important to disseminate needs and wants. Communicating the costs and benefits associated with changes in the level of service is complicated. Matching the community expectations in terms of choice, opportunity to economise, cost of service, comfort etc to levels of service is best achieved through a forum where the community is well represented.

## **2.14 COMMUNICATION**

The objective of communication is to educate our customers on solid waste services provided, so that they can gain a sound understanding of the levels of service provided. The customer view can be paraphrased as: "I need Council to respond to my requests in a timely manner, provide information in a clear and timely fashion, and consult with me on my needs and aspirations."

### **2.14.1 Compliance with Target Response Times**

Effective response engenders customer satisfaction.



**2.14.2 Consultation Process carried out and Service Levels determined**

The needs and levels of service will be determined through the Long Term Plan process.

**2.14.3 Information Regarding Solid Waste Activities Readily Available To The Public**

Information regarding services provided and available in Nelson is recorded on the Council website.

**Table 2.14.3: Performance Indicators**

	<b>Performance Indicator</b>	<b>Measure</b>	<b>Target – Level of Service</b>
<b>Impacts</b>	All Council solid waste activities, facilities and services comply with resource consent conditions, site management plans and appropriate legislative requirements.	Number of consent breaches. Response time to address breaches.	100% compliance with resource consent conditions.
	Diversion options are available for all types of solid waste identified by Nelson City Council for disposal and diversion.	Number of treatment options available for solid waste disposal. Diversion rates.	All solid waste streams have disposal options in Nelson.
	Adequate landfill airspace available to ensure future sustainability of solid waste disposal.	Years of available landfill airspace.	Landfill airspace available for at least 6 years into the future.
<b>Costs</b>	Cost effective and sustainable solid waste services available to all the community.	Cost of disposal.	No rates are required to support solid waste activities.
		Amount of abandoned waste	Cost of managing abandoned waste does not increase more than the rate of inflation.
<b>Demand</b>	Council provides consumer education and support which leads to behaviour which minimises quantity of waste to landfill.	The quantity (kg) of waste per capita to landfill. Number of households that carry out home composting.	Decrease in per capita tonnage of waste disposed of at landfill. (Excluding contaminated soil)
			Material recycled as percentage of waste going to landfill increases.
			Number of households composting increases.

<b>Safety</b>	Solid waste activity provided in a safe manner.	Number of notices from Health Protection Officer of the council causing nuisance (Section 55 of Waste Minimisation Act).	Number of notices does not increase.
		Number of injuries associated with solid waste activities contracted by council.	Number of injuries does not increase.
<b>Quality</b>	Customer satisfaction of transfer stations and resource recovery centres.	Customer surveys.	85% of the survey group are satisfied with services provided.
	Inquiries received through the Councils' service request system addressed within 24 hours	Service request response time.	90% of service requests are responded to within 24 hours.

### 3. FUTURE DEMAND

This section outlines the existing demand, demand forecasts, growth and expectations and the demand management strategies that Council utilises. Increase in demand place additional wear on assets and services which may reduce the remaining life of assets and require the development of new capacity.

The future demand in the region for waste management and minimisation services will be driven by a number of primary drivers including:

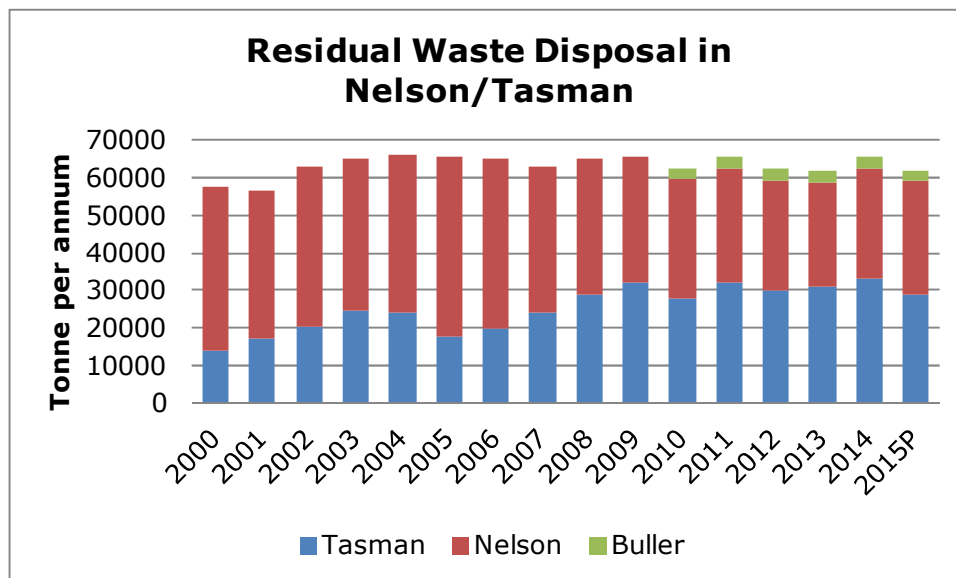
- Demographic change (e.g. population and/or household changes);
- Change in commercial and industrial activity and economic conditions;
- Impact of waste flows from other areas;
- Consumption patterns / product quality;
- National policy, legislation and regulation;
- Impact of waste minimisation programmes, services and future initiatives (demand management strategies);
- Community expectations.

With the population in the area expected to increase, it is expected that without further intervention this trend will continue over the medium to long term, with more landfill space being required year on year.

#### 3.1 EXISTING DEMAND

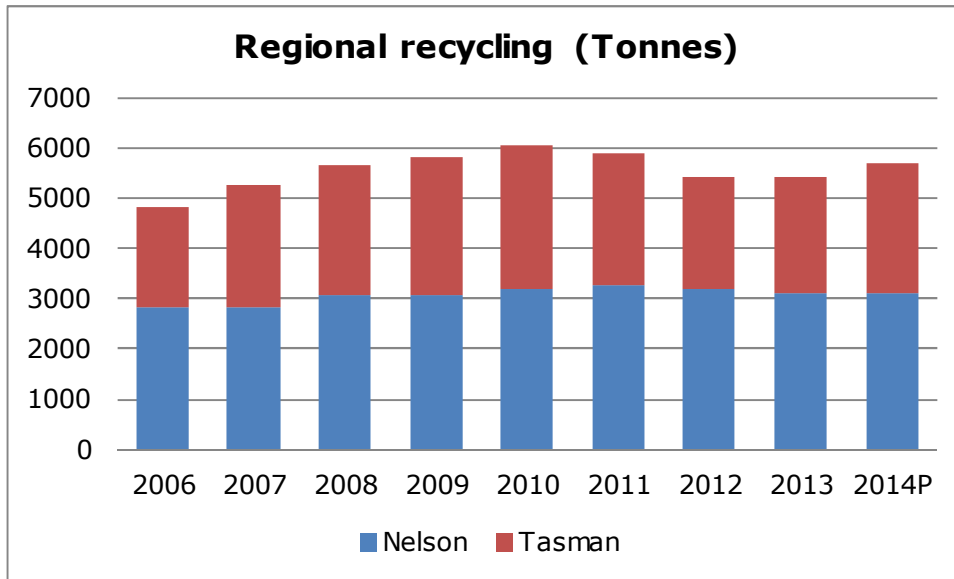
The total tonnage of residual waste disposed of at Municipal landfills in the Nelson Tasman area has generally trended downward over the last decade. Increased tonnages during 2013-14 are associated with the acceptance of contaminated soils at both York and Eves Valley. There is uncertainty how the management of HAIL classified properties will affect demand in future.

**Figure 3.1: Tonnes of residual waste disposed of in Nelson Tasman**



Since the establishment of recycling services in the Nelson Tasman region the combined tonnage of residual waste going to landfill has decreased. Greenwaste and recycling has increased over the same period.

**Figure 3.1.1: Tonnes of Material Diverted away from Nelson/Tasman Landfills**



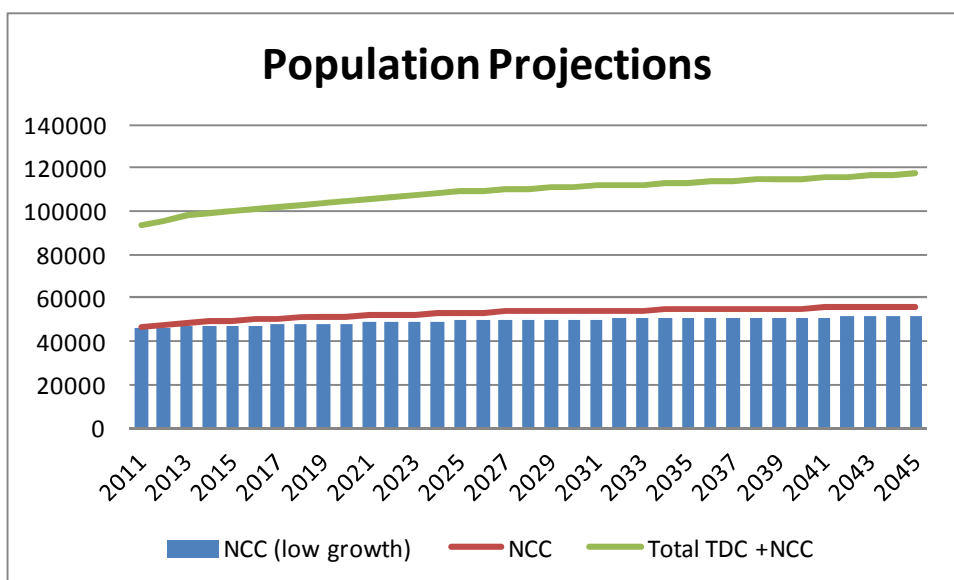
Note: Green waste diverted is not included in figure 3.1.1

Commercial recycling is not reflected in these statistics. There are a number of waste collectors active in marketing recycling to businesses in the Nelson Tasman area. The two Councils are promoting recycling opportunities to the commercial sector through their joint education projects. Considering the low value waste collectors recover for recycled material it is likely that a significant percentage of lower value commercial recycling ends up in landfills.

### 3.2 DEMOGRAPHICS

The population of Nelson City in 2013 was 47,000 and projected to increase to approximately 56,000 by 2045.

**Figure 3.2: Population Projection for the Nelson Tasman Area**



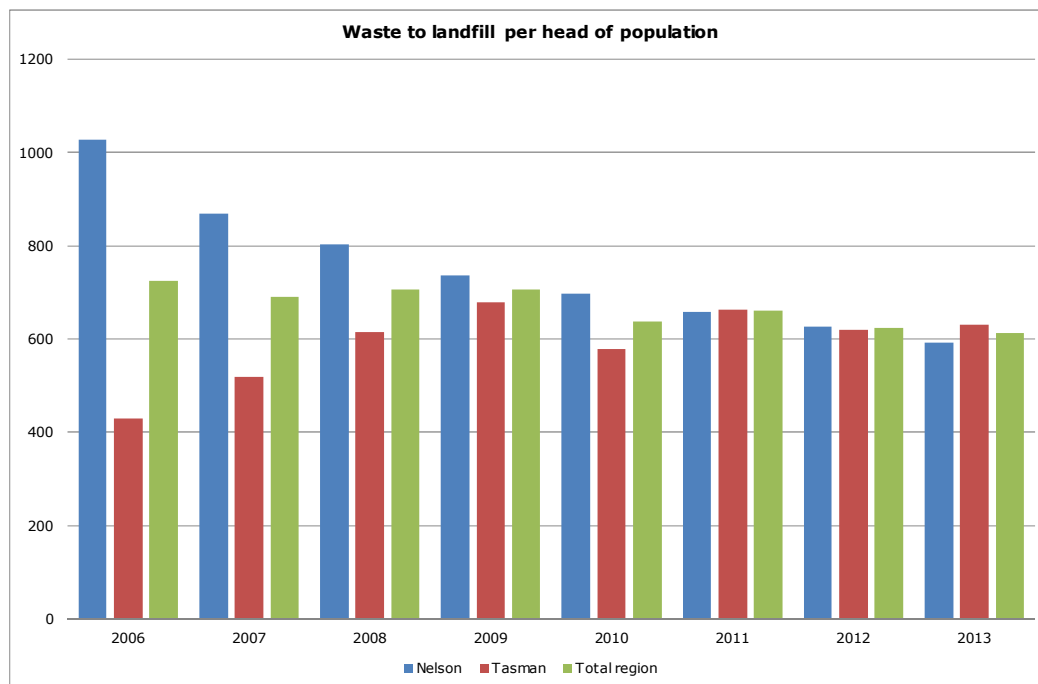
Within the context of the Joint Waste Management and Minimisation Plan it is considered appropriate to look at the Nelson Tasman region. The Nelson Tasman area has experienced higher population growth than the average across the rest of New Zealand over the last decade.

Population growth is expected to continue in both areas at a similar rate into the future.

Waste disposed of at Landfill per head of population - 587kg per annum

Collection and disposal services to these areas are expected to be able to cope with the local change in population, with new development areas being added to the existing collection routes. Current weight to landfill is approximately 587kg per capita. This has trended downwards for the last 14 years. With more stringent rules around the management of contaminated soil it is expected that the tonnage of waste per capita will increase moderately over time.

**Figure 3.2.1: Waste to Landfill per Head of Population**



Total tonnage also shows a similar change, with total tonnage increasing with the population. With the population in the area expected to increase, it is expected that without further intervention this trend will continue over the medium to long term, with more landfill space being required year on year.

Diversion of waste through resource recovery activities will increase the longevity of the available landfill airspace. The expected growth in disposal of contaminated soils will not dramatically affect airspace. This material will be mixed into the waste profile and increase the density of the land-filled material rather than consume airspace.

### 3.3 DEMAND FORECAST/FUTURE GROWTH

#### 3.3.1 Commercial and Industrial / Economic Activity

A key indicator of commercial and industrial activity is Gross National Product. Across New Zealand, Gross National Product has fluctuated over the last decade dropping into a recessionary period in 2008-2009 but returning to positive growth towards the end of 2009. The global financial situation and response to natural events, such as the earthquake recovery after the Canterbury earthquakes will continue to influence local economic activity. Over the long term, growth is expected to return to rates of around 3% per annum.

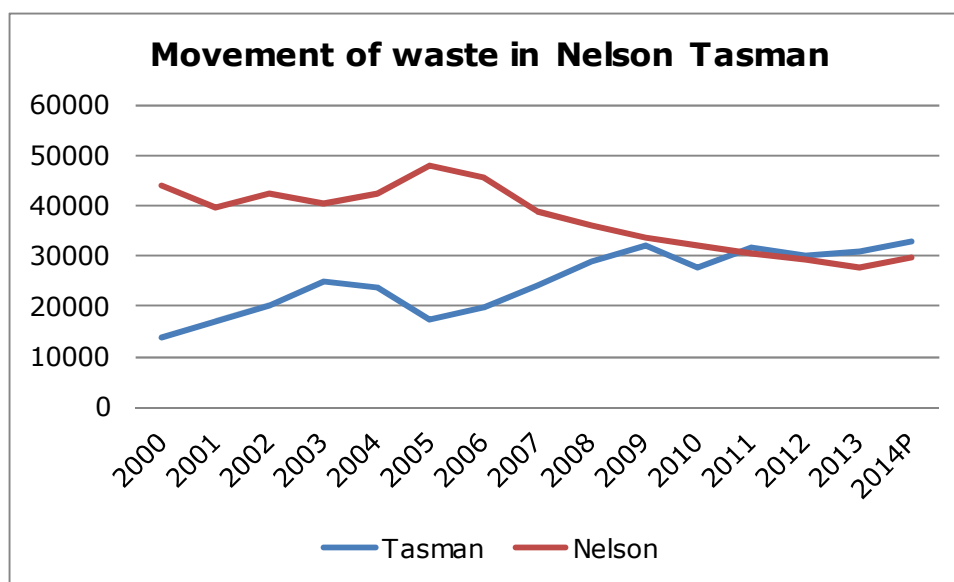
Traditionally waste generation has been coupled to economic activity indicators, such as Gross National Product. It is generally anticipated that without significant intervention in how waste is managed (e.g. increased diversion / resource recovery activity or changes to legislation) growth in waste per capita is likely to continue along previous trends. However, growth in residual waste in the Nelson Tasman area has proved to be a less reliable indicator of growth than expected.

Another specific example of change to commercial and/or industrial activity that impacts the demand for waste services is one-off large scale infrastructure and development projects.

### 3.3.2 Waste from other Areas

The policy, services and facilities of one district can dramatically impact on demand for services in neighbouring districts. This is well demonstrated in the Nelson Tasman region, where policy and/or pricing changes have in the past affected the ability of both Councils to improve waste minimisation and improve waste management practices.

**Figure 3.3.2: Movement of Waste between York and Eves Valley**



Little waste apart from that from the Buller District is believed to originate outside the region.

### 3.3.3 Consumer Behaviour

Consumer behaviour is a key driver for household waste generation in particular. Organisation for Economic Co-operation and Development research indicates that there are a number of factors that influence household waste generation including:

- Family composition e.g. household numbers and children;
- Household income and size;
- Attitude toward the environment and recycling;
- Presence of volume based 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;
- Cost of services.

These issues are the target of many New Zealand policies and programmes, both at a local and national level. Factors such as family size and household income will be difficult to influence. However, there are positive correlations between attitude toward the environment and waste generation that can be influenced. Other important factors are the presence of volume based charging systems, such as user pays schemes and / or other economic disincentives such as waste levies. Another example of how these factors can be influenced is through the establishment of product stewardship schemes for priority products. There are a number of local 'community based social marketing' programmes that have arisen over the last decade, including several of them being

implemented in the Nelson Tasman region as part of its waste minimisation education programmes. These policies and programmes have the common aim of reducing waste generation at a household level by targeting these particular influencing factors.

The Councils will continue with existing initiatives to influence consumption behaviour and demand for waste services and improve on them over time.

### **3.3.4 National Policy, Legislation and Regulation**

Legislation, such as the Waste Minimisation Act contains several mechanisms aimed at reducing waste to landfill, such as the waste levy and product stewardship provisions. There are also a variety of local regulatory measures that can affect demand for services.

### **3.3.5 Product Stewardship**

Product stewardship relates to a process through which those involved in lifecycle of a product or service are involved in identifying and managing its health, safety and environmental impacts from the development and manufacture of a product through to its use and final disposal.

For example, there are many products that are difficult or hazardous to dispose of, yet the industry takes no responsibility for ensuring final disposal of the product. Schemes are often required to allow for disposal costs to be added to a product, such as in 'take back' or 'deposit refund' schemes, which work well in some countries for products such as tyres or containers.

Other issues stem from the rapid nature of technological change and thus obsolescence of some products, even before the end of their useable life. For example, traditional cathode ray tube televisions are quickly being replaced by LCD and LED versions. While the cathode ray tubes are often reusable and / or recyclable, there is little market for these products, and no mandatory scheme in place to ensure their proper recycling or disposal. Thus many such electronic goods and their hazardous components end up in landfill and no thought is taken of this issue by producers to consider disposal impact in the design of the product.

Product stewardship schemes accredited under the Waste Minimisation Act are likely to focus on minimising waste, but they may also reduce other environmental impacts during the product's lifecycle. Some schemes may work to ensure a product is disposed of properly or recycled, while other schemes may work to make changes in the design of a product to reduce the use of toxic material. This would likely reduce both the environmental impact of manufacturing and make recycling easier.

The Waste Minimisation Act provides for regulations to be developed in relation to the priority products that are identified by the Government.

The form of any accredited scheme will be based on the product itself, and will be developed with the input of the key stakeholders and the industry. Council should continue to lobby to see schemes developed, and can play an important part in facilitating the development of some schemes.

