7. ATTACHMENTS

ATTACHMENT 1

GENERAL BACKGROUND ON PALERANG COUNCIL

This attachment provides general background material and sets the context for those not familiar with the Palerang Council's physical and demographic situation.

A1.1 Physical
Palerang Council was proclaimed on 11 January 2004 as an amalgamation of the former Tallaganda Shire, the eastern portions of the former Yarrowlumla shire and some smaller areas that were once part of Mulwarree and Gunning Shires.

The Shire is located on the top of the Great Dividing range about 200 km south of Sydney. It includes the whole of the internal drainage area of Lake George. In the east it includes the upper reaches of the Shoalhaven River which flows in into the Tasman sea, and in the west, the upper reaches of the Molonglo and Queanbeyan Rivers which form part of the Murrumbidgee catchment.

The area includes a number of scattered villages, rural residential zones and traditional farming areas (Map 1). The main industries are services, intensive agriculture and tourism, with a significant proportion of the population deriving their livelihood from the nearby National Capital.[1]

A1.2 Population
On the basis of information provided by the Council Project Brief and the latest ABS figures, the Shire population is presently around 11,000 people, about half of whom live in the villages of Araluen (pop 120), Braidwood (pop 1100), Bungendore (pop 2000), Captains Flat (pop 450), Majors Creek (pop 150), and Nerriga (pop 50) and a number of small communities.

About 2000 people live on farms and the remainder in rural residential areas comprising residential blocks of 2-16 hectares: Burra (pop 800) Carwoola (pop 500) Macs Reef (pop 2000) and Wamboin (pop 2000).

Attachment 11 identifies the location of the villages and residential areas where population numbers and distances between them are approximately drawn to scale. These distances are useful in considering suitable locations for waste collection stations and analysing the sustainability of waste transferral.

A1.3 Special Features
Much of the eastern side of the Shire is in the catchment of the Shoalhaven river which is earmarked as a possible future water supply for Sydney. As a consequence this area comes under the surveillance of the Sydney Water Authority.

The Shire also includes part of a large landfill site at the former Woodlawn Mine located on the eastern side of the lake in the Lake George Basin. It caters exclusively for Sydney waste.

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[1] The Background papers to the ACT Economic Whitepaper provide an interesting view on this recent phenomenon

The waste is plastic wrapped and delivered by rail. The life expectancy of this landfill site, as with landfill sites within the Shire, will depend on the level of recycling. It is planned to generate electricity from the methane produced from the anaerobic putrefaction of this material using an old technology that burns methane and generates carbon dioxide, a less damaging gas than methane, but a greenhouse gas nonetheless.

Also included in the Shire are a number of former mining areas at Araluen, Bywong, Captains Flat, Majors Creek as well as Woodlawn. Most of these areas include former and current landfill sites and mine tailings. Some are relatively unstable and threaten heavy metal contamination in the future.

Debate continues in the shire over resources availability, eg water, and the production of energy through wind power. Announced development plans include a new Defence establishment near Bungendore and rural residential developments proposed around Braidwood. Council estimates a growth rate of around 2% for the Shire, but it could be considerably higher as the cost of housing and services in the ACT continue to rise more rapidly than the nation's average.

Palerang Council is a member of the recently formed South East Resource Recovery Regional Organisation of Councils (SERRROC). It is a neighbour to the Queanbeyan, Yass and Upper Lachlan shires. It is a Council which is close to the Sydney – Canberra corridor with its population spill over from the NSW capital and it is close to the ACT. Therefore the Council area is vulnerable to change, both in terms of population size and demographic mix.

ATTACHMENT 2

BRIEF OVERVIEW OF NSW LEGISLATIVE REQUIREMENTS

A2.1 Background

A lot has been written about the legislative context for projects such as this. Indeed, the URS report prepared for Council in 2005 provides an overview of this material from a number of other NSW Government documents. What follows therefore is not intended to duplicate this work. Here, a short overview of key legislation is referred to, especially where a specific reference is made regarding landfill operations.

Environmental Protection Authority

The waste industry is diverse. The Environmental Protection Authority (EPA), within the Department of Environment and Conservation (DEC), is responsible for regulating the waste industry in association with local Councils. State and local Government agencies are involved in multi-million dollar contracts with the private sector (eg WSN Environmental Solutions) to manage the collection, transport, processing and disposal of waste. Some Government agencies, such as hospitals, electricity generators and educational institutions, are major waste producers.

The NSW Environment Protection Authority (EPA) has produced a booklet on '*Guidelines on Solid Waste landfills*', where it distinguishes between solid waste landfills and inert waste landfills. An Inert waste landfill means any landfill that accepts only inert waste while solid waste landfill means any landfill that accepts solid waste, including inert waste. The EPA has defined inert wastes as "Any non-liquid waste that when it is disposed of, is not potentially hazardous or capable of undergoing an environmentally significant transformation, including building and demolition wastes (such as bricks, concrete, glass, plastics, metal, timber and clean excavated material) that are not contaminated or mixed with other types of waste." A prescribed chemical leaching test is available to be used where the correct classification of a waste is in doubt.

Solid wastes include domestic, putrescible, green organics and other materials that will break down and form significant leachates, but not to the level of industrial or hazardous waste.

With respect to the concept of a waste depot, this project has also highlighted the importance of being clear about the different options under consideration. We have identified four different types of waste depot or facility:

Category 1

Major Transfer Stations on landfill sites with open trench and residuals taken away when closed. In Palerang Council, Bungendore, Braidwood fall into this category

Category 2

Minor Transfer Stations on landfill sites with residuals collection and subsequent removal by truck upon closing. In Palerang Council, Araluen, Major Creek, Nerriga, Captains Flat fall into this category

Category 3.

Transfer Stations with Recycling facilities only and no residuals. In Palerang Council, Burra, Royalla, Carwoola, Wamboin fall into this category

Category 4
Recyclables drop-off for co-mingled recyclables and no residuals. In Palerang Council, Ballalaba, Mongarlowe, Durran Durra, Boro, Mt Fairy, Taylors Creek, Sutton Acres, Bywong, Little Burra, Royalla are within this category.

Category 4 can also include those small groups of bins distributed for separated collections at such locations as sporting arenas or parks, such as in Captains Flat.

Local Government Act 1993
Local councils provide essential services for waste collection and recycling as well as having some planning and regulatory responsibilities in relation to waste. Outside Sydney, councils are often responsible for managing local waste infrastructure such as landfill sites.

The Local Government Act 1993 in Chapter 7 gives power to Local Councils to manage waste and sewerage matters. Council also has powers to implement relevant charges.

The NSW Local Government Act identifies not only Council responsibilities but also provides definitions of matters relevant to this report, a number of which have been presented in the main report.

NSW Government's Waste Avoidance and Resource Recovery (WARR) Strategy
The WARR Strategy is a key document, as it focuses on resource recovery. Other documents provide the regulatory framework for waste management, such as the Department of Environment and Conservation's Local Government Action plan, the EPA's Environmental guidelines for solid waste landfills and the 'companion' guidelines produced by the NSW Department of Urban Affairs and Planning 1996.

In NSW, the statutes and regulations include:

- Waste Minimisation and Management Act 1995, (and regulations 1996),
- Pollution Control Act 1970,
- Waste Hazardous Chemicals Act 1985 (and Regulations 1994),
- Chemical control Orders, Radiation Control Act 1993,
- Clean Waters Act 1970,
- Clean Air Act 1961 (and Regulations 1964),
- Environmental Offences and Penalties Act 1989,
- Environmental Planning and Assessment 1979 (and Regulations 1994).

NSW Occupational Health and Safety Acts
There are legal implications arising from the NSW Occupational Health and Safety Acts and the EPA has produced guidelines on related issues such as solid waste landfills, contaminated sites, composting, water investigations, use and disposal of bio-solid products and waste management in public health facilities.

Protection of the Environment Operations Act 1997
The Department of Environment and Conservation (DEC) has recently undertaken a comprehensive review of the NSW waste legislation. This included a review of the waste-related aspects of the *Protection of the Environment Operations Act 1997* (POEO Act), POEO Schedule 1 (the licensing Schedule) and the POEO (Waste) Regulation. The aim of the review was to simplify and clarify waste laws while protecting the environment and promoting sustainable resource use.

