



FINAL

porirua city

# Construction and Demolition Waste Minimisation

Report 3 – Business Model

June 2021

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# 1 Context

Porirua City Council (PCC), and its partners (Kainga Ora, Hutt City Council (HCC) and Kapiti Coast District Council (KCDC)) are seeking to put forward a business case to utilise, repurpose and sell resources arising from construction and demolition activities in the region. To inform the business case, seven reports have been commissioned (Figure 1), ultimately culminating in one consolidated report (Report 8).

This is Report 3 – Business Model, the purpose of this report is to demonstrate three potential scales of diversion facility for comparison; small, medium and large.

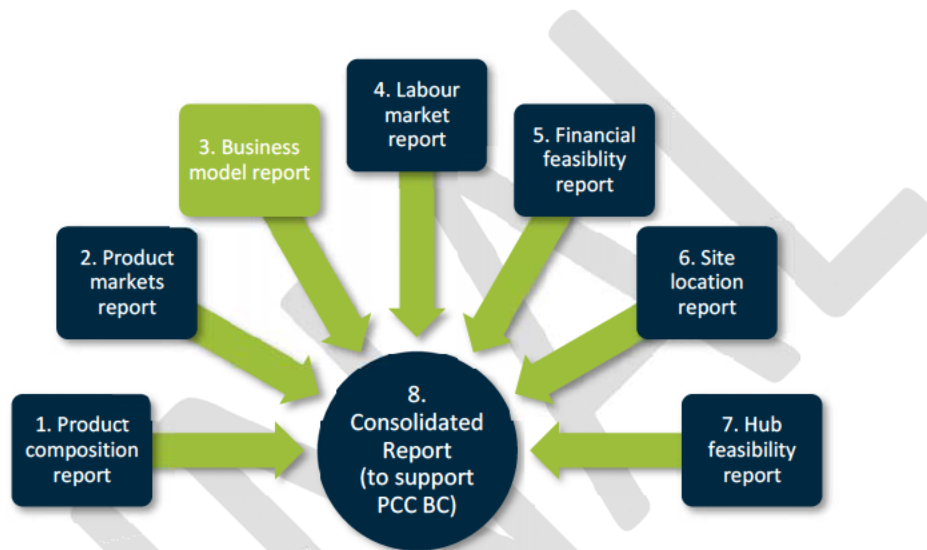


Figure 1 Report structure to inform the business case

## 2 Business model considerations

### 2.1 C&D waste facility operations

The general operational functions for a C&D waste recovery facility can be described as shown in Figure 2. Most of these steps (receive, sort, store and sell) are required regardless the scale of the operation but some are more suited to larger or smaller scale operations:

- Attracting and signing up customers may not be required for a small-scale operation if the facility is set up for existing landfill or transfer station customers or for a specific customer, e.g. Kāinga Ora.
- Further processing to create products or undertaking R&D for new products is more likely to be appropriate for medium and large scale operations that have sufficient scale to accommodate these activities.

- The requirement to store unsorted material is typically not preferred but may be appropriate when considering a small-scale operation or satellite site within a medium-scale operation. Noting that for any operation, storing of unsorted material may be a contingency measure in the event of the facility being unavailable, e.g. due to equipment breakdown.
- Unsorted material could be stored prior to transport to a centralised facility or built up to a point at which machinery is brought in to process the stored material (i.e. a campaign processing option). The storage and double handling costs would be offset by reducing the number of standing man or machinery hours.

