

## 7. SOLID WASTE MANAGEMENT PLAN COSTS AND IMPLICATIONS



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### PURPOSE OF REPORT

1. The purpose of this report is to provide the information requested on 20 December 2005 on the Draft Waste Management Plan 2005 resolutions.

### EXECUTIVE SUMMARY

2. This report sets out the costs and implications of the 20 December 2005 Council resolution on the Draft Waste Management Plan 2005. The options suggested by the Council in this resolution to reduce organic waste are presented and discussed. Staff plan to report back to the Council later in 2006 on the collection of recyclables from the inner city and apartments, on the proposal for a targeted rate for refuse collection and disposal, and with the final draft of the Waste Management Plan.
3. Key implications of the 20 December Council resolution include:
  - The revision of the Council's waste minimisation targets to reflect a lower level of waste reduction (see Table 1 and Attachment 1).
  - The likely failure to meet the organic waste reduction targets contained in the Council-adopted New Zealand Waste Strategy.
  - Under the Council's Waste Handling Bylaw operators are required to work towards the Council's waste reduction targets. A lowering of these targets would, in effect, allow these operators to send more waste to landfill.
  - Potential financial and operational efficiencies that could be gained by tendering a bundle of kerbside services will be lost (eg the ability to collect organics and rubbish in the same truck) if the Council adopts an incremental approach to the implementation of the services.
  - Because of the long-term nature of these kerbside collection contracts, it unlikely that additional collections (eg for organics) could be added to the contracts during their life, in a cost effective way. Therefore, the 20 December 2005 decision could increase the cost of such collections and/or increase the likelihood of delaying an organics collection until 2013 or more likely 2018.
  - More waste will be disposed of to landfill (in comparison to Option 3) which will result in 3,600 truck loads and 500,000 kilometres travelled to the landfill each year, a potential reduced life for the landfill of eight years, additional burden on the landfill's host community and costs to the Christchurch community in the order of \$9m each year for the collection and disposal of organic waste.
  - Based on recent articles in the Press, the letters to the editor and letters received by staff (see Attachment 2), public confidence in the decision making process appears to have been eroded by the apparent disregard for the 47% of submitters that voted for Option 3.
4. More detailed information can be found in the body of the report.
5. This report concludes that organics will remain a significant portion (27%) of domestic and commercial waste and continue to cost the community around \$9m per year for collection and disposal, unless further options are implemented by the Council such as the construction of an enclosed compost facility and the kerbside collection of organic waste. The cost of avoiding this waste and beneficially using these organic resources (1.6% rates impact) is similar to the rate reduction achieved when the Council lowered the number of rubbish bags allocated to each household from 52 to 26 bags. A rationale for lowering the number of bags at this time was that half the contents of an average rubbish bag could be composted. The selection of Option 1 and not Option 3 by the Council on 20 December means that this is likely to continue.

**Table 1. Impact of the Council decision on the waste reduction targets**

Type of Waste	No more than: kg / person / year to sent to landfill		Target Year
	Original <sup>a</sup>	Revised <sup>b</sup>	
Green and kitchen waste sent to landfill	30	172	2015
Paper and cardboard sent to landfill	90	100	2015
Plastic waste sent to landfill	60	60	2015
Kerbside waste collected by Council	25	82	2015
Wood waste sent to landfill	22	22	2015
Rubble received at refuse stations	10	10	2015
Total waste to landfill	320	383	2020

- (a) Targets proposed in the Draft Waste Management Plan consulted on in November 2005.  
(b) Revised targets based on the 20 December Council resolution.

#### FINANCIAL AND LEGAL CONSIDERATIONS

6. Councillors would need to decide what level of service to provide for each initiative contained in clause 1 of the Council resolution. However, the following sets out related indicative costs:

Initiative	Indicative Cost (\$million per year)	Potential Rates Impact (%)
Subsidy for on-site shredding services <sup>a</sup>	0.8	0.5
Subsidy for kerbside organics collection services <sup>b</sup>	2.6	1.5
Free greenwaste drop off at refuse stations	2.5 – 3.2	1.5 – 1.8
Extra funding of Community Gardens	0.05	0.02

#### Notes

- (i) a and b assumes a 20% subsidy is provided from the Council for these services the remaining 80% would need to be paid for by the users of the service.  
(ii) Subject to Council approval the cost of these initiatives could be offset by the Waste Minimisation Fund (a total of \$1.5m would be available each year).  
(iii) The cost of Option 3 as proposed in the Draft Waste Plan was \$2.7m or 1.6% on the rates.