Council has the opportunity to benefit from some schemes and can improve the recovery and diversion of products currently managed. For example, a number of TAs and regional councils have helped start and/or currently participate and fund several voluntary product stewardship 'take back' schemes such as for hazardous waste products (e.g. agricultural chemicals) although these are generally focused at the end of the product life cycle. Depending on the design of the product stewardship scheme, these programmes have the potential to reduce the demand (and cost) for current services offered by Council if the management of the products becomes the responsibility of the producer.

### **3.3.6 Waste Levy**

The National Waste Levy on residual waste disposed of at sanitary landfills has the potential to act as a disincentive to wasteful behaviour. The Government continues to monitor the effectiveness of this programme. With increased economic activity it is expected that the Government will in future further develop the Waste Levy system and

that this development will be reflected in increased levies and that the distribution of levies back to Territorial Authorities will be linked to improved performance in achieving the objectives of the Waste Minimisation Act.

**Figure 3.3.6: Waste Levy Compared To Waste Minimisation Cost**



The current practice of the Ministry for the Environment is to distribute 50% of the Waste Levy to Local Authorities to help them fund waste minimisation initiatives. The Waste Minimisation Act requires that funds received from the Ministry be used for waste minimisation initiatives. The Ministry promotes the idea that the Waste Levy distributions should be used by recipients for new waste minimisation initiatives.

It is clear from budget projections that Council's waste minimisation funding is driven by policy and a desire to meet community expectations rather than the waste levy distribution received from the Ministry.

### 3.3.7 Other National Legislation and Regulation

Another consideration is the potential for additional legislation and its impact, such as the Emissions Trading Scheme (ETS) and the potential for a national cleanfill standard to be developed, as these could have a key impact on the types and quantity of waste disposed of at landfills.

The impact of the ETS to date on the waste industry has been underwhelming and it is likely that new national initiatives will be developed in this space.

### 3.3.8 Local / Regional Regulation

Along with national policy and regulation, local / regional regulation has an impact on demand for waste management and minimisation services.

Regional regulation can occur at a consenting level, for major waste facilities, such as sanitary landfills, monofills and for some cleanfills.

The success of consent applications or the consent conditions can play a part in impacting demand. For example, if the application to apply biosolids directly to forestry land on Rabbit Island was denied for some reason, this may result in these materials having to be landfilled at a sanitary landfill, thus having a significant impact on demand for disposal capacity.

Councils can also use regulation to impose bans on materials to landfill and other waste bylaw provisions to manage waste, particularly where alternative services exist to deal with the waste stream in question. Although potentially powerful tools, these have not been widely introduced in the Nelson Tasman region.



### 3.3.9 Waste Minimisation Programmes, Services and Future Initiatives

Further to the existing waste education and minimisation programmes being run in the Nelson Tasman region, additional waste minimisation programmes and services will be investigated through the implementation of the Joint Waste Management and Minimisation Plan. The following programmes are under consideration by Council:

- Waste avoidance education as a behaviour change programme in schools, combined with community activities around planting and other partner activities (e.g, Department of Conservation-led "Big Spring Clean" and community partnership area clean-ups);
- Ongoing programmes supporting waste minimisation in schools that continues to move the focus from 'recycle' to 'reduce';
- Increased focus on eliminating waste at Council events through development of environmentally, socially and financially sustainable operations and procedures;
- Extension of Council facilities' recycling/waste reduction initiatives to all Council facilities;
- Other programmes as required to support appropriate waste management behaviour relating to the Joint Waste Management and Minimisation Plan.

While these may create a reduction in the demand for landfill, there will be a corresponding increase in demand for resource recovery and waste minimisation services and infrastructure, which are required to implement these strategies.

Depending on the type of programme and how its performance is measured, it may be difficult to attribute reduction of waste to landfill to some programmes. However, other potential future services such as increased green waste diversion and composting or a kitchen food waste collection, would have a quantifiable reduction of waste to landfill. Development of new facilities and services may be required and reduce demand for landfill space into the future.

### 3.3.10 Community Expectation / Customer Surveys and Feedback

The Joint Waste Management and Minimisation Plan of the Councils, adopted after consultation with the community, can be considered an additional indicator of community feedback and expectations.

The Joint Waste Management and Minimisation Plan notes the Councils' desire to move 'towards zero waste'. Evidence suggests that the per capita waste generation has decreased. Quantifying the contribution of specific waste minimisation processes and projects towards waste reduction is at best subjective.

Customer surveys conducted in Nelson indicated that 91% of respondents put their recycling out at least once a month and 86% at least every second week. Surveys have also indicated increasing awareness towards home composting by respondents with 67% reporting that they compost their food waste and 72% green waste.

## 3.4 PROJECTED FUTURE WASTE VOLUMES

### 3.4.1 Projected Residual Waste

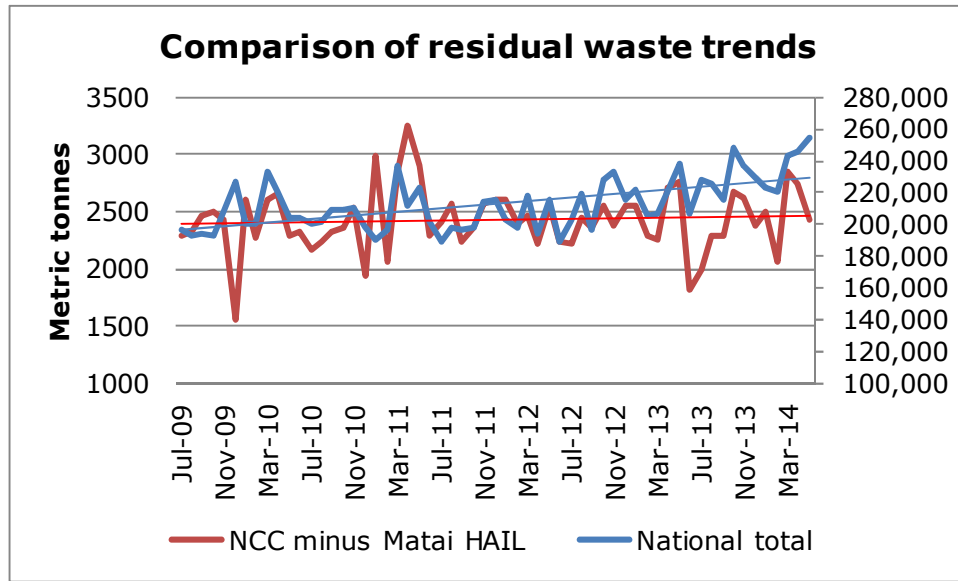
Giving consideration to the drivers noted earlier, and anticipated growth, several projections can be made on the waste generated within Nelson Tasman.

Population growth and current waste per capita trends indicate an increase in waste that will be disposed of at landfill at a slowly increasing rate. Business and Gross National Product figures indicate that growth will return to more traditional levels, around 3 percent per annum, in the medium to long term.

The geographical location of York Valley makes it unlikely that waste originating from outside the region will become a problem for the area. It is anticipated that Buller will continue to use York Valley as their preferred landfill. Changes in population and expected growth indicate that this area will have a growing trend into the future and will continue to exhibit an increasing trend unless significant action is taken to effect

behavioural change in the community or new diversion techniques are introduced either at a local or national level.

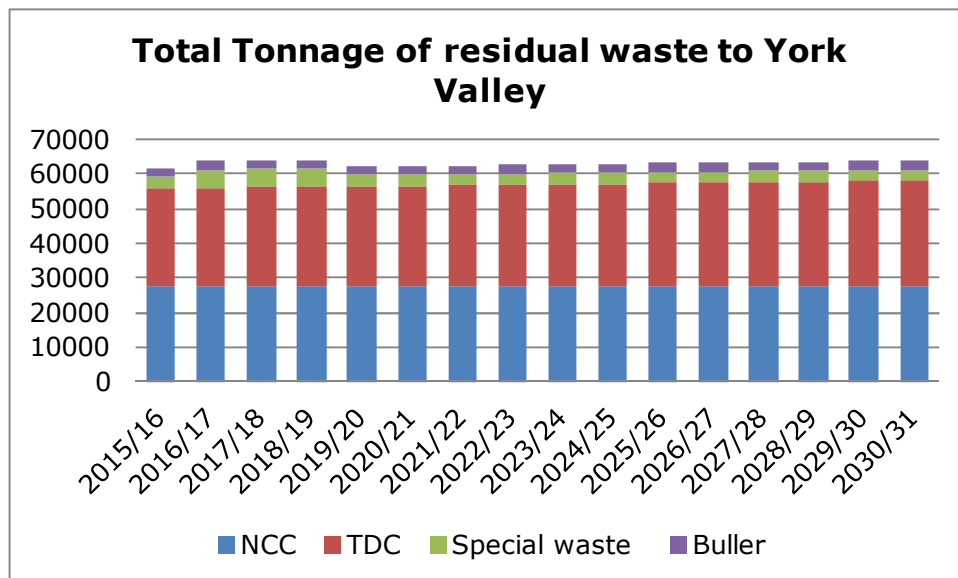
**Figure 3.4.1: Comparison of Residual Waste Trends**



While the residual waste trends nationally supports the notion that residual waste generation is affected by economic growth/recovery these trends are not reflected in Nelson waste statistics.

The following figure indicates projected tonnes of waste disposed to landfill in Nelson Tasman over the next 16 years. The projections are based on growth of residual waste of 0.5% for the Tasman area and no growth for Nelson.

**Figure 3.4.1(a): Projected Tonnage of Residual Waste to Landfill for Nelson/ Tasman**



The HAIL classification of land will translate into increased tonnages of waste to landfills. However, there is significant uncertainty of what the effect of this will be on landfills. The growth projections include an allowance for residual waste generated from HAIL sites.

The sewage sludge removed from the Nelson Wastewater Treatment Plant oxidation ponds will increase tonnages disposed of at York Valley by nearly 5% per annum over a three year period. However, the mixing of contaminated soil and sewage sludge into the landfill waste will consume little airspace as this fine grained material will generally fill

voids in the landfill waste. There is some uncertainty when this waste will go to York Valley. The dewatering process could continue for a number of years and has the potential to decrease the tonnage of residual waste significantly. If a higher value use for this material, such as land application, is found this could further affect the revenue generated at York Valley.

### **3.4.2 Projected Diverted Materials / Commodities Markets**

Economic fluctuations have an impact on the supply of and demand for diverted materials.

Resource recovery activities such as the recycling industry are reliant on both a source of discarded materials (e.g. kerbside recycling schemes) and a market demand for these materials.

Kerbside recycling operations provide a relatively steady supply of materials, although this supply is likely to be impacted by the economic conditions that affect consumption levels. Demand for these materials will be reflected in commodity prices.

If demand for these materials drops and the commodity prices drops below the cost of collection, landfilling and subsidies, it is likely that materials that were once diverted to beneficial reuse or recycled may require additional subsidies to prevent it from going to landfill or being dumped into markets where this material will do harm to the environment or people who work with the material.

It is generally expected that diverted materials will show a similar trend to waste projections and increase in accordance with the multitude of factors that influence waste generation such as population, economic growth and consumption patterns.

Various factors will impact specifically on the market for diverted materials which will act to divert more or less material from landfill. Demand for and supply of substitute resources, product quality, overseas markets and transport costs, centralised processing centres as well as other community and waste minimisation programmes will all have an effect on the amount of waste that becomes diverted material.

With demand and supply determining the competitive market price, it is expected that as the price for diverted materials increases, supply will also increase and more material will be diverted from landfill.

Combining this with existing waste projections, it can be expected that diverted material volumes will be in line with existing waste generation trends, and will become a higher ratio of this material during periods of higher prices.

To ensure that material collected through the Nelson City Council kerbside contract is recycled in a responsible manner the contractor must ensure that the material finds its way to responsible recyclers and the contract incentivise the contractor to find the best markets for the recycled material. The kerbside recycling product is owned by the contractor. Considering the financial incentives for the owners of recycled material to find the lowest cost disposal options and the fact that the kerbside recycled material is vested in the contractor it is of significant importance that Council track the movement of recycled material into the primary sector where the material is transformed into new products.

The way in which kerbside glass recycling is managed at present in Nelson is very costly with little real benefit. Glass is collected from the kerbside and crushed. The collection and crushing is paid for by NCC and is used to divert collected glass away from the landfill to protect airspace and to divert some gravel extraction. The real value in glass recycling is the environmental gain where the glass stays in the glass cycle.

Shipping glass to Auckland for processing provides great opportunity for the glass manufacturer but the full cost of this activity is very high. There are alternative ways to reuse glass that could in fact provide an economic gain for the Nelson region instead of being a drain. A glass sorting and bottle washing plant has potential to create work opportunities and provide the Nelson and Tasman beverage and food processing industry a point of difference. Glass containers that cannot be processed in Nelson can then be diverted to Auckland for reprocessing. (Action Plan)

### 3.5 SUMMARY

With continued population growth, there will be an increasing demand on the Council's kerbside collection services, which can generally be met over time, for example through expansion of fleet and collection routes.

If waste minimisation objectives continue to be important, this will be particularly true for kerbside collection of recyclables and/or other potentially recoverable materials as well as the associated processing infrastructure. There may be increasing pressure on existing resource recovery centres to expand their capacity, and make changes to their operations to facilitate recovery of further resources.

Community demand for changes to existing services seems to be relatively minor, with general satisfaction expressed, though some desire for operational changes regarding recycling services in particular has been indicated following community feedback.

## **4. RISK MANAGEMENT**

### **4.1 RISK MANAGEMENT POLICY**

Risk will be managed to enable business objectives and community outcomes to be consistently achieved. Risk is used as a strategic decision-making tool assisting with developing and prioritising strategies and work programmes.

Risk management is the systematic application of management policies, procedures and practices to the tasks of identifying, analysing, evaluating, treating and monitoring activities to ensure that:

- Risk is understood and identified;
- Hazards and practices that could cause financial loss, disruption to business goals, injury to people or damage to the environment are controlled as far as practicable; and
- Insurance or other financial arrangements are made to protect the business and community interests should a loss damaging to the finances of Council occur.

### **4.2 OBJECTIVES**

The objectives of risk management are to provide:

- Protection and continuity of the core business activities and essential services;
- Fulfilment of legal obligations;
- Safeguards for public and employee health;
- Environmental protection;
- Operation and protection of assets at lowest cost;
- Contingency Planning for foreseeable emergency situations.

### **4.3 IMPLEMENTATION**

#### **4.3.1 Identification Of The Risks**

To effectively manage risk it is necessary to:-

- Identify the nature, extent and likely incidence of risks affecting the operation of the system;
- Measure and evaluate the likely impact which could arise from each type of adverse effect;
- Manage risk to minimise potential effects and be cost effective;
- Monitor and report on the status of each risk on a regular basis.

#### **4.3.2 Analysis Of Risks**

The risk management framework is consistent with the joint Australian, New Zealand Standard AS/NZI 4360:1999 Risk Management.

Risk is the combination of the likelihood and consequence of an event happening.

Likelihood is a description of the probability or frequency of an event occurring. Likelihood ratings are shown in the table below.

**Table 4.3.2(a): Likelihood Ratings (Semi-Qualitative Measure)**

Rating	Description	Score
Almost Certain	Likely to occur frequently and several times a year.	0.9
Likely	Likely to occur more than once during the life of the project.	0.7
Moderate	Likely to occur during the life of the project.	0.3
Unlikely	May occur once in up to 100 years.	0.1
Rare	Might occur once in 100+ years.	0.01

Consequence is the outcome of an event being a loss, injury, disadvantage or gain.

**Table 4.3.2(b): Semi-Quantitative Measures of Consequence and Areas of Impact (Consequence ratings)**

Areas of Impact	Consequence				
	Negligible (10)	Minor (30)	Moderate (50)	Major (70)	Catastrophic (100)
Health and Safety	Minor injury possible.	Serious injury to one person.	Serious injury to multiple members of staff, contractor or public.	Single fatality of staff, contractor or public.	Multiple fatalities of staff, contractors or public.
Public Health	Temporary but non-serious health impacts.	Localised serious health impact on one person.	Localised serious health impact on more than 20 people.	Localised or widespread serious health impact on more than 100 people.	Localised or widespread serious health impact on more than 1,000 people.
Asset Performance	Asset failure impacting on one or more persons.	Asset failure impacting more than 4 people/day.	Asset failure impacting more than 40 people/day.	Asset failure impacting more than 400 people/day.	Asset failure impacting more than 4,000 people/day.
Environment and Legal Compliance	Short term and temporary impact requiring no remedial action.	Medium term environmental impact with immaterial effects on environment or community.	Measurable environmental harm to an internationally or nationally significant site. Loss of public access or conservation value of the site.	Major environmental damage with long-term recovery significant investment. High profile legal challenge. Loss of public access or conservation value of a significant environment.	Permanent environmental damage to an internationally or nationally significant site. Large scale class action.
Historical or Cultural	Loss of important records about a site. Work required restoring them.	Unsympathetic development compromising the integrity of a registered historical, cultural or archaeological site.	Damage to a registered historical, cultural or archaeological site, but capable of restoration.	Loss or permanent damage to a registered historical, cultural or archaeological site.	Permanent loss of national icon.
Financial	Capital cost/loss <\$100k.	Capital cost/loss \$100k - \$500k.	Capital cost/loss \$500k - \$1million.	Capital cost/loss \$1million- \$5million.	Capital cost/loss > \$5 million.
Customer Perception	Service Request.	Minor complaint.	Justifiable complaint / information request.	Ministerial questions /third party investigations.	Public or ministerial enquiry.

The estimated level of risk is expressed as a combination of its likelihood and consequence and is determined by utilising the Risk Priority Rating Matrix shown in the table below. This ranks the significance of the various combinations of likelihood and consequence into extreme, high, moderate and low risks.

**Table 4.3.2(c): Risk Priority Rating Matrix (Semi-Quantitative)**

Risk Score	Level of Risk	Risk Response
> 200	Extreme	Awareness of the event to be highlighted to Council
150-200	High	Risk treatment required. Risk eliminated or mitigated by a programmed date in risk treatment schedule
100-150	Moderate	Risk treatment required
0-100	Low	Manage by routine procedures

### 4.3.3 Risk Identification and Priority

The Risk Register for the solid waste activities is shown in the following table.

	Risk Event	Consequence	Score	Risk	Note
Landfill	Earthquake/Liquefaction	Causing structural failure of landfill and/or toe buttress, roads and services	41	Low	1
	Landslide	Causing disturbance to landfill working face	39	Low	2
	Leachate pipe failure	Causing downstream leak to ground	45	Low	2
	Gas flare system failure	Landfill gas leakage to air	45	Low	2
	Gas collection system failure	Landfill fire	99	Low	2
	Non compliance with resource consent	Resulting in remedial action to ensure compliance	45	Low	2
	Competition from alternative landfill	Could affect level of service, service delivery model and increase cost to residents	140	Moderate	4
	Hazardous waste not identified	Causing H&S hazards or environmental effects	91	Low	2
Transfer Station	Earthquake/Liquefaction	Causing structural failure of transfer station structures and services	23	Low	1
	Tsunami	Causing structural failure of transfer station structures and services	23	Low	1
	Structural failure of hopper	Causing failure of hopper operations	17	Low	2
	Health and safety incident	Causing injury	91	Low	3
	Fire	Causing damage to neighbouring property	72	Low	5

Even though most of the risks identified are low there are strategies in place to mitigate the consequences of these events occurring.

Note 1: Method 3.1.5.1: The Councils will investigate joint landfill solutions as a matter of priority in the first year of this plan (Joint Waste Management and Minimisation Plan) being operative.

