



CITY of PERTH

CITY OF PERTH WASTE STRATEGY

2014 – 2024+





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Waste Strategy

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March 2014

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EXECUTIVE SUMMARY

The City of Perth Waste Strategy outlines actions required to meet the future waste management needs of the growing city. Competing use for space is creating pressure on the existing service delivery structure. Delivery of effective waste services is critical to maintaining the city as one that will continue to attract residents, businesses and tourists.

The City will engage with key stakeholders to plan for future waste needs and deliver the strategy objectives. The City's primary objectives are to meet health and environmental responsibilities, improve service delivery, improve street amenity and divert waste from landfill.

Waste services, including the collection of garbage bins, recycling bins and bulky waste, as well as servicing litter bins, event waste bins and sweeping streets are all delivered by the City's inhouse waste service. Key issues affecting service delivery include:

- High density living – affecting noise, traffic congestion and availability of space for storing and servicing bins
- Avoiding landfill - encouraging increased recycling and diversion of waste from landfill
- Servicing laneways – narrow laneways and revitalisation of selected laneways results in competing use for space and safety issues for servicing
- Working with developers and business – ensuring waste servicing requirements are designed into buildings and developments, and providing a cost effective range of services to meet the needs of business in the City
- Future service capacity – ensuring the service meets the needs of the growing population

To reach the targets set in the State Government Waste Strategy the City will need to significantly increase recycling and recovery from the general waste stream. Limitations in the existing waste processing facilities reduce the ability of the City to achieve the targets. Therefore alternative arrangements will need to be considered.

The City has direct responsibility and control over some waste streams through its inhouse collection service. It has the ability to influence other waste streams through its policies and development approvals processes. The strategy outlines nineteen actions which will be developed into a detailed implementation plan by the City to support the delivery of the Strategy. The actions have been developed under the themes of:

- Reducing waste
- Maximising recycling and recovery
- Clean streets

There are also a number of overarching actions related to delivery of the strategy, these include ensuring the City's strategies and policies integrate waste, reviewing funding structures and monitoring and reporting of services delivered,

Waste service delivery will continue to evolve to meet the needs of the City. This strategy sets the framework for delivering best practice waste solutions to maintain clean, safe and attractive streets with fewer bins.

1 INTRODUCTION

Providing sustainable cost effective waste management solutions is a major challenge for every Australian council. The City of Perth has undertaken an extensive internal consultation to develop this waste strategy, which is designed to meet the future waste management needs of the growing city.

This strategy outlines the current context and issues for the City's waste services. It identifies objectives and actions that establish the foundations for the City to improve waste diversion and deliver safe, efficient services that provide good street amenity.

The City of Perth is unique compared to other councils in the Perth metropolitan area, due to high density living, the rate of development and the influence of waste from businesses on service delivery. Delivering sustainable waste solutions will require council working with a wide variety of residents, businesses, developers and, waste management companies within the City.

1.1 OBJECTIVES

The following objectives were considered in the drafting of the waste strategy:

- 1** Ensure the City's fundamental public and environmental health obligations and responsibilities are foremost in strategic and policy considerations.
- 2** Continue to improve service delivery practices which strive to protect the safety of the general public and City staff against harm.
- 3** Improve street amenity while increasing service levels to customers and city users through the use of innovative technologies ensuring value for money and sustainable practices.
- 4** Through their engagement and cooperation maximise opportunities to reduce the amount of waste being generated by residents and city workers.
- 5** Engage city business owners/operators to share street space in particular laneways with mutual regard to competing uses.
- 6** Devise waste management conditions associated with land development activities which guide and set appropriate standards.
- 7** Be cognisant of and contribute to the achievement of State Government and waste management objectives in terms of quantitative and time based targets.

2 BACKGROUND

The City of Perth has a distinct leadership role, as the capital city authority of Western Australia, to ensure the City continues to develop and flourish without compromising future generations. The City is experiencing unprecedented growth, supported by mirrored levels of development and investment.

Delivery of effective waste services is critical to maintaining the city as one that will continue to attract residents, businesses and tourists. Competing use for space and the increased night-time economy is creating pressure on the existing service delivery structure. The waste strategy addresses the growing pressures on the city and outlines how waste services can be efficiently delivered into the future.

Waste, in the context of this strategy, means solid waste from municipal, commercial and industrial, or construction and demolition sources. It includes general waste, recycling, organics, bulky wastes, litter, street cleansing and Council's operational waste. It excludes sewage, liquid waste and clinical waste. The City of Perth does not have direct control over all waste generated in the city. The Strategy seeks to influence the management of waste that is not under the City's direct control, and to adopt best practice management for material that the City of Perth does control through its own operations, including domestic waste and commercial customers.

The City is currently diverting 18% of municipal solid waste and 9% of the commercial and industrial waste from the waste stream. This is partly because of the regional governance arrangements and limitations of the existing waste processing facilities. The *Western Australian Waste Strategy 'Creating the Right Environment'* calls for best practice and continual improvement. It sets targets of diverting 50% of municipal solid waste from landfill by 2015, and 65% by 2020. For the commercial and industrial sector, targets are 55% landfill diversion by 2015 and 70% by 2020. The construction and demolition waste targets are 60% diversion by 2014 and 75% by 2020. The actions in this strategy will assist in delivering these targets.

2.1 ABOUT THE CITY

The City of Perth covers an area of 8.12km² including the suburbs of Perth Central, Northbridge, and parts of West Perth, East Perth and Crawley. It includes 95km of roads and 118ha of parkland and reserves. Understanding the City's demographics is critical to understand waste generation and projections.

2.2 DEMOGRAPHICS

RESIDENTIAL DEMOGRAPHICS

The 2013 population is 20,359, living in 11,461 households¹, with an average annual population increase of 7.93%. It is anticipated that with this continued growth trend, the City of Perth's residential population will be approximately 28,500 by 2023, and the majority of the growth will be in Perth Central and East Perth resulting in an increase in population density².

¹ Source: City of Perth, Population Forecasts <http://forecast2.id.com.au/Default.aspx?id=284&pg=5230>

² Source: City of Perth, Strategic Community Plan 2029+ pg 9 (2012 data)

Currently 86% of dwellings in the City of Perth are high density units/apartments and 9% are medium density. Only 2% are separate houses³. The highest proportions of dwellings are two bedroom apartments, followed by one and three bedroom apartments. Perth City has a higher than average population of people aged 20-34, with the majority of households occupied by couples and individuals. Approximately 61% of residents own a vehicle⁴.

