Organics processing plant:
redevelopment options

Community meeting: 7 December 2020

Christchurch City Council

Context

- Odour issues documented in Bromley for many years.
- Operational changes made over previous months but odour complaints continue to be received.
- The facility is a vital part of the city's infrastructure. We want to continue to utilise it to divert waste and meet our goals under the Waste Minimisation and Management Plan 2020.
- Environment Canterbury has advised that we are in breach of our resource consent.
- We want to be a good neighbour.

Current process:

24 hours	14-21 days	8-12 weeks	Until time of sale

Waste dropped in processing hall → Waste blended and shredded → Material put in tunnel → Compost matured in outside windrows → Compost screened for contaminants → Compost cured and sold

Process air treated via a biofilter

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Proposed options for redevelopment

Recommended option:

- Technology upgrade which could include additional future upgrades such as enclosing all parts of the process, and anaerobic digestion.

Other options:

- Move the facility
- ‘Status quo’ with some minor enhancements

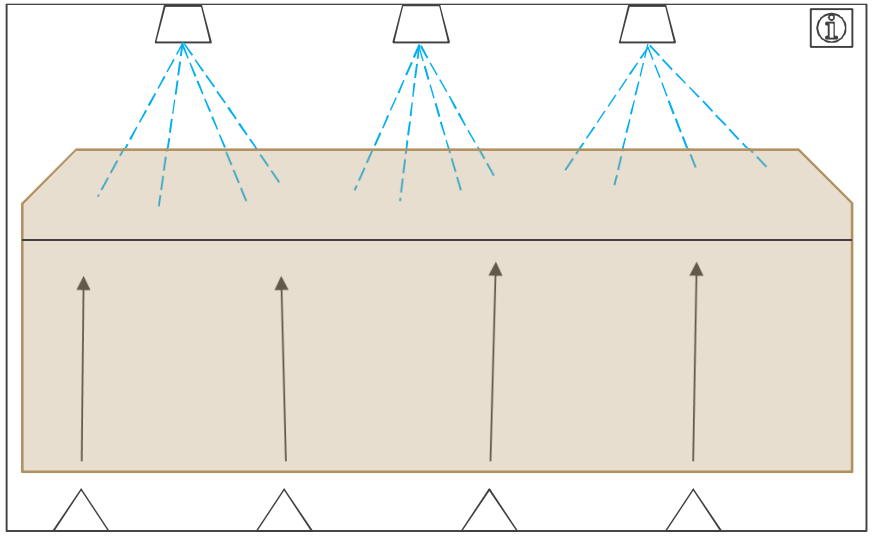
Recommended option: technology upgrade

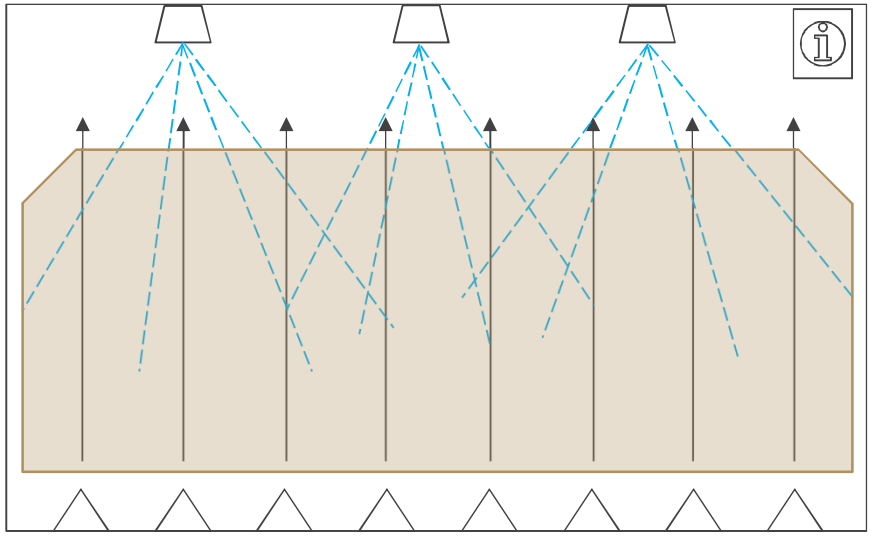
Upgrade the technology to industry-leading standards.

This includes:

- Upgrading the fans and aeration system to increase airflow.
- Upgrading the floor with a new design for better and more consistent airflow.
- Installing new doors to create a better seal.
- Improving the biofilter.
- Getting a new and more efficient shredder.
- Upgrading the irrigation and control systems.

