Appendix F to Attachment 1 to Item 4.5.2.

Appendix F – Tech Memo 5

Date of meeting: 12 March 2024
Location: Council Chambers
Time: 6:30 p.m.

Member of the Surbana Jurong Group

Technical Memorandum

Memo No.	05	**Date of Issue**	8 September 2023
Subject	Multi-criteria Analysis (MCA)	**Discipline**	Project Management
Project Title	Hawkesbury Landfill Management Strategy Beyond 2026	**Project No.**	30019111
Document No.	Tech Memo – 05 - MCA	**Revision**	01
Author	Robert Nutt, Snr Civil Engineer – Waste and Resource Recovery		
Reviewed by	Matt Fraser	**Approved by**	Matt Fraser
Prepared for	Hawkesbury City Council	**Attention to**	Sam Swain
Attachments	Appendix A: MCA Criteria Appendix B: Risk Categories Appendix C: MCA Scores and Comments		
References	30019111 - HCC Landfill Management Strategy - Tech Memo 01 - Planning 30019111 - HCC Landfill Management Strategy - Tech Memo 02 - Resource recovery 30019111 - HCC Landfill Management Strategy - Tech Memo 03 - Collection 30019111 - HCC Landfill Management Strategy - Tech Memo 04 - Landfill		

1. Purpose/Introduction

This Technical Memorandum (Tech Memo) describes a multi-criteria analysis (MCA) that was completed as part of the development of the Hawkesbury City Council (HCC) Landfill Management Strategy Beyond 2026 (Landfill Strategy). MCAs are designed as a tool to inform decisions by evaluating qualitative outcomes of distinct options. This MCA specifically looks at a number of options regarding the future use of the HCC landfill site and how its ongoing operation or closure will impact the community and waste operations.

It should be noted that this MCA is intended to provide HCC with recommended options that it can consider in its future decision making. There may be additional criteria, such as changes in regulations, technology, available budget that have not been considered in the MCA which could influence HCC's ultimate waste management decisions .

This Tech Memo, along with the associated MCA and reference documents forms part of SMECs analysis which will inform the final report and decision tree to advise HCC on their future landfill strategy.

1.1 Limitation and Intent of Assessment

The MCA is a subjective analysis of options using high level assumptions and is not intended to be used as a factual report. While effort has been made to seek as much information as possible and the weightings have been endorsed by HCC staff, the outcome of the MCA should not be considered a recommendation to carry out a specific course of action. Rather, it provides further information and evidence regarding options. Further detailed assessment should be undertaken to establish a greater level of understand regarding the cost effectiveness of options. Details of what actions should be carried out to further investigate the options will be outlined in the "Decision Tree" and final report.

2. Criteria

The criteria used for the MCA along with the assigned weighting have been selected by SMEC and HCC in order to provide a realistic and robust analysis of the potential impacts and benefits of the possible outcomes.

The primary assessment criteria that the MCA seeks to assess are the impacts on future Council resources, and cost effectiveness of future services to the Community. The criteria considered in this assessment are separated into two (2) broad categories:

1. Council focussed criteria
   - Factors of most relevance to HCC
   - Total weighting -45%
2. Community focussed criteria
   - Factors most relevant to the community (informed by internal HCC policies
   - Total weighting - 55%

The definitions and weighting of each criteria is further detailed in Appendix A with the criteria described in Table 1 below.

Table 1: MCA Criteria and Weighting

Criteria	Description	Weighting	References
Council Focused Criteria			
Risk level/implementation/technical maturity	Social resistance, community acceptance, other uncertainties with the implementation (not practical etc.) How well established is the technology used for this option? Has this solution been used before in NSW/Australia/Internationally? Legal and regulatory Risk, technical risk, legal risk, environmental risk, employee/employment risk	20%	- HCC Enterprise Risk Framework
Financial Impacts	Long-term value and funding opportunities Capital Costs BCA	25%	
Council Focused Weighing (total %)		**45%**	
Community focused criteria			
Benefits caught, Strategy and Policy	How well does this option contribute to the benefits sought by CHCC? Will this option contribute to Council achieving its strategic targets on a local/regional level? This includes: • HCC Waste Strategy • Net Zero Strategy • WSROC Waste Strategy • Social Infrastructure Strategy • Property Strategy	10%	• Community Strategic Plan • HCC Waste Strategy; • Net Zero Strategy; • WSROC Waste Strategy; • Social Infrastructure Strategy; • Property Strategy
Service and social benefit	**Is this option providing appropriate service level to HCC residents, increased job opportunity** **Does this provide the ability for:** **• Community accessibility to waste services (appropriate service levels)?** **• Access to support during disasters waste recovery etc?** **• What are the community benefits such as jobs, ability to repair etc?**	**15%**	
Environmental Considerations	**How well does this option contribute to a Circular economy, increase resource recovery, environmental protection of the land used? Reduced GHG.**	**15%**	
Economic Impact	**What is the overall economic impact on the community with respect to the flow of money/jobs within the community?** **This economic impact includes reduced waste levy payments which is a direct economic drain on the community?**	**15%**	
Community Focus Weighting (total %)		**55%**	

2.1 Council Criteria

2.1.1 Risk

This criterion addresses the risks associated with the options including implementation and technological maturity. The scoring of the criteria is informed by HCC risk appetite as outlined in Appendix 2 of the HCC Enterprise Risk Framework and reproduced in part below.

This assessment does not address WHS risks nor environmental impact as this is addressed elsewhere in the document or would be further investigated as part of the implementation of a selected option. This assessment does consider the financial, reputational, compliance and operations and service delivery risks.

Risk Appetite Statement – As taken from HCC Enterprise Risk Framework

Purpose

The purpose of this Risk Appetite Statement is to establish some broad parameters around the amount and type of risk that Hawkesbury City Council is willing to take to meet its strategic and operational objectives. It provides guidance for management and elected representatives on how to approach the management and treatment of risks that are inherent in undertaking Council activities. The parameters of risk tolerance are not exhaustive and aim to guide management when making important decisions.