At the time, the POEO (Waste) Regulation 1996 was repealed and an interim measure, the existing provisions of the 1996 Regulation was carried over until March 2006 in a revised

Regulation. New legislation has since come into effect addressing principally waste tracking and waste levies. These are important issues but are probably not immediately relevant to resource recovery in Palerang in light of the nature of the shire's waste stream, the nature of waste generators and transportation of waste in the Shire.

A2.2 Legislative context

What follows is a short summary of relevant legislative matters for consideration in a Resource Recovery strategy for Palerang.

On page 12 of the WARR strategy there is a diagram which effectively summarises the situation in general terms in NSW. This diagram is reproduced below.

Protection of the Environment Administration Act 1991	Protection of the Environment Operation Act 1997	Local Government Act 1993	Waste Avoidance & Resource Recovery Act 2001	Environmental Planning and Assessment Act 1979	NSW Commitment to National Initiatives Regulation Eg NEPM

NSW Waste Avoidance & Resource Recovery Strategy sets the Vision, goals key outcomes & key action areas.

"The (WARR) strategy is the primary strategic document to guide state and local government agencies, industry and the broader community in waste prevention waste avoidance, re-use and recycling."[2]

Responsibility for waste matters is given to Councils by the NSW Local Government Act 1993. The WARR Strategy states:

> "*Councils are largely responsible for dealing with municipal waste, through garbage, recycling and hard rubbish collections. Councils also have responsibility for a number of specific waste functions including domestic waste collection services and street cleaning. They regulate many of the activities such as housing developments, certain business activities, pollutant control, littering and illegal dumping. Some Councils operate landfills and recycling facilities*."[3]

The NSW Local Government Act sets out the responsibilities of councils in different sections. These cover matters to do with definitions, responsibilities and financing. The NSW Local Government Act provides the Waste Charter for Councils. It identifies key council goals and defines key terms such as domestic waste, domestic waste management services, waste (effluent, trade waste, garbage, waste depot, ecologically sustainable development). Specific provisions include:

- Chapter 15 covers the way councils finance domestic waste management services through the making and levying of a charge. Specifically, section 496 deals with making and levying of annual charges for domestic waste management services
- Clause (1)A provides that councils must make and levy an annual charge for the provision of domestic waste management services for each parcel of rateable land for which the service is available.
- Clause (2) A provides councils may make an annual charge for the provision of a domestic waste management service for a parcel of land that is exempt from rating

[2] P11 WARR strategy

[3] p1`5 Ibid

- Under Section 501 A council may make an annual charge for services for water supply, sewerage, drainage, waste management (other than domestic waste management) and any services prescribed by the regulations.
- Under Section 504, income from an ordinary rate is not to be towards the cost of providing domestic waste management services; but be obtained from the making and levying of annual charges or the imposition of charges for the actual use of the service, or both, and not to exceed the reasonable cost to the council of providing those services.
- Section 507 empowers the Minister to specify the percentage by which the amounts of annual charges made by councils for domestic waste management services for a specified year may be varied, and impose conditions with respect to the variation of those charges.
- Section 510 restricts the annual charges for domestic waste management services for a parcel of rateable land. It must not exceed the annual charge plus allowed.
- Part 1, Division 1, Part C regards approvals by council for management of waste
    - For fee or reward, transport waste over or under a public place
    - Place waste in a public place
    - Place a waste storage container in a public place
    - Dispose of waste into a sewer of the council
    - Install, construct or alter a waste treatment device or a human waste storage facility or a drain connected to any such device or facility
    - Operate a system of sewage management (within the meaning of section 68A)

In addition, Council's are required to report as to the state of the environment in their area, including plans, projects and impacts, for land, air, water, biodiversity, waste, noise, Aboriginal heritage, non-Aboriginal heritage.

The Department of Environment and Conservation (DEC) has responsibilities and powers for a number of pieces of NSW legislation including:

- environment protection legislation covering air and water quality, waste, contaminated land, noise control, pesticides, hazardous chemicals, transport of dangerous goods, forestry and radiation
- conservation legislation protecting biodiversity and threatened species
- legislation protecting Aboriginal cultural heritage.

DEC uses compliance audits as one of its regulatory tools, to assess the extent to which a licensee or other regulated entity is complying with its legal requirements, and to review achievable environmental standards.

Although DEC manages the WARR strategy, it has no direct control over Local Government in relation to resource recovery, but it provides funding assistance to regional initiatives to minimise waste and recover resources and encourages compliance with the WARR strategy.

It is noted that Palerang is a member of the *South East Resource Recovery Group* (SERRG). This is a voluntary grouping of representatives from Councils in south east NSW. It includes Bega Valley, Cooma Monaro, Eurobodalla, Goulburn-Mulwaree, Queanbeyan, Snowy and Yass Valley Councils. This group has been in operation for many years now.

Recently Palerang has become a founding member of the South East Resource Recovery Regional Organisation of Councils (SERRROC). These regional waste organisations have support from DEC. As with other equivalent bodies throughout NSW, action by SERRROC Member Council's aims to achieve outcomes proposed in the NSW Waste Avoidance and

Resource Recovery Strategy. This body has the potential to facilitate an effective regional approach to resource recovery. We see the approach developed in this report as having particular relevance for other Councils in the region, either as a model for what they can do themselves, or as an opportunity for some sort of partnering arrangements under auspices of SERRROC .

The EPA has identified landfills as an important part of its responsibilities and thus produced its Solid Waste Landfills guide. This publication identifies the number one priority in waste management in NSW is to reduce the amount of waste the community produces. Within this framework, landfill is a last resort for material that is technically unable to be avoided, re-used or reprocessed.

In discussion with EPA staff, recognition was acknowledged of the fact that smaller rural landfills, as found in Palerang Council, had not been licensed nor consequently monitored by the EPA but this is an objective which it is intending to meet in coming years. The implications of this proposed action for Palerang Council are potentially significant. Much better data will be required about each existing site under a performance-based approach to landfill operations. Although recognising the importance of history reflected in site characteristics and cost-effectiveness implications for rural shire, nevertheless, councils must now meet wider environmental goals and be capable of being benchmarked against these.

Moves to develop effective Transfer Stations on existing sites will facilitate this process of evaluation and monitoring for compliance purposes and improve longer-term local operational effectiveness.

Where environmental guidelines become particularly important is in the development of any new landfill site. Proposals to build a new TS at Bungendore will therefore come under EPA scrutiny as well as that of the Department Planning NSW. At the planning stage, regulations require approval probably requiring the preparation of an Environmental Impact Statement (EIS). What must be covered by an EIS will be determined by the Minister for Urban Affairs and Planning, and to assist applicants in this matter the Department of Urban Affairs and Planning has produced guidelines referred to above entitled EIS Practice Guideline Landfilling.

The EPA Guidelines state that any landfill with more than 5000 tonnes per annum will be required to be licensed wherever they might be located. For the moment this requirement will be unlikely to encompass any new site in Palerang council and especially so if recycling and landfill diversion is effective. Nevertheless, the Waste Guidelines provide a significant list of items such a landfill would need to comply with and which Council would be wise to be cognisant of these. These matters cover:

- Prevention of pollution of water by leachate
- Detecting water pollution
- Remediating water pollution
- Assuring quality of design, construction and operation
- Assuring quality of incoming water
- Recording of wastes received
- Minimising landfill space used
- Maximisation of recycling
- Remediating landfill after closure
- Preventing unauthorised entry
- Preventing degradation of local amenity
- Preventing noise pollution
- Adequate fire-fighting capacity

- Adequate staffing and training

The NSW Waste Avoidance and Resource Recovery Act 2001 consolidates the principles of previous legislation and essentially drives the priority of waste avoidance, recovery and re-use with disposal as an unattractive final resort.

Above we have mentioned the new POEO Act. Waste contributions are mentioned under section 88 of the Protection of the Environment Operations Act 1997. In the POEO Act, with its associated regulations, the issue of dumping is mentioned.

