



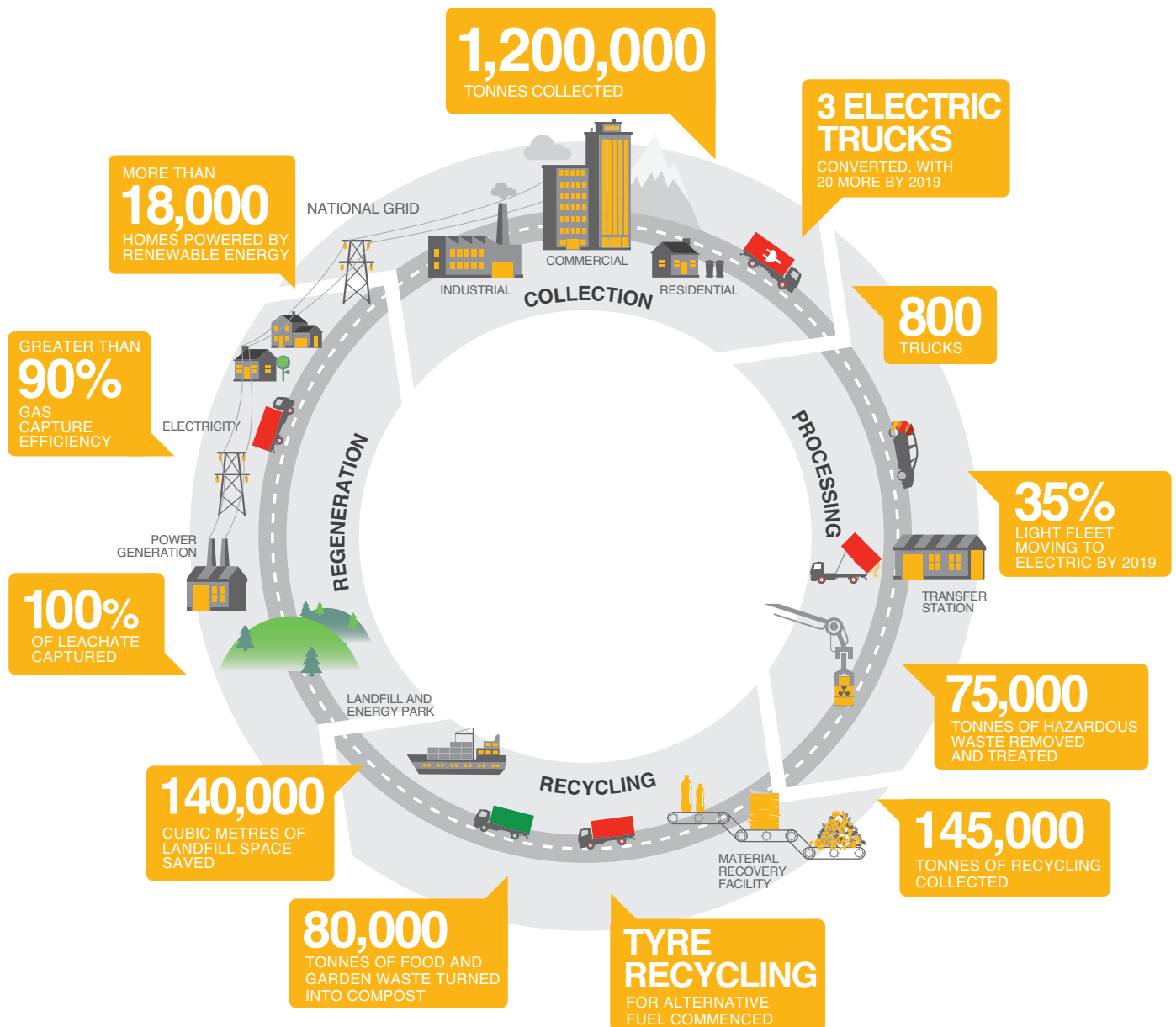
Waste Management

positively resourceful

# Meeting Auckland's future needs: Proposal for the Auckland Regional Landfill

Image: Redvale Landfill and Energy Park at Dairy Flat, Auckland

# The circular economy



Based on Waste Management NZ Limited's 2017 National Figures.