Method 3.1.5.4: The Councils will continue to investigate governance options for managing joint waste management facilities as a matter of priority.

Note 2: Method 3.2.1.1: The Councils prepare management plans for Council waste management facilities (including closed landfills) that they own or activities for which they hold resource consents. Each plan will identify actions and

responsibilities associated with the land, the facility development, the operation, and operational and environmental monitoring. The plan will be based on statutory requirements and good practice and significant cultural values, and will form the basis of any assignment of responsibilities, such as through contracts or leases.

Method 3.2.1.2: The Councils will monitor Council facilities and Council closed landfills in accordance with the requirements of the management plans and will review the effectiveness of the management plans periodically.

Method 3.2.1.3: The Councils will ensure that solid waste services are managed in such a way as to minimise public health issues.

Note 3: Method 3.3.1.1. The Councils will require that operators at council facilities observe good health and safety practice, including training in health and safety matters associated with different materials.

Method 3.3.1.2. The Councils will provide a variety of education and behaviour change programmes that raise awareness about the hazards of waste and waste minimisation, and about safe practice at facilities and with services.

Note 4: A new entrant to the solid waste disposal market could bring in a low cost, easy to use collection system aimed at maximising residual waste collection. Such a system could create an environment where gains made over time in recycling and re-use could be compromised and result in Nelson City Council having to rely on rates funding to manage solid waste initiatives.

Note 5: Compliance with Building Act



## 5. LIFECYCLE MANAGEMENT

Lifecycle asset management focuses on management options, strategies considering all relevant economic and physical consequences, from initial planning through to disposal.

This section applies strategies and specific work programmes required to achieve the Council's objectives. It presents the lifecycle management plan and includes:

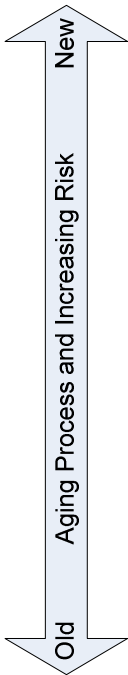
- A description of the trends and issues;
- Detailed management, operations, maintenance, renewal and development strategies;
- Work programmes and associated financial forecasts.

### 5.1 OVERVIEW

Lifecycle management has a direct impact on the provision of solid waste services. The section on levels of service shows what the Council will commit to delivering this service. This section identifies the measures that need to be implemented to achieve these levels of service. Lifecycle Management allows Council to clearly identify both the short and long term requirements of the solid waste activity ensuring that a cost effective service is delivered.

Assets have a lifecycle as they move through from the initial concept to the final disposal. Depending on the type of asset, its lifecycle may vary from 10 years to over 100 years.

**Figure 5.1: Key stages in the asset lifecycle are:**

	Asset planning	When the new asset is designed - decisions made at this time influence the cost of operating the asset and the lifespan of the asset. Alternatives and non-asset solutions must also be considered.
	Asset creation or acquisition	When the asset is procured capital cost, design and construction standards, commissioning the asset, and guarantees by suppliers influence the cost of operating the asset and its lifespan.
	Asset operations and maintenance	When the asset is operated and maintained - operation relates to a number of elements including efficiency, power costs and throughput. Maintenance relates to preventative maintenance where minor work is carried out to prevent more expensive work in the future and reactive maintenance where a failure is fixed.
	Asset condition and performance monitoring	When the asset is examined and checked to ascertain the remaining life of the asset - what corrective action is required including maintenance, rehabilitation or renewal and within what timescale.
	Asset rehabilitation and renewal	When the asset is restored or replaced to ensure that the required level of service can continue to be delivered.
	Asset disposal and rationalisation	Where a failed or redundant asset is sold off, put to another use, or abandoned.

The solid waste team uses asset condition and performance information, together with the Demand, Levels of Service and Risk information presented in this document as a basis for the development of strategies and specific work required to achieve the objectives set out in the introduction to this document.

Generally it is assumed that physical failure is the critical failure mode for most assets. However, the asset management process recognises that other modes of failure exist. The range of failure modes includes:

**Table 5.1: Asset Failure Modes**

Structural	Where the physical condition of the asset is the measure of deterioration, service potential and remaining life
Capacity	Where the level of under or over capacity of the asset is measured against the required level of service to establish the remaining life
Level of Service Failure	Where reliability of the asset or performance targets are not achieved
Obsolescence	Where technical change or lack of replacement parts can render assets uneconomic to operate or maintain
Cost or Economic Impact	Where the cost to maintain or operate an asset is greater than the economic return
Operator Error	Where the available skill level to operate an asset could impact on asset performance and service delivery

### 5.1.1 Summary of Assets

The value of solid waste assets is shown in the table below:

**Table 5.1.1: Solid Waste Valuations 30 June 2014**

Asset Category	Replacement Value	Optimised Depreciated Replacement Cost	Annual Depreciation
Transfer Station	\$4,230,400	\$2,574,000	\$233,900
Landfill	\$5,207,063	\$3,476,018	\$95,101
Total	\$9,437,463	\$6,050,018	\$329,001

A summary of the solid waste asset valuation included in this report in Appendix 2.

### 5.1.2 Asset Groups

For the purposes of combining discrete service areas, levels of service, budgeting and management the following key activity groups have been created and lifecycle plans prepared:

- Waste Minimisation;
- Transfer Station;
- Landfill;
- Greenwaste;
- Recycling.

### 5.1.3 Lifecycle Activities

Expenditure is separated between operational and maintenance. Typical operation and maintenance activities include contractors' claims, consultants' fees, administrative costs, monitoring costs and Government levies.

Maintenance falls into two broad categories as follows:

- Planned maintenance: Proactive inspections and maintenance works done to ensure continued operation of the asset.
- Unplanned Maintenance: Reactive maintenance to correct failures.

#### **5.1.4 Capital Expenditure**

Capital expenditure in solid waste includes renewals and upgrades

Renewals include the renewal and rehabilitation of existing assets to maintain the asset to their original size and condition. Renewal expenditure includes the following examples:

- Replacing asset components and preventative maintenance;
- Rehabilitating leachate collection pipes and assets;
- Planting front face.

#### **5.1.5 Upgrade**

This work is intended to extend or upgrade the facilities or works and is required to allow for new development and growth or to achieve a higher levels of service and may include:

- Creating a new asset;
- Improve the asset capacity beyond its original capacity.

#### **5.1.6 Asset Disposal**

Assets may be disposed of due to under utilization, obsolescence, provision exceeds required levels of service, uneconomical to upgrade or operate, or the service is provided effectively by other means.

### **5.2 WASTE MANAGEMENT AND MINIMISATION PLAN**

The Joint Waste Management and Minimisation Plan provides direction to the management through proposing methods and policies that are required to achieve the Council objectives and aligns the solid waste activities with the New Zealand Waste Strategy.

The Waste Management and Minimisation Plan is built around three primary goals:

- Goal 1: Avoiding the creation of waste;
- Goal 2: Improving the efficiency of resource use;
- Goal 3: Reducing the harmful effects of waste.

### **5.3 OPERATIONAL AND MAINTENANCE STRATEGIES**

To ensure that the solid waste activity is delivered seamlessly to the community it is imperative that the solid waste management plans and the performance of collection services are monitored and reviewed on a regular basis by Council staff.

Site operations include those operations involved with receiving and managing waste that is received at the transfer station and landfill.

The site management at the landfill and transfer station are contracted out and managed by Council's Network Services. Operations include inspections to ensure assets are performing their intended objectives and general site maintenance.

Programmed maintenance includes regular cleaning and desludging of drains.

Reactive maintenance comprises those activities which are undertaken on site by approved contractors as and when required.

#### **5.3.1 Management Strategies**

All services are managed in-house by staff with specialized activities and services undertaken by contractors.

### 5.3.2 Operations

Council performs the following activities in managing the solid waste activity:

- Contract management, monitoring and design;
- Renewal and rehabilitation of asset;
- Emergency capability such as response to adverse weather events.

### 5.3.3 Upgrade and Renewal Strategies

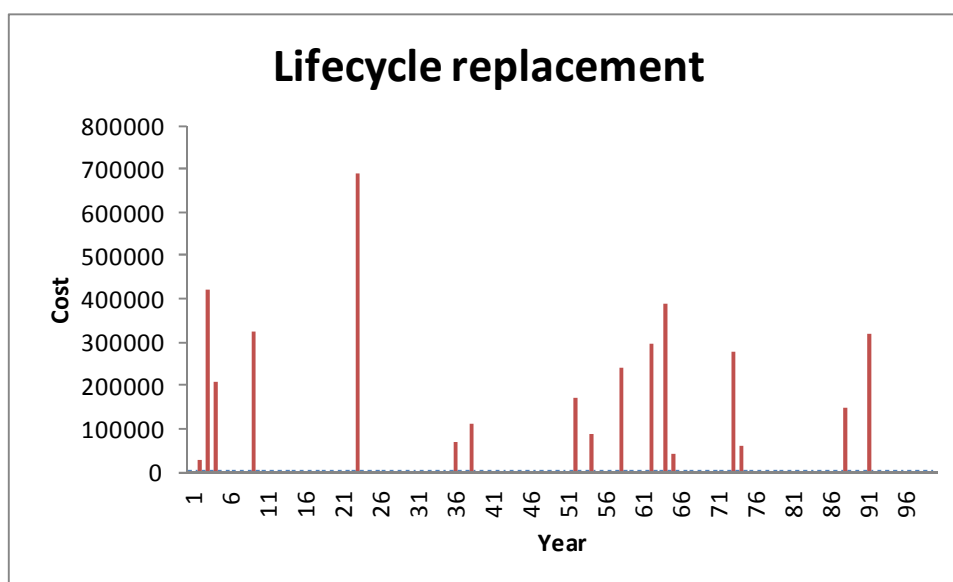
Renewals and replacements are aimed at renewing an asset to maintain the existing levels of service.

Upgrades are capital projects aimed at creating new capacity to provide for changes in the levels of service. The consideration of creating capacity in future for the collection and treatment of separated organic waste material is considered to be a significant change in the levels of service provided (facilitated) by Council.

### 5.3.4 Strategy

The strategy for replacement of solid waste assets is largely knowledge based and depends on professional judgement on the viability and integrity of the assets to be either maintained, replaced or relocated.

**Figure 5.3.4: Lifecycle Replacement**



Ongoing development of the asset register combining spatial, condition, value and lifecycle information will allow renewals decision making to be improved in the future.

### 5.3.5 Prioritisation

Projects are prioritised based on the best value of a project to the community. Best value is based on cost effectiveness, operational benefit while environmental and community benefits are also considered. Community benefit may be ascertained or confirmed through public consultation or through specific targeted surveys and are typically conducted through the Long Term Plan process.

### 5.3.6 Policies

The Council has the following policies in place to direct solid waste activity management:

- *Policy 1.1.1 The Council(s) will promote waste minimisation, including especially the reduction of waste, the diversion of materials, and a reduction in the contamination of diverted material.*

The Council will promote and encourage beneficial reuse of organic material through home composting and work with the construction industry to develop improved waste management strategies for construction waste.

- *Policy 1.2.1 The Council(s) will engage in reducing waste through programmes which support behaviour change.*

The Council will continue to identify opportunities to develop and implement programmes that will engage the community in waste reduction.

- *Policy 1.2.2 The Council(s) take a leadership role in demonstrating waste reduction behaviours.*

The Council will provide recycling opportunities at Council facilities, consider waste awareness when developing procurement strategies and engage with the community to encourage ownership for the waste issues.

- *Policy 1.3.1 The Council(s) promote producer responsibility and product stewardship.*

The Council will work with industry to implement product stewardship with a focus on local businesses.

- *Policy 1.3.2 The Council(s) engage with central government in reducing waste.*

The Council will advocate that central government facilitate the development of markets for recycled material and strategies to reduce the generation of waste.

- *Policy 1.3.3 The Council(s) recognise the benefit of collaborating with each other and other parties throughout the community in reducing waste.*

The Council will work with others on matters relating to waste reduction.

- *Policy 2.1.1 The Council(s) work to improve the diversion of material through promoting separation at source, and improved collection, storage and handling of diverted material.*

The Council continue to provide kerbside recycling to urban residential properties.

- *Policy 2.1.2 The Council(s) consider waste minimisation services and waste management services as components of an integral system.*

The Council will continue to provide services at the transfer station and facilitate the establishment of facilities to treat separated waste such as demolition and organic waste etc.

- *Policy 2.1.3 The Council(s) recognise the benefits of collaborating with other parties in the provision of waste minimisation services and meeting future demands.*

Collaborate with other parties to realise mutual benefits.

- *Policy 2.2.2 Improve the range of materials diverted taking into considerations the whole life cost and product stewardship.*

Improve the quality of diverted material.

- *Policy 2.2.3 The Council(s) will coordinate their statutory planning activities so that the outputs of the Waste Management and Minimisation Plan lead into the Long Term Plan process.*

The Council will maintain the quality of diverted material during collection and processing.

- *Policy 2.2.4 The Council(s) monitor and measure progress on the efficiency of resource use and the effectiveness of services.*

The Waste Management and Minimisation Plan will be reviewed annually.

- *Policy 2.2.5 The Council(s) will promote consumer awareness and responsibilities.*

This will be carried out by including specific questions in the resident survey to inform the Council on the solid waste services achieving the desired quality, recording relevant

information, identification of problematic waste streams, customer satisfaction and the desired behaviour change.

- *Policy 2.3.1 The Council(s) continue to maintain ownership of their waste infrastructure and provide leadership in the provision of waste management services.*

Information on services provided is available to the community.

- *Policy 3.1.1 The Council(s) continue to maintain ownership of their waste infrastructure and provide leadership in the provision of waste management services.*

Council will facilitate refuse collection services and provide a refuse transfer station, commercial access to the landfill, remove illegally dumped waste, litter receptacles and continue to consider alternative disposal options of separated waste.

- *Policy 3.1.2 The Council(s) will provide facilities and services to assist with hazardous waste management.*

Council provides hazardous drop off facilities at the Pascoe Street transfer station.

- *Policy 3.1.3 The Council(s) maintain a user-pays charge system for waste collection and disposal that provides cost recovery as well as incentives and disincentives to promote the objectives of the Joint Waste Management and Minimisation Plan.*

Council will encourage user pays basis for waste services and encourage waste separation through pricing incentives.

- *Policy 3.1.4 The Council(s) may implement services that cannot be funded by user charges where a public good outcome can be demonstrated.*

Council will use revenue from waste services to fund waste management and minimisation initiatives that does not attract a direct user charge.

- *Policy 3.1.5 The Council(s) will jointly make the most effective and efficient use of York Valley and Eves Valley Landfill space.*

Having two landfills serving the two Districts is a duplication of services that could be more effective if managed jointly.

- *Policy 3.1.6 The Council(s) are to ensure jointly that there is landfill capacity in the two Districts for the safe disposal of waste.*

Having landfill capacity provides an environmentally secure repository for waste.

- *Policy 3.2.1 The Council(s) are to ensure that solid waste services, facilities and closed landfills have effective management plans and are managed according to these plans.*

Council maintain a landfill aftercare fund for the continued management of the landfill after closure.

- *Policy 3.2.2 The Council(s) are to consider the use of other instruments, such as by-laws and/ or Resource Management Plans, to manage the adverse effects of waste where these effects are not covered by currently available provisions.*

Council record and maintain data relating to waste and diverted material in a format and make arrangements to require private waste operators to collect and supply data to the Council that will facilitate improved decision making in future.

- *Policy 3.3.1 The Council(s) promote good health and safety practices with waste management and minimisation activities.*

Council ensure that any known health hazards in managing waste treatment processes that are promoted by Council are communicated to the intended participants in such activities.

### **5.3.7 Solid Waste Collection**

A weekly kerbside refuse collection service combined with residential recycling collection as contracted by Council. A contract is established between this contractor and the

resident once refuse is put out for collection on the correct day in a refuse bag that can be procured from most supermarkets or Council.

The public can choose their rubbish collection contractor and are required to make their own arrangements with individual contractors who offer different collection services.

Information on collection services is available on the Council website or from waste contractors.

### 5.3.8 Recycling

Council has a contract with NelMAC for the provision of kerbside recycling services to residential properties in Nelson. The cost of the service is paid from the Local Waste Disposal Levy included in the Landfill disposal charges.

**Table 5.3.8: Recycling Operation**

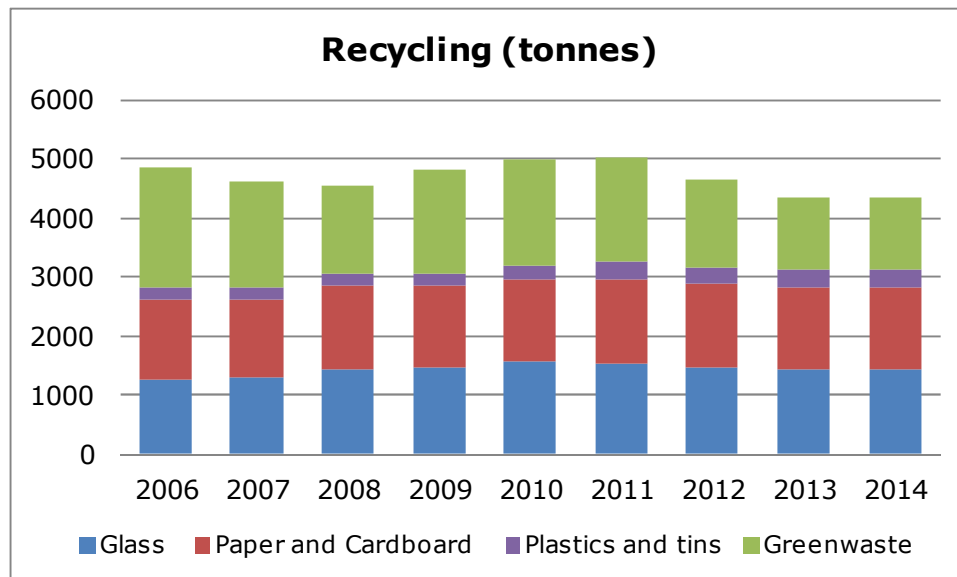
Recycling	2015/16	2016/17	2017/18
Staffing and overhead	32,035	32,035	32,035
Operations	863,028	863,028	863,028

Recycling is collected on the same day as refuse collection and must be put out at the kerb in a 55 litre crate and separated materials contained in plastics shopping bags will also be collected. Collection is alternated between glass and others every fortnight. The following material is collected and processed:

- Glass bottles and jars;
- Plastics 1 – 7;
- Metal cans and tins;
- Paper and Cardboard;

The Council contractor also collects recycled material from schools.

**Figure 5.3.8: Tonnes Recycled**



The kerbside recycling provided by Council diverts over 3,000 tonnes per annum from landfill. Recycling collections from the business and institutional sector are available from private waste management companies. While the kerbside recycling contractor has a contractual obligation to ensure that recycled material collected is diverted away from landfill there is no certainty where commercial recycling end up as this is not controlled by Council. It is likely that only high value commercial recycled material will find its way into recycling markets with the remainder disposed of as residual waste at lowest cost. Council, with Tasman District Council, continue to promote responsible recycling to

businesses and institutions. However, the lifecycle of commercially recycled material is outside the control of Council.

Clothing and re-useable individual items are accepted at the Nelson Recycling Centre and a range of privately run organisations.

### 5.3.9 Transfer Station

The Council owns a transfer station in Vivian Place (Off Pascoe Street), Tahunanui, for car, trailer and small truck loads of waste. The operation of the transfer station is contracted out.