Context

Council's purpose is to build a Hawkesbury that's loved by its people through a contemporary organisation where staff are empowered to deliver great outcomes for our community. Hawkesbury City Council's values - Healthy, Efficient, Accountable, Respectful and Team focused are at the heart of Council's culture. The heartbeat of purpose, vision and values provides the framework of all that Council does, its decision making and how council staff interact with customers and each other.

As a local government authority, Hawkesbury City Council is obligated to its stakeholders to ensure that it does not accept high levels of risk that might impact community wellbeing and amenity or the financial sustainability of the Council. This is particularly relevant in the current economic and political environment where the Council is managing the ongoing recovery from the challenges of drought, bushfires, floods, and the ongoing pandemic, and there is a high level of uncertainty.

Accordingly, Council generally has a moderate appetite to take risks that deliver benefits to the community but a low appetite for unmitigated risks across all operations and strategic objectives. Council has an appetite for change and is not satisfied with the status quo.

Risk Appetite

In managing risk, Risk Owners must ensure risks are mitigated to within risk appetite. If the level of risk is outside risk appetite, the Risk Owner must escalate to their Director and implement a detailed risk treatment plan to reduce the risk rating to within risk appetite. Directors will review and monitor the implementation of the risk treatment plan.

If under the proposed risk treatment plan the risk cannot be mitigated to within risk appetite, the risk must be escalated to the General Manager. If the General Manager is not prepared to accept the level of risk, it must either be avoided by not performing the activity or the risk must be escalated to the elected Council for determination.

The Risk Appetite Categories are reproduced in Appendix B.

2.1.2 Financial Impacts

This criterion addresses the costs of the Option. This includes avoided costs such as reducing waste levy payments from increased diversion of waste from landfill. This section is associated with the high-level BCA. The comparison between the options will be weighted between the costs but the overall score will also consider qualitative assessment including:

- Long term financial risk
- Limitations
- Funding opportunities
- Long-term value to the HCC.

2.2 Community Criteria

2.2.1 Benefits and Strategic Alignment

This section will examine how well each option contributes to the benefits sought by HCC to benefit the community and its contribution to achieving the HCC strategic targets. Key documents that this will be measured against are:

- HCC Waste Strategy
- HCC Net Zero Strategy
- WSROC Waste Strategy
- HCC Social Infrastructure Strategy
- HCC Property Strategy

The score for each option will consider how the proposed option aligns with the above strategies.

2.2.2 Service and Social Benefit

This criterion examines the impact of the option on the level of service provided to the community and the overall social benefit. Broadly speaking, this is an assessment of “what the community gets out” of the service and as such options that better provide for the communities needs will score higher.

Specific items that this section will consider are:

- Community accessibility to waste services (appropriate service levels)
- Access to support during disasters waste recovery etc
- What are the community benefits such as jobs, ability to repair etc?
- Ability to manage waste and support the community in times of disaster and disaster recovery.

2.2.3 Environmental Considerations

This criterion will examine how well an option contributes to a circular economy, increases resource recovery, environmental protection and reduced GHG. For environmental considerations these criteria will be considered holistically with both negative and positive impacts considered. The scoring of factors that provide ongoing benefits will be considered more beneficial than factors that provide a “one off” of short-term benefits.

2.2.4 Economic Impact

This criterion will consider the overall economic impact on the community with regard to the flow of money and jobs within the community. Options will score higher if they provide more jobs to the local community, including surrounding council areas. This economic impact includes reduced waste levy payments which is a direct economic drain on the community.

Also considered within this criterion is the ability of the HCC to support local industry or businesses through provision of land to support recycling activities etc.

3. Multi-Criteria Options

3.1 Option 1: No Change (Landfill Closes in 2026 – No TS Constructed)

No changes are carried out on the HCC landfill and it closes as scheduled in 2026. HCC is then required to transport material to the nearest disposal location. It is assumed that collections will continue with internal HCC staff and will transport waste to nearest disposal location without the use of transfer station. The additional transport distance to the disposal location will restrict the fleet to one collection per day and will cause at least a doubling of costs associated with staff and fleet.

Capital and operational costs for this option include:

- The purchase and operation of additional staff, fuel and collection fleet
- Closure of the landfill site

Closing the landfill site will allow for the sale of the Driftway properties in line with the current development approval conditions for the site.

It should be noted that the closure of the site will also remove the community facility for self-hauled material.

Table 2: Landfill Closure Cost Estimate

	Lower Estimate	Higher Estimate	Average
Capital			
Sale of Properties	-$10,896,000	-$7,264,000	-$9,080,000
Total Capital	-$10,896,000	-$7,264,000	-$9,080,000
Annual Operational			
Additional Collection Fleet Costs	$2,240,000	$3,360,000	$2,800,000
Disposal Costs	$3,590,400	$5,385,600	$4,488,000
Saving on Operational	-$1,920,000	-$2,880,000	-$2,400,000
Levy Costs	$3,129,600	$4,694,400	$3,912,000
Total Operational Costs	$7,040,000	$10,560,000	$8,800,000
Cost Per Tonne	$293	$440	$367

3.2 Option 2: Landfill Expansion

Expansion of the existing to increase the landfill airspace. The area has been previously used to dispose of material excavated from current operating cells and some asbestos has been disposed of in the area. The area is elevated above flood levels and appears suitable for future landfill expansion.

Any expansion into this area then would provide the opportunity to exhume waste and place it in a lined cell or to cap over it. Both these options would reduce future environmental risk.

The most immediate impact of this option would be the cessation of current capping works to prevent future re-work (removal of cap and installation of liner) The main planning considerations are:

- Re-assessment of the north area to overcome existing LEMP 2021 in order to revert to original DA 253/87 so landfill operations in the north section can be performed.
- Re-opening of closed cells 1, 2 and part of 4 to improve air space usage and reach maximum defined height for existing and future cell operations.
- Define a new capping strategy and height as the new broader landfill area will encompass a bigger volume and footprint, as well as potentially additional height.

