



Strategic Waste Management Plan

Shire of Moora 2011 - 25

DRAFT FOR COMMUNITY CONSULTATION PURPOSES

**IF YOU WISH TO MAKE COMMENT, THE SHIRE WOULD BE PLEASED TO
ACCEPT WRITTEN SUBMISSIONS UP TO 30 MARCH 2011. PLEASE
FORWARD ANY COMMENTS MARKED “STRATEGIC WASTE PLAN” TO
MANAGER HEALTH, BUILDING & PLANNING SERVICES**

Executive Summary

The Shire of Moora is committed to an environmentally sound, efficient and cost effective sustainable waste management system. Past practices of land filling all waste is no longer accepted by the community, State Government or the Federal Government. Recycling and resource recovery is being seen as positive alternatives. State legislation now reflects the ideology that creation of waste in the first instance be avoided or minimised and that waste is a resource that should be recovered. Future waste management in the Shire of Moora will be planned in the order of waste avoidance, minimisation, recycling, treatment and then as a last resort disposal.

The Shire of Moora has a focused positive direction in its waste management. Council is aware of the current issues concerning its waste management and this strategy is designed to articulate our waste management practices, encourage community involvement and acknowledge their expectations and ensure waste processing technology that are constantly changing are incorporated into our strategy.

The Shire of Moora Strategic Waste Plan has been developed in alignment with the State's vision of *Towards Zero Waste*. The purpose of this plan is to identify current waste management infrastructure and waste management practice, and provide strategies and actions to guide the community of the Shire of Moora to align or improve current waste management practices to be consistent with this vision.

The main Waste Management issues currently facing the Shire of Moora are:

- Working towards the Western Australian Zero Waste Strategy, the minimisation of waste disposal to limit the impact on the environment and enable sustainable waste development strategies for Moora to limit waste disposal tonnages and consider long term a transfer station to enable eventual closure of the Moora and Watheroo landfill.
- Establishing partnerships to work towards a new regional waste management facility within 100kms of Moora.
- Drainage plan for collection of storm water with silt trap and leach drainage which will become more important as the disposal site becomes above natural ground level, to prevent run off into water ways.
- A comprehensive data recording system is needed at the landfill site to confirm exactly what waste is being deposited together with a waste audit of the town domestic waste and recycling bins. Future waste management grant applications to the State Government may require more specific accurate data.
- Improved access point to ensure record of waste, security of exactly what is deposited on site a proper barrier, traffic flow system and gatehouse is required.
- Monitoring bores programmed to be maintained to identify any ground water infiltration and ensure that no adverse environmental damage is happening from the present land filling activities.
- An adequate budget for Community waste management education and awareness programs will be required to ensure that significant future waste minimisation can be achieved.
- Council recently approved the introduction of a kerbside recycling service in Moora and there is a need for ongoing monitoring and education to achieve the maximum diversion of recyclables and the least amount of contamination.

Vision

- Sustainable waste disposal for the Shire of Moora

Goals

- Minimisation of the direct and indirect environmental impacts of waste and its management.
- Waste managed in a sustainable manner.
- Increased community awareness of the impact of waste issues on the environment.

Purpose and Objectives are to:

- Protect human health and the environment.
- Confirm current waste generation, infrastructure and levels of service.
- Identify priority actions and associated costs and timelines to incrementally improve waste management within the Shire.
- Form partnerships with other local governments, business and industry to achieve economies of scale where feasible.
- Increase community awareness, appreciation and responsiveness to waste related issues.
- Identify actions, costs and timelines.
- Define a performance monitoring and review schedule.
- Be aware of future anticipated waste volumes and management requirements to reflect community requirements.
- Provide a base waste management plan to comply with the Waste Avoidance Resource and Recovery Act 2007.
- Inform of current and future government legislation, policies and strategies.
- Plan and investigate future waste processing as resource recovery.

Regional Profile

The Shire of Moora was part of the initial Centrals Midlands Voluntary Regional Organisation of Councils (CMVROC) which included the Shire's of Dalwallinu, Moora, Victoria Plains, Wongan-Ballidu and Chittering. A Memorandum of Understanding was signed (January 2007) by the Councils to formalise this arrangement, however the Shire of Chittering had withdrawn from this MOU with the exception of the "*Strategic Waste Management Plan*". This MOU has now lapsed.

Recently the CMVROC has been extended with the Shires of Chittering, Victoria Plains, Moora, Wongan-Ballidu, Dalwallinu, Goomaling, Toodyay and Northam committed to funding of the order of \$10,000 for establishing a regional waste management facility.