For Waste Management, waste is a valuable resource which can be reused, redirected or recycled back into the circular economy.

From greenwaste into compost, to milk bottles into wheelie bins, or old tyres into fuel, the focus is on finding a beneficial, sustainable re-use for waste.

This includes owning and managing modern landfill and energy parks, where the waste is carefully contained, creating landfill gas. This renewable energy is used to generate electricity, which is then exported to the national grid. In doing so, Waste Management generates enough electricity to power more than 18,000 homes across New Zealand.

It is all part of the circular economy.



# Why a new landfill?

Class 1 landfills are identified in the Auckland Unitary Plan as being of critical importance to the functioning and growth of the region and a key component of the region's infrastructure.

Auckland currently has two such modern, sustainable, landfills, in Whitford and Dairy Flat. The Dairy Flat landfill, owned by Waste Management NZ Limited (Waste Management), is known as Redvale Landfill and Energy Park (Redvale).

Waste Management part-owns Whitford Landfill and Energy Park in a joint venture with Auckland Council. Waste Management manages the joint venture and is responsible for the ongoing consent, design, construction and operation of Whitford, which opened in July 1994. It is consented to receive waste until 2041.

Waste Management consented, designed and constructed Redvale and has operated it since starting to receive waste in 1993. It is currently consented until 2028 and is expected to stop receiving waste by then.

As Auckland continues to grow, a new landfill will be needed once Redvale stops receiving waste.

To meet this need, Waste Management is proposing a new landfill and energy park to replace Redvale. This will also be located north of Auckland, called the Auckland Regional Landfill.

**This document provides a snapshot of the proposal for the landfill. It touches on the engagement and consultation process which will be undertaken as a matter of priority before making any applications for the necessary consents.**

**The proposed landfill is expected to be a critical piece of infrastructure for the Auckland region.**

# Location of the site

If the necessary resource consents are obtained with suitable conditions, the Auckland Regional Landfill will be located approximately 70km from Auckland's central business district. The entrance to the landfill will be 13km north of Warkworth and 6km south of Wellsford, with access directly off the current State Highway 1.

The proposed site is made up of two blocks of land. The eastern block is the largest part of the site and has been operated as a commercial pine forest since the 1970s. The western block is currently used as pasture farmland, plantation forest and for regenerating native bush. It is also known as "Springhill".



## The eastern block

### *Commercial pine forest*

The eastern block includes several valleys. This proposal is for a landfill to be developed in one of the valleys. A second valley has been marked as a potential future landfill, but does not form part of this consent application. If required to meet the future needs of Auckland, a separate consent would be sought at that time.

Apart from the landfill valley and associated buildings and operations, the eastern block will remain a commercial forest.

The proposed landfill design, construction and operation will generally follow the "Technical Guidelines for Disposal to Land" prepared by WasteMINZ (April 2016) for a Class 1 landfill.

## The western block

### *Springhill*

There are limited activities proposed for Springhill farmland. They are earth fills, a clay excavation area, replacement pine forest, ongoing pasture grazing, regenerating native bush and wetlands, and access tracks for those activities.

No waste will be placed in Springhill.

## Why this site?

Waste Management has conducted a detailed search for a site to replace Redvale. This considered access to state highways to minimise the use of rural roads, distance to neighbours, landfill visibility and distance from Auckland while avoiding as far as possible any known areas of cultural significance, sensitive environmental and ecological areas and areas of native bush. Possible sites were then assessed on technical merit before selecting this proposed site.

This site has good access directly off State Highway 1 (SH1) for transport of waste to and from Auckland, as well as from the north. In addition, the site has a buffer distance from the landfill itself of more than 2km to the Hoteo River and more than 1km to the nearest existing residential house, which is consistent with the requirements of the Auckland Unitary Plan.

No activities are proposed near the Marsden-Wiri gas and fuel pipelines that run through Springhill.





# What will be located on the site?

Consent is being sought for the proposed landfill, as well as some other essential elements necessary for the facility to operate safely and sustainably.

