



City of Nedlands

## Technical Services Reports

**Committee Consideration – 10 November 2020**  
**Council Resolution – 24 November 2020**

### Table of Contents

Item No.		Page No.
TS18.20	Acceptance of Management Orders for New Public Open Space at Montario Quarter, Shenton Park.....	2
TS19.20	City of Nedlands Waste Plan .....	6

<b>TS18.20</b>	<b>Acceptance of Management Orders for New Public Open Space at Montario Quarter, Shenton Park</b>
----------------	--

<b>Committee</b>	10 November 2020
<b>Council</b>	24 November 2020
<b>Applicant</b>	City of Nedlands
<b>Employee Disclosure under section 5.70 Local Government Act 1995</b>	Nil
<b>Director</b>	Jim Duff – Director Technical Services
<b>Attachments</b>	1. Plan of lots 8001-8004, Deposited Plan 415258 2. Photos of lots 8001, 8002 & 8004, Deposited Plan 415258
<b>Confidential Attachments</b>	Nil.

## Executive Summary

This report is presented to Council to seek acceptance for Management Orders being issued to the City of Nedlands for lots 8001-8004 on Deposited Plan 415258, Shenton Park. These lots denote the four (4) newly created public reserves associated with Stage 1 of the Montario Quarter development.

## Recommendation to Committee

### Council:

1. **accepts issuing of Management Orders to the City of Nedlands for the four (4) newly created reserves associated with Stage 1 of the Montario Quarter development, Shenton Park known as Dawes Park, Guttman Park, Orton Park and Seymour Park comprising lots 8001-8004 on Deposited Plan 415258;**
2. **acknowledges that accepting care, control and management of the four (4) reserves will require an operational budget for maintenance and agrees to allocate funding in the 2021-22 financial year when the City assumes responsibility for maintaining the reserves in September 2021; and**
3. **acknowledges that final costs for maintaining the four (4) reserves will be presented for consideration during the 2021-22 budget process following competitive procurement of contract maintenance services.**

## **Discussion/Overview**

### **Background**

Subdivision of the former Shenton Park Hospital Rehabilitation Hospital site was conditionally approved by the Western Australian Planning Commission (WAPC) on 25 May 2017. As part of the process of approving the new Montario Quarter subdivision development four (4) parcels of land were ceded to the Crown for the purposes of Public Open Space.

The reserves individually known as Dawes Park, Guttmann Park, Orton Park and Seymour Park comprise lots 8001-8004 on Deposited Plan 415258, Shenton Park (Reserves). Development of the Reserves has been completed by DevelopmentWA (DWA) in consultation with the City. The City issued DWA practical completion for development of the Reserves on 23 September 2019.

DWA is responsible for the maintenance of the Reserves for an agreed period of two (2) years following practical completion. Maintenance of the Reserves is currently being undertaken by contractors appointed by DWA. In accordance with Condition 11 of WAPC subdivision planning approval, the City will be responsible for maintaining the Reserves after DWA's statutory maintenance responsibility ceases.

The Department of Planning, Lands and Heritage is seeking to issue management orders vesting the care, control and management for each of the Reserves to the City in accordance with established practice. Assuming management of public recreation reserves and improving and maintaining these on behalf, and for the benefit, of the community is a core function of local government.

### **Key Relevant Previous Council Decisions:**

Council meeting 22 March 2016 – item 13.4: Shenton Park Rehabilitation Hospital Draft Improvement Scheme – Lot 3240 (No. 6) Selby Street, Shenton Park – Request for Comment.

### **Consultation**

The approved Shenton Park Rehabilitation Hospital Improvement Scheme was subject to extensive community consultation, inclusive of provision and planning of the public open space.

## **Strategic Implications**

### **How well does it fit with our strategic direction?**

Accepting issuing of Management Orders for the Reserves supports the strategic priorities listed below contained in the Strategic Community Plan 2018-28:

- Renewal of Community Infrastructure (roads, footpaths, community and sports facilities)
  - Invest in parks infrastructure in accordance with enviro-scape master plans
- Providing for sport and recreation
  - Increase the level of service for parks, ovals and associated equipment
  - Formulate master plans for strategic recreation areas

### **Who benefits?**

The primary beneficiaries will be property owners and residents residing in, and proximate to, the Montario Quarter development. The level of infrastructure and layout within the Reserves is likely to provide a broader community benefit as they will provide new opportunities to accommodate City and community run events.

### **Does it involve a tolerable risk?**

The City has a Ground Water License (GWL) issued by the Department of Water and Environmental Regulation (DWER). The City's GWL provides an allocation of 709,300 kilolitres of groundwater abstraction annually for use as irrigation for public open space. DWER have informed industry that GWL allocations will be reduced. The DWER sub district of Nedlands is fully allocated which results in no dispensation to increase the City's current GWL allocation. The City has consulted with DWER and commenced the process to assign the existing GWL and allocation over the site, currently issued to DWA, across to the City.