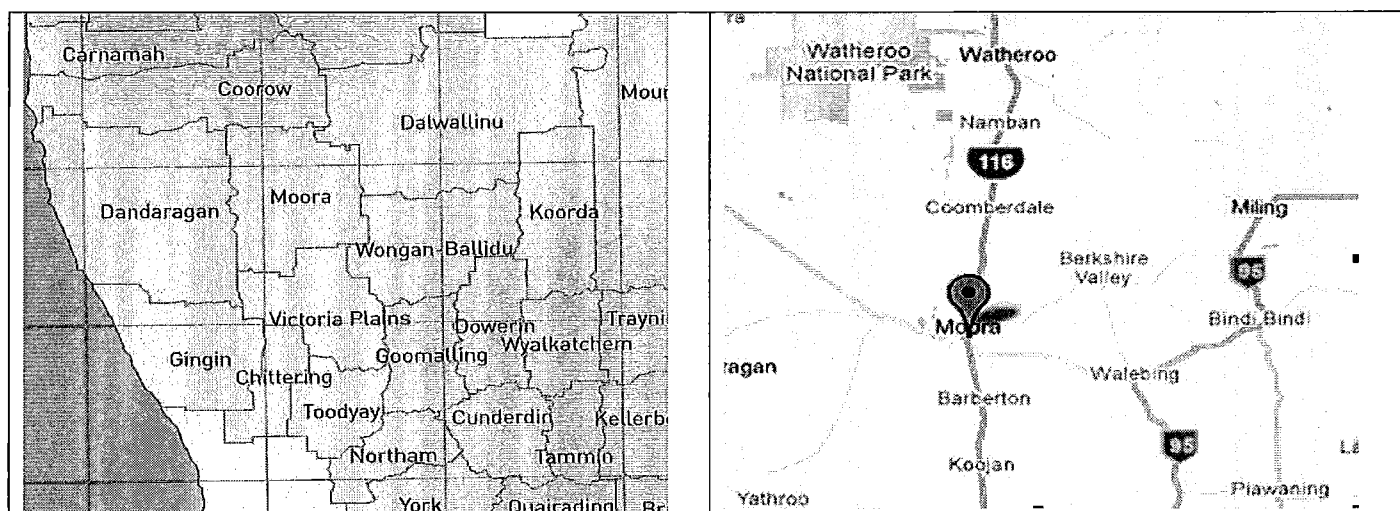
The Shire of Moora is boarded by the Shires of Dandaragan, Victoria Plains, Wongan-Ballidu, Dalwallinu and Coorow and is considered a regional service centre. It is geographically located centrally with major roads to its west and east.

The Cardo report of December 2008 identified that the CMVROC grouping produced 16,000 tonnes of municipal solid waste (MSW) in 2006/07 financial year. The Shire of Moora is the largest contributor with 7,700 tonnes. Based on population growth it was considered an additional 1,000 tonnes would be produced to 2013. They identified 12 landfill sites across the CMVROC but only three, Muchea, Dalwallinu and Wongan-Ballidu having capacity to accept waste to long term (greater than 25 years). The advice had been that the Moora Landfill has a life span of less than 5 years and is only licensed to 2015. However, it is now confirmed that the facility is likely to be re-licensed in 2015 and there is a life span past 2015.

The report identified two regional strategic directions, reducing the number of landfills to two or four and closing or converting the others to a transfer station. Should the number be reduced to

two sites, then the development of a centrally located landfill site would be required. This group is continuing to work towards a regional landfill site and has considered two locations, Bindi Bindi and Victoria Plains.

Based on the CMVROC, the strategic direction for the Shire of Moora had been to move to closing the landfill sites, establishing a transfer and recycling facility and moving to a regional facility in the near future (by 2015). However, due to Regional requirements and funding recent thinking has moved with regards the priority of a regional waste facility and is likely to retain the Moora landfill site for a longer term. The focus still remains on minimising the tonnage of waste being landfill and encouraging waste minimisation, recycling, reuse and alternative strategies and technology as available and economical.



Local Profile

The Shire of Moora is located 172 km north of Perth. The area of the Shire is some 3788 sq km and includes the localities of Moora, Watheroo, Miling, Bindi Bindi, Coomberdale, Koojan and Round Hill. There are 1100 dwellings, 1750 rate assessments and a Shire population of 2,800. The main town site and administrative centre is Moora, a regional centre. Moora's economy is based primarily on agriculture, viticulture, aquaculture, tourism and as a service centre.

Projected growth

According to the Australian Bureau of Statistics there is indicated a low growth rate for Moora. It had a -0.3% decline over the period 1999 – 2009. It is estimated that the town site population is 2575 (2009) and is not expected to increase greatly in the short to medium term, at best a 2.1% increase is likely. Moora is expected to develop as a "regional service centre" of the region.

General Description

All waste collected from domestic waste kerbside collections and commercial waste in the Shire of Moora, is transported to and processed at the main landfill site in Moora. Local dumping occurs with the Watheroo landfill site. Recycling waste collected in the Council 240 litre bins is transported directly to Perth.