Within this option SMEC has done basic modelling on two approaches:

- Conservative approach – RL35.5
  - This approach has the same overall capping height as proposed in the earlier Tonkin design for cells 1-6.
  - This option would provide additional airspace in the order of 345,000 m^3 dependent on final design
- Aggressive approach – RL45
  - This option works with the same footprint but considers raising the overall capping height to RL45.
  - This option would provide an additional airspace in the order of 700,000 m^3 (less capping material)

Overall design costs for both options would be similar for both options however it would be expected that construction costs for the aggressive approach would be less per cubic metre of airspace gained.

The main constraints preventing the RL45 approach being taken are:

- Financial (Total Cost)
- Community support/opposition
- Specific planning constraints

These three constraints lie outside the immediate scope of this MCA and as such this analysis will assume that the RL 45 approach is being taken.

Table 3: Northern Landfill Expansion

Height Option	Additional Airspace
RL 35.5	145,000 to 200,000 m^3
RL 45	700,000 m^3

Table 4: Northern Expansion Cost Estimate

	Lower Estimate	Higher Estimate	Average
Capital			
Landfill Expansion	$16,400,000	$26,200,000	$21,300,000
Estimated Life	5	22	14
Annualised Cost	$3,280,000	$1,190,909	$1,577,778
Cost Per Tonne	$137	$50	$66
Annual Operational			
Landfill Operational Costs (Incl. Disposal)	$1,920,000	$2,880,000	$2,400,000
Levy Costs	$3,129,600	$4,694,400	$3,912,000
Total Operational Costs	$5,049,600	$7,574,400	$6,312,000
Cost Per Tonne	$210	$316	$263
Total Costs			
Total Annual Cost per Tonne	$347	$365	$356

[1]*NOTE: This estimate does not consider the Operational costs for the landfill. These will be additional costs increasing the overall cost per tonne.*

3.2.1 Western expansion of landfill

Development of the area located to the north-west of the existing Waste Management Facility (Lot 32 DP1270808) as a landfill. Lot 32 is currently zoned as SP1 Education Agriculture under the HLEP 2012. Waste management facilities and waste disposal facilities are not considered an ancillary use for the current zoning, which means that a Planning Proposal for rezoning (to SP1 Waste Management Facility, or similar) would be required.

Any development on this site will likely be considered a new landfill and would be required to meet the NSW Department of Planning and Environment EIS Practice Guidelines related to landfills.

HCC have advised SMEC that they have current advice in relation to the land is that there is no obstacle to acquisition, with legal advice being that Native Title on the land has been extinguished.

Given this SMEC has modelled options for developing a landfill on this site within the below constraints:

- Based on the unknown limitations regarding boundaries and buffer zone, we have considered at least 50 m distance from existing creek and minimal tree removal, hence the curved shape at the north contour of the new landfill area.
- The new landfill area will merge with existing landfill site, meaning that the capping maximum height will be the same, resulting at the end of the site landfill operations in a uniform landmass.

Similar to the northern expansion it is expected that the design and planning costs would not vary greatly between the two options but that the RL45 options would provide a lower cost of construction per m^3 of airspace gained.

The main additional constraints preventing the RL45 approach being taken are:

- Financial (Total Cost)
- Community support/opposition
- Specific planning conditions

Table 5: Western Landfill Expansion

Height Option	Additional Airspace
RL 35.5	550,000 m^3
RL 45	800,000 m^3

Table 6: Northern and Western Expansion Cost Estimate

	Lower Estimate	Higher Estimate	Average
Capital			
Northern Landfill Expansion	$16,400,000	$26,200,000	$21,300,000
Western Landfill Expansion	$25,700,000	$35,000,000	$30,350,000
Total Capital	$42,100,000	$61,200,000	$51,650,000
Estimated Life	22	47	35
Annualised Cost	$1,913,636	$1,302,128	$1,497,101
Cost Per Tonne	$80	$54	$67
Operational			
Landfill Operational Costs (Incl. Disposal)	$1,920,000	$2,880,000	$2,400,000
Levy Costs	$3,129,600	$4,694,400	$3,912,000
Total Operational Costs	$5,049,600	$7,574,400	$6,312,000
Cost Per Tonne	$210	$316	$263
Total Costs			
Total Annual Cost per Tonne	$290	$370	$330

[1]*NOTE: This estimate does not consider the Operational costs for the landfill. These will be additional costs increasing the overall cost per tonne.*

3.3 Option 3: Increase Resource Recovery – Dirty MRF

In order to increase the life of the current and any expanded landfill cells it is assumed that HCC will continue with resource recovery activities. Any material that can be diverted from landfill will increase the landfill life and, in most cases, make a greater positive economic impact than landfilling alone.

It is noted that the most impactful diversion of material would be the introduction of a FOGO service to recover the organics fraction for the waste bin. This option is already being explored regionally by HCC.

As part of SMEC's investigation a high-level review of possible Dirty MRF options was conducted. Within the scenario developed it was assumed that the key waste streams to be extracted were:

- Plastics
- Scrap metal
- Steel/aluminium

It is estimated that a Dirty MRF would require an area approximately 2000 to 3000 m^2. Capital costs of machinery is approximately $2M with an operating cost of $300,000 to $900,000 pa. At least part of these operating costs would be offset by revenue on the commodities produced.

Overall, a conservative estimate of 10% of material could be diverted from landfill. This estimate is based primarily on the ferrous metal component of the waste which is the easiest to recover and on-sell. In 2023-24 FY the NSW waste Levy is $163.20/t. Redirecting waste from landfill through a dirty MRF would save approximately $359k in levy payments. In the case where the current landfill closes, and waste will need to be transported there would be a further transportation saving of $242k (based on estimated transport Costs of $110/t).

It should also be noted that if organic material were removed from the waste stream that any Dirty MRF would be more efficient in the recovery of recyclables.