#### 5.3.9.1 Operations and Maintenance (Transfer Station)

The Pascoe Street Transfer Station has three distinct areas of operation:

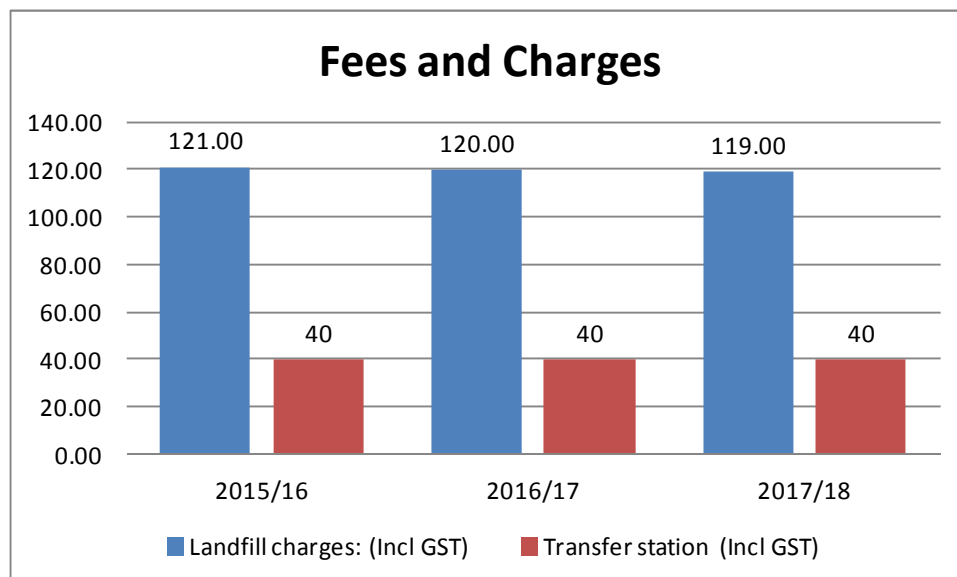
- Collection, compaction and transport of general refuse and greenwaste
- Operation of a re-use shop
- Recycled materials processing centre

**Table 5.3.9.1(a): Transfer Station Operation and Maintenance**

Transfer Station	2015/16	2016/17	2017/18
Staffing and overhead	66,530	66,530	66,530
Operations	1,214,189	1,208,291	1,204,046
Maintenance	62,591	92,591	62,591
<b>Total</b>	<b>1,343,310</b>	<b>1,367,412</b>	<b>1,333,167</b>

Figure 5.3.9 presents the estimated transfer station fees for mixed waste in comparison with the landfill charges. Waste disposed of at the transfer station is charged on the estimated volume basis. The increase in cost in 2016/17 is associated with overhauling compactor chamber floor and walls.

**Figure 5.3.9.1: Projected Transfer Station and Landfill Charges**



The total cost of running the transfer station is not recovered from gate charges and is topped up from the Local Waste Disposal Levy charged at the York Valley landfill. The transfer station is charged the Local Waste Disposal Levy for mixed waste disposed of at York Valley.

The management of domestic hazardous waste and tyres are included in the transfer station operational cost.



**Table 5.3.9.1(b): Income Projections for Transfer Station**

<b>Transfer Station revenue</b>	<b>2015/16</b>	<b>2016/17</b>	<b>2017/18</b>
Transfer Station fees	\$603,243	\$603,243	\$603,243
Local Waste Disposal Levy	\$622,540	\$648,294	\$614,049
Greenwaste Overhead	\$107,527	\$107,527	\$107,527
Sundry Income	\$10,000	\$10,000	\$10,000

The Local Waste Disposal Levy shown in table 5.3.9.1(b) is the differential between the landfill levy charged for the disposal of transfer station residual waste disposed of at York Valley and the Local Waste Disposal levy distributed from the landfill charges to support the transfer station activities.

A large part of the operation and maintenance of greenwaste is charged to the transfer station operation and maintenance, and then recovered from the greenwaste account based on the estimated use of the facilities by the greenwaste activity. (The greenwaste overhead covers costs such as the operation contract, telephone, rates, equipment and site maintenance, interest charges etc.)

General waste and separated greenwaste is received at the transfer station and charged on a volumetric basis. The waste is deposited into separate hoppers and compacted into 28m<sup>3</sup> containers and transported to the landfill or composting service provider.

### 5.3.9.2 Transfer Station Capital Costs

Renewals and replacements are aimed at renewing the assets at the transfer station to maintain the existing levels of service. A number of methods in the Joint Waste Management and Minimisation Plan are aimed considering the value of rationalisation of transfer stations in Nelson and Richmond.

Method 2.2.1.1 The Councils will investigate improving facilities that receive separated diverted material, such as construction and demolition material, at the refuse transfer station and resource recovery centres.

Method 2.2.1.2 The Councils will jointly investigate improving existing materials recovery facilities or a new facility that enhances the diversion of recyclable materials, particularly to accommodate paper and cardboard.

These methods are aimed at considering the advantages of integration of service provided by the two Councils to provide improved services to the communities. The upgrade and renewal programmes accommodate this strategy in that upgrade and renewal projects are aimed primarily at maintaining the current levels of service.

**Table 5.3.9.2: Transfer Station Upgrade Costs**

<b>Transfer Station Capital Expenditure</b>	<b>2015/16</b>	<b>2016/17</b>	<b>2017/18</b>
Renewal	0	0	0
Upgrade	15,000	30,000	0

The renewal work programmed for the 2015 to 2017 is associated with the investigation and development of a public ablution facility at the transfer station.

### 5.3.9.3 Collection, Compaction and Transport of Waste

The hours that the Pascoe Street Transfer Station is permitted to open is controlled by designation DN2.7 (ii) of the Nelson Resource Management Plan. The opening hours are:

Monday – Friday	8.00am - 4.30pm
Saturday (Summer 1 Sept - 1 Apr)	8.00am - 4.30pm
Saturday (Winter)	9.00am - 4.30pm
Sunday and Public Holidays	10.00am - 4.30pm
Tuesday Evening (during daylight saving)	4.30pm - 7.00pm

#### 5.3.9.4 Collection of Waste Disposal Charges

Council employs NeIMAC to staff and manage the Transfer Station fee attendant's office and contracts out the end of day collection and banking to Armourguard.

Re-use Shop and Recyclable Materials Sorting Centre:

The operation of the re-use shop and recyclable materials sorting centre was tendered in 2004 as part of the residential kerbside recycling contract. The contract was awarded to NeIMAC who sub-contracted the operations of the re-use shop to the Nelson Environment Centre. NeIMAC manages the materials sorting facility where the bulk of the kerbside collection materials are sorted and then transferred to the adjacent Full Circle property for bailing.

#### 5.3.10 Landfill

The York Valley Landfill is a valley type landfill occupying approximately 3.5Ha. The site is being filled in 3m lifts across the site progressing up the valley in a controlled manner. The landfill has a landfill gas extraction system and is managed strictly in accordance with the York Valley Landfill Management Plan.

Goal 3: "Reducing the Harmful Effects of Waste"

Policy 3.1.5 "The Councils will jointly make the most effective and efficient use of the York Valley and Eves Valley Landfill space."

Method 3.1.5.2 "Nelson City Council will continue its shareholding in the York Valley Landfill Gas Recovery programme, and the beneficial use of gas."

Method 3.1.6.3 "The Councils will consider any application for the disposal of approved waste generated from outside the Districts."

#### 5.3.11 Capacity of the York Valley Landfill

The total projected volume of gully one at the York Valley landfill is assessed to be 2,700,000m<sup>3</sup>. In 2008 a 3D surface model was mapped by Earthtech Consulting Limited to provide a benchmark to value airspace consumption. The surface data used showed that the remaining capacity of the landfill was 1,630,000m<sup>3</sup>.

The volume of the disposed waste at the landfill is surveyed annually and provides a reliable way to determine the remaining capacity of the landfill to receive waste.

There are substantial areas within the land owned by Nelson City Council designated for landfill activities.

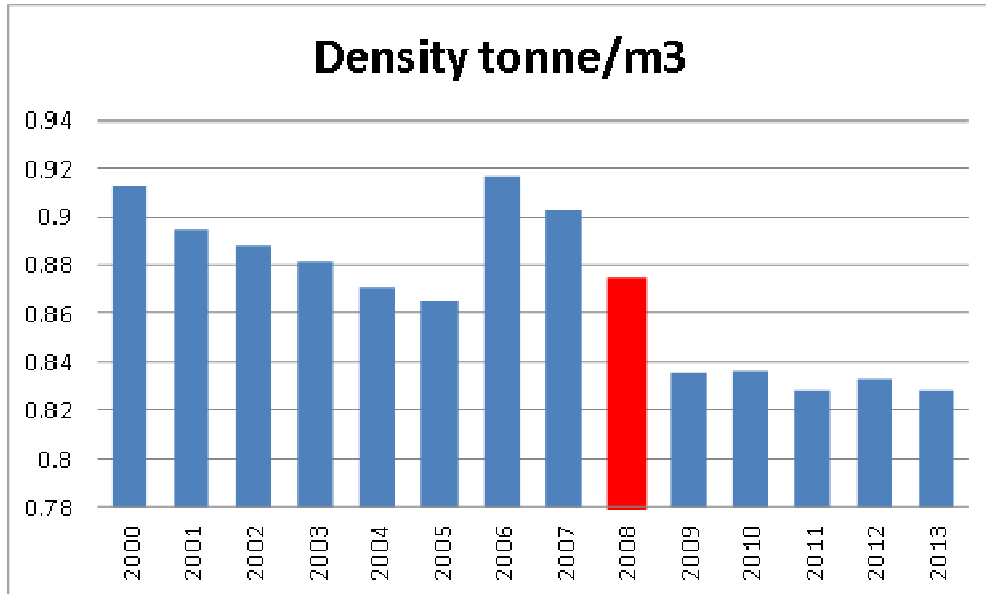
Policy 3.1.6 requires that "The Councils are to ensure jointly that there is landfill capacity in the two Districts for the safe disposal of waste."

Method 3.1.6.2 states that "The Councils will manage the landfill service such consented landfill airspace is monitored and maintained so as to ensure there is at least five years airspace available at any time."

International benchmark for banked landfill 15 years
---

#### 5.3.12 Performance of the landfill

The landfill has a resource consent which expires on 31 December 2034. York Valley has adequate capacity to receive residual waste from Nelson City Council, Buller District Council and Tasman District Council for a period exceeding 16 years. Even under a high growth scenario the landfill is considered to have adequate capacity to comply with Policy 3.1.6.

**Figure 5.3.12: Performance of Landfill**

Statistics of densities achieved at a range of eight landfills indicate that the York Valley landfill will continue to consolidate over time and that there is potential to improve compaction of waste disposed of at York Valley.

**Table 5.3.12: Performance of Landfill**

Landfill densities tonne/m <sup>3</sup>		
Landfills	Range	Density
1	0.78	0.78
2	0.67	0.67
3	0.82	0.82
4	0.58-0.89	0.89
5	0.21-0.97	0.97
6	0.48-1.26	1.26
7	0.86	0.86
8	1.07	1.07
Average		0.915
Benchmark		1.26
York Valley		0.829

Doubling the volume of waste disposed of at York Valley will decrease the unit cost of additional work effort required to attain additional compaction. Improving total density of the landfill will create additional airspace over time and will increase the useful life of the York Valley gully 1.

In order to have confidence in the available airspace it is appropriate to conduct periodic independent landfill surveys. The information gained from these surveys provide an assessment of available airspace and can also be used to improve the management of the landfill to extend the useful life of the landfill.

### 5.3.12.1 Leachate Levels and Quality

The leachate levels continue to be below the trigger levels set for commencing with a detailed stability analysis. Perched leachate levels observed in individual monitoring wells was investigated and reported to be anomalous considering the leachate levels in adjacent monitoring wells. A stability assessment of the landfill carried out in 2012 indicated that the landfill was performing well but showed that water table measurements are compromised by the performance of some of the monitoring wells.

The report recommended that the assessment be reviewed following replacement of well P2. The replacement well showed similar abnormalities to the previous well.

Further investigations into this well showed that the well is compromised in that the perforations in the casing of the well are clogged up with clay material. Open trench excavations carried out to investigate the existence of a perched water table could not confirm the existence of any such abnormality around well P2. A drain was installed along the trench excavated on the landfill side of the well as a precaution. Tonkin and Taylor will now use the information gained from this work to review the 2012 stability assessment report.

The quality of leachate shows that no determinants had elevated levels in relation to historical results.

#### 5.3.12.2 Groundwater Monitoring

Groundwater monitoring does not indicate that leachate from the landfill is affecting groundwater. All indicators are consistent with historical measurements at the monitoring wells.

#### 5.3.12.3 Surface Water Monitoring

Comparison of upstream and downstream data indicates no significant adverse impact of landfill operations on the surface water quality.

#### 5.3.12.4 Stormwater Monitoring

There is no evidence of landfill activities adversely impacting on stormwater quality. The electric conductivity in the York Stream upstream of the landfill typically exceeds the conductivity measured in the stormwater treatment pond.

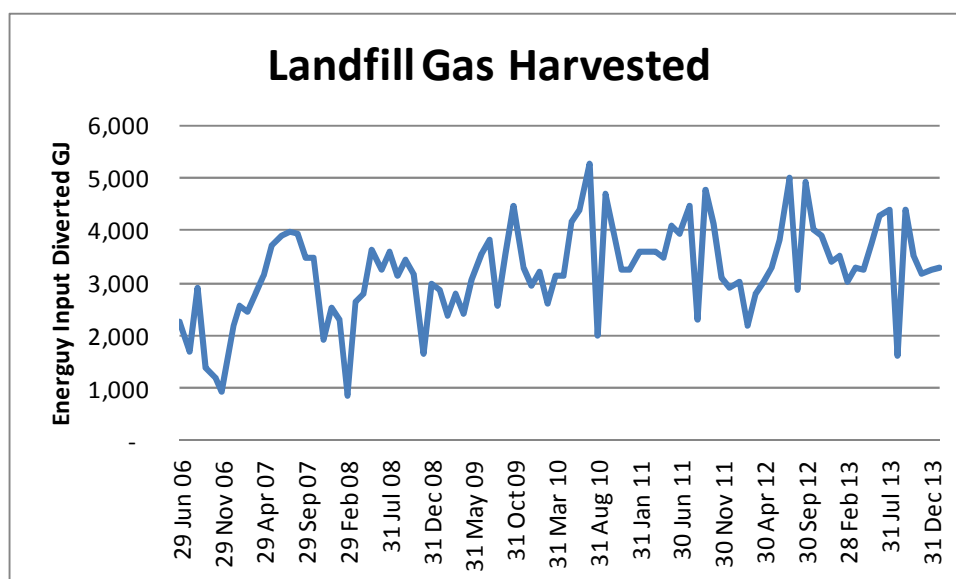
#### 5.3.12.5 General Quality of Site Management

The annual York Valley Landfill Monitoring Report reviews conducted by an independent consultant reports that the 'snapshot' site inspections supported the landfill monitoring reports compiled by Tonkin and Taylor in that there are no obvious problems with leachate, gas collection or issues with bird, litter or odour control.

#### 5.3.13 Landfill Gas

Energy for Industry a division of Pioneer Generation Ltd pays Nelson City Council 50c plus CPI (2006 baseline) /GJ for the use of landfill gas harvested at York Valley plus one third of the avoided Carbon Tax generated by this project for such part of the Carbon Tax that is above \$15/tonne of CO<sub>2</sub>.

**Figure 5.3.13: Landfill Gas Diverted**



Energy for Industry uses the gas to generate power for the boilers at the Nelson Hospital. The landfill is expected to provide a source of energy until well after closure of the landfill and it is expected that the volume of landfill gas harvested will increase with the continued increase in waste disposal to the landfill.

#### 5.4 OPERATION AND MAINTENANCE PLAN

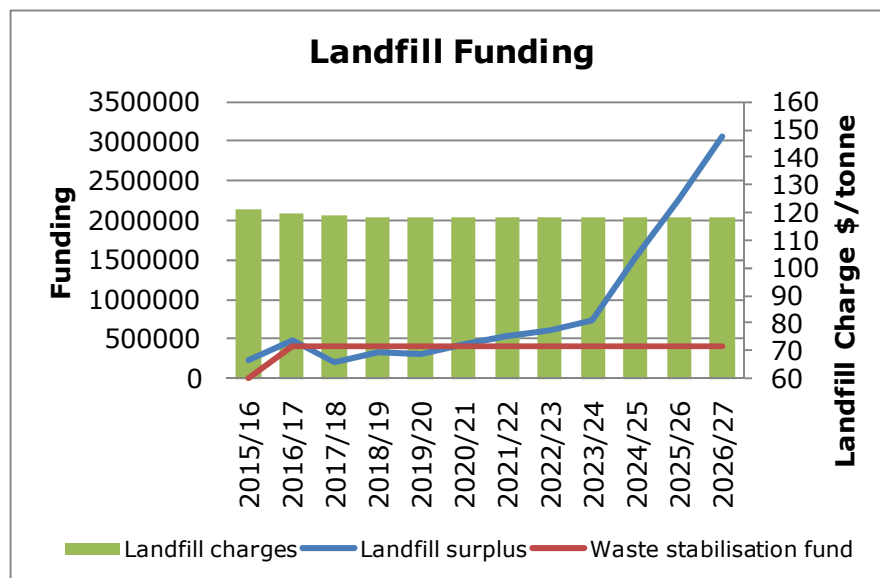
The landfill is operated and maintained in accordance with the Nelson City Council York Valley Landfill Management Plan. Apart from the landfill gas recovery system which is operated by Council the operation of the landfill is contracted out and specialist consultants are contracted to carry out the consent monitoring. Access to the landfill is restricted to approved contractors.

The landfill activity is funded from landfill charges.

**Table 5.4: Landfill Operation and Maintenance**

Landfill	2015/16	2016/17	2017/18
Staffing	168,731	168,731	168,731
Operations	795,102	914,879	915,562
Landfill levies	2,138,721	5,053,940	5,367,358
Maintenance	20,000	20,000	20,000

**Figure 5.4: Forecast of Expenditure (remove graph)**



There is significant uncertainty how Emission Trading Scheme obligations will impact on landfill costs. There does not appear to be international consensus around how to deal with greenhouse emissions and this uncertainty is reflected in the price of Carbon.

Landfill charges will be managed in such a way to offset fluctuation in cost that is outside the control of Council, i.e. fluctuations in cost of Carbon, fluctuations in tonnages of waste disposed etc.

##### 5.4.1 Renewal and Upgrade Plan

The plan does not anticipate any large capital expenditure items over the next few years. Capital is allowed on the plan for the resealing of the landfill access road, to replace the gas meter, the drilling of another piezometer well and planting the front face of the landfill.

**Table 5.4.1: Landfill Capital Cost for Next Three Years**

<b>Landfill Capital</b>	<b>2015/16</b>	<b>2016/17</b>	<b>2017/18</b>
Renewals	57,499	0	3,500
Upgrade	0	41,499	13,000

**5.5****GREENWASTE**

Council encourages green-waste diversion through education and providing a facility to the public and contractors to drop separated green-waste off at the Pascoe Street Transfer station. The charges for separated green-waste are consistently lower than the charge for mixed waste. The treatment of green-waste is contracted out.

**Table 5.5: Greenwaste Operation Cost for Next Three Years**

<b>Recycling</b>	<b>2015/16</b>	<b>2016/17</b>	<b>2017/18</b>
Staffing and overhead	16,762	16,762	16,762
Operations	154,065	169,049	175,897

There are also a number of well established composting businesses located in the Nelson Tasman area. Within the context of providing affordable services to the community it is considered that Nelson residents are well served by a well developed composting industry.

