



Asset Management | Spatial Intelligence | Waste Management

# STRATEGIC WASTE MANAGEMENT PLAN - REVISION 2012

Batavia Regional Organisation of Councils

*November 2012*

*TW12004*

## DOCUMENT CONTROL

Version	File Ref	Author	Reviewer
Draft Released to BROCC	TW12004_BROCC SWMP.1a	Alex Upitis	Ronan Cullen
Document submitted to DEC	TW12004_BROCC SWMP.2a	Alex Upitis	Ronan Cullen

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## Executive Summary

In 2008 the then City of Geraldton Greenough and the Shires of Chapman Valley, Irwin and Northampton worked collaboratively as the Batavia Regional Organisation of Councils (BROC) to prepare a Strategic Waste Management Plan (SWMP). The SWMP was developed to satisfy the BROC's and its member councils' participation requirements of the Zero Waste Management Plan Development Scheme established by the then Waste Management Board.

In 2009 the Waste Authority approved the establishment of the Regional Funding Program to assist local and regional councils in the implementation of their SWMPs. To participate in the Pilot Phase of the Regional Funding Program in 2009, the BROC prepared a Regional Investment Plan (RIP) and obtained financial assistance for the implementation of a number of the key recommendations included within the BROC SWMP.

Following on from the success of the Pilot Phase, the Waste Authority has committed to continuing to provide financial assistance through the Regional Funding Program for Local Government Authorities 2011 – 2016. The program consists of two funding streams being the:

- Fixed Funding Stream with set funding available from July 2011 until December 2013; and
- Competitive Bid Funding Stream with selective funding available from December 2013 until March 2016.

The BROC commissioned Talis Consultants Pty Ltd (Talis) to provide consultancy support for its participation requirements for the Regional Funding Program Fixed Funding Stream. As part of these works, Talis has prepared this report, the BROC SWMP Revision 2012.

The SWMP Revision 2012 contains:

- The current waste management situation including;
  - Visions, objectives and priorities;
  - Key projects;
  - The Shire of Mullewa and the Mid-West Regional Council SWMP;
- Implications of the State Waste Strategy;
- The update on the BROC and its waste management policies and practices; and
- The current Regional Waste Management Priorities and Projects.

There is a desire in the Region between both the BROC and the MWRC for regional collaboration in resource recovery and waste management activities. Meru has been and remains the waste disposal hub for the Region. Previous strategic planning has identified it as the Regional Resource Recovery Centre. The CoGG investigated the MRF project which would of become the first step in the transformation of Meru from a Regional landfill to a Regional Resource Recovery Facility. For financial reasons, the CoGG didn't proceed with the MRF. The Community Reuse and Recovery Centre (CRRC) is an integrated Regional facility that includes:

- Education and Administration Centre;
- Reuse Shop;
- Recycling Drop-Off;
- Multi-Tiered Drop-Off Facility; and
- Materials Processing Area.

The CoGG are currently pursuing the CRRC which will provide regional recycling services. The CRRC is supported by the BROCC and will be a collaborative effort amongst the group to assist the CoGG achieve landfill diversion targets outlined in the State Waste Strategy.

A workshop was held to revise and update waste management priorities for the SWMP Revision 2012. Representatives from each of the LGAs of the BROCC, gave an update of their current activities and current waste management priorities. Arising from the workshop, the following key priorities were identified for the Region:

- Advancement of Regional Waste Management Collaboration;
- Advancement of Regional Resource Recovery Solutions;
- Advancement of Meru to offer Regional Resource Recovery Solutions;
- Continuous Improvement of the Waste Management Infrastructure across the Region;  
and
- Regional Waste Education Program.

A variety of projects were identified to address the key priorities. The BROCC believe that the projects that were identified will significantly improve waste management practices across the Region and allow for the commencement of sustainable regional resource recovery.

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## 1 Background

In 2008 the then City of Geraldton Greenough and the Shires of Chapman Valley, Irwin and Northampton worked collaboratively as the Batavia Regional Organisation of Councils (BROC) to prepare a Strategic Waste Management Plan (SWMP). The SWMP was developed to satisfy the BROC's and its member councils' participation requirements of the Zero Waste Management Plan Development Scheme established by the then Waste Management Board. The SWMP contained the waste management processes and issues at that time and included a number of recommendations to adopt more sustainable waste management policies and practices across the Region.

In 2009 the Waste Authority approved the establishment of the Regional Funding Program to assist local and regional councils in the implementation of their SWMPs. To participate in the Pilot Phase of the Regional Funding Program in 2009, the BROC prepared a Regional Investment Plan (RIP) and obtained financial assistance for the implementation of a number of the key recommendations included within the BROC SWMP.

Following on from the success of the Pilot Phase, the Waste Authority has committed to continuing to provide financial assistance through the Regional Funding Program for Local Government Authorities 2011 – 2016. The program consists of two funding streams being the:

- Fixed Funding Stream with set funding available from July 2011 until December 2013; and
- Competitive Bid Funding Stream with selective funding available from December 2013 until March 2016.

To participate in the Fixed Funding Stream, the BROC recognises the requirements to revise their SWMP to:

- Reflect any significant changes in the formation of the BROC and the waste management policies and practices across the Region;
- Identify new waste management priorities within the Region; and
- Identify new projects that the BROC propose to implement to further advance the adoption of sustainable waste management policies and practices across the Region.

In addition, the BROC is required to prepare a RIP outlining the specific projects it wishes to utilise the allocated funding of the Fixed Funding Stream for.

The BROC commissioned Talis Consultants Pty Ltd (Talis) to provide consultancy support for its participation requirements for the Regional Funding Program (RFP) Fixed Funding Stream. As part of these works, Talis has prepared this report, the BROC SWMP Revision 2012. Following on from the adoption of the SWMP Revision 2012, Talis will prepare the RIP for the BROC.

### 1.1 Regional Grouping and Members

The SWMP Revision 2012 has been prepared by the Batavia Regional Organisation of Councils (BROC) which work collaboratively for the purpose of waste management. The following local governments are members of the BROC:

- City of Greater Geraldton (CoGG);
- Shire of Chapman Valley;
- Shire of Irwin; and
- Shire of Northampton.