Condition 11 of the WAPC approval stipulates DWA's maintenance responsibility for the Reserves statutorily ceases once the reserves have been developed and maintained for "two summers". As this condition is open to interpretation, the City has written agreement from DWA that this is interpreted to be 24 months from practical completion being issued by the City, which occurred in September 2019. As security against the eventuation of an alternate interpretation, DWA agreed to provide the City an appropriate guarantee determined on the total contract amount for development of the Reserves secured against the agreed interpretation.

### **Do we have the information we need?**

No further information is required.

## **Budget/Financial Implications**

Development of the Reserves was undertaken by DWA following extensive consultation with the City. Design of the Reserves, along with the selected materials and infrastructure, represents an appreciably higher level of service than parks of a similar hierarchical standing within the City. This was an intended design outcome in response to the higher density associated with the development comprising a mix of small lots and larger unit developments with reduced access to private open space. A consequence of this will be a higher cost in maintaining the Reserves per unit of measure across the various infrastructure. The only comparable facility in the City with a similar level of infrastructure is the Jo Wheatley All Abilities Place Space (JWAAPS). The projected costs for maintaining facilities at the JWAAPS, which have proven relatively accurate, is in the order of 100% above that of other City parks per unit of area.

### **Can we afford it?**

The cost of developing the Reserves was conveyed to DWA as the developer. Maintenance costs over the lifecycle of the Reserves and assets will be inherently compensated by the increase in rates generated by the development.

### **How does the option impact upon rates?**

The Shenton Park Rehabilitation Hospital site was non rateable property prior to its approved subdivision. Stage 1 of the Montario Quarter development comprises 48 lots of mixed zoning with 44 of these being rateable freehold lots. The subdivision development has potential to create up to 1,600 new dwellings which would represent an approximate increase in rateable properties of 17% on current numbers within the City. Application of the minimum rateable amount for 2020/21 to the fully developed subdivision would generate an approximate 10% increase in rates revenue. In this basic scenario, the estimated whole of life cost to maintain the reserves equates to an overall impact of less than 1% impact of overall annual rateable revenue balanced against a conservatively estimated 10% increase.





Figure 1 – Lot 8002, Dawes Park



Figure 2 – Lot 8002, Dawes Park



Figure 3 – Lot 8002, Dawes Park



Figure 4 – Lot 8001, Guttman Park



Figure 5 – Lot 8004, Seymour Park “Wellness Machine” artwork

<b>TS19.20 City of Nedlands Waste Plan</b>	
<b>Committee</b>	10 November 2020
<b>Council</b>	24 November 2020
<b>Applicant</b>	City of Nedlands
<b>Employee Disclosure under section 5.70 Local Government Act 1995</b>	Nil
<b>Director</b>	Jim Duff – Director Technical Services
<b>Attachments</b>	<ol style="list-style-type: none"> <li>1. Letter from Department of Water and Environmental Regulation dated 7 November 2019</li> <li>2. Letter to Department of Water and Environmental Regulation dated 4 December 2019</li> <li>3. City of Nedlands Waste Plan</li> <li>4. City of Nedlands Waste Minimisation Strategy and Action Plan 2017-2020</li> </ol>

## Executive Summary

The City is required to prepare a Waste Plan under Section 40(4) of the Waste Avoidance and Resource Recovery Act 2007. The City of Nedlands Waste Plan has been prepared for endorsement by Council prior to submission to the Department of Water and Environmental Regulation.

The City of Nedlands Waste Plan aligns with the City's Waste Minimisation Strategy and Action Plan 2017–2020 and the Western Australian Waste Avoidance, Resource Recovery Strategy 2030.

The Waste Plan includes the implementation of Waste to Energy processing from 2022 and Food Organics / Green Organics by 2025. Waste to Energy will provide a cost saving of approximately \$28,000 per annum. The implementation of FOGO will result in an increased cost per dwelling of \$2.42 plus CPI commencing in year 2.

## Recommendation to Committee

**Council approve the City of Nedlands Waste Plan for submission to the Department of Water and Environmental Regulation.**

## Discussion/Overview

The CEO received a letter on 7 November 2019 from the Department of Water and Environmental Regulation requesting the preparation of a Waste Plan under Section 40(4) of the Waste Avoidance and Resource Recovery Act 2007. The Department of Water and Environmental Regulation letter is provided in Attachment 1. The City responded to the letter on 4 December 2019 advising that the City would prepare a Waste Plan as requested. The response letter is provided in Attachment 2.