- 1

Landfill

Trees will be harvested under the current land use, and the valley will be excavated, shaped and fully lined to create the landfill. The final height of waste will be determined by consent.
- 2

Landfill leachate treatment site

Leachate from the landfill will be managed appropriately. New technologies for treatment and disposal will be investigated as they arise.
- 3

Generators and flares

Electricity generators and enclosed landfill gas flares will treat landfill gas. The first flare could be installed within the first year of waste being received. It is proposed for generators to be installed from five years after the landfill opens. These will convert landfill gas into electricity for export to the national grid.
- 4

Ponds

Ponds will be used for managing stormwater and silt, and for supply of water on the site.
- 5

Refuelling

Fuel storage and refuelling facilities will be provided for landfill machinery and Waste Management's truck fleet only.
- 6

Site administration

Offices and facilities for the site staff, an administration building, a laboratory and car parking.
- 7

Water supply

A new groundwater well will be drilled near the site administration building. An existing well will continue to supply water to the farm.
- 8

Workshop

A mechanical workshop will service machines operating on the landfill.
- 9

Access road

A proposed new 2km private access road off SH1 will provide access to and from the landfill and to some of the surrounding commercial forest on the site. It will be screened from neighbouring properties and SH1.
- 10

Airfield

The existing private airfield will initially be retained as an airfield. Consultation will help to either confirm its future or to consider any potential alternative uses.
- 11

Bin exchange area

Full standard-sized waste containers, mostly from transfer stations, will be temporarily placed in this secure area to be exchanged for empty containers. This area will be screened from SH1.
- 12

Earth fills

A number of earth fill sites will sit inside and outside the landfill valley to house surplus soils and temporarily store soils that will be used to cover the waste. Plants will screen the earth fills where possible and dust controls will be used when and if required. Earth fills will be subject to their own separate resource consents alongside the landfill consent.
- 13

Electric vehicle charging

Charging stations will be provided for electric cars and trucks.
- 14

Forestry

New forestry will be planted in Springhill to replace forestry cleared in the eastern block.
- 15

Natural Management Area (NMA)

Ecological areas marked in the Auckland Unitary Plan will be avoided as much as practical. The proposed access road will cross a stream section in one of the NMAs.
- 16

Power cables

Overhead power cables will supply electricity from the generators to the national grid.
- 17

Springhill entrance

This existing site entrance will continue as access to the farm, as well as two land-locked neighbouring properties and a homestead on the northern side of the Hoteo River. It will not be used for access to the landfill.
- 18

Weighbridges

Inbound and outbound traffic will pass over weighbridges on the access road. Inbound vehicles will queue within the site boundary. During opening hours, weighbridge staff will provide security, visitor reception and checking of loads against waste acceptance criteria. Outside these hours, only contracted and licensed operators with security clearance will be allowed in.
- 19

Western excavation area

Limited parts of the farmland will be excavated to obtain clean fill needed for the lining and capping systems in the landfill valley.
- 20

Wheelwash

A wheelwash will be installed for the trucks and vehicles leaving unsealed areas of the site.



# What this might mean for local community, Iwi and neighbours

## Employment

To operate the landfill, approximately 30–40 permanent full time staff and 15–30 contractors and consultants, on an annual basis, would be employed in disposal operations, administration and finance, maintenance, wastewater and gas management, construction, and environmental protection.

## Local small business

Construction and operation of a landfill requires construction contractors, suppliers, trades and a variety of others in industries such as hospitality and mechanical services.

## Community trust

The landfill will create and donate to a local independent community trust which may distribute funds as it sees fit supporting the wellbeing of the community.

## Electrical supply stability

After a few years, the landfill will deliver electricity to the grid to help improve stability of supply.

## Gas supply

A constant supply of landfill gas could be used to heat glasshouses, which has already proved successful at Redvale, or to provide energy to other local industry nearby.

## World class facility

A landfill that is designed and operated to the very latest standards can be showcased to attract national and international attention.

## End of life use

When the landfill comes to the end of its life, it will become available for public uses such as open space recreation or light commercial activities.

