

## Economics – s92 responses

4	<p><i>There are several gaps in the analysis that we have identified. These will be described in detail in the section below but fall broadly into a few categories.</i></p> <ul style="list-style-type: none"> <li>a <i>Little or no numbers provided as an estimation of costs and benefits</i></li> <li>b <i>No tradeoff evaluation between the proposed location and any potential closer locations</i></li> <li>c <i>Economic terms used loosely without clear or usual-usage definitions</i></li> <li>d <i>Estimation of avoided costs is possibly over-represented</i></li> <li>e <i>External costs of the landfill are likely under-estimated</i></li> <li>f <i>No summary of the findings in other documents included in the application that are relevant to the economic case.</i></li> </ul>
a	<p>Some of the economic costs and benefits identified cannot be quantified in dollar terms. This is also the case with the non-economic effects of the project covered in other technical reports. Ultimately the decision makers will need to attribute weight to a range of effects described qualitatively or in different measurement units. It will not be possible to express all effects in dollar value terms.</p>
b	<p>WMNZ has assessed that there are no satisfactory closer locations – see section 10.4 and Appendix D of the AEE.</p>
c	<p>An attempt has been made in this note to clarify terminology used.</p>
d	<p>See b. above. WMNZ position is that any alternative site will involve additional transport costs and probably also additional site development costs.</p>
e	<p>The assessment of economic effects report has not assessed non-economic external effects. These are assessed in other technical reports by the appropriately qualified experts. This is not to diminish their importance, but as noted in a. above, the decision makers will need to have regard to both the economic and non economic effects of the project and weigh them accordingly.</p>
f	<p>A summary discussion of all the positive and negative effects of the project is provided within the main text of the AEE. The economic effects are only part of the various effects that need to be considered in the overall balancing process, and it is inappropriate to use an economic framework to assess all relevant effects. These other non-economic effects include those relating to geology, air quality, groundwater, flooding, surface water, landscape and visual amenity, cultural values, archaeology, human health, noise and traffic. A summary table of the economic effects of the project is contained in the last segment of these notes. Whilst economists may hold different views as to what constitutes economic and non-economic effects the key point is for decision makers to assess all effects appropriately, without double counting and the AEE and its supporting technical report appendices have been prepared to ensure that occurs.</p>
5	<p><i>In many sections of this report, there is a lack of a counterfactual landfill location. There seems to be an assumption that any landfill location would be further away than the Dome Valley location that is proposed. However, this claim, while it may be true, has not been substantiated in the report. Why can't a proposed landfill be located closer? And if it could be located closer, why is that solution not feasible?</i></p>
	<p>A detailed assessment of alternative sites has been carried by WMNZ – see Section 10.4 and Appendix D of the AEE. WMNZ states that they closely examined finding a western based site off SH16 and south of Helensville but none were feasible due to considerations relating to the area of land required, multiple ownership of land area required and ground conditions. WMNZ believes the only feasible alternative sites are a considerable additional distance further from Auckland's CBD.</p>
6	<p><i>In several places in the report, economic concepts are introduced and defined, but it is unclear how these concepts are then applied to the analysis. Some more explanation would be helpful – or perhaps these concepts, if they aren't used, don't need to be in the report at all. Can the authors please point out which of the definitions are being used?</i></p>
	<p>An attempt is made below to clarify terminology and definitions. It may be that this can be done best in a face to face meeting with Auckland Council staff</p>