## Waste Avoidance and Resource Recovery Strategy 2030

Historically, Western Australia has generated the highest volume of waste per capita in the nation and has had among the lowest rates of waste recovery. The Waste Avoidance and Resource Recovery Strategy (WARRS) 2030 will guide the State in becoming a sustainable, low-waste circular economy. Figure 1 shows the overall objectives and targets.

Avoid	Recover	Protect
<i>Western Australians generate less waste.</i>	<i>Western Australians recover more value and resources from waste.</i>	<i>Western Australians protect the environment by managing waste responsibly.</i>
<ul style="list-style-type: none"> <li>○ 2025 – 10% reduction in waste generation per capita</li> <li>○ 2030 – 20% reduction in waste generation per capita</li> </ul>	<ul style="list-style-type: none"> <li>○ 2025 – Increase material recovery to 70%</li> <li>○ 2030 – Increase material recovery to 75%</li> <li>○ From 2020 – Recover energy only from residual waste</li> </ul>	<ul style="list-style-type: none"> <li>○ 2030 – No more than 15% of waste generated in Perth and Peel regions is landfilled</li> <li>○ 2030 – All waste is managed and/or disposed to better practice facilities</li> </ul>

Figure 1 - State Government objectives and targets

### City of Nedlands Waste Plan

The City of Nedlands Waste Plan aligns with the City’s Waste Minimisation Strategy and Action Plan 2017–2020 and the targets set out in the Western Australian Waste Avoidance, Resource Recovery Strategy 2030. The City of Nedlands Waste Plan is provided in Attachment 3 and the City of Nedlands Waste Minimisation Strategy and Action Plan 2017–2020 in Attachment 4.

The City has liaised with the Department of Water and Environmental Regulation in preparing the Waste Plan and has incorporated comments and advice provided.

The purpose of the Waste Plan is to:

- Align the City’s waste management activities with WARRS.
- Analyse current performance and establish a benchmark to achieve Waste Strategy targets.
- Monitor progress on local government achievement of Waste Strategy targets.
- Design programs and activities which will support the implementation of waste plans.

The Waste Plan comprises the following sections:

1. Part 1 – Services and Performance
2. Part 2 – Implementation Plan

Part 1 – Services and Performance establishes the City’s waste profile and baseline information in relation to the objectives and targets set out in the Waste Avoidance and Resource Recovery Strategy 2030.

Part 2 – Implementation Plan is structured around the following sections:

- Waste Services;

- Policies and Procurement;
- Behavior Change Programs and Initiatives; and
- Data.

## Waste to Energy

The City of Nedlands Waste Plan is a strategic plan which includes the implementation of Waste to Energy (WTE) processing from 2022. The process is essentially the combustion of waste to produce superheated steam which is sent to a steam turbine to generate electricity for sale on the commercial market.

In accordance with the Waste Avoidance and Resource Recovery Strategy 2030, only the residual waste after recycling and reprocessing should be sent to energy recovery. The City will continue to operate the 3-bin recycling service and only the residual putrescible waste will be sent to Waste to Energy. The implementation of Waste to Energy from 2022 will be the subject of a separate Council report and approval.

Waste to Energy will provide a cost saving of approximately \$28,000 per annum based on the current bin stock and new waste contract rates commencing December 2020. This cost saving equates to a cost per dwelling of \$3.37.

## Food Organics / Green Organics - FOGO

The City of Nedlands Waste Plan also includes the implementation of Food Organics / Green Organics (FOGO) collection and processing by 2025. FOGO will require residents to dispose of kitchen organics into the existing green bin. The green bin collection will change from fortnightly to weekly and the waste bin collection will change from weekly to fortnightly. The green bin contents will be processed into compost to be sold on the commercial market.

In accordance with the Waste Avoidance and Resource Recovery Strategy 2030, the implementation of FOGO needs to occur by 2025. The implementation of FOGO will be the subject of a separate Council report and approval which will include community engagement.

The cost to implement the FOGO service is shown on Table 1. The costs are determined from the current bin stock and new waste contract rates commencing December 2020.

<b>Cost Description</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>
<u>Opex</u>					
FOGO Collection & Processing	195,728	201,600	207,648	213,878	220,294
Kitchen Caddy Bin Liners		51,294	52,833	54,418	56,050
Kitchen Organics Landfill Diversion (1,603 tonne)	226,059	232,841	239,826	247,021	254,431
Opex Delta	30,331	20,054	20,655	21,275	21,913

<b>Cost Description</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>
<u>Capex</u>					
Kitchen Caddy's	58,100				
Community Education	50,000				
Kitchen Caddy Bin Liners	49,800				
Contingency	10,000				
Capex Delta	167,900				
<b>Total FOGO Service delta</b>	<b>137,569</b>	<b>20,054</b>	<b>20,655</b>	<b>21,275</b>	<b>21,913</b>
<b>Total cost per dwelling</b>	<b>N/A</b>	<b>2.42</b>	<b>2.49</b>	<b>2.56</b>	<b>2.64</b>

*Table 1 – FOGO Service Costs*

The additional cost will be approximately \$138,000 in year 1 reducing to \$20,054 per annum plus CPI thereafter. The initial capital expenditure of \$137,569 in year 1 is expected to be covered by a Better Bins Grant from the Waste Authority of Western Australia. Therefore, the increased cost per dwelling is \$2.42 plus CPI commencing in year 2. The increased cost per dwelling is essentially attributable to the ongoing cost to supply kitchen caddy bin liners.

