



WRIGHT CORPORATE STRATEGY PTY LTD

Focused Innovation

**INDEPENDENT REVIEW
HUB WASTE MANAGEMENT PROPOSAL**

ORANGE CITY COUNCIL

June 2008



1. Introduction

Recognising the pressing need to provide facilities to manage future waste and resource recovery requirements, Orange City Council (with Cabonne Council) submitted a Development Application (DA) in 2005 for a waste landfill and resource reprocessing facility (the Hub Waste Management Proposal). This infrastructure would be the centrepiece of a comprehensive waste management strategy that would lead to substantially increased resource recovery.

The recent Judgement of Preston CJ in the Land and Environment Court (L&E Court) on the DA has prompted Orange City Council to review the approach it has taken to sustainable waste management. Council resolved to proceed with a new Development Application for a revised proposal. The scale and nature of the project required would meet the criteria for classification as a *major project* as described in the *Major Projects SEPP*. Subject to the Minister's approval, the project could be considered under Part 3A of the *Environmental Planning and Assessment Act 1979*.

The purpose of this Review is to consider and advise Council how its waste strategy might be further developed and modified to respond appropriately to issues raised in the L&E Court judgement. The Review has also been mindful that any modifications would need to be carried through to the new DA which should present a clear proposal.

The Review was conducted by Wright Corporate Strategy Pty Limited (WCS) at the request of Orange City Council.

2. Issues Raised in L&E Court Judgement

The L&E Court judgement included four key reasons why the "...proposed development on the proposed site is unacceptable and ought not be approved". The following is our brief interpretation of the logic of Preston CJ in making the Judgement.

- Adverse effect on the long term use of prime crop and pasture land zoned General Rural under the *Cabonne Local Environment Plan 1991*. The majority of the Hub site is classified as Class 3 under the NSW agricultural land classification system. The Court pointed out that the proposed development is regarded as contrary to the Cabonne LEP.
- Adverse effect on the sustained use of adjoining land for beekeeping. In particular, the Court viewed risk of American Foul Brood infection and a separate food safety risk as not consistent with the principles of ESD.
- Failure to include in the development proposal the critical Stage 2, which comprises *construction* of a proposed alternative waste treatment facility



(AWT). The AWT was described in broad concept terms and was to be the subject of a further DA when a suitable class of AWT had, at a future date, been determined.

The Court reasoned that the omission of a concrete Stage 2 proposal prevents approval of Stage 3, because Stage 3 includes *operation* of the AWT which would clearly not have been approved by the Court. Thus, Stage 3 is contingent on Stage 2 which itself cannot be approved or compelled. In other words, the logic goes, how can approval of Stage 3 *operation* of the AWT be granted if no approval for *construction* of the AWT is sought by the proponent?

- The necessary off-site waste minimisation actions may not be able to be enforced by conditions placed on a development consent that is necessarily limited to the proposed Hub site development. Despite the fact that waste minimisation initiatives were proposed by the project proponent, the Court reasoned that the conditions could not be imposed, and acknowledged that the waste minimisation strategy was essential for the proposed development to achieve sustainability.

The Judgement refers numerous times to the "...particular development on the particular site selected", implying a compounding effect of the four issues on which the judgement was based (CI 12 & 13). The Judgement also recorded that the various amendments and modifications made to the proposal during the proceedings did not make the proposal sufficiently acceptable to be granted consent.

2.1. WCS Findings

The L&E Court judgement appears to point to three possible courses of action open to Council:

- a revised development on a fresh site;
- a revised development on the currently proposed Hub site;
- the existing development (presumably as modified) on a fresh site.

Regardless of whether a fresh site is selected or the current site is retained as the preferred location, further revisions to the development will be necessary to ensure a smooth planning and assessment process.

A new Development Application and environmental assessment will need to address the issues raised by the Court. This is because all relevant impacts must be considered by the Department of Planning and possibly by an independent hearing and assessment panel that is likely to be formed to advise on the DA. A revised DA would need to resolve the following considerations:

- issues associated with land zoning;



- mitigation of potential issues associated with beekeeping which is widespread in the area;
- provision of a concrete basis for the Consent Authority to assess and approve development and operation of the necessary resource recovery facilities;
- a mechanism to provide assurance that key waste minimisation strategy initiatives, such as food/garden waste collection can be implemented with community support.