Table 7 Dirty MRF Cost Estimate

	Lower Estimate	Higher Estimate	Average
Capital			
MRF Build Costs	$3,000,000	$15,000,000	$9,000,000
Estimated Life	10	15	13
Annualised Cost	$300,000	$1,000,000	$720,000
Cost Per Tonne	$13	$42	$27
Operational - In Combination with Transfer Station			
Operational Costs	$300,000	$900,000	$600,000
Estimated Levy Costs (Incl. Savings due to Recovery)	$3,439,741	$4,901,160	$4,170,451
Sale of Materials	-$303,988	-$1,215,517	-$759,753
Transfer Station Operational Costs	$400,000	$800,000	$600,000
Estimated Transport Costs (Incl. Savings due to Recovery)	$1,900,800	$2,851,200	$2,376,000
Disposal Costs	$3,590,400	$5,385,600	$4,488,000
Savings from Landfill Operations	-$2,880,000	-$1,920,000	-$2,400,000
Total Operational Costs	$6,446,953	$11,702,443	$9,074,698
Cost Per Tonne	$269	$488	$378
Operational - In Combination with Landfill			
Operational Costs	$300,000	$900,000	$600,000

	Lower Estimate	Higher Estimate	Average
Estimated Levy Costs (Incl. Savings due to Recovery)	$3,439,741	$4,901,160	$4,170,451
Sale of Materials	-$303,988	-$1,215,517	-$759,753
Landfill Operational Costs	$2,880,000	$1,920,000	$2,400,000
Total Operational Costs	$6,315,753	$6,505,643	$6,410,698
Cost Per Tonne	$263	$271	$267
Total Costs			
Total Annual Cost per Tonne in Combination with Transfer Station	$281	$529	$405
Total Annual Cost per Tonne in Combination with Landfill	$276	$313	$294

It is assumed that as a base case the Dirty MRF will reduce waste to landfill by 10%. Under current conditions this is estimated to divert 2,200 tpa of waste from landfill, freeing up approximately 2,933 m^3 airspace per year.

3.4 Option 4 – Construct Transfer Station

In the event that the local landfill is required to close HCC will be required to build a transfer station to transport waste material efficiently and safely to the nearest Waste Disposal Facility. For the purposes of this MCA, it is assumed that a 20k tpa transfer station will be required. This size of transfer station will be suitable for HCC assuming that FOGO is removed from the waste stream. A 30k tpa or larger facility would be required if FOGO materials are not removed.

In addition to the transfer station, Council can encourage other ways to source separate materials before reaching the transfer station (refer to Resource Recovery memo for details on suitable type of facilities). This can also reduce the cost for transporting i.e., when more tonnage is recycled prior being placed in the transfer station.

Footprint: 400 m^2

Table 8: Transfer Station Cost Estimate

	Lower Estimate	Higher Estimate	Average
Capital			
Transfer Station Build Costs	$2,000,000	$5,000,000	$3,500,000
Estimated Life	30	40	35
Annualised Cost	$66,667	$125,000	$95,833
Cost Per Tonne	$3	$5	$4
Operational			
Operational Costs	$400,000	$800,000	$600,000
Levy Costs	$3,129,600	$4,694,400	$3,912,000
Savings from Landfill Operations	-$2,880,000	-$1,920,000	-$2,400,000
Estimated Transport Costs	$2,112,000	$3,168,000	$2,640,000
Disposal Costs	$3,590,400	$5,385,600	$4,488,000
Total Operational Costs	$6,352,000	$12,128,000	$9,240,000
Cost Per Tonne	$265	$505	$385
Total Costs			
Total Annual Cost per Tonne	$267	$511	$389

Table 9 MCA Overall Scores below shows the overall scores for the options with the full table and comments for the scores presented in Appendix C. These scores were determined at a workshop with the following HCC staff in attendance:

- Hawkesbury City Council
  - Sam Swain – Manager Resource Recovery
  - Justin Murphy – Coordinator Waste Projects & Contracts
  - Vanessa Browning – Chief Financial Officer
  - Will Barton – Director of Infrastructure Services
- SMEC
  - Robert Nutt – Snr Civil Engineer - Waste & Resource Recovery
  - Sergio Puente - Manager - Waste & Resource Recovery, Sydney

The workshop was held on Monday 26 June 2023 via Microsoft Teams with scores assessed for Risk, Benefits and Strategic Alignment, Service and Social Benefit, Environmental Considerations and Economic Impact Finical impact was discussed at the meeting, however the final scores were determined after the meeting via email correspondence to allow further information to be gathered.

Table 9 MCA Overall Scores

	Selection Criteria Weightage (%)	Option 1: Closure		Option 2: Landfill Expansion		Option 3: Dirty MRF		Option 4: Transfer Station	
		Grade (out of 5)	Weighted Score	Grade (out of 5)	Weighted Score	Grade (out of 5)	Weighted Score	Grade (out of 5)	Weighted Score
Council Focussed Criteria									
Risk level/implementation/technical maturity	20%	3	0.6	3	0.6	2	0.4	3	0.6
Financial Viability	25%	1	0.25	4	1	3	0.75	2	0.5
			0.85		**1.6**		**1.15**		**1.1**
Customer Experience Criteria									
Benefits sought, Strategy and Policy	10%	2	0.2	5	0.5	3	0.3	2	0.2
Service and social benefit	15%	1	0.15	3	0.45	5	0.75	4	0.6
Environmental Considerations	15%	1	0.15	2	0.3	4	0.6	3	0.45
Economic Impact	15%	1	0.15	3	0.45	5	0.75	2	0.3
			0.65		**1.7**		**2.4**		**1.55**
Total Score (100)			**30%**		**66%**		**71%**		**53%**

In summary the highest scoring option was Option 3 Dirty MRF. The key contributors to this scoring were its positive impact on the overall recovery of materials and the flow on benefits including:

- Reducing overall landfill levy payments
- Reduced material to landfill increasing current landfill life or reducing waste transport costs when the landfill closes

- Increased recovery provides benefit to multiple HCC including diversion from landfill, reduced GHG emissions and increased economic opportunities.