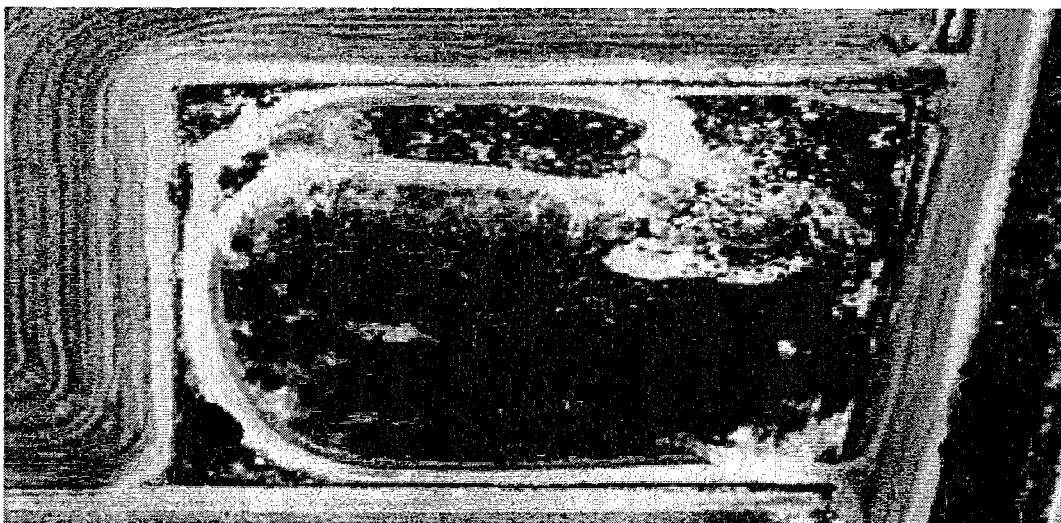
Waste Disposal Sites

- Moora Waste Management and Recycling Facility: Lot 3996 (Res 34278) Plan 181345 and Lot 1 Diagram 42691, License L7288/1988/10 File: GA/ENV2. This is the main landfill site and is situated northwest of the Moora townsite on Airstrip Road. The total area of land in

the Reserve is 67,831m². The site is a class 2 Category No 64 – Putrescible landfill Site. The site is rated at greater than 500 and less than 5,000 tonnes per year.



- Watheroo Refuse Site: License 7287/1998/10 Lot 12133 (Reserve 25582). This is an unmanned landfill and is situated on Railway Road, Watheroo. It is 26191 m². This site is a class 2 category No 64 - Class II or III putrescible landfill. The site is rated at greater than 500 and less than 5,000 tonnes per year.
- At the Watheroo Sports ground some farmers who have of domestic bins (green) and recycling bins (yellow) pick up days Friday - weekly / Thursdays - fortnightly)

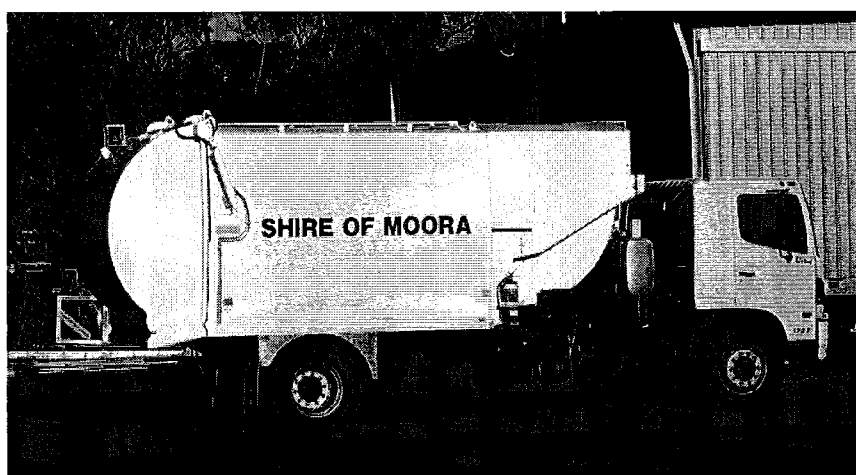


- Miling: Loc 931, Reserve 11786, Miling West Road has closed. A skip bin in a lockable enclosure is accessed by key and uplift.
- At the Miling Sports Ground some farmers who have of domestic bins (green) and recycling bins (yellow) pick up days Friday - weekly / Thursdays - fortnightly)
- Coomberdale: At the Town Hall some farmers who have of domestic bins (green) and recycling bins (yellow) are pick up on Friday – (green weekly) / Thursdays – (yellow fortnightly)
- Bindi Bindi: FSA/Community Hall site is used by some farmers who have of domestic bins (green) and recycling bins (yellow) pick up days Friday - weekly / Thursdays - fortnightly)
- Walebing: At the Roadhouse some farmers who have of domestic bins (green) and recycling bins (yellow) pick up days Friday - weekly / Thursdays - fortnightly)

- At this stage there is no domestic waste or recycling bins located for free reception of waste other than the normal town site road reserve bins and bins at the Moora Recreation Ground. Council may consider providing this service, but as there is a cost associated and a change from bins being charged this will need community support.