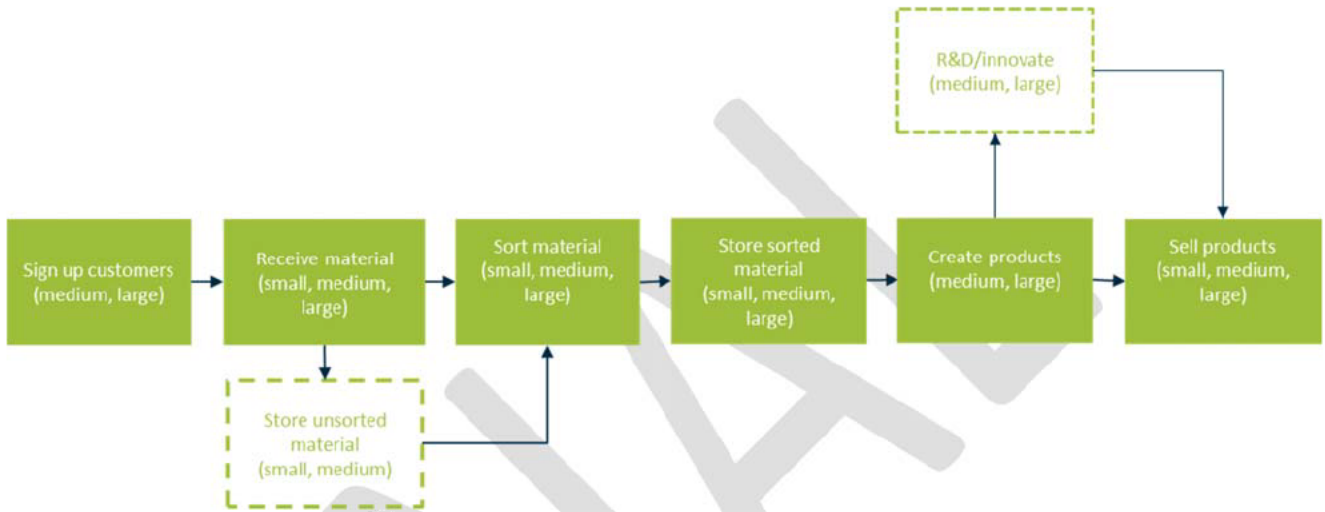


Figure 2 Typical process at a C&D facility

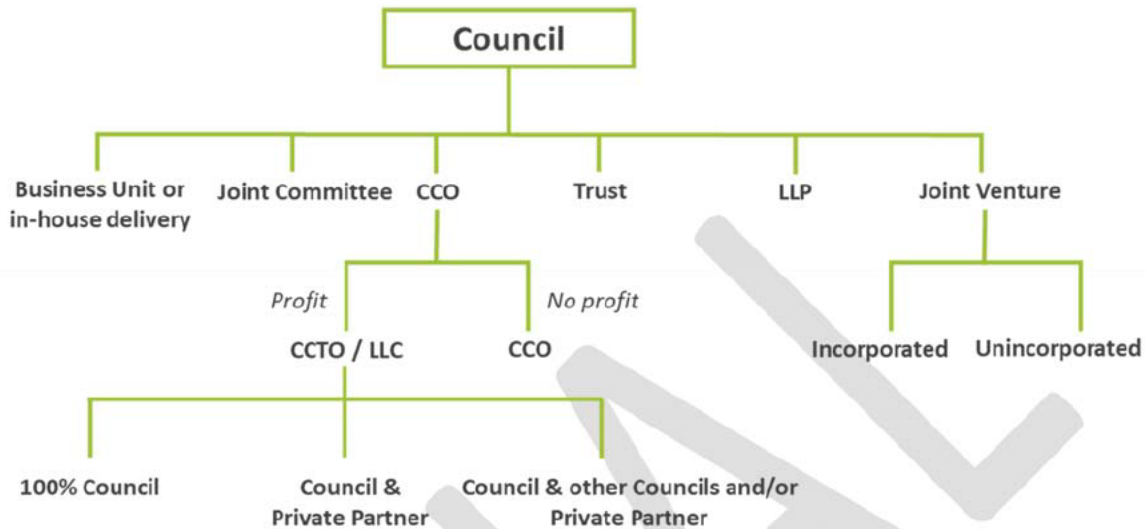
## 2.2 Business model structure

The relationship between different parties involved in the operation of a commercial waste facility are shown in Figure 3. Council is a customer of the facility if it delivers C&D material from its own construction activities to the site. Council can also be an end market if it specifies the use of recycled materials in its own construction programme. Council can also be an owner of the facility, either alone or in partnership with other parties, and invest capital and receive a return from its investment.



Figure 3 Entity structure relationship diagram

There are a range of ownership structure options that can be considered for the C&D facility. The following diagram (Figure 4) shows the range of options available and further details of these are provided in Appendix 2. Where councils partner with other councils for facility operation, an overarching joint committee is common. Where councils partner with private parties, joint ventures, limited liability partnerships and limited liability companies are common.



(Note CCO = Council Controlled Organisation, CCTO = Council Controlled Trading Organisation, LLP = Limited Liability Partnership, LLC = Limited Liability Company)

Figure 4 Council ownership options

In terms of the facility itself, the more that design, construction, operation and commercial services are outsourced, the less involvement and influence Council has over the facility, but the less risk it carries as well. The following are typical operating contract models, shown in order of decreasing council involvement:

- Separate design, build and operate contracts
- Design and build contract with a separate operations contract (D&B + O)
- Comprehensive design, build, operate contract (DBO)
- Design, build, own, operate, transfer contract (DBOOT)
- Lease agreement with buildings
- Lease agreement, land only

These contract models have all been used for waste facility development led by Councils. DBO, DBOOT and lease arrangements are more common in situations where facilities are developed for use by both council and commercial users and where technical and commercial expertise are required for the operation, including developing and maintaining relationships with both customers and end markets. For example, New Plymouth District Council operate their Recyclables Material Recovery Facility (MRF) through a DBOOT. Tauranga City Council operate their Resource Recovery Park through a lease agreement for land only, but contribute capital in exchange for specific resource recovery activities being provided on the site.