3. Review of Current Orange City Council Waste Management and Resource Recovery Activities

Orange City Council operates a domestic waste collection service and a kerbside recyclables collection service. The Ophir Road waste management site receives recyclables for sorting, and self-hauled garden waste which is processed and sold. The landfill on site provides for disposal of municipal, commercial and industrial (C&I), and construction and demolition (C&D) waste. An active recovered resource shop at the landfill sells used and salvaged products and materials.

Current resource recovery activities include the following:

Recyclables: Fortnightly kerbside collection service; Drop-off points at waste management facilities. Ophir Road MRF is the regional centre for recycling and also processes recyclables from Forbes, Parkes, Blayney and Bathurst.

Garden waste: Self-hauled garden waste is mulched and sold to the public or used by Council.

Scrap steel, furniture, white goods, etc: Recyclable industrial/commercial materials are recovered for sale at the Ophir Road Resource Recovery Centre and the Recovery Shop.

DrumMUSTER: Drop-off points are located at the Ophir Road Resource Recovery Centre and in various surrounding towns.

Household chemical collection: Regular collection programs are conducted from specified drop-off points.

Used oil collection: Drop-off points are located at the Ophir Road Resource Recovery Centre and various surrounding towns.

Recent waste and resource recovery statistics for Orange City Council are set out at Table 1, below. Note that Cabonne waste data has not been included as its accuracy is not assured.



Table 1. Waste and Resource Recovery Position (2006/07)

	Municipal (tonnes)	C&I (tonnes)	C&D (tonnes)	Total (tonnes)
Waste Generated	28,135	16,390	14,960	59,485
Waste Diverted for Recovery	11,005 (39%)	800 (<5%)	180 (<1%)	11,985 (20%)
Dry Materials Recycling	2,505	0	0	2,505
Recovered Materials	610	390	180	1,180
Garden Waste Processed	4,190	410	0	4,600
Biosolids Recovery	3,700	0	0	3,700
Waste Disposal to Landfill	17,130	15,590	14,780	47,500

Source: Orange City Council. *Draft Orange and Cabonne Solid Waste and Resource Management Policy – 2007/2047*.

3.1. WCS Findings

These waste and resource recovery data, taken from the draft *Orange and Cabonne Solid Waste and Resource Management Policy – 2007/2047* (December 2007), and also used in the *Supplementary EIS* (September 2007) mask the substantial resource recovery achievements of Orange City Council.

The data indicate that kerbside collection performance is running at only 9% of municipal waste generated and that 13,830 tonnes of virgin excavated natural material (VENM) is disposed of to landfill – comprising 23% of total waste generated. Moreover, the opportunity should be taken to report in a new DA the (apparently) continuing strong performance in steel, furniture and white goods recovery, and the waste avoided by the DrumMUSTER program.

4. Essence of Recent Modifications to the Proposal

The *Supplementary EIS* (September 2007) contains a great deal of information which helps to firm up the proposal and clarify the proposed operating approach.



With the hindsight afforded by the subsequent Judgement, however, it is clear that the modifications did not add sufficient value to the original proposal to overcome the specific objections raised by the Court. The following WCS interpretations are based on the written words in the Supplementary EIS.

AWT Facility

The modified proposal provides for the possible introduction, "...should it be required", of a separate collection of source separated food waste together with garden waste. An Enclosed Composting AWT process is nominated as the likely treatment technology. The construction of the paragraph could have been taken by the Court to mean that it is by no means certain that the AWT would proceed as part of the development, even though it was Council's intention to provide such a facility.

Orange City council has since explained to WCS that the final determination of which AWT class to procure was postponed pending detailed consideration of the relative merits and practice difficulties with various AWT classes.

Waste Receival and Sorting

A receival hall would be constructed during the Hub site establishment phase and all dry waste loads considered suitable for sorting would be directed to this receival hall for sorting. The initiative would increase the recovery of recyclables and provide temporary enclosed buffer storage for waste loads received outside prescribed landfilling operation hours. Pending construction of the AWT, all putrescible waste loads would be directed straight to landfill.