Since the original SWMP, the then City of Geraldton-Greenough amalgamated with the Shire of Mullewa in July 2011, forming the City of Greater Geraldton (CoGG).

## 1.2 Scope of the Report

The SWMP Revision 2012 contains:

- The current waste management situation including;
  - Visions, objectives and priorities;
  - Key projects;
  - The Shire of Mullewa and the Mid-West Regional Council SWMP;
- Implications of the State Waste Strategy;
- An update on the BROC and its waste management policies and practices; and
- The current Regional Waste Management Priorities and Projects.

Talis believes that the information presented in this report satisfies the BROC's requirements to revise their SWMP as part of the Regional Funding Program.

## 2 Current Waste Management Situation

This section provides an outline of the waste management policies and practices devised during the formation of the original SWMP over the past 4 years. This provides sufficient background to devise a new direction for waste management across the Region.

### 2.1 BROOC SWMP 2008

The original BROOC SWMP (2008) was developed as a collaborative effort across the group to satisfy its Phase II requirements of the Zero Waste Plan Development Scheme (ZWPDS). The original SWMP contained a number of recommendations to align waste management policies and practices across the Region with the government vision of 'Towards Zero Waste'.

The key goals adopted for the original SWMP as guided by the Department of Environment and Conservation (DEC) consisted of:

- Development of a SWMP that outlines the steps to be taken to minimise the direct and indirect environmental impacts of waste and its management over the next five years;
- Management of waste in a sustainable manner; and
- Increased awareness of the impact of waste issues on the environment by the whole community.

Arising from the adopted vision and goals, key objectives were established for the original SWMP providing a framework for the development of continual improvement recommendations. These included:

- To confirm current waste infrastructure and levels of service;
- To identify, through the development of a SWMP priority actions, associated costs and timelines to incrementally improve waste management within the local government area(s) covered by the plan;
- To form partnerships with other local governments, business and industry to achieve economies of scale where feasible;
- To increase community awareness, appreciation and responsiveness to waste related issues;
- To assign actions, costs and timelines; and
- To define a performance monitoring and review schedule.

The methodology used for the development of the original SWMP involved a number of strategies and opportunities for continuous improvement which facilitated the investigation into the waste management practices across the Region. This was achieved by a number of workshops to discuss regional priorities and recommendations. Workshops were used as information sharing sessions and to voice opinions on the direction of the waste management services in the Region.

The community consultation process was a vital part of the development of the original SWMP, providing the community with opportunities to have their say. The original SWMP was released for public comment and Community consultation workshops were held in the major population centres of the BROOC including Dongara (Shire of Irwin), Geraldton (City of Greater Geraldton) and Kalbarri (Shire of Northampton). The residents of the Shire of Chapman Valley were invited to attend the Geraldton seminar.

### 2.1.1 Key Issues

Arising from the development of the SWMP a variety of issues were identified across the Region. An Action Plan was developed containing a variety of actions to remedy the issues that were discovered. The following section summarises the priorities and key projects recommended in the original SWMP.

#### Data Gaps

Data gaps were identified in relation to the overall management of waste across the Region. The current infrastructure and a lack of monitoring has allowed waste types and volumes to go unrecorded. The most significant project, suggested to address this issue, was the implementation of a detailed electronic register of incoming waste materials across the Region.

#### Direct and Indirect Environmental Impacts

Waste generation has a number of direct and indirect environmental impacts. Direct environmental impacts can include:

- Surface and groundwater contamination;
- Amenity issues and emissions;
- Impacts on flora and fauna; and
- Net greenhouse gas emissions from the production of methane instead of CO<sub>2</sub>.

Potential indirect environmental impacts include:

- Resource depletion in the immediate area (basic raw materials and organics) and outside the BROC (iron ore [metals], petroleum [plastics], mineral sands [glass] etc);
- Associated environmental impacts from resources extraction industries;
- Modification of fauna behaviour in the area towards feeding on rubbish or vermin;
- The generation of artificial fertilisers to substitute loss of organics / nutrients from land; and
- Net increase in greenhouse gas emissions via generation of additional resources and transportation to market.

The substantial direct and indirect environmental impacts caused by the waste management services across the Region were mainly addressed by the following key actions:

- Continue the segregation and processing (where possible) of greenwaste with weed minimisation principles and increase monitoring of greenwaste disposal (where possible) to minimise contaminated loads. Where shredding is not viable, controlled burning of greenwaste material is undertaken in accordance with relevant legislative requirements;
- Discussions with DEC regarding Licence conditions and maintaining compliance; and
- Conversion of small landfills in the Region to transfer stations.

### **Improving Existing Service Efficiencies**

Improving waste service efficiencies through regional collaboration has the potential to create significant cost savings to LGAs. Regionalisation also facilitates the opportunity to provide services to residents that may have not been possible at a local level, thereby resulting in social and environmental benefits. The key actions that came from Improving Existing Service Efficiencies were:

- Continue investigation of the viability of kerbside recyclable systems in the City of Geraldton-Greenough. Investigate viability of kerbside or drop-off co-mingled centres in surrounding LGA's;
- Continue investigating the construction of a Material Recovery Facility (MRF) at the Meru Waste Disposal Facility (Meru);
- Investigate public drop off centres across the Region once the MRF is operational;
- Investigate a Memorandum of Understanding (MoU) between LGA's with the aim of improved waste management efficiencies across the Region;
- Investigate regional contracts for the provision of waste services including:
  - Kerbside waste collection;
  - Greenwaste shredding / composting; and
  - Recycling.

Arising from the original SWMP, the MRF project was to provide regional recycling solutions from Meru.

### **Community / Commercial Awareness**

Increasing the awareness of the community about waste will increase the likelihood that members of the community will participate and embrace recycling strategies that are implemented in the Region. This was particularly relevant with the proposed establishment of a MRF and kerbside / drop off recyclable collection services across the Region. The success of recycling programs is heavily dependant on the participation of householders. The lack of community and commercial awareness surrounding the importance of sustainable waste management were addressed by:

- Developing a regional waste education plan; and
- Establishing environmental / waste community groups in each LGA.