### 2.3 Factors influencing business model decision

There are multiple factors which will influence the type of business model appropriate for a C&D waste

facility operation. At a high level these can be summarised as:

- **Range of materials accepted:**
  - Accept all C&D materials or a limited selection?
- **Capacity:**
  - How much material can the facility accept and process effectively?
- **Users of the facility:**
  - Will the facility be open to domestic as well as commercial customers?
  - Will it be restricted on a contract basis, for example specific developers only?
  - Could domestic C&D material be collected separately as part of a resource recovery centre and then be transported to the commercial C&D facility?
  - How will the facility be marketed to customers?
- **Ownership of the facility:**
  - One owner or several?
  - What degree of ownership will the Council(s) have: land only, land and buildings, or land, buildings and equipment?
  - Will ownership be shared with a private party?
  - Will processing equipment (fixed and mobile plant) be owned by the site owner or the facility operator?
- **Operation of the facility:**
  - What level of influence and involvement does Council want in the facility operation?
  - What impact does this level of involvement have on the risk to Council versus the facility operator?
  - Where there are multiple Council facilities, will they operate in isolation or as part of a network?
  - Will operations be contracted out?
  - Will design and / or construction be combined with the operations contract?
  - Will materials be sorted manually, using mobile plant (e.g. loaders, diggers, crushers) or using fixed operating plant (e.g. conveyors, trommels, in-line magnets)?
  - Will the consents be held by the facility operator or the site owner?
  - Who will set the gate fees and keep the revenue – the facility operator or the site owner?
- **Targeted markets for end products:**
  - What condition do the products need to be in to be accepted by the end markets?
  - In what form do they need to be stored on site before being delivered to markets?
- **Ability to expand or adapt:**
  - What happens when the facility capacity is exceeded?
  - Will the facility aim to accept other types of waste (e.g. broader commercial and industrial, or residential, waste)?
  - Will it serve other purposes such as education, resale shop / yard, processing of organics, research and development?

### 3 Business model options

In considering business model options for a C&D waste processing facility, we have considered what the model might look like at small, medium and large scale. We have considered how PCC, KCDC and HCC could provide C&D facilities, with the option for other Wellington councils to join later.

We have also taken into account Kainga Ora's site clearance (demolition) and redevelopment (construction) programme.

In order to cover the range of facility scales that are possible, we have considered the following three options:

- Small scale entity: each council alone
- Medium scale entity: coordinated network
- Large scale entity: specialised waste sorting facility

Further details on these options are provided in the following sections including commentary against the considerations identified in Section 2.3 above.

#### 3.1 Site specific development

All three councils (PCC, HCC and KCDC) need to upgrade their public transfer stations, located at Spicer Landfill, Silverstream Landfill and Otaihangā respectively. These upgrades are necessary to create more integrated resource recovery centres that encourage diversion before disposal. These are targeted at residential users (cars and trailers) and some small commercial operators that do not access the landfill tip faces as Spicer and Silverstream directly.

Report 7 – Hub Feasibility has been developed specifically for the PCC site at Spicer Landfill. Therefore, a greater level of detail can be provided on the potential staging and development of that site than for Silverstream Landfill (HCC) and Otaihangā (KCDC).

At a high level the potential development of the Spicer site is as follows:

- PCC relocate their public transfer station at Spicer Landfill to the Trash Palace area of the site and upgrade the transfer station to a residential resource recovery centre (RRC). The RRC would include C&D recovery along with the recovery of other materials.
- PCC upgrade site access at Spicer Landfill, creating a slip lane past the RRC for landfill and C&D facility customers, separating residential and commercial customers.
- PCC develop a C&D hub for commercial users on land at Spicer Landfill made available through the relocation of the transfer station. The facility would only be used by customers that choose to use Spicer Landfill.

### 3.2 Small scale entity: each council alone

Table 1 Considerations for a small-scale entity

| Consideration                       | Detail   |
|-------------------------------------|--|
| <b>Overview:</b>                    | <p>The small-scale model is summarised as follows:</p> <ul style="list-style-type: none"> <li>• Each Council develops their own sites, independent of each other</li> <li>• Each Council makes their own commercial arrangements for processing and markets</li> <li>• Each Council continues to attract existing customers to their facilities for C&amp;D and all other waste streams</li> <li>• Kainga Ora direct C&amp;D waste from their developments in the Wellington Region to the Spicer C&amp;D site.</li> <li>• Approximate maximum throughput of 9,000 tonnes per annum (in a single facility)</li> </ul>  |
| <b>Range of materials accepted:</b> | <p>Mixed loads and source-separated loads (high-value material with known end markets)</p> <p>The full range of C&amp;D materials would be accepted, i.e. timber (native, untreated, treated), hardfill, plasterboard, flat glass, metals (ferrous and non-ferrous), paper, cardboard, plastics, salvageable fixtures</p>  |
| <b>Capacity:</b>                    | <p>Each council develops their own C&amp;D waste capacity.</p> <p>For example, maximum throughput at Spicer C&amp;D site, approximately 40,000 tonnes which is dependent on the ability of the facility to process and re-distribute products which require dry storage. Specifically treated timber which generates significant volume when chipped (see Report 7).</p>   |
| <b>Users of the facility:</b>       | <p>Each council targets their own existing clients.</p> <p>For example, waste collectors servicing construction sites that use Spicer Landfill would use the Spicer C&amp;D facility. This would include Kainga Ora site clearance contractors and construction waste contractors.</p>   |
| <b>Ownership of the facilities:</b> | <p>Each council owns its C&amp;D facilities.</p> <p>For example, the ground improvements and storage sheds / bays, weighbridges and buildings at the Spicer C&amp;D facility would be owned by PCC with similar arrangements for HCC and KCDC.</p> <p>The operating equipment at each facility would be owned by the C&amp;D facility operator of that facility.</p>   |
| <b>Operation of the facilities:</b> | <p>Each council would make its own arrangements for the operation of their facilities.</p> <p>For example, for each facility:</p> <ul style="list-style-type: none"> <li>• Operations and commercial management (customers and end markets) of the C&amp;D facility via out-sourced contract for the C&amp;D facility alone or combined with other resource recovery.</li> <li>• Separate design and construction contracts for upgrades (includes traffic improvements and RTS along with the C&amp;D facility), with input from the facility operator.</li> <li>• Operators financially incentivised to attract customers and maximise revenue (or minimise cost) from delivering material to end markets for their specific material types and volumes only.</li> <li>• Broader outcomes in addition to environmental and economic benefits of C&amp;D facility. For example, incentivising training and employment opportunities,</li> </ul> |

