

Solid Waste Summary

Taupō District Council manages solid waste to reduce the likelihood of harm to people and the environment. This asset management plan enables Council to manage and demonstrate its stewardship of solid waste assets on behalf of its communities in order to provide services cost-effectively, both now and into the future.

Strategy

From a strategic perspective, there are two major issues for Council to consider volume and cost. Finding the optimal combination of these factors is the policy challenge for all Councils.

1. Volume

The Waste Act 2008 requires Councils to manage waste and efficiently and effectively, and to reduce the volume of waste going into landfills. The volume of waste sent to landfills can be reduced by any of these methods: create less rubbish; reuse products; recycle materials for new products; recover materials or energy from waste for further use; treat the waste to change its volume or character. Waste tonnages have averaged 21,000 tonnes over the last 11 years, with waste tonnages recently moving to around 25500 annually.

2. Cost

Council operates the Broadlands road Landfill and five refuse transfer station sites, kerbside refuse and recycling collection and street litterbins as well as providing a raft of waste minimisation initiatives. The challenge is to provide these services while keeping the cost of waste disposal at a level where waste flight is avoided (waste taken and disposed at alternative disposal sites other than the Broadlands Rd Landfill) as waste flight would reduce the revenue streams that fund the minimisation programs. Higher waste disposal costs also increase the amount of illegal dumping but if waste disposal prices fall, this can also undermine waste minimisation initiatives.

Council has already implemented the easy to achieve low cost solutions to waste minimisation and to achieve significant waste reduction going forward Council will have to provide significant additional funding.

Overarching Issues for Solid Waste

Kerbside service delivery / contract renewal

Broadlands RD Landfill consent renewal

ETS emission costs / gas flare

Resource recovery / recycling and changes to legislation / policy

Operational efficiency and Health and Safety

Waste Management & Minimisation Plan

Kerbside service delivery / contract renewal

Council has recently renewed the current Kerbside collection contract for an additional two years. This contract extension will enable Council to review the current service. Staff will present several options to elected members that will consider funding mechanism's (rates vs user pay) as well as bags vs bins and implications of recovered materials markets.

Staff are currently awaiting the policy announcement from central government regarding product stewardship for drink containers which could change the funding dynamics of any future program before presenting options.

Broadlands RD Landfill consent renewal

The operational consent to operate the landfill expires in 2027, but the implications of the ETS costs on operations means that Council when considering mitigation options to reduce exposure to the ETS need to consider the consent time lines.

An investment into emission reductions will need consent certainty, thus staff have started compiling data to start the consent renewal process early. If council can obtain a new consent, then Council can invest in emission reduction infrastructure earlier knowing that it has a timeline to depreciate any new infrastructure.

If Council can renew the consent, the NES (National Environmental Standards) will require council to install gas destruction infrastructure as the landfill will receive more than 1 million tonnes over its lifetime.

If Council is unable to obtain a new consent, then council will need to alter the current footprint of the drop off area (transfer station) to facilitate bulk loading of material to an alternative disposal site. Any new transfers station facility will be designed to enable loads to be inspected and material recovered/ recycled prior to transport to disposal.

ETS emission costs / gas flare

Emission credits need to be surrendered for every tonne of waste deposited to landfill, with council's current exposure to the ETS being around 1 million annually.

To reduce council's exposure to the ETS, a gas flare and gas wells could be installed at the landfill to burn the methane produced. Staff are currently analysing the actual gas production versus what a gas model suggests the site should be producing to make sure that any new infrastructure would provide the required methane burn and thus cost reduction.

Emission costs are calculated on tonnage to landfill over a year, multiplied by an emission factor (currently 1.19) emission credits must then be purchased to cover this liability.

Current annual tonnage = 25500 x emission factor 1.19 = 30,345 tonnes. Emission credits are currently selling at \$35. So, 30,345 x \$35 = \$1,062,075 per annum.

Resource recovery / recycling and changes to legislation / policy

The end market for recovered materials from the NZ market has predominantly been China, which has been the main recovered materials market for the worlds recovered materials. Over the last three years, since China has enforced their policy of not taking recovered materials, the overall world market for recovered materials has collapsed. This has resulted in council reducing the number of plastic items recovered from the waste stream and has dramatically reduced the value of other recovered products due to a world glut.

