

Appendix G NZIER Economics Assessment



ARL Transition Project: Economic Assessment

November 2025

About NZIER

New Zealand Institute of Economic Research (NZIER) is an independent, not-for-profit economic consultancy that has been informing and encouraging debate on issues affecting Aotearoa New Zealand, for more than 65 years.

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Key points

WM New Zealand (WMNZ) is one of three landfill operators that receive Auckland waste. It operates two landfill sites in Auckland – Redvale and Whitford, the latter of which is operated in a joint venture with the Auckland Council. The resource consent conditions for Redvale requires that it cease accepting waste at the end of 2028. WMNZ is working to develop a new landfill site (the Auckland Regional Landfill (ARL)), but due to delays in the resource consent process for ARL there is a potential gap in landfill capacity in the Auckland region from 2029 that might extend for a period of up to eight years to 2036.

NZIER has previously undertaken economic modelling for WMNZ on a range of options for the disposal of the waste that currently goes to the Redvale landfill (NZIER 2024). In this assessment, we review the refined options that focus on the extended use of the Redvale or Whitford landfill sites.

The Redvale landfill currently takes about 50 percent (or 600,000 tonnes) of waste disposed of by WMNZ in Auckland, or about 44 percent of the total waste to landfill in the Auckland region in 2022.

The direct economic costs include the cost of operating the landfill sites (including lost revenue), transport costs, investing in existing or new landfill sites, and the costs that the customers absorb. Indirect economic costs (or benefits) arise from possible employment effects and the impact of changes in transport activity on the Auckland road system.

Overall, our qualitative assessment found that there is a significant economic benefit for the Auckland region from getting resource consent to extend the life of the Redvale landfill. The alternative options will increase traffic congestion in the Whitford area and across Auckland. Increasing traffic congestion in Auckland will have economic costs, including reduced productivity and disrupted supply chains. These costs will impact businesses and consumers in Auckland and across New Zealand.

We modelled the economic costs of transporting waste from Auckland to the landfill sites. The key findings for each of these options are shown in Table 1. Our findings suggest that the lowest cost option is to transport the maximum amount of waste to Redvale, meaning option 1 (the status quo scenario), in which 600,000 tonnes of waste go to Redvale and 250,000 tonnes of waste go to Whitford, is the preferred choice.

Our modelling indicates that transferring an additional 100,000 tonnes to Whitford has little additional cost, assuming that the remaining waste can still be received at Redvale. Trucking larger volumes of waste across longer distances, as in scenarios 4 and 2-alt, increases the costs and emissions.

We have modelled a lower and upper bound of the transport cost estimates by adjusting the average capacity of the trucks. The difference in inputs is shown in Table 5 (lower bound) and Table 6 (upper bound). In particular, the average Class 2 waste load weight is lower than the average Class 1 load weight, implying more truck trips for the same volume at the lower bound. The upper bound has been capped at the same load weight for both Classes of waste.



Table 1 Scenario cost summary

Per annum

Options	Total cost (\$) – lower bound*	Total cost (\$) – upper bound**	Cost Ranking
1 Status quo – no separation of Class 1 & 2 600,000T to Redvale, 250,000T to Whitford	\$20,212,883	\$25,724,864	1
2 Extend consent for Whitford 850,000T to Whitford	\$21,886,933	\$27,855,422	4
2-alt Extend consent for Whitford 850,000T to Whitford Assuming 2/3 of additional Whitford waste is transported from either North Shore or Selwood Road transfer stations.	\$24,539,156	\$31,269,076	7
3a Class 1 to Redvale, Class 2 to Whitford 400,000T to Redvale, 450,000T to Whitford***	\$22,344,800	\$26,626,506	5
3b Class 2 to Redvale, Class 1 to Whitford 200,000T to Redvale, 650,000T to Whitford***	\$22,694,150	\$27,240,964	6
3c Split waste between Redvale and Whitford landfills based on source 300,000T to Redvale, 550,000T to Whitford	\$21,162,733	\$26,933,735	3
3d Use Whitford Landfill's consented tonnage and send the rest of the waste to Redvale Landfill. No separation of Class 1 & 2 500,000T to Redvale, 350,000T to Whitford	\$20,679,933	\$26,319,277	2
4 Use Whitford's consented tonnage and send rest of waste to Hampton Downs Landfill 350,000T to Whitford, 500,000T to Hampton Downs	\$37,175,600	\$47,313,253	8

*The truck capacities used in estimating these figures are found in Table 5.

**The truck capacities used in estimating these figures are found in Table 6.

*** The average Class 2 waste load weight is lower than the average Class 1 load weight, implying more truck trips for the same volume at the lower bound. The upper bound has been capped at the same load weight for both Classes of waste.

Source: NZIER estimates using WMNZ information, provided in February and March 2025.



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1 Introduction

The resource consent conditions for the Redvale Class 1 landfill stipulate that it must cease accepting waste by the end of 2028. WM New Zealand (WMNZ) is working on developing an alternative site, the Auckland Regional Landfill (ARL). However, due to the delays in obtaining resource consent for ARL and construction complexities there is a potential gap in landfill capacity in the Auckland region from 2029 that might extend for a period of up to eight years.

The Redvale landfill currently takes about 50 percent (or 600,000 tonnes) of waste disposed of in Auckland. Auckland Council estimates that about 1.45 million tonnes (see Table 2) of waste went to Class 1 landfills in 2022 from across the Auckland region (Table 4, Auckland Council 2023). This implies that the waste going to Redvale was about 44 percent of the total waste to landfills in the Auckland region in 2022.

2 Auckland landfills

There are two Class 1¹ landfills in the Auckland region – Redvale and Whitford. The first is owned and operated by WMNZ, and the second is a joint venture between WMNZ and Auckland Council. There are a further two Class 1 landfills in the adjacent regions, at Hampton Downs in north Waikato and Purewa in Northland (see Table 2), neither of which are owned by WMNZ. Hampton Downs and Purewa receive waste from the Auckland region.

Table 2 Class 1 landfills, Auckland and adjacent regions

As at September 2024

Region	Landfill	Owner	Consent until	Km to Akld CBD	Airspace cubic metres	Original cubic metres	Inputs tonnes /year
Auckland	Redvale	WMNZ	2028	29	2,060,000		600,000
Auckland	Whitford ¹	WMNZ/AC	2041	32	6,500,000	12,000,000	240,000
Waikato	Hampton Downs	Enviro NZ	2036	70	15,000,000	30,000,000	600,000
Northland	Purewa	Whangarei District Council & Northland Waste	2038	175	2,500,000	3,600,000	50,000

Note 1: consented capacity to increase annual tonnage disposal by 100,000 tonnes.