| Consideration                             | Detail  |
|---|---|
|   | partnering with iwi, development of Maori and Pasifika enterprise.  |
| <b>Indicative operating equipment:</b>    | Permanent plant per site: loader, excavator with grapple<br>Transient plant: crusher, shredder  |
| <b>Targeted markets for end products:</b> | <p><b>Native timber and salvageable fixtures</b> – develop supply arrangements, for example to local salvage yards Scaife Timber and No. 8 Building Recyclers</p> <p><b>Untreated timber</b> – develop supply arrangements for example with Goodwood</p> <p><b>Treated timber</b> – development of markets over time, for example Golden Bay Cement if transportation costs can be managed or for drying of council sludge if air emissions from incineration of treated timber can be managed</p> <p><b>Metals</b> – develop supply arrangements with local scrap metal dealers for example McCauleys</p> <p><b>Flat glass</b> – develop supply arrangements for example to 5R</p> <p><b>Paper, cardboard</b> – develop supply arrangements with local recyclers for example OJI</p> <p><b>Plasterboard</b> – develop of markets and supply arrangements over time for example Composting NZ and Winstones</p> <p><b>Concrete</b> – develop local processing and market supply arrangements for example via Goodmans</p> <p><b>Mixed hardfill</b> – develop supply arrangements for example council or Kainga Ora projects</p> <p><b>Residual waste</b> – disposal at Spicer or Silverstream landfills</p> |
| <b>Diversion:</b>                         | <p>This is dependent on the relative timing, approval and progress of each Council’s development.</p> <p>For example, diversion which may be achieved by PCC alone:</p> <ul style="list-style-type: none"> <li>● 80% if hardfill, plasterboard and treated timber markets available <ul style="list-style-type: none"> <li>– 9,000 tonnes in Year 1 or 200,000 tonnes over 20-year operation</li> </ul> </li> <li>● 25-35% if plasterboard and treated timber markets are unavailable and only some of the concrete component of hardfill can be separated from other hardfill and diverted. <ul style="list-style-type: none"> <li>– 3,000 tonnes in Year 1 or 60,000 tonnes over 20-year operation</li> </ul> </li> </ul>   |
| <b>Ability to expand or adapt:</b>        | <p>Develops council facilities independent of each other, including commercial and contractual relationships with industry. This has the potential for both positive and negative impacts on the resilience and adaptability of the facilities. For example, councils operating on their own may be able to make decisions more rapidly without the need for wider consultation. Conversely, independent arrangements with the wider industry may result in less leverage with end markets.</p> <p>Physical constraints should also be considered. Capacity at each site is constrained with limited ability to adapt or expand the operation, noting that KCDC constraints relate more to contractual arrangements than space. Space constraints for PCC and HCC restrict the quantity of material that can be stored in dry storage and mean a consistent throughput will be required.</p>  |

### 3.3 Medium scale entity: coordinated network

Table 2 Considerations for a medium-scale entity

| Consideration                       | Detail  |
|-------------------------------------|---|
| <b>Overview:</b>                    | <p>The medium scale model is summarised as follows:</p> <ul style="list-style-type: none"> <li>• Each Council develops their own sites, in consultation with each other to allow staging and hold points and ensure C&amp;D materials are accepted and managed consistently across the sites when required.</li> <li>• The facilities operate as a coordinated network with staged hold points for decision making to expand or adapt the overall operation.</li> <li>• Kainga Ora direct C&amp;D waste from their developments in the Wellington Region to the Spicer C&amp;D site.</li> <li>• Kainga Ora are the only customers to the commercial C&amp;D facility at Spicer in the first instance, delivering a pilot to understand processing requirements and tonnages to make end markets viable.</li> <li>• Following the pilot with Kainga Ora, facilities at Silverstream and Otaihanga act as consolidation points as necessary with commercial tonnages directed to the Spicer site in the first instance.</li> <li>• Consistent processing arrangements (adapted over the ensuing period) are established at Silverstream or Otaihanga once Spicer has reached capacity.</li> <li>• Commercial arrangements for processing and markets are combined, facilitating consistency in product and economies of scale.</li> <li>• The sites in the network separate C&amp;D waste into the same material streams. Materials are stored and transported from the sites either to end markets or for consolidation and further processing at the Spicer C&amp;D facility. End markets and haulage to them are coordinated through the commercial manager at the Spicer C&amp;D facility.</li> <li>• Approximate maximum throughput 50,000 tonnes per annum by year 20 (Spicer plus hubs)</li> </ul> |
| <b>Range of materials accepted:</b> | <p>Mixed loads and source-separated loads (high-value material with known end markets)</p> <p>The full range of C&amp;D materials would be accepted, i.e. timber (native, untreated, treated), hardfill, plasterboard, flat glass, metals (ferrous and non-ferrous), paper, cardboard, plastics, salvageable fixtures</p>   |
| <b>Capacity:</b>                    | <p>Maximum throughput at Spicer C&amp;D site, approximately 36,000 tonnes which is dependent on the ability of the facility to process and re-distribute products which require dry storage, specifically treated timber which accounts for a significant volume of the C&amp;D waste stream and will be better managed, when any market is available if kept dry.</p>  |
| <b>Users of the facility:</b>       | <p>Waste collectors servicing construction sites across the Wellington Region, with a greater emphasis on customers currently disposing of C&amp;D loads at Spicer and Silverstream landfills, and the Otaihanga transfer station.</p> <p>Kainga Ora site clearance contractors and construction waste contractors.</p>   |
| <b>Ownership of the facility:</b>   | <p>C&amp;D hub facility built on Spicer Landfill, which is majority owned by PCC (with a minor ownership holding by Wellington City Council).</p> <p>The ground improvements and storage sheds / bays, weighbridges, buildings owned by PCC. Operating equipment owned by the C&amp;D facility operator; although, some strategic C&amp;D-specific equipment could be owned by PCC.</p>   |