The option does however carry some risk and potentially locks the site in as a waste facility and consequently removes or delays any sale of the Driftway properties.

In addition, while it received the best overall score it cannot be implemented quickly and will require further investigation, the details of which will be further outlined in the final report and decision tree. It is also more expensive than the landfill options.

These issues are reflected in the Council Focused Criteria where the Option 2: Expansion scores better on both Risk and Financial Viability. It is only when taking into consideration the Customer Experience that scores better. This is reflected in its scores for Service and social benefit, Environmental Considerations and Economic Impact.

Option 2: Landfill Expansion received the second highest score. This option was assessed as providing significant benefits to the Council. In particular it will allow HCC to have greater control over their long-term waste strategy and allow them to control costs. Combined with Option 3: Dirty MRF the overall benefit of this option can be significantly increased and could also provide further economic benefit by allowing HCC to accept waste from surrounding areas.

It should be noted that if the landfill is not able to be expanded, the MCA also identified that “Option 4: Construct Transfer Station” was preferable to “Option 1: No Change”.

There are other added benefits of Option 4 including increased recovery when paired with a dirty MRF as well as relatively reduced environmental impacts, including greenhouse gas emissions when compared Option 1. It may be worth considering how any transfer station may be used in conjunction with HCC other/future collections for recycling and FOGO to improve efficiencies or how such a facility could support the region and surrounding council areas.

4. Conclusion

The overall recommendation of the MCA is that HCC should pursue a more aggressive resource recovery methodology with “Option 3: Increased resource recovery” being assessed as providing the preferred outcome (highest score of 76%). Option 3 should be combined with an increased landfill capacity by implementing “Option 2: Landfill Expansion” which is the next most preferred option with a score of 61%

By implementing Option 2 and Option 3, HCC will obtain the best overall outcomes by balancing risk , strategic goals and benefits to Council and the community.

If the landfill cannot be increased (i.e. Option 2 is not feasible) HCC should seek to build a transfer station (Option 4) as it ranked third most desirable option with a score of 53%. The least desirable option was the straight closure of the landfill (Option 1) scoring 35%.

Advice on how the recommended options should be implemented will be further detailed in the Decision Tree deliverable and accompanying report.

Appendix A

MCA Criteria

Criteria	Description	Weighting	Grade					References
			1 - Worse than Current	2 - Poor	3 - Status Quo	4 - Good	5 - Best Practice	
Council								
Risk level/implementation/technical maturity	Social resistance, community acceptance, other uncertainties with the implementation (not practical etc.) How well established is the technology used for this option? Has this solution been used before in NSW/Australia/Internationally? Legal and regulatory Risk, technical risk, legal risk, environmental risk, employee/employment risk	20%	**Extreme Risk** This option is riskier than the current approach and has significant social resistance, community non-acceptance, or other uncertainties with the implementation. The technology used for this option is untested and unproven, with no established markets and no clear regulatory pathway. Significant unknowns may critically impact the project.	**High Risk** This option is somewhat risky and has some social resistance, community non-acceptance, or uncertainties with the implementation. The technology used for this option is somewhat established but may have some unknowns. There may be some legal and regulatory risks, environmental risks, and employee/employment risks associated with this option.	**Moderate Risk:** This option has some risks, but they are manageable. The technology used for this option is well-established and has been used before in NSW/Australia/Internationally. There may be some minor legal and regulatory risks, environmental risks, and employee/employment risks associated with this option.	**Low Risk**: This option has minimal risks, and the technology used for this option is well-established and has been used before in NSW/Australia/Internationally. There are no significant legal and regulatory risks, environmental risks, or employee/employment risks associated with this option.	**Minimal Risk:** This option is the best practice and has no risks associated with it. The technology used for this option is well-established and has been used successfully before in NSW/Australia/Internationally. There are no legal and regulatory risks, environmental risks, or employee/employment risks associated with this option.	- HCC Enterprise Risk Framework
Financial Impacts	Long-term value and funding opportunities Capital Costs BCA	25%	The option has significant long-term financial risks and limitations. It has little or no funding opportunities and may require substantial capital costs with minimal long-term value.	The option has some long-term financial risks and limitations, with limited funding opportunities. The capital costs may be significant, and the long-term value may be questionable.	The option has some long-term financial risks and limitations, but with reasonable funding opportunities. The capital costs are moderate, and the long-term value is acceptable.	The option has limited long-term financial risks and good funding opportunities. The capital costs are reasonable, and the long-term value is good.	The option has no significant long-term financial risks and has excellent funding opportunities. The capital costs are reasonable, and the long-term value is excellent.	
Council Focus Weighting		**45%**						
Community								
Benefits caught, Strategy and Policy	How well does this option contribute to the benefits sought by CHCC? Will this option contribute to Council achieving its strategic targets on a local/regional level? This includes: • HCC Waste Strategy • Net Zero Strategy • WSROC Waste Strategy • Social Infrastructure Strategy • Property Strategy	10%	No Alignment The option provides some contribution to the benefits sought by the council and partially aligns with the HCC strategic targets at the local/regional level.	Partial Alignment The option provides a moderate contribution to the benefits sought by the council and moderately aligns with the HCC strategic targets at the local/regional level.	Moderate Alignment: The option provides a moderate contribution to the benefits sought by the council and moderately aligns with the HCC strategic targets at the local/regional level.	Substantial Alignment: The option provides a significant contribution to the benefits sought by the council and substantially aligns with the HCC strategic targets at the local/regional level.	Complete Alignment: The option fully aligns with and meets or contributes to most if not all of the objectives of the HCC strategic targets at the local/regional level.	• Community Strategic Plan • HCC Waste Strategy; • Net Zero Strategy; • WSROC Waste Strategy; • Social Infrastructure Strategy; • Property Strategy