Waste Assets

240 bins (Green) 1290	Salvage Shop
240 Bins (Yellow) 1,400	Toilet facility
50 Shire Bins	Used oil collection unit.
Collection Compaction Truck (x1)	DrumMASTER Compound
Transfer shed.	Mesh gates and farm fencing.
Attendance kiosk	Staff resources, Waste Attendant, Environmental Health Officer, Truck driver, Pickup attendants



Description of operations

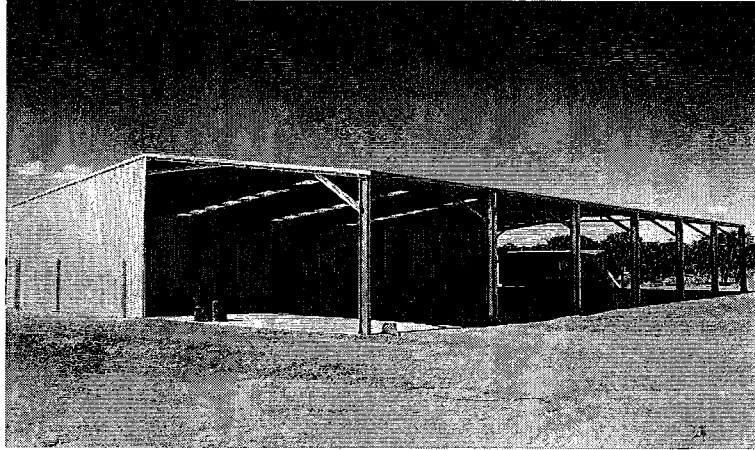
- This licensed Class 2 site accepts and processes mainly domestic waste collected by kerbside collection contractors, domestic and green waste deposited by residents and some construction/demolition, commercial and limited amounts of industrial waste. It does not accept tyres.
- The site is secure, is manned, has restricted hours and is privately managed by a contractor. The contract provides and is responsible for earth moving equipment but no requirement for compaction equipment is made. It does provide for salvage rights which enable the cost of the contract to be reduced as it is off set by salvage of particularly metal.

Shire Collection Service

- Domestic refuse occurs on Tuesday for Moora Townsite and Friday for out of town and an estimate of 805 tonnes year.
- Commercial waste is collected Monday, Wednesday and Friday and an estimate of 780 tonnes per year. Total 1585 Tonnes.
- Recycling refuse is collected in the Townsite on Thursday fortnightly and an estimated 200 tonnes of yellow bin pick up recyclables is transferred directly to Perth. Additionally, an estimated 24 tonnes per year of glass is transferred to Perth (Railway Transport) by the Shire at no charge to the Rotary Club, as it is a back load and 18 tonnes of cardboard/paper (Visy Recycling).

Moora's Waste Management and Recycling Facility

- The Waste Management and Recycling facility at the Moora Landfill site has been constructed as a future asset. It will form the footprint for any transfer station and/or recycling facility. At this stage it will have power developed to it over the next financial year and be considered for a commercial contractor for recycling purposes.



Tonnage

- It is estimated from the figure below that Moora Waste Disposal Site receives 7,700 tonnes of waste per year. (Cardo estimated figure 2006). This is high compared with surrounding Shires and would reflect 2,900 kgs per person, whereas a range of 1,000 to 1,500kg is more usual. The figures estimated from the Councils pick up is estimated at 2,632 tonnes.

Estimated lifespan

- The site has a license until 2015 when it is expected to reach its capacity. This estimation did not take into consideration the introduction of kerbside recycling which should extend the life span, which was introduced in 2010. It should be noted no formal report has been sighted to confirm this estimated life span, but the date of 2015 correlates to the renewal date for the current license.
- The Moora landfill is on two lots, Lot 1 and Lot 3996 AIRSTRIP ROAD. The size of these is 5.7217 Ha and 10614 m² respectively (Total 67,831m²). Making an assumption that approval to fill to natural ground level, then the site has approximately nil cubic meters for Lot 1 and 10,614 m³ capacity or using 7,700m³ year, total of 1.4 years remaining. Should permission be available to fill above natural ground on Lot 1 then the intervals of 1 metre would extend the life of the total site at current tonnage of waste (7,700) for an estimated 7 years.
- The Watheroo land fill is on lot 12133 RAILWAY ROAD and has a size of 2.6191 Ha. Currently the site and making an assumption that approval to fill to natural ground level, then the site has approximately 2,000m³ capacity remaining. Should permission be available to fill above natural ground then with intervals of 1 metre the capacity is 26,191m³ providing an estimated of 3 years (7,700m³ per year i.e. total Moora waste).

Comments

The Moora site requires some revamping of the entrance to be able to control, monitor and direct incoming traffic. Costs for this recommendation are presented in the budget section of this document. It also needs stormwater and leach drainage. Based on the calculations above the Moora landfill has more than 15 years and the Watheroo landfill has more than 5 years remaining.

Opening Hours

- The site is open on: Wednesday – Thursday – Friday – 2pm to 6pm
Saturday & Sunday - 9am – 6pm
- The site is closed on Good Friday, Christmas Day and day after and New Years Day and day after.