## Wildlife habitat enhancement

Wetlands will be constructed downstream with a number of existing waterways protected by fencing and riparian planting.

## Protection of bush reserves

Adjacent reserves and native bush will be given an extra degree of protection through improved fencing and further development will be prevented.

## Environmental records

The landfill will be required to monitor ponds and streams providing data for research.

## Firefighting water storage

Ponds will collect and retain stormwater, and be available as additional firefighting reserves.

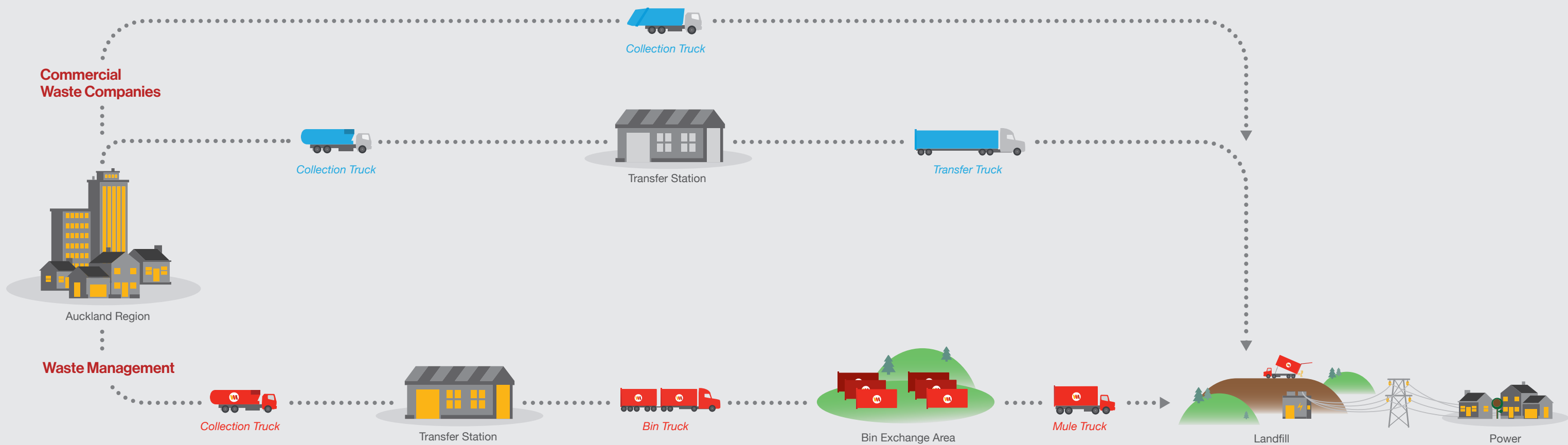


Ngāti Whātua and Waste Management at Redvale's new administration building jointly hosting a meeting with Ngāi Tahu on 25 May 2000 when Ngāi Tahu were considering the consent application for Kate Valley Landfill.

## Our ongoing involvement with the Iwi

Waste Management has long established relationships with the Iwi north of Auckland. Iwi groups were consulted before the opening of Redvale and prior to several applications to renew its consents. Ngāti Whātua blessed Redvale's new administration building for the day when Ngāti Whātua and Waste Management jointly hosted a meeting with Ngāi Tahu when Ngāi Tahu were considering the consent application for Kate Valley Landfill. Both parties together took part in the presentation to Ngāi Tahu of a table carved locally from ancient kauri uncovered at Redvale.

# How waste is managed and delivered into the landfill



The landfill will receive waste from transfer stations and from Waste Management customers directly.

The majority of customers will be expected to travel northwards from Auckland, turning right into the site from the current SH1. If SH1 is relocated in future as proposed by NZTA, the current Dome summit route from Warkworth to Wellsford could be bypassed and access to the landfill could instead come southwards from a SH1 exit north of the site, turning left into the site.

Waste Management will mostly run dedicated, custom-designed trucks from its network of transfer stations across Auckland. Commercial waste companies will bring waste directly to the landfill or also take waste to a transfer station, and use transfer trucks to bring waste to the landfill. No private vehicles or trailers will be allowed to bring waste to the landfill.