## STAFF RECOMMENDATIONS

It is recommended that the Council:

- (a) Receive the information.
- (b) Note the extent of the work already underway or included within the Waste Management Plan.
- (c) Note that Option 1 (with the Council's suggested amendments/refinements) which was resolved on 20 December 2005 has the following implications:
  - (i) the Council's waste reduction targets will be reduced to reflect a lower level of waste minimisation;
  - (ii) it is likely that the Council will fail to meet the waste minimisation targets contained in the New Zealand Waste Strategy;
  - (iii) the impact on financial and operational efficiencies as set out in this report; and
  - (iv) the resulting social, financial and environmental impacts of the continued disposal of waste to Kate Valley Landfill.
- (d) In the light of this report, confirm that Option 1 with the resulting implications is the preferred option for Christchurch City and adopt the following targets for the Council's Waste Plan:

<b>Waste Type</b>	<b>No more than: Kg/person/year</b>	<b>Target Year</b>
Green and kitchen waste sent to landfill	172	2015
Paper and cardboard sent to landfill	100	2015
Plastic waste sent to landfill	60	2015
Kerbside waste collected by Council	82	2015
Wood waste sent to landfill	22	2015
Rubble received at refuse stations	10	2015
Total waste to landfill	383	2020

## BACKGROUND ON SOLID WASTE MANAGEMENT PLAN COSTS AND IMPLICATIONS

7. On 20 December 2005, in its deliberations on the Draft Waste Management Plan 2005, the Council resolved:
- (a) *That option 1 be adopted and that a working party comprising staff, the present submitters and other interested parties be formed to consider and report back in 2006 for 2008 on the suggested amendments/refinements to option 1, including:*
- *on-site shredding of green waste*
  - *subsidised organics collection*
  - *principles of fairness*
  - *greater emphasis on community gardens*
  - *a variety of techniques*
  - *waste minimisation*
  - *community education programme*
  - *bylaw implementation*
  - *the option of different size bins to suit the needs of the household*
  - *more focus on commercial sector*
  - *investigation of a possible targeted rate*
- (b) *That it be noted that Option 1 will result in the necessity to reduce the targets set out in the Council's Solid and Hazardous Waste Management Plan, and that it is likely that the Council will fail to meet national waste minimisation targets.*
- (c) *That staff be requested to report back with the following information, prior to the LTCCP seminars to be held during the week 13-17 February 2006:*
- *the costs and implications of the suggested amendments/refinements listed in clause 1 of the resolution*
  - *the anticipated reduction in the targets set out in the Council's Solid and Hazardous Waste Management Plan, and the resulting amendments to the associated KPIs.*

This report firstly addresses the costs and implications of the suggested amendments/refinements in clause 1, and then reviews the impact of the December resolution on the waste reduction targets.

### **On-site shredding service to households**

8. In the 2005 Yellow Pages under Tree Services currently 63 operators exist that can chip or shred garden waste on-site and on a user-pays basis. The following is based on calls made to a selection of these operators.
9. The average price for these services is \$140 per hour with an additional charge of \$10 per metre when the resulting mulch is taken away (in one hour approximately 7 cubic metres of mulch would be produced). The collected mulch is then on-sold to landscapers by the tree shredding company. Anecdotally, 60% of customers get the mulch taken away.
10. For an average caged 6 x 4 metre trailer full of greenwaste this would equate to \$40 for shredding and leaving on the property approximately half a cubic meter of mulch. Currently the same trailer would be charged \$15 at the refuse station and the person would not need to deal with the resulting mulch, it would be composted by the Council (note that to hire a trailer from a service station for one hour costs about \$12 or \$20 for half a day).