Source: Tonkin + Taylor; WMNZ; NZIER

¹ A Class 1 Landfill is a site that accepts Municipal Solid Waste (MSW). A Class 1 Landfill generally also accepts construction and demolition (C&D) waste, some industrial wastes and contaminated soils (Waste Management Institute New Zealand (WasteMINZ) 2023, 10).

In 2023, there were no Class 2² waste-only landfills in the Auckland region. Class 2 waste is disposed of in the Class 1 landfills. Under Auckland Unitary Plan – Operative in Part (AUP) rules, an application for a Class 2 landfill would be consented under the same rules as a Class 1 landfill (Auckland Council 2023, 91) as the landfilling rules do not differentiate between these types of facilities. WMNZ has Class 2 waste management facilities at its Redvale and Whitford landfill sites.

Waste is currently collected across Auckland from households and businesses. It can be taken to a transfer station to be sorted and consolidated before shipping to the landfill, or trucked directly to the landfill.

Figure 1 Auckland waste facilities



Source: Auckland Council, Auckland's Waste Minimisation and Management Plan 2024

2.1 Estimates of waste to landfill

The quality of information on the volume of waste sent to landfills in New Zealand varies across the different classes of waste. Information is most reliable for Class 1 landfills, due to the requirement for data reporting on waste disposal at these facilities since 2009. Auckland Council only has estimates on the volumes of waste that currently go to Class 2–5 landfills in the Auckland region and adjacent regions (Auckland Council 2023, 91).

² A Class 2 construction and demolition (C&D) Landfill is a site that accepts non-putrescible wastes including C&D wastes, managed fill material, controlled fill and clean fill material (ibid, 11).

The total volume of waste going to Class 1 landfills continued to grow over the 2010s, peaking in 2016–18. Auckland Council estimates that the annual tonnage of waste sent to Class 1 landfill fluctuated between 1 and 0.8 tonnes per capita in Auckland between 2007 and 2022 (Table 4, Auckland Council 2023, 39).

The rate of growth in the volume of waste going to landfill has declined, but it still fluctuates from year to year. There are numerous possible reasons (Auckland Council 2023, 39). Changes in economic activity could be the primary contributor to the changes in the volume of Class 1 waste, although other factors, including changes in the rate of housing construction and waste from natural disasters such as the Anniversary Weekend floods and Cyclone Gabrielle in 2023, will also contribute to fluctuations in waste volumes.

The decline in annual Class 1 waste per capita since 2018 indicates that, more recently, the population has grown faster than the growth in total tonnage of waste, and there has been some waste minimisation. We have modelled forecasts for growth in waste volumes of 0.8 percent and 1.0 percent per annum. Auckland Council's most recent forecasts are for 0.8 percent growth in Class 1 waste.³

Although the waste minimisation initiatives may contribute to some reduction in the volume of Class 1 and Class 2 waste, there is a continuing need for facilities for the final disposal of waste.

3 The problem

Redvale landfill is consented to accept waste until the end of 2028. Approximately 50 percent of the waste that WMNZ consigns to landfill is currently going to Redvale. WMNZ's alternative site at Whitford currently has capacity constraints set by its resource consent and designation. About 100,000 tonnes of waste could be diverted to Whitford under the current planning approvals, but this would be less than 20 percent of the projected shortfall in capacity when Redvale ceases to accept waste. The ARL project will provide a replacement landfill site, but this is currently not expected to come on stream before 2036 (if resource consent is granted).

Having reviewed other options for the disposal of the waste that is currently going to Redvale, WMNZ has considered how it can continue to utilise the Redvale site in conjunction with possible changes in the use of its Whitford site. All of these require new consent(s). If one of these options is not consented to, the only alternative will be to transport the residual waste to Hampton Downs in Waikato. However, Hampton Downs will also require changes to its resource consent⁴ to receive the full amount of the residual waste from Auckland.

³ The Auckland population is estimated to grow between 0.7 percent and 1.5 percent annually <https://www.stats.govt.nz/information-releases/subnational-population-projections-2023base-2053/>

⁴ This process will also be subject to legal, cultural and consenting challenges.

4 The options

WMNZ has considered three options: maintaining the status quo, disposing of all waste at the Whitford landfill, or using the Redvale and Whitford landfills in varying combinations. We have also modelled a fourth option, under which the residual waste is trucked to Hampton Downs. These are described below to provide context for the discussion of the economic impact (see section 5) and our modelling (see section 6). Appendix B shows the breakdown of waste to each site by classification for the modelled scenarios.

4.1 Option 1

Under this option, WMNZ would seek an extension of the resource consent on Redvale to continue receiving waste and maintain the same level of waste disposal at Whitford. This option maintains the status quo, ensuring no change in the pattern of waste truck traffic across Auckland.

4.2 Option 2

Under Option 2, all the displaced tonnage would go to Whitford landfill. This would require WMNZ to apply for a variation to the Whitford limits on footprint, tonnage and truck movements to increase its capacity to 850,000 tonnes per annum. Option 2 would mean a significant increase in truck traffic to the Whitford area and investment to increase the infrastructure at the landfill site itself.

Table 3 Options 1 and 2: investment logic map

	1 Status quo	2 All waste to Whitford
Site(s) available	Yes	Yes
Capacity for residual waste	Yes	Yes (for allocation)
Resource consent	Consent required for Redvale	Consent required for Whitford
Site infrastructure investment	Infrastructure in place	Need to extend infrastructure at Whitford
Transport management	Business as usual	Significant increase in traffic to Whitford
Economic costs	Neutral	Shift in truck traffic patterns, increase in roading congestion across East Auckland and Whitford
Economic benefits	Extended employment on site Existing assets, low cost to effect	Existing asset Increased infrastructure investment
Risks	Redvale community impact of extending the consent	Whitford community impact Concentration on one landfill site

Source: NZIER

4.3 Option 3

Under Option 3, the waste will be allocated between Redvale and Whitford in various combinations of volume, with some options specifying the allocation of Class 1 and Class 2 waste. WMNZ estimates that it processes between 420,000 and 450,000 tonnes of Class 1 waste per annum and between 150,000 and 180,000 tonnes of Class 2 waste per annum. We have used the allocations set out in WMNZ's discussion document so that the volume of Class 2 waste is 200,000 tonnes per annum and the residual waste from Redvale is classified as Class 1, 450,000 tonnes per annum (WMNZ 2025).