Dumping of waste materials is acknowledged as an issue in Palerang Council and considered to be caused mainly, but not always, by people from outside the shire. Although an issue throughout the shire, the exact amount of waste dumped is very hard to quantify and its impact is difficult to properly ascertain. The POEO Discussion paper referred to in section 1 above comments: "Three areas of significant challenge for regulators are: deliberate illegal dumping; inappropriate disposal of waste in the guise of 'beneficial use'; and misclassification of waste to enable it to be treated or disposed of more cheaply than if it had been classified (and hence managed) properly.".[4]

The report goes on to say that "Illegal dumping frequently occurs in national parks and reserves with high conservation values. Waste dumped in remote locations may not be discovered for some time, thus compounding the environmental impacts. The costs of cleaning up these sites can be substantial for regulatory authorities and the community.".[5]

The POEO report goes on to say that "A report on illegal dumping prepared for the DEC estimated that NSW councils potentially spend $10 million per year on measures to address illegal dumping and landfilling. The majority of this sum was spent on clean-up (51%) and enforcement (39%) activities. It was further estimated that about 2% of the illegally dumped or landfilled waste was trackable waste (although this is probably an underestimate because of the difficulties in accurately characterising dumped liquid wastes). It is therefore estimated that illegal dumping and landfilling of trackable wastes costs NSW councils a minimum of $200,000 a year. Given the nature of trackable wastes, the cost of cleaning up these wastes is likely to be much higher."[6]

These are issues for Palerang Council and might be taken up in a regional context. Interestingly, the report goes on to note that "The Greater Southern Regional Illegal Dumping (RID) Squad was established in 2004 and is a joint undertaking between the DEC and Eurobodalla, Shoalhaven and Wingecarribee Shire Councils. The RID Squad operated for only part of the 2003–04 financial year (from March 2004). Within this period, the RID Squad investigated 257 illegal dumping and waste incidents and issued three PINs for illegal dumping to the value of $2,250. The Squad also issued six clean-up notices at a charge of $320 each.".[7]

The discussion of dumping takes place in the wider context of tracking specific wastes, a matter which is not a significant issue within the Palerang Council but one which needs to be noted nevertheless. "Under the *Protection of the Environment Operations Act 1997* (POEO Act), waste tracking requirements apply to the movement of hazardous, industrial and Group A10 (HIGA) wastes transported within NSW, with some exceptions. The waste tracking requirements are included in licence conditions for waste generators, facilities and transporters licensed by the EPA. There are about 1300 environment protection licences with

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4 P4 Ibid

5 P8 Ibid

6 P18 Ibid

7 P17 Ibid

waste tracking conditions. Unlicensed waste facilities, activities and transporters are required to comply with the waste tracking provisions in the Protection of the Environment Operations (Waste) Regulation 1996.".[8]

One area where these issues might affect Palerang Council, but again in a small way, relates to small businesses such as smash repair shops, service stations and dry cleaners. "There are 680 licensed waste producers (in NSW) and an unknown number of non licensed producers (the figure would be in the thousands). Small producers generally use agents (licensed transporters may act as authorized agents) so they tend to have little direct involvement in waste tracking."[9]

A2.3 Wider operational context

As stated above, the NSW Government's WARR Strategy makes it clear that putting waste into landfill is highly undesirable for economic, environmental and social reasons. Waste streams contain valuable resources that, if recovered cost effectively, would be competitive with and possibly more economic than extracting them from the natural environment. The natural environment benefits from the lower demand on its resources, but the main environmental benefit of eliminating landfill is that landfill sites are damaging for their greenhouse and other gaseous emissions and their leached toxins. They also breed vermin and harbour disease.

Interestingly, the NSW WARR strategy suggests communities are strongly opposed to having landfills located in their area and there is strong support for maintaining strict dumping and littering laws. While in general this is true, for such communities as that of the Palerang Council, this matter is not so clear cut. Later, we will look at the evidence from our community survey and from our community consultations regarding the specific circumstances of Palerang on this matter.

However, shifting a waste problem from one area to another is still common practice. For example, despite improvements in recycling rates, at large Sydney is unwilling to take responsibility for managing its own waste within its own local council areas. Much of its municipal waste is deposited in the Palerang Shire at the former Woodlawn mine at Tarago, or taken to such sites as the Eastern Creek Advanced Waste Treatment site. This same attitude might be considered to apply to the present Palerang Waste Management Strategy through recommending the progressive closure of all landfills within Palerang Council area and for any remaining intractable waste be disposed of in the Woodlawn site and/or across the border in the ACT.

The legislation setting up the former Woodlawn mine as a Sydney landfill site excised it from local government jurisdiction and prohibits it dealing with any other than Sydney waste on that site. As a result, Palerang cannot lawfully place its waste there, even though it is partly within its area. However, we understand negotiations are proceeding with the NSW Government to alter this situation for Palerang, and indeed the URS report includes Woodlawn as a final deposit site for residuals. The ACT might be willing to take residual waste from Palerang but, as in the case of Woodlawn mine, this action will come at a price and a vulnerability to price hikes.

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[8] P5 Ibid

[9] P6 Ibid

Fortunately there are alternatives to these sites. General consumption of goods continues to increase and this is perceived to be a core aspect of a healthy economy[10]. At the same time there are now growing concerns that natural resources continue to decline, reflected in the discussion in the public arena regarding climate change, oil prices and availability of water[11]. Thus the opportunities for resource harvesting from waste streams are also increasing. In fact they are becoming a necessity. Fortunately new technologies for extracting valuable resources from waste streams are constantly emerging and when coupled with some changes in design parameters, the elimination of dumping is altogether technically feasible. In Attachment 6 below we provide a list of the main technologies for waste processing and resource recovery currently available.

Resource recovery requires care in avoiding contamination. Encouraging people to sort at source necessitates a shift from indiscriminate wastefulness to taking responsibility for one's own consumption and usage patterns. As we will see, the Palerang Council is fortunate in that the Shire it administers has a population that has no more waste per capita than the average for NSW and, as our consultations and survey results have confirmed, the people of Palerang already have considerable enthusiasm for resource recovery.

[10] P2 WARR, and for an interesting perspective in support of this trend and an analysis of why it will continue see Affluenza – When too much is never enough. Hamilton and Denniss: Allen & Unwin 2005

[11] See p19, The Canberra Times April 22, 2006, reporting on the Britain's Treasurer Brown speaking to the UN on this matter

ATTACHMENT 3

DATA AND ANALYSIS

A3.1 Options

This project is a strategic planning process that involved participation by local communities and business interests as well Shire officers and contractors. At the outset, three broad options were considered and which influenced the issues under consideration. These were:

1. use the URS strategy as a starting point for designing a resource recovery strategy
2. modify the URS recommendations to enhance the resource recovery potential, or
3. develop an alternative to the URS strategy based on different management options for resource recovery, including recycling, with the aim of keeping the landfill trenches open as long as possible in order to lower the costs associated with their closure.

Table 5: Action Options

The table below sets out the potential action options:

URS Recommendations	Modified URS options	Alternative Option
1. close all landfills over 20 year period	1. close all landfills as per URS schedule or possibly faster	1. Leave landfills open as long as possible
2. establish new Transfer Stations and a new resource recovery facility in 2008/9	2. build Transfer Stations as per URS plan or locate in other areas	2. Build Transfer Stations as fast a possible even at open landfills.
3. extend weekly collections to Captains Flat and Macs Reef Road	3. extend weekly collections to Captains Flat and Macs Reef Road as per URS	3. Do not extend weekly collectio proposed to Macs Reef Road or Burra/Royalla, but replace with an increased number of Drop-off stat initially for co-mingled recyclable later for source separated recyclab
4. increase fees from $1m to $4m	4. hold rates and fees at current levels and facilitate new RR business activities	4. hold rates and charges roughly a current levels, introduce tipping fe that facilitate Resource Recovery Business activities
5. contract ACT MRF to take recyclable materials at a cost to Council	5. give access to new enterprises to recyclable materials at no/minimal cost to Council	5. give access to new enterprises t recyclable materials at minimal c Council
6. contract Woodlawn or ACT to take remaining waste	6. Incubate/support eco-business to handle recyclables at no/minimal net cost to Council	6. Incubate/support eco-business t handle recyclables at no or minim net cost to Council
	7. pilot test a bio-conversion facility to handle the putrescible organic stream	7. pilot test a bio-conversion facili handle the putrescible organic stre
	8. subject to a successful result at 7 above, build a full-scale bio-conversion facility and contract to take QCC bio-degradable waste as well.	8. subject to a successful result at above, build a full-scale bio-conve facility and contract to take QCC l degradable waste as well.

Figures 2 and 3 in the report above reflect these options

This Attachment outlines the data collected to inform this project.