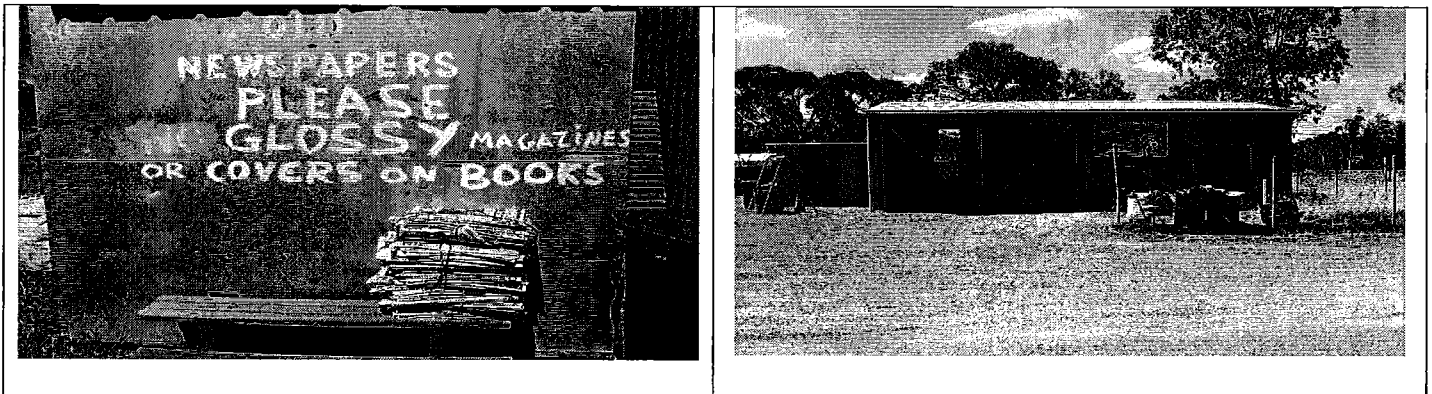
Data Gaps

- Current waste composition and exact tonnage
- Volume of E- Waste being landfilled

Recycling Facilities

The Moora landfill site also accepts free of charge – used motor oil and plastic oil containers, scrap metal and house hold green waste and triple rinsed farm chemical drums under the DrumMuster program.

- The site also accepts domestic and commercial recyclables that are baled or placed in Sulo bins serviced by the kerbside collection.
- The site has a “second shop” for salvaged or unwanted items dropped off by residents.
- There is no on site green waste processing – All collected green waste is currently burnt.
- There is a Community Recycling Facility in Riley Road that accepts paper and recycled by the Lions and glass recycled by the Rotary Club. Glass is transported free as a back load to Perth free.



Moora Waste Management and Recycling Facility Riley Road

There is also a number of clothing recycling bins around Moora operated by charities.



Resource Recovery – Shire of Moora

- Kerbside recycling service.
- There are 941 collections (including 20 bins at the landfill site).

- The cost per fortnightly pickup is within the \$300 domestic waste rate charged.

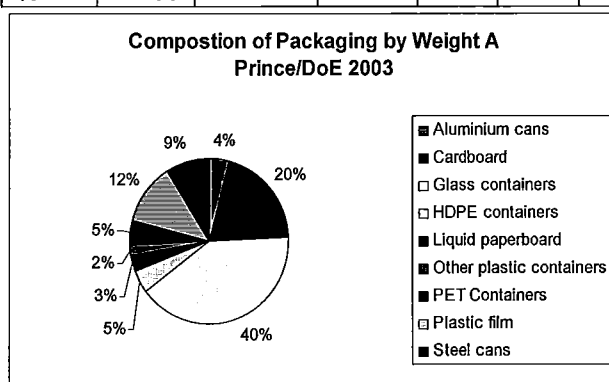
Verge side collections

- Council may consider a yearly hardstand kerbside collection for Moora, collecting white goods and general household waste. The Community would need to support the initiative and associated costs involved.

Recycling composition analysis (organics, ferrous plastics paper aluminum etc)

- There is no data for the composition of recycling bins and until a waste audit is conducted the figures from Manjimup bulk recycling bin are used as a guide.

	Glass	C/board	Paper	PET	Milk	Mixed Plastic	Alu cans	Steel cans	Waste	Total
Kgs	980	300	425	21.8	47.5	30.5	13.5	3.6	140	1962
%	50	15	22	1	2	2	1	0	7	100



Drop off sites at landfill t/s MRF op shops

- The Moora Waste Disposal Site has facilities for salvage storage and sales items either for salvaged or dropped off items.
- There are 20 x 240 Sulo bins to be placed on site at the landfill for the deposit of domestic recyclables. The bins are serviced by the council.

Commercial and industrial, (C&D) recycling reuse

- There is no commercial and C&D waste recycling at present other using clean waste for fill or forming containment areas.