The waste from Waste Management transfer stations will arrive in trucks with standard containers, which will be left at the bin exchange area. This area will be open 24/7 to allow the trucks to travel during off-peak traffic, assisting to reduce Auckland’s traffic congestion.

These trucks will collect empty containers from the bin exchange area and return to the transfer stations so the empty containers can be refilled.

On the landfill site, separate “mule” trucks will collect the full containers from the bin exchange area, and take the waste to the landfill. By the time the proposed landfill opens, Waste Management expects to be using electric “mule” trucks although, for assessing noise effects, Waste Management will assume diesel trucks will be used.

Commercial waste companies who bring waste directly to the landfill without having passed through a transfer station will enter over the weighbridge and go directly to the landfill, not through the bin exchange area.

In the early years, the estimated number of waste trucks is expected to be a maximum of 300 return trips on any one day, reaching a maximum of 500 return trips on any one day by 2060, depending on Auckland’s future waste volumes. The proposed operating hours of the bin exchange area will spread the waste trucks over a full 24 hour period.



## What happens to the waste that is put into the landfill

Waste will be placed firstly at the lower end of the valley, and then gradually up the valley.

The waste is compacted as it is placed. At the end of each day the waste will be fully covered, usually with soil, to control pests and nuisances and minimise potential environmental effects such as odour. Thicker cover will be placed on areas that will remain undisturbed for more than three months.

Only non-hazardous solid waste will be placed into the landfill. No liquid waste will be accepted.

Leachate from the waste will be collected and managed appropriately. Alternative methods will be considered over time, especially using evaporation powered by landfill gas as gas volumes increase.

## Farming and forestry

Some of the Springhill site is currently being used for sheep farming. This will continue while consultation is under way and concept designs are being considered. The part of Springhill that is in pasture will be leased for grazing.

After the landfill is opened, it is proposed to continue to graze those pastures not required for forestry, wetlands or soil storage.

Existing forestry on Springhill will be operated under a separate forestry licence. Existing forestry in the eastern block, including the valley, will also be managed under a separate forestry licence until it is progressively needed for the landfill.

As areas of valley are cleared for landfill purposes, the forest will be replaced with new offset forestry on Springhill, mainly on the steeper hillside pasture areas.

Close up of Redvale Landfill and Energy Park.





## Managing stormwater, ponds and waterways

Ponds within the site will manage stormwater to avoid any possible flash flooding and ensure the quality of stormwater leaving the site. The stormwater ponds will be designed to discharge into a tributary of the Hoteo River.

Sediment from the working areas will be captured in stormwater ponds. These ponds would also treat any minor contaminants that may wash off the covered surface of the landfill. Any stormwater that comes into contact with waste will be captured and treated as leachate unless the water is tested and is not contaminated.

Ponds will also provide the site water supply for washing trucks and roads, for managing dust, and for firefighting if ever needed. The ponds can also be available as a rural firefighting resource for nearby forestry and farmland.

As with all of Auckland's valley systems, the landfill valley includes streams and watercourses. The proposed landfill activity will mean these streams will be reclaimed and the flow diverted around the waste, as the landfill develops. Other streams throughout the forest and Springhill will be improved by ecological enhancements like riparian planting during the life of the landfill.

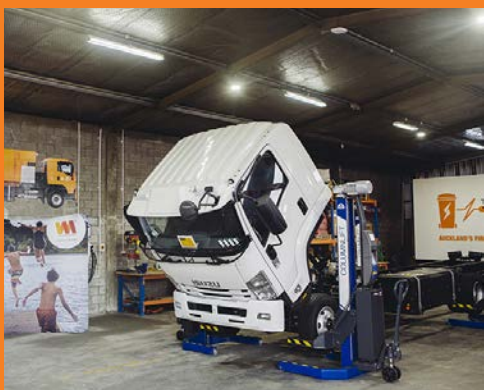
## Renewable electricity generation from the landfill

An operating landfill produces landfill gas which is rich in methane. As a renewable energy resource, the landfill gas is captured through a network of pipes within the landfill and is used to generate electricity.