The FOGO collection and processing cost is attributable to processing the combined greenwaste and kitchen organics into compost. Organic material undergoes a 12-week composting process using the MAF (Mobile Aerated Floor) composting system. The stockpile of raw organic green waste material is spread over a series of perforated pipes into windrows. An electrically powered fan box pumps air through these perforated pipes, allowing oxygen levels to be controlled every minute of the day.

The pre-sort plant includes:

- Infeed Hopper - fed by front end loader
- Drum Feeder - to regulate flow of material to be processed
- Incline conveyor - to transfer material to sorting platform
- Sorting Platform - enclosed sorting platform to remove contamination from processed FOGO
- Overbelt magnet - to recover any residual ferrous material

The plant will require five full time employees to undertake the decontamination of the FOGO delivered. This would include one front end loader operator and four sorters on the picking line.

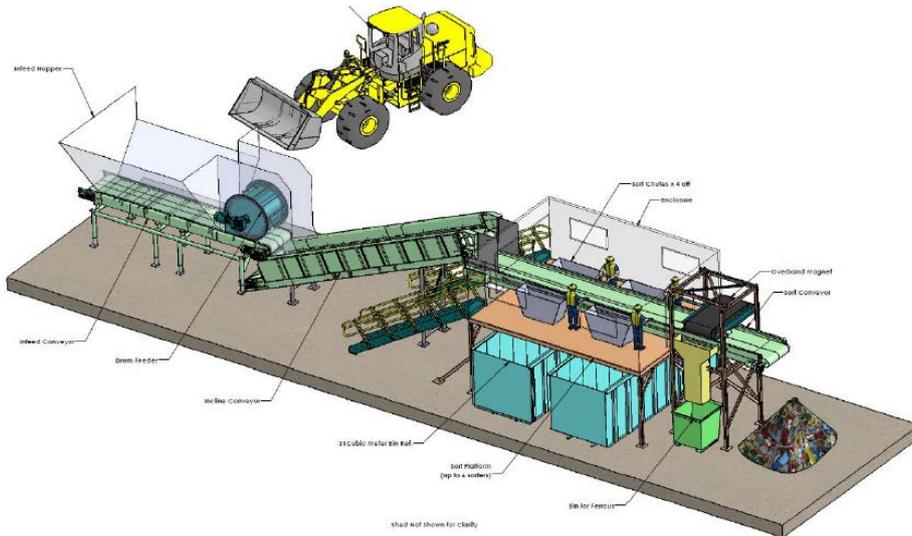


Figure 2 – FOGO Pre-Sort Plant

Stockpiles are watered and conditioned to achieve a 60% moisture content and then a thick 300mm layer of coarse composted mulch is placed over this stockpile. The microbe-rich composted mulch kick-starts the composting process and helps maintain moisture and heat in the stockpile.

All composting operations are conducted on an impermeable asphalt hardstand to prevent any leachate entering the environment. Stormwater and leachate runoff is collected in a leachate collection pond and is reused on the compost stockpiles to achieve and maintain moisture levels.