Current markets

- All collected recyclables in yellow bins are sent directly to Perth and charged to the Shire.
- The glass recycling from Riley Road is taken to Perth as a backload by the Shire and the Rotary Club receives any money paid.
- The cardboard recycling at Riley Road is arranged by the Loins Club and they receive any money paid.

Cost of recycling by local government

- Currently the Shire of Moora has allocated approximately \$80,000 which will need to be reviewed for the 2011/12 budget.
- The price per kerbside recycling bin is within the domestic waste charge.

Landfill Sites

- The Moora Waste management and recycling Facility takes commercial and domestic waste and charges 12m³ (domestic) \$20m³ (commercial) \$125 car bodies to tip by Council, \$20 car body to tip and asbestos \$120 per tonne. For the 2009/10 year the tip raised \$29,461.
- The Watheroo Landfill is unmanned and no charges are made.

Domestic Waste Collection

- Weekly collection of 240 litre Sulo bins to households in Moora
- Council has introduced fortnightly Kerbside recycling in as of the July 2010.
- Currently there are 1283 x 240 litre waste Sulo bins and 921 Sulo recycle bins collected in the Shire of Moora.

Verge side collections

- A hardstand service is to be provided yearly. Items suitable for collection include white goods, furniture, scrap metal and general junk. The service will not collect green waste, tyres, chemicals or domestic putrescible waste.

Commercial and industrial waste services

- Council does not provide a collection service to industrial premises; but a Sulo bin service is available to commercial premises in town.
- The main landfill doesn't accept commercial cardboard and paper. However, this may in the future be baled on site and transported to Perth.

Events Recycling

- Sulo recycling bins will be encouraged to be used at public events as part of the kerbside recycling collection.

Recyclables Drop Off Centres

The main Moora landfill accepts the following recyclables:

- scrap metal, white goods, Steel cans
- Vehicle batteries
- Used motor oil.
- Paper and Cardboard
- Glass bottles and jars
- Aluminium cans and foil
- Plastic (including polyethylene terephthalate (PET) and polyvinyl chloride (PVC) and high density polyethylene (HDPE)
- Milk & juice cartons
- Fluorescent tubes and mobile phones

Major waste sources and generators

- All waste collected by kerbside collections in the Shire for burial is transported to the Moora Waste Management and Recycling Facility. All collected kerbside recyclables for processing are transported 172km to Perth.
- The major sources of waste processed at the Moora landfill are collected and dropped off kerbside domestic, domestic, green waste and commercial waste.

Tonnage per household/ per capita – waste and recyclables:

- It is estimated that 7,700 tonnes (2009, prior to recycling being removed to Perth) of waste is collected and deposited in landfill per annum. The estimates above of collected waste by the Shire are 1827 tonnes (709 kgs per person per year) which is below the rule of thumb 1300 kgs per person per year. (3,347 tonnes). It also indicates that the estimated tonnage of 7,700 tonnes may be high for Moora.

Number of bins collected per the present kerbside service

- Currently there are approximately 1283 x 240 litre Sulo bins for putrescible waste (green) and 921 Sulo bins for recycled waste (yellow) that are collected in the Shire of Moora.

Weighing of kerbside and commercial collection trucks

- There is no major commercial or industrial source of waste in the Shire of Moora.
- There needs to be a comprehensive waste audit of both kerbside domestic waste and recycling undertaken in the Shire of Moora to consolidate present and future waste management requirements.

Estimated percentage composition of waste (Household/C&D/C&I)

- Other similar rural towns (Bridgetown 1999) indicated of the kerbside waste 38.2% were deemed to be recyclable 37.6% compostable and 24.2 % non recyclable.

Green and Organic Waste

- A large proportion of the total waste volume received at the Moora site is estimated to be green waste. All collected green waste at the site is burnt. Council does not provide a kerbside green waste collection.
- Logs carted to the Moora site could be chipped on site and the product used on Council parks and gardens or sold or given to the public. There is a large amount of depot logs, from storm damage and tree removal, that could also be chipped. Large limbs and logs that are from Council activities should be chipped on site by Council staff.
- All collected green waste at the refuse site is currently burnt. Mulching of the green waste could be investigated if the community supported the additional costs involved. These result from the need to sort green waste, it mulching and treatment of the waste to avoid unwanted weeds being spread in the mulch.
- Organic waste makes up a large percentage of the contents of the average household bin. With the possible introduction of recycling a large part of the paper and cardboard and recyclables will be diverted. This would leave a putrescible component that would be ideal feedstock for further processing.
- An onsite composting or vermiculture system could be used to process that component. Participation in a regional initiative to source a suitable process should be investigated. It would have to be established prior to any infrastructure purchase that there is an end use for processed green waste.

Litter and Illegal Dumping

The Shire of Moora has 986 km of road and litter is a problem on main roads, especially during the school holiday periods. Illegal dumping in reserves and bush is an ongoing problem.

- Ongoing education must be considered to influence future generations.
- Funding should be applied for road and Council reserve anti litter signage.
- Council should participate in any regional anti littering initiatives.