| Consideration                                     | Detail  |
|---|---|
|   | Satellite sites at Silverstream and Otaihanga owned by HCC and KCDC respectively.   |
| <b>Operation and construction of the network:</b> | <p><b>Operation</b></p> <p>Operations and commercial management (customers and end markets) of the Spicer C&amp;D facility via out-sourced contract.</p> <p>The operations contractor is financially incentivised to attract customers and maximise revenue (or minimise cost) from delivering material to end markets.</p> <p>Broader outcomes in addition to environmental and economic benefits of C&amp;D facility. For example incentivising training and employment opportunities, partnering with iwi, development of Maori and Pasifika enterprise.</p> <p>Operations of the satellite sites by their existing site contractors, through variation to their contracts (or leases). Separation and storage requirements specified and coordinated through the Commercial Manager from the Spicer C&amp;D facility. Spicer C&amp;D facility responsible for collection of materials from the satellite sites and delivery to the Spicer C&amp;D facility or direct to end markets.</p> <p><b>Construction</b></p> <p>Design and construction contracts for upgrades at the Spicer, Silverstream and Otaihanga sites. There may be advantages to a single, coordinated design and build contract, however this would be dependent on each Council's individual processes and timing for approvals.</p> |
| <b>Indicative operating equipment:</b>            | <p>Permanent plant per site: loader, excavator with grapple</p> <p>Transient plant: crusher, shredder</p>   |
| <b>Targeted markets for end products:</b>         | The markets for the medium operation would be targeted in the same manner as for the small operation. The most important consideration being achieving consistency across the three sites.  |
| <b>Diversion:</b>                                 | <p>Diversion:</p> <ul style="list-style-type: none"> <li>● 80% if hardfill, plasterboard and treated timber markets available <ul style="list-style-type: none"> <li>– 28,000 tonnes in Year 1 or 600,000 tonnes over 20-year operation</li> </ul> </li> <li>● 25-35% if plasterboard and treated timber markets are unavailable and only some of the concrete component of hardfill can be separated from other hardfill and diverted. <ul style="list-style-type: none"> <li>– 11,000 tonnes in Year 1 or 180,000 tonnes over 20-year operation</li> </ul> </li> </ul>  |
| <b>Ability to expand or adapt:</b>                | <p>Capacity at Spicer Landfill is constrained with limited ability to adapt or expand the operation. If the capacity is exceeded, more processing or storage will need to take place at satellite sites.</p> <p>Depending on the space created, as a result of the transfer station upgrade at HCC's Silverstream Landfill, spare capacity could be ringfenced for future C&amp;D processing if capacity is exceeded at Spicer Landfill.</p> <p>With Composting NZ located at the Otaihanga site, it is more likely that organics processing will be expanded at this site. However, reserving land at Otaihanga for organics processing allows the potential for it to become the organics processing hub for the Wellington Region. Providing an opportunity for PCC and HCC to operate satellite consolidation sites for organics from their Spicer and Silverstream facilities.</p> <p>If other councils in the Wellington Region were to join the C&amp;D facility network, their facilities could be used for expanded C&amp;D operation (e.g. Wellington City Council's Southern Landfill)</p> <p>It is possible that over 20-year life of any facility operation that, rather than expand, the</p>  |

| Consideration | Detail   |
|---------------|--|
|               | operations need to adapt to change. Changes in design and building practice such as offsite flat pack manufacture may result in fewer tonnes delivered directly to the sites. This may mean that less real estate is required for processing or that different plant and equipment is required to accept and process targeted waste, for example offcuts from flat pack manufacture. |