11. A 20% Council subsidy for this service would cost approximately \$0.9m (0.5% rate impact) if 30% of households required the service twice each year. However, staff consider that sufficient user-pays shredding services are currently available in the city and there is no need for Council intervention. Council intervention related to this service will not significantly reduce the amount of organic waste going to landfill. This option would be primarily aimed at large amounts of woody material such as branches from felled trees. It would not be suitable for herbaceous material (eg hedge or grass clippings) that can clog machinery and would not address food scraps or commercial putrescibles. Herbaceous material and food scraps are the main type of organics found in rubbish bags and wheeliebins being sent to landfill because the large woody branches do not easily fit into these containers. Consequently, this option would not address the main types of organic waste currently going to landfill.

### Subsidised Organics Collection Services

12. In the 2005 Yellow Pages under Rubbish Bin Hire currently two operators provide a user-pays garden waste collection service, which compost the material collected. An additional 60 bin or drum operators exist in Christchurch that collect mixed garden and household rubbish and send it to landfill (by weight 65% in a bin/drum is organics that could have been composted). A further 36 garden maintenance businesses will take away the resulting vegetation for composting at the Council facility (strictly speaking these are not organics collection services, but gardening services, so should not be considered for any Council-based subsidy). The following is based on calls made to the two greenwaste collectors.
13. Both operators would be interested in Council support for their services – it would improve their competitive advantage. However, consideration needs to be given to whether a subsidy for these services would actually change public behaviour or reduce the amount of organics going to landfill.
14. A greenwaste wheeliebin (140 or 240 litres) collected each week or fortnight costs an average of \$3 per collection per household and a 600 litre wool sack collected on demand (fortnightly or monthly) costs \$15 per collection per household regardless of frequency.

### The Cost for Private Collection Operators

Bin Size	Green Waste Only			Rubbish
	Weekly	Fortnightly	Monthly	Weekly
240 litre wheeliebin	\$165/year	\$99/year		\$295/year
140 litre wheeliebin	\$140/year			\$225/year
600 litre wool sack		\$15/collection	\$15/collection	

15. A substantial incentive currently exists for residents to use the greenwaste collection services in comparison to waste collection services. The greenwaste service is roughly half the price (45%) of a mixed waste collection service yet only 8% of the public choose these services in comparison to 20% selecting waste collection services. Based on Council telephone surveys the main reason given for having a waste wheeliebin is convenience (eg “it all goes into one bin”).
16. Because uptake is unknown it is difficult to estimate the cost of Council intervention in this market. However, if the cost of these greenwaste services was discounted 20% by a Council subsidy it would cost the Council approximately \$2.6m per year (1.5% increase on Council rates), based on a weekly collection at \$3 per collection per household with a 60% uptake. This assumes that the community would be willing to pay the remaining \$10m per year (80% share of the costs) for the service.
17. Note that the cost for the organics collection and composting service proposed in Option 3 is \$1 per collection per household. This is because it is more efficient to collect organics city-wide in comparison to collecting from only 8% of the households city-wide. Further efficiencies could be achieved if the organics were collected at the same time and using the same truck as the rubbish (potentially down to 80 cents per collection). However to be conservative, this was not used as a basis for the figures presented to Council for Option 3.

18. Councillors would need to decide what level of subsidy is acceptable or reasonable. Staff advice is that in comparison to a 50% price incentive (currently available from private operators) a modest Council subsidy not likely to be effective. This is because price is not the main barrier or driver. According to the current situation people are willing to pay \$295 per year for a wheeliebin to dispose of rubbish, 65% of which is greenwaste. Based on the average weight of a wheeliebin, this equates to \$295 per tonne compared to the \$63 per tonne to drop off greenwaste at a Council refuse station.
19. Another option suggested by submitters and Councillors was to reduce the tipping fee for greenwaste at the refuse stations. Currently the greenwaste tipping fee is \$63 per tonne or 50% of the refuse tipping fee and 33,000 tonnes are received each year for composting. If the tipping fee was removed entirely it would cost the Council \$2.1m per year. However, with no tipping fee, it is likely that significantly more greenwaste would be received increasing this cost further, in the range of \$2.5–\$3.2m per year which translates to a 1.5-1.8% impact on rates.
20. A Council subsidy for organics collection and free greenwaste tipping would not address food scraps or commercial putrescibles, which can only be composted in an enclosed facility. No such facility currently exists in Christchurch and the Council, placing a low priority on capital for a compost plant, has effectively removed from the City Water and Waste budget the funding for such a plant. It could now only proceed if it was entirely privately funded.