World markets are slowly recovering, but this will take some time, and will require recovered materials exports to be free of contamination.

Markets have now placed contamination levels on all products exported, and the NZ government has enacted policy around banning the export of some materials if contaminated.

Product quality should be a main driver when selecting any new collection service at kerbside, with studies identify that glass should be collected separately from other material to eliminate glass breakage.

Product stewardship policy development will change what is collected at the kerb and may also provide support funding for the collection service.

Operational efficiency and Health and Safety

Council operates five transfers stations along with the Broadlands Rd landfill, with these facilities run under two different operational contracts and one site being run by council. The

medium-term objective is to combine all these facilities into one overall operational contract to provide efficiencies for the operators and savings to council.

Part of the process of looking to combine the operational contracts is undertaking upgrades to the sites, to enable bulk loading of recovered materials as well as removing any manual handling of materials to reduce the health and safety risk to the operators and users of the facilities.

Waste Management & Minimisation Plan

Council has set a waste reduction target for the district being:

By 2028, increase the quantity of material (tonnes) diverted from landfill from 46% to 51%”

The production of waste is directly linked to GDP so Council has limited control over waste to landfill tonnages. A large percentage of the current waste to landfill is controlled by the commercial market service provision

Council should look to increase the current waste diversion rate of 46% relative to the tonnes disposed to landfill.

Council is on track to achieve the waste reduction target, but the collapse of the recovered materials market has had some impact.

Central Government will also have an impact on waste reduction with the price to dispose of waste set to increase due to both the waste levy and the ETS. The higher the disposal price the more opportunity there is to divert waste.

Asset data

Council provides a landfill and resource recovery centre, transfer stations, and street litter and recycling bins for its communities. The facilities, listed in order of size, are located as follows:

- Broadlands’s Rd landfill and resource recovery centre - the hub of Council’s solid waste operations
- Turangi transfer station
- Mangakino transfer station
- Kinloch transfer station
- Omori transfer station
- Whareroa transfer station
- Closed landfills at Taupō, Mangakino and Turangi. Closed landfills have closure consents, which require Council to monitor to ensure there, are no adverse environmental effects from these sites.
- 350 plus litter and recycling bins, 51 Big Belly solar waste compactors.

Collectively the solid waste assets are valued at \$2.120 million (June 20). In order to manage waste for its many communities, Council has the additional assets given below:

Figure 1 Solid waste assets

Asset type	Number
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Buildings	16
Plant (compactors)	2
Fencing and gates	5kms
Roading	3kms
Hard stand areas	10,000sq
Utilities – street lights reticulation etc	18
Street litter & recycling bins	551
Bulk Haulage Bins	12

Levels of Service

Council provides solid waste primarily for public health, safety and environmental protection. Waste services also enable the District to retain its attractive appearance for residents and visitors. Council provides a level of service that meets all of these measures:

- refuse disposal and recycling / recovery services are available throughout the district
- kerbside refuse and recycling collection is provided in urban areas
- customers are satisfied with the function and appearance of the solid waste facilities
- facilities are safe for current and future users
- Council encourages waste minimisation
- Street litter & Recycling bins do not overflow
- The landfill is operated within its consent requirements
- Reuse sheds are provided at all district waste facilities

State of the assets

Consents

The Broadlands Rd landfill operational consent expires in 2027. As there is additional space on site to extend the landfill after the expiry date, Council will look to renew the operational consent.

If Council is able to renew the operating consent then the requirements of the National Environmental Standards (NES) require that the Landfill operates gas destruction infrastructure, in this case this would be a gas flare.

Council is currently compiling information to enable consultation to commence, as the earlier the consent can be renewed the earlier Council could fund the gas flare and depreciate it over a longer period thus reducing operating cost.

Council holds three closed landfill consents, which cover, Stage 1 Broadlands Rd, Turangi and Mangakino closed landfills.

Physical assets

Overall the solid waste assets are in good condition and provide the desired level of service, but some of the sites need improvements to be able to cope with the peak summer period. All facilities will continue to require renewal expenditure to keep them operating to their optimum.