A3.2 Demographic Findings

In Attachment 11 below there are maps based on the latest ABS (2001 census) data for Palerang. This was updated using the council's own estimates of the shire population as at 2005. Forward projections were based on demographic trends as defined by ABS for 2015 and 2025 under three scenarios. Scenario A assumes higher birthrates than present and higher immigration, scenario B assumes that current birthrates and immigration patterns continue and scenario C assumes a further lowering of the birthrate and lower levels of immigration.

These projections offer the best available population data for the shire. These are not predictions, but involve extrapolation of current demographic trends such as birth/death rates and migration patterns. The actual population movements will be subject to a host of unknown factors including especially, government development decisions.

For example, a decision by the ACT to provide water and sewerage services to the surrounding shires will probably slow development in the surrounding shire areas as it will bring the cost of these services to at least the ACT levels and possibly higher. If Council's adopt the development of smaller scale local water supply and treatment systems, they will often be able to do so at vastly lower costs than the ACT can deliver and make development around the ACT highly competitive with the ACT.

However, it is not possible to predict what future governments might or might not do so for planning purposes we have chosen scenario B as the most likely. This shows that the Palerang Council population is expected to grow slightly over the next ten years and decrease in the next decade. Of course these projections will only occur if there is no action taken to stimulate population growth through, say, the adoption of an attractive regional development strategy. However, it needs to be remembered that on current trends other areas in Australia will likewise be looking to attract people to their area to offset lower population growth.

With declining birthrates in developed countries generally, along with increasing life expectancy of Australia's population, including in the Palerang Council, it is expected that the median age of the population in the shire will become considerably older. Broadly speaking such trends are outside the control of government, and certainly of Palerang Council. Immigration rates however are within the control of the Commonwealth government and there are policies in place which, in conjunction with state governments, attempt to attract more people to the region. Indeed, the ACT government has gone to some length to attract more people, the results of which might lead to some flow-on effects into locations surrounding the ACT as is happening at the moment. This may be assisted or impeded depending upon the outcomes of cross border water and other infrastructure arrangements and which will remain important over the next decade. However, the core point here is that the population of Palerang Council will inevitably become older with impacts upon waste stream management.

A3.3 Waste Streams

The main sources of data referred to include:

- a briefing paper prepared by Stewart Smith in 2001 for the NSW Parliament which reviewed Waste Management in NSW up to that time.
- a benchmarking study based on available data from the Queanbeyan City Council (pop 32,000) for green waste and its potential for composting with other materials as a soil conditioner.
- The Report of the Alternative Waste Management Technologies Enquiry, Wright, T et al, 2000

- the 2004 progress report on the NSW Government Waste Reduction and Purchasing Policy (WRAPP)
- the 2005 consultants report by URS Australia Pty Ltd Waste Strategy for the Palerang Shire and
- a number of academic research papers listed in the Bibliography

We have previously mentioned the importance of the NSW Government's *Waste Avoidance and Resource Recovery (WARR) Strategy* released in 2003. It is based on the *Waste Avoidance and Resource Recovery Act,* 2001 and sets out a waste hierarchy that puts avoidance of unnecessary consumption as the highest priority followed by re-use/reprocessing (including resource and energy recovery) second and disposal as the least preferred.

The WARR Strategy sets resource recovery targets for the whole of NSW. For municipal waste, 26% of which was recovered in 2003, the target is 66% by 2014. Commercial and Industrial waste, of which 28% was recovered 2003, the target is 63% and for Construction and Demolition waste which was 65%, the 2014 target is 76%.

The Strategy recognises that regional NSW, with its dispersed populations and distances to markets for recovered materials, may have particular challenges, but on the other hand, the have advantages. First, people outside the Greater Sydney region generate about half the waste per capita of their Sydney counterparts, and second, they have the space to set up local, small scale recovery enterprises.

Attachment11 sets out the detailed results of a demographic and municipal waste stream analysis for the Palerang area.

A3.3.1 Audit of Kerbside Bin Contents

As a component to the data collection, a random sample audit was taken of the bin contents of the kerbside collections in place in Captains Flat, Bungendore and Braidwood. This included both waste and recyclables.

Discussions were held with Council staff to notify them of the dates of sampling. The process involved collecting the contents of bins left out for kerbside collection before they were picked up by the Council collection vehicle. These materials were bagged and then taken to a location in Queanbeyan where a separation Table was set up with weighing equipment in place. Materials for each waste and recyclables collection were emptied on to the Table and a process of separation undertaken according to material type. These different materials were then weighed and the results recorded.

Small numbers of bins only were sampled as the process was only to confirm data already collected and noted by DEC and other reports regarding waste disposal quantities and types for regional communities. Collection of bins was essentially random although attention was paid to selection from different sections of each town and different housing types. Different locations were chosen for the recyclables and waste bins.

Table 6 Kerbside Bin Numbers sampled

Collections Towns	Recyclables	Waste
Braidwood	6	7
Bungendore	10	10
Captains Flat	3	3

The summary result of the analysis made of the samples follows in Table 2.

Table 7 Summary results form Bin Audits

Comparison Figures	Recyclables kg/bin	Recyclables in Waste kg/bin	Waste kg/service	Organics in both bins	Recyclable both bins
Bungendore	13.0	2.0	10.9	75.4%	95%
Braidwood	13.8	2.2	3.6	50.7%	85%
Captains Flat	18.1	3.3	8.0	26.3%	82%
Averages	**15.0**	**2.5**	**7.5**	**50.8%**	**87.3%**
Annual	*389*	*130*	*390*		

Notes regarding the data above:
- Waste is collected weekly, while collection of recycling materials in Bungendore and Captains Flat is collected fortnightly
- Braidwood recyclables doubled due to weekly collection.
- There are a number of potential sources of error in this process which need to be noted.

Arising from this data are some key statistics of interest which are:
- Total waste collected = 17.5kg/service/week or about 900kg/year;
- About 25% of yellow bin recyclables are in the waste bin;
- More than 50% of total stream 462kg/hh/year is organic; and
- Over 85% of the total collected is considered to be recyclable.

A3.3.2 Site Inspections, including Captains Flat.
As an element of the project and data collection, visits were made to each landfill site in Palerang Council. There are three sites where Palerang Council has employed staff. These are Macs Reef Road, Braidwood and Bungendore. Interviews were held on site with these staff and a walk was taken around the whole site. At Bungendore, volumetric estimates were made of the different materials in their locations and the trench. No measurements were made of the kerbside collection deposits at these sites but instead an estimate was made based on average number of truck visits and applying the volume of the truck.

For each of these sites, we also used the data collected by these employees. Employees have been required to record vehicle numbers and type entering the landfill sites. To obtain an estimate of the volumes of materials, we applied DEC figures of volume by vehicle type.
A visit was also paid to the Collector site. Here the same process was applied as in Bungendore. Estimates were made of each separated material group and the trench. Also efforts were made to utilize the data collection process on site whereby an entry charge is made for each vehicle entering and the total numbers of vehicle by type recorded.

For Braidwood and Macs Reef road landfill sites, we relied on the data provided by Council staff.