### **Monitoring and Reporting**

Monitoring and Reporting is a vital tool to maintain accountability of operations in the BROCC and will allow the determination of whether improvements are being made. Keeping records also allows knowledge to be stored for reference by various agencies where the need arises. Key to the improvement of monitoring and reporting is the implementation of the following:

- Review of SWMP every two years;
- Develop monitoring and reporting scheme; and
- Annual Environmental Achievement Reports on current performance.

## **2.2 BROCC Regional Investment Plan (RIP)**

The Pilot Phase for the Regional Funding Program was utilised by the BROCC to seek funding to assist in the implementation of waste related initiatives derived from the original SWMP.

As part of the development of the RIP, project officers from each of the LGAs of the BROCC held a conference in late 2008 to discuss the projects outlined in the SWMP that the BROCC should prioritise and seek funding for. A number of original SWMP projects were discussed, with the BROCC resolving to seek funding for:

- The development of two transfer stations in the Shire of Chapman Valley; and
- Improvements to greenwaste processing infrastructure at the Dongara Transfer Station in the Shire of Irwin.

The BROC considered the conversion of two landfills within the Shire of Chapman Valley, into transfer stations, as a significant step towards a more regional waste management solution

The Council for the Shire of Northampton altered their views on putrescible landfill practices at Kalbarri Landfill following the completion of the original SWMP. The Council resolved to cease putrescible landfill operations at the site for environmental reasons. As an alternative the Shire installed a compactor unit at their Kalbarri depot for efficient transportation of refuse to Meru for safe disposal. Although this project was not included in the original SWMP, it was aligned with a number of its objectives. Therefore the Shire obtained funding through the RIP for the compaction unit and installation and construction of the civil engineering works. This emphasises the resolve of the BROC in committing to waste management regionalisation and for Meru as the regional waste facility.

### 2.3 City of Geraldton-Greenough Kerbside Recycling Project

Arising from the original SWMP the City of Geraldton-Greenough continued the investigation into the development of a regional Material Recovery Facility (MRF) and subsequent domestic fortnightly kerbside comingled household recycling collections. Following the works the City of Geraldton-Greenough (now City of Greater Geraldton) released a Request for Tender (RFT) for the Kerbside Recycling Project. However, the City of Geraldton-Greenough councillors decided that all offers from the industry to undertake these services did not represent value for money. This decision had a significant effect on the Region by eliminating the key piece of recycling infrastructure that would support the key recycling projects proposed in the original SWMP including:

- Kerbside and vergeside recycling collections; and
- Bring bank sites in the regional areas.

The MRF would benefit not only the City of Geraldton-Greenough but also the BROC and potentially the Mid-West and Resource Sector. It would significantly bolster the recycling capability of the Region creating a more sustainable waste management service.

### 2.4 Strategic Waste Management Options Report

Following the termination of the MRF project in 2010, the City of Greater Geraldton (CoGG) undertook a strategic review of the waste management options potentially suitable for the City. The purpose was to deliver the waste management objectives set by both the Council and State, including zero waste to landfill. The report named Strategic Waste Management Options (the Strategic Options Report) focussed on the implementation of resource recovery into the future.

The Strategic Options Report used the Waste Hierarchy to categorise the future waste management initiatives. The Waste Hierarchy is set out so that the preferred order of waste management practices occurs from the most preferred most sustainable (top of the hierarchy) to the least preferred least sustainable (bottom of the hierarchy). Some of the key initiatives that were devised on the hierarchy as part of the Strategic Options Report included:

- Integrated waste education programme;
- Bring Bank network;
- Greenwaste composting;

- Drop off site at Meru;
- Organic waste treatment; and
- Thermal energy from waste.

During the development of the Report, the CoGG data and waste compositional analysis suggested that there were significant recovery opportunities presented in the waste stream. If recycling, recovery and Alternative Waste Treatment (AWT) processes were implemented in the CoGG the data shows that over 90% of both Municipal Solid Waste (MSW) and Commercial and Industrial (C&I) waste has the potential to be diverted from landfill.

'Clusters' were developed in which logical groupings of the initiatives were provided to integrate the solutions for achieving sustainable outcomes in relation to waste management. The three key clusters are contained within **Appendix A** and summarised below:

- Cluster 1: No Alternative Waste Treatment (AWT);
- Cluster 2: AWT – Biological Processing; and
- Cluster 3: AWT – Energy Recovery.

With the main downstream process remaining as Landfill, the key idea behind Cluster 1 is the source separation of as much of the clean materials from the various waste streams as possible. This cluster could potentially achieve a landfill diversion rate between 20% and 50% of the targeted waste streams.

The main downstream waste process of Cluster 2 is Biological AWT processing with the feedstock being organic waste. One approach to capturing the organic waste is by collecting clean source separated organic waste at the kerbside by introducing a second bin for each household. Alternatively organic waste could be separated from mixed waste using a pre-treatment process such as a trommel screen. A high performing version of this cluster could divert approximately 75% of the targeted waste streams from landfill.

For Cluster 3, the main downstream process is an AWT thermal 'Energy from Waste' system. This cluster is not reliant on clean streams (source separated materials) and can accept feedstock's from all the key mixed waste streams. A range of recycling and recovery initiatives will be required, however high yields are not vital in order to achieve landfill diversion rates of approximately 90%.

Continuing on from the original SWMP, the Strategic Options Report identified Meru as a central asset for the Region's current and future resource recovery and waste management services.

The concept of regionalisation is well recognised within the Region to deliver successful waste management services. It was apparent in the Strategic Options Report during early planning, that many waste infrastructure projects that attain larger volumes of waste can create better efficiencies and economies of scale. Hence the volumes of waste tend to determine the viability of a waste infrastructure project. Regionalisation is then seen as the key determining factor for the viability of the overall resource recovery services for the BROOC. As part of the Strategic Options Report, the CoGG examined accepting waste materials from the BROOC and other local and Regional Government Authorities, thereby providing regional resource recovery options. In addition, the CoGG also examined opportunities of accepting waste from the surrounding resources sector. Greater waste volumes from the resource sector is key to making thermal treatment AWT (Cluster 3) viable. **Appendix B** shows the detailed strategic options, the initiatives and which Region they benefit.