WORKFORCE DEMOGRAPHICS

The number of people working in the City of Perth local government boundary has increased significantly over the past five years. It is estimated that 125,000 people work in the city each day. The top seven employment industries within the City are professional, mining, accommodation and food services, health care and social assistance, construction, public administration and safety, and retail trade⁵. The types of industries in the city impact the type and quantities of waste generated.

Currently 53% of the workforce use public transport or walk/ride into the city. The State Government aims to have 70% of all commuters using public transport into the city by 2031⁶. Road changes and closures may lead to far greater congestion, which may have a compounding effect on public transport use, such as the closure of Riverside Drive and the two way street conversion program within the Central Business District. These changes will impact the number of vehicles on the road competing with waste service vehicles, and waste collection service routes and collection points.

2.3 EXISTING WASTE POLICIES

At a state level the main policy drivers affecting the waste strategy are the *Waste Avoidance and Resource Recovery Act 2007* and the *WA Waste Strategy 'Creating the Right Environment'*. The *Act* sets the overarching context for the role of local governments in waste management in WA. The *Strategy* sets out the strategic direction and objectives for the Waste Authority and the Department of Environmental Regulation. It also outlines how the funds from the Waste Avoidance and Resource Recovery Account should be spent.

Waste collection and processing options should be considered in the context of the waste hierarchy (Figure 2-1). The Waste Authority's position is that the waste hierarchy should be used alongside other tools such as cost benefit analysis to help guide decision making.

³ Source: Dwelling Structure, Community ProfileID City of Perth (2011 data) <http://profile.id.com.au/perth/home>

⁴ Source: Dwelling Structure, Community ProfileID City of Perth (2011 data) <http://profile.id.com.au/perth/home>

⁵ Source: City of Perth, Strategic Community Plan 2029+ pg 9

⁶ Source: City of Perth, Strategic Community Plan 2029+ pg 10

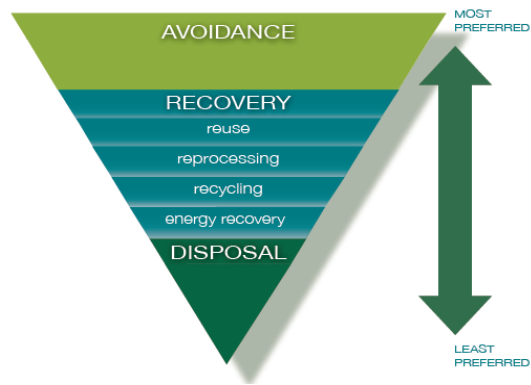


Figure 2-1 Waste hierarchy

The Waste Authority has recently released the *Better Practice Kerbside Collection System Guidelines for WA Local Governments*. The document supports the Australian Standard 4123.7-2006 Mobile Waste Containers and encourages its implementation as soon as practicable.

The State Government has announced plans to reduce the number of local governments in the Perth metropolitan area from 30 to 15 from 1 July 2015⁷. The purpose is to build a stronger, more effective and financially secure local government sector to meet the needs of the greater metropolitan area’s rapidly growing population. It is likely that City of Perth’s boundaries will expand to take in households and businesses from other council areas. There will be a need to integrate the collection systems and waste charges for the new residents and businesses and to implement a comprehensive community engagement scheme.

The WA Local Government Association (WALGA) plays a role as the peak lobbying and advocacy organisation for local authorities, and tries to influence how policy decisions are made that affect the sector. WALGA has recently released the *Vision for Waste Management in the Metropolitan Area*. It suggests a new governance framework for waste management, including rationalising the existing five regional governments (including Mindarie Regional Council) into three regional authorities with consistent powers. It encourages standardisation of waste services throughout local authorities. Under the proposed local government amalgamations it is likely that the regional governments and their membership structures will need to be reviewed.

WALGA is also in the process of developing a set of planning guidelines for managing waste in multi-unit dwellings. Draft public event waste management guidelines have also been released: *Being Waste Smart – A guide to minimising waste at events*.

The City of Perth has followed the legislated Western Australian Local Government model for the integrated planning and reporting framework. Waste will continue to be integrated into this planning framework. Some City strategies that the Waste Strategy complements include the *Strategic Community Plan 2029+*, *Long Term Financial Plan 2029+*, *Corporate Business Plan 2013/14-2017/18*, *Asset Management Plan 2013/14-2023/24*, *Forgotten spaces: Revitalising Perth’s Laneways*, *Draft Noise Management Action Strategy and Plan 2013*.

The City also has a series of policies relating specifically to waste services and bin placement. Each of the policies will be reviewed following the release of the waste strategy.

MINDARIE REGIONAL COUNCIL

⁷ Source: Department of Local Government & Communities <http://metroreform.dlg.wa.gov.au/> (accessed January 2014)

The City of Perth is a member of Mindarie Regional Council (MRC). Mindarie Regional Council is Western Australia's largest Waste Management Authority, managing the disposal of over 250,000 tonnes of waste generated each year. Member Councils include the Cities of Joondalup, Perth, Stirling, Vincent and Wanneroo, and the Towns of Cambridge and Victoria Park.

Since early 1991, the region's household waste has been landfilled at a site operated by the MRC at Tamala Park, 35 km north of the Perth City centre. The MRC in particular deals with recovery and disposal of waste from its member council's general household waste.



In support of the State Government's WASTE2020 vision of "Towards Zero Waste" a Resource Recovery Facility was built in Neerabup. Operated under contract to the MRC by BioVision 2020 Pty Ltd, the facility commenced operations in July 2009 and processes 100,000 tonnes of household waste from the general waste bins each year. The facility is operating under a 20 year contract with the region until 2029. However it is unlikely to be able to accommodate the City's waste now or in the future. Therefore there is a need for the City of Perth to review its arrangement with MRC⁸ and to identify alternative solutions to diverting waste from landfill to achieve the targets set by the state government.

⁸ City of Perth's Long Term Financial Plan 2029+

3 SOURCES OF THE CITY'S WASTE

The City of Perth offers a two bin system for residents and commercial customers. Existing service levels are summarised in Table 3-1. Residents are provided with a co-mingled recycling service for all recyclable containers, paper and cardboard. Commercial customers can opt in to a paper and cardboard only recycling service. Due to space restrictions many commercial and residential properties can only store a small number of bins, therefore the City offers multiple services per week to meet the bin capacity requirements of the unit block or customer.