Forecast

Council's growth model projects that waste tonnages will be less than an additional 200 tonnes per annum to the landfill which can easily be processed at the landfill, with the limited increase not impacting landfill cell development. This is projected growth is to occur in the Taupō area with a majority of the new development in and around the Taupō Township.

Lifecycle Management Tactics

New works

New works are planned for the Broadlands Rd landfill so that the landfill can continue to meet the demand for solid waste disposal and the requirements of the Resource consent.

Apart from new cells to take waste over the consent period, the largest capital project, if the consent is renewed, will be the installation of gas wells, pipes and a gas flare. The flare will burn the methane and reduce council's exposure to the costs of the ETS.

Works are also planned for a number of the transfer station sites to enable them to cope with the summer peak periods, as well as remove Health and safety risks and prepare the sites to be included into a district waste facility management contract.

Council will continue to invest in smart technology refuse bins to provide capacity in high usage areas.

Kerbside waste & recycling service delivery is also going to be considered with a raft options prepared for council and ultimately the community to consider.

Renewal

Council replaces assets when performance is unacceptable, based on criteria of: age, condition, service breaks and complaint volumes as well as health and safety impacts.

Operations and maintenance

The operational services team has a preventive maintenance programme to optimise the life of assets and reduce renewal costs.

Disposal strategy

The Mangakino landfill is privately owned and operated as a farm. With the landowner's agreement, Council has obtained a resource consent that allows Council to rehabilitate the site if any adverse environmental impacts were detected through the monitoring program.

A portion of Stage one of the Broadlands Road Landfill is to be handed over to the Tauhara Mountain Trust, but to date Council has not been able to achieve hand over due to Trust complications in the Maori land court.