Under all these options, WMNZ would have to get resource consent changes for Redvale and Whitford landfills, except for option 3d, which would use Whitford's full consented capacity. Both landfills would be in operation under these options.

Table 4 Option 3 investment logic map

	3a 400,000T Class 1 to Redvale, 450,000T (incl 200,000T Class 2) to Whitford	3b 200,000T Class 2 to Redvale, 650,000T Class 1 to Whitford	3c Split based on source: 300,000T to Redvale, 550,000T to Whitford	3d Use Whitford's consented tonnage - 500,000T to Redvale, 350,000T to Whitford
Site available	Yes	Yes	Yes	Yes
Capacity for residual waste	Yes	Yes		
Resource consent	Consents required for both sites	Consents required for both sites	Consents required for both sites	Consent required for Redvale
Site infrastructure investment	At Whitford	At Whitford	At Whitford	Infrastructure in place
Transport management	Reduced traffic to Redvale, increase in traffic to Whitford	Significant increase in traffic to Whitford	Reduced traffic to Redvale, significant increase in traffic to Whitford	Some increase in traffic to Whitford
Economic costs	Increase in roading congestion towards Whitford	Increase in roading congestion towards Whitford	Increase in roading congestion towards Whitford	Some increase in roading congestion towards Whitford
Economic benefits		Possible increase in employment onsite, offsetting loss of employment at Redvale	Possible increase in employment onsite, offsetting loss of employment at Redvale	Existing asset; low cost to effect
Risks	Community impact	Community impact; Whitford capacity; concentration on one site	Community impact; Whitford capacity; concentration on one site	Community impact;

Source: NZIER

4.4 Option 4

Under Option 4, we have assumed that waste will be disposed of at Whitford up to the current consented tonnage of 350,000 tonnes per annum and the residual waste of 500,000 tonnes per annum would be trucked to Hampton Downs, subject to resource consent conditions. Option 4 has significant costs because of the extended travel distance to the Waikato region. There will also be some increase in truck traffic in the Whitford area, as well as a shift in truck travel patterns, with increased traffic on the Auckland southern motorways.

5 Economic impact

Most OECD economies manage waste in accordance with strict environmental and sanitary standards (McGoodwin 2018). Recent economic analysis focuses on the impacts of policies to minimise waste, and landfill management is treated as a given. Older assessments identified two main elements that contribute to the economic impact of landfills: collection and transport, and the operation of the landfill site. Transport impacts include emissions and the risk of road accidents⁵ (European Commission 1997, 16).

Assuming that the volume of Class 1 and Class 2 waste per capita remains relatively constant in Auckland over the next 15 years does not imply that the economic costs will necessarily remain constant. The economic impact of managing waste to landfill may vary depending on the combination of collection points (including transfer stations), transportation modes and routes, and the costs of operating the landfill sites. Diverting waste to alternative landfill sites, whether existing or yet-to-be-developed, will alter patterns of collection and transportation, as well as operating costs, which will in turn have an economic impact.

The direct economic costs include the cost of operating the landfill sites (including lost revenue), transport costs, additional investment in existing landfill sites, and the costs that the customers absorb. Indirect economic costs (or benefits) arise from possible employment effects and the impact of changing transport activity on the roading system.

These indirect economic impacts, in turn, flow through other sectors of the economy and affect the allocation or use of resources, such as roading, productivity and economic efficiency. These impacts fall on WMNZ, the customers for waste disposal, and the Auckland and New Zealand economy.

5.1 Direct economic impact

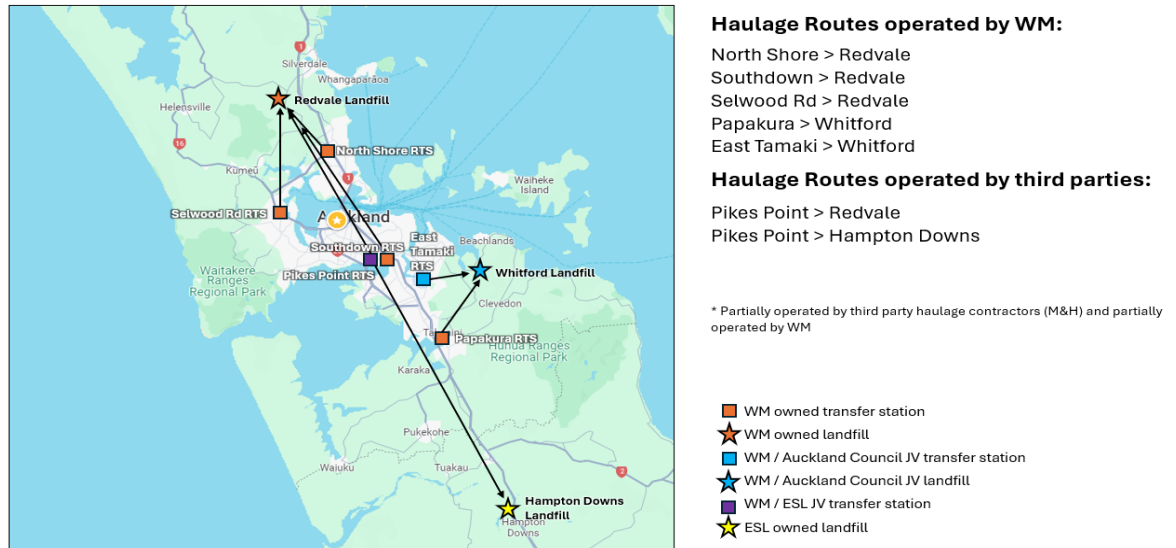
Our data modelling is concerned primarily with the cost of the transfer of Class 1 and Class 2 waste from collection points or transfer stations to the landfill site(s) and the associated emissions as measured in tonnes of carbon dioxide equivalent (see section 6). Either stopping delivery of waste or reducing the volume of waste received at the Redvale site will increase the cost of transporting waste to landfills from the North Shore and west Auckland, either to Whitford or Hampton Downs. We have provided alternative modelling

⁵ The risk of road accidents was greater where individuals 'bring' their waste for disposal at landfills.

for option 2 to partially capture the additional transport costs associated with moving waste from the North Shore and West Auckland to the Whitford landfill.

WMNZ operates five transfer stations across Auckland. The diagram below depicts how the WMNZ transfer stations are connected to the Redvale, Whitford and Hampton Downs landfills.