What this looks like in-vessel:





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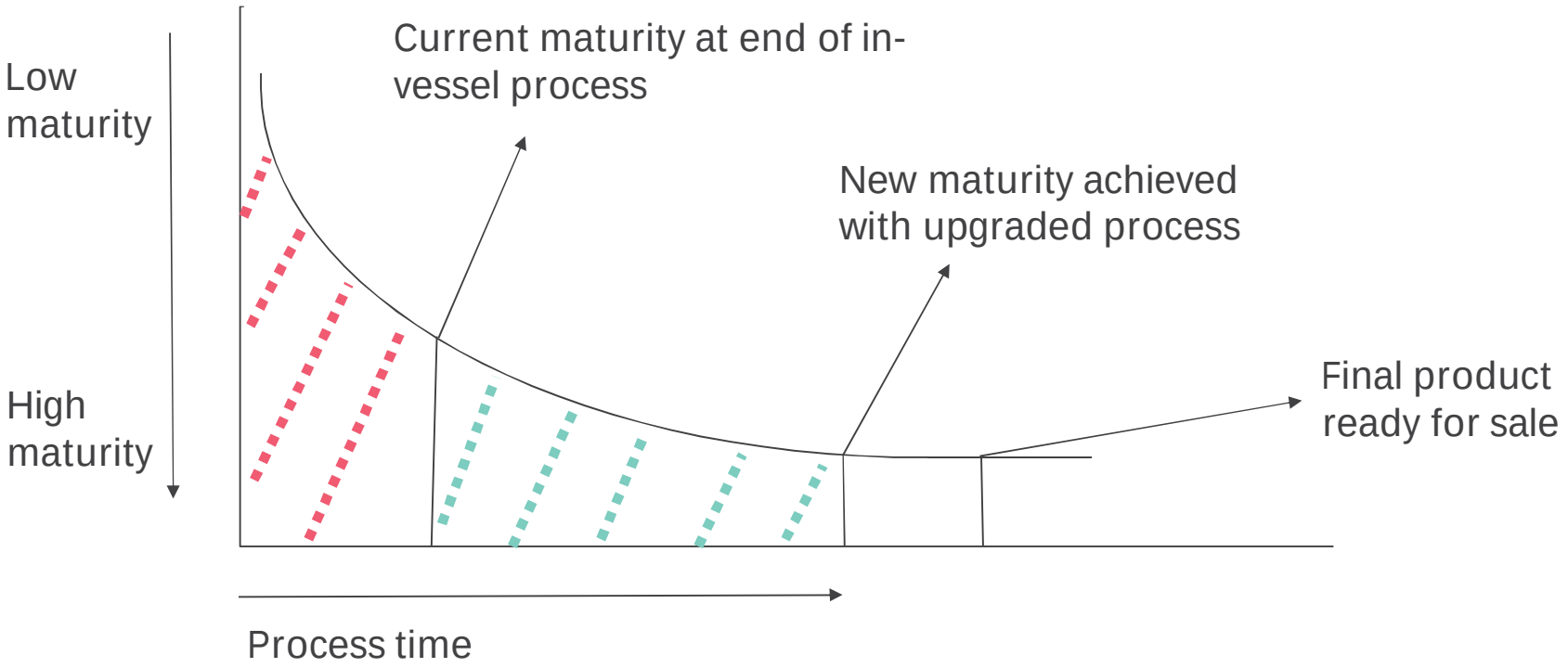
What this means for the maturity of the product



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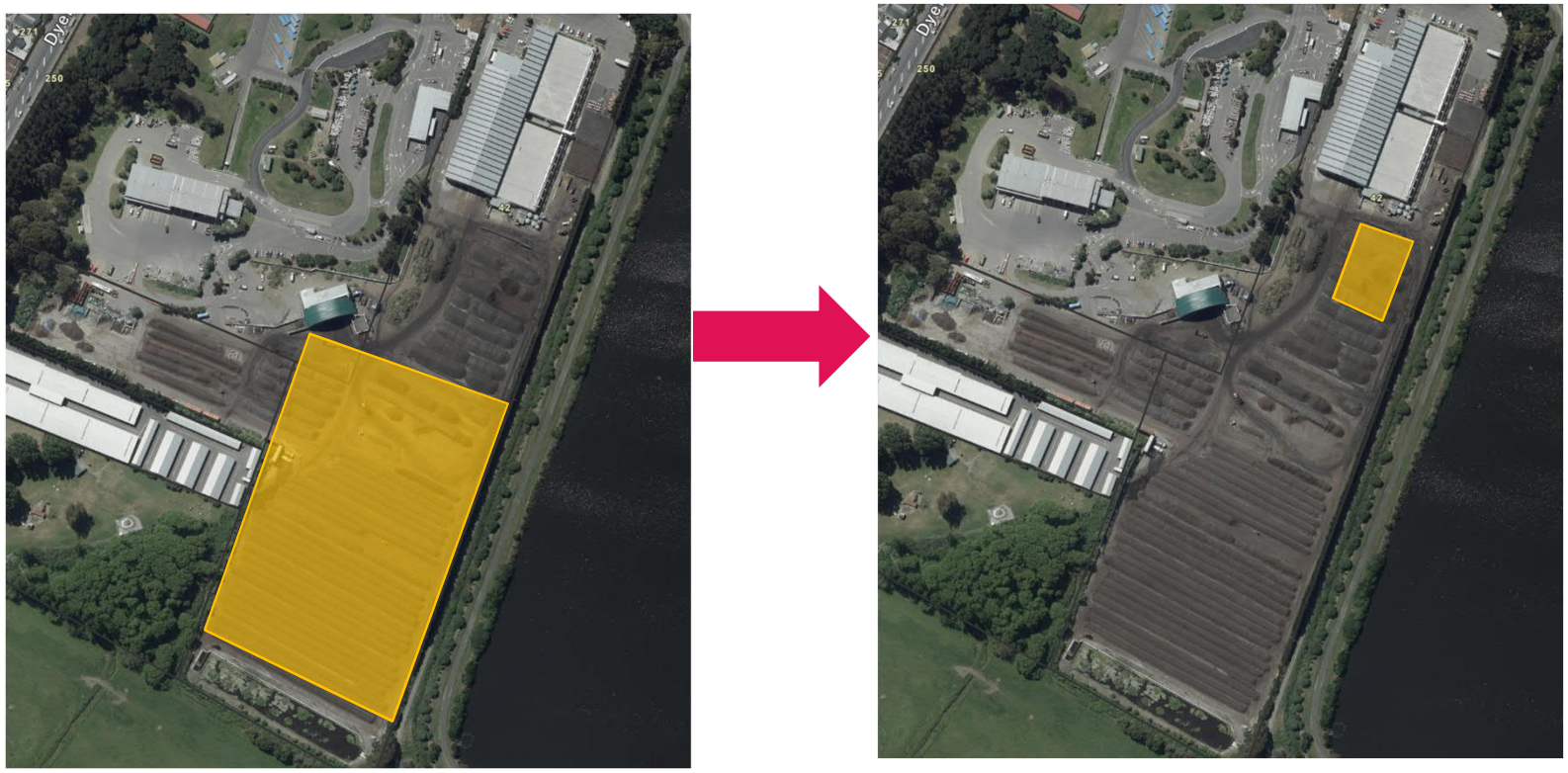
Less material outside