Further, the modified proposal includes removal of the originally proposed public waste receival area in order to provide for greater control over wastes received at the proposed Hub facility.

Reduced use of Agricultural Land

The Hub site covers around 170ha comprising 84ha of woodland area and 42ha designated for continuing agricultural use. This leaves some 44ha available for landfill operations, water/leachate management, waste receival, and resource reprocessing. The modified proposal would allow a further 18ha to be used for agricultural purposes during the first 15 years of the 40 year project life. In addition, excavated clay and soil storage would be managed within the landfill footprint, potentially freeing up further land for productive use.

Landfilling Practice

The amount of cover material to be used in landfilling operations was increased to provide a more conservative waste covering policy. This was specifically to assist in managing the food safety issue, raised in the Judgement, associated with the possible collection from landfill of propolis substitutes by honey bees (see Section 6 below). The modified proposal also nominated reduced hours available for waste receival and for landfilling operations.



4.1. WCS Findings

The modifications to the Hub proposal are useful in respect of some issues subsequently raised in the Court proceedings. However these modifications were not seen by the Court to be of sufficient weight to offset the issues raised in the Judgement.

5. Review of Proposed Waste Management Strategy

The draft *Orange and Cabonne Solid Waste and Resource Management Policy – 2007/2047* (December 2007) was prepared prior to the L&E Court judgement being released. It extends the level of definition contained in the 2005 EIS and the *Supplementary EIS*. This draft policy is under review by Orange City Council in the light of the Judgement. It provides, however, a reasonable benchmark waste strategy as a starting point for consideration of scope for further cost-effective development possibilities.

5.1. Description of Proposed Orange/Cabonne Waste Policy

The Policy aims to increase diversion from landfill from the current 20% to 55% by 2011. It contains the following worthy stewardship principles:

- Waste is a potential resource which should be managed as an asset rather than a liability.
- Only if waste cannot be diverted, reused or reprocessed, should it be landfilled.
- Landfill space should be managed and priced to discourage its use except as a last resort.
- The waste manager must be careful not to encourage illegal diversion or economic dislocation as a result of its policies.
- Landfill space should be conserved and efficiently managed as a community resource.

Proposed Further Resource Recovery Initiatives

The Policy also sets out planned resource recovery initiatives:

- Improved kerbside recycling participation and reduced contamination resulting in a 10% increase in recovery of kerbside recyclables diverted from landfill.
- Waste minimisation through increased home composting and public place recycling opportunities.
- Differential landfill gate pricing to encourage source separation of business waste for improved resource recovery and diversion of 10% of C&I waste generated (other than VENM, garden waste and recovered self haul).



- Waste management plans for building consents to achieve 30% diversion of C&D waste (other than VENM and recovered self haul).
- Landfill gate price incentives to bring about 60% diversion and recovery of VENM.
- Resource reprocessing at the Hub site using one of two AWT options: enclosed composting of source separated food together with garden waste; or AWT processing of mixed waste.

Proposed Infrastructure Arrangements

The Policy also nominates several new assets:

- Development of the Hub landfill facility for residual waste, to operate from year 1 for Cabonne and, for Orange, from around year 8, coincident with completion of the Ophir Road landfill.
- Development of the Hub AWT (for operation from year 8) The AWT concept is not specified, but is narrowed to two options: composting of source separated food/garden waste, or processing of mixed residual waste.
- Upgrading of the Ophir Road receival area as a multi-bin recycling drop-off area for residential recyclables and household recoverable materials.
- Development of a transfer station at Ophir Road for small loads of residual waste not direct-hauled to the Hub.

5.2 Comparative Merit of the Waste Management and Resource Recovery Strategy

The proposed *Solid Waste and Resource Management Policy* would greatly increase the level of resource recovery, estimated by Orange City Council to be 55% recovery at year 8 of the scheme. This would put Orange/Cabonne well ahead of most other rural LGAs in NSW and contribute to accomplishing the resource recovery objectives of the NSW *Waste Avoidance and Resource Recovery Strategy 2006*.

The estimated waste and resource recovery position for Orange implied by the policy is set out at Table 2, below. The resource recovery estimates in this Table were made independently by WCS on the basis of the description of the specific nominated actions set out in the proposed waste policy as outlined above. The WCS estimates of resource recovery differ only slightly from Council's estimates (details are at Attachment A).