Figure 2 Auckland haulage routes



Source: WMNZ

Our modelling does not include the day-to-day operation of the collection sites, transfer stations or landfill site(s). Our high-level assessment is that there will be little to no impact on the collection of waste across WMNZ's Auckland users. Under options 1 to 3, WMNZ will maintain its landfill capacity within the Auckland region by using a combination of the Redvale and Whitford landfill sites.

There are potential impacts resulting from changes to the volume of waste being disposed of at each landfill site. These include the costs of resource consents and the requirement for new infrastructure at the landfill sites (see Table 3 and Table 4). Other costs include the increased transport costs for transferring waste to Hampton Downs.

Two factors contribute to the wider economic impact: employment and the impact on roading congestion. These will affect the local, the Auckland and the national economies.

5.2 Employment

WMNZ employs people to operate its transfer stations, landfill sites, and transport fleet. These employees have a direct impact on their local community and economy via their purchases of housing (whether owned or rented), food, household goods and other goods. Indirectly, WMNZ's employees also support services (and those employed in them) such as education and health services.

When the Redvale landfill site stops receiving waste, there is a potential reduction in employment in the local area (depending on whether staff live locally). People will still be employed at Redvale to manage the site after it stops receiving waste. Increasing the



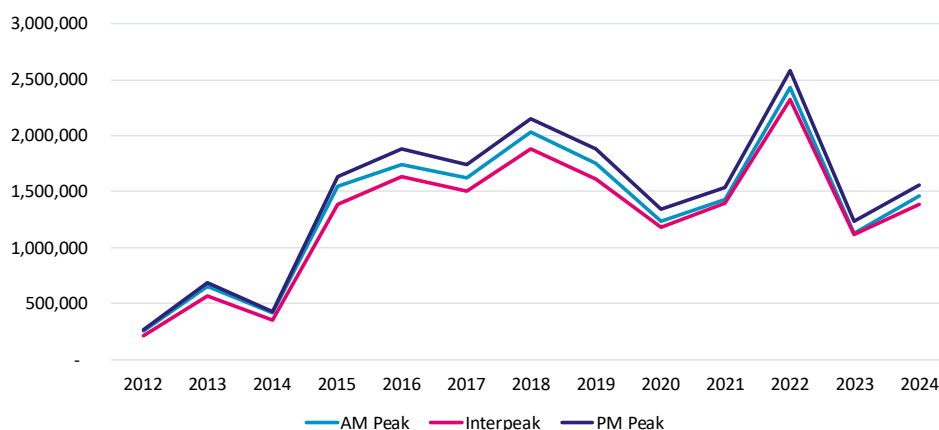
capacity at Whitford could lead to increased employment opportunities for developing and operating the site. While this may have a positive impact on the local community adjacent to the Whitford site, it will be neutral for the Auckland region as a whole, as it will offset the impact of the reduction of employment at the Redvale site.

5.3 Traffic congestion

The more substantial economic impact is the potential impact of diverting waste transport to Whitford or Hampton Downs from the transfer stations that currently serve Redvale. This will increase congestion on parts of the Auckland roading system. Congestion has a number of economic costs as it slows down the movement of people and goods across Auckland. In particular, this has impacts on supply chains across Auckland and New Zealand.

In 2017, NZIER estimated the benefits of reducing congestion on Auckland roads (NZIER 2017). Congestion is defined as the point just above capacity on the roading system, where capacity means the relationship between the volume of traffic and speed can maintain an optimum flow (NZIER 2017, 4). At that time, Auckland was ranked 47th for congestion across world cities, and congestion was spreading across the day and the roading network (NZIER 2017, 9–11). Auckland Transport’s (AT) traffic volume data suggests Auckland traffic volumes remain at similar levels to those in 2017; see Figure 3.

Figure 3 Total peak traffic volumes, Auckland



Source: AT, NZIER

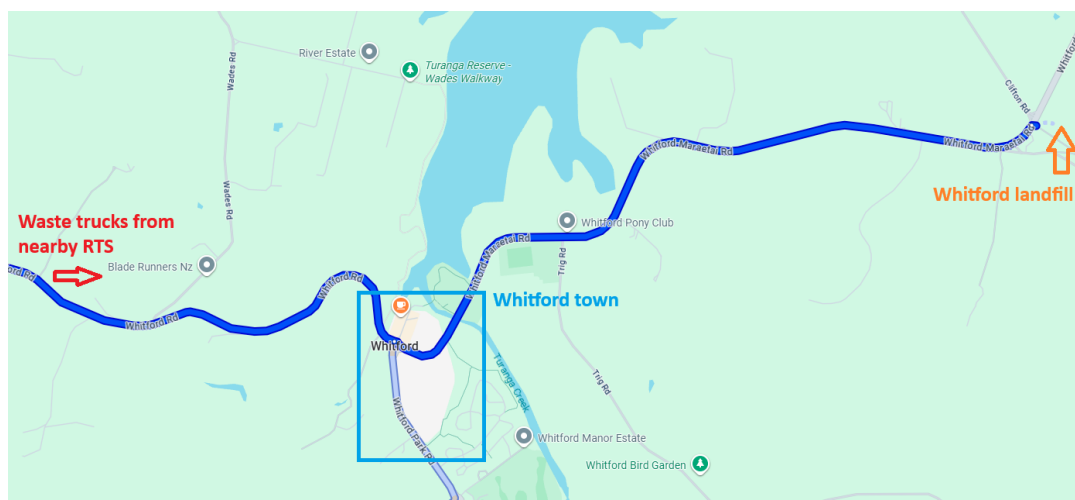
We estimated that reducing congestion so that traffic travelled at the point of capacity or less would increase employment and productivity across Auckland. This would translate into a benefit of \$927 million to \$1,281 million, or about 1 percent of the national GDP in 2017 (NZIER 2017, 35–36).

This implies that increasing congestion would incur costs for the economy through foregone economic activity in the region. It is also likely to reduce productivity, particularly in those sectors that are heavy road users, disrupt supply chains and possibly impact the availability of workers.⁶

⁶ Congestion can affect individuals’ decisions on their willingness to work for some employers if the commute times between work and home are increasing (NZIER 2017, 26).

We believe that extending Redvale’s operating life will not affect the current levels of road congestion in Auckland, as we anticipate that the pattern of road traffic will remain similar to the current situation. Diverting waste to the Whitford landfill will increase the number of trucks travelling across Auckland and in the Whitford area, which will increase congestion on the roading network. This will have a negative economic impact across Auckland and likely an indirect impact on the national economy, due to the impact on national supply chains and Auckland’s share of national economic activity. Additionally, there will be a significant local impact on congestion in the immediate Whitford area, as the area has limited road access and trucks must pass through the Whitford township to reach the landfill (see Figure 4).