Outdoor maturation reduced from approximately 30,000m2 to 2,000m2



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Recommended option: technology upgrade

In designing this option we took into consideration:

- Community views about impact of odour.
- Independent technical advice.
- International best practice.
- Timeframes:
  - For residents.
  - Our need to put actions in place now as currently in breach of our resource consent.

Results from residents' survey

Pros and cons: recommended option - Technology upgrade

Pros	Cons
• Can be implemented more quickly (1-2 years) so benefits will be realised sooner. • Enables the product to be more mature before it leaves the in-house process. More mature product = less odour. • Will reduce the amount of product stored outside. • Can be accommodated within existing building footprint. • Is regarded as industry best practice, with international examples of success. • Would cost $17.5m – within Long Term Plan budget.	• Will likely require international procurement process for both expertise and technology.

Future potential upgrade – all enclosed facility

Step 1: Monitor odour and work collaboratively with Environment Canterbury.

Step 2: If mature material produced by upgraded facility still has unacceptable level of odour, options include:

- Enclosing maturation and screening (additional $4 million capital spend).
- Making changes to green waste processing.

Future additional upgrade: anaerobic digestion

- This option will enable the plant to process product more effectively, so there is less volume at the end of the process.
- Additional anaerobic ‘pre-processing’ will provide alternative energy source for Council (potential $1.6 million operational savings to Council)
- Not part of initial upgrade because more time needed to investigate technology.

Option: Move the facility

Facility moved to location with no direct neighbours (estimated to be 50km from central city).

Pros	Cons
• Would be able to build state-of-the-art facility. • Would not have direct neighbours. • May be closer to some customers.	• Ideal location may not exist. • Likely to have lengthy land purchase and consenting process (3-5 years). • Will cost $69.5 million – not budgeted. Would need to be consulted on as part of the Long Term Plan. • Will increase transportation costs and emissions • May be further from some customers, depending on location chosen.

Option: 'Status quo' with minor enhancements

Continue with operational changes and not make significant infrastructural investment in the facility.

Pros	Cons
• Would be low cost. • Is already being implemented.	• Risk of continued impact of odour on the community. • Risk of potential compliance action from the regulator.

Timelines and cost

Option	Timeline	Cost
Technology upgrades	1- 2 years	$17.5 Million
Move the facility	3 – 5 years	$69.5 Million
Status quo with minor enhancements	Immediate	No capital cost

Questions

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Start of reference slides.

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What is ‘offensive and objectionable’ odour?

Frequency	How often an individual is exposed to the odour (eg. twice a day, once a month etc.)
Intensity	The strength of the odour (often measured on a scale from 0, no odour to 6, extremely strong odour)
Duration	The length of exposure (eg. fleeting, an entire day etc.)
Offensiveness /character	The character relates to the ‘hedonic tone’ of the odour, which is the pleasantness or unpleasantness of the odour (measured on a scale from -4, extremely unpleasant to 4, extremely pleasant)
Location	The type of land use and nature of human activities in the vicinity of an odour source (eg. residential, heavy industrial or agriculture)

Syft

Assessment of odorous compounds using Voice200ultra SIFT-MS machine both at Living Earth and in the Bromley community.

- Some compounds produced from composting found above the detection threshold in the community (eg. trimethylamine).
- Odorous compounds not produced at the composting facility also found in the community (eg. styrene).