### **Principles of fairness**

21. This closely aligns with a possible targeted rate (see paragraph 35) and the principle of user/polluter pays. User pay regimes are common nationally and internationally for rubbish collection services. Experience elsewhere shows that once established, full cost pricing for rubbish disposal is seen as fair by the public (Skumatz 2002). In addition, full cost pricing for refuse disposal is a core principle contained in the Council-ratified New Zealand Waste Strategy. *“Efficient pricing policies that as far as practicable reflect the full cost of waste disposal ... are the cornerstone of this strategy.”* Christchurch is one of the few cities left in New Zealand where rubbish collection is still rates-funded.

(Skumatz, A. (2002) *Variable-rate or “pay as you throw” waste management: answers to frequently asked questions*. Reason Public Policy Institute, Reason Foundation, Los Angeles.)

### **Greater emphasis on community gardens**

22. From 2001/02 the Council resolved to allocate \$50,000 per year to encourage and support the development of new and existing community gardens as set out in the Council’s Community Gardens Policy. This funding was removed in 2004/05. Since its removal a number of submissions have been received from the Christchurch Community Gardens Association and others on the Council’s Annual Plan and Waste Plan and the importance of the objectives that were met with this funding.
23. These objectives are not predominantly directed at waste minimisation, but rather a number of Community Outcomes such as social cohesion, lifelong learning and biodiversity. Past experience has demonstrated that their effect in reducing the organic waste stream is not high. However, staff would welcome additional funding to encourage more gardens and to assist the existing ones (eg for garden tools, sheds, and related facilities and services). In addition, an ongoing series of home composting workshops are planned to be run through community gardens as part of the \$30,000 per year budget allocated for the promotion of home composting.

### **A variety of techniques for processing organic wastes**

24. Staff have been investigating organic waste processing options since 1998 (approximately \$600,000 has been spent on these investigations excluding staff time) and this has included:
  - a call for expressions of interest and after shortlisting, a request for proposal in 2001 that was not proceeded with after staff recommended the acceptance of one of the proposals. The objective was to have an enclosed compost plant operational at the time Kate Valley opened;

- a feasibility study undertaken by the provider of an alternative waste technology in 2002;
  - the construction of a prototype HotRot composting unit at the Wastewater Treatment Plant for the processing of rag and grit;
  - an expression of interest process again in 2004, based on Council approval for the development of an enclosed compost plant as described in the 2004 Waste Action Plan;
  - site visits in Australia, Europe, United Kingdom, Japan and America; and
  - numerous presentations from composting, digestion and alternative waste technologies.
25. Staff have short-listed three composting technologies considered to meet the needs of city (that are modular, proven and reliable) and are part way through developing request for proposals documentation. This tender process is now on hold owing to the Council decision to place a low priority on the capital budget for the commercial putrescible processing plant. Note that enclosed compost facilities are now operating in Mackenzie, Kaikoura, Waitakere, Wellington and soon Timaru and Selwyn.
26. Given the above, further research into digestion, enclosed composting and the marketing of the compost products would only be warranted if the Council signalled a willingness to collect organics at a stated time in the future.

### **Waste minimisation**

27. The Waste Management Plan (at the website below) contains more than 100 actions on how to reduce waste in the city. Further work with the submitters and other stakeholders will progress, but this is largely “business as usual” in terms of problem solving for the waste stream.

<http://www.ccc.govt.nz/Waste/PolicyReports/>

### **Community education programme**

28. The Solid Waste Education and Communication Strategy 2004 (at the website below) contains 50 pages of information about how the Solid Waste Section plans to engage the public, schools and businesses in waste minimisation activities. These include recycling at events (\$50,000 per year), home composting promotions (\$30,000 per year), the promotion of kerbside recycling (\$125,000 per year), promotion and support for business recycling (\$80,000 per year), a contestable community waste minimisation fund (\$50,000 per year), general education and publicity (\$80,000 per year) and a postgraduate scholarship (\$5,000 per year). The Council may provide more funding into this area if they wish.