Figure 4 Road access to Whitford



Source: Waste Management NZ

We cannot provide a dollar estimate of the negative impact on GDP that might result from increased road congestion caused by WMNZ’s truck movements across the Auckland region without undertaking further modelling, but we assess that this impact will be material.

5.4 Discussion

Further data and work are required to fully assess the impact of the waste to landfill options on road congestion, in particular. It is our view that the employment effects are likely to be neutral across the Auckland region; however, the increase in waste volumes to Whitford will have a significant impact on road congestion in Auckland.

If there is capacity to extend the airspace of the Redvale landfill (option 1) and it can obtain a resource consent, this option has the least economic cost. It remains neutral in its current state, except for the requirement to get new consents to extend the use of the landfill site.

Increasing the volume of waste sent to the Whitford landfill will have several potential impacts. There will be immediate traffic congestion issues in the Whitford area due to an increase in trucks travelling to the Whitford landfill. If the volume is increased beyond the current consented volume, there will be direct costs associated with obtaining resource consents and infrastructure development at the Whitford landfill site, as well as increased

traffic congestion across Auckland. Our modelling in section 6 also indicates that the emissions will be greater if the volume of waste is increased at the Whitford landfill.

6 Modelling results

We have modelled possible scenarios based on the options identified by WMNZ for transporting waste being handled in Auckland landfill facilities. Using trucking costs as the indicator, they provide a high-level estimate of the annual economic costs of each scenario.

Our assumptions are set out in Appendix A. The key points are:

- Our modelling is based on the assumption that 850,000 tonnes of waste must be allocated and transported to a combination of the Redvale and Whitford landfills, of which 600,000 tonnes is currently going to Redvale. If neither of these options is available, then the residual waste will be trucked to Hampton Downs, subject to resource consents at that site (scenario 4).
- The principal additional cost is in trucking waste to landfills.
- The total waste is disaggregated by the following waste classifications: no separation, Class 1 and Class 2.
- All waste is trucked from the Auckland CBD. This is a simplifying assumption in the absence of detailed information on the travel routes for the waste being trucked to Redvale or Whitford.
- The above assumption holds for all scenarios except 2-alt, in which we assume that two-thirds of the waste transported to Whitford originates from either the North Shore or Selwood Road transfer stations, increasing the average distance travelled by trucks.
- Each landfill uses the same composition of trucks in its fleet to transport the waste.
- This model estimates the annual cost in current dollars.
- We have not included an assessment of the direct costs of processing waste at the landfills or any costs associated with applying for changes to the resource consents.
- We have modelled a lower and upper bound of the transport cost estimates by adjusting the average capacity of the trucks. The difference in inputs is shown in Table 5 (lower bound) and Table 6 (upper bound) below.

Table 5 Truck capacity – lower bound costs

All landfills have the same composition of truck movements

Truck type	Average load weight (tonnes) – combined	Average load weight (tonnes) – Class 1	Average load weight (tonnes) – Class 2
Walking floor	30	30	24
Hookload and trailer	18	18	14

Source: WMNZ



Table 6 Truck capacity – upper bound costs

All landfills have the same composition of truck movements

Truck type	Average load weight (tonnes) – combined	Average load weight (tonnes) – Class 1	Average load weight (tonnes) – Class 2
Walking floor	16.6	16.6	16.6
Hookload and trailer	16.6	16.6	16.6

Source: WMNZ

Table 7 and Table 8 set out the results of our modelling of transporting waste at various volumes to the two sites at Redvale and Whitford, along with an additional option estimating the cost and emissions involved in transporting waste to the Hampton Downs landfill. Option 1, the status quo, in which 600,000 tonnes are transported to Redvale and 250,000 tonnes are transported to Whitford, is the lowest cost option, closely followed by option 3d. Using the lower bound cost truck capacity, the annual cost of option 1 is \$20.2 million and using the upper bound cost truck capacity, this increases to \$25.7 million per year.

Table 7 Summary of estimated transport costs by option

Per annum

Options	Total cost (\$) – lower bound*	Total cost (\$) – upper bound**
1 Status quo – no separation of Class 1 & 2 600,000T to Redvale, 250,000T to Whitford	\$20,212,883	\$25,724,864
2 Extend consent for Whitford 850,000T to Whitford	\$21,886,933	\$27,855,422
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3b Class 2 to Redvale, Class 1 to Whitford 200,000T to Redvale, 650,000T to Whitford	\$22,694,150	\$27,240,964
3c Split waste between Redvale and Whitford landfills based on source 300,000T to Redvale, 550,000T to Whitford	\$21,162,733	\$26,933,735
3d Use Whitford Landfill's consented tonnage and sent the rest of the waste to Redvale Landfill. No separation of Class 1 & 2 500,000T to Redvale, 350,000T to Whitford	\$20,679,933	\$26,319,277
4 Use Whitford's consented tonnage and send rest of waste to Hampton Downs Landfill 350,000T to Whitford, 500,000T to Hampton Downs	\$37,175,600	\$47,313,253

*The truck capacities used in estimating these figures are found in Table 5

**The truck capacities used in estimating these figures are found in Table 6



Source: NZIER

Table 8 Summary of estimated emissions by option

Per annum

Options		Total emissions (T CO ₂ -e) – lower bound*	Total emissions (T CO ₂ -e) – upper bound**
1	Status quo – no separation of Class 1 & 2 600,000T to Redvale, 250,000T to Whitford	3,944	5,091
2	Extend consent for Whitford 850,000T to Whitford	4,270	5,513
2-alt	Extend consent for Whitford 850,000T to Whitford Assuming 2/3 of additional Whitford waste is transported from either North Shore or Selwood Road transfer stations.	4,494	6,188
3a	Class 1 to Redvale, Class 2 to Whitford 400,000T to Redvale, 450,000T to Whitford	4,359	5,269
3b	Class 2 to Redvale, Class 1 to Whitford 200,000T to Redvale, 650,000T to Whitford	4,427	5,391
3c	Split waste between Redvale and Whitford landfills based on source 300,000T to Redvale, 550,000T to Whitford	4,129	5,330
3d	Use Whitford Landfill's consented tonnage and sent the rest of the waste to Redvale Landfill. No separation of Class 1 & 2 500,000T to Redvale, 350,000T to Whitford	4,035	5,209
4	Use Whitford's consented tonnage and send rest of waste to Hampton Downs Landfill 350,000T to Whitford, 500,000T to Hampton Downs	7,253	9,363

*The truck capacities used in estimating these figures are found in Table 5

**The truck capacities used in estimating these figures are found in Table 6

Source: NZIER

Table 9 and Table 10 show the differences in costs and emissions between the status quo, where Redvale and Whitford receive approximately 600,000 tonnes and 250,000 tonnes per year, respectively, and the other options. This confirms that the cost and emissions impact of shipping the residual waste to Hampton Downs (option 4) is far greater than that of all other options. Using the lower cost truck capacities, there is an additional \$17.0 million in costs per year and 3,309 tonnes of CO₂ equivalent emitted per year for scenario 4. Applying the upper-bound truck capacities, the additional cost incurred is \$21.6 million per year, and a further 4,272 tonnes of CO₂ equivalent are emitted per year.