7	<i>In general, not much has been quantified (or described) in economic terms. Obviously, costs are in dollars, but the other economic impacts (environmental, etc.) have not been described at all. Other reports are mentioned, but no references to where they can be found, or where in the reports the information is located is provided. Can the authors please provide these references to the other document in the revised version of this report?</i>
	The assessment of all effects of the project is contained in Section 9 of the AEE. The technical reports covering the assessment of different effects of the project are those listed A to T (the economic effects report is Technical Report I). These reports were submitted together with the AEE main text and are contained in Volumes 2A and 2B. A list of these technical reports is included as Appendix B to the Assessment of Effects and Section 32 Analysis.
8	<i>Paragraph 5: "Whitford landfill, in south east Auckland, has vehicle limitations..." What are they? Does this preclude it from being used as the only landfill? Please give more detail</i>
	The Whitford vehicle limitations are explained in the AEE sections 3.4 and 10.3. Whitford cannot be used as the only landfill because these vehicle limitations mean significantly less waste can be disposed of at this landfill than will be required to be disposed of when Redvale closes.
9	<i>Paragraph 7: What is a reasonable or unreasonable distance for a landfill? Why?</i>
	WMNZ considers that 70-80 kms one-way haul is a reasonable distance in New Zealand conditions. Beyond this getting multiple trips within the allowable driving limitations becomes more difficult. In the US haul distances of up to 350 miles with contract trucker are common but different systems are used that allow 24 hour haulier operations with fewer driving restrictions.
10	<i>Paragraph 14: Where do these definitions of efficiency come from? They aren't wrong, necessarily, but there is no reference, and then it is unclear how these definitions are used</i>
	The author considers these more general explanations help non-economists better understand the concept of efficiency. They come from his experience with cost-benefit analysis when rates of return and net present values are estimated. Higher measures of efficiency measures such as rates of return and net present values are achieved via each of the stated objectives.
11	<i>Paragraph 17: What defines appropriate? Is there a scale or range or inappropriate? We think this paragraph is just making the point that these points of view are the ones that are being considered because they are the areas being directly affected.</i>
	The "appropriate" viewpoints are those that are considered "relevant". As the comment reflects, in the context of having regard to people and communities affected by the project residents and businesses within the Auckland Region, the Rodney Local Board Area and Warkworth-Wellsford area are those directly affected, but in different ways. There is no scale or range of what might be appropriate. However sometimes decision makers may consider more weight should be given to more localized positive economic effects when the local community also is impacted by negative non-economic effects (e.g. for a roading project the economic benefits to "through traffic" might be given less weight than local resident and business traffic benefits, when a local community suffers negative noise and visual effects).
12	<i>Paragraph 21: "Once quantified in monetary terms, these effects can supposedly be considered..." (emphasis ours). Why supposedly? If they are done correctly, these absolutely can (and should) be considered. Further, it would be negligent to not include them.</i>
	In the author's experience the quantification of non-economic effects in monetary terms is very seldom done because of the difficulty of determining accurate monetary measures for them. This does not mean such effects are ignored. They still form part of the overall assessment of project effects but this does not need to be done within an economic efficiency framework.
13	<i>Paragraph 22: "It is generally better to not attempt to estimate monetary values for these effects but to leave them to be assessed by appropriately qualified experts..." Is there a reference for this? Why not provide a sense of scale? Are there other (non-Auckland) landfills that have been analysed? What about proxy values to provide a sense of scale so a decision-maker can make a reasonable evaluation?</i>
	This statement at paragraph 22 of the assessment of economic effects report is based on the author's experience. He is unaware of any landfill projects where non-economic effects have been quantified in monetary terms. In his experience such quantification is extremely rare in RMA cases generally. In the case