The key recommendations arising from the Strategic Options Report include:

- The CoGG should use this report as a basis for developing a Sustainable Waste Management Strategy;
- Prior to determining the overarching strategic direction the CoGG should explore, in detail, the opportunities for regionalisation;
- The CoGG should also include collecting improved waste management data. The assessment will allow the preferred strategic direction to be identified and adopted;
- Adopt a preferred strategic direction in relation to sustainable waste management;
- Finalise the CoGG strategic waste management plan; and
- Implement the waste management plan.

The CoGG are continuously working towards implementing the recommendations arising from the Strategic Options Report including expanding Meru from the 'Regional Landfill' to a Regional Resource Recovery Facility.

## 2.5 Community Resource Reuse Centre Study

A Community Reuse and Recovery Centre (CRRC) was a common initiative across all three clusters and provided Regional Resource Recovery opportunities. Therefore the CoGG commenced works on this project by undertaking a feasibility assessment of the CRRC to be located at Meru in 2012.

The key objectives of the study into the development of a CRRC were the:

- Technical and financial feasibility of implementing various components of an integrated CRRC at Meru; and
- Development of a design specification for a Best Practice CRRC.

The CRRC provides a variety of facilities that support initiatives within the higher stages of the Waste Hierarchy and will have a Regional impact including:

- **Education and Administration Centre**  
The provision of an Education Centre to support a Regional Waste Education Program.
- **Reuse Shop**  
The activities at a reuse shop should include acceptance, inspection and preparation of items for sale.
- **Recycling Drop-Off**  
Infrastructure to facilitate the receipt of recyclable, recoverable and Household Hazardous waste materials.
- **Multi-Tiered Drop-Off Facility**  
A multi-tiered drop-off facility allows for the unloading of larger, bulkier items including:
  - Inert waste;
  - Greenwaste;
  - Timber;
  - Bulk waste including mattresses and furniture; and
  - General putrescible waste.
- **Materials Processing Area**  
For the storage and processing of packaging materials collected at the recyclable drop off area and bring banks across the BROCC in preparation for presentation to market.

The CoGG is hoping to release a Request for Tender (RFT) for the construction of the CRRC within the coming months. The construction of a best practice CRRC will commence the transformation of Meru from being the Region's waste disposal facility to the Region's resource recovery facility. The CRRC is supported by the BROC and will be a collaborative effort amongst the group to assist the CoGG achieve landfill diversion targets outlined in the State Waste Strategy.

## 2.6 Mid-West Regional Council SWMP

The Mid-West Regional Council (MWRC) prepared a SWMP in 2008 as a collaborative effort by the Shires of Carnamah, Coorow, Mingenew, Morawa, Perenjori and Three Springs to improve waste management priorities and practices across the Region. Within the MWRC SWMP, the MWRC recognise that a regional approach is also a key initiative to improve waste management activities. The BROC also suggest that there may be possible synergies with the MWRC. Such synergies could create even greater economic, social and environmental benefits in regards to waste management.

Some of the key projects that the MWRC SWMP (2009) focused upon were:

- Waste Audits to provide baseline waste data;
- Rationalisation of Landfills and Collection Services to address infrastructure issues and implement regional waste collection services; and
- Investigating Best Practice Management of the SWMP to determine the best approach for regional coordination between LGAs to gain economies of scale for waste services.

The MWRC completed a RIP and allocated funding to undertake waste audits across the Region

Since the original SWMP, the members of the Mid West Regional Council has reduced to the Shires of Mingenew, Morawa, Perenjori and Three Springs.

## 2.7 Summary of Current Waste Management Situation

There is a desire in the Region between both the BROC and the MWRC for regional collaboration in resource recovery and waste management activities. Meru has been and remains the waste disposal hub for the Region. Previous strategic planning has identified it as the Regional Resource Recovery Centre. The CoGG investigated the MRF project which would of become the first step in the transformation of Meru from a Regional landfill to a Regional Resource Recovery Facility. For financial reasons, the CoGG didn't proceed with the MRF, however the CoGG are currently pursuing the CRRC which will provide regional recycling services.

### 3 State Waste Strategy

The recently adopted State Waste Strategy, developed pursuant to the Waste Avoidance and Resource Recovery Act 2007, aims to provide the required knowledge, infrastructure and incentives to change current behaviour to more sustainable waste management practices.

The five key objectives that the State Waste Strategy wishes to target are:

- 1 Initiate and maintain long-term planning for waste and recycling processing, and ensure access to suitably located land with buffers sufficient to cater for the State's waste management needs;
- 2 Enhanced regulatory services to ensure consistent performance is achieved at waste infrastructure construction and operation;
- 3 Develop and promote best practice guidance, measures and reporting frameworks;
- 4 Use existing economic instruments to assist the financial viability of actions that divert waste from landfill and recover it as a resource. Use economic instruments to divert waste from landfill; and
- 5 Communicate messages for behaviour change and promote its adoption, and acknowledge the success of individuals and organisations that act in accordance with the aims and principles in the Strategy and assist in its implementation.

The objectives are used to develop strategies relating to knowledge, infrastructure and incentives to support a coordinated approach to changing the behaviours of individuals, groups and organisations within the state.

The State Waste Strategy included waste diversion targets for key waste streams to drive change and measure performance. These are summarised in **Table 3-1**.

**Table 3-1: Landfill Diversion Targets**

Waste Stream	Regions	2009/10 Performance	2015	2020
MSW	Metro	36%	50%	65%
	Regional centres*	15%	30%	50%
C&D	State wide	29%	60%	75%
C&I	State wide	46%	55%	70%

\*Note: Regional centres include Avon, Greater Bunbury, Albany, Geraldton, Kalgoorlie, Karratha, Peel and Busselton.

The development of the SWMP Revision 2012 including the key priorities and projects, has been undertaken to align with the objectives and targets of the recently adopted State Waste Strategy. This is particularly relevant to the CoGG as it is classified as a major regional centre.

## 4 Revision of the SWMP

The following section outlines the works undertaken in preparation of the SWMP Revision 2012, and the key outcomes including priorities and projects for the Region.