Service and social benefit	**Is this option providing appropriate service level to HCC residents, increased job opportunity Does this provide the ability for: • Community accessibility to waste services (appropriate service levels)? • Access to support during disasters waste recovery etc? • What are the community benefits such as jobs, ability to repair etc?**	**15%**	Option provides a low level of service, with limited community benefits and job opportunities. Option does not provide for disaster recovery.	Option provides a moderate level of service, with some community benefits and job opportunities. Option provides for limited disaster recovery support.	Option provides an acceptable level of service, with reasonable community benefits and job opportunities. Option allows for disaster recovery.	Option provides a good level of service, with significant community benefits and job opportunities. Option makes improvements on the current capacity and support of disaster recovery.	Option provides an excellent level of service, with substantial community benefits and job opportunities. It also provides access and support during disaster recovery beyond what is currently available and offers additional services to the community.	
Environmental Considerations	**How well does this option contribute to a Circular economy, increase resource recovery, environmental protection of the land used? Reduced GHG.**	**15%**	This option has minimal or negative impact on reducing GHG emissions and transitioning to a circular economy model. Resource recovery and environmental protection are not prioritized or considered.	This option has some potential to reduce GHG emissions and increase resource recovery, but more efforts are needed to achieve a circular economy and ensure environmental protection.	This option has moderate potential to contribute to a circular economy and reduce GHG emissions. Some resource recovery and environmental protection measures are taken, but there is room for improvement.	This option significantly contributes to a circular economy model, reduces GHG emissions, and ensures resource recovery and environmental protection. It provides some additional life to the landfill. However, some gaps or challenges exist that need to be addressed.	This option provides a fully circular solution for materials, has a highly positive impact on reducing GHG emissions, and ensures optimal resource recovery and environmental protection. The option aligns with the best practices and standards in sustainable waste management and environmental protection and significantly extends the life of the landfill.	
Economic Impact	**What is the overall economic impact on the community with respect to the flow of money/jobs within the community? This economic impact includes reduced waste levy payments which is a direct economic drain on the community?**	**15%**	The option results in significant costs flowing out of the community for landfilling (including waste levy payments) or treatment processes, which may include state levies or third-party expenses for recycling and treatment.	A moderate flow of money and jobs within the community, but the overall economic impact is not significant. For example, the waste may be diverted from landfill, but the costs of recycling or processing may still result in some outflow of funds from the community. The economic benefits may not be fully realized within the local community. There remains a significant waste levy payment resulting in payments to the state government.	The option does not result in a significant outflow of money from the community to fund recovery options. For example, it may not be landfilled, and the costs of recycling may be less than landfill, but the recycling and processing occur outside the HCC area. Under this option there would be a reduction in waste levy payments however the majority of fees to the community leave the local area.	The option does not result in a significant outflow of money from the community to fund recovery options. For example, it may not be landfilled, and the costs of recycling may be less than landfill, but the recycling and processing occur outside HCC but within GWS. Overall there is a reduction in waste levy collected with fees collected directed in part to local recycling incitive.	A significant proportion of the recycling and recovery occurs within HCC or GWS, resulting in economic benefits being realized within the local community. There is a large reduction in overall state waste levy payments with the majority of fees collected for waste remaining within the local community.	
	Community Focus Weighting	**55%**						

Appendix B

Risk Categories

Risk Appetite Categories	
Low	**A willingness to take on a limited level of risk necessary to achieve goals and objectives.** Council may operate in this area, or in this way, where the value is assessed as worthwhile, after risks have been effectively mitigated.
Moderate	**A willingness to take on a moderate level of risk for benefits linked to goals and objectives.** Council may operate in this area, or in this way, after risks have been effectively mitigated to pursue benefits that enhance strategic outcomes or operational objectives.
High	**A willingness to take on higher levels of risk to maximise gains.** Council may operate in this area, or in this way, after all options are considered and the most appropriate option selected to maximise strategic or operational gains

Risk Category	Risk Appetite
Financial	**Low**
Environmental	**Low**
Reputation	**Moderate**
Compliance	**Low**
Operations & Service Delivery	**Moderate**
People & Wellness	**Low**

Risk Category	Context	Risk Appetite	Risk Tolerance	Not accepted
Financial	Hawkesbury City Council understands the financial risks involved in delivering a wide range of services, programs and capital projects to meet the needs of	**Low**	Council will tolerate: ▪ **Minor** approved budget variations due to unforeseen events, changing economic conditions, sudden changes in government policy	Council will **not** tolerate: ▪ Maladministration and poor financial decisions that leave a long-term liability/deficit or adverse financial implications ▪ Financial fraud, theft, misuse or waste of council funds ▪ Material misstatement

Risk Category	Context	Risk Appetite	Risk Tolerance	Not accepted
	the local community Council has a strong focus on financial sustainability and balancing needs of the community both today and over the long-term. Council is committed to maintaining a prudent, cost-conscious and disciplined approach to financial management in the receipt and expenditure of community monies to invest in delivering services to the community. Council has a low appetite for variation in financial performance to ensure financial sustainability is not threatened.		or to better meet community needs ▪ **Minor** budget variations approved by a Director ▪ Short-term deterioration of one or more Fit for the Future metrics to improve other metrics. ▪ **Minor** losses from innovation or new activities to meet community needs, enhance efficiency/grow revenue or to make the Hawkesbury a great place to live. ▪ Projects variance within project contingency.	▪ Deliberate breach of policies, financial control procedures, procurement guidelines or delegations ▪ Failure to consider the long-term financial implications of decisions ▪ Deviations from directorate budget >3% not approved by the General Manager ▪ Deviations from business unit budget not approved by Director
Reputation	Hawkesbury City Council recognises the importance of protecting its reputation. Council strives for best practice processes and encourages community engagement and participation in decision-making to build community respect, resilience and connectedness	**Moderate**	Council will tolerate: ▪ **Moderate** adverse media scrutiny to advocate issues for greater benefit to the community ▪ **Moderate** damage to reputation for decisions or innovation to services and practices in long-term interest of council and community ▪ Short-term reputational damage where	Council will **not** tolerate: ▪ Unethical, corrupt, fraudulent, unprofessional behaviour or failure to exercise respect and duty of care in accordance with Council values. ▪ Decision-making that is not open, honest and transparent and fails to reflect the long-term interests of the community ▪ Material breaches of the Code of Conduct.