Table 9 Cost difference from status quo option

Per annum

Options		Total cost difference (\$) – lower bound	Total cost difference (\$) – upper bound
2	Extend consent for Whitford 850,000T to Whitford	\$1,674,051	\$2,130,558
2-alt	Extend consent for Whitford 850,000T to Whitford Assuming 2/3 of additional Whitford waste is transported from either North Shore or Selwood Road transfer stations.	\$4,356,273	\$5,544,213
3a	Class 1 to Redvale, Class 2 to Whitford 400,000T to Redvale, 450,000T to Whitford	\$2,131,917	\$901,642
3b	Class 2 to Redvale, Class 1 to Whitford 200,000T to Redvale, 650,000T to Whitford	\$2,481,267	\$1,516,100
3c	Split waste between Redvale and Whitford landfills based on source 300,000T to Redvale, 550,000T to Whitford	\$949,851	\$1,208,871
3d	Use Whitford Landfill's consented tonnage and sent the rest of the waste to Redvale Landfill. No separation of Class 1 & 2 500,000T to Redvale, 350,000T to Whitford	\$467,051	\$594,414
4	Use Whitford's consented tonnage and send rest of waste to Hampton Downs Landfill 350,000T to Whitford, 500,000T to Hampton Downs	\$16,962,717	\$21,588,389

Source: NZIER



Table 10 Emissions difference from status quo option

Per annum

Options		Total emissions difference (T CO ₂ -e) – lower bound	Total emissions difference (T CO ₂ -e) – upper bound
2	Extend consent for Whitford 850,000T to Whitford	327	422
2-alt	Extend consent for Whitford 850,000T to Whitford Assuming 2/3 of additional Whitford waste is transported from either North Shore or Selwood Road transfer stations.	850	1,097
3a	Class 1 to Redvale, Class 2 to Whitford 400,000T to Redvale, 450,000T to Whitford	415	178
3b	Class 2 to Redvale, Class 1 to Whitford 200,000T to Redvale, 650,000T to Whitford	483	300
3c	Split waste between Redvale and Whitford landfills based on source 300,000T to Redvale, 550,000T to Whitford	185	239
3d	Use Whitford Landfill's consented tonnage and sent the rest of the waste to Redvale Landfill. No separation of Class 1 & 2 500,000T to Redvale, 350,000T to Whitford	91	118
4	Use Whitford's consented tonnage and send rest of waste to Hampton Downs Landfill 350,000T to Whitford, 500,000T to Hampton Downs	3,309	4,272

Source: NZIER

Recognising that there is a gap of about eight years between the requirement for Redvale landfill to cease receiving waste and the opening of the ARL site, WMNZ has considered a number of options for the extended use of the Redvale or Whitford landfill sites. Their preferred option is to extend the use of Redvale for the transition period until ARL is open to accept waste.

Our modelling supports our qualitative assessment in section 5 that extending the airspace at Redvale for an additional eight years yields significant economic benefits for Auckland. Using the inputs outlined in Appendix A, maximising the amount of waste going to Redvale is the most cost-effective approach, and Option 1 is the preferred choice in terms of minimising additional costs and emissions in the Auckland region. This option also yields significant economic benefits for New Zealand by reducing the potential disruption to supply chains and production as a result of increased road congestion in Auckland and north Waikato.

Table 11 shows that under optimal truck capacity load conditions, there are between 129 and 138 truck movements per day to landfills. Under the status quo option, Whitford receives about 35 truck movements a day. For Option 2, in which Whitford landfill receives all the waste, the number of truck movements it experiences is 129 per day, representing a significant increase in traffic movements in the area. If the average truck capacity is much



lower than outlined in Table 5 and Table 6, this would put increased pressure on the roads surrounding the transport routes.

Table 11 Daily truck movements by landfill, based on lower-bound loads

Assuming 312 working days per year

Options	Redvale	Whitford	Hampton Downs	Total
1 Status quo – no separation of Class 1 & 2 600,000T to Redvale, 250,000T to Whitford	92	35	-	127
2 Extend consent for Whitford 850,000T to Whitford	-	129	-	129
2-alt Extend consent for Whitford 850,000T to Whitford Assuming 2/3 of additional Whitford waste is transported from either North Shore or Selwood Road transfer stations.	-	129	-	129
3a Class 1 to Redvale, Class 2 to Whitford 400,000T to Redvale, 450,000T to Whitford	61	77	-	138
3b Class 2 to Redvale, Class 1 to Whitford 200,000T to Redvale, 650,000T to Whitford	39	99	-	138
3c Split waste between Redvale and Whitford landfills based on source 300,000T to Redvale, 550,000T to Whitford	46	83	-	129
3d Use Whitford Landfill's consented tonnage and sent the rest of the waste to Redvale Landfill. No separation of Class 1 & 2 500,000T to Redvale, 350,000T to Whitford	76	53	-	129
4 Use Whitford's consented tonnage and send rest of waste to Hampton Downs Landfill 350,000T to Whitford, 500,000T to Hampton Downs	-	53	76	129

Source: NZIER

6.1 2029 and beyond

Redvale is due to cease receiving waste at the end of 2028. This means that the impact will start as of 1 January 2029. To assess the cost over the eight years from 2029, we have projected the growth in waste volumes in Auckland at 1.0 percent per annum. This is based on the Auckland Council projection of 0.8 percent per annum, with a margin to allow for a slower reduction in waste volumes. Growth in waste volumes will depend on economic and population growth. We show the cumulative costs of transporting waste under the scenarios that were estimated above and for the period from 2029 to 2036.

We estimate that the status quo cost, where Redvale receives approximately 600,000 tonnes and Whitford receives approximately 250,000 tonnes over ten years, would be \$177.8 million, with emissions totalling 34,686 tonnes of CO₂ equivalent.