5.3. WCS Findings.

The strategy proposed in the *Solid Waste and Resource Management Policy* is promising and could be further developed to facilitate assessment of a new proposal.



Table 2. Implied Future Waste and Resource Recovery Position
(based on current waste generation rate)

	Municipal (tonnes)	C&I (tonnes)	C&D (tonnes)	Total (tonnes)
Waste Generated	28,135	16,390	14,960	59,485
Waste Diverted from landfill	18,425 (65%)	7,745 (47%)	7,192 (48%)	33,362 (56%)
Dry Materials Recycling	2,755	1,043	1,840	5,638
Recovered Materials	610	390	180	1,180
Garden Waste Self Haul	2,000	410	0	2,410
Biosolids Recovery	3,700	0	0	3,700
VENM Recovery	30	3,096	5,172	8,298
Resource Reprocessing	9,330	2,806	0	12,136
Waste Disposal to Landfill	9,710	8,645	7,768	26,123

Source: Estimated by WCS on the basis of Orange City Council draft Waste Policy and WCS information.

The nominated actions should exceed the estimate in the policy for Municipal resource recovery with the inclusion of processing of kerbside collected food/garden waste. The policy estimate for C&I is not quite met despite a (new) allowance for processing 2,863 tpa of source separated food waste. The C&D estimate also would not quite be met by solely implementing the nominated actions.

However, overall landfill diversion with these realistic actions amounts to 56%, which is consistent with the diversion estimate set out in the final proposal considered by the L&E Court.

The proposed waste policy as documented is currently disadvantaged by not including a determination of a waste processing scheme and nomination of a



technology class for the proposed AWT. Based on very recent WCS experience in assessing waste management proposals for which technology is not nominated, the environmental assessment in these circumstances must rely on a broad envelope definition of impacts.

6. Review of Risk Issues Associated with Bee Keeping

The Court identified two separate risk categories relating to possible impacts of the proposal: a biosecurity risk arising from a disease, known as American Foul Brood (AFB) which can infest and destroy bee hive populations; and a food safety risk arising from the risk that honey bees from nearby apiaries may forage in the landfill for propolis and choose resin-like waste substances, including chemicals, in lieu of natural plant resins.

On the basis of conflicting evidence, and applying the precautionary principle, the Court concluded that:

“...the risk of American Foul Brood infection...cannot be discounted”; and

“...the food security risk is significant”.

The Court's view is reinforced by the existence of a recent DPI publication: *Primefact No. 759, April 2008*, which covers American Foul Brood infection. The fact sheet lists waste management facilities as one of a number of possible sources of AFB spores, confirming evidence given by Court appointed expert, Department of Primary Industries (DPI) scientist Dr Sommerville. Other evidence is available that AFB is endemic in the region.

Further, the *B-Qual Approved Supplier Handbook*, used by the honey bee industry for program standards, lists under Industry Biosecurity Plan, the standard arrangement that: “Placing apiaries near rubbish tips...is avoided”. This again confirms evidence given to the Court.

6.1. WCS Findings

The risk of spread of AFB appears to be small for well managed waste landfilling operations and it appears that AFB is quite widespread.

The food security issue is more compelling and mitigation steps should be considered given the potential impact of the issue. WCS is not aware of experience with bee infestation of waste being discharged in well managed landfill operations. And there appears to be little tangible evidence to support the assertion that bees are attracted to modern, effectively managed landfill sites. However, the position put to the Court by an officer of the DPI, the agency responsible for biosecurity, demands attention. This position, supplemented by published material issued by DPI and the honey bee industry, is sufficiently clear as to make it imperative that any food security risk is addressed.

Various options are available to mitigate the food security risk to bee keeping. There appear to be two main ideas. The first broad option involves managing



waste in a way that would negate potential bee foraging. The most certain way to achieve this is by processing at-risk waste in Orange prior to transporting the waste to landfill. Waste pre-treatment technologies, including rotating drums, shredders or autoclaves, could be applied to municipal mixed residual waste and those C&I waste loads that pose a risk source for bee foraging. This would eliminate potential resin-like substances and partly stabilise the waste. The autoclave procedure would sterilise the waste. If conducted at Orange, pre-treatment would substantially reduce transport costs as a result of greatly reducing the bulk of waste. If necessary, the waste preparation scheme could be supplemented by adopting the practice that waste loads are dispersed quickly and covered without delay, as proposed in the Supplementary EIS.