Risk Category	Context	Risk Appetite	Risk Tolerance	Not accepted
	Council is committed to good governance, continuous improvement and upholding community values. Council will engage with our staff and community to inform our decision making and create awareness of our activities. Council is committed to being an employer of choice. Council is committed to effective engagement with strategic partners to deliver on long-term objectives for the community. Council understands that negative publicity may occur when making decisions in an environment where there are competing stakeholder priorities and interests. Council has a Moderate appetite for negative impacts on Council's reputation and Low appetite for activities that impact reputation as an employer of choice.		significant benefits can be achieved ▪ **Moderate** level of incidents, isolated concerns and complaints that can be resolved by day-to-day management	▪ Failure to uphold the probity of council decision-making. ▪ Any failure to avoid or appropriately manage conflicts of interest. ▪ Any failure to act in a fair, honest, transparent and accountable manner. ▪ Any failure to ensure good governance, financial acumen and good customer experience ▪ Inadequate consultation with key stakeholders that results in loss of confidence in the Council's capabilities ▪ Complaints that are not managed in a prompt and professional manner ▪ Any failure to manage systemic complaints on the same topic ▪ Any failure to ensure good governance of 3rd parties managing assets and/or delivering services on council's behalf
Compliance	Hawkesbury City Council is committed to ethical practices,	**Low**	Council will tolerate: ▪ **Minor** impact of breaches that are	Council will **not** tolerate:

Risk Category	Context	Risk Appetite	Risk Tolerance	Not accepted
	doing the right things and upholding values expected by our community. Council is committed to meeting legal and regulatory requirements in a consistent, prompt and fair manner. Council has zero appetite for significant breaches of legal obligations or contractual arrangements that result in fines, penalties or significant reputational damage.		unforeseen or due to unrealistic regulatory timeframes ▪ **Minor** isolated breaches of an administrative nature with no material impact on Council	▪ Any fraudulent, improper, unethical or corrupt conduct ▪ Any instances where staff knowingly break the law, fail to comply with legal obligations or recklessly or systemically breach internal policies ▪ Significant or systemic breaches of legislation, regulation or contractual obligations ▪ Reckless breach of legal, regulatory obligations or contract arrangements. ▪ Failure to manage compliance obligations in accordance with compliance framework
Operations & Service Delivery	Hawkesbury City Council delivers a range of community services, events and facilities that contribute to the health, well-being and economic development of the community. These services depend on systems, third parties and people. Council recognises that being reliable and delivering services to community of the highest quality for the available funding is essential to protecting the environment, supporting a strong economy, and ensuring	**Moderate**	Council will tolerate: ▪ **Moderate** unforeseen service interruptions from uncontrollable events where Council responds and communicates promptly to impacted stakeholders ▪ **Low** unforeseen service interruptions from uncontrollable events to critical services ▪ **Moderate** impacts on service delivery due to the implementation of new technology or improvement projects ▪ Adjustment to delivery of services approved by Director ▪ **Minor** reputational impact of some one-off complaints	Council will **not** tolerate: ▪ Actions and behaviours contrary to the Customer Experience Framework ▪ Failure to consider and respond to issues relating to quality-of-service delivery ▪ Non-compliance with policies, procedures and service standards that impair the quality-of-service delivery or results in service interruptions ▪ Failure to adequately respond to major incidents or unplanned disruption to critical services ▪ Failure to escalate moderate impact project risks or variations ▪ Failure to proactively monitor and manage the cyber security framework ▪ Material control weaknesses not

Risk Category	Context	Risk Appetite	Risk Tolerance	Not accepted
	Hawkesbury remains a great place to live. Building strong enduring partnerships for service delivery based on shared ownership is a core strategy. Council encourages business improvement and innovation. Council is willing to take Moderate risk to enhance service delivery to the community or improve efficiency.		regarding service quality ▪ **Moderate/multiple** late project delivery due to unforeseen events or reprioritisation approved by the Director **Minor** unforeseen or unavoidable project variations to meet community needs that have been approved	remediated within agreed timeframes