At the proposed landfill, electricity generators will start to be installed approximately five years after the landfill opens. These generators will create enough electricity to power the site, as well as supply electricity into the national grid. Overhead power cables will run from the generators to a grid connection point to the west or north west of the site.

The benefit of generating renewable energy from landfill gas is already being felt at Redvale Landfill and Energy Park. 12MW of renewable energy (electricity) is generated there, which is enough to power around 12,000 homes. This will increase to 14MW by the end of 2018, with potential to increase further to 16MW by 2028. In addition to the benefits of renewable energy from waste, heat from the generators provides a further resource and is currently provided to a neighbouring commercial greenhouse.

Over time, the proposed landfill is expected to develop the same amount of renewable energy for export into the national grid north of Auckland, depending on the waste composition and the rate of waste accepted. This generation will be beneficial to the Warkworth and Wellsford area. Waste Management will also seek to work with local business to use the heat as an additional resource for neighbours, as it currently does at Redvale.



## EV Trucks and Innovation Hub

### 2016

In 2016, Waste Management commissioned New Zealand's first EV Box Body waste truck. In 2018, the EV Innovation Hub was launched, which converts diesel trucks into electric vehicles here in Auckland. Currently, there are six EV trucks in the Waste Management fleet, with a further 15 trucks to be converted in the Hub by the end of 2019. The first truck converted in the Hub is being used to collect waste from Auckland Hospital.



# Key questions about the proposal

## How far is the landfill from houses?

The nearest existing houses are on State Highway 1 in Dome Valley to the south, more than 1km from the proposed edge of the waste. The nearest existing houses in the Spindler Road area are more than 1.5km away.

## When is the landfill expected to open?

It is expected the landfill will start to receive waste between 2026 and 2028.

## How long will it take to fill the landfill?

It is sometimes difficult to forecast exactly how long it will take to fill a landfill to the final consented level. It depends on the volume of waste generated, Waste Management's market share and the management and decomposition of the waste in the landfill. This means this proposal is seeking consents for the maximum permissible term of 35 years. There may be a need to apply for new consents if it is not full within that period.

## What is currently on the site where the landfill will be located?

The valley in the eastern block currently contains commercial forest where pine trees have been grown since the 1970s. The southern side of the western block where the new access road is proposed has a mixture of acacia plantation, native bush, streams and swamp. It was mostly used as open farmland until the 1990s.

## What hours will the landfill operate?

The bin exchange area will be open 24/7 for Waste Management and other commercial operators with security clearance. Waste will only be deposited into the landfill between 5.00am and 10.00pm, although the hours may be fewer if waste volumes and traffic are less than expected. Waste Management staff and approved contractors with security clearance will have access to the site after hours for maintenance and office duties.

## Will you be able to see the landfill from any of the surrounding areas?

The waste tipping areas will be out of sight from all residential neighbours for most of the life of the landfill. It might be visible from time to time in the final years from higher ground several kilometres away, when waste is being placed at the top of the valley. Some earth fill stockpiles may at times be visible from Wayby Valley from approximately 2km away.

## Will the Hoteo River be impacted?

The Hoteo River and its river banks will not be disturbed. The landfill itself is proposed to be more than 2km to the Hoteo River. Stormwater run-off from the site will enter a tributary of the Hoteo that is downstream from Wellsford's water intake.



## How many trucks will be coming to the landfill?

The estimated number of waste trucks is expected to be a maximum of 300 return trips on any one day in the first years and reach a maximum of 500 return trips on any one day by 2060, although this will be largely influenced by Auckland's future waste volumes. This maximum will allow for anticipated daily and seasonal traffic fluctuations. The proposed operating hours of the bin exchange area will spread the waste trucks over a full 24 hour period.

There will be an estimated maximum of 150 return trips on any one day by others such as staff, service vehicles, deliveries, visitors and forestry, reaching 250 return trips on any one day by 2060.

## What is Waste Management's track record in landfills?

Waste Management have designed and built Class 1 landfills throughout New Zealand, at Redvale and Whitford in Auckland and Kate Valley in Canterbury. Waste Management operates all three of these landfills to high environmental standards.