The service accepts all glass, plastic and metal containers, as well as all paper, cardboard and liquidpaperboard cartons. General waste and bulk waste is taken directly for disposal at Tamala Park landfill. Mixed recyclables are taken to Cleanaway's Materials Recovery Facility in Bayswater, with paper and cardboard taken to Amcor's recycling facility in Canning Vale.

Table 3-1 Waste and recycling service offerings in the City of Perth - 2013

Service type	General waste	Recycling	Bulk waste
Houses (and up to 5-dwellings)	240L Weekly	240L Weekly	One per year scheduled
Units	240L/ unit Frequency - as required, minimum weekly	240L/unit Weekly	One per year scheduled
Commercial	As required, minimum weekly	– Paper and cardboard – as required, minimum weekly	Not provided

The population and service information for the City of Perth in 2013 is summarised in Table 3-2. This shows that bins are shared for most households, and that for the general waste stream there are multiple collections per week. There are significantly less recycling bins than general waste bins.

Table 3-2 Summary of population and service information - 2013

	Domestic General waste	Domestic Recycling	Commercial general waste	Commercial paper recycling
Population	20,359	20,359	n/a	n/a
Number of households	11,461	11,461		
Number of bins	4,261	2,386	6,434	853
Number of bin lifts/week	9,150	2,386	17,500	1160

In addition to the waste collected from the kerbside the City also collects litter, street sweepings, waste from public place bins, events and illegally dumped material. There is also waste generated from the council's internal operations including waste from council buildings maintaining parks and roadways.

3.1 DOMESTIC

3.1.1 GENERAL WASTE & RECYCLING COMPOSITION

The composition of the waste stream is important for understanding the potential to recover more materials from the general waste stream to achieve the state diversion targets. The chart below shows the average composition of household general waste for the City of Perth, note this includes some commercial waste. The majority of the general waste stream is food waste (40%), there is also a significant proportion of recyclables (34%) including metals, glass, plastic, cardboard and paper.

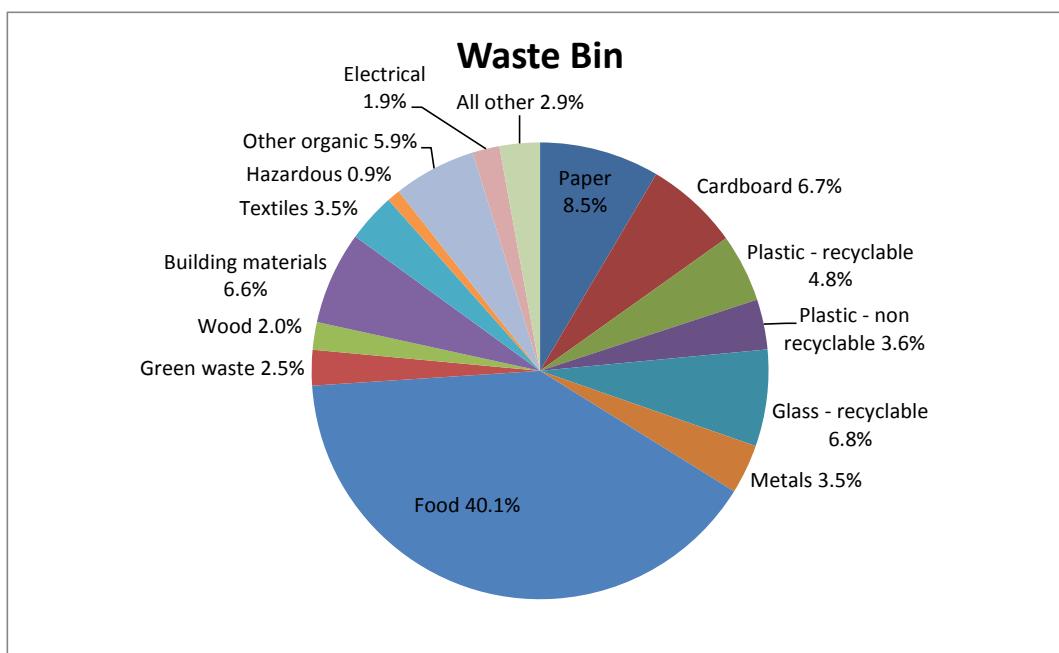


Figure 3-2 The City of Perth average household general waste composition⁹

The following chart shows the household recycling composition for the City of Perth by weight. Heavier materials such as glass (35%), paper (24%) and cardboard (19%) are the most significant proportions. Contamination is approximately 15%.

⁹ Calculated from data in the SMRC *City of Perth Waste and Recycling Audit 2013*