	of the Auckland Regional Landfill project there are a wide range of non-economic effects that need to be assessed. Attempts to quantify these in monetary terms having regard to the various mitigation measures proposed would be impossible. In his view the decision maker must weigh up the different effects without using a monetary basis for comparison.
14	<i>Paragraph 23: This paragraph is confusing. Suggest clarification. Additionally, there is no “Auckland City” these days. Why not refer to Auckland Region in both cases?</i>
	The author agrees that “Auckland Region” is the appropriate terminology.
15	<i>Paragraph 26: ERROR – professional services make 11% of jobs not 1% (likely typo).</i>
	The author agrees that this is an error. The percentage of professional services jobs should be 11%.
16	<i>Paragraph 27-28: Show how sub-regional population and employment demographics will contribute to landfill usage/demand. Listing all regionals and their proportions does not serve much of a purpose without showing why it is important. For example, does Rodney’s agriculture sector mean anything for the ARL in terms of waste disposal demand?</i>
	This section is not about waste generation. Whilst the landfill will be used for the disposal of local waste, it will principally be used for disposing of waste from further afield. The purpose of paragraphs 23-28 of the economic effects assessment report is to provide background on population and employment within the local area which is used to make subsequent points about the benefits of providing more employment locally to reduce the need for commuting and also to provide greater diversity within the local economy. Whilst these economic benefits may be of only limited significance they are economic benefits.
17	<i>Paragraph 30: Is there a net gain in FTEs? Transfer of FTEs from Redvale to ARL is too small to materially affect sub-regional economies – especially if FTEs do not re-locate to say Whitford and assuming the transfer is 1:1.</i>
	WMNZ responds that the closure of Redvale will see up to 70 FTE jobs lost, with only 10-15 jobs retained for aftercare activities. WMNZ expects initially some transfer of existing employees to the new site but due to high staff turnover rates WMNZ expects local residents to make up most of the workforce in a few years after start up. Therefore jobs are retained within the Rodney Local Board Area and new jobs created within the local Warkworth-Wellsford area as compared to the alternative of the replacement landfill being further afield outside the local and Rodney area – and possibly outside the Auckland Region
18	<i>Paragraph 33: Economic multipliers are incorrectly applied here as that is for Economic Impact Analysis rather than cost-benefit analysis, which this should be.</i>
	The author responds that in his experience direct and indirect employment, income and expenditure effects as measured by multipliers are frequently considered in RMA cases to assess both “economic wellbeing” and “economic efficiency” effects. Also the RMA at Section 32 2 (a) (ii) specifically requires consideration of employment effects. Whilst agreeing a cost-benefit framework is appropriate for measuring efficiency effects, economic impact analysis may also be relevant for assessing economic effects of a project on people and communities. Also through economies of scale increases or retentions in economic activity may bring economic efficiency benefits
19	<i>Paragraph 35: None of the indicators are connected to the ARL project, only explains terms. a. s1.3 – if the gain in FTEs is largely a displacement – how does this reduce unemployment. How does the ARL lead to higher levels of economic activity?</i>
	The author considers the ARL project will retain/increase levels of economic activity within the local area as compared to the alternative of new landfill capacity being provided outside the local area. The author agrees from an Auckland regional perspective the economic activity effects are only transfers unless of course the alternative scenario is for the new landfill capacity to be located outside the region.
20	<i>Paragraph 36: Greater critical mass must be demonstrated with evidence and numbers. How will the ARL lead to it? Have the nearby landfills led to that in their respective areas?</i>
	The author believes the retention/creation of up to 70 jobs within the local area is not insignificant. These employees and their families will spend with local businesses as will the ARL itself. WMNZ reports that Redvale supports local businesses directly (i.e. through WMNZ’s own spending) and indirectly (i.e. through employees’ and their families spending and through spending by suppliers of goods and services to Redvale and their employees).

21 *Paragraph 37: rate of Auckland waste production is falling, but the reasons for this are not clear? Is better technology supporting this? What are the actual economic or other factors driving this reduction? Why is Auckland not expected to have rates as low as Christchurch?*

WMNZ responds that its data shows that Auckland has a higher waste-to-landfill per capita than Christchurch. WMNZ believe this differential may ease but not disappear in future. The reasons for the differential are thought to be mostly related to intensity and diversity of industrial activity per capita, but also might be linked to factors like intensity of construction per capita in Auckland, materials recovery practices, regional differences in attitudes towards waste, concentration v dispersal of waste sources and hence collection costs, availability of transfer stations, more intense infrastructure development, more demand for disposal from historically contaminated sites with asbestos and agrichemicals, more competition in both landfills and collections making landfill disposal more favourable compared to recycling, and less effective organics removal, etc. Even with a future reduction in this per capita differential, faster population and GDP growth in Auckland will mean faster growth in Auckland's landfill capacity requirements.

22 *Paragraph 38: Why is the market shifting relative to clean fill and soils with Redvale closing? Does this lead to higher costs? What is a class 1 landfill – footnote should define. In general, more explanation is needed in this section.*

A Class 1 Landfill is defined in footnote 1 of the economic effects assessment report. It is also defined in the AEE section 2.2.1.

With respect to the market and options for disposal of cleanfill and soils, WMNZ states that there is a lower standard expected of cleanfill and managed fill soils' landfills and therefore greater ease of obtaining sites closer in towards the city's CBD. This could lead to the extra costs of haulage to the ARL dissuading disposers from using the ARL. Class 1 is the highest standard and can take a higher level of contamination in the soil. The majority of clean fill and soils that currently come to Redvale are 'low value product' sourced from the local area (<40km), and have low gate rates. There is a competitive market among low cost clean fills and managed fills disposal sites. WMNZ's view is that the ARL site will be less competitive than Redvale for disposal of these materials because of the extra cost of transport for the extra 40 km distance compared to competitor sites. It also means that ARL will have to pay more or charge less to attract an amount of soil through the gate to fulfil its daily cover soil requirements as soil arising 'off the street' would often still be cheaper than digging out a stockpile on the site.