- Council should continue to actively support the introduction of a container deposit scheme (CDS) for the return of beverage containers.
- Council provides free tipping to community litter clean up programs.
- Council coordinates and supports Tidy Town committees.

Electronic Waste

The amount of e waste deposited at the waste disposal sites is increasing. At the moment it is only a visual estimate, but all waste disposal site staff have commented on this increase.

- E waste also includes microwaves and TVs.
- Increasingly it is more difficult and expensive to repair older electronic appliances and cheaper to buy new ones; subsequently items requiring repair being increasingly more landfilled.
- Council is currently negotiating to transport collected E-waste to Perth for recycling from all its waste disposal sites.
- Council should continue to lobby the Government for increased Extended Producer Responsibility. Producers of goods such as e waste should be required to have a take back system for old discarded goods.

Tyres

- Tyres are an issue in landfill and are not accepted at either landfill sites. However, as the cost of their disposal is high, inclusion within general refuse or illegal dumping (particularly unmanned Watheroo) the Council is at risk of having to absorb tyre disposal costs. Current cost from WA Tyre recovery is \$5 up to \$85 for a large earth moving tyre.
- The permitted maximum storage number on site is 100 tyres.
- Tyres are difficult to bury and if buried near the surface require a minimum of rain or machine activity to bring them to the surface.
- Negotiations are needed to source a private tyre salvage company to remove tyres.
- Council should add tyres to the list of items to lobby for extended producer responsibility.

House Hold Hazardous Waste

- Currently there is no facility in the Shire to deposit and store HHW.

Farm Chemical Containers

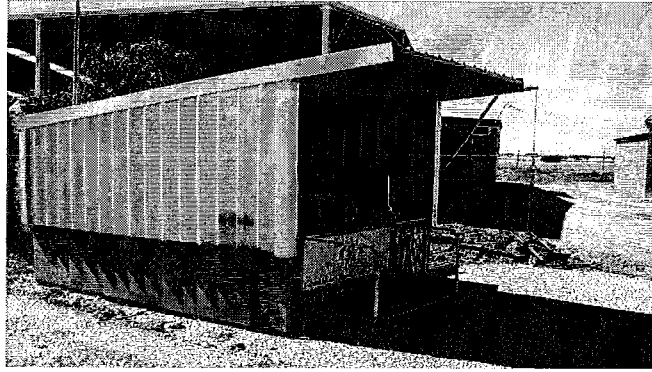
- The DrumMUSTER program has agreed to pay for collected chemical containers to be transported to Perth in the short term until a definite indication of the number of drums received at the landfill site is established.

Asbestos and Special Burials

- Asbestos is accepted at Moora's Refuse Site in accordance with DEC requirements. There is a dedicated signed area for asbestos burial.
- Depositors have to complete a disposal form.
- The site does not accept loose asbestos, except in bulk bags.
- No tipping of asbestos is allowed.

Used Motor Oil

- The landfill site has an oil recycling unit.



Used Printer Cartridge Recycling

- Council is looking at participating in the Planet Ark used printer cartridge recycling initiative.

Mobile Phone Recycling

- Mobile phones can be deposited at the Moora main landfill site.

Fluorescent tube recycling

- Council currently provides fluorescent tube/globe recycling at the main landfill site.

Electronic Waste Recycling

- Council is in the process of establishing an E-waste recycling program at the main landfill site.

House Hold Battery collection

- Council currently does not have a scheme in place.

Chemical Disposal

- Council is a participant in the drumMASTER chemical collection program.

Secondary waste treatments current

- There is no current secondary waste treatment being conducted.

Minimisation programs

- Council has articles in the local media promoting waste minimisation – more regular information is planned.
- Council is investigating the provision of worm farms and compost bins at cost (plus administration costs).
- Contracted staff conducts school waste education sessions.

Improving Existing service efficiencies

- More robust detailed waste composition and waste weights figures need to be made available. It is suggested that comprehensive waste bins audits be conducted. Accurate waste weight recording at the landfill.
- House hold hazardous waste collection scheme.
- Green waste processing recycling
- E- waste recycling
- Waste minimisation programs
- Littering, need to source funding for littering campaigns and minimisation programs
- Secondary waste processing

- Improved Community waste education
- Store suitable C&D waste at the landfill site for future processing and reuse
- Raising community awareness of waste management issues. Need for recycling information to be dissemination, green waste diversion public education, general waste management information such as this strategic plan and a worm farm and compost bin supply and education are avenues to investigate.
- Council created green waste (from Parks and Gardens, storm damage and construction) and consideration of purchasing a mulcher/chipper to be use by Parks and Gardens and Road crew and at the landfill site.
- E-waste recycling – Council redundant equipment and participate in proposed e-waste recycling initiative.
- Consider closing Watheroo to avoid the risk of illegal dumping and centralize waste disposal to the Moora Waste Management and Recycling Facility.