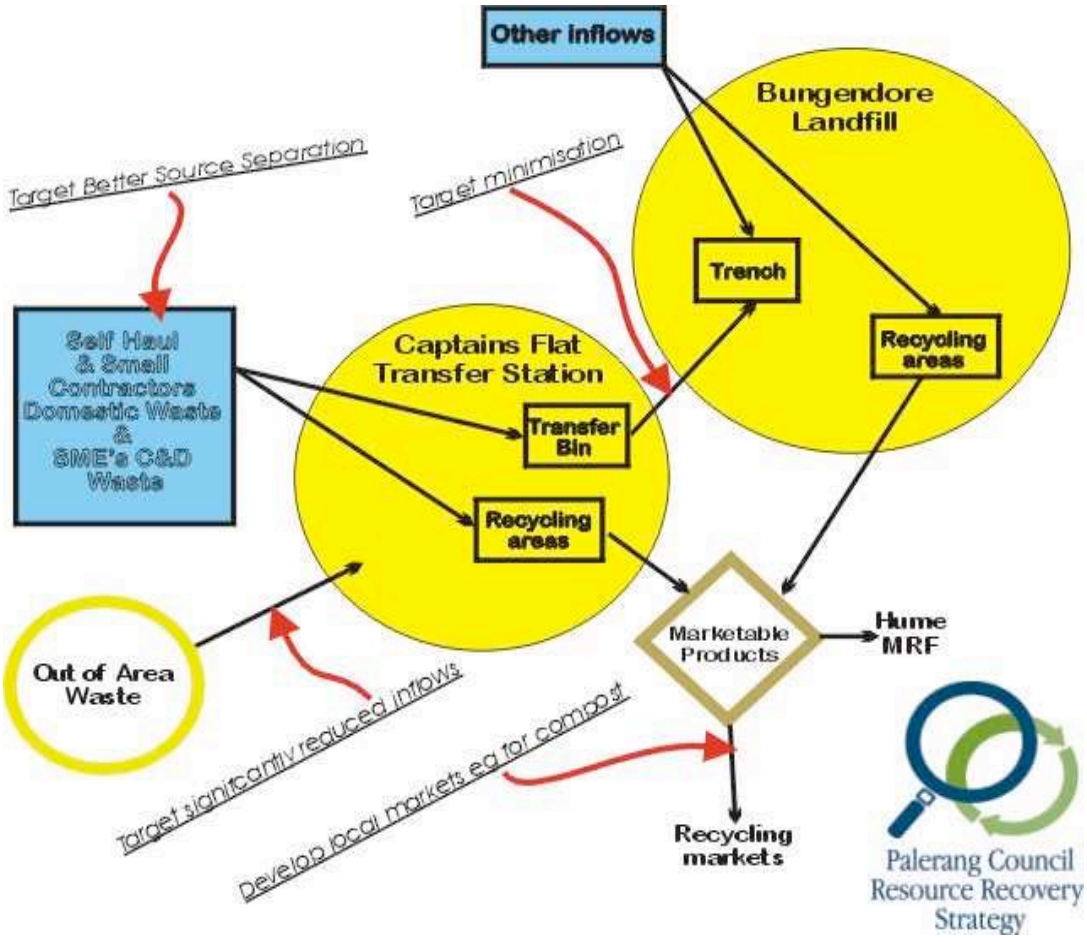
For the remaining un-staffed sites, visits were made together with a local person who had been in some way closely involved in its operation. These sites were Araluen, Nerriga and Majors Creek. At these sites, estimates were made of each separated material group. Discussions with the local people were about the practical operational issues which arose in the working of the landfill site. Subsequently, the notes taken in these conversations were able to be compared to the consultation forums outcomes as regards the issues of concern to local residents. The comparisons suggested little by way of variation in issues which concerned local people, and the summaries of these issues are found below.

A3.3 Results of the 3-day Audit of Captains Flat Landfill

A three-day investigation on site at the Captains Flat landfill was required as part of the project and as a link to the process of engineering of the site to establish it as a Transfer Station on the site. Our researchers surveyed all visitors and recorded such information as their location of origin, vehicles used, type of material brought for disposal, the estimated volume disposed and time was taken to discuss general issues of interest to those who came.

The diagram on the following page represents diagrammatically the proposed arrangement for Captains Flat under the adopted Waste Management Plan.

Figure 4: Waste stream flow at Captains Flat under existing Waste Management Plan



This work is presented in detail as it provides a good case example of the issues associated with data collection and operations on an existing landfill which will become a Transfer Station. As pointed out above, four different categories of Transfer Station facilities were identified for Palerang Council. In this categorisation, the Captains Flat Transfer Station is regarded as Category 2.

This audit was carried out at the Captains Flat landfill over the period January 13-15th 2006. We provide the detail of this report here as it offers further insights into daily practice at landfill sites. The same investigation was not undertaken at other sites in Palerang not only because this was not required but to undertake a detailed investigation requires doing this over a full 12 month period and not the limited time period of this project.

A3.3.1 User Statistics

Over the three-day period of the audit, 144 vehicles were recorded as visiting the Captains Flat Landfill site; 35 on Friday, January 13th, 40 on Saturday, January 14th and 69 on Sunday, January 15th. Of this total of vehicles, our survey showed only 124 disposed of materials at the Landfill site. The following table sets out the split of vehicle types which brought waste to the Landfill:

Table 8: Vehicle types to landfill site

Vehicle Type	Number	% of Total
Utes	68	55%
Trailers	26	21%
Cars	21	17%
Vans	5	4%
Trucks	4	3%
	124	**100%**

A3.3.2 Sources of Waste

The following table shows the origin of the waste as declared by the drivers:

Table 9: Origin of landfill user

Captains Flat (house)	82
Captains Flat (block/farm)	32
ACT/Qbn	2
Anembo	2
Bredbo	1
Burra	1
Carwoola	3
Cooma	4
Gundillian	1
Harolds Cross	4
Jellatbut Gully	1
Jerrangle	3
Kain	1
Kindavale	2
Primrose Valley	1
Radcliff	1
Stony Pinch	1
Woolcara	1
	143

A3.3.3 Inflow Volumes

Local sources informed us that the site was cleaned up on January 6th, 2006. Therefore, it was possible to estimate the total uncompacted volumes of mixed putrescible inflows into the site over a nine-day period. This amounted to 70 cubic metres. However, a daily estimate was also made during our 3-day survey. All estimates involved calculating the surface area and visually approximating the average depth. The results were:

Friday 45 m3
Saturday +9 = 54 m3
Sunday +16 = 70 m3

The Average daily disposal for the period of the survey was 14m^3/open-day of mixed putrescible, as against a theoretical daily rate of 7 m^3 on a nine days basis.

In addition to the unseparated materials, some material was placed directly in the correct stockpiles. Approximate three-day uncompacted inflows to the separated stockpiles were:

Garden Organics 10 m^3
Steel 1 m^3
C&D 1 m^3

Scavenging was active all weekend with an estimated 15m3 of material leaving the site. Therefore the summary estimate of total inflows is 23 m^3/open-day. This equates to 3588 m^3 on an annual basis if the same rate of disposal was found throughout the year. Naturally, it is difficult to know if this is the case.

A3.3.4 Inflow tonnages

In calculating the inflow tonnages for the audit, vehicle types were split according to the EPA standard and multiplied by the appropriate weight factors. However, this is considered to overestimate the inflow waste tonnages as 55% of vehicles were utilities (EPA load 300kg) and were rarely full. Our assessment was that they therefore equated more closely to cars, where the EPA load is 60kg.

The residual waste that could not be readily split into major categories of Steel, Recyclables, Paper, Garden Organics or C&D was recorded as Household Mixed. This was then split into streams according to the source ie:

In town and receiving kerbside waste and recycling pickups
On blocks/farms and disposing of some organics on site.

The resulting summary of waste inflows by tonnes is shown in the table on the following page with the 3-day figures based on the EPA tonnages and a more realistic annual estimate based upon 1/3 of the EPA figures.

Table 10: Captains Flat – Waste inflows

Material	3 Day EPA Tonnage	Annualised EPA Tonnage	1/3Annualised Tonnage	% of total
Glass Bottles	2.93	152	51	7%
Aluminium Cans	0.79	41	14	2%
Plastic Containers	1.09	57	19	3%
Paper & Cardboard	3.53	184	61	8%
Steel	2.41	125	42	6%
Garden Organics	11.21	583	194	26%
Food Organics	2	104	35	5%
C&D	7.93	412	137	19%
Furniture	2.97	154	51	7%
Other Recyclable	0.99	52	17	2%
Other Residual	6.91	360	120	16%
	42.8	2224	741	100%

Over the three day period about 10 lead acid batteries, 20 tyres, 3 couches and 5 mattresses were deposited. No cars or other significant steel was delivered. Several loads contained, what is believed to be, unwrapped and broken Asbestos Cement sheet. Engine oil was delivered by several people and apparently occasionally delivered in large quantities.

A3.3.5 Non-resident Waste

In discussions with local people and DEC staff, it was reported that there historically has been a very high level of external dumping; possibly approaching 50% of the total fill in the site. Examples of the materials deposited included semi trailer loads of tyres, computers, bikes and much C&D material. Since the site was closed by Council from Monday to Thursday, the amount of waste from these external sources has reportedly dropped significantly to an estimated 10% of inflows.

One category that is still of concern according to local informants is winter wood collectors. It is said these people deposit their rubbish on the way out from such locations as Canberra and Queanbeyan and then they continue on to scavenge the surrounding bushlands for fire wood, which they load into their various vehicles before returning to their original point of origin.