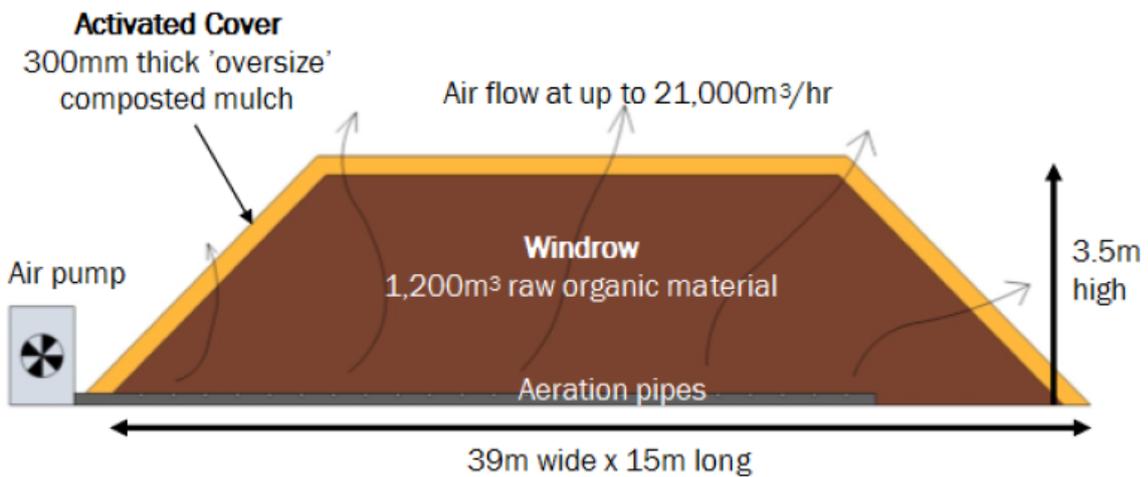


Figure 3 – FOGO Processing

The City completed the waste services tender process in August 2020 and is therefore confident that the FOGO implementation costs provided are competitive market costs, at this time.

The new waste services contract commences in December 2020 and is for a five-year term with an option to extend for a further two years. The cost of FOGO may reduce over the next five years as the technology is enhanced in Western Australia and the commercial market for the compost product increases. The option is available for Council to delay the implementation of FOGO until 2025 to test the market again and potentially receive reduced tender rates for the implementation of FOGO.

Technical Services anticipates that the State Government imposed Waste Levy will continue to increase as an economic instrument to reduce waste to landfill and to generate funds for waste and environmental purposes. An increasing landfill levy will result in the cost of FOGO reducing in future years.

### **Key Relevant Previous Council Decisions:**

Nil

### **Consultation**

Not Applicable.

### **Strategic Implications**

#### **How well does it fit with our strategic direction?**

The City of Nedlands Waste Plan aligns with the targets and action plan detailed in the Waste Minimisation Strategy 2017–2020 in relation to increasing resource recovery and reducing waste to landfill.

#### **Who benefits?**

The entire community benefits from improved environmental outcomes achieved through improving resource recovery and reducing waste to landfill.

#### **Does it involve a tolerable risk?**

Risks have been identified and documented in the Implementation Plan and mitigated to an acceptable level.

#### **Do we have the information we need?**

The City has quality resource recovery data collected since 2014 to allow for informed decision making on future waste strategies.

## **Budget/Financial Implications**

### **Can we afford it?**

The additional cost will be approximately \$138,000 in year 1 reducing to \$20,054 per annum plus CPI thereafter. The initial capital expenditure of \$137,569 in year 1 is expected to be covered by a Better Bins Grant from the Waste Authority of Western Australia. Therefore, the increased operating cost is \$20,054 plus CPI commencing in year 2. This cost is not currently included in the Long-Term Financial Plan.

### **How does the option impact upon rates?**

The introduction of FOGO will result in an increase to the standard waste rate in years 1 to 5, as outlined in the section above.

## **Conclusion**

The City of Nedlands Waste Plan aligns with the City's Waste Minimisation Strategy and Action Plan 2017–2020 and the Western Australian Waste Avoidance, Resource Recovery Strategy 2030.

The Waste Plan includes the implementation of Waste to Energy processing from 2022 and Food Organics / Green Organics by 2025. Waste to Energy will provide a cost saving of approximately \$28,000 per annum. The implementation of FOGO will result in an increased cost per dwelling of \$2.42 plus CPI commencing in year 2.

The implementation of Waste to Energy and FOGO will be the subject of a separate Council reports and approval. The implementation of FOGO will include City wide community engagement.



Government of **Western Australia**  
Department of **Water and Environmental Regulation**

Our ref: DWERDG725/19  
Enquiries: (08) 6364 7000

Mr Mark Goodlet  
Chief Executive Officer  
City of Nedlands

*Via email: council@nedlands.wa.gov.au*

Dear Mr Goodlet

***NOTICE TO PREPARE A WASTE PLAN UNDER SECTION 40(4) OF THE WASTE AVOIDANCE AND RESOURCE RECOVERY ACT 2007***

Under section 40(4) of the *Waste Avoidance and Resource Recovery Act 2007* (WARR Act), the Chief Executive Officer (CEO) of the department principally assisting the Minister for Environment in the administration of the WARR Act may by written notice require a local government to include within its plan for the future a waste plan outlining how, in order to protect human health and the environment, waste services provided by the local government will be managed to achieve consistency with the Western Australian *Waste Avoidance and Resource Recovery Strategy 2030* (Waste Strategy).

*Waste Strategy and waste plans*

In line with this, the Waste Strategy includes a headline strategy to “*Implement local government waste plans, which align local government waste planning processes with the Waste Strategy.*”

Waste plans will provide a link between the targets and objectives of the Waste Strategy and local government waste management activities.