<http://www.ccc.govt.nz/Waste/PolicyReports/>

### **Bylaw implementation – Ban organics from the landfill**

29. Bylaws are established through a legal process. Fundamental in this process is the fact that bylaws must be “reasonable and fair” in order to proceed. Staff do not believe that it is reasonable to place a blanket ban on greenwaste or kitchen waste entering the landfill without having readily available alternatives in place. This option could be pursued as a backstop measure, once alternatives are established for the public and businesses (eg an enclosed facility to process food scraps and commercial putrescibles and an organics collection service). If a bylaw was established it is likely that enforcement would be difficult (especially for rubbish bags) and costly.
30. The North Shore City Council bylaw example raised during the hearings on the Waste Plan, would not be effective in reducing waste, as it only bans whole loads of greenwaste from being tipped in refuse station pits or taken to landfill. Tipping of mixed refuse containing greenwaste is still permitted.

### **The option of different size bins to suit the needs of the household**

31. Two wheeliebin sizes were proposed for the recycling collection service, a 140 litre wheeliebin and a 240 litre wheeliebin. These bin sizes appear to suit the needs of most residents as indicated by the submissions received on the Waste Plan (25% of submitters preferred 240 litre bin and 49% preferred a 140 litre bin). It should be noted that in Australia a 240 litre bin is the standard size for fortnightly recycling collection services and that a 240 litre bin was recommended by Terranova due to the proposed increased volume of plastics that is planned along with the introduction of wheeliebins and for future proofing the service.

32. Options will be considered and reported to the Council later in 2006, for the collection of recyclables in the inner city and from apartments.

#### **More focus on commercial sector**

33. Staff acknowledge that the commercial sector is important (it contributes 55% of the waste sent to landfill) which is why:
- The Council's resource efficiency programme "Target Zero" is allocated \$346,000 per year to provide support to Christchurch businesses in dealing with the use of resources, electricity, water and the generation of waste.
  - \$80,000 has been allocated to promote and support recycling in businesses.
  - A Sustainable Initiatives Fund has been established to encourage new commercial waste minimisation ventures in the city. This is funded from a \$2 levy applied to all waste sent to landfill and currently \$420,000 is available for proposals that meet the criteria.
  - The Waste Handling Facilities Bylaw requires all waste facilities in the city to work towards the Council waste minimisation targets and includes the possibility of imposing a minimum level of waste separation for those sites that do not achieve an appropriate level of waste avoidance.
  - Staff work closely with the Ministry for the Environment and other organisations to develop programmes that focus on the commercial sector, such as product stewardship and the packaging accord.
  - A range of other initiatives are set out in the Draft Waste Management Plan including the sorting of commercial and construction and demolition waste at refuse stations.
34. Through the submissions received on the Waste Plan the Council received strong public support for work in this area and staff will be working with Christchurch businesses to see what else can be done.

#### **Investigation of a possible targeted rate**

35. A report put to Council in February 2004 *Targeted uniform annual charge for refuse bag collection and disposal* recommended that for purposes of clarity for residents a separate line item be shown on a property owner's rates assessment for the 26 bag refuse bag collection activity (a targeted uniform annual charge). This proposal was rejected. However, staff will now reconsider this issue as requested and report findings to the Council later in 2006.

**(b) That it be noted that Option 1 will result in the necessity to reduce the targets set out in the Council's Solid and Hazardous Waste Management Plan, and that it is likely that the Council will fail to meet national waste minimisation targets.**

36. Attachment 1 contains the revised targets for the Council's Waste Management Plan.
37. On page 24 of the New Zealand Waste Strategy 2002 are the following targets that relate to organic waste:
- (a) *By December 2005, 60% of garden wastes will be diverted from landfill and beneficially used, and by December 2010, the diversion of garden wastes from landfill to beneficial use will have exceeded 95%.*
  - (b) *By December 2010, the diversion of commercial organic wastes from landfill to beneficial use will have exceeded 95%.*
  - (c) *By December 2007, more than 95% of sewage sludge currently disposed of to landfill will be composted, beneficially used or appropriately treated to minimise the production of methane and leachate.*
38. It is the view of Council staff that these targets will not be met without an enclosed compost plant able to process commercial organic wastes and without the kerbside collection of organic waste.



(c) That staff be requested to report back with the following information, prior to the LTCCP seminars to be held during the week 13-17 February 2006:

- the costs and implications of the suggested amendments/refinements listed in clause 1 of the resolution
- the anticipated reduction in the targets set out in the Council's Waste Management Plan, and the resulting amendments to the associated KPIs.