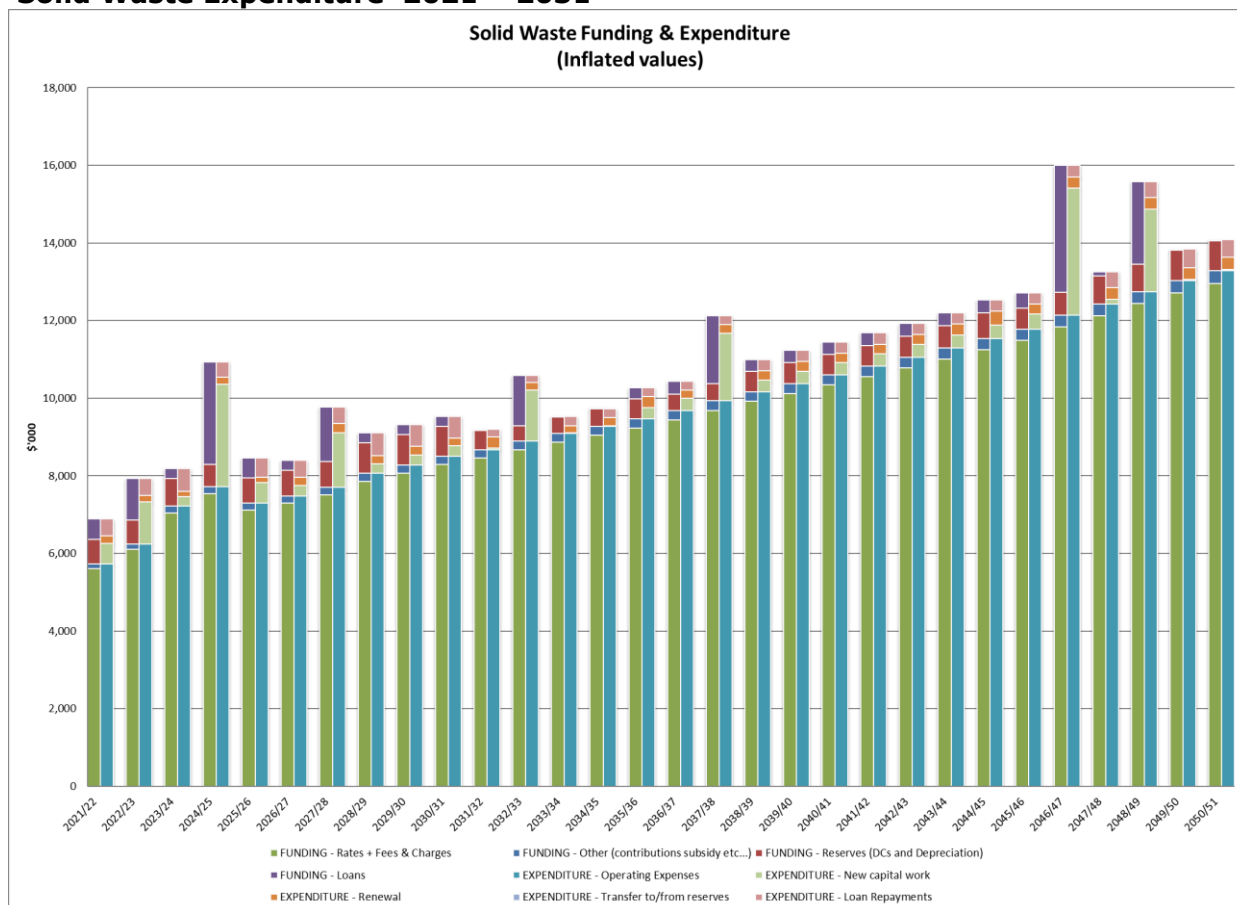
Disposal

The steel green 60L street litter bins have reached their disposal date and will be progressively updated and removed and as they are steel, they will be recycled once removed

Financials

The thirty-year financial forecast for solid waste assets and services was determined by evaluating current maintenance and renewal plans for each set of components (pavements, sheds, barrier arms, etc), and identification of new works.

Solid Waste Expenditure 2021 – 2031



New works

Capital expenditure spikes are due to new lined disposal cells being constructed at the Broadlands Rd landfill and the provision of a gas flare in year 4.

Renewal

Renewal costs vary due to disposal sites needing differing amounts of funding due to size, usage and the age and performance of the plant. As facility usage increases due to increases in population and visitors, so will the renewal funding requirements. The average renewal expenditure is budgeted at around \$100,000 per year.

Operations and maintenance

Operation and maintenance costs are budgeted at \$4.5 million per year for the next ten years. This is an increase from previous years due to an increase in ETS costs, but this increase is offset a little by sharper contract rates. ETS costs have moved from \$4-\$5 per tonne to currently \$35 per tonne of waste disposed to landfill.

Technical Notes

Risk management

Risk management is essential for management of Council assets so that solid waste services can be provided safely and consistently. Using a likelihood and consequence matrix to assess risks, the following high risks have been identified:

- Fire at the landfill
- Tomos - Damage to the reticulation system due to pipe fracture, disconnection of joints and/or pump failure , Damage to liner system

- External contractor failure, leading to range of other failures (for example, liner failure, failure to meet consent conditions)
- Liner failure, causing leachate to flow to ground, due to maintenance and capacity issues
- Failure to comply with resource consents, including acceptance of hazardous materials or illegal disposal of contaminants into landfill
- Unexpectedly high costs to maintain, renew or create assets, leading to failure to comply with resource consents
- Competition - Commercial operators divert waste, limiting Councils waste minimisation opportunities, and reducing revenue.
- Public safety due to access to contaminated sites, and recycling areas that are hazardous, heavy machinery movements.
- Volcanic eruption – facilities being covered with ash would hinder their operation, ash would affect operational vehicles and could affect kerbside collection operations.

All of these risks have potentially serious consequences for people in the District and for the District's economic wellbeing because they jeopardise the District's reputation and potentially, its visitor industry.

Asset management practices

Council uses a range of decision-making tools to establish its maintenance, renewal and new works expenditure, including process, analysis and evaluation techniques for life cycle asset management; information systems to store and manipulate data; and data and information from a number of sources (technical, financial, customer service).

Asset management practises for waste facilities are highly dependent of facility use and peak demand requirements.

Plan improvement programme

Councils are required to have plan improvement programmes to improve their asset management planning, and we will continue to implement our improvement plan.

International infrastructure management

The plan is an intermediate plan based on the requirements of the International Infrastructure Management Manual.