## What is a Class 1 landfill?

A Class 1 landfill requires the highest level of containment and engineering protection, management of landfill gas, and monitoring, reporting and operational controls as defined in new "Technical Guidelines for Disposal to Land" prepared by WasteMINZ (April 2016), New Zealand's largest member-based body for the waste sector.

Redvale, Kate Valley and Whitford landfills are all examples of Class 1 landfills. Waste Management has operated and managed these landfills for many years, providing modern, sustainable solutions for New Zealand's waste.

For more detail about the guidelines visit WasteMINZ at [www.wasteminz.org.nz](http://www.wasteminz.org.nz). For more information about Waste Management's landfills and the proposed Auckland Regional Landfill, visit [www.wastemanagement.co.nz/ar1](http://www.wastemanagement.co.nz/ar1).

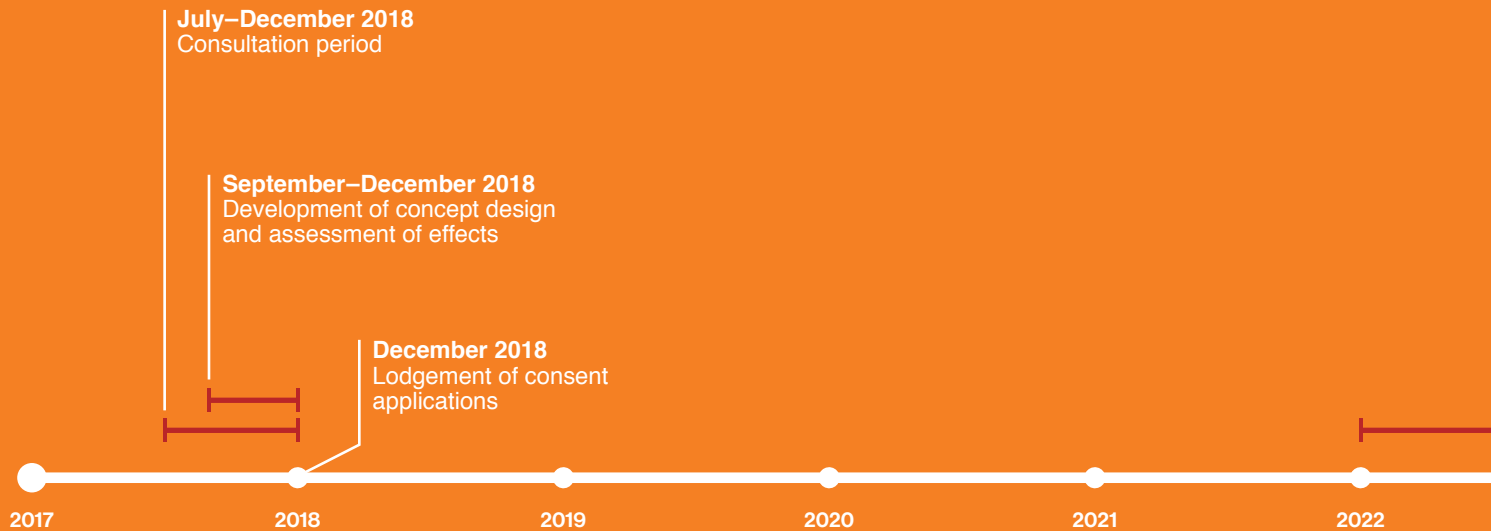


## Tyre Recycling

### 2018

Waste Management opened a new tyre recycling centre in Wiri, Auckland making a significant step forward in managing the environmental problem of end-of-life tyres. This facility will shred 30,000 tonnes per annum – 3 million car tyres – helping to address New Zealand's 60,000 tonnes of tyre waste from 4.2 million cars and trucks annually.