The purpose of waste plans is to:

- align local government waste management activities with the Waste Strategy;
- map current performance and establish a benchmark to achieve Waste Strategy targets;
- monitor progress on local government achievement of Waste Strategy targets; and
- design programs and activities which will support the implementation of waste plans.

### *Who prepares a waste plan?*

All local governments and regional local governments (commonly referred to as regional councils) located in the Perth metropolitan region and Peel region (Perth and Peel regions), and major regional centres that provide waste services, are required to develop waste plans for the 2020-21 financial year, and perform their functions in respect of waste management in accordance with their waste plans.

### *CEO gives notice requiring a waste plan*

Consistent with the above, I, Mike Rowe, in my capacity as CEO of the Department of Water and Environmental Regulation (DWER), hereby give notice that the City of Nedlands is required to prepare a waste plan under section 40(4) of the WARR Act. The City of Nedlands's final waste plan, as adopted and endorsed by the City of Nedlands's Council for inclusion in the plan for the future (Final Waste Plan), must be submitted to me by 30 September 2020.

Section 6.2(2) of the *Local Government Act 1995* requires local governments to have regard to their plans for the future (which include waste plans made under section 40 of the WARR Act) in the preparation of their annual budgets.

### *Content of a waste plan*

The City of Nedlands's waste plan must outline how, in order to protect human health and the environment, waste services provided by the local government will be managed to achieve consistency with the Waste Strategy.

Under section 40(3) of the WARR Act the waste plan may include:

- (a) population and development profiles for the local government district;
- (b) an assessment of significant sources and generators of waste received by the local government;
- (c) an assessment of the quantities and classes of waste received by the local government;
- (d) an assessment of the services, markets and facilities for waste received by the local government;
- (e) an assessment of the options for reduction, management and disposal of waste received by the local government;
- (f) proposed strategies and targets for managing and reducing waste received by the local government;
- (g) proposed strategies and targets for the efficient disposal of waste received by the local government that cannot be recovered, reused or recycled;
- (h) an implementation programme that identifies the required action, timeframes, resources and responsibilities for achieving these strategies and targets; and
- (i) such other matters as may be prescribed by the regulations.

The above listed information is included in the waste plan templates to be completed by the City of Nedlands, which consists of two documents:

1. Templates: *Part 1 – Services and performance* and *Part 2 – Implementation plan* (one Excel document).
2. Self-assessment checklists for Part 1 and Part 2 (one editable PDF).

The email this notice is attached to also includes your waste plans resource kit. This consists of a Guidance Document and the City of Nedlands's personalised template.

You have the option to submit the City of Nedlands's draft waste plan to DWER for feedback prior to final submission for adoption and endorsement by the City of Nedlands's Council for inclusion in the plan for the future. The draft waste plan must be submitted by 1 April 2020. Feedback from DWER on the draft waste plan will be provided within 30 days of its receipt.

#### *CEO power to modify or prepare a waste plan*

The City of Nedlands's Final Waste Plan will be assessed by DWER. Under section 41(1) of the WARR Act, if, following this assessment, I am of the opinion that your local government's waste plan should, but does not, include a matter referred to in section 40(3), I may by written notice require the City of Nedlands to modify the waste plan to include that matter. Prior to giving this notice, I must consult with the City of Nedlands and have regard to its views, and if asked by the City of Nedlands, consult with the Waste Authority and have regard to its views.

Under section 41(3) of the WARR Act, the City of Nedlands must comply with the section 41(1) notice as soon as is practicable.

Note that under section 41(4) of the WARR Act, a contravention of this notice given under section 40(4) of the WARR Act, or a notice given under section 41(1), may result in me serving a notice in writing on the City of Nedlands –

- (a) specifying the relevant notice and the manner in which your local government has failed to comply with it; and
- (b) advising your local government that I intend to deal with the matter under section 42.

Under section 42 of the WARR Act, if the local government does not comply with the CEO of DWER's notices under sections 40(4) and 41(1) of the WARR Act, the CEO may serve notice in writing on the City of Nedlands advising it that the CEO intends to prepare or modify a waste plan for a local government according to the notices, as if the CEO were the local government. This may occur after the CEO consults and has regard to the views of the Waste Authority and your local government.

This waste plan or its modification prepared by the CEO of DWER has effect as if it were part of a plan for the future made by the local government. All costs, charges and expenses incurred by the CEO in this process may be recovered from the local government as a debt due to the Crown or may be deducted from any moneys payable by the Crown to the local government.

#### *Requirement to report*

Pursuant to section 44 of the WARR Act, I require reporting on the City of Nedlands's implementation of the waste plan on an annual basis. The first report is due on 1 October 2021, for the 2020-21 financial year. Further information on reporting can be found in Appendix C of the Guidance Document contained within the resource kit.