### 4.1 Alteration to BROCC

Since the development of the original BROCC SWMP, the Shire of Mullewa has amalgamated with the then City of Geraldton-Greenough to form the City of Greater Geraldton (CoGG). From a waste management perspective the Shire of Mullewa's MSW has been landfilled at Meru for approximately 5 years, however the amalgamation has introduced a new waste management facility into the BROCC being the Mullewa Waste Transfer Station.

### 4.2 Workshop

To commence the preparation of the SWMP Revision 2012, a workshop was held where representatives from each of the LGAs of the BROCC gave an update of their current waste management practices and priorities. To address these priorities there was detailed discussion on projects including greater regionalisation across the BROCC.

### 4.3 Revision of the Priorities

Arising from the workshop, the following key priorities were identified for the Region:

- Advancement of Regional Waste Management Collaboration;
- Advancement of Regional Resource Recovery Solutions;
- Advancement of Meru to offer Regional Resource Recovery Solutions;
- Continuous Improvement of the Waste Management Infrastructure across the Region;
- and
- Regional Waste Education Program.

Each of the priorities identified are discussed further in the following sections.

#### 4.3.1 Advancement of Regional Waste Management Collaboration

The BROCC has been collaborating and implementing regional waste management initiatives with Meru being recognised as the regional waste disposal facility for the past 10 years. Arising from the original SWMP the CoGG tendered the construction of a MRF which would accept recyclables from across the BROCC. Unfortunately due to financial reasons, the project did not go ahead. The CoGG is currently investigating the CRRC project and the introduction of a bring bank network across the City. Once further progressed the BROCC will investigate participating in the program including Bring Bank Centres. These large scale projects are a clear indication that the BROCC appreciates that regional waste management collaboration is the solution to a number of current priorities.

To further solidify collaboration across the Region, the BROCC also recognise as a priority to further investigating the establishment of a formal regional group to implement and monitor Regional initiatives efficiently.

#### 4.3.2 Advancement of Regional Resource Recovery Solutions

Regional collaboration to date within the BROCC, has mainly been focussed upon the disposal of waste at Meru. Due to issues with providing resource recovery projects at a local level, the BROCC recognise that regional collaboration is required to make resource recovery achievable in the BROCC. Therefore, the CoGG and the BROCC previously pursued the development of a regional MRF which would commence the transformation of Meru from a regional landfill to a regional resource recovery facility. As part of these works the BROCC

proposes to investigate regional resource recovery options and associated contract delivery models.

The CRRC is currently being investigated as a regional solution to resource recovery. The CRRC will combine an education centre, reuse shop, material drop-off area and material processing facility. The advancement of this project will benefit the BROC as it will be capable of accepting material from across the Region. In addition the Education Centre can also benefit the Region. The CRRC will commence the transformation from the Regional landfill to the Regional Resource Recovery Facility.

Further investigation into the clusters developed in the Strategic Options Report, will achieve the recovery targets specified for the BROC within the State Waste Strategy.

#### **4.3.3 Advancement of Meru to Offer Regional Resource Recovery Solutions**

As previously stated, Meru is the regional waste disposal facility and is vital to waste management in the Region. All the BROC member Councils recognise this, and are unopposed to significant works to be completed at Meru to expand the site from a regional landfill to a regional resource recovery facility. Currently the CoGG is investigating the first project to transform Meru to a resource recovery facility, the CRRC project which will improve regional material processing capabilities.

A further investigation into the Clusters developed from the Strategic Options Report, will also determine the feasibility of additional resource recovery facilities at Meru.

#### **4.3.4 Continuous Improvement of the Waste Management Infrastructure Across The Region**

The improvement of waste infrastructure across the Region is required to support regional resource recovery solutions such as the clusters currently being investigated by the CoGG and the BROC. The BROC anticipate that improvement to infrastructure across the Region will:

- Improve regional waste management services;
- Allow for the collection of clean waste streams maximising resource recovery opportunities through improved policing at rural sites; and
- Provide the infrastructure required for material handling and processing at Meru.

For the LGAs to participate in material separation locally, large investment into the existing waste infrastructure must be undertaken, along with ongoing policing and security measures to ensure clean waste streams are generated at each site. This will maximise recovery rates locally and benefit the BROC regionally.

In addition, the BROC propose to investigate Regional similarities over sites such as layouts and signage so to convey a consistent message to the BROC community.

#### **4.3.5 Regional Waste Education Program**

A waste education program would focus on informing the community:

1. Of the benefits of adopting sustainable waste management practices in accordance with the waste hierarchy; and
2. How to participate in sustainable initiatives that are being implemented.



It is proposed that a Regional Education Program will be implemented by the CoGG and the BROCC to support the introduction of the CRRC and the Bring Bank Network. The program will then be expanded upon as other initiatives are introduced across the Region.

#### **4.4 Regional Projects**

Arising from the workshop, a variety of projects were identified to address the priorities. The following table (**Table 4-1**) summarises the priorities, projects and responsible authorities. The detailed table including cost estimates for the initiatives is provided as **Appendix C**.

**Table 4-1: Identified initiatives of the SWMP Revision 2012**

Priority	Project	Responsible Authority
<b>Advancement of Regional Waste Management Collaboration</b>	Examine establishing a formal Regional Council and/or Subsidiary Council for Waste Management purposes.	BROC
	The Establishment of a Officers Group that meets regularly (at least quarterly) to discuss waste management and resource recovery matters. These meetings will include site visits to all the key waste management facilities across the Region.	BROC
<b>Advancement of Regional Resource Recovery Solutions</b>	Examine Regional Solutions including Joint Tendering of waste management services including kerbside collections and problematic waste streams such as scrap metals, greenwaste, used tyres.	BROC
	The BROC to participate in the City's advancement of the Strategic Waste Management Options Report in relation to Regional Resource Recovery Solutions including Cluster 1 - No Alternative Waste Treatment, Cluster 2 - AWT Biological and Cluster 3 AWT Energy Recovery.	BROC
	Following the introduction of the Bring Bank Network across Geraldton investigate the opportunity to introduce a Bring Bank network across the BROC for the collection of recyclable materials.	BROC
	Further advance the Strategic Waste Management Options Report in relation to Regional Resource Recovery Solutions including Cluster 1 - No Alternative Waste Treatment, Cluster 2 - AWT Biological and Cluster 3 AWT Energy Recovery.	City of Greater Geraldton
	Introduce the Bring Bank Network across the City for the collection of recyclable materials that will be processed at the Community Reuse and Recycling Centre at Meru.	City of Greater Geraldton
<b>Advancement of Meru to offer Regional Resource Recovery Solutions</b>	Develop a Community Reuse and Recycling Centre at Meru.	City of Greater Geraldton