Residents of Nelson have a wide choice of waste contractors who provide green-waste collection services for those who are not in a position to compost their own green-waste.

While a ban on green waste to landfill can be considered and is identified as a method in the Joint Waste Management and Minimisation Plan to achieve increased diversion of green-waste from landfill this is only one of a mix of methods that will be considered jointly with Tasman District Council in future. An affordable disposal option of separated green waste is considered the most appropriate method to encourage the establishment of private initiatives within the region for the proper treatment of green waste. Nelson City Council will actively encourage the establishment of adequate green waste processing capacity within the commercial sector and phase out the reception of separated green waste at the Pascoe street transfer station over a period of three to four years.

Method 3.2.2.4 The Councils will investigate regulating the disposal of certain materials to landfill and/or cleanfill through solid waste by-laws.

The cost of treating green-waste to Council is slightly more than disposing green-waste at the landfill.

Policy 2.2.1 The Councils work to improve the diversion of material through promoting separation at source, and improved collection, storage and handling of diverted material.

Method 2.2.1.3 The Councils will jointly investigate facilities that enhance the diversion of organic materials (e.g. organic kitchen scraps and garden foliage).

## 6. FINANCIAL

The works proposed in the previous sections on Levels of Service, Future Demand, Risk Management and Lifecycle Management all impact on expenditure.

There are cost implications in:

- Meeting levels of service;
- Meeting future demand;
- Managing risk;
- Maintaining/improving asset condition;
- Maintaining/improving asset performance;
- Operating assets;
- Maintaining assets;

that affect the Operations and Maintenance, Renewal and Capital Financial Plans.

Depreciation is an expense which allows for the future replacement of an asset by setting aside its replacement value during its working life.

Operations and Maintenance is an expense to run assets and keep them in good working order.

Renewals are an expense to replace existing assets.

Capital is an expense to create new assets.

### 6.1 FUNDING

The solid waste activity is a self funded account. Income generated from fees, charges, levies and grants are used to fund all expenditure with any surpluses retained in the solid waste special reserve fund.

Solid waste activities, such as waste education or recycling, are funded from the National Waste Levy and the Local Waste Disposal Levy. (Landfill Levy)

### 6.2 FEES AND CHARGES

Fees and charges are set following the approval of either the Long Term Plan or the annual budget and makes up the largest part of the income stream for the solid waste activity.

### 6.3 SOLID WASTE AFTERCARE FUND

With the eventual closure of the York Valley landfill there will continue to be aftercare costs for the next 30 years after closure. With projected income after closure is limited to landfill gas harvesting a Solid Waste Aftercare Fund was established similar to the depreciation reserve, to provide for the aftercare of the landfill.

### 6.4 GRANTS

Grants are only included within revenue figures when eligibility has been established by the granting agency.

**6.5 LOANS**

Upgrade projects can be funded through 30 year term internal loans. In principle a single loan services multiple upgrade projects as the funding requirements are rolled into loans for other activities.

**6.6 OPERATIONAL COSTS**

Operation costs relate to all the costs associated with the operational function of the solid waste activity and include the cost of capital and depreciation.

**6.7 RENEWAL AND UPGRADE COST**

Renewals are funded by way of the depreciation fund.

**6.8 VALUATION METHOD**

The solid waste assets were valued by OPUS International Consultants (OPUS) in 2008. All assets are valued based on optimised replacement costs (ORC), assuming the use of modern techniques and pipe materials. The values are adjusted by council officers annually based on an index provided by OPUS. Once the revaluation is completed the values are peer reviewed by OPUS.

All costs are reported in June 2014 dollars and Goods and Services Tax is not included in the costs.

All assets have been revalued as at 30 June 2014.

In addition to direct purchase/construction costs, professional fees for investigation, resource consent (where applicable), design, construction and 'as built' information have been included.

Financial charges incurred in carrying project costs in the period prior to commissioning are included in valuations.

Replacement costs have been optimised to represent the lowest cost and most efficient combination of assets providing the same service as the existing assets. Optimisation involves adjustment to deduct any surplus capacity or over design.

Land, access roads and fencing are included on the inventory, as they are recorded in Council's Fixed Asset Register.

**6.9 DEPRECIATION**

The value of the assets has been depreciated on a straight-line basis over their nominal working life. Table 6.10 shows the nominal working life or total life (TL) of each of the classes of assets.

**Table 6.10: Asset Life Expectancy/Nominal life**

Asset Description	Asset Component	Material	Base Life	Average remaining life
Earthworks			No depreciation	
Roads			25	4
Chip seal			12	4
Vehicle wash			49	23
Resource consent			24	23
Leachate	Monitoring wells		50	38
	Drain		100	91
	Pipes		80	73
Peizometers			10	2
Stormwater	Open channel cut off drains		15	3



Asset Description	Asset Component	Material	Base Life	Average remaining life
	Settling ponds	Concrete	100	88
	Pipes	Helcoil Aluminium	90	64
	Pipes	Plastic	60	36
	Pipes		80	65
	Manholes		90	64
	Sumps		90	64
	Intakes		80	54
	Wingwalls		80	54
Gas collection	Pipes		70	62
	Wells		70	62
	Flare		20	9
Water supply	Pipes	Asbestos cement	80	52
	Pipes	PVC	85	52
	Hydrants		80	52
	Valves		80	52
Sewer	Pipes PVC		80	58
	Manholes		80	74

The construction year for each individual section of pipe has been researched from field books, plans and other records. This information has been entered into the database to allow the age of the pipes to be calculated.

Sometimes assets have either a positive salvage value or significant disposal cost (that is, a positive or Negative Net Realisable Value).

Sometimes an asset may have a Residual Value at the end of its economic life, instead of being totally removed or replaced, all (or part) of it continues to be used. It has been assumed that the items have zero residual value.

## 6.10 FINANCIAL STATEMENTS AND PROJECTIONS

Operations and maintenance in running the solid waste activity includes:

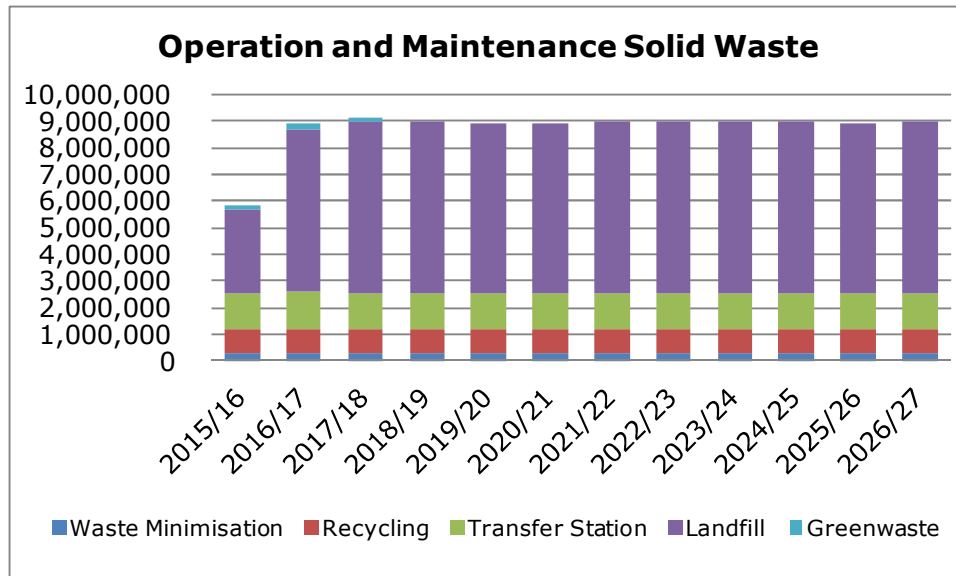
- Management;
- Engineering supervision;
- Electricity and telephones;
- Maintenance of the solid waste activity includes:
  - Regular and ongoing annual expenditure necessary to keep the assets at their required service potential;
  - Work which provide for normal care and attention of the asset including repairs and minor replacements;
  - Unplanned maintenance. i.e. failures requiring immediate repair to reinstate the asset;
  - Planned maintenance.

## 6.11 BACKGROUND : OPERATIONS AND MAINTENANCE

Operations and maintenance constitute the cost of running of the solid waste activities and includes the following:

- Staffing and Overhead: Engineering supervision, asset management, corporate services, IT support, etc;
- Operations: Reactive maintenance, telephones, rates, closure costs, levies, resource consent compliance, reactive maintenance etc;
- Maintenance: Programmed maintenance and minor renewals.

**Figure 6.12: Operation and Maintenance Cost of Solid Waste Activity**



## 6.12 ASSUMPTIONS

It is assumed that operations and maintenance will be carried out at the same level as at present. Items such as the stability analysis of the landfill are scheduled in the plan and programmed in accordance with forward projections. These activities are programmed based on best guess and will be reviewed as information becomes available.

## 6.13 LONG TERM PLAN PROJECTIONS

Each of the five separate components of the Solid Waste Activity will be discussed in terms of operation and maintenance, upgrade and renewal, and income. (A financial summary is included in Appendix 1)

## 6.14 OPERATION AND MAINTENANCE

Table 6.15 shows the planned 12 year operation and maintenance financial plan.

**Table 6.15: Operation and Maintenance Costs**

<b>Waste Minimisation</b>	<b>2015/16</b>	<b>2016/17</b>	<b>2017/18</b>	<b>2018/19</b>	<b>2019/20</b>	<b>2020/21</b>	<b>2021/22</b>	<b>2022/23</b>	<b>2023/24</b>	<b>2024/25</b>	<b>2025/26</b>	<b>2026/27</b>
Staffing	90,132	90,132	90,132	90,132	90,132	90,132	90,132	90,132	90,132	90,132	90,132	90,132
Programmes	207,185	227,185	217,185	197,185	197,185	197,185	197,185	217,185	217,185	197,185	197,185	197,185
	297,317	317,317	307,317	287,317	287,317	287,317	287,317	307,317	307,317	287,317	287,317	287,317
<b>Recycling</b>	<b>2015/16</b>	<b>2016/17</b>	<b>2017/18</b>	<b>2018/19</b>	<b>2019/20</b>	<b>2020/21</b>	<b>2021/22</b>	<b>2022/23</b>	<b>2023/24</b>	<b>2024/25</b>	<b>2025/26</b>	<b>2026/27</b>
Staffing	32,035	32,035	32,035	32,035	32,035	32,035	32,035	32,035	32,035	32,035	32,035	32,035
Operations	863,028	863,028	863,028	863,028	863,028	863,028	863,028	863,028	863,028	863,028	863,028	863,028
	895,063	895,063	895,063	895,063	895,063	895,063	895,063	895,063	895,063	895,063	895,063	895,063
<b>Transfer Station</b>	<b>2015/16</b>	<b>2016/17</b>	<b>2017/18</b>	<b>2018/19</b>	<b>2019/20</b>	<b>2020/21</b>	<b>2021/22</b>	<b>2022/23</b>	<b>2023/24</b>	<b>2024/25</b>	<b>2025/26</b>	<b>2026/27</b>
Staffing	66,530	66,530	66,530	83,292	83,292	83,292	83,292	83,292	83,292	83,292	83,292	83,292
Operations	1,214,189	1,209,943	1,205,698	1,201,002	1,201,002	1,208,748	1,218,841	1,221,189	1,221,189	1,224,939	1,214,392	1,212,044
Maintenance	62,591	92,591	62,591	62,591	62,591	62,591	92,591	62,591	62,591	62,591	62,591	92,591
	1,343,310	1,369,064	1,334,819	1,346,885	1,346,885	1,354,631	1,394,724	1,367,072	1,367,072	1,370,822	1,360,275	1,387,927
<b>Landfill</b>	<b>2015/16</b>	<b>2016/17</b>	<b>2017/18</b>	<b>2018/19</b>	<b>2019/20</b>	<b>2020/21</b>	<b>2021/22</b>	<b>2022/23</b>	<b>2023/24</b>	<b>2024/25</b>	<b>2025/26</b>	<b>2026/27</b>
Staffing	168,731	168,731	168,731	168,731	168,731	168,731	168,731	168,731	168,731	168,731	168,731	168,731
Operations	795,102	914,879	915,562	931,249	907,430	908,124	908,821	925,721	912,625	916,233	916,944	917,659
Landfill levies	2,138,721	5,053,940	5,367,358	5,341,099	5,316,477	5,318,413	5,320,359	5,322,315	5,324,281	5,326,257	5,328,242	5,330,238
Maintenance	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
	3,122,554	6,137,550	6,451,651	6,441,079	6,392,638	6,395,268	6,397,911	6,416,768	6,405,638	6,411,221	6,413,917	6,416,627
<b>Greenwaste</b>	<b>2015/16</b>	<b>2016/17</b>	<b>2017/18</b>	<b>2018/19</b>	<b>2019/20</b>	<b>2020/21</b>	<b>2021/22</b>	<b>2022/23</b>	<b>2023/24</b>	<b>2024/25</b>	<b>2025/26</b>	<b>2026/27</b>
Staffing	16,762	16,762	16,762	0	0	0	0	0	0	0	0	0
Operations	154,065	169,049	175,897	0	0	0	0	0	0	0	0	0
	192,659	192,659	192,659	0	0	0	0	0	0	0	0	0
<b>Total Expenditure</b>	<b>5,850,903</b>	<b>8,911,653</b>	<b>9,181,509</b>	<b>8,970,344</b>	<b>8,921,903</b>	<b>8,932,279</b>	<b>8,975,015</b>	<b>8,986,220</b>	<b>8,975,090</b>	<b>8,964,423</b>	<b>8,956,572</b>	<b>8,986,934</b>

Projections are in June 2015 dollars.

Projections do not include inflation adjustment beyond year 2015/16.

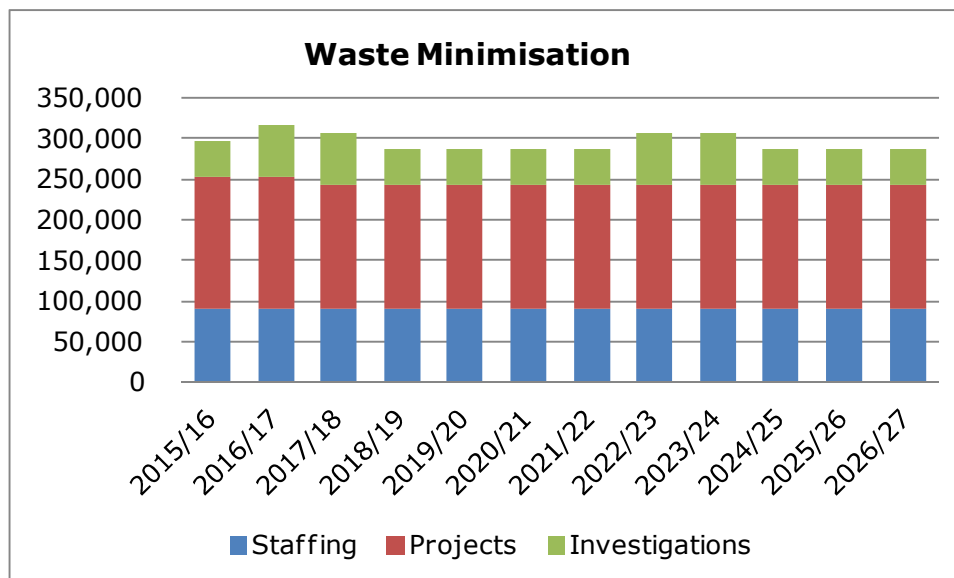
The transfer station operation cost includes the cost of the local and national waste levies for every tonne of residual waste transferred to York Valley from transfer station.

Landfill maintenance: Error in LTP carried forward to this plan.

### 6.14.1 Waste Minimisation

The Waste Minimisation activity includes waste education initiatives, feasibility studies and planning projects identified in the Joint Waste Management and Minimisation Plan and is funded through the Local Waste Disposal Levy, National Waste Levy and grants. All projects in the first three years of the Long Term Plan are aligned with the budgets of the Tasman District Council.

**Figure 6.15.1: Waste Minimisation Cost**



The plan includes an amount of \$35,000 for investigation and development of joint waste management and minimisation initiatives in line with the Joint Waste Management and Minimisation Plan. Additional allowance of \$15,000 in 2016/17 and 2017/18 is included for a Waste Assessment and the development of the next generation Joint Waste Management and Minimisation Plan as required in terms of the Waste Minimisation Act 2008.

The plan also includes a budget of \$21,000 per annum for waste grants and \$10,000 for the first two years of the plan for the management of electronic waste in anticipation of the development of a Government approved Product Stewardship initiative for electronic waste by 2018. The residue of electronic waste recycled by Council accredited organisations will be received at no charge at the Pascoe Street transfer station. Organisations will be accredited at the sole discretion of Nelson City Council. The aim of the scheme is to provide an affordable electronic waste disposal option to Nelson residents and bridge the period until central government establishes a compulsory electronic waste stewardship programme.

### 6.14.2 Recycling

The recycling activity funds residential kerbside recycling, school recycling and Central Business District recycling bins. No provision is made on the budget for commercial or institutional recycling.

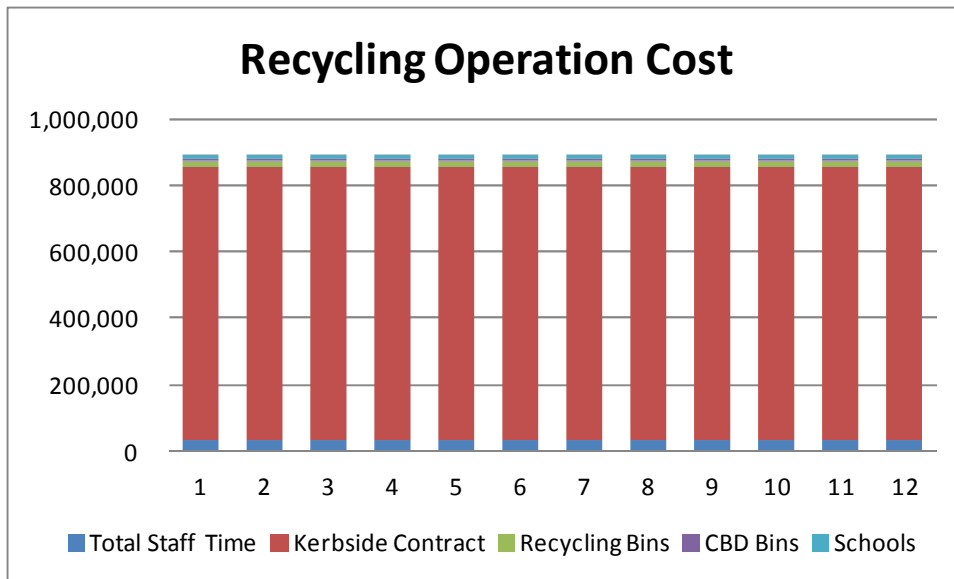
Surpluses generated from landfill activities appropriated by Nelson City Council can be used at the discretion of Nelson City Council to provide low interest loans or seed funding to assist outside agencies to achieve the goals of the Joint Nelson Tasman Waste Management and Minimisation Plan. The funding allocations will be distributed at the discretion of Nelson City Council. Typical projects that will be considered for funding will include initiatives to:

- Improve commercial recycling activities;
- Improve capacity within the recycling industry that will allow Council to phase out Council controlled recycling activities once alternatives are established within the commercial sector;

- Moving waste products upwards along the waste hierarchy.

The Council receives no income from recycling activities in the City as the proceeds from the sale of recyclables are accrued by the supplier of the service.