### Costs

39. Councillors would need to decide what level of service to provide for each initiative contained in clause 1 of the Council resolution. However the following sets out related indicative costs:

Initiative	Indicative Cost (\$million per year)	Potential Rates Impact (%)
Subsidy for on-site shredding services <sup>a</sup>	0.8	0.5
Subsidy for kerbside organics collection services <sup>b</sup>	2.6	1.5
Free greenwaste drop off at refuse stations	2.5 – 3.2	1.5 – 1.8
Extra funding of Community Gardens	0.05	0.02

#### Notes

- (i) a and b assumes a 20% subsidy is provided from the Council for these services the remaining 80% would need to be paid for by the users of the service.
- (ii) Subject to Council approval the cost of these initiatives could be offset by the Waste Minimisation Fund (a total of \$1.5m would be available each year).
- (iii) The cost of Option 3 as proposed in the Draft Waste Plan was \$2.7m or 1.6% on the rates.

### Implications

40. The 20 December Waste Plan Resolution has the following implications:

- The Council's waste minimisation targets have been revised to reflect a lower level of waste reduction. With this, the Council is likely to lose credibility with the Christchurch community and other organisations and councils around New Zealand (given that the Council adopted the New Zealand Waste Strategy and considers itself to be a "Zero Waste" Council) and because of the agreed Community Outcomes established in 2005. The Council's Waste Handling Facilities Bylaw also charges waste handlers to advance on the Council's targets, this will now require a lower level of commitment from these operators.
- The memorandum of understanding with Transwaste Canterbury relating to the operation of Kate Valley states in Clause 6.5.d that "*all parties contributing waste to the landfill have taken all practicable and financially viable steps to ensure there is a minimum potential of further waste reduction, reuse and recycling*" lowering the waste reduction targets and not selecting Option 3 effectively goes against this agreement.
- It is very likely that the city will fail to meet the organic waste targets contained in the New Zealand Waste Strategy adopted by the Council. If the European model was followed the Council would be fined for every tonne sent to landfill above the targets. However, in New Zealand there is no imperative or consequence for failing to achieve the voluntary waste targets set by central government.
- If a stepwise approach to the implementation of the wheeliebin services is adopted (ie choosing Option 1 then at a later time moving to collect organics) the Council may lose an ability to tender for the entire kerbside service and lose the efficiencies that this may provide. For example, the ability to collect both organics and rubbish each week using the same truck may be lost. Timaru and Waitakere Councils experienced considerable efficiencies when their kerbside services were tendered at one time and for a reasonable period (eg 12 years, the life of the wheeliebins).

- With the expiry of both collection contracts (refuse and recycling) and the Terra Nova contract (for sorting and marketing the recyclables collected) in 2008, a significant opportunity exists for tendering for the most efficient collection and recycling services. It is unlikely that additional collections (eg for organics) could be added to the contracts during their life, in a cost effective way. Therefore given the inherently long term nature of these types of contracts, the 20 December 2005 decision is effectively putting off any likelihood of an organics collection until 2013 or more likely 2018 or increasing its costs.
- Based on recent articles in the Press, the letters to the editor and the 40 letters received by Council staff (see Attachment 2), public confidence in the decision making process appears to have been eroded by the apparent disregard for the 47% of submitters that voted for Option 3. *Note: based on the submissions received Option 1 and 2 should be considered mutually exclusive ie they should not be added together because submitters selected Option 1 primarily on basis that rates would not increase, whereas Option 2 resulted in a 3.2% rates increase. Submitters also selected Option 1 or 3 primarily because they would result in less waste going to landfill, whereas Option 1 as stated in the Waste Plan would result in a 65% increase in waste.*
- More waste will go to Kate Valley in comparison to Option 3. This will increase transportation to the landfill, shorten the landfill life and add costs the community for waste disposal and the “pre-mature” need to develop a new landfill. The costs to the community for the disposal of organic waste are covered in detail below.