<b>Continuous Improvement of the Waste Management Infrastructure across the Region</b>	Implement Operational and Infrastructural recommendations arising from the Operational Improvement and Management Plan - Mullewa Waste Management Facility to be released in September 2012.	City of Greater Geraldton
	Prepare a Waste Management Infrastructure Strategy and Siting Selection Study.	Shire of Irwin
	Undertake Due Diligence Investigation of potential Waste Management Sites.	Shire of Irwin
	Develop new waste management infrastructure for the Shire of Irwin.	Shire of Irwin
	Decommission the current Dongara Waste Management facility.	Shire of Irwin
	Prepare Waste Management Facilities Improvement Plan covering both the Nabawa and Yuna Waste Transfer Stations which includes infrastructural and operational aspects.	Shire of Chapman Valley
	Implement Infrastructural Works at Nabawa Waste Transfer Station as identified within the Improvement Plan (potentially installation of Gatehouse to accommodate a Site Supervisor and refurbishment of the used oil collection facility).	Shire of Chapman Valley
	Implement Infrastructural Works at the Yuna Waste Transfer Station as identified within the Improvement Plan (potential installation of fencing surrounding the site and gatehouse to accommodate a Site Supervisor).	Shire of Chapman Valley
	Further implement the Waste Management Site Improvement Plan.	Shire of Chapman Valley
	Development of Reuse and Recycling Shed at Northampton Waste Transfer Station.	Shire of Northampton
Development of Reuse and Recycling Shed at Kalbarri Waste Management Site.	Shire of Northampton	
<b>Regional Waste Education Program</b>	Development of Regional Waste Awareness and Education Program to support the introduction of Regional Resource Recovery Initiatives.	BROC
	Development of a Waste Awareness and Education Program to support the introduction of the City's Resource Recovery initiatives starting with the Community Reuse and Recycling Centre and the Bring Bank Network.	City of Greater Geraldton

## Appendix A

# CoGG Strategic Waste Management Options Report (Clusters)

CLUSTER 1 – NO AWT

Source separation and recycling of clean materials with residue to landfill

Avoid, Reduce & Reuse	Recycle	Treat & Recover	Landfill
<ul style="list-style-type: none"> <li>-Integrated Waste Education Programme</li> <li>-Earthcares</li> <li>-Influencing Commercial Sector</li> <li>-Introduction of Tip Pass System</li> <li>-Separate Clean Waste Stream</li> <li>-Upgrade of Reuse Facility</li> </ul>	<ul style="list-style-type: none"> <li>-Material Specific Collections</li> <li>-Greenwaste Mulching</li> <li>-C&amp;I Waste Separation and Collections</li> <li>-Upgrade of Vergeside Collections</li> <li>-Bring Site Network</li> </ul>	<ul style="list-style-type: none"> <li>-Greenwaste Composting</li> <li>-Drop Off Ste at Meru</li> <li>-Drop Off Ste in Geraldton</li> <li>-Dirty MRF</li> <li>-Special Waste Processing</li> </ul>	<ul style="list-style-type: none"> <li>-Landfilling of waste</li> <li>-Methane Recovery</li> </ul>

DIVERSION RATES (%)	Cluster 1		Cluster 2		Cluster 3	
	Low	High	Low	High	Low	High
<b>Avoid, Reduce &amp; Reuse</b>	1	3	1	3	1	3
<b>Recycle</b>	17	46	13	28	5	11
<b>Recover &amp; Treat</b>	9	9	31	45	77	83
<b>Dispose</b>	74	42	56	24	17	3

**Key Characteristics**

- Landfill still the predominant waste processing option – potentially up to 75% of waste still going to landfill
- Aim to obtain clean, separated recycling streams maximising potential higher value uses
- Difficult to achieve the States 45% resource recovery target
- Clean stream achieved through a range of measures such as material specific collections, bring bank network and drop off facilities
- Efforts concentrated on the higher levels of the waste hierarchy – avoid, reduce, reuse, recycling.
- Mulching or composting of Greenwaste
- Waste generators play a significant role in determining the actual diversion rate achieved
- Waste education system critical to achieve a significant behavioural change from the community
- Potential for further recovery by putting refuse through Dirty MRF prior to landfilling.
- Relatively low cost - however low landfill diversion rate

**CLUSTER 2 – BIOLOGICAL AWT**

**Recovering the organic waste (either clean or mixed) with residue to landfill**

Avoid, Reduce & Reuse	Recycle	Treat & Recover	Landfill
<ul style="list-style-type: none"> <li>- Integrated Waste Education Programme</li> <li>-Earthcares</li> <li>-Influencing Commercial Sector</li> <li>-Introduction of Tip Pass System</li> <li>-Separate Clean Waste Stream</li> <li>-Upgrade of Reuse Facility</li> </ul>	<ul style="list-style-type: none"> <li>- Material Specific Collections</li> <li>-C&amp;I Waste Separation and Collections</li> <li>-Upgrade of Vergeside Collections</li> <li>-Bring Site Network</li> </ul>	<ul style="list-style-type: none"> <li>-Drop Off Site at Meru</li> <li>-Drop Off Site in Geraldton</li> <li>-Special Waste Processing</li> <li>-Organic Waste Treatment (1 or 2 Bin)</li> </ul>	<ul style="list-style-type: none"> <li>- Landfilling of waste</li> <li>-Energy Recovery with AD</li> </ul>