Table 12 Cumulative cost summary 2029–2036

Growth rate in tonnes: 1.0% per annum, 2025 prices

Options	Total cost (\$) – lower bound*	Total cost (\$) – upper bound**
1 Status quo – no separation of Class 1 & 2 600,000T to Redvale, 250,000T to Whitford	\$177,780,516	\$226,260,626
2 Extend consent for Whitford 850,000T to Whitford	\$192,504,471	\$244,999,750
2-alt Extend consent for Whitford 850,000T to Whitford Assuming 2/3 of additional Whitford waste is transported from either North Shore or Selwood Road transfer stations.	\$216,095,705	\$275,024,230
3a Class 1 to Redvale, Class 2 to Whitford 400,000T to Redvale, 450,000T to Whitford	\$196,531,594	\$234,190,938
3b Class 2 to Redvale, Class 1 to Whitford 200,000T to Redvale, 650,000T to Whitford	\$190,931,998	\$239,595,344
3c Split waste between Redvale and Whitford landfills based on source 300,000T to Redvale, 550,000T to Whitford	\$186,134,837	\$236,893,141
3d Use Whitford Landfill's consented tonnage and sent the rest of the waste to Redvale Landfill. No separation of Class 1 & 2 500,000T to Redvale, 350,000T to Whitford	\$181,888,415	\$231,488,735
4 Use Whitford's consented tonnage and send rest of waste to Hampton Downs Landfill 350,000T to Whitford, 500,000T to Hampton Downs	\$326,974,505	\$416,139,282

*The truck capacities used in estimating these figures are found in Table 5

**The truck capacities used in estimating these figures are found in Table 6

Source: NZIER

Table 13 Cumulative emissions summary 2029–2036

Growth rate in tonnes: 1.0% per annum

Options	Total emissions (T CO ₂ -e) – lower bound*	Total emissions (T CO ₂ -e) – upper bound**
1 Status quo – no separation of Class 1 & 2 600,000T to Redvale, 250,000T to Whitford	34,686	44,777
2 Extend consent for Whitford 850,000T to Whitford	37,558	48,486
2-alt Extend consent for Whitford 850,000T to Whitford Assuming 2/3 of additional Whitford waste is transported from either North Shore or Selwood Road transfer stations.	42,161	54,427
3a Class 1 to Redvale, Class 2 to Whitford 400,000T to Redvale, 450,000T to Whitford	38,336	46,346



Options		Total emissions (T CO ₂ -e) – lower bound*	Total emissions (T CO ₂ -e) – upper bound**
3b	Class 2 to Redvale, Class 1 to Whitford 200,000T to Redvale, 650,000T to Whitford	37,302	47,416
3c	Split waste between Redvale and Whitford landfills based on source 300,000T to Redvale, 550,000T to Whitford	36,316	46,881
3d	Use Whitford Landfill's consented tonnage and sent the rest of the waste to Redvale Landfill. No separation of Class 1 & 2 500,000T to Redvale, 350,000T to Whitford	35,487	45,812
4	Use Whitford's consented tonnage and send rest of waste to Hampton Downs Landfill 350,000T to Whitford, 500,000T to Hampton Downs	63,794	82,354

*The truck capacities used in estimating these figures are found in Table 5

**The truck capacities used in estimating these figures are found in Table 6

Source: NZIER

The following tables show the cumulative difference from the status quo for each option, using the varying average truck capacities outlined in Table 5 and Table 6 from 2029 to 2036. The difference between the status quo and the next best alternative, Option 3d, is an additional \$4.1 million and 801 tonnes of CO₂ equivalent will be incurred when using the lower bound cost truck capacities. The additional cost of using the upper-bound cost truck capacities is \$5.2 million, and 1,035 tonnes of CO₂ equivalent are emitted. In the least favourable alternative scenario 4, in which 500,000 tonnes of waste is transported to Hampton Downs, an additional \$149 to \$190 million cost will be incurred, and 29,108 to 37,577 tonnes of CO₂ equivalent will be emitted.

Table 14 Cumulative cost difference from status quo option 2029–2036

Growth rate: 1.0% per annum

Options	Total cost difference (\$) – lower bound	Total cost difference (\$) – upper bound
2 Extend consent for Whitford 850,000T to Whitford	\$14,723,954	\$18,739,124
2 - Extend consent for Whitford a 850,000T to Whitford l Assuming 2/3 of additional Whitford waste is transported from t either North Shore or Selwood Road transfer stations.	\$38,315,188	\$48,763,603
3 Class 1 to Redvale, Class 2 to Whitford a 400,000T to Redvale, 450,000T to Whitford	\$18,751,078	\$7,930,311
3 Class 2 to Redvale, Class 1 to Whitford b 200,000T to Redvale, 650,000T to Whitford	\$13,151,482	\$13,334,718
3 Split waste between Redvale and Whitford landfills based on c source 300,000T to Redvale, 550,000T to Whitford	\$8,354,321	\$10,632,515



Options	Total cost difference (\$) – lower bound	Total cost difference (\$) – upper bound
3 Use Whitford Landfill's consented tonnage and sent the rest of the waste to Redvale Landfill. No separation of Class 1 & 2 d 500,000T to Redvale, 350,000T to Whitford	\$4,107,899	\$5,228,108
4 Use Whitford's consented tonnage and send rest of waste to Hampton Downs Landfill 350,000T to Whitford, 500,000T to Hampton Downs	\$149,193,98 9	\$189,878,65 5

Source: NZIER

Table 15 Cumulative emissions difference from status quo option 2029–2036

Growth rate: 1.0% per annum

Options	Total emissions difference (T CO ₂ -e) – lower bound	Total emissions difference (T CO ₂ -e) – upper bound
2 Extend consent for Whitford 850,000T to Whitford	2,873	3,708
2- alt Extend consent for Whitford 850,000T to Whitford Assuming 2/3 of additional Whitford waste is transported from either North Shore or Selwood Road transfer stations.	7,475	9,650
3a Class 1 to Redvale, Class 2 to Whitford 400,000T to Redvale, 450,000T to Whitford	3,650	1,569
3b Class 2 to Redvale, Class 1 to Whitford 200,000T to Redvale, 650,000T to Whitford	2,616	2,639
3c Split waste between Redvale and Whitford landfills based on source 300,000T to Redvale, 550,000T to Whitford	1,630	2,104
3d Use Whitford Landfill's consented tonnage and sent the rest of the waste to Redvale Landfill. No separation of Class 1 & 2 500,000T to Redvale, 350,000T to Whitford	801	1,035
4 Use Whitford's consented tonnage and send rest of waste to Hampton Downs Landfill 350,000T to Whitford, 500,000T to Hampton Downs	29,108	37,577

Source: NZIER

Our forecasts are based on the status quo volumes of waste, and the options for extending the capacity of Redvale and/or Whitford landfills are also based on the status quo volumes. The forecasts assume that the volume of waste will grow over the forecast period. As a result, there will be an increasing volume of waste that needs to be sent to landfills, exceeding the permitted volumes at Redvale and Whitford. Table 16 sets out the increased tonnes of waste per annum over the forecast period using the two growth assumptions of 1 percent per annum and the Auckland Council's assumption of 0.8 percent per annum (Auckland Council, n.d.).