### 3.4 Large scale entity: specialised waste sorting facility

Table 3 Considerations for a large-scale entity

| Consideration                          | Detail  |
|--|---|
| <b>Overview:</b>                       | <p>The large-scale model can be summarised as follows:</p> <ul style="list-style-type: none"> <li>• A new regional Resource Recovery Park (RRP) is developed. Dedicated site for sorting of all commercial, industrial, construction and demolition waste prior to transport to end locations, either markets or landfill</li> <li>• All sorting and storage takes place at the RRP, with end markets identified by the site management.</li> <li>• Purchase or lease of land suitable for waste recovery operation and of sufficient size, e.g. 52 Raiha Street, Kenepuru (see Report 6).</li> <li>• All three councils enter joint venture with private waste company to develop and operate the site, with disposal of residual waste at Spicer Landfill.</li> <li>• PCC, HCC and KCDC upgrade existing transfer station facilities to resource recovery centres for residential customers.</li> <li>• Alternative use identified for land made available at Spicer Landfill as a result of the relocation of the transfer station, e.g. organic waste consolidation or processing.</li> <li>• Kainga Ora direct C&amp;D waste from their developments in the Wellington Region to the new RRP.</li> </ul> |
| <b>Range of materials accepted:</b>    | <p>Mixed loads and source-separated loads of commercial, industrial, construction and demolition waste.</p> <p>For the C&amp;D waste stream, the full range of C&amp;D materials would be accepted, i.e. timber (native, untreated, treated), hardfill, plasterboard, flat glass, metals (ferrous and non-ferrous), paper, cardboard, plastics, salvageable fixtures</p>  |
| <b>Capacity:</b>                       | Maximum throughput to be confirmed but dependent on the size of the site and the additional waste streams targeted (expected to be more than 100,000 tonnes per annum)  |
| <b>Users of the facility:</b>          | Waste collectors servicing commercial, industrial and C&D customers across the Wellington Region, including Kainga Ora contractors, are redirected from the landfills to the RRP.   |
| <b>Ownership of the facility:</b>      | Joint venture between Council(s) and a commercial waste company, or fully private facility. Buildings and equipment owned by the entity.  |
| <b>Operation of the facility:</b>      | Design, construction, operation and commercial management via JV agreements and undertaken by the commercial waste company partner.   |
| <b>Indicative operating equipment:</b> | All machinery at all times:<br>C&D MRF (inc. crusher, magnets), shredder, 2x loader, 2x excavator with grapple  |
| <b>Targeted markets for</b>            | C&D materials – as per small and medium scale operations.   |

| Consideration                      | Detail  |
|------------------------------------|---|
| <b>end products:</b>               | Broader recovered materials – existing recyclables and green waste markets, new food waste markets, other new markets as they become available.   |
| <b>Diversion:</b>                  | <p>Diversion percentage of C&amp;D material is the same as the medium model which relies on assumptions regarding market availability and material composition (reports 1 and 2). However, it also considers a possible 5% diversion from class 2-4 landfills</p> <ul style="list-style-type: none"> <li>• 80% if hardfill, plasterboard and treated timber markets available <ul style="list-style-type: none"> <li>– 50,000 tonnes in Year 1 or 1,200,000 tonnes over 20-year operation</li> </ul> </li> <li>• 25-35% if plasterboard and treated timber markets are unavailable and only some of the concrete component of hardfill can be separated from other hardfill and diverted. <ul style="list-style-type: none"> <li>– 20,000 tonnes in Year 1 or 400,000 tonnes over 20-year operation</li> </ul> </li> </ul> <p>Broader waste diversion, for example of commercial and industrial waste may also be possible through a facility of this scale. Further investigation is required to quantify this potential and in a joint venture with the private sector, the successful Contractor would be responsible for developing and managing the capacity of the facility and the markets for acceptance of products.</p> |
| <b>Ability to expand or adapt:</b> | Site has sufficient scale to expand to receive all waste from the Wellington region, both C&D waste and other waste streams such as commercial and industrial.  |

## 4 Conclusion

The small, medium and large-scale models each have relative advantages and disadvantages. Table 4 provides a comparative assessment against the considerations provided in section 3. Strategies for managing and mitigating any disadvantages should be considered in the context of the information provided within the collective Reports 1 to 7 which are compiled in Report 8.

Table 4 Comparison of model considerations

| Consideration                      | Small scale entity: each council alone | Medium scale entity: coordinated network | Large scale entity: specialised waste sorting facility |
|------------------------------------|--|--|--|
| Range of materials accepted:       | Some restrictions                      | No restrictions                          | No restrictions  |
| Capacity:                          | Restricted                             | Some restrictions                        | No restrictions  |
| Users of the facility:             | Restricted                             | Some restrictions                        | No restrictions  |
| Ownership of the facility:         | Simple                                 | Some complexity                          | Complex  |
| Operation of the facility:         | Simple                                 | Some complexity                          | Complex  |
| Targeted markets for end products: | Difficult to identify and access       | Coordinated identification and access    | Coordinated identification and access                  |

|                                    |   |   |  |
|------------------------------------|---|---|--|
| <b>Diversion:</b>                  | Limited to extent each site can be established and independent markets maintained | 25-80% of C&D material in Wellington Region | 25-80% of C&D material in Wellington Region with the ability to divert other waste too |
| <b>Ability to expand or adapt:</b> | Restricted  | Some restrictions                           | No restrictions  |