**Figure 6.15.2: Recycling Operation Cost**



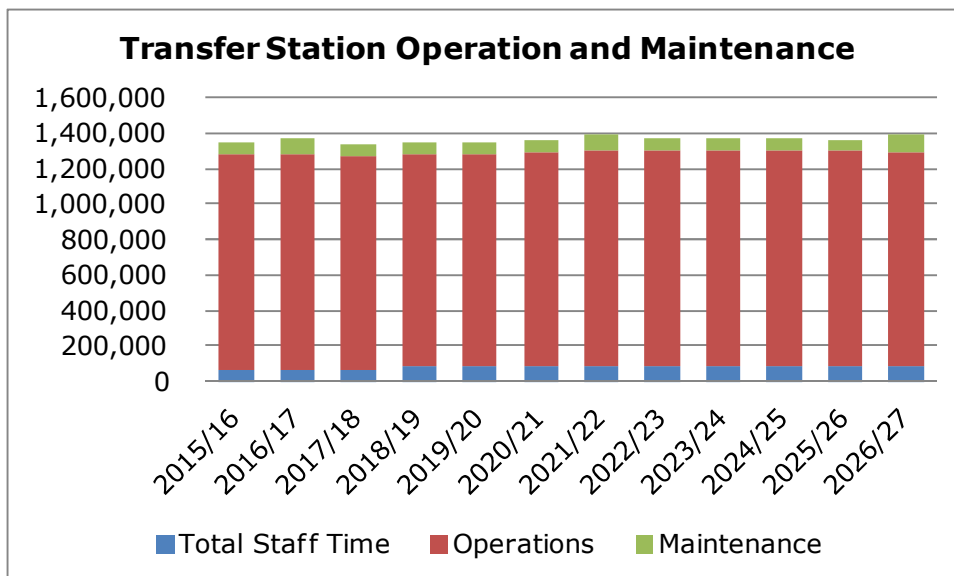
**6.14.3 Transfer Station**

Solid waste is received at the transfer station and charges are based on volumes as assessed by the ticket office operators.

General waste bulking factor					
Transfer station	2009/10	2010/11	2011/12	2012/13	2013/14P
Bulking factor	3.4	3.2	3.1	3.2	3.2

The bulking factor has remained consistent over an extended period.

**Figure 6.15.3: Transfer Station Operation and Maintenance Cost**



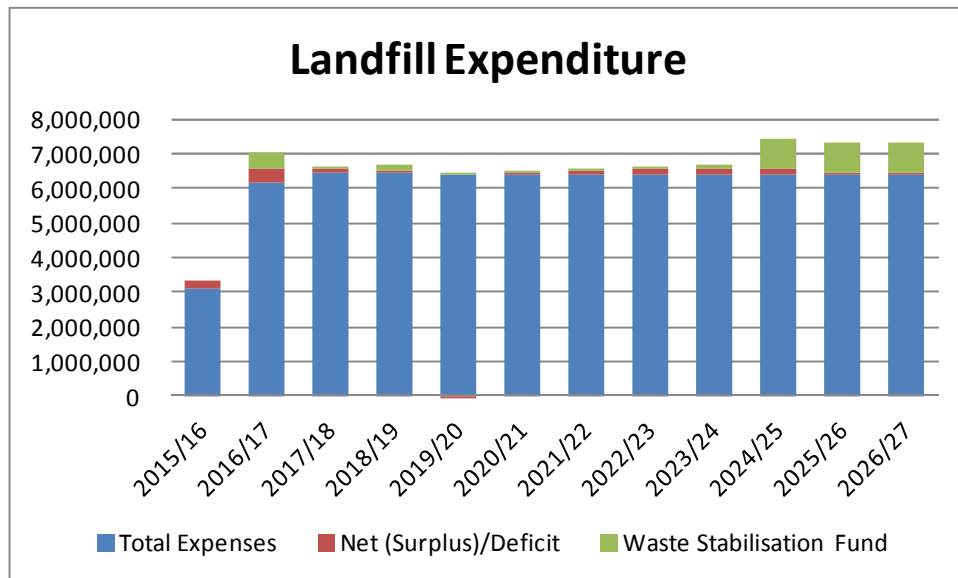
The cost of managing hazardous waste and tyres are included in the transfer operation cost. The greenwaste activity contributes to the over head cost of the transfer station.

**6.14.4 Landfill Management**

The landfill is operated and maintained in accordance with the Nelson City Council York Valley Landfill Management Plan. Apart from the landfill gas recovery system which is operated by Council the operation of the landfill is contracted out and specialist consultants are contracted to carry out the consent monitoring. Access to the landfill is restricted to approved contractors.

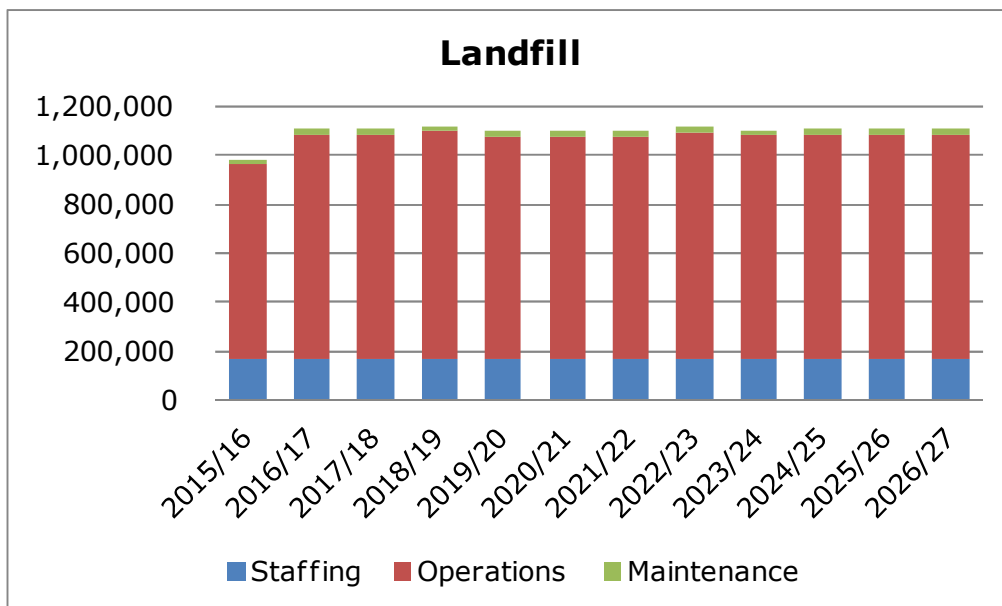
The landfill activity is funded from landfill charges.

**Figure 6.15.4: Landfill Expenditure**



The following figure presents the actual cost of managing and operating the landfill and does not include levies.

**Figure 6.15.4(a): Landfill Operation and Maintenance Cost**



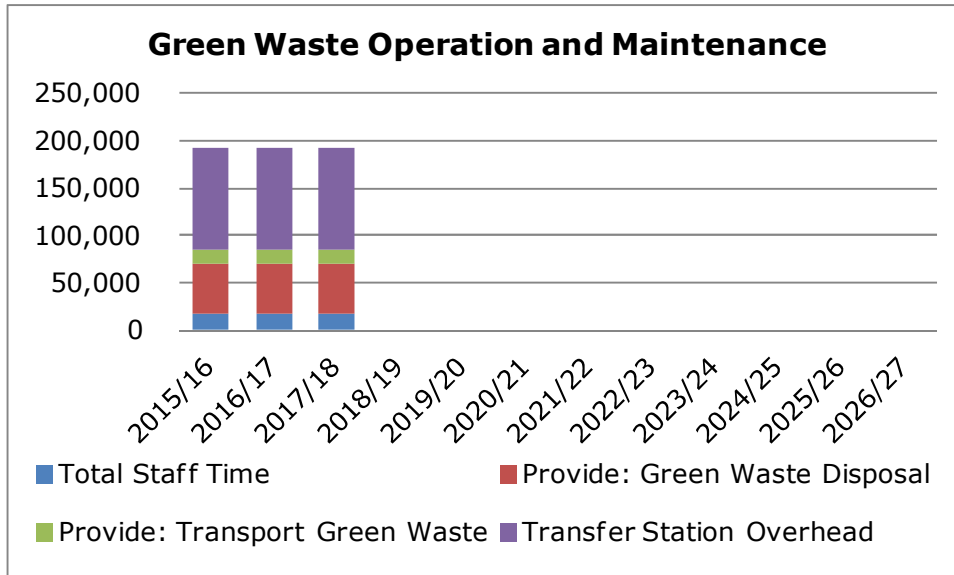
**6.14.5 Greenwaste Operation**

Green waste is accepted at the transfer station and then provided to a suitable contractor. The successful contractor must comply with the requirement of Council to treat the green waste sustainably. Currently the green waste contractor is paid to

receive and treat the separated green waste received at the transfer station. The cost to Council for disposing of green waste in this manner is slightly higher than disposing of the green waste at the York Valley landfill. (\$7 differential)

The cost of managing the green waste at the transfer station is not accounted for directly within the activity but is accounted for in the form of an overhead calculated as a percentage of the cost of operating the transfer station.

**Figure 6.15.5: Greenwaste Operation and Maintenance Cost**



The Council will endeavour to establish green waste recycling capacity within the commercial sector and with the aim to phase out the reception of separated green waste at the Pascoe street transfer station over a three to four year period.

**6.14.6 Capital Cost**

Table 6.14.6 shows the planned 12 year operation and maintenance financial plan.

**Table 6.15.6: Capital Cost**

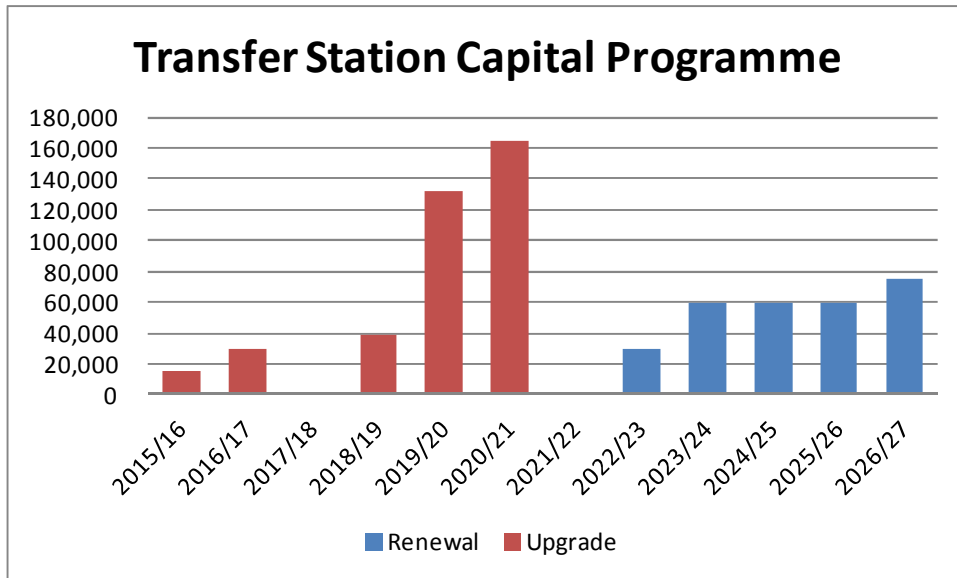
<b>Transfer Station</b>	<b>2015/16</b>	<b>2016/17</b>	<b>2017/18</b>	<b>2018/19</b>	<b>2019/20</b>	<b>2020/21</b>	<b>2021/22</b>	<b>2022/23</b>	<b>2023/24</b>	<b>2024/25</b>
Renewal	0	0	0	0	0	0	0	30,000	60,000	60,000
Upgrade	15,000	30,000	0	38,500	132,000	165,000	0	0	0	0
	15,000	30,000	0	35,000	120,000	150,000	0	30,000	60,000	60,000
<b>York Valley Landfill</b>	<b>2015/16</b>	<b>2016/17</b>	<b>2017/18</b>	<b>2018/19</b>	<b>2019/20</b>	<b>2020/21</b>	<b>2021/22</b>	<b>2022/23</b>	<b>2023/24</b>	<b>2024/25</b>
Renewal	57,499	0	3,500	0	3,500	0	2,499	0	2,499	0
Upgrade	0	41,499	13,000	19,499	12,000	79,499	0	179,499	0	153,499
	57,499	41,499	16,500	19,499	15,500	79,499	2,499	179,499	2,499	153,499
<b>Greenwaste</b>	<b>2015/16</b>	<b>2016/17</b>	<b>2017/18</b>	<b>2018/19</b>	<b>2019/20</b>	<b>2020/21</b>	<b>2021/22</b>	<b>2022/23</b>	<b>2023/24</b>	<b>2024/25</b>
Renewal	0	0	0	0	0	0	0	0	0	0
Upgrade	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
<b>Recycling</b>	<b>2015/16</b>	<b>2016/17</b>	<b>2017/18</b>	<b>2018/19</b>	<b>2019/20</b>	<b>2020/21</b>	<b>2021/22</b>	<b>2022/23</b>	<b>2023/24</b>	<b>2024/25</b>
Renewal	0	0	0	0	0	0	0	0	0	0
Upgrade	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
<b>Improved levels of service</b>	<b>15,000</b>	<b>71,499</b>	<b>13,000</b>	<b>57,999</b>	<b>144,000</b>	<b>244,499</b>	<b>0</b>	<b>179,499</b>	<b>0</b>	<b>153,499</b>



**6.14.7 Transfer Station Capital Programme**

Capital development at the Transfer station is affected by the methods identified in the Joint Waste Management and Minimisation Plan advising the rationalisation of transfer station activities for the Richmond/Nelson area. Improvements in level of service are closely linked to joint disposal opportunities identified in the Joint Waste Management and Minimisation Plan.

**Figure 6.15.7: Transfer Station Capital Programme**

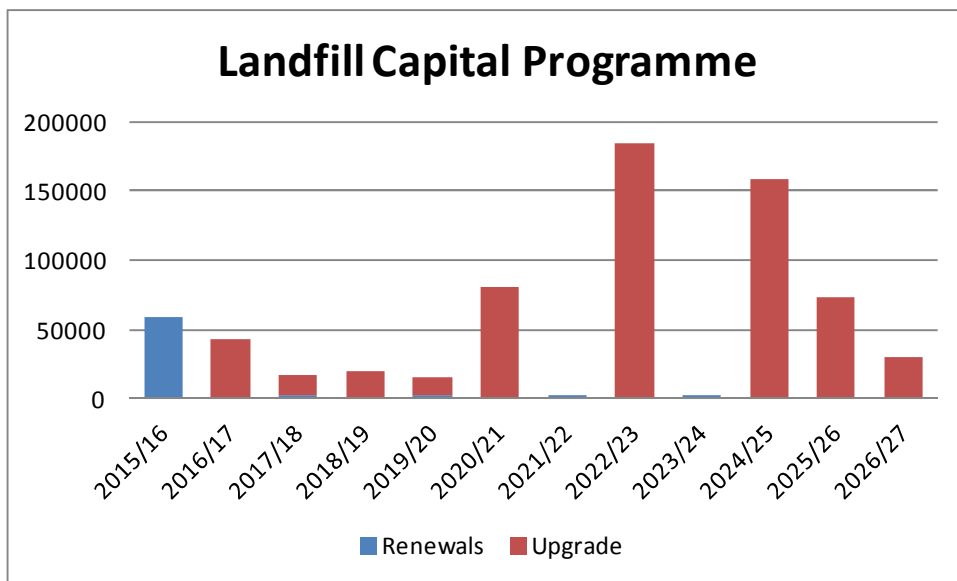


The upgrade work identified for years 2020/11 is for improvements to recycling storage and handling facilities at the transfer station.

**6.14.8 Landfill Capital Programme**

The York Valley landfill is relatively new with mostly long life assets.

**Figure 6.15.8: Landfill Capital Programme**



With expected useful life of most of the assets exceeding the working life of the landfill little capital investment is required over the period of the Long Term Plan.

The procurement of a compactor is expected to be cost neutral. The procurement cost is expected to be recovered from operational savings and the value added will be realised in increased airspace.

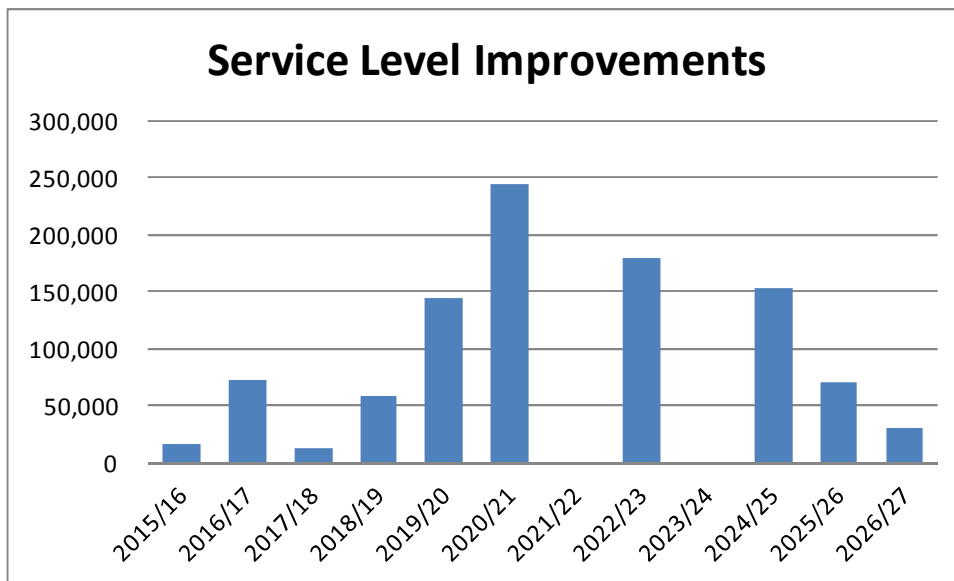
#### 6.14.9 Greenwaste Capital Programme

Capital assets used at the transfer station for the management of green waste is incorporated in the transfer station capital programmes and accounted for as an overhead on that budget.

#### 6.14.10 Level of Service Improvements

The total anticipated capital cost for projects that are aimed at increasing the level of service is shown in figure 6.15.10.

**Figure 6.15.10: Capital Cost Associated With Improvement of Levels of Service**



#### 6.14.11 Income

The source of income and distribution of income plays a significant role in how the solid waste activity is managed.

Direct and indirect subsidisation of waste management and minimisation activities through the local waste disposal levy that is funded from landfill charges should be fully appreciated.

Table 6.15.11 shows the sources of income for the different activities. The charging of a local waste disposal levy will have a significant impact on any joint waste disposal model that might be considered in the future.