# Proposed timeline

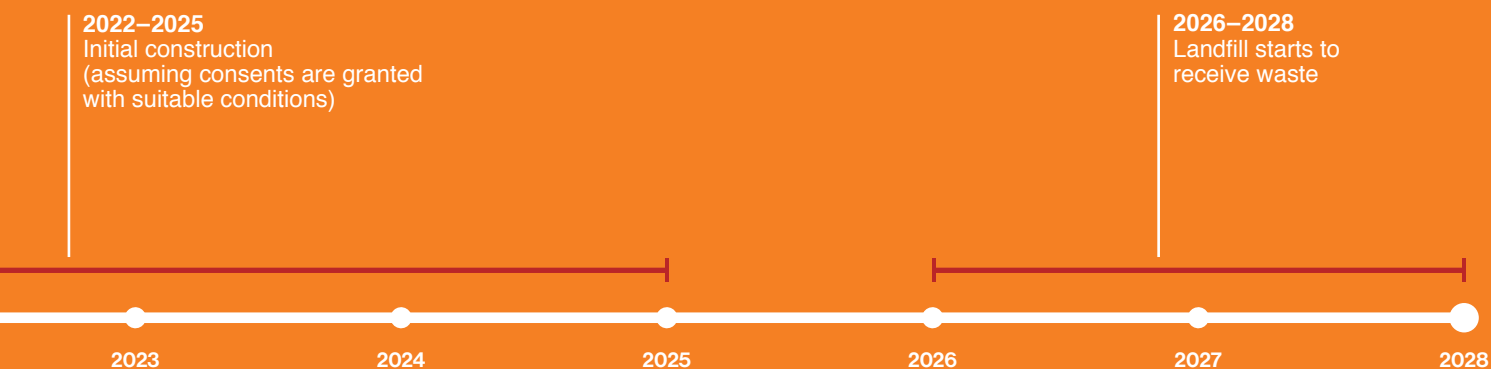


## Waste Management awards

Waste Management has been regarded as a pre-eminent developer, constructor and operator of state-of-the-art landfill and energy parks for New Zealand. Waste Management has won numerous awards including:

- 1994** IPENZ National Environmental Award, presented to Waste Management and engineering partner, Tonkin & Taylor, for the Redvale Landfill project. "The project demonstrated a policy of environmental management beyond statutory requirements, and also excellent public consultation, which led in large measure to community acceptance of the project".
- 1994** IPENZ Auckland Arthur Mead Memorial Environmental Awards for Redvale Landfill Development.
- 1994** ACENZ Award of Merit for Redvale Landfill Auckland. "Given in recognition of an outstanding engineering project".
- 1996** Deloitte/Management Top 200 Company of the Year, saluting the contribution of Redvale Landfill.
- 2001** IPENZ Auckland Arthur Mead Memorial Environmental Award for Redvale Landfill Gas-Powered Leachate Evaporator and Generator.





- 2001** EECA Energy-wise Award New Renewable Energy Category Winner, Redvale Gas to Energy Plant.
- 2005** Deloitte/Management Magazine Company of the Year, saluting the contribution of Redvale Landfill.
- 2011** Finalist in the New Zealand Green Ribbon Awards in the “Reducing our greenhouse gas emissions” category.
- 2014** The CILT (Chartered Institute of Logistics and Transport in NZ Inc) Award for Safety, Security and Environmental Innovation, awarded to Waste Management NZ Limited – Health Safety and Training Team.
- 2017** Finalist in the Safeguard Awards with Tellen Systems in the “Innovation” category for a RFID-based safety system for workers in heavy machinery areas.

# Waste Management is New Zealand's leading waste and environmental services provider, driven by our focus on safety, sustainability and service and underpinned by innovation.

We provide recycling and resource recovery services, solid waste management, liquid and hazardous waste collection, treatment and disposal.

We design and operate state-of-the-art waste management and recycling facilities nationwide, including leading edge sustainable modern landfill and energy parks, material recovery facilities, transfer stations and liquid, hazardous and medical waste processing facilities.

Our focus is on the future, the possibilities it holds, and ultimately the protection of it.

## Finding out more and providing input

Waste Management will be regularly updating information about the proposed Auckland Regional Landfill on their website at [wastemanagement.co.nz/arl](http://wastemanagement.co.nz/arl) which includes a virtual tour of a modern landfill.

If you have a question, you can:

Call **0800 927 837**

Email [arl@wastemanagement.co.nz](mailto:arl@wastemanagement.co.nz)