The second broad option is to locate and acquire a suitable alternative landfill site at a location beyond 3km from active bee hive sites. Given the dense distribution of bee keeping in the region, this is a challenging task, especially as bee keeping practice is to frequently move hives to new locations.

In the circumstances, the review of alternative landfill sites (see below) is instructive.

7. Alternative Landfill Sites

The L&E Court Judgement prompts consideration of the availability of potential sites other than the Hub on which to conduct resource recovery and waste disposal operations. The scope to conduct AWT operations and continue waste disposal at the Orange waste management site was raised as a possibility during the Court case. However, the landfill is approaching its ultimate capacity and with other resource recovery operations already taking up much of the above ground space at the site, insufficient space is available for an AWT facility. Further, the only vacant land located near the waste management site is under consideration by Council for stormwater harvesting – a vital need, given the current drought position.

In any case, Council recognises the land use conflict issue that would be presented by placing an AWT in this increasingly urban context. The actual operating experience in Australia with AWTs is that odour and noise impacts extend well beyond operating site boundaries.

WCS was assisted in considering alternative waste facility sites by Robert Amaral, consulting geotechnical/landfill engineer. Given the focus by various stakeholders on the suitability of the selected site, a ground-up approach was taken to finding and testing the merits of alternative sites. The Amaral study was completed in two parts, with the objective of determining whether any potential sites existed that might possibly rival the merits of the Hub site. This was a broad-brush study and did not involve any field assessment other than a “drive-by” inspection.



Part 1 commenced with initial generation of some 55 possible sites including three sites (including the Hub) closely considered in preparing the 2005 EIS. All sites were reviewed against criteria that generally coincided with the original criteria, but included also proximity to native vegetation, orchards and vineyards. Special attention was given to topographical suitability in arriving at the long-list in order to focus on sites with minimal potential for external run-on water – a factor in leachate production and subsequent contamination of groundwater and surface water. Other important criteria included logistics and ownership complexity. Robert Amaral completed Part 1 following review of EIS information developed by R. W. Corkery & Co.

In Part 2, some 46 sites were eliminated by application of established criteria. Further sites were eliminated during the visual inspection phase, which Robert Amaral conducted. The outcome of Part 2 was a short-list of four potential sites. A further site was considered to be marginally behind this short-list due to access difficulties and multiple ownership issues.

The Hub site is deservedly included in the potential sites list on its merits, confirming the suitability and value of the Hub site for waste processing and disposal.

The potential sites are considered to have appropriate topographical features, reasonable access and other features that contribute to their potential suitability. All sites are within reasonable proximity to both Orange and Molong. However, no site is perfect and each has merits and drawbacks. For instance, the three sites other than the Hub are somewhat exposed to wind and visual impact, and would require extensive planting to provide a reasonable buffer. Potential environmental impacts have not been tested. Geology/soil conditions are likely to be favourable, though this was not tested as it was outside the work program.

There are some critical uncertainties associated with the three potential sites. Each site is presently in private ownership and is apparently used for productive agricultural purposes. The level of interest of the present owners in selling has not been tested. It should be noted that all potential sites are in areas in which agricultural production is undertaken. The DPI agricultural land classification in which these sites fall is unknown at this stage.

Further, only the Hub site is known at this stage to have proven, capable geological conditions for landfill operations.

Alternative Regional Landfill Possibilities

A further alternative is to make use of an existing landfill already in operation at a regional centre such as Dubbo or Woodlawn, near Goulburn. This scheme is disadvantaged by the transport distances involved and the probable need for the landfill host to gain appropriate statutory approvals. The scheme would also leave Orange City Council open to landfill practices and gate pricing over which it would have only limited control or recourse.