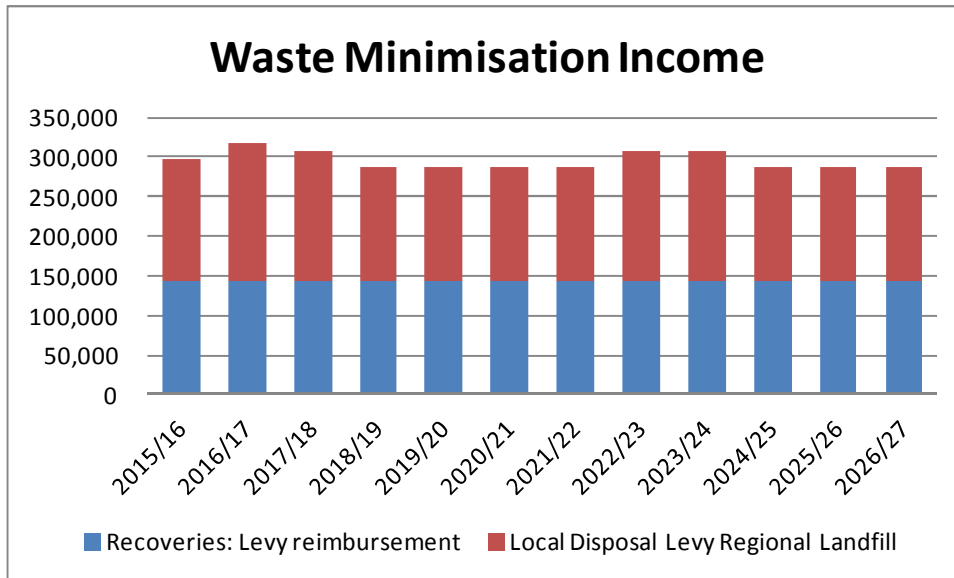
**Table 6.15.11: Income**

<b>Waste Minimisation</b>	<b>2015/16</b>	<b>2016/17</b>	<b>2017/18</b>	<b>2018/19</b>	<b>2019/20</b>	<b>2020/21</b>	<b>2021/22</b>	<b>2022/23</b>	<b>2023/24</b>	<b>2024/25</b>	<b>2025/26</b>
Recoveries: Levy reimbursement	144,000	144,000	144,000	144,000	144,000	144,000	144,000	144,000	144,000	144,000	144,000
Local Disposal Levy Regional Landfill	153,441	173,441	163,441	143,441	143,441	143,441	143,441	163,441	163,441	143,441	143,441
	297,441	317,441	307,441	287,441	287,441	287,441	287,441	307,441	307,441	287,441	287,441
<b>Transfer Station</b>	<b>2015/16</b>	<b>2016/17</b>	<b>2017/18</b>	<b>2018/19</b>	<b>2019/20</b>	<b>2020/21</b>	<b>2021/22</b>	<b>2022/23</b>	<b>2023/24</b>	<b>2024/25</b>	<b>2025/26</b>
Fees: Transfer Station	603,243	603,243	603,243	711,827	711,827	711,827	711,827	711,827	711,827	711,827	711,827
Sundry Income	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Green Waste O/head Contributn	107,527	107,527	107,527	0	0	0	0	0	0	0	0
Local Disposal Levy Regional Landfill	622,540	648,294	614,049	625,058	625,058	628,108	661,158	631,158	631,158	634,908	627,322
	1,343,310	1,369,064	1,334,819	1,346,885	1,346,885	1,349,935	1,382,985	1,352,985	1,352,985	1,356,735	1,349,149
<b>York Valley Landfill</b>	<b>2015/16</b>	<b>2016/17</b>	<b>2017/18</b>	<b>2018/19</b>	<b>2019/20</b>	<b>2020/21</b>	<b>2021/22</b>	<b>2022/23</b>	<b>2023/24</b>	<b>2024/25</b>	<b>2025/26</b>
Landfill Fees	2,725,867	5,968,835	5,937,419	5,905,826	5,761,590	5,823,350	5,908,900	5,947,862	5,963,443	5,979,101	5,868,930
Sundry Income	6,543	6,543	6,543	6,543	6,543	6,543	6,543	6,543	6,543	6,543	6,543
Sales: Gas	23,687	23,687	23,687	23,687	23,687	23,687	23,687	23,687	23,687	23,687	23,687
Recoveries Electricity	25,522	25,522	25,522	25,522	25,522	25,522	25,522	25,522	25,522	25,522	25,522
Landfill Fees: Transfer Station	568,174	558,783	554,087	554,087	554,087	554,087	554,087	554,087	554,087	554,087	554,087
	3,349,793	6,583,370	6,547,258	6,515,665	6,371,429	6,433,189	6,518,739	6,557,701	6,573,282	6,588,940	6,478,769
<b>Greenwaste</b>	<b>2015/16</b>	<b>2016/17</b>	<b>2017/18</b>	<b>2018/19</b>	<b>2019/20</b>	<b>2020/21</b>	<b>2021/22</b>	<b>2022/23</b>	<b>2023/24</b>	<b>2024/25</b>	<b>2025/26</b>
Fees: Green Waste	139,935	139,935	139,935	0	0	0	0	0	0	0	0
Local Disposal Levy Regional	52,724	52,724	52,724	0	0	0	0	0	0	0	0
	192,659	192,659	192,659	0	0	0	0	0	0	0	0
<b>Recycling</b>	<b>2015/16</b>	<b>2016/17</b>	<b>2017/18</b>	<b>2018/19</b>	<b>2019/20</b>	<b>2020/21</b>	<b>2021/22</b>	<b>2022/23</b>	<b>2023/24</b>	<b>2024/25</b>	<b>2025/26</b>
Local Disposal Levy Regional	895,063	895,063	895,063	895,063	895,063	895,063	895,063	895,063	895,063	895,063	895,063
<b>Local Waste Disposal Levy</b>	<b>1,723,644</b>	<b>3,546,666</b>	<b>3,546,666</b>	<b>3,546,666</b>	<b>3,546,666</b>	<b>3,546,666</b>	<b>3,546,666</b>	<b>3,546,666</b>	<b>3,546,666</b>	<b>3,546,666</b>	<b>3,546,666</b>
<b>Local Waste Disposal Levy per tonne</b>	<b>\$ 51.36</b>	<b>\$ 56.66</b>	<b>\$ 56.49</b>	<b>\$ 56.33</b>	<b>\$ 57.62</b>	<b>\$ 57.49</b>	<b>\$ 57.35</b>	<b>\$ 57.21</b>	<b>\$ 57.08</b>	<b>\$ 56.94</b>	<b>\$ 56.80</b>

### 6.14.12 Waste Minimisation

The income from the national waste levy was estimated conservatively and did not include any increase in the national levy. It is likely that this levy will be increased by Government in future once economic growth warrants this. Such increase will effectively increase the income that Council will derive from this source.

**Figure 6.15.12: Waste Minimisation Income**



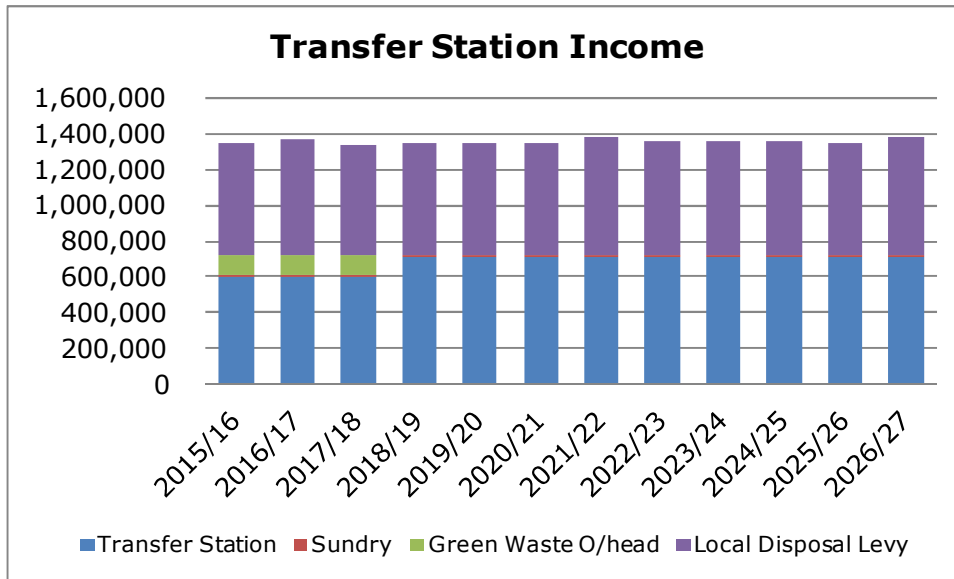
The Local Waste Disposal Levy is used to make up the cost of funding the waste minimisation activity.

### 6.14.13 Transfer Station Income

Solid waste disposed of at the transfer station is charged based on a visual assessment of the volume of waste discharged. When setting the charge the waste received during the previous year is compared with the tonnage of transfer station residual waste disposed of at York Valley for the same period. The conversion rate between volume and tonnage is then used to set a transfer station volumetric charge so that the disposal cost for mixed waste at the transfer station is comparative with the landfill charge.

The differential between the mixed waste charge and the separated greenwaste charge encourages the separation of greenwaste. A mixed waste load containing a substantial volume of greenwaste will attract a much higher charge than a separately greenwaste load.

**Figure 6.15.13: Transfer Station**

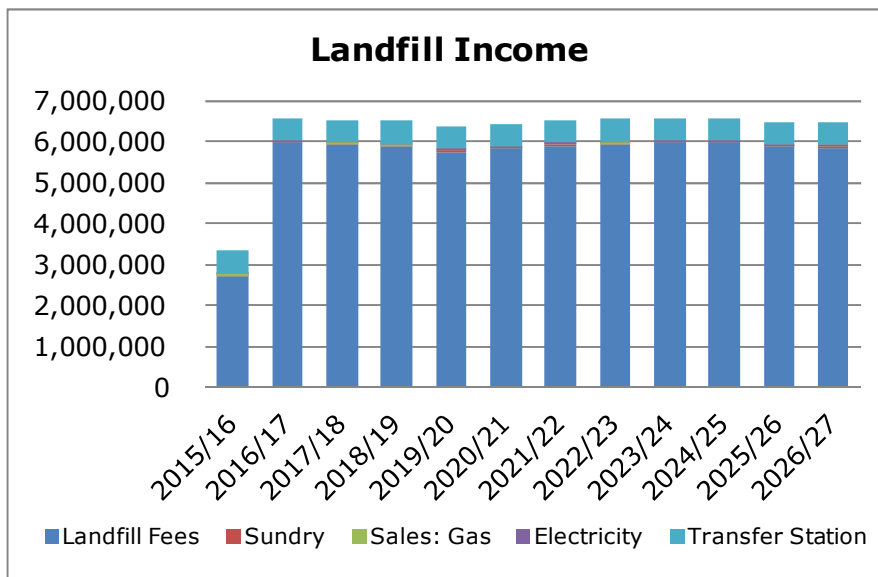


**6.14.14 Landfill Income**

The estimates for landfill tonnages for the first three years of the plan are projected to grow by 5% per year and are associated with the acceptance of treated sewage sludge from the Nelson wastewater treatment plant.

With subjective observations of trends in residual waste generation suggesting that our community understands that waste reduction is the responsibility of the individual waste generator and no growth in tonnage is projected for the period after this.

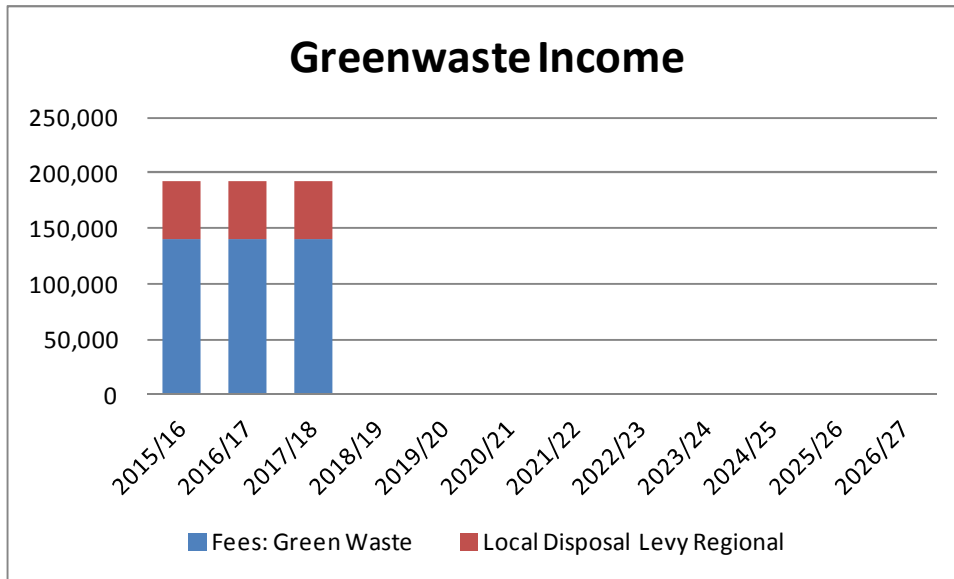
**Figure 6.15.14: Landfill Income**



**6.14.15 Greenwaste Income**

The cost and income for the greenwaste activity is balanced with a contribution from the Local Waste Disposal Levy.

**Figure 6.15.15: Greenwaste Income**

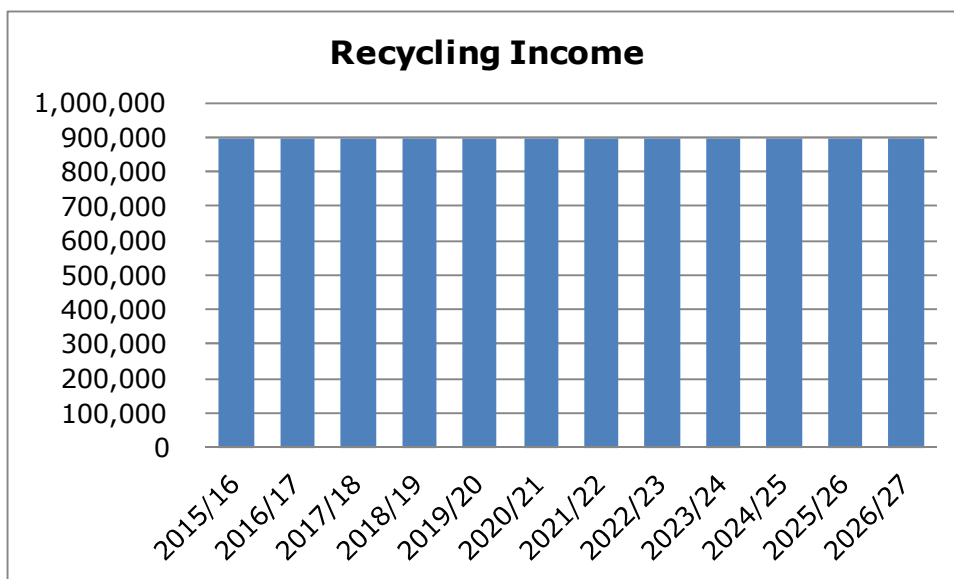


Separated green-waste received at the transfer station has decreased gradually over the last few years. It is considered likely that users of the facility have found alternative service providers. Some of the private service providers accept separated green-waste at lower charges that what applies at the transfer station.

**6.14.16 Recycling Income**

The national Waste Levy income is located to the Waste Minimisation activity. This was done in order to simplify the reporting on the allocation of the Waste Levy to the Ministry for the Environment. While the Waste Minimisation Act allows for the use of the Waste Levy for and waste minimisation activities the Ministry prefer to see the Waste Levy funding used for new projects rather than established recycling collection and processing projects.

**Figure 6.15.16: Recycling Income**

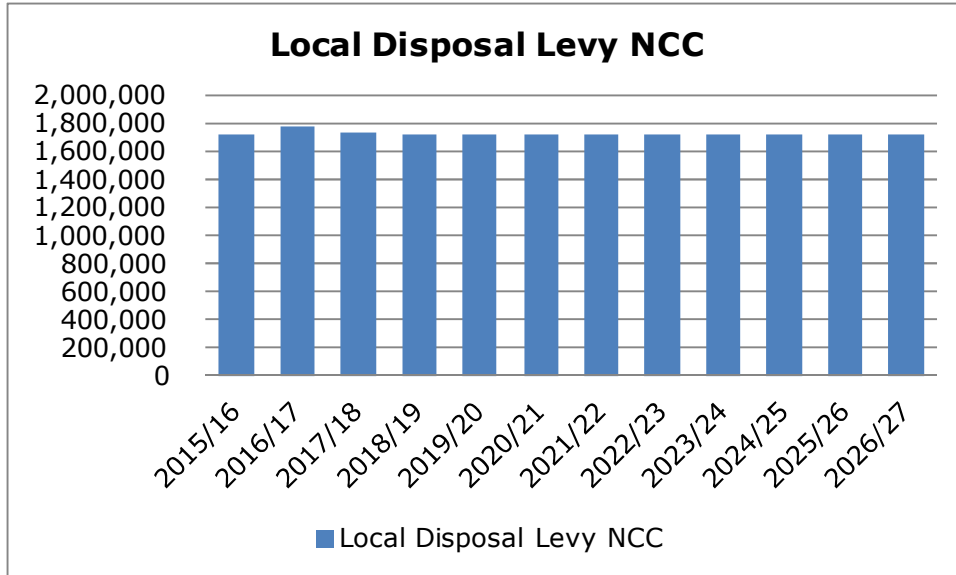


Residential kerbside collection is provided free of charge. It is estimated that the opportunity to recycle more than half the cost of waste disposal for residents who use the service extensively.

**6.14.17 Local Waste Disposal Levy**

Figure 6.14.17 shows the value of the local waste disposal levy per tonne of residual waste disposed of at the York Valley landfill. This levy funds waste management and minimisation activities that provides a public good but cannot be fully funded through a user pays model. This situation comes about when a higher level treatment of waste is required and the alternative available to the general public to place this waste out with general waste will provide a more affordable solution to their waste management problem.

**Figure 6.15.17: Local Waste Disposal Levy**



Changes in the local disposal levy mainly reflect changes in funding for waste minimisation and recycling. The local levy is also used to balance the transfer station and green-waste activity.

## **7. ASSET MANAGEMENT PRACTICES**

### **7.1 ACTIVITY MANAGEMENT**

Council adopted an Asset / Asset management plan Policy in 2010. This policy confirms that the Solid waste asset management plan should be developed to a "Core Plus" level as best reflects the needs for a city of Nelson's size.

### **7.2 INFORMATION SYSTEMS**

All asset information is stored on Arcinfo, a computer based Geographical Information System, and Asset Spreadsheets. The accounting system used is integrated computer software supplied by Napier Computer Systems. The various systems are linked.

### **7.3 ACCOUNTING/FINANCIAL SYSTEMS**

#### **7.3.1 Background**

Accounting is carried out to International Financial Reporting Standards to comply with the Local Government Amendment Act Number 3 (the No. 3 Act). The Nelson City Council uses integrated computer software supplied by Napier Computer Systems.

The General Ledger is linked to packages that run Debtors, Creditors, Banking, Rates, Fixed Assets, Invoicing, Billing, Job Costing, and Payroll.

Internal monthly financial reports are generated by activity and sub-activity.

External financial reports by significant activity are published in the annual report. Monthly summaries are presented to the Finance Committee of Council.

#### **7.3.2 Definition of Expenditure Categories**

Expenditure can be divided into two broad categories:

- Ongoing day to day operations and maintenance works;
- Programmed works that upgrade or renew the asset to provide the required level of service.

All expenditure on infrastructure assets will therefore fall into one of three categories:

- Maintenance Expenditure;
- Capital Expenditure – renewals/replacements;
- Capital Expenditure – creation/enhancement.

#### **7.3.3 Maintenance Expenditure**

Maintenance may be planned or unplanned, and is the regular ongoing day to day work necessary to keep assets operating, including instances where portions of the asset fail and need immediate repair to make the asset operational again. This includes:

- Regular and ongoing annual expenditure necessary to operate and keep the assets at their required service potential;
- Day to day and/or general upkeep works designed to keep the assets operating at required levels of service;
- Works which provide for the normal care and attention of the asset including programmed repairs and minor replacements;
- Unplanned (reactive) maintenance i.e. isolated failures requiring immediate repair to make the asset operational again.

#### **7.3.4 Capital Renewal/Replacement Expenditure**

Renewal expenditure is major work which does not increase the asset's design capacity but restores, rehabilitates, replaces or renews an existing asset to its original capacity.