F E N V A L

## Appendix 1 Ownership and partnership options

| Governance structure                                   | Description   | Benefits   | Disbenefits  |
|--|---|--|--|
| In-house management with outsourced operations         | Common for council-run waste facilities in NZ, particularly transfer stations.  | Can be successful for simple transfer stations, but as more waste sorting is introduced management becomes more complex. | Council takes sole liability and risk.   |
| In-house management with in-house placement operations | Not common for council-run waste facilities in NZ   | Can be successful, particularly if waste stream controlled by council  | Council takes sole liability and risk.<br>Lack of access to commercial expertise   |
| Council Business Unit                                  | Variation of the above two options – generally for a broader portfolio of waste facilities including landfill. There are a number of business units in individual councils e.g. Wellington City   | Provides business focus for the overall management of a class of assets owned solely by one council.                     | Council takes sole liability and risk.   |
| Council Joint Committee                                | Used when more than one council collaborate on waste facility provision e.g. Hastings and Napier (Omaranui Landfill) or Canterbury Councils share of Kate Valley Landfill JV.   | Enables joint facility operation.<br>Can be used as additional co-governance layer over joint CCTO                       | Joint Committee provides governance, however asset ownership, cost/profit share and responsibility for operations and liability developed on a commercial basis between participating councils.<br>Private organisations cannot participate in the joint committee overseeing the entity, but can still be a partner in the entity running the facility. |
| Council Controlled Organisation (CCO)                  | None known for waste facilities as they are typically set up to generate a profit. CCOs can be any entity in which a council (or a group of councils collectively) own more than 50% of the shares/voting rights.<br><br>CCOs also include CCTOs, and could be formed under a variety of entity structures including: | A CCO provides for separation of financial and operational risks from Council  | A CCO is only allowed if profit making is not the aim of the entity  |

|   |   |  |  |
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|   | <ul style="list-style-type: none"> <li>• a company,</li> <li>• LLP,</li> <li>• trust,</li> <li>• traditional partnership</li> </ul> <p>Partnership with the private sector in a CCO arrangement is typically precluded as it is assumed a profit is sought.</p> |  |  |
| <p>Council Controlled Trading Organisation (CCTO) – Limited Liability Company (a company incorporated under the Companies Act 1993)</p> | <p>A CCTO is essentially an incorporated limited liability company, or any other entity structure (JVCo), the JV parties are the shareholders, who appoint the JVCo directors, and enter into a shareholders' or JV agreement.</p>                              | <p>Often used by councils when involved in joint ventures with private enterprise. Liability for the JVCo's debts and obligations is limited to the JVCo, protecting shareholders and directors. Shareholders may be asked to guarantee the JVCo i.e. to secure funding, which can reduce the limited liability protection provided by the JVCo. JVCos allow flexible funding options via share capital or debt. The JVCo shareholders receive dividends and, on the payment of income tax, the JVCo can attach imputation credits to dividends so as to reduce the effective double taxation of the JV shareholders. As a separate legal entity, the JVCo can own assets, enter into contracts, incur obligations and liabilities, make profits and suffer losses. Directors may act in the best interests of the shareholders (or JV parties) rather than the JVCo (if provided for), which can be beneficial for the underlying shareholders. Shareholders do not owe fiduciary obligations to one another, although a shareholders' agreement can impose fiduciary-like obligations. A JVCo also provides flexibility of ownership. JVCo shareholders can quite easily transfer or acquire shares without disrupting the business.</p> | <p>Less control by council, particularly if it is a joint CCTO with other councils or the private sector. There is a need to ensure that council's interests are adequately catered for. Slightly higher governance costs, although immaterial relative to operating costs. Must pay tax on profits. A disadvantage is that any capital gains generally cannot be distributed tax-free to New Zealand tax resident shareholders during the JVCo's life, and cannot be distributed tax-free to non-resident shareholders at all. There can be tax implications from the transfer of assets by the JV parties into the JVCo. For example, an asset which has increased in value since it was acquired by the relevant shareholder, which is then transferred to the JVCo, may bring about a tax liability for the JV party. As a consequence, the JV party may decide to lease the asset to the JVCo instead, but this can also have tax consequences. Tax consequences may also arise if shareholders deal with the JVCo on non-arm's length terms.</p> |