Budget

Currently the annual domestic refuse charge is covering the cost of the waste management for the Shire. There will need to be further considerations in completing the transfer/recycling facility at the Moora Waste Management and Recycling Facility and the assumptions confirmed:

- To reduce environmental impact and adopting sustainable waste disposal the reduction and possible closure of both landfills in Moora is a long term goal. The Moora landfill has capacity till 2025, but adopting contemporary waste strategies to minimise and ensure sustainable waste disposal this facility could be closed earlier. The Watheroo landfill has limited life, however the decision on closure is likely to be influenced by it being unmanned, risk assessment regards illegal dumping and centralizing activities based on cost benefit analysis. Alternative it will be a legislative requirement to close or modify operations which is unlikely within the next five years.
- Method of collection and transfer, i.e. 22 tonne compactor pick up truck on a regional basis, in house or external provider, regional road train transfer or use of compactor shipping containers.
- Development of a regional recycling facility at Moora or within 100kms.
- Without the requisite volumes recycling sorting and handling at Moora is not likely to be feasible due to cost benefit analysis.
- Recovery costs of metals, salvageable materials and green waste varies.
- Increase in waste avoidance strategies.

Reports, legislation and policies

1. Reports reviewed and relevant legislation
 - *CARDO Central Midlands Voluntary Regional Organsiation of Councils Report Strategic Waste Management Plan (draft) 2008*
 - *CARDO Transfer Stations Best Practice Desktop Assessment Dec 2009*
 - *Population Bulletin 2009 Estimated Residential Population WAPC*
 - *Estimated Residential Population 1999 – 2009 Australia Bureau of Statistics*
 - *Towards Zero waste – Recycling in Western Australia 2008/09*
 - *Wheatbelt Land Use Planning Strategy Update May & August 2010 WAPC*
 - *State Planning Strategy 1997 WAPC*
 - *Towards a Wheatbelt Regional Strategy August 2009 WAPC*
 - *Draft II Waste Strategy for Western Australia 19 April 2010*
 - *CMVVROC Central Midlands Voluntary Regional Organisation of Councils (Jan 07)*

- *Regional development Strategic Regional Plan 2010-13*
- 2. Relevant legislation
 - *Waste Avoidance Resource and Recovery Act 2007*
Part 6 of this Act allows for waste services to be provided by local governments and supercedes the waste services formerly in the Health Act 1911 (refer to Schedule 4, page 72 of the WARR Act for details)
 - *Waste Avoidance Resource and Recovery Levy Act 2007*
Sets the levy for waste received at Metropolitan landfills – there is discussion to include larger Rural Regional sites. Monies from the levies are used for waste initiatives determined by the Waste Authority.
 - *Health Act 1911;*
The Health Act is an act to consolidate and amend the Law relating to Public Health. This Act is largely superseded by the WARR Act.
 - *Health (Asbestos) Regulations 1992;*
The Health Regulations deal with the handling, storage and reporting of asbestos and asbestos containing materials.
 - *Environmental Protection Act 1986;*
Is an act for the prevention control and abatement of environmental pollution, for the conservation, preservation, protection, and enhancement, management of the environment and for matters incidental to or connected with the foregoing?
 - *Environmental Protection Act (Controlled Waste) Regulations 2001;*
This Act deals with the collection, storage, transport, handling and disposal of solid waste.
 - *Environmental Protection Act (Noise) Regulations 1997;*
These Regulations are the prescribed standard for noise under the Environmental Protection Act 1986 and deals with noise passing from one premise to another.
 - *Environmental Protection Act (Liquid Waste) Regulations 1996*
These Regulations deal with the collection, storage, transport, handling and disposal of liquid waste.
 - *Environmental Protection Amendment Regulations 1991 – re storage and disposal of tyres.*
Regulations to control disposal and storage of tyres.
 - *Contaminated Sites Act 2003*
This Act defines a 'contaminated site' as: "in relation to land, water or a site, having a substance present in or on that land, water or site at above background concentrations that presents, or has the potential to present, a risk of harm to human health, the environment or any environmental value. "Where past or present land use activities involve, or have involved, the storage, handling or disposal of chemicals, there is an increased risk of contamination. Council has closed a number of landfill sites and under the terms of this legislation may be liable for remediation should issues of any contamination arise.
- 3. Policies and guidelines:
 - Code of Practice Rural Landfill Management (2002): A guide to owners and operators of rural landfill sites on possible environmental impacts and recommended methods of management.
 - Guidelines for Acceptance of Solid Waste Landfill 2001.
 - Guideline "Disposal of Asbestos Waste for Landfill Operators.
This outlines several methods for the disposal of asbestos at landfills.
 - Landfill Waste Classification and Waste Definitions 1996 (as amended) these are the guidelines for the acceptance of different defined wastes into the correct class of landfill in W.A.
 - Code of Practice (Management of Clinical and Related Wastes).

This code details best practice in the safe, cost effective transportation, treatment and disposal of clinical and related waste.

- Guideline for “Groundwater Monitoring at Municipal Landfill Sites” by Department of Minerals and Energy. - Outlines various techniques for the design, construction and monitoring of groundwater bores.
- National Packaging Covenant.