A3.3.6 Discussion/Summary

The results of the three-day audit should be used only as an approximate guide to the quantities of materials likely to be delivered to a future Transfer Station. The available data suggests that stockpiles of Garden Organics, Steel, Bricks/Concrete/Tiles and firewood would be appropriate at least. Engine oil collection can be facilitated by a collection container, possibly funded Commonwealth Government oil recycling grants. An undercover area for furniture and a resale operation is also suggested but will be part of further community consultation processes.

In the light of the wider project, and the development of the Transfer Station, further consideration will need to be given to the potential benefits of replacing the recycling bins at the Captains Flat Park with co-mingled bins and ratepayers outside of town are educated to use it.

A3.3.6 Captains Flat Waste Generation Rate

Given the available data it is possible to estimate a waste-to-landfill rate for Captains Flat households. The data used is:

estimate of yearly inflows of 741;
and a reduction of 10% for non resident flows;
a population of Captains flat of approximately 450;
the data that 57% of the waste deposited was from townsfolk;
the bins audit data of 588kg/year of kerbside waste; and
an estimate of 2.4 persons/household.

This yields a waste-to-landfill rate for Captains Flat households of 896kg/year.

Add to this the recyclables separated at the kerbside of about 470kg/hh/year and the total flow that Council is managing is in the order of 1.35tonnes/hh/year.

A3.3.7 Sources of Error in survey based estimates

There are interrelated factors and potential sources of error in the calculations which have been made to estimate the volume of waste to the Captains Flat landfill including:

- Some out of town residents separated recyclable containers and deposited into the town bins whilst others (most) didn't.
- Christmas residues;
- Reduced flow due to businesses/residents on holiday;
- Increased flow due to tourists/part time residents in locality;
- Incorrect locality information provided by users;
- Variable compaction;
- Scavenging estimates;
- Imprecise volume measuring systems;
- Natural variability of waste flows;
- Applicability of EPA conversion factors; and
- Potential non-attendance at site of some waste generators due to our presence.

A3.4 Other Sites Inflow Data

Palerang Staff provided data of the number and type of vehicles entering their manned facilities and members of the consultant team made estimates of the volumes entering the other sites.

The vehicle data has been multiplied by the EPA standard weights except utilities/trailers have been multiplied by half the EPA figure following site observations that most utility vehicles are not loaded to capacity. The results of this calculation are shown in the Table on the following page.

Table 11: Waste to landfill in Palerang based on vehicle Counts and EPA Data

Location	Cubic metres	Tonnes
Bungendore		
Cars/Station Wagons:	205.2 m^3 /week	12.3 t/week
Utilities/Trailers:	378.4 m^3/week	56.8 t/week
Trucks:	13.6 m^3 /week	40.8 t/week
Macs Reef		
Cars/Station Wagons:	98.2 m^3/week	5.9 t/week
Utilities/Trailers:	112.4 m^3 /week	16.9 t/week
Trucks:	19.6 m^3 /week	58.8 t/week
Braidwood		
Cars/Station Wagons:	59.4 m^3 /week	3.6 t/week
Utilities/Trailers:	152.2 m^3 /week	15.2 t/week
Trucks:	6.5 m^3 /week	13.0 t/week
Captains Flat		
	7.67 m^3/week	14.3 t/week
Nerriga		
Vol est 1 week =	10 m^3/week	3.3 t/week
Majors Creek		
Vol est for 1 week =	14 m^3/week	4.7 t/week
Araluen		
Vol est for 1 week =	7.2 m^3/week	2.4 t/week
Collector		
Vol est for 1 week =	120 m^3/week	40.0 t/week
		287.9 t/week
		14969 t/year
Note: Macs Reef includes:		
Cover estimated at 2000tonnes/year		
and		
Yass Valley 588 single entry vouchers		
300 per year: cars	3.0 /week	0.2 t/week
Utes	3.0 /week	0.9 t/week
		1.1 t/week

3.5 Desk top estimates

This section addresses quantities of waste derived from previous studies and compares these with raw data from site visits.

3.5.1 Estimated quantities of waste from available sources

The URS report prepared for Council used a figure of 1 tonne/year per household of waste to landfill by residents. This is a figure used in most NSW government agencies. We investigated the quantities of waste in Palerang Council from two different perspectives.

Approach 1 is based on:

- previous reports,
- population census data:
- data from council: and
- data from the survey.

This data provided a measure of Municipal Waste = Domestic + litter bins + street sweeping & self haul household waste to landfill sites. Based on a population for the Palerang council of 10325, and 4491 households, the total waste to landfill is expected to be 2500 tonnes per year.

Approach 2 is based on data provided from

- Council records, reports, dockets
- Council's landfill staff observations
- Thiess Recycling (Hume Act) receipts
- Landfill audits
- Waste and recycling bin audits
- Community discussions, surveys
- Estimates based on ABS and Council population data

Approach 2 includes Municipal waste plus Commercial and Industrial (C&I - business waste and contractor hauled waste from domestic premises outside of the Council collection area) and Construction & Demolition Waste (C&D). Based on all the data collected the total waste stream handled by Palerang is potentially 15000 tonnes per year. What confounds this data is the deposit of 'clean fill' used by Palerang Council and other out-of-shire waste inflows. Allowances for these and recycling reduces the waste to landfill to approximately 9500 tonnes per annum currently and potentially only 2000t/an as shown in Table on the following page.

On the basis of these figures, a benchmark for Council might be the 9500 tonnes per year of waste to landfill. However, observation of the make-up of this total will highlight the potential for substantial in roads being possible by preventing out of area waste and recycling the organics.

Table 12: Waste flow data for Palerang Council from site visits, Council records

INFLOW/	POTENTIAL DESTINATION				CURRENT DESTINATION			
	Sum	**C&D**	**C&I**	**MUN**	**Landfill**	**Recycled**	**Cover**	**Burnt**
Clean fill (out of area)	2000	1900	0	100			2000	
Other out of area	2500	200	2000	300	2350	150		
Garden Organics	2750	350	400	2000	1000	250		1500
Difficult Organics	2500	0	1000	1500	2500			
Stumps	50	40	5	5	25			25
Bricks Tiles Concrete	1000	700	250	50	750	250		
Construction Timber, Fittings & Fixtures	250	150	50	50	175	50		25
Unpaint Plasterboard	5	5	0	0	5			
Resaleable Household/Office	300	0	50	250	225	75		
Containers, P&C	1000	0	350	650	250	750		
Oil & Batteries	5	0	3	2	3	2		
White goods	40	0	10	30	10	30		
Non-ferrous	30	5	15	10	10	20		
Steel	500	40	150	310	150	350		
Other recyclables	70	10	17	43	47	23		
Residual	2000	100	500	1400	2000			
	15000	**3500**	**4800**	**6700**	**9500**	**1950**	**2000**	**1550**

What also confounds the data is that this material really comes into Macs Reef Road, and also Bungendore but to a lesser extent. It is quite possible that with the changes in place as for the existing waste management strategy and the RRS, this might stop altogether.

Data from NSW Waste Avoidance and Resource Recovery Strategy suggests that the break up of waste sources for rural NSW is shown above in Figure 6 on the following page.

The interesting difference of Palerang from such data is that C&I figures and C&D figures are reversed due to the factors identified above.

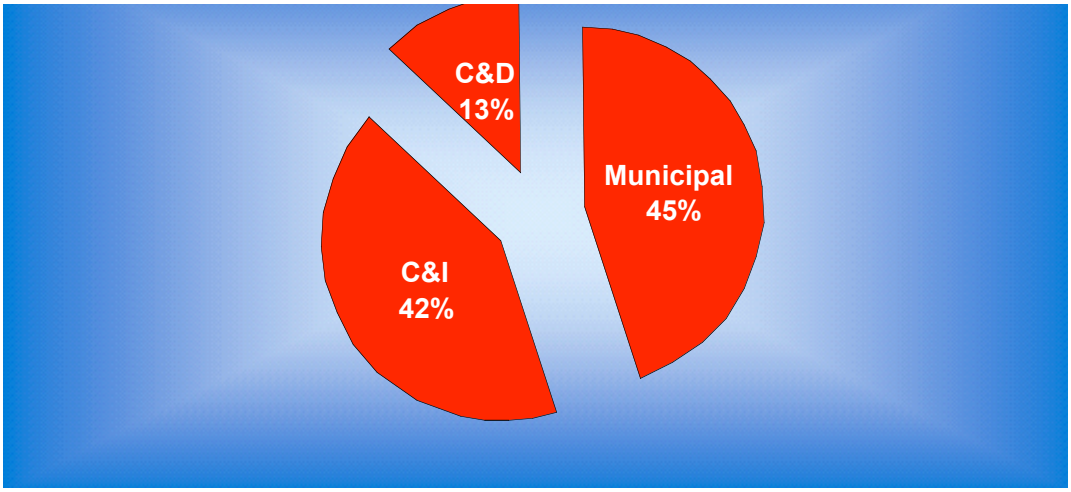


FIGURE: RURAL NSW WASTE SOURCES

Clearly the results from data of Approach one is low compared to that of Approach two. As indicated above, the difference is primarily made up of C&I and C&D flows, but also an allowance of higher domestic waste generation on the western side of the shire.