23 *Paragraph 39: What are the relative costs of transporting between the different landfills and the alternative location? Are there other costs not shown or considered such as location-based costs for the alternative that can be considered relative to the Dome Valley location for the ARL?*

As explained above the existing Auckland Region landfills are not an option to take over from Redvale. A new landfill in the north is required. WMNZ has looked at site alternatives and their assessment is that the only feasible alternatives will involve increased transport costs compared to the proposed ARL. Closer options do not meet the requirements with respect to a range of factors but in particular the area required, multiple land ownership and ground conditions.

24 *Paragraph 40: Depreciation on vehicles are possibly double counted. Likely, only one method of depreciation should be used per asset. Distance related and time-related are two methods (Units of production and/or Reducing Balance/Straight-Line). Depreciation will affect ROE/ROI/ROC/ROA as profit is a function of depreciation.*

- a. *Road user charges: clarify if RUC goes up*
- b. *What makes up maintenance costs?*

Both distance-related depreciation and time-related depreciation are part of transport costs. Additional distance (and/or travel time) means not only the distance to be travelled increases (and hence higher distance related depreciation costs) but also a need for more trucks to do the same job (and hence time related depreciation costs increase). In a congested environment time related costs will become paramount as delays lead to the need to deploy more vehicles to transport the same quantity of waste over the same distance.

Greater distance travelled means higher road user charges. The economic effects assessment report at paragraph 40 is making the point that the RUCs are a proxy for road maintenance costs so there is no need to include additional road maintenance costs – to do so would mean double-counting. Vehicle maintenance

	costs (including the repair/replacement of tyres, brakes, hydraulic components, engines, clutches, transmission systems, etc.) are relevant and these are included in the estimated additional transporting costs of \$0.25 per tonne-kilometre referred to in paragraph 39.
25	<i>Paragraph 41: Quantity or refer to the correct report for the reduction in congestion and other environmental effects. Paragraph does not actually have any numbers comparing the ARL even in summary</i>
a	The traffic effects assessment of the ARL itself is contained in Technical Report M – Integrated Transport Assessment.
b	No attempt has been made to measure the congestion, emission and road accident effects of having an additional number of heavy vehicles on state highways and local roads for longer as a consequence of an alternative site being located further from waste generating sources. This is because (i) as explained above WMNZ do not wish to disclose a definitive “Plan B” alternative site – at this stage it is not specifically defined but WMNZ’s assessment is that it would be a greater distance out from Auckland’s CBD areas; and (ii) even with a specific alternative site identified modelling these traffic effects would be a complex exercise. However it is reasonable to conclude that these road traffic externality effects, like the additional road freight costs that have been quantified would be significant.
26	<i>Paragraph 42: ARL is still 30km down SH1 from Redvale. Marginal benefit relative to alternative site should be demonstrated</i>
a	Redvale is to close because its capacity will shortly be exhausted. The marginal benefit of the proposed ARL site needs to be assessed against a future alternative site not Redvale.
b	As explained above this future alternative site has not been specified. However to illustrate the point the additional transport costs (excluding externalities) for an alternative site 30 kilometres further out have been quantified on the basis of 25 cents per tonne kilometre. WMNZ has stated that the calculated additional costs assume predominantly four lane state highway (SH) travel with the additional 30 kilometres equating to an additional 20 minutes travel. This is a conservative estimate in that it is more likely an alternative site would involve a mix of four lane SH travel and two lane local road travel with a greater time penalty and therefore higher transport costs.
c	Alternatively using a combination of Whitford and Hampton Downs to the south would result in even higher costs than have been estimated.
27	<i>Paragraph 43: Should detail data or evidence. Footnote 18 does not exist on page. These factors need to be compared in terms of their relative benefits and costs on the proposed ARL site and alternatives. Show how the net benefits came to be. Specifically, what were the other sites considered?</i>
a	Footnote 18 should have referred to the AEE main text and the other technical reports appended to it.
b	For the reasons explained above WMNZ do not wish to specify the other sites considered. Details of the site selection criteria and process are contained in the AEE main text section 10.4 and Appendix D to the AEE.
28	<i>Paragraph 44: Need further clarification as the capacity levels of the alternative sites means that the price dynamics will influence the costs and benefits. Further, an additional landfill owned by the same people who own current ones doesn’t suggest increased competition.</i>
a	The reference in the paragraph is about the retention of competition in the market as compared to a situation where when Redvale closes, WMNZ does not replace it with the proposed ARL.
b	WMNZ’s view based on its site selection process described in AEE sections 10.4 and Appendix D is that any other shortlisted site would be (i) further away and/or (ii) more complex and more risky in terms of consentability. Therefore it will be more expensive to develop and operate. If no north-of-Auckland landfill proceeds then the cost for transport will be even higher than has been quantified in the economic effects assessment report, and the costs at existing landfills may also rise due to capacity constraints.
29	<i>Paragraph 45: Bullet point A is somewhat relevant to Rodney, but not relevant to Auckland overall. Bullet point B – how was the 30km figure determined and why?</i>