7.1. Summary of Amaral/WCS Findings

This independent study of potential sites provides some valuable further information:

- It confirms the suitability and merit of the Hub site for waste processing and disposal.
- It indicates that several sites other than the Hub (albeit a small number) are potentially viable alternatives, but each has features that would need to be tested and uncertainties that would need resolution.
- On the basis of the information available, the relative merits of no one of the new short-listed sites stands out as superior to the others, including the Hub site.

8. Overall Findings

- a. The four reasons nominated by the Court for its refusal of development consent will have a substantive bearing on the assessment of a new DA for a revised proposal. They would need to be addressed and resolved in preparing the new DA and its accompanying Environmental Assessment.
- b. The modifications to the Hub proposal contained in the *Supplementary EIS* help to clarify some aspects of the proposal. However these modifications were not seen by the Court to be of sufficient weight to offset the issues raised in the Judgement.
- c. The proposed *Solid Waste and Resource Management Policy* looks promising and could be further developed to facilitate assessment of a new proposal. The current documentation is disadvantaged by not including a waste management scheme or technology class for the proposed AWT. To assure a smooth passage and allow a transparent public assessment process to be undertaken, further definition would be required.

The waste and resource recovery data used in the *Supplementary EIS 2007* mask the substantial resource recovery achievements of Orange City Council. There are no data on the (apparently) strong performance in steel, salvaged, and white goods recovery, the reuse of VENM, and the waste avoided by the DrumMUSTER program.

- d. It appears that AFB disease is widespread and is unlikely to be compounded by the existence of waste management activities in the area. However, the food security risk, regarded by the Court as significant, would need to be resolved. This risk is apparently elevated when waste management operations are undertaken in the vicinity of apiary activities. Various options are available to mitigate the food security risk (and AFB risk). There appear to be two main ideas. The first broad option involves processing at-risk waste in Orange, prior to transporting the consolidated residual waste to landfill. If



conducted at Orange, the pre-treatment procedure would substantially reduce transport costs as a result of greatly reducing the bulk of waste.

The second broad option is to locate and acquire a suitable alternative landfill site at a location beyond 3km from active bee hive sites. Given the dense distribution of bee keeping in the region, this is a challenging proposition, especially as bee keeping practice is to frequently move hives to new locations.

- e. The outcome of a ground-up assessment of alternative waste facility sites conducted as part of this review was a short-list comprising the Hub site and three other potential sites, plus a further site ranked just behind these. The Hub site is deservedly included in this short-list on its merits, confirming the suitability and value of the Hub site for waste processing and disposal.

Only a small number of sites other than the Hub ranked as potentially viable alternatives. Each had site conditions and features that would need to be tested and each site had uncertainties, including acquisition prospects, which would need resolution.

The relative merits of no one site are considered superior to others, including the Hub site.

- f. The option of developing an AWT at Orange and consolidating all waste management and resource recovery operations around the current Orange site presents available space and land use conflicts which appear to defy resolution. Council has earmarked the only nearby vacant land for stormwater harvesting and, in any case, AWT siting in an increasingly urban context would give rise to noise and odour impacts
- g. The project appears to meet the criteria for declaration by the Minister for Planning as a major project. Consistent with Council's proposed action, it is considered that Council could make a case for the project to be assessed under Part 3A of the *Environmental Planning and Assessment Act 1979*.
- h. Four factors lead to a conclusion that the Hub site probably offers best long term advantage to Council: the uncertainties associated with the three alternative sites; the fact that no site can be regarded as superior to the Hub site; the proven capabilities of the Hub site; and the fact that this site is already owned by Council, obviating considerable further development delay and risk that a new site may be affected by some emerging negative impact. The choice boils down to one of policy more than economics and site characteristics.
- i. On the basis of the continuing amount of waste to be disposed of, despite proposed advanced resource recovery initiatives, access to additional landfill capacity will be a requirement within the next 6 to 10 years. This is a barely adequate timeframe in terms of landfill planning, approvals and development. Council is well advanced in its project development and there would be considerable risk associated with postponing further action and relying on the



Orange landfill site for a further period prior to securing access to new landfill capacity.

And further capacity will almost inevitably be required: the idea of attaining zero waste to landfill in a moderately sized regional centre carries many challenges and costs that exceed those present at capital city or State level. These relate principally to the poor economies of scale available to offset relatively high capital investment in sophisticated infrastructure, and availability of markets for the relatively small quantities of the various types of recovered materials yielded from waste processing. These commercial realities must be taken into account in providing responsible advice on waste management options. The difficulties associated with approaching zero waste are far from met by any substantial Australian community.