The household waste figure for NSW used by DEC and URS is 1 tonne of waste. Using the figure of the number of surveys sent out of 5820 households, Approach one means that approximately 0.43 tonnes of waste are produced per year per household while Approach two produces 1.4 tonnes per year of waste, including all the C&I and C&D waste, most of which comes in to a limited part of the shire and skews the whole data collection process and perspectives derived from such an analysis. The average of these figures is 915 kgms per year, which not only closely equates to the results of the bin audit figures of approximately 900 kgm per household, but is close to the 1 tonne per year figure of NSW, given an allowance for errors in the data collected. We therefore propose to use in subsequent calculations the figure of 1 tonne per household of waste to landfill per year.

The Council Tip pass is an initiative which aims to reduce out of area waste flows. However more is required to effectively implement this strategy including:

- Actively questioning all users as to the source of the waste;
- Some auditing of suspicious loads to verify origin claims;
- Benchmarking tipping fees against neighbours to discourage inflows;
- Signposting the closure of Captains Flat landfill at the LGA Boundary or (with permission
- from QCC) at the start of Captains Flat Road;

ATTACHMENT 4

ADDITIONAL DATA FROM BIN AUDITS

This Attachment brings further data obtained from bin audits undertaken in kerbside collections of Braidwood, Bungendore and Captains Flat.

Table 13: Bin averages from Palerang kerbside collections
This Table sets out averages calculated from bins data from the 3 kerbside collections:

Total Waste and Recyclables	909	kg/hh/year	1363.7	tonnes/year
Recyclables in Yellow bin	389	kg/hh/year	583.7	tonnes/year
Recyclables in Waste bin	130	kg/hh/year		
Total recyclables	519	kg/hh/year	778.7	tonnes/year
Total Waste including Recyclables	520	kg/hh/year	780	tonnes/year
Actual waste excluding yellow bin recyclables	390	kg/hh/year		
Organics in both bins	462	kg/hh/year		

The following tables set out results of the detailed waste bin sort and analysis.

Table 14.1 **Site: Captains Flat** **3 bins**
Collected: 3 Feb 06, Sorted: 3 Feb By: GP/IM

Category Split

Material	**Weight (kg)**	**%**
GO = Garden Organic (inc attached soil)	0.2	0.6%
C&D = Construction and Demolition inc soil		0.0%
Liquid		0.0%
Hazardous- Batteries	0.2	0.6%
Food	8	23.5%
Wrapping plastic	2.2	6.5%
Disposable nappies		0.0%
Recycling (refer other sheet)	9.90	29.1%
Other - clothes & shoes	6.5	19.1%
Other - electrical	6.75	19.9%
Other - mixed	0.25	0.7%
Total sample weight:	**34**	**100.0%**
Weight per bin	11.3	kg

Summary - Captains Flat Waste	**Weight (kg)**	**%**
Total:	34	
Recyclable (waste):	14.7	43.2%
Recyclable (yellow bin):	9.9	29.1%
Residual waste	9.4	27.6%
		100.0%
Organics	8.95	26.3%

Table 14.2 **Site: Bungendore** **8 bins**

Collected: 2 Feb 06, Sorted:3 Feb 06 By: GP/IM

Category Split

Material	**Weight (kg)**	**%**
GO = Garden Organic (inc attached soil)	34	27.3%
C&D = Construction and Demolition inc soil	1	0.8%
Liquid		0.0%
Hazardous		0.0%
Food	55.75	44.8%
Wrapping plastic	5	4.0%
Disposable nappies	1.5	1.2%
Recycling (refer other sheet)	20.35	16.4%
Other - mixed	4.8	3.9%
Other - cork board	2	1.6%
Total sample weight:	**124.4**	**100%**
Weight per bin	15.6 kg	

Summary - Bungendore Waste	**Weight (kg)**	**%**
Total:	124.4	
Recyclable (waste):	92.75	74.6%
Recyclable (yellow bin):	20.35	16.4%
Residual waste	11.3	9.1%
		100.0%
Organics	97.65	78.5%

Table 14.3 **Site: Braidwood** **7 bins**
Collected: 31 Jan 06, Sorted: 1 Feb 06 By: GP/IM

Category Split

Material	**Weight (kg)**	**%**
GO = Garden Organic (inc attached soil)	0.05	0.1%
C&D = Construction and Demolition inc soil	2.5	6.2%
Liquid		0.0%
Hazardous		0.0%
Food	12.5	31.2%
Wrapping plastic	2.5	6.2%
Disposable nappies	3.5	8.7%
Recycling (refer other sheet)	15.75	39.3%
Other - clothes/shoes	2	5.0%
Other - Mixed	1.25	3.1%
Total sample weight:	**40.05**	**100%**
Weight per bin	5.7	kg

Summary - Braidwood Waste	**Weight (kg)**	**%**
Total:	40.05	
Recyclable (waste):	17.05	42.6%
Recyclable (yellow bin):	15.75	39.3%
Residual waste	7.25	18.1%
		100.0%
Organics	20.3	50.7%

The following Tables set out the results derived from the waste and recycling bins.

Table 15.1 Site: Captains Flat

Material	%	Yellow bin weight (kg)	Waste bin weight (kg)
Paper	24.2%	7.75	0.5
Cardboard	9.4%	3	0.25
Steel cans	5.5%	1.75	
1 - PET	9.7%	3.1	1.5
2 - HDPE	8.1%	2.6	1
Other Plastics	5.1%	1.63	0.03
Green glass	5.0%	1.6	0
Brown glass	19.0%	6.1	4.5
Clear glass	7.3%	2.35	0.75
Foilboard	5.2%	1.65	0.05
Other recyclable	1.6%	0.5	1.3
Total sample weight:	100.0%	**32.03**	**9.88**

Table 15.2 Site: Bungendore

Material	%	Yellow bin weight (kg)	Waste bin weight (kg)
Paper	36.9%	55.5	4.9
Cardboard	10.8%	16.25	3
Steel cans	3.7%	5.5	2
1- PET	3.8%	5.75	2
2 - HDPE	3.3%	5	1
Other Plastics	1.8%	2.7	0.2
Green glass	8.7%	13	1.25
Brown glass	19.1%	28.75	1.25
Clear glass	8.8%	13.25	3
Foil board	1.0%	1.55	0.05
Other recyclable	2.0%	3	
Total sample weight:	100.0%	**150.25**	**18.65**

Table 15.3 **Site: Braidwood**

Material	%	Yellow bin weight (kg)	Waste bin weight (kg)
Paper	14.9%	9.5	4.25
Cardboard	16.5%	10.5	3.5
Aluminium Cans	3.5%	2.25	
Steel cans	5.5%	3.5	2
1- PET	4.2%	2.7	0.2
2 - HDPE	4.2%	2.65	0.05
Other Plastics	5.1%	3.25	2
Green glass	13.6%	8.7	0.2
Brown glass	11.0%	7	2
Clear glass	20.4%	13	1.25
Other recyclable	1.1%	0.7	
Total sample weight:	100.0%	**63.75**	**15.45**

ATTACHMENT 5

COMMUNITY CONSULTATION FORUMS

A5.1 Location and attendances

Community forums were promoted and organized in 9 locations: Araluen, Braidwood, Bungendore, Burra, Captains Flat, Majors Creek, Nerriga, Tarago and Wamboin

The forums were promoted via the Council mailout in February in both Bungendore and Braidwood. They were advertised in local newspapers for two consecutive weeks prior to the actual event. They were further promoted through word of mouth, especially with assistance via community organisations and on the Council web site and posters displayed throughout the shire.