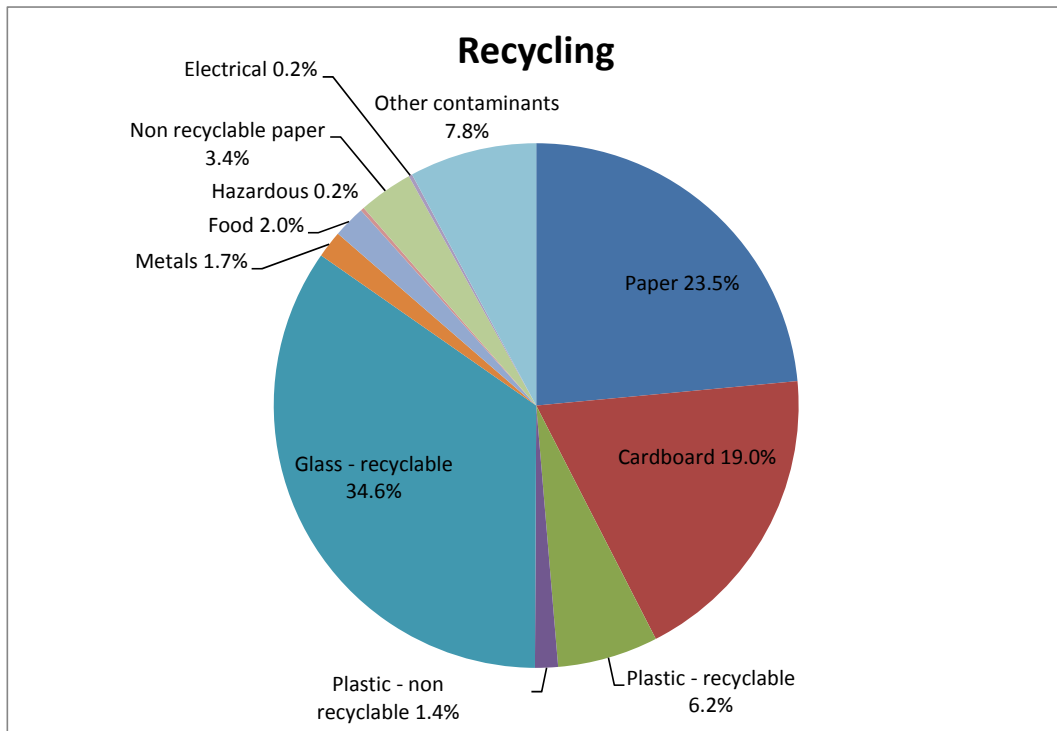


Figure 3-3 The City of Perth average household recycling composition

3.1.2 BULKY WASTE

A bulky waste service is provided once a year to collect materials that don't fit into the general waste bin. This service accepts tree prunings, old furniture, stoves, refrigerators and "general junk". No bricks, rubble, sand, cement or foodstuffs are accepted. Residents are provided two weeks notice that the annual scheduled collection will be conducted. Materials are placed on the kerbside the evening prior to collection. E-waste and white goods are requested to be source separated at the time of pick-up to facilitate recycling. The remainder of the bulky waste is disposed of at the Tamala Park landfill.

The City of Perth does not provide an additional on-call service. Therefore residents can engage their own private contractor, or take excess waste and bulky materials to a transfer station.

3.1.3 HAZARDOUS WASTE

Hazardous waste comprises a small but problematic part of the waste stream for the City. Batteries, light globes, paint and other hazardous materials tend to make up 1% of the waste stream. The City of Perth, in conjunction with Mindarie Regional Council, provides free access to the following permanent facilities for safe disposal of items such as gas bottles, cans of paint, flammable liquids, pesticides and herbicides, pool and garden chemicals, fluorescent tubes:

- Tamala Park, 1700 Marmion Ave, Mindarie
- Recycling Centre Balcatta, 238 Balcatta Road, Balcatta

A maximum of 20L/kg (or combination) per visit applies.

Asbestos must be double wrapped in black builders plastic and labelled as asbestos.



3.1.4 COUNCIL OPERATIONAL WASTE

Litter

Litter bins are serviced continually in the malls and adjacent streets during and after business hours and frequently on Saturdays, Sundays and Public Holidays. Additional services are provided on the weekends including a Saturday afternoon shift and between 2am – 9am on Sunday morning with the aim of ensuring the City is presentable for the public all weekend.



Street sweeping

The City of Perth operates an intensive nightly street cleaning operation, with the Malls, CBD Streets and Northbridge precinct cleaned nightly. High profile areas are serviced daily. The Hay St Mall alone includes 5,500m² of footpaths to be maintained.

Daytime street cleaning in the central city is carried out using small mobile mechanical cleaners. The City of Perth has developed a high pressure cleaning process which enables stains and spillage to be removed without creating any discharge into the storm water system.

Illegal dumping

Illegal dumping is not considered to be a major issue for the City of Perth. There are one or two incidents per week, usually from unit blocks with excess material from people moving house. It is considered likely that, as the amount of inner city dwellings in the City increases, incidences of illegal dumping may also increase. Council's Environmental Health Officers and Rangers will continue to respond to illegal dumping incidents as required.

Event waste

Currently the City of Perth run a number of events, and they permit other organisations to run events within the City area e.g. SkyWorks. Event organisers are required to contact the City waste services, or an alternative service provider, to arrange for waste services at their events. This occurs for many events, however not all event organisers follow this procedure.



3.2 COMMERCIAL

The majority of the City's services are commercial waste services. The City currently offers a general waste, paper only and a free cardboard collection to a range of businesses in the City. In addition to permanent businesses there is an increasing trend towards pop up bars and food vendors that require temporary or additional waste services.

A waste audit of the commercial waste was conducted in 2013¹⁰. The results are shown in Figure 3-4. The average commercial waste composition shows that the largest portion of general waste by weight was food waste (45%), followed by recyclable containers (17%), recyclable paper (8%) and cardboard (8%). Hazardous waste, electrical waste and 'other'

¹⁰ Calculated using data from the SMRC *City of Perth MSW commercial and litter bin audit 2013*

materials are all minimal. Non-recyclable plastic (such as plastic bags, film, bulky plastics) was relatively small by weight but may be significant by volume. Other organics such as contaminated paper, composite paper and greenwaste could be composted if the City of Perth's general waste was taken to an organics processing facility.

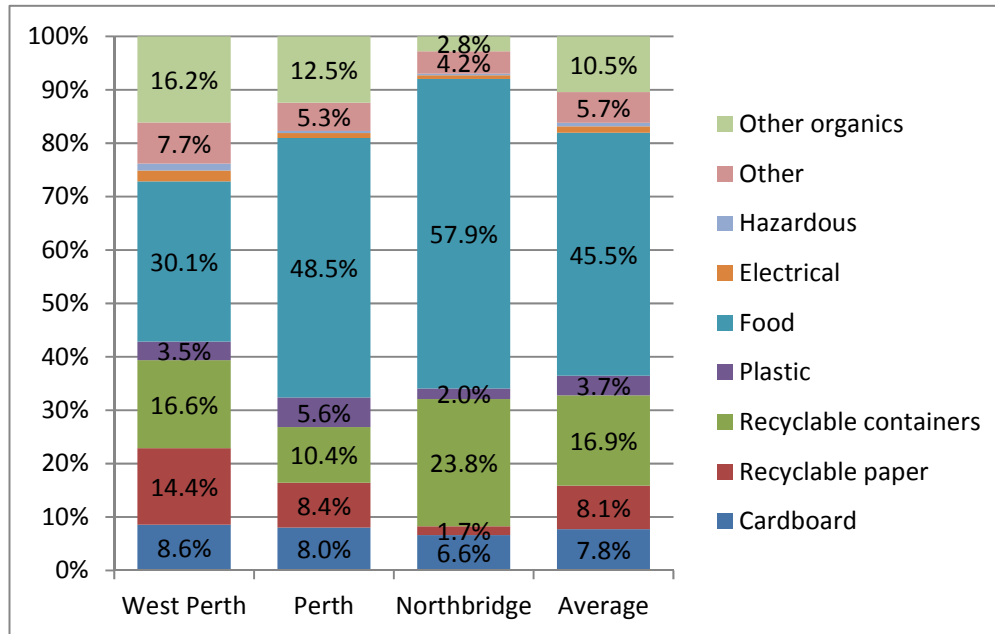


Figure 3-4 Commercial general waste composition

The waste compositions from the different areas, West Perth, Perth and Northbridge, reflect the different types of business activities that are primarily undertaken. West Perth shows the highest proportion of paper and cardboard with the smallest portion of foodwaste. This may reflect the demographic of small offices utilising the general waste service only. The composition from Northbridge reflects the larger amount of hospitality waste with the highest amount of food and containers, and the low portion of paper/cardboard. The composition from Perth reflects the greater diversity of businesses in the central business district.