*Right of review*

Under sections 41(5), 42(4) and 44(3) of the WARR Act respectively, the City of Nedlands has the power to apply to the State Administrative Tribunal for a review of:

- a notice given under sections 41(4) of the WARR Act;
- a waste plan prepared or modified by the CEO under section 42; or
- a requirement given by the CEO for the local government to report on its implementation of the waste plan under section 44(1).

More information on the process is provided in the attached frequently asked questions. Should you require further information, please enquire at [wasteplans@dwer.wa.gov.au](mailto:wasteplans@dwer.wa.gov.au).

I very much value our relationship with local government and I look forward to working with the City of Nedlands to collaborate on improving waste management across the State.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'Mike Rowe', with a large, stylized initial 'M'.

Mike Rowe  
**DIRECTOR GENERAL**

7 November 2019



Enquiries: Chaminda Mendis, Waste Minimisation Coordinator (08) 9273 3502  
Our reference: TECH-315854129-62

4 December 2019

The Hon Stephen Dawson MLC  
Minister for Environment  
Level 12, Dumas House, 2 Havelock Street  
WEST PERTH WA 6005

Dear Minister

### **City of Nedlands Waste Plan**

Thank you for your correspondence dated the 31 October 2019.

The request to implement Waste Plans to all Local Government Authorities is to be commended. This strategic approach will provide a clear link between the targets and objectives of the Western Australian Waste Avoidance, Resource Recovery Strategy 2030 and the City's waste management activities and initiatives.

I wish to confirm that the City of Nedlands' Waste Minimisation Strategy 2017-2020 including the Action plan was adopted in 2017. As per section 5.56 of the *Local Government Act 1995*. The City will include all required actions/objectives in the Waste Plan and forward it your department before the due date (Monday, 30 September 2020) for approval.

Once again, we look forward to working closely with your department in assisting to establish a clear vision of achieving the State's waste and recycling targets.

Should you require further clarification regarding the above matter, please do not hesitate to contact Chaminda Mendis, Waste Minimisation Coordinator on 9273 3500.

Yours faithfully

A handwritten signature in blue ink, appearing to read 'MG'.

Mark Goodlet  
**City of Nedlands**

# Local government waste plan

## City of Nedlands

### Part 1 - services and performance

#### 1.0 Introduction

Part 1 of the City of Nedlands waste plan establishes the city's waste profile and baseline information in relation to the objectives and targets set out in the Waste Avoidance and Resource Recovery Strategy 2030 (Waste Strategy):

**Avoid** - Western Australians generate less waste.

**Recover** - Western Australians recover more value and resources from waste.

**Protect** - Western Australians protect the environment by managing waste responsibly.

Where data was available, the Department of Water and Environmental Regulation (DWER) has pre-filled sections of Part 1. If any of the pre-filled information is incorrect, please amend accordingly and advise of the changes.

Please take the time to ensure that you complete each section, where relevant. In some tabs, you may need to scroll down to ensure that you have not missed any sections.

# Part 1 - Services and performance

## 2.0 Integrated planning and reporting

All local governments plan for the future<sup>1</sup> through the development of strategic community plans and corporate business plans. Waste plans form part of local government integrated planning and reporting as an issue-specific informing strategy.

Table 1: Links between plan for the future and waste management (Please complete the table, even if the answer is "waste isn't mentioned in our SCP or CBP")

<b>Strategic Community Plan</b>	
Title:	City of Nedlands Strategic Community Plan 2028
Came into force:	2018
Date of next review:	2028
Waste-related priorities:	No.
<b>Corporate Business Plan</b>	
Title:	City of Nedlands Corporate Business Plan 2013-2017 (Currently using existing plan)
Came into force:	2013
Date of next review:	2017 (Amended plan currently under review)
Waste-related priorities:	No.

<sup>1</sup> 'Plan for the future' means a plan made under section 5.56 of the *Local Government Act 1995* and Division 1 and 3 of Part 5 of the Local Government (Administration) Regulations 1996.

# Part 1 - Services and performance

## 3.0 Avoid

Avoidance of waste generation is the preferred waste management option in the waste hierarchy. This section looks at waste generation rates and the reduction required to contribute to the state's waste generation reduction targets - **2025**: Reduction in MSW generation per capita by 5%, **2030**: Reduction in MSW generation per capita by 10%.

Reviewing this data is a critical element of waste planning as it can show how waste generation has changed, identify potential reasons for changes and indicate areas to target in *Part 2 – Implementation plan* (Table 21).