This includes:

- Works which do not increase the capacity of the asset, but restores them to their original size, condition capacity, etc;
- The replacement component of augmentation works which restores the assets to their original size, condition, capacity, etc;
- Reconstruction or rehabilitation works involving improvements, realignment and regrading;
- Renewal and/or renovation of existing assets, restoring the assets to a new or fresh condition consistent with the original asset.

### **7.3.5 Capital Creation/Enhancement Expenditure**

Capital works create a new asset that did not previously exist, or upgrade or improve an existing capacity. They may result from growth, social or environmental needs. This includes:

- Construction works which create a new asset that did not previously exist in any shape or form;
- Expenditure which purchases or creates a new asset (not a replacement) or in any way improves an asset beyond its original design capacity;
- Upgrading works which increase the capacity of the asset;
- Construction works designed to produce an improvement in the standard and operation of the asset beyond its present capacity.

### **7.3.6 Depreciation and Loss of Service Potential**

Depreciation and Loss of Service are calculated in spreadsheets.

## **7.4 GEOGRAPHICAL INFORMATION SYSTEM**

### **7.4.1 Background**

When the decision was made to implement the Geographical Information System in 1993 it was recognised that the existing asset information was not of a suitable standard to be entered directly into the system. A contract was let for the capture and delivery of data in digital format suitable for entry into the Geographical Information System.

The data capture included contours, building outlines, road markings, kerb and channel, manholes, sumps, valves, hydrants etc. To ensure that underground services were captured as accurately as possible, students were employed to identify and mark every surface access point (e.g. manholes, valves).

The data was captured using photogrammetry in March 1994 and progressively delivered over the following three years. Nelson City Council staff carried out accuracy checks on the co-ordinate data supplied, searched all the engineering plans and field books for information on pipe alignment, material and age and entered this information into the Geographical Information System.

### **7.4.2 Maintenance of Geographical Information System Data**

New data is updated into the Geographical Information System system on a monthly basis.

## **7.5 INFORMATION FLOW REQUIREMENTS AND PROCESSES**

### **7.5.1 Existing Information Flow and Business Processes**

In June 2000, Opus International Consultants Ltd completed a report entitled "The Development of Business Process Mapping for Asset Management Systems" preparatory to Nelson City Council purchasing and implementing a computer based Asset Management System.

The report details the existing business processes used by the Nelson City Council in its Asset Management planning.

The report identified a preferred process for the management of Council assets and identified gaps in the current process for each asset group and recommended actions required to correct the gaps and implement the transition to the preferred management process.

The report concluded that the majority of data required for Asset Management is already collected and stored. However the data is stored in a myriad of systems and files and is therefore not extensively used to support the Asset Management planning decision making processes.

## **7.6 SCADA TELEMETRY**

Council has a "Kingfisher" SCADA (Supervisory Control and Data Acquisition) system and an "Intouch" system at the base station. The system is used to monitor and control critical aspects of the network.

The only solid waste activity that utilises the SCADA system is the gas flare.

## **8. IMPROVEMENT PLAN**

### **8.1 PERFORMANCE MONITORING AND MANAGEMENT**

The effectiveness of the Solid waste asset management plan will be monitored in various ways and the results used in the updating and revision of the Plan as described in Section 8.6.

### **8.2 CURRENT LEVEL OF SERVICE OBJECTIVES**

This Solid waste asset management plan contains levels of service in Section 2.0. Compliance with the current level of service objectives will be monitored by internal audit.

### **8.3 CAPITAL AND RENEWAL WORKS PROGRAMME**

The carrying out of the annual capital and renewal works programme will be monitored to ensure that the works are completed on time and within budget.

### **8.4 MAINTENANCE WORKS PROGRAMME**

The carrying out of the maintenance works will be monitored to ensure that the works are carried out within the required response times, to the required standard, and at the least cost.

### **8.5 IMPROVEMENT PROGRAMME**

#### **8.5.1 Improving Accuracy and Confidence in Asset Management Plan**

Asset management improvements and associated objectives are noted throughout the Asset management plan.

These improvements will improve the accuracy of, and confidence in, the Solid Waste Asset Management Plan.

A risk assessment is an essential element of any asset management plan. This involves identification of critical assets, risk analysis and development of risk reduction and contingency planning to suit the business situation.

#### **8.5.2 Core to Advanced Gap Analysis**

Asset Management Planning is a constantly evolving process, with underpinning Asset Management systems constantly providing better information. The previous Solid Waste Management Plan was adopted by Council in 2005 and did not include an improvement plan.

In recent years it has been recognised that a new rating level of "Core Plus" is the most appropriate rating for cities of Nelson's size. This rating reflects that parts of the asset can be managed at a Core level and parts at an Advanced level. The resultant provides an effective asset management tool without becoming un-necessarily expensive.

### **8.6 MONITORING AND REVIEW PROCEDURES**

The plan will be reviewed annually and revised every three years to incorporate, amongst other things, improved decision making techniques, updated asset information, and Council policy changes which impact on targeted levels of service.

The effectiveness of the Asset management plan will be monitored in various ways.

#### **8.6.1 Statutory Audit**

The Local Government Act requires that an annual, financial audit of the operations of the Council be carried out. Audits may include all significant activities such as Asset Management planning.

### **8.6.2 Internal Audit**

An internal audit will be taken to assess the effectiveness with which the plan meets its objectives prior to the development of the 2015 Asset management plan.

### **8.6.3 Review and Updates**

The Solid waste asset management plan programmes and costs will be reviewed and updated annually by 30 August each year for incorporation into the Annual Plan.

## 9. ACTION PLAN

Throughout the Asset management plan, objectives, targets, capital works, maintenance and improvements to general business processes are referred to:

- Ongoing management actions;
- Record landfill tonnages monthly;
- Record diverted recyclables monthly;
- Continue Civic House recycling;
- Continue landfill monitoring.

	<b>Actions</b>	<b>Progress</b>
AP-1	Investigate construction and demolition waste recovery and diversion of clean fill material.	2016 <sup>R</sup>
AP-2	Landfill development plan.	2017 <sup>R</sup>
AP-3	Solid waste bylaw.	2016 <sup>R</sup>
AP-4	Review of solid waste activities to determine effectiveness and efficiency of solid waste management activities.	2016
AP-5	Investigate joint refuse collection.	2015-2018
AP-6	Investigate joint green-waste composting initiatives.	2015-2016
AP-7	Investigation into organic waste collection and treatment.	2015-2018
AP-8	Landfill Compactor lease/purchase.	2015-2018
AP-9	Re-use of glass.	2015-2018
AP-10	Commercial Food waste/collection and treatment.	2015-2018
AP-11	Develop a policy for allocation of funds from Waste Stabilisation Fund. <del>(Refer Landfill Agreement)</del>	2016
AP-12	Review policy for discounted fees for bulk loads and special circumstances <del>in consultation with TDC.</del>	2016

Note: C – Completed, R – Revised.

Some Joint Waste Management and Minimisation initiatives between Nelson City Council and Tasman District Council have been delayed as a result of slower than projected progress with the development of the Joint Landfill Initiatives.

These joint programmes will need to be reprioritised over implementation period of this asset management plan.

The mechanism for the setting of joint waste management and minimisation programmes is currently under review.

**Appendix 1: Financial Summary for Next 10 Years**

<b>Waste Minimisation</b>	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
	1	2	3	4	5	6	7	8	9	10
Recoveries: Levy reimbursement	144,000	144,000	144,000	144,000	144,000	144,000	144,000	144,000	144,000	144,000
Local Disposal Levy Regional Landfill	153,441	173,317	163,317	143,317	143,317	143,317	143,317	163,317	163,317	143,317
<b>Total Income</b>	<b>297,441</b>	<b>317,317</b>	<b>307,317</b>	<b>287,317</b>	<b>287,317</b>	<b>287,317</b>	<b>287,317</b>	<b>307,317</b>	<b>307,317</b>	<b>287,317</b>
Staffing	90,132	90,132	90,132	90,132	90,132	90,132	90,132	90,132	90,132	90,132
Subsidy on Compost Bins	8,389	8,389	8,389	8,389	8,389	8,389	8,389	8,389	8,389	8,389
Waste Minimisation Resources	8,501	8,501	8,501	8,501	8,501	8,501	8,501	8,501	8,501	8,501
Zero Waste Grants/Product Steward	20,972	20,972	20,972	20,972	20,972	20,972	20,972	20,972	20,972	20,972
Cathode Ray Tubes Recycling Su	10,000	10,000	0	0	0	0	0	0	0	0
Community engagement-schools	38,000	38,000	38,000	38,000	38,000	38,000	38,000	38,000	38,000	38,000
Waste Minimisation at Council	3,146	3,146	3,146	3,146	3,146	3,146	3,146	3,146	3,146	3,146
Waste min: composting & food	12,583	12,583	12,583	12,583	12,583	12,583	12,583	12,583	12,583	12,583
Waste min: community engagement	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000
Waste minimisation at events	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
Waste Management and Minimisation Plan Feasibility Study	35,000	55,000	55,000	35,000	35,000	35,000	35,000	55,000	55,000	35,000
SWAP	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Depreciation	594	594	594	594	594	594	594	594	594	594
<b>Total Expenses</b>	<b>297,317</b>	<b>317,317</b>	<b>307,317</b>	<b>287,317</b>	<b>287,317</b>	<b>287,317</b>	<b>287,317</b>	<b>307,317</b>	<b>307,317</b>	<b>287,317</b>

<b>Transfer Station</b>	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
	1	2	3	4	5	6	7	8	9	10
Transfer Station	603,243	603,243	603,243	711,827	711,827	711,827	711,827	711,827	711,827	711,827
Sundry	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Green Waste O/head	107,527	107,527	107,527	0	0	0	0	0	0	0
Local Disposal Levy	622,540	648,294	614,049	625,058	625,058	628,108	661,158	631,158	631,158	634,908
<b>Total Income</b>	<b>1,343,310</b>	<b>1,369,064</b>	<b>1,334,819</b>	<b>1,346,885</b>	<b>1,346,885</b>	<b>1,349,935</b>	<b>1,382,985</b>	<b>1,352,985</b>	<b>1,352,985</b>	<b>1,356,735</b>
Total Staff Time	66,530	66,530	66,530	83,292	83,292	83,292	83,292	83,292	83,292	83,292
Provide: Operator Contract	139,427	139,427	139,427	139,427	139,427	139,427	139,427	139,427	139,427	139,427
Provide: Cartage Contract	76,117	76,117	76,117	76,117	76,117	76,117	76,117	76,117	76,117	76,117
Provide: Hazardous Waste	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000	21,000
Provide: Car Tyre Disposal	4,388	4,388	4,388	4,388	4,388	4,388	4,388	4,388	4,388	4,388
Provide: Operator/Ticket Offic	110,210	110,210	110,210	110,210	110,210	110,210	110,210	110,210	110,210	110,210
Landfill Charges	568,174	563,478	558,783	554,087	554,087	558,783	565,826	568,174	568,174	568,174
Electricity	15,884	15,884	15,884	15,884	15,884	15,884	15,884	15,884	15,884	15,884
Rates	26,432	26,432	26,432	26,432	26,432	26,432	26,432	26,432	26,432	26,432
Water By Meter	1,328	1,328	1,328	1,328	1,328	1,328	1,328	1,328	1,328	1,328
Insurance	6,144	6,144	6,144	6,144	6,144	6,144	6,144	6,144	6,144	6,144
Building Maintenance	12,752	12,752	12,752	12,752	12,752	12,752	12,752	12,752	12,752	12,752
Grounds Maintenance	2,657	2,657	2,657	2,657	2,657	2,657	2,657	2,657	2,657	2,657
Plant & Equipment Maintenance	47,182	77,182	47,182	47,182	47,182	47,182	77,182	47,182	47,182	47,182
Loss of service potential	234,350	234,350	234,350	234,350	234,350	237,400	240,450	240,450	240,450	244,200
Total Depreciation	10,735	11,185	11,635	11,635	11,635	11,635	11,635	11,635	11,635	11,635
<b>Total Expenses</b>	<b>1,343,310</b>	<b>1,369,064</b>	<b>1,334,819</b>	<b>1,346,885</b>	<b>1,346,885</b>	<b>1,354,631</b>	<b>1,394,724</b>	<b>1,367,072</b>	<b>1,367,072</b>	<b>1,370,822</b>

<b>York Valley Landfill</b>	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
	1	2	3	4	5	6	7	8	9	10
Estimated tonnage	33563	62601	62779	62957	61551	61697	61844	61991	62139	62288
Waste sludge		2000	2000	2000						
Landfill Fees	2,725,867	5,968,835	5,937,419	5,905,826	5,761,590	5,823,350	5,908,900	5,947,862	5,963,443	5,979,101
Sundry	6,543	6,543	6,543	6,543	6,543	6,543	6,543	6,543	6,543	6,543
Sales: Gas	23,687	23,687	23,687	23,687	23,687	23,687	23,687	23,687	23,687	23,687
Electricity	25,522	25,522	25,522	25,522	25,522	25,522	25,522	25,522	25,522	25,522
Transfer Station	568,174	558,783	554,087	554,087	554,087	554,087	554,087	554,087	554,087	554,087
<b>Total Income</b>	<b>3,349,793</b>	<b>6,583,370</b>	<b>6,547,258</b>	<b>6,515,665</b>	<b>6,371,429</b>	<b>6,433,189</b>	<b>6,518,739</b>	<b>6,557,701</b>	<b>6,573,282</b>	<b>6,588,940</b>
Total Staff Time	168,731	168,731	168,731	168,731	168,731	168,731	168,731	168,731	168,731	168,731
York Valley Landfill Operatic	427,436	454,666	455,349	456,036	447,217	447,911	448,608	449,308	450,012	450,720
LFG Operation	12,943	21,572	21,572	21,572	21,572	21,572	21,572	21,572	21,572	21,572
Leachate Control	14,792	24,653	24,653	24,653	24,653	24,653	24,653	24,653	24,653	24,653
Resource Consent Conditi	63,759	63,759	63,759	63,759	63,759	63,759	63,759	63,759	63,759	63,759
ETS levy	84,682	209,069	209,540	210,013	203,939	204,416	204,896	205,379	205,864	206,351
Toe Embankment Maintena	102,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000
Waste Levy Min for Environ	258,570	638,380	639,817	641,261	622,713	624,172	625,638	627,111	628,592	630,080
Local Disposal Levy TDC	0	1,773,333	1,729,088	1,715,000	1,715,000	1,715,000	1,715,000	1,715,000	1,715,000	1,715,000
Local Disposal Levy NCC	1,723,644	1,773,333	1,729,088	1,715,000	1,715,000	1,715,000	1,715,000	1,715,000	1,715,000	1,715,000
Electricity	24,122	24,122	24,122	24,122	24,122	24,122	24,122	24,122	24,122	24,122
Rates	2,019	8,076	8,076	8,076	8,076	8,076	8,076	8,076	8,076	8,076
Water by meter charges	4,144	4,144	4,144	4,144	4,144	4,144	4,144	4,144	4,144	4,144
Trade Waste Charges	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816	2,816
Insurance	1,954	1,954	1,954	1,954	1,954	1,954	1,954	1,954	1,954	1,954
Levy for Closure Costs	62,000	62,000	62,000	62,000	62,000	62,000	62,000	62,000	62,000	62,000
Valuations / Surveys	3,000	3,000	3,000	18,000	3,000	3,000	3,000	18,000	3,000	3,000
Plant Maintenance	20,000	0	0	0	0	0	0	0	0	0
Aftercare Amortisation	9,825	9,825	9,825	9,825	9,825	9,825	9,825	9,825	9,825	9,825
Total Depreciation	136,117	136,117	136,117	136,117	136,117	136,117	136,117	137,317	138,517	141,417
Targetted Surplus	0	588,000	988,000	988,000	988,000	988,000	988,000	988,000	988,000	988,000
<b>Total Expenses</b>	<b>3,122,554</b>	<b>6,137,550</b>	<b>6,451,651</b>	<b>6,441,079</b>	<b>6,392,638</b>	<b>6,395,268</b>	<b>6,397,911</b>	<b>6,416,768</b>	<b>6,405,638</b>	<b>6,411,221</b>



<b>Greenwaste</b>	<b>2015/16</b>	<b>2016/17</b>	<b>2017/18</b>	<b>2018/19</b>	<b>2019/20</b>	<b>2020/21</b>	<b>2021/22</b>	<b>2022/23</b>	<b>2023/24</b>	<b>2024/25</b>
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
Fees: Green Waste	139,935	139,935	139,935	0	0	0	0	0	0	0
Local Disposal Levy Regional	52,724	52,724	52,724	0	0	0	0	0	0	0
<b>Total Income</b>	<b>192,659</b>	<b>192,659</b>	<b>192,659</b>							
Total Staff Time	16,762	16,762	16,762	0	0	0	0	0	0	0
Provide: Green Waste Disposal	52,560	52,560	52,560	0	0	0	0	0	0	0
Provide: Transport Green Waste	15,810	15,810	15,810	0	0	0	0	0	0	0
Transfer Station Overhead	107,527	107,527	107,527	0	0	0	0	0	0	0
<b>Total Expenses</b>	<b>192,659</b>	<b>192,659</b>	<b>192,659</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

<b>Recycling</b>	<b>2015/16</b>	<b>2016/17</b>	<b>2017/18</b>	<b>2018/19</b>	<b>2019/20</b>	<b>2020/21</b>	<b>2021/22</b>	<b>2022/23</b>	<b>2023/24</b>	<b>2024/25</b>
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
Local Disposal Levy Regional	895,063	895,063	895,063	895,063	895,063	895,063	895,063	895,063	895,063	895,063
<b>Total Income</b>	<b>895,063</b>	<b>895,063</b>	<b>895,063</b>	<b>895,063</b>	<b>895,063</b>	<b>895,063</b>	<b>895,063</b>	<b>895,063</b>	<b>895,063</b>	<b>895,063</b>
Total Staff Time	32,035	32,035	32,035	32,035	32,035	32,035	32,035	32,035	32,035	32,035
Kerbside Contract	824,000	824,000	824,000	824,000	824,000	824,000	824,000	824,000	824,000	824,000
Recycling Bins	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
CBD Bins	5,863	5,863	5,863	5,863	5,863	5,863	5,863	5,863	5,863	5,863
Schools	13,165	13,165	13,165	13,165	13,165	13,165	13,165	13,165	13,165	13,165
<b>Total Expenses</b>	<b>895,063</b>	<b>895,063</b>	<b>895,063</b>	<b>895,063</b>	<b>895,063</b>	<b>895,063</b>	<b>895,063</b>	<b>895,063</b>	<b>895,063</b>	<b>895,063</b>

**Appendix 2: Solid Waste Valuation**

Asset Category	June 2014			
	RV (\$)	DRV (\$)	Depr (\$)	Land Value
<b>Transfer Station</b>	4,230,400	2,574,000	233,900	1,998,000
<b>Landfill</b>				606,000
Stormwater System	1,023,935	731,824	11,434	
Gas Collection System	659,762	340,872	21,514	
Sewer Collection System	456,411	308,691	5,729	
Leachate Collection System	633,272	523,886	7,072	
Water Supply	244,197	150,423	3,363	
Internal Road	1,083,676	903,634	7,128	
Resource consent	705,741	264,653	29,406	
Vehicle wash	23,813	9,720	486	
Whiteware/carbody area	134,143	110,514	1,575	
Monitoring	242,112	131,802	7,395	
<b>TOTAL</b>	<b>9,437,463</b>	<b>6,050,018</b>	<b>329,001</b>	<b>2,604,000</b>