3.3 CONSTRUCTION AND DEMOLITION WASTE

There is a significant amount of construction proposed and currently being undertaken in the City. Some of the construction activities are being directly undertaken by the City of Perth's Works Department, some is undertaken by a contractor on behalf of the City, but the majority is being undertaken by the state government or private developers.

Most demolitions and new developments require a development application that is approved by the Council. The City has an opportunity to influence the requirements of the development applications to encourage a greater amount of waste diversion and tracking of construction and demolition waste. As the majority of construction and demolition waste generated is outside of the City's control, it is difficult to quantify the amount of material that is able to be influenced by the City.

4 ISSUES FOR THE CITY

Waste management has evolved from the traditional role of collecting and disposing of waste for public health reasons, to also include reducing environmental harm caused by waste. New technologies enable cities to use waste management to improve sustainability through improved collection systems, monitoring and reporting of collections and increased recovery of energy and resources from material collected. There are a large number of issues and challenges for the City in facilitating and delivery sustainable waste services. The issues are summarised under the key themes below.

4.1 HIGH DENSITY LIVING

High density living presents challenges including a lack of space for storing multiple bins and traffic congestion problems when collecting material from narrow or busy streets. There is inadequate time to service noise sensitive areas, and traffic congestion can make collections difficult in the morning commuter peaks. The City has developed systems to cope with these challenges but with the increasing population, alternative collection systems will be required in some areas to deliver service and environmental improvements.



4.2 SERVICING LANEWAYS

Many commercial and domestic waste bins are currently accessed from, and stored in, laneways. The City has adopted a strategy of revitalising some laneways. This means that alternative options for storing and servicing waste bins may be required. Safe delivery of services is a primary concern for the City. There are additional safety considerations for servicing laneways. Frequently drivers must reverse up narrow laneways to enable bins to be emptied. Throughout the day vehicles often obstruct the entry to laneways or park inside laneways. This results in waste collection vehicles having to abandon the collection of inaccessible bins which in turn necessitates alternative collection arrangements to be made. This can become a challenging time management issue. In addition to the congestion issues, laneway amenity is affected by overflowing bins, bin odours and dumped rubbish.

4.3 AVOIDING LANDFILL

There is increasing pressure on the limited landfill space available within the Perth metropolitan area. Landfills result in a loss of valuable resources, generation of greenhouse gas emissions and potential for groundwater contamination. Newer landfills are located further from the City creating additional service and transport costs for ratepayers. Alternative waste treatment options are now available including recovering organics for compost-like products, or residual wastes for energy. Processing of residual wastes to maximise recovery of resources is the only way to achieve the State's waste diversion targets. The private sector has proposed some new facilities that are currently going through the planning and development process. Additionally the state government is developing a Strategic Waste and Recycling Infrastructure Plan to set the framework for delivering infrastructure for the Perth and Peel metropolitan areas future waste needs.

4.4 WORKING WITH DEVELOPERS AND BUSINESSES

Businesses and developers are an important part of delivering the waste strategy. The waste audit results indicate significant potential to recover more recyclables from all businesses. The City must ensure a stronger focus on recycling and recovery options from small to medium businesses to facilitate the achievement of state waste diversion targets. Each type of business generates different types and quantities of waste. Different businesses also have different amounts of room to store and present bins. Developers have a role to plan in adequate space for bin storage and service access. In addition it is a challenge for small and medium businesses to engage their staff and adopt appropriate solutions that encourage diversion of waste from landfill.

4.5 FUTURE SERVICE CAPACITY

Waste management requires a reliable and continuous service, especially in a 24 hour city like Perth. The City's residential and commercial populations are growing rapidly. There is a need for the City to consider how its in-house waste service will respond to meet the service needs of the growing population. This includes considering a wider range of service delivery options and infrastructure that can be scaled to meet demand. In addition to the City's existing growth rate, local government amalgamations are proposed that will further increase the residential and business population. The amalgamated areas may have different systems and infrastructure that will need to be integrated over time.

5 OPPORTUNITIES TO IMPROVE RESOURCE RECOVERY

Three scenarios have been modeled to understand waste diversion potential for domestic and commercial waste collection by the City of Perth. Business as usual is based on the existing recovery rates. Medium recovery rates require a concerted effort to improve awareness and participation in recycling. It assumes that not all people will use the systems provided for optimal recovery. The high scenario requires a very high level of participation to reduce the recyclables and organics in the general waste stream. High recovery rates have been modeled to determine the level of recovery required to achieve the State waste diversion targets.

Table 5-3 Diversion rate scenarios

Diversion rates	BAU	Medium	High
Household	18%	48%	66%
Commercial	9%	45%	69%

Figure 5-5 shows that to achieve the medium scenario a significant proportion of the cardboard, paper, recyclable containers and food waste that is in the general waste bin would need to be recovered. The City has existing systems to collect and process all of these materials except for the food waste. To achieve the high diversion scenario almost all cardboard, paper, recyclable containers would need to be diverted from landfill. In addition there would need to be a system in place to recover the majority of food waste and other organics such as disposable paper, contaminated paper and nappies.