Table 2: City of Nedlands population, households and waste generation compared with state averages and targets for 2025 and 2030  
(Local government to review prefilled data)

	Actual					Targets	
	2014-15 (baseline)	2015-16	2016-17	2017-18	2018-19	2024-25	2029-30
<b>Population</b> <sup>(1)</sup>	23,246	22,250	22,258	22,266		23,562	25,272
<b>Households</b> <sup>(1)</sup>	8,302	7,946	7,949	7,952		8,415	9,026
<b>Total domestic waste generated</b> <sup>(2)</sup>	11,301	10,612	11,771	11,164			
<b>Waste generation per capita/year (kg)</b> <sup>(2)</sup>	486	477	529	501	#DIV/0!	462	438

(1) Source (except 2014-15): Western Australia Tomorrow Population Report No. 11 <https://www.dplh.wa.gov.au/information-and-services/land-supply-and-demography/western-australia-tomorrow-population-forecasts>. Population for 2014-15 from Western Australia Tomorrow Population Report No. 10. Population for intercensal years extrapolated. Households estimated using 'Average people per households' from 2016 ABS Census Quickstats.

(2) Source: Local Government Census data - domestic waste

**Additional comments** (local government to insert any additional comments that may be applicable)

# Part 1 - Services and performance

## 4.0 Recover

Where waste generation is unavoidable, efforts should be made to maintain the circulation of materials within the economy. Table 3 gives the overall recovery rate for your local government compared to Waste Strategy targets and the state average. This is broken down into the proportion of the recovery which was materials recovery (reuse, reprocessing or recycling) or energy recovery. The Waste Strategy includes a target that from **2020**, energy should only be recovered from residual waste (see *Guidance Document – Table 1*, for more information).

Table 3: City of Nedlands population, households and recovery rate compared with state averages and targets for 2020, 2025 and 2030

*(LG to review the pre-filled data and amend/update if necessary. Add additional comments if necessary.)*

	2014-15	2015-16	2016-17	2017-18	2020 target	2025 target	2030 target
<b>Population</b> <sup>(1)</sup>	23,246	22,250	22,258	22,266			
<b>Households</b> <sup>(1)</sup>	8,302	7,946	7,949	7,952			
<b>Overall recovery (%)</b> <sup>(2)</sup>	53%	50%	54%	52%	<b>65%</b>	<b>67%</b>	<b>70%</b>
<b>Materials recovery</b>	53%	50%	54%	52%	<b>&gt;80%</b>	<b>&gt;80%</b>	<b>&gt;80%</b>
<b>Energy recovery</b>	0%	0%	0%	0%	<b>&lt;20%</b>	<b>&lt;20%</b>	<b>&lt;20%</b>
<b>Perth metro average</b> <sup>(3)</sup>	36%	38%	40%	41%			

(1) Source (except 2014-15): Western Australia Tomorrow Population Report No. 11 <https://www.dph.wa.gov.au/information-and-services/land-supply-and-demography/western-australia-tomorrow-population-forecasts>. Population for 2014-15 from Western Australia Tomorrow Population Report No. 10. Population for intercensal years extrapolated. Households estimated using 'Average people per households' from 2016 ABS Census Quickstats.

(2) Source: Local Government Census data - domestic

(3) Source: Waste Authority data fact sheets <http://www.wasteauthority.wa.gov.au/programs/data/data-fact-sheets/>

**Additional comments** *(local government to insert any additional comments that may be applicable)*

## Part 1 - Services and performance

### 5.0 Protect

Objective 3 of the Waste Strategy is to protect the environment by managing waste responsibly, with targets for achieving better practice, reducing litter and illegal dumping. **By 2030 all waste is managed by and/or disposed to better practice facilities, by 2030 move towards zero illegal dumping and zero littering.**

### 5.1 Better practice

Adoption of better practice approaches to waste management is an important way in which local government can better protect the environment from the impacts of waste, and contribute to achievement of the targets under objective 3 of the Waste Strategy. See *Guidance Document - 5.0 Better practice, Table 4* for a summary of the Waste Authority's current and planned better practice guidelines.

Table 4: Better practice approaches and programs adopted by the City of Nedlands

(LG to complete the table)

Waste management activity/service	Waste Authority better practice guideline or program	Date of adoption/ implementation	Comment
Implementation of the 3 bin system	Waste Authority better practice guideline	2006	Implementation of the 240L greenwaste bin achieved. There is a 48%-49% recovery rate compared by 28%-30% recovery from the two bin system prior to 2006.
Implementation of e-waste and mattress recovery	City of Nedlands resource recovery initiative	2010	Resource recovery at source achieves approx 12-15 tonnes of e-waste and mattresses per year from landfill.
Implementation of Hardwaste recovery (through the bulk rubbish collection)	City of Nedlands /Waste Authority program	2015	New bulk collection disposal arrangements have managed to achieve 79%-85% recovery with comparison to 48% recovery rate from landfill (previously the City