### **Cost to community for the disposal of organic waste**

41. In considering the organic waste issue it is not enough just to consider the cost impact on the Council rates, one should consider the wider costs to the community because all waste disposal, except for the provision of 26 rubbish bags, is user-pays (ie do not appear as a rates impact).
42. The table below provides an indication of the cost borne by the Christchurch community for the collection and disposal of organic waste. It should be noted that these figures would be significantly higher if paper was included (organics and paper combined would account for 51% of all the waste landfilled from the city and would amount to \$16.6m each year in disposal costs alone). In other words, it may be possible to halve the waste stream by dealing with the compostable components of what is landfilled from the city. The technologies short-listed by the Council would be able to process both organics and paper to generate quality compost.
43. Collectively the community pays about \$9m each year to dispose of organic waste to Kate Valley. Higher costs are incurred, above the landfill fee of \$125/tonne when the organics are collected from the kerbside in a rubbish bag or wheeliebin. Higher costs are also incurred for the disposal of some putrescible wastes (eg large amounts of odorous material) because they would be classed as “special waste” and need to be processed differently (this extra cost is not shown below but is approximately \$150 per tonne).
44. The 50,072 tonnes of organic waste accounts for 3,600 truck loads and 500,000 km travelled to Kate Valley each year (excluding biosolids that are currently mixed with composted greenwaste and used as cover for the Burwood Landfill). In addition to this, is the distance travelled by the 120 trucks collecting waste each week from properties around the city, 65% of which is organic waste mixed in with refuse (based on 2 trucks for each of the 60 bin operators).

## Cost to the community for the collection and disposal of organic waste

Waste Source	Tonnes landfilled <i>a</i>	Composition of organics % <i>b</i>	Tonnes of organics <i>a x b</i>	Disposal cost (\$/Tonne) <i>c</i>	Cost per year (\$m) <i>a x b x c</i>
Rubbish bag	33,000	47	15,510	188	2.8
Private waste bin	18,500	65	12,025	295	3.5
Other domestic and commercial waste	190,500	Various	22,537	125	2.8
Biosolids <sup>1</sup>	30,000	100	30,000		
<b>Total</b>	<b>272,000</b>	<b>27</b>	<b>80,072</b>		<b>9.1</b>

### Notes:

In this table organics includes green and putrescible wastes, but excludes paper that can also be composted.

1. Alternative options for the use of biosolids are currently under investigation and are the subject of a report to Council. The costs per tonne of processing the biosolids are envisaged to be less than the disposal costs for Kate Valley, but for the purposes of this analysis these costs are not included because this material is currently being used as cover for the Burwood Landfill.
45. Once in the landfill organics are the main source of leachate and greenhouse gases. One of the main reasons why landfills are required to have liners, leachate and gas collection and treatment systems is the organic content of the waste. The cost of this to the community is best demonstrated by comparing the price to dump waste that contains organics in a landfill (\$125 per tonne) with the price to dispose of material free of organics (inert inorganics) in a cleanfill (about \$15 per tonne). Given that hazardous waste only makes up 2% of the waste stream, the price difference of about \$110 per tonne is almost entirely due to the organic content of waste.
  46. Extending the life of the landfill by avoiding waste would also reduce the future burden to the host community and to Christchurch. Avoiding 90% of the organic waste going to landfill could make the \$40m landfill last another eight years, delaying the need for a new landfill and beneficially utilising the organic resources. If 90% of paper was also avoided then the life of the landfill could theoretically be doubled.
  47. Taking these costs into account, a business case can be developed that supports the option to collect organics at the kerbside on the basis that it will be cheaper for the community both now and in the long-term. The cost to collect and process the organics as set out in the Draft Waste Management Plan is \$185 per tonne. On a per tonne basis, this is about the same as collecting and disposing of rubbish bags (47% of which is organics by weight or 67% including paper), and considerably less than private wheelie bin costs.
  48. The operational cost of Option 3 as stated in the Draft Waste Plan is \$2.7m per year (including repayments for capital for the bins and the compost plant) and this equates to 1.6% in the rates. This figure is lower than the costs currently paid for by the community primarily because the material collected is used as a resource and not sent to landfill at \$125 per tonne (the cost of composting the organics collected is \$90 per tonne by comparison). It is notable that the extra cost in the rates proposed by Option 3 is roughly the same as the rate reduction achieved when the rubbish bag allocation to each property from reduced 52 to 26 in 2004. A rationale for lowering the number of bags at this time was that half the contents of an average rubbish bag could be composted. The selection of Option 1 and not Option 3 by the Council on 20 December means that this is likely to continue.