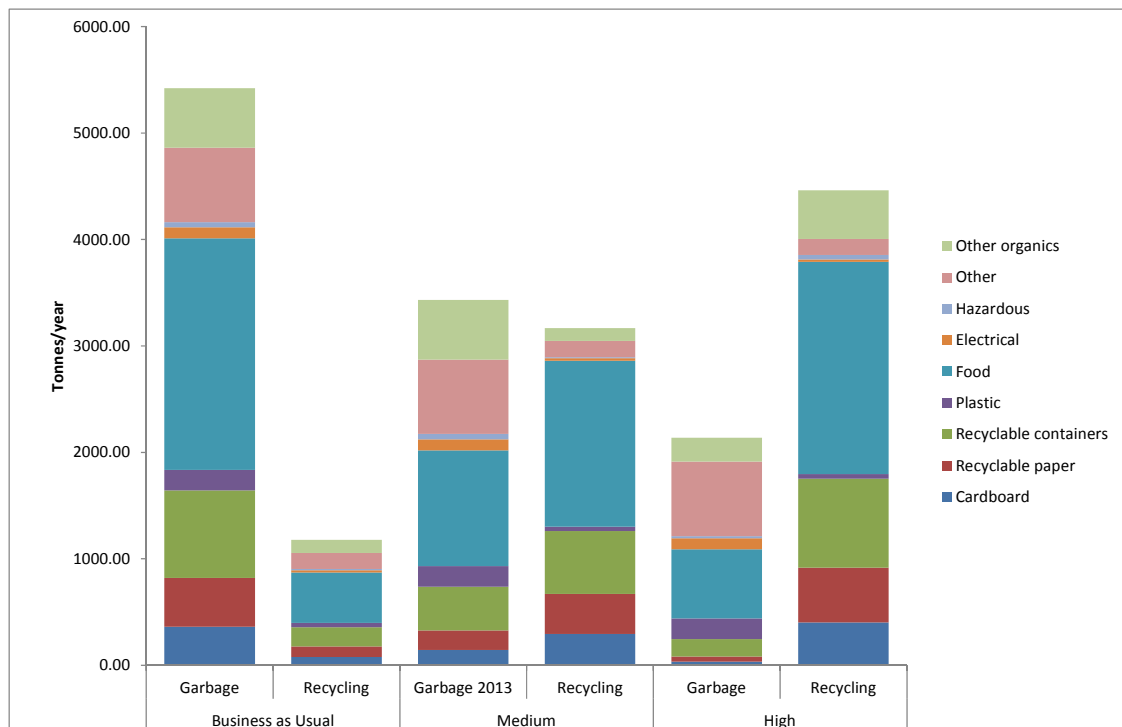


Figure 5-5 Household waste diversion potential

The tonnages are based on actual tonnes generated in 2013 and the composition is based on the waste audit results shown in Section 3.1.1. It is acknowledged however that additional tonnages will be generated as a result of local government amalgamations and population growth.

The diversion assumptions for commercial waste are similar. However the business as usual recycling rate is much lower meaning greater recovery is required. For the medium scenario half the food, paper, cardboard and recyclable containers in the general waste bins would need to be recovered. For the high scenario it is assumed that almost all cardboard, paper, recyclable containers would need to be diverted from landfill, as well as a significant proportion of food and other organics.

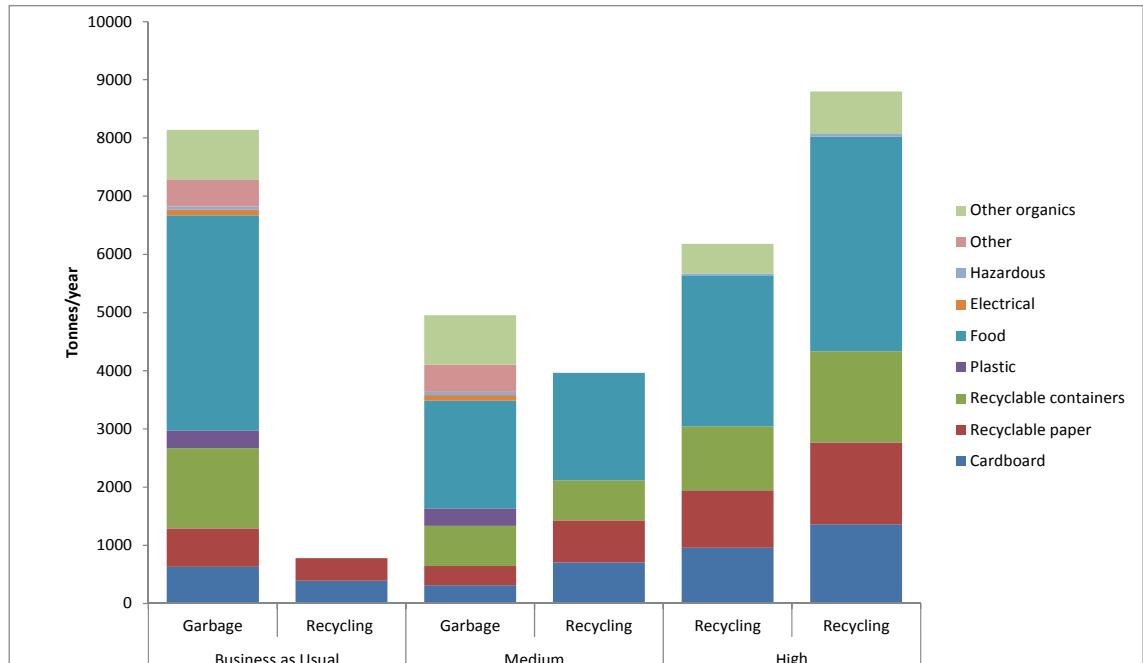


Figure 5-6 Commercial waste diversion potential

A separate food waste or organics solution, such as on-site food waste digesters, or a contracted food waste collection, may be appropriate for certain buildings or precincts. However a significant proportion of food waste and organics are presented in containers or wrapped in plastics creating contamination. An effective organics/ food waste program requires a comprehensive education campaign and monitoring of the service. Given the pressure already occurring as a result of a large number of trucks and bins on the street additional collection for the City as a whole it is unlikely to be a practical option.

Some alternative waste treatment options such as Neerabup BioVision ARRT, Southern Metropolitan Regional Council's Bedminster or the Anaeco DiCOM facilities process much of the organics material, but experience to date indicates that they do not deliver the state waste diversion targets on their own. Therefore some waste to energy facilities have been proposed to process residual waste.

Energy from waste facilities are well established throughout Europe, Asia and North America. Energy from waste has a legitimate role to play in the waste hierarchy and as an alternative energy source. Many of the technologies proposed include a sorting process to recover materials prior to processing the remaining materials for energy. It is anticipated that any waste to energy solution would be in addition to a comprehensive waste reduction and recycling program.

6 WASTE STRATEGY

This section outlines the actions proposed for the City.

6.1 REDUCING WASTE

The City can influence the community to eliminate unnecessary waste. Marketing and education programs that help people understand the systems available are an effective long term approach to achieving sustainable waste outcomes. There are an increasing number of international, federal and state government waste avoidance and reduction initiatives that will be supported, as appropriate, by the City. Much of the packaging and food waste generated could be avoided through reduced consumption by residents and extended producer responsibility initiatives for manufactures. Extended producer responsibility encourages the manufacturers to take more responsibility for their products and the cost for their end of life management resulting in more sustainable packaging design. The City will support extended producer responsibility programs and sustainable procurement for council's purchasing decisions and contracts.