Table 16 Additional volumes of waste over the forecast period

Tonnes per annum

Year	Growth rate: 1.0%	Growth rate: 0.8%
2023	-	-
2024	8,500	6,800
2025	17,085	13,654
2026	25,756	20,564
2027	34,513	27,528
2028	43,359	34,548
2029	52,292	41,625
2030	61,315	48,758
2031	70,428	55,948
2032	79,632	63,195
2033	88,929	70,501
2034	98,318	77,865
2035	107,801	85,288
2036	117,379	92,770

Source: NZIER



7 References

- Auckland Council. 2023. *Auckland's Waste Assessment 2023*.
- Auckland Council. 'Waste Minimisation and Management Plan 2024: Towards Zero Waste'. December 2024.
- Auckland Council. n.d. 'Waste Management and Minimisation Plan'. Auckland Council. Accessed 10 October 2024. <http://www.aucklandcouncil.govt.nz/plans-projects-policies-reports-bylaws/our-plans-strategies/topic-based-plans-strategies/environmental-plans-strategies/Pages/waste-management-minimisation-plan.aspx>.
- European Commission, ed. 1997. *Cost-Benefit Analysis of the Different Municipal Solid Waste Management Systems: Objectives and Instruments for the Year 2000: Final Report*. Office for Official Publications of the European Communities ; Bernan Associates [distributor].
- McGoodwin, Alexandra. 2018. 'Mitigating the Municipal Waste Management Crisis in Emerging Markets: A Cost-Benefit Analysis of Enhanced Waste Management Interventions'. Harvard Kennedy School. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.hks.harvard.edu/sites/default/files/centers/mrcbg/files/93_AWP_final.pdf.
- NZIER. 2017. *Benefits from Auckland Road Decongestion*. NZIER.
- NZIER. 2024. *Assessment of Alternatives: ARL Transition Project. A Report for Russell McVeagh*. NZIER.
- Waste Management Institute New Zealand (WasteMINZ). 2023. 'Technical Guidelines for Disposal to Land Revision 3.1'. September.
- WMNZ. 2025. 'Auckland Landfill Transition Plan: Option 4 Discussion Document'. September 9.



Appendix A Inputs and outputs

Table 17 Waste transported by truck type

Round trip

Truck type	Proportion of total waste transported to landfill (%) – combined	Proportion of total waste transported to landfill (%) – Class 1	Proportion of total waste transported to landfill (%) – Class 2
Walking floor	37%	37%	37%
Hookload and trailer	63%	63%	63%

Source: WMNZ

Table 18 Distance to Auckland CBD from landfills

Round trip

Landfill	Distance (km) – combined	Distance (km) – Class 1	Distance (km) – Class 2
Redvale	58	58	58
Whitford	64	64	64
Whitford in alternate scenarios where capacity is exceeded	84	84	84
Hampton Downs	140	140	140

Source: WMNZ

Table 19 Cost per kilometre

Truck type	Cost per km (\$) – combined	Cost per km (\$) – Class 1	Cost per km (\$) – Class 2
Walking floor			
Hookload and trailer			

Source: WMNZ

Table 20 Emissions per kilometre

Truck type	Emissions per km (kg CO ₂ -e) – combined	Emissions per km (kg CO ₂ -e) – Class 1	Emissions per km (kg CO ₂ -e) – Class 2
Walking floor	1.82	1.82	1.82
Hookload and trailer	1.60	1.60	1.60

Source: WMNZ



Table 21 Inputs and outputs

Inputs	Outputs
Total waste received by landfill per year	Number of truckloads per year
Proportion of total waste transported by truck type	Distance travelled per year (km)
Capacity of trucks by type	Total cost per year (\$)
Distance (km) from landfill to AKL CBD	Total emissions per year (kg CO ₂ -e)
Average cost per km (\$/km) by truck type	
Average CO ₂ -e per km (kg CO ₂ -e/km) by truck type	

Source: WMNZ, NZIER



Appendix B Waste transported to each site

Table 22 Total waste transported to each landfill by classification

Tonnes per annum

Options		Redvale			Whitford			Hampton Downs		
		<u>Combined</u>	<u>Class 1</u>	<u>Class 2</u>	<u>Combined</u>	<u>Class 1</u>	<u>Class 2</u>	<u>Combined</u>	<u>Class 1</u>	<u>Class 2</u>
1	Status quo – no separation of Class 1 & 2 600,000T to Redvale, 250,000T to Whitford	600,000	-	-	250,000	-	-	-	-	-
2	Extend consent for Whitford 850,000T to Whitford	-	-	-	850,000	-	-	-	-	-
2-alt	Extend consent for Whitford 850,000T to Whitford Assuming 2/3 of additional Whitford waste is transported from either North Shore or Selwood Road transfer stations.	-	-	-	850,000	-	-	-	-	-
3a	Class 1 to Redvale, Class 2 to Whitford 400,000T to Redvale, 450,000T to Whitford	-	400,000	-	-	250,000	200,000	-	-	-
3b	Class 2 to Redvale, Class 1 to Whitford 200,000T to Redvale, 650,000T to Whitford	-	-	200,000	650,000	-	-	-	-	-
3c	Split waste between Redvale and Whitford landfills based on source 300,000T to Redvale, 550,000T to Whitford	300,000	-	-	550,000	-	-	-	-	-
3d	Use Whitford Landfill's consented tonnage and sent the rest of the waste to Redvale Landfill. No separation of Class 1 & 2	500,000	-	-	350,000	-	-	-	-	-



Options		Redvale			Whitford			Hampton Downs		
500,000T to Redvale, 350,000T to Whitford										
4	Use Whitford's consented tonnage and send rest of waste to Hampton Downs Landfill 350,000T to Whitford, 500,000T to Hampton Downs	-	-	-	350,000	-	-	500,000	-	-

Source: WMNZ, NZIER