Appendix C

MCA Scores and Comments

	Selection Criteria Weightage (%)	Option 1: Closure			Option 2: Expansion			Option 3: Dirty MRF			Option 4: Transfer Station		
		Comment (Incl Identified Risks)	Grade (out of 5)	Weighted Score	Comment (Incl Identified Risks)	Grade (out of 5)	Weighted Score	Comment (Incl Identified Risks)	Grade (out of 5)	Weighted Score	Comment (Incl Identified Risks)	Grade (out of 5)	Weighted Score
Council Assessment													
Risk level/implementation/technical maturity	20%	-Would allow for the sale of properties on the drift way - Risk that community would not support closure of the site. - Would likely need to find an alternate site or provide vouchers or similar to other local government facilities. Previous investigation indicate there are not many other facilities. - Will lead to large loss or transfer of jobs - Will impact the collection structure - Risk that may not be able to sell the buffer properties even after closure.	3	0.6	- Social Risk - Some risk that there may be some objection from the local community - May be some risk in negotiation with WSU - Is there a risk that there may not be sufficient time to meet the planning requirements for the Western Side. - Expanding west will mean that will require an EIS. - Would be no immediate change to staffing as there is no overall change in structure. Would suggest that the Western expansion would carry significantly more implementation risk. This would carry a high risk (2)	3	0.6	- Operational risks around breakdown and provision of trained staff - Potential to become an asset by reducing material to landfill - Potential to allow for acceptance of material that can bring in revenue and more recyclable. - Dirty MRF can accept more trucks than a landfill tip face - Commercial risk if not as much material is recovered. Which will reduce diversion from landfill - Consider the mitigating the operational risk through contracting model. - As of today, it is high risk, but this will be mitigated going forward through the introduction of FOGO, WtE and costs from transportation.	2	0.4	- Overall community would be mixed with some support and some opposition. - There are many examples around that are running across the country.	3	0.6
Financial Viability	25%	The closure of the landfill is certain of funding. The closure of the landfill with no replacement transfer station however opens HCC up to significant risks in future costs through impact on transport and exposure to commercial landfill rates. Overall compared to other options this is assessed at moderate costs given current expected transport and disposal pricing. The major benefit of this option is that it will allow for the sale of the Driftway properties allowing for a one-off revenue that could be used to complete other works. It is estimated that the sale of the Driftway properties could raise revenue in the vicinity of $9.08 M if sold. This has been taken into account in the cost estimate.	1	0.25	This option is relatively low risk as it ensures that HCC can control longer term transport and disposal costs and is not reliant on third parties. The Northern expansion options puts this a moderate capital and operational costs by comparison to the other options. Westward expansion would increase costs, but the extended life of the landfill will offset much of these costs and may allow for HCC to consider accepting material from surrounding areas.	4	1	The Dirty MRF Option has a high likelihood of getting funding and a relatively low capital cost when compared to the other options. While more detailed feasibility studies would be required It is reasonable to expect that a Dirty MRF has the potential to reduce overall landfill costs and could potentially be a source of net revenue. Its overall costs are the lowest of the options once possible levy offset and sale of resources is considered. There is some risk that changing technology and collection regimes may make the system obsolete or reduce overall recover and diversion rates.	3	0.75	The installation of the transfer station should have a good likelihood of receiving funding. Overall, it will allow for the control of costs to HCC by increasing waste transport efficiency and allowing for additional processes to recover material. Long term this option may be required and form part of the regional waste strategy to divert waste from landfill. This may include operation with a current landfill onsite. Comparatively the costs of a transfer station vary greatly dependant on the size which will be dictated acceptance or not from other surrounding council areas. It does present the opportunity with a larger transfer station to bring in material from surrounding areas creating an additional revenue stream for HCC.	2	0.5
				0.85			**1.6**			**1.15**			**1.1**
Customer Experience													

Benefits sought, Strategy and Policy	10%	- Emissions from transport would increase due to the need to transport waste, likely in collection trucks. - Does not support the waste strategies as it does not allow for any improvements and will require greater transport and increasing costs. - Social is not supported as the community would not have access to the waste facilities for self-haul and recycling. - Property is supported as the Driftway properties could be sold.	2	0.2	- No change to waste landfilled - Reduces Emissions by not requiring longer transport - Potential to reduce emissions by supporting surrounding councils and reducing their travel distance - Aligns with the ROC as it supports surrounding councils - Potential to align with social Infrastructure and property strategy. - Improved landfill construction to reduce overall environmental impact. - As this locks in requirement to maintain Driftway properties as buffer properties allows for further investigation into alternative uses for these properties such as recreation. - At the closure of the landfill the Drift way properties could still be sold.	5	0.5	- Support both the HCC and WSROC waste strategy - At least partial alignment with Net Zero strategy - This would turn the site into a permanent waste facility past the EOL for the landfill and prevent any future sale of the Driftway properties.	3	0.3	- Need to transport waste leading to greater emissions - Will likely prevent sale of Driftway Properties and so not support the property policy	2	0.2
Service and social benefit	15%	- Provides a low level of service with few if any jobs - Does not support any disaster waste recovery.	1	0.15	- Maintains current level of service - Increases capacity for disaster - Increase potential for jobs if expanded to accept more waste from surrounding areas.	3	0.45	- Would provide additional support during disasters - Would provide for additional jobs - Has the potential to provide raw product for supply to local recyclers.	5	0.75	-Increase potential for jobs as would require staffing at transfer station and drivers for transport. - Would enhance the ability of the site to manage and improve overall control. - No overall change in community accessibility - Improved ability to control and manage disaster waste.	4	0.6
Environmental Considerations	15%	-Does not provide for effect or effective transfer of materials to final destination and will require an increased collection fleet to service the Council area. This impact is greater than the potential benefits that may be realised from rehabilitating the site. -HCC has less control over the potential to recover and recycle material. -Potential to rehab the area and increase native vegetation in line with the landscaping plan. -Potential to implement solar panels on the site.	1	0.15	-Landfill contributes a significant amount to overall emissions. It should be noted that all material would be landfilled somewhere but there is a saving potential in TPT. - If material was transferred somewhere else there may be potential to take waste to an WtE facility.	2	0.3	- Increase in the overall recover of the site reducing material to landfill and/or transport of material. - Effective local sorting reduces overall transport. - Potential to provide a service to surrounding councils to increase their overall recovery.	4	0.6	-Potential that transferred material does not go to landfill. -Increased transport efficiencies.	3	0.45
Economic Impact	15%	-The closure of the site would have an overall negative economic impact as it would reduce the number of local FTE jobs. - Likely would require the outsourcing of the collections contract. - Would not reduce overall levy payments. - Landfill/waste treatment costs would be external to the local community and become a	1	0.15	- There would be no overall change in the economic impact as this option would maintain the current jobs but is unlikely to add any additional jobs. - This option has the potential to have a net inflow to the local economy by increasing waste taken from the surrounding council areas.	3	0.45	-Conservative estimate of $360k levy offset due to waste being recovered before going to landfill - May allow HCC to take material from other councils allowing for further employment - May support the growth of local recycling facilities through the local sorting of raw materials. - May provide additional employment for the transport of recyclable materials to recyclers. - MRF provides a footprint for the expansion of other community	5	0.75	- May be some increase in Staff for transport - Landfill/waste treatment costs would be external to the local community and become a direct cost to HCC and reduce their overall control of costs. - This option has the potential to have a net inflow to the local economy by increasing waste taken from the surrounding council areas.	2	0.3

		direct cost to HCC and reduce their overall control of costs.						projects and recycling opportunities.									
				0.65			1.7			2.4						1.55	
Total Score (100)	100%	30%			66%			71%			53%						