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| <p>Limited Partnership (under the Limited Partnerships Act 2008)</p> | <p>Separate legal entity that has one general partner (GP) (responsible for management), two limited partners (Council and the Partner), and a private partnership agreement. Limited partners enjoy limited liability provided that they do not take part in the management of the LP (subject to certain exceptions allowing strategic control. GPs' liability is unlimited and joint and several with the LP (but usually residual after the LP's assets have been exhausted). Given the exposure, a GP is usually a limited liability company with nominal share capital. Typically the JV party will each be a limited partner, contribute capital to the LP and hold shares in the limited liability company GP in proportion to their respective interests. As shareholders, they will enter into a shareholders' agreement including wider rights and powers than those possible in a partnership agreement, without affecting the extent of their liability.</p> | <p>The LP provides greater privacy to the limited partners than the limited liability company - partnership agreement and details of the limited partners' respective investments may be kept private. One of the main benefits of an LP is that, while governed like a company, it is taxed in a similar way to an ordinary partnership. LPs are treated as transparent for New Zealand income tax purposes, generally allowing income, gains and losses of the LP to flow directly to the limited partners, whose personal tax status will govern how they are taxed. In summary, Tax is paid by partners on their share of profit or loss. This could be more favourable to council than paying tax through a CCTO. Separate tax advice would be required.</p> | <p>Less control by council. Slightly higher governance costs. There are also a number of tax limitations on the use of LPs. From a commercial perspective, income, gains and losses can be attributed to limited partners in agreed proportions, however from a tax perspective partners are instead treated as receiving a share of all amounts in proportion to their partnership share.</p>   |
| <p>Joint Venture or partnership (unincorporated)</p>                 | <p>The JV parties make different contributions through their existing structures to create a business venture or achieve a common objective, and typically have an agreement detailing their rights and obligations with respect to each other and third parties. Profits and losses flow through to the JV parties themselves and are treated according to the relevant JV party's tax status. While a Unincorporated JV is not a separate legal entity, this is not usually a critical factor to those deciding whether to choose this type of JV structure. An Unincorporated JV may be deemed to be a partnership and subject to</p>  | <p>The tax treatment of a unincorporated JV that is a partnership is similar to that of Limited Partnership, being treated as transparent for tax purposes. One key positive difference in tax treatment is that unincorporated JV partnerships are not subject to the loss limitation rules that apply to LPs, permitting the JV parties to claim full deductions for all tax losses attributed from the Unincorporated JV partnership in an income year. In an unincorporated JV that is not a partnership, the JV parties keep their respective businesses separate (although they may, for example, jointly use assets and facilities) and</p>  | <p>No limit on liability through an unincorporated Joint Venture. Each JV party will not have statutory liability (as the Unincorporated JV is not a partnership), however their liability could still be unlimited, which is why each JV party may decide to use a limited liability company as the JV party. Whether or not a legal partnership is created by a Unincorporated JV it requires expert tax and legal advice and a robust JV agreement to ensure that the wrong structure is not inadvertently adopted.</p> |

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|   | <p>partnership law, affecting the share of profits, losses and liabilities between the JV parties. A partnership is an arrangement whereby partners carry on business in common with a view to making and sharing a profit. The “partners” have unlimited joint (sometimes several) liability for the partnership's debts and obligations and their partners' acts and omissions, and owe fiduciary duties to each other. Partners contribute property to the partnership (often bringing about tax consequences), which is held on trust by the partners and available to satisfy the partnership's debts.</p> | <p>share costs up to the stage of production or output. The JV parties can agree to allocate profits and losses differently. Unless agreed otherwise, each JV party collects profits for its own separate account and retains ownership of its property.</p> |   |
| Joint Venture (incorporated)  | This is effectively a CCTO – refer to description above   | As per CCTO  | As per CCTO   |
| Design Build Fund Operate (DBFO) / Public Private Partnership (PPP) | No known examples in waste. Used by central government for transport / prisons / schools. Relatively complex and expensive to establish.  | Will allow council to smooth operating payments rather than incur lumpy capital payments. Contractor incentivised to design efficient facility and minimise operating costs.   | Very expensive to set up and manage (more so than CCTO). Will typically require a Special Purpose Vehicle. Risk allocation is difficult for long term contract of this type. Council has less understanding of asset at end of contract, with potential unknown liability that may not be apparent for many years. Less control than through joint ownership. |
| Design Build Own Operate Transfer (DBOOT)                           | Essentially a contract model (whereas the CCTO and JV models above are standalone entities).<br>Has been done for major waste facilities such as Material Recovery Facilities or Resource Recovery Parks e.g. Timaru, New Plymouth. Contractual arrangement which requires clarify of scope and risks at the outset – no sharing of risks unless explicitly allowed for. Transfer can occur at end of facility life.  | Increased certainty for operating costs, versus in house operations. Contractor incentivised to design efficient system and to minimise ongoing operating costs. Well understood procurement model.  | Less council oversight of operations than DBO/DBFO. Potentially higher costs as contractor will price in risks. Risks hard to foresee over long terms so may be very expensive. Otherwise, Council will need to take on the risks. Council left with liability at end of contract, with potential defects that may not be apparent for many years.            |

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| Design Build Operate (DBO)                                     | A form of out-sourced contract for a council-owned facility. No transfer of asset at the end of the life.               | Similar to DBOOT.  | Capital costs incurred upfront. Council has less understanding of asset at end of contract, with potential unknown liability that may not be apparent for many years. Less control than through joint ownership. Likely to be more expensive if contractor retains liability on going. |
| Alliance for design, build operate (Council retains ownership) | While alliances are in place for large infrastructure projects i.e. roading, none known for waste infrastructure in NZ. | Contractor incentivised to design efficient system and to minimise ongoing operating costs. Shared benefits and risks with contractor. Open book, collaborative and designed to foster innovation. | Less cost certainty than through traditional operating contract. Higher principal time input required. Less control than through joint ownership.  |
| Contracting out  | Essentially a no council facility option. The facility would be developed by the private sector.                        | Private sector operator holds liability for all risks.   | Loss of control of outcomes.   |