- 1 Develop a sustainable procurement policy – encouraging purchase of recycled and low environmental impact products.**

6.2 MAXIMISING RECYCLING AND RECOVERY

Residential

The waste capacity required per property informs planners and property developers of the amount of space required in new developments. It is important that adequate space is allocated to meet waste management needs of the development for the next 30-50 years. There are a range of service options within individual unit blocks, such as provision of waste chutes, waste storage areas or bulk bins. The majority of the City's existing unit blocks use communal bin rooms with 240L bins. This is the waste option that is most suitable for the City's current waste collection infrastructure, although some complexes are now starting to design in loading docks, or chute systems, with or without compactors. These options reduce the need to place bins on the street for collection, but they require different types of collection vehicles. The City's waste policies and rates need to be amended to allow for this change in service provision.

- 2 Develop and adopt a policy and guidelines related to waste storage and service access requirements for development applications.**

Commercial

The City does not have direct control over commercial and industrial waste, but it has the ability to encourage waste diversion and appropriate bin presentation. Some businesses have not planned suitably for their waste requirements resulting in bins overflowing or being left on the street creating a health and safety risk. This includes both permanent businesses and pop up bars and food vendors which are increasing with the growing night time economy. To improve amenity and assist in the delivery of the state diversion targets it is proposed that the Environmental Health Licence requirements be reviewed to encourage recycling, organics and energy recovery.

- 3 Review Environmental Health Licence requirements to include submission of a waste management plan.**

The City will continue to provide services that are able to be delivered by rear-loader trucks, which can be used for multiple material types and bin sizes, but are also suitable for the City's streets and laneways. However to meet the growing needs of the city, the City of Perth will need to adopt a business plan that allows it to plan and grow appropriately to increased business needs. The business plan will need to take into account business and waste growth projections to determine operational requirements for the future; the implications of collecting commercial waste and recyclables separately from municipal solid waste; and determination of appropriate bin lift rates to incentivise recycling.



4 Develop a business plan for the commercial waste and recycling service.

The City of Perth currently collects waste from 68 laneways, of which 48 (70%) have limited or restricted access for collection trucks. In addition, the City has adopted a strategy of revitalising the laneways. This means that some laneways may no longer be used for storing and servicing waste bins. Bins located in laneways may result in illegal dumping, odours and overflowing bins. There are also a series of operational challenges to servicing laneways, such as the need for vehicles to reverse into them, or parked vehicles obstructing access to bins.

To resolve some of these challenges, other cities have adopted a range of solutions including providing pre-paid, labelled bags to businesses generating waste and requiring them to present waste three hours prior to service time, providing a waste compactor with swipe card access, or providing a lockable waste bay with a variety of waste and recycling services to consolidate the bin storage requirements. Other service options such as in-ground bins, underground vacuum collection and introducing larger bins could also be considered as alternatives for laneway waste management. There is a need to determine the requirements of each laneway based on type and quantity of waste generated, and available space for waste services. Based on this assessment appropriate solutions should be implemented in consultation with the users of each laneway.

5 Assess the waste management requirements of each laneway and implement appropriate solutions.

Construction and demolition

Given the amount of development proposed for the City, there is an opportunity to encourage waste diversion and the use of recycled products in new buildings. To encourage sustainable development many Australian councils require that each development application include a waste management plan and require submission of dockets as evidence of where waste has been processed. It is proposed that the City of Perth adopt a similar system.

6. Adopt a policy to require the submission of a waste management plan for development applications.

Council offices

There are a number of council buildings and operations throughout the City. To ensure the City's own operations reflect the intentions of this strategy it is proposed that the waste services in each building and operation be reviewed to improve waste reduction, recycling and resource recovery.

7. Review waste services in council buildings and operations

Community education and engagement

Waste education messages are currently provided to the City's ratepayers via the bin stickers, council's website, flyers, and some state or regional programs such as the Waste Wise Schools Program, Keep Australia Beautiful and Earthcarers. The City receives minimal customer complaints and enquiries related to waste services when taking into account the number of services delivered.

This strategy proposes a range of service changes and identifies the need to increase diversion of waste from landfill. Any initiatives implemented will need to be complemented by a community education and engagement program.

Appropriate data is required to determine the effectiveness of the services and education messages being delivered. It is recommended that regular waste audits are conducted to inform appropriate policies and education messages.

8. Develop and implement a waste education and engagement plan for the City, including all waste streams.

9. Conduct a waste composition audit every 3 years to monitor effectiveness of programs.

6.3 CLEAN STREETS

Each day city visitors, residents, workers and businesses contribute to the litter on the streets and in the bins. The City provides a comprehensive street cleansing service to keep public places clean.

Litter bins

Throughout the city there are hundreds of permanent litter bin enclosures. Many of these are serviced multiple times per day, especially during peak times. This creates a significant demand on staff time in maintaining street amenity and cleaning the enclosures. Some bins attract more waste than others based on their location. The City is reviewing the types of bin enclosures, and based on the potential to adopt new and precinct based waste management systems the placement of litter bins will also be reviewed.

10. Review public place bin placement and implement the recommendations.

Alternative waste collection systems

Vacuum waste handling systems have been successfully introduced in other cities to address the challenges of overfull bins, narrow roads, traffic congestion and competing use for space. Alternatives include deep storage bins or onsite waste management systems that can contain a larger amount of waste, while managing odour and litter concerns. These styles of waste handling options are common in some parts of Europe and Asia.

Adopting this type of system would require a systematic change in the way the City handles waste collection, and it would require a staged implementation over a number of years. Retrofitting these systems is expensive. There may be benefits whilst the city is in a state of growth to commence adopting alternative waste handling options. Underground vacuum technology, in-ground and compactor bin systems will reduce the number of trucks and bins on the streets in the long term.

11. Conduct a detailed cost benefit analysis of implementing or retrofitting alternative waste collection systems.

Event waste management

There are a large number of events operated by the City or that the City permits to be conducted. Some of these events plan well for the additional waste generated and implement systems for waste reduction and recycling. However there is potential for improvement to ensure that all events held within the City adopt sustainable event principles. There is a need to review the existing events approval process to include waste management requirements that encourage recycling and waste reduction.

12. Develop and implement public event waste management policy guidelines, including a review of the event approval process to include waste requirements

Reducing bins and trucks on the streets

There are multiple service providers operating throughout the City, with multiple trucks servicing any one street. One option to improve collection efficiencies and improve waste diversion is to adopt local waste laws that require organisations collecting waste in the city to obtain a permit. The permit system requires waste collectors to comply with certain rules/conditions for service delivery, at the risk of being fined for non-compliance. The City's in-house waste service would need to comply with the same conditions. This would address many of the issues in the City, regarding basic service standards such as acceptable service times, when bins can be placed on the street, and the condition of bins.