9. Recommendations

- a. Council should further develop its core waste management and resource recovery strategy to the point at which it is sufficiently defined to facilitate transparent assessment through the public major projects assessment system. Depending on the feasible level of development of the strategy within Council's preferred timing, Council could either submit a detailed major project for assessment, or could request assessment of the project on the basis that it is lodged as a concept plan. An overview concept plan could possibly include several nominated sub-projects – perhaps the AWT and the landfill – which could be sufficiently defined to be considered for approval.
- b. In the light of the L&E Court judgement and this review, it is recommended that Council should consider the following integrated strategy as the core of the future waste management and resource recovery plan:
 - Process in Orange kerbside collected municipal recyclables, and C&I/C&D dry waste that provides opportunity for resource recovery (paper, plastics, metals, VENM. Pre-treat in Orange all mixed residual waste which presents as putrescible (from the municipal and C&I sectors); recover metals and any other materials of value; and transport the (consolidated) residuals to the Hub site for disposal. Transport all source separated food waste/garden waste to the Hub site for AWT enclosed composting. Consider the scope to offer food waste/garden waste processing services to other regional Councils in order to ramp up the scale of the proposed AWT facility.
- c. For the Environmental Assessment accompanying the DA, which requires consideration of options other than the subject proposal, the following plausible alternatives should be assessed:
 - Retain the former broad plan of transporting all waste to the Hub site for processing and disposal.



- Pre-treat in Orange all mixed residual waste which presents as putrescible (from the municipal and C&I sectors). Transport the (consolidated) residuals to another suitable landfill site (perhaps Dubbo or Woodlawn) for disposal. Dispense with the proposal to source separate and AWT process food waste/garden waste. Sell the Hub site.
- Acquire and develop one of the potential sites (subject to detailed investigation and acquisition feasibility) and transport all source separated food waste/garden waste to this site for AWT waste processing and transport all mixed residual waste to this site for disposal. Sell the Hub site.



ATTACHMENT A. WASTE DIVERSION CALCULATIONS

Municipal Sector (all data in tonnes)

Waste generated	=	28,135
Waste recovered	=	9,095 (includes (say) 2,000 garden waste self hauled) (not inc processing)

Available Residual	=	19,040
Waste		
Say 50% is food, garden and a small amount of compostable paper.		
Therefore feedstock	=	9,520
Reject (2%)	=	190

Amount diverted	=	9,330
Moisture (20%)	=	1,866

Compost product	=	7,464
Landfill	=	9,710

Note. In practice, a new food waste/garden waste weekly collection service may result in increased garden waste generation. This could be offset by increased home composting.

C&I Sector (all data in tonnes)

Waste generated	=	16,390
Waste recovered	=	4,939 (includes 410 tonnes of garden waste processed) (not inc processing)

Available Residual	=	11,451
Waste		
Say 25% is food waste potentially recovered through source separation.		
Therefore feedstock	=	2,863
Reject (2%)	=	57

Amount diverted	=	2,806
Moisture (20%)	=	561

Compost product	=	2,245
Landfill	=	8,645



**ATTACHMENT B.
GLOSSARY OF TERMS AND ACRONYMS USED IN REPORT**

AFB	American Foul Brood Infection
AWT	Alternative Waste Technology
C&I	Commercial and Industrial Sector
Consent Authority	The NSW Minister for Planning
C&D	Construction and Demolition Sector
DA	Development Application
DPI	Department of Primary Industries
EA	Environmental Assessment
Enclosed Composting	A procedure in which organic material is processed to provide product suitable as a soil ameliorant
EP&A Act	Environmental Planning and Assessment Act 1979
L&E Court	Land and Environment Court
MBT	Mechanical and Biological Treatment
MRF	Material Recovery Facility for processing dry recyclable materials
Part 3A	An amended section of the EP&A Act, covering designated major projects
Pre-Treatment	The initial processing of waste using mechanical means to separate mixed waste into various fractions and consolidate each fraction
VENM	Virgin Excavated Natural Material