Attendance was very good at Wamboin/Bywong, Araluen, Majors Creek, Nerriga and Burra but poor at Bungendore, Braidwood and Tarago. This might be explained by the fact that the issues of landfill are not so important where existing kerbside collections are in place and operating well, or, in the case of Tarago, the location was actually outside the Palerang borders. This location was chosen in an attempt to reach those people who might use the Collector landfill site and who live in the Palerang shire. The other events were lively, well attended and very useful in highlighting the issue of local importance.

The forum aims were:

- Identification of Issues which are most important for the community regarding waste disposal
- Views on source separation and recycling
- Best location of a Transfer Station
- Impediments to recycling
- Views on business development opportunities

The forum program plan is set out below but it was not rigidly adhered to as the aim was to create an informal environment to encourage discussion and wide contribution. Forum facilitators were flexible being most concerned to with participant contributions. Butchers paper on a whiteboard was used to record key points as discussion proceeded.

Opening (15 minutes)	Powerpoint presentation re project and purposes of the forum, and recognition that at several meetings local support was very strong in assisting notification of the meeting.
Session 1 (45 minutes)	Identification of Issues which are most important for the community regarding waste disposal
Session 2 (45 minutes)	Recycling - views on source separation and recycling, identify potential impediments, best location for a Transfer Station
Session 3 (15 minutes)	Overview of forum results Suggest later business opportunity discussion Remind attendees of Council survey and web materials, including the Discussion Kit, and that this provides ongoing opportunity to make submissions.

A5.2 Main issues

Overall 12 substantial issues emerged from the consultation forums:

1. Need for a viable landfill capacity within their area.
2. Few people felt there was any need for change in their landfill site

3. Finances – whatever charging system is to put in place it must be affordable, financially appropriate and cost effective – sending the right price signals to residents!
4. Supervision – having a person or persons on a landfill or Transfer Station would make a big difference in operational effectiveness
5. Attitudes towards recycling – there is strong support for recycling, and a recognition that not everyone does it
6. Design Issues – existing landfill and new Transfer Stations could be made more effective with smart design and communication, and a number of specific matters were identified in the discussion
7. Dumping – was seen as a problem probably across the outlying parts of the shire, and stemming from people from outside the shire
8. Education – is necessary to help people become more knowledgeable and more aware of what they could and should do to improve uncontaminated source separation and general recycling
9. Regulation – required as a tool to come down heavily on those who dump illegally or do not comply with other relevant practices
10. Start a local business – many believed there was an opportunity to use the waste stream to start a micro local business
11. Kerbside collection – there were very mixed views about kerbside collection with many in the non-urban parts of the shire community unwilling to see it implemented because it was costly, difficult in places to practically implement and was already addressed by effective private sector contractors
12. Other – a number of localised issues

The Table below provides a summary of the key issues from each forum from both a local and a whole shire perspective.

The table includes the results of a special meeting in Bungendore of business and community association representatives where the issue of business development was discussed especially around utilisation of the organic component of the waste stream. Twenty-one people attended the Bungendore business meeting. It also includes the results from a meeting with the Braidwood Chamber of Commerce in February where 15 people attended and where business waste collection issues and the potential for micro business development was also discussed.

Table 16: Consultation forums outcomes by meeting

Forum locations	**Araluen**	**Braidwood (2 meetings)**	**Bungendore (2 meetings)**	**Burra**	**Captains Flat**	**Majors Creek**	**Nerriga**	**Wamboin/ Bywong**
Attendance numbers	**12**	**20**	**21**	**22**	**30**	**21**	**22**	**21**
1. Need for a viable landfill.	Yes	Yes		Present system OK	Yes	Yes	Yes	Need some system
2. Existing circumstances including Site of Landfill	OK – draft plan has been prepared after considerable local activity	Plenty of space, and near sewerage system		Don't need a landfill operation	New Transfer Station now in operation	Existing site confirmed as best possible in area by previous study	Present site is fine but there are some local environmental issues	No call for a landfill site and existing circumstances of drop-off is working well.
3. Finances	Must have cost effective Incentives and receive value for rate charges	Need system to be cost effective; Potential for sales of recycled materials		Price signal is already right – system must be cost effective; some opportunity for income from recycled materials	System has to be cost effective; Need to share costs of associated Infrastructure	System needs to be cost effective; Reduce the $140 charge.	Need to share cost of associated system infrastructure	System needs to be cost effective; There are Recycling benefits

Forum locations	Araluen	Braidwood (2 meetings)	Bungendore (2 meetings)	Burra	Captains Flat	Majors Creek	Nerriga	Wamboin/ Bywong
4. Supervision	Require labour to get best from system OH&S Pay local	Require labour to get best from the system; suggested a Work-for-dole arrangement has worked		Good to have on-site staff but doubtful if it can be afforded	Raised as a potential opportunity for the community association	Need labour to get best from system; there are OH&S issues.		Need labour to get best from system
5. Attitudes towards recycling	Sceptical about extent of this – but it already happens in form of scavenging	Good history of this, why not now Some don't recycle		It already happens informally; sceptical about extent through wider community	Scavenging already happens but Support need for recycling	Sceptical about the extent in wider community; there is scavenging; Support need for recycling	It already happens informally but sceptical at the extent through wider community and clearly some do not.	Sceptical that it happens through wider community
6.Design Issues	Community has already developed a design; support an investment in bigger bins	More investment required; ideas exist regarding ways to improve present operations		Need a better design – to include bigger bins	Investment in good design is needed	Support investment in design and to include bigger bins	Better design is needed and bigger bins	bigger bins

Forum locations	Araluen	Braidwood (2 meetings)	Bungendore (2 meetings)	Burra	Captains Flat	Majors Creek	Nerriga	Wamboin/ Bywong
7.Dumping	Important issue			Important issue	Important issue	Important issue	Important issue	Little dumping
8. Education	Important	Important		Important	Important	Important	Important	Important
9. Regulation	Needed	Needed		Needed	Needed	Needed	Needed	Needed
10. Start a local business		See as an option	Different business views – some for, some against	See as an option	See as an option	See as an option	See as an option	See as an option
11.Kerbside	Some interest but numbers small	Already happens	Already happens in Bungendore	Have been told it might happen, but mixed views about this.	Already happens	No interest expressed in kerbside collection	No interest expressed in kerbside collection	Too many issues associated with such a system to work cost effectively
12. Other – see items in paragraphs above this Table.	Survey relevance	Why is there no public on Waste committee						

A5.3 Issues from Other Areas

In addition to the common set of issues which go across the different parts of the shire there are also localised matters of great importance to local people. The following are very brief notes highlighting these.

Araluen – frustration exists that previous considerable efforts regarding its landfill site have gone unrewarded. Araluen is fortunate also to have a local person who keeps a (voluntary) oversight of what is happening and just who uses the site. They have also prepared a design for this site so it will be more effective.

Braidwood – a large site with an opportunity to recycle. Frustration exists that apparently previous successful efforts to recycle appear not to have been supported by Council. Recycling rates have been excellent in the past. Links with the sewage works were mentioned by several people as an opportunity which appears not to be taken seriously.

Bungendore – the shire's major kerbside disposal site. New developments will mean this is a site that will have increased visitation (as per the Council strategy) but amongst this will be C&D waste quantities larger than elsewhere in the Council.

Captains Flat – now a Transfer Station but where the local community association has expressed over some time now a keen interest in finding a way to manage the site.

Majors Creek – the site has had a long history and previous investigations determined this still remains the most appropriate site in the local area. Better site layout, management and control is seen as a positive direction in which to go. Trench cover is ad hoc.

Nerriga – Trench cover is ad hoc and depends upon locals calling Council. Small modifications can assist the noted environmental concerns.

Collector – as this is effectively outside Palerang Council control, we have not considered this site in detail. However, the site is significant in size, ideally located for subsequent recycled materials to Sydney markets but it warrants better organization. It services residents from three shires – Palerang, Upper Lachlan and Yass.

Note: The new tip pass provided to all Palerang Council residents appears to be of little relevance to the non-staffed sites. However, there might be opportunities in the future to develop more sophisticated processes associated with influencing patterns of use and maintain community support which will reduce external use and contamination based on some modifications of this system. Locals are also keen to retain an ability to access the resources that are found in these sites and to be flexible in accessing them for the nominal periods they are open.