13. Develop and administer a policy, similar to that implemented by the Enterprise Melbourne model, issuing permits to commercial waste and recycling collection operators within the City confines.

7 NEXT STEPS

Delivering the waste strategy relies on a large number of stakeholders. It will be a process of constant and gradual implementation and review. This section outlines some of the overarching considerations for facilitating the delivery of the waste strategy. In addition an implementation plan (Section 8) has been developed to complement the strategy.

Waste policy

Many of the existing City policies should be reviewed and updated to integrate waste management considerations. The policies that outline the specific waste services and standards will require regular updating given the expected rate of change within the City.

14. Review relevant City policies and Guidelines to ensure that waste management is considered.

15. Review waste policies within 12 months of waste strategy publication, then every three years from that date.

Regional local government membership

Due to local government amalgamations it is anticipated that the membership and structure of regional local government will be reviewed. This will provide a good opportunity to consider whether the current arrangements will assist the City to cost effectively deliver its waste objectives.

16. Review the City of Perth's arrangement with Mindarie Regional Council to identify alternative, cost effective, solutions to diverting waste from landfill.

Waste reserve funding

There are some actions proposed in the strategy that may result in significant capital investment, in addition the City maintains a large vehicle fleet. Historically the City has built up a waste reserve to ensure adequate funds are available for delivering strategic waste programs and waste equipment. The reserve has dwindled as a result of investment in some regional waste initiatives. Following agreement to the strategy objectives, a costed action plan will be developed. This provides an opportunity to review the waste reserve funding.

17. Review the waste reserve funding so that there is more rigour to the purpose of the fund and a definition of what the funds can be used for.

Monitoring and reporting of services delivered

Many councils and waste companies have benefited significantly from adopting an improved system for monitoring and managing their bin collections. Radio-frequency identification devices (electronic tags) for bins and GPS systems have become more accurate and cost effective in recent years. They result in more accurate recording of bins collected, missed, damaged or stolen. They can also assist with delivering targeted education messages for bin users. Many bins in the City are serviced multiple times per week and different sized bins are likely to be available, requiring different charges for different ratepayers. As the demand for commercial and residential waste collection services is going to continue to grow and become more complex the effective monitoring and charging for waste services delivered is beneficial for improved service delivery and reporting.

18. Consider implementing electronic tags and GPS systems to track the number and frequency of bins being serviced to ensure charges match the actual commercial and residential services provided.

Alternative processing facilities

The City currently disposes of material to Tamala Park. This requires the vehicles to travel over 60km per round trip resulting in lost collection time and high wear and tear on vehicles. Existing alternative waste facilities are not sufficiently close enough, or cheap enough, to justify changing the current arrangements. However, alternative sites may be available to develop as a transfer station to provide transport efficiencies.

As all of the City's general waste is currently going to landfill, there may be some alternative options for processing waste through an alternative waste treatment facility. Existing alternatives are more expensive than landfill but would assist in delivery of the waste diversion targets.



- 19. Undertake a feasibility assessment of sites to use as a consolidation facility for the City's general waste, in order to provide transport efficiencies and to prolong the working life of the kerbside collection fleet.**

8 IMPLEMENTATION PLAN

This section contains an implementation plan for the actions outlined within the strategy. Where possible it is proposed that the actions be implemented using City staff. Some of these actions can be undertaken within existing resources, however there are a number of actions that will require additional internal resourcing support.. Other actions are proposed to be undertaken by external resourcing for specialised tasks, where required.

A key for the following table is as follows:

- Priority: has been allocated based on consultation with the project team and Director City Infrastructure & Enterprises.
- No: Action number as outlined in the waste strategy
- Responsibility: indicates the section within the City of Perth that is responsible for implementing the action, with assistance of other sections as appropriate.

SCD = Sustainability City Development Unit

CD = City Design Unit

Works = Works Services Unit

Property = Property Management Services

- Year: indicates the financial year that the work is to be undertaken.

Priority	No	Action	Responsibility	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
1	4	Develop a business plan for the commercial waste and recycling service.	Works		√				
2	5	Assess the waste management requirements of each laneway and implement appropriate solutions.	Works		√				
3	6	Adopt a policy to require the submission of a waste management plan for development applications.	Approval Services		√				
4	10	Review public place bin placement and implement the recommendations.	Works & City Design	√	√				
5	13	Develop and administer a policy, similar to that implemented by the Enterprise Melbourne model, issuing permits to commercial waste and recycling collection operators within the City.	Works	√	√				
6	2	Develop and adopt a policy and guidelines related to waste storage and service access requirements for development applications.	Works			√			
7	3	Review Environmental Health Licence requirements to include submission of a waste management plan.	Compliance Services		√				
8	12	Develop and implement public event waste management policy guidelines, including a review of the event approval process to include waste requirements	Approval & Compliance Services		√				
9	14	Review relevant City policies and Guidelines to ensure that waste management is considered.	Works & Governance		√		√		√

Priority	No	Action	Responsibility	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
10	11	Conduct a detailed cost benefit analysis of implementing or retrofitting alternative waste collection systems.	Works	√	√				
11	18	Consider implementing electronic tags and GPS systems to track the number and frequency of bins being serviced to ensure charges match the actual commercial and residential services provided.	Works		√	√	√		
12	8	Develop and implement a waste education and engagement plan for the City, including all waste streams.	SCD & Works		√		√		√
13	1	Develop a sustainable procurement policy – encouraging purchase of recycled and low environmental impact products.	SCD		√				
14	19	Undertake a feasibility assessment of sites to use as a consolidation facility for the City's general waste, in order to provide transport efficiencies and to prolong the working life of the kerbside collection fleet.	Works		√	√	√	√	√
15	7	Review waste services in council buildings and operations	Property & Works				√		
16	9	Conduct a waste composition audit every 4 years to monitor effectiveness of programs.	External			√			
17	16	Review the City of Perth's arrangement with Mindarie Regional Council to identify alternative, cost effective, solutions to diverting waste from landfill.	Works		√	√			

Priority	No	Action	Responsibility	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
18	17	Review the waste reserve funding so that there is more rigour to the purpose of the fund and a definition of what the funds can be used for.	Works		√				
19	15	Review waste policies within 12 months of waste strategy publication, then every three years from that date.	Works			√			√
Costs Required to Implement Strategy are contained within separate documentation									