DIVERSION RATES (%)	Cluster 1		Cluster 2		Cluster 3	
	Low	High	Low	High	Low	High
<b>Avoid, Reduce &amp; Reuse</b>	1	3	1	3	1	3
<b>Recycle</b>	17	46	13	28	5	11
<b>Recover &amp; Treat</b>	9	9	31	45	77	83
<b>Dispose</b>	74	42	56	24	17	3

**Key Characteristics**

- Biological AWT is the predominant waste processing option – potentially up to 75% of waste being diverted from landfill.
- Moving towards a solution that can achieve the States 45% resource recovery target
- Targeting the organic fraction of the key waste streams
- Efforts concentrated on the higher levels of the waste hierarchy – avoid, reduce, reuse, recycling.
- Waste generators play a significant role in determining the actual diversion rate achieved if organic waste is collected source separated at the kerbside
- Potential to extract organic waste from refuse without the need for source separated collections.
- An acceptable level of clean stream recycling achieved through a range of measures such as material specific collections, bring bank network and drop off facilities.
- Producing renewable energy from organic waste – Potential to generate income from the sale of electricity

**CLUSTER 3 – AWT ENERGY**

### Maximising resource recovery through Energy Production

Avoid, Reduce & Reuse	Recycle	Treat & Recover	Landfill
<ul style="list-style-type: none"> <li>-Integrated Waste Education Programme</li> <li>-Earthcares (optional)</li> <li>-Influencing Commercial Sector</li> <li>-Introduction of Tip Pass System</li> <li>-Separate Clean Waste Stream-limited</li> <li>-Upgrade of Reuse Facility</li> </ul>	<ul style="list-style-type: none"> <li>- Material Specific Collections-limited to non combustibles</li> <li>-C&amp;I Waste Separation and Collections- combustible vs non-combustible</li> <li>-Upgrade of Vergeside Collections</li> <li>-Bring Site Network</li> </ul>	<ul style="list-style-type: none"> <li>-Drop Off Site at Meru</li> <li>-Drop Off Site in Geraldton</li> <li>-Special Waste Processing -Bio diesel only</li> <li>-Thermal AWT</li> </ul>	<ul style="list-style-type: none"> <li>-Landfilling of waste</li> <li>-Energy Recovery</li> </ul>

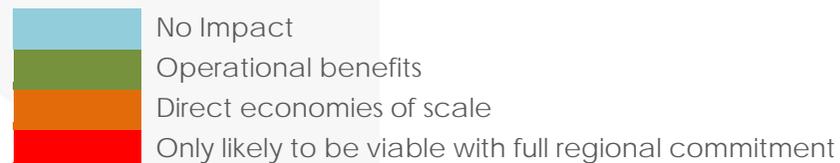
DIVERSION RATES (%)	Cluster 1		Cluster 2		Cluster 3	
	Low	High	Low	High	Low	High
<b>Avoid, Reduce &amp; Reuse</b>	1	3	1	3	1	3
<b>Recycle</b>	17	46	13	28	5	11
<b>Recover &amp; Treat</b>	9	9	31	45	77	83
<b>Dispose</b>	74	42	56	24	17	3

#### Key Characteristics

- Maximising resource recovery leading to minimal, volumes to landfill - potentially up to 96% of waste being diverted from landfill.
- Producing a significant amount of renewable energy from mixed waste – Potential to generate income from the sale of electricity
- Easy to achieve the States 45% resource recovery target
- The ability to run a complimentary bio -diesel recovery project.
- High cost solution – with high landfill diversion rate
- Focus on the isolation of inert and metallic items from the waste streams through source separation
- No requirement for 2-3 bin kerbside collection systems
- Requires relatively high volumes of waste to be viable
- Efforts can still be made at the higher levels of the waste hierarchy – avoid, reduce, reuse and recycle.

## Appendix B

# Strategic Options and Initiatives by Region



Hierarchy	Strategic Option	Initiative	BROC	Midwest	Carnarvon	Resources Sector
Avoid, Reduce, Reuse	Community Engagement	a. Regional Waste Education programme	Orange	Orange	Orange	Orange
		b. Earthcarers	Green	Green	Green	Green
		c. Influencing Commercial Practices	Green	Light Blue	Light Blue	Light Blue
		d. Introduction of Tip Pass System	Green	Light Blue	Light Blue	Light Blue
		e. Separated Clean Waste Streams	Orange	Green	Green	Green
	Resource Reuse Park	a. Upgrade of Reuse Facility	Light Blue	Light Blue	Light Blue	Light Blue
Recycle	Greenwaste Recycling	a. Greenwaste Mulching	Orange	Green	Green	Green
	Kerbside	a. Material Specific Collections	Orange	Green	Green	Green
		b. C&I Waste Collections	Orange	Green	Green	Green
	Vergeside Collections	a. Upgrade of Vergeside Collections	Light Blue	Light Blue	Light Blue	Light Blue
	Bring Sites	a. Bring Site Network	Light Blue	Light Blue	Light Blue	Light Blue
	Greenwaste Recovery	a. Greenwaste Composting	Orange	Green	Green	Green
	Drop off Sites	a. Drop off Site At Meru	Light Blue	Light Blue	Light Blue	Light Blue
		b. Alternative Drop off Site in Geraldton	Light Blue	Light Blue	Light Blue	Light Blue
	AWT	a. Organic Waste Treatment (Separate from residuals)	Orange	Green	Green	Green
		b. Organic Waste Treatment (source separated collections)	Orange	Green	Green	Green
		c. Dirty MRF	Orange	Green	Green	Green
		d. Thermal EfW	Orange	Orange	Orange	Red
e. Special Waste Processing		Orange	Orange	Orange	Red	
Dispose	Landfill	a. Methane recovery	Light Blue	Light Blue	Light Blue	Light Blue