a	It is agreed that bullet point A relates to Rodney, not Auckland overall.
b	The 30 kilometre figure is hypothetical but from discussions with WMNZ staff not unrealistic. Also the additional costs are conservatively estimated in that no account has been taken of a greater proportion of two lane local road travel and possibly higher development costs of alternative sites (see above).
30	<i>Paragraph 48: Link or show evidence of how the ARL will be self-sufficient. If this is in the other documents of the application, please reference them here. Should also detail infrastructure development costs in terms of SH1 contribution. In nearly all cases, the amount of development contributions paid by the developer are only a fraction of the total cost of providing the infrastructure the development requires. By simply paying the development contribution, the remainder of the cost is subsidised by others.</i>
a	WMNZ has indicated that the development will not use or place any additional demand on Council's utilities. Council's utilities do not pass near the site and would not be extended to the site. Potable water will be obtained from the site's own well (AEE 5.7.9.1), not from Watercare's treatment plant and reticulated supply. Wastewater will be treated and disposed of on the site, not use Watercare's sewerage network and wastewater treatment plant. Leachate will be treated on site and/or carted off site to WMNZ's own leachate treatment and disposal sites (AEE 9.8). Stormwater will be managed and discharged to streams on the site via controlled dam structures (AEE 9.7), not into the Council's network.
b	Safety improvements on SH1 will be paid for by WMNZ.
c	Roading O&M costs will be paid for via rates, RUCs and tolls.
31	<i>Paragraph 49: Is the transport effects assessment optimistic? Should detail numbers or costs somewhere. If this is in another of the studies, the study should be referenced.</i>
The transport effects assessment is contained in Technical Report M – Integrated Transport Assessment (in Volume 2B of the AEE).	
32	<i>Paragraph 51: Costs need to be summarised in a table with numbers where available and references provided.</i>
<p>A summary of the economic benefits and costs of the project is as follows:</p> <p><b>Economic Benefits</b></p> <p>a Additional employment, incomes and expenditure for local Warkworth/Wellsford economy (68-105 jobs, \$4.5m-\$7.5m per annum wages and salaries and \$3m-\$6m per annum other expenditure for local businesses);</p> <p>b Retention of employment, incomes and expenditure for Rodney economy (as for a.);</p> <p>c Reduced employment commuting costs (not quantified)</p> <p>d Waste transport cost savings (\$14.5m-\$16.5m per annum, based on alternative site for ARL being 30 kilometres further north);</p> <p>e Reduced road transport emissions, congestion and accidents (not quantified);</p> <p>f Reduced site consenting and development costs compared to alternative site development (not quantified);</p> <p>g Retained competition in Auckland's waste landfill market compared to WMNZ not replacing its Redvale landfill (not quantified).</p> <p><b>Economic Costs</b></p> <p>a Forgone alternative land uses (nil – costs internalised into WMNZ's costs of development);</p> <p>b Public infrastructure costs (nil);</p> <p>c Localised road congestion costs (not quantified, but assessed as able to be managed with minimal adverse effects on the surrounding receiving transport environment - see Integrated Transport Assessment, Technical Report M, appended to the AEE, Volume 2B).</p> <p>Non-economic effects of the project are not included in the assessment of economic effects. These are covered in the AEE main text and the accompanying other technical reports in Volumes 2A and 2B. These</p>	

non-economic effects need to be assessed against the net positive economic effects identified in the summary table above.

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