## Appendix C

# Priorities, Actions and Cost Estimates for the BROC SWMP 2012

#	Priorities	Action / Project	Responsibility	Timeline	Estimated Budget	Potential Funding	RIP 2012 PROJECT
1.1	Advance Regional Waste Management Collaboration	Examine establishing a formal Regional Council and/or Subsidiary Council for Waste Management purposes	BROC	2012	\$50,000	BROC	
1.2	Advance Regional Waste Management Collaboration	The Establishment of a Officers Group that meets regularly (at least quarterly) to discuss waste management and resource recovery matters. These meetings will include site visits to all the key waste management facilities across the Region.	BROC	2012 - ongoing	Administrative	BROC	
1.3	Advancement of Regional Resource Recovery Solutions	Examine Regional Solutions including Joint Tendering of waste management services including kerbside collections and problematic waste streams such as scrap metals, greenwaste, used tyres	BROC	2012	Administrative	BROC	
1.4	Advancement of Regional Resource Recovery Solutions	The BROC to participate in the City's advancement of the Strategic Waste Management Options Report in relation to Regional Resource Recovery Solutions including Cluster 1 - No Alternative Waste Treatment, Cluster 2 - AWT Biological and Cluster 3 AWT Energy Recovery	BROC	2012	\$100,000	Regional Investment Program and the City	
1.5	Advancement of Regional Resource Recovery Solutions	Following the introduction of the Bring Bank Network across Geraldton investigate the opportunity to introduce a Bring Bank network across the BROC for the collection of recyclable materials	BROC	2014 - ongoing	\$400,000 initially	Regional Investment Program and the City	
1.6	Regional Waste Awareness and Education Program	Development of Regional Waste Awareness and Education Program to support the introduction of Regional Resource Recovery Initiatives.	BROC	2013 - Ongoing	\$50,000 average per annum	Regional Investment Program and the City	

#	Priorities	Action / Project	Responsibility	Timeline	Estimated Budget	Potential Funding	RIP 2012 PROJECT
2.1	Advancement of Meru to offer Regional Resource Recovery Solutions	Develop a Community Reuse and Recycling Centre at Meru	City of Greater Geraldton	2012-2013	\$2 Million	Regional Investment Program and the City	Yes
2.2	Advancement of Regional Resource Recovery Solutions	Staged development the Strategic Waste Management Options Report in relation to Regional Resource Recovery Solutions including Cluster 1 - No Alternative Waste Treatment, Cluster 2 - AWT Biological and Cluster 3 AWT Energy Recovery	City of Greater Geraldton	2013 - ongoing	\$100,000 initially	The City	
2.3	Advancement of Regional Resource Recovery Solutions	Introduce the Bring Bank Network across the City for the collection of recyclable materials that will be processed at the Community Reuse and Recycling Centre at Meru	City of Greater Geraldton	2014 - ongoing	\$400,000 initially	The City	
2.4	Regional Waste Awareness and Education Program	Development of a Waste Awareness and Education Program to support the introduction of the City's Resource Recovery initiatives starting with the Community Reuse and Recycling Centre and the Bring Bank Network.	City of Greater Geraldton	2013 - Ongoing	\$50,000 average per annum	Regional Investment Program and the City	
2.5	Continuous Improvement of the Waste Management Infrastructure across the Region	Implement Operational and Infrastructural recommendations arising from Mullewa Landfill Management Plan to be released in September 2012	City of Greater Geraldton	2012-ongoing	\$150,000 capital expenditure; \$50,000 ongoing operational purposes	Regional Investment Program and the City	

#	Priorities	Action / Project	Responsibility	Timeline	Estimated Budget	Potential Funding	RIP 2012 PROJECT
3.1	Continuous Improvement of the Waste Management Infrastructure across the Region	Prepare a Waste Management Infrastructure Strategy and Siting Selection Study	Shire of Irwin	2012	\$30,000	Regional Investment Program and the Shire	Yes
3.2	Continuous Improvement of the Waste Management Infrastructure across the Region	Undertake Due Diligence Investigation of potential Waste Management Sites	Shire of Irwin	2012-2013	\$10,000	Regional Investment Program and the Shire	Yes
3.3	Continuous Improvement of the Waste Management Infrastructure across the Region	Develop new waste management infrastructure for the Shire <b>of Irwin</b>	Shire <b>of Irwin</b>	2013 - ongoing	To be quantified at a later stage	Regional Investment Program and the Shire	
3.4	Continuous Improvement of the Waste Management Infrastructure across the Region	Decommission the current Dongara Waste Management facility	Shire of Irwin	Estimated to commence in 2014	To be quantified at a later stage	Regional Investment Program and the Shire	

#	Priorities	Action / Project	Responsibility	Timeline	Estimated Budget	Potential Funding	RIP 2012 PROJECT
4.1	Continuous Improvement of the Waste Management Infrastructure across the Region	Prepare Waste Management Facilities Improvement Plan covering both the Nabawa and Yuna Waste Transfer Stations which includes infrastructural and operational aspects.	Shire of Chapman Valley	2012	\$10,000	Regional Investment Program and Shire	Yes
4.2	Continuous Improvement of the Waste Management Infrastructure across the Region	Implement Infrastructural Works at Nabawa Waste Transfer Station as identified within the Improvement Plan (potentially installation of Gatehouse to accommodate a Site Supervisor and refurbishment of the used oil collection facility)	Shire of Chapman Valley	2012-13	\$15,000	Regional Investment Program and Shire	Yes
4.3	Continuous Improvement of the Waste Management Infrastructure across the Region	Implement Infrastructural Works at the Yuna Waste Transfer Station as identified within the Improvement Plan (potentially installation of fencing surrounding the site and gatehouse to accommodate a Site Supervisor)	Shire of Chapman Valley	2012-13	\$20,000	Regional Investment Program and Shire	Yes
4.4	Continuous Improvement of the Waste Management Infrastructure across the Region	Further implement the Waste Management Site Improvement Plan	Shire of Chapman Valley	2013 - ongoing	To be quantified within the Waste Management Facilities Improvement Plan	Regional Investment Program and Shire	

#	Priority	Action / Project	Responsibility	Timeline	Estimated Budget	Potential Funding	RIP 2012 PROJECT
5.1	Continuous Improvement of the Waste Management Infrastructure across the Region	Development of Reuse and Recycling Shed at Northampton Waste Transfer Station	Shire of Northampton	2012	\$25,000	Regional Investment Program and Shire	Yes
5.2	Continuous Improvement of the Waste Management Infrastructure across the Region	Development of Reuse and Recycling Shed at Kalbarri Waste Management Site	Shire of Northampton	2012	\$25,000	Regional Investment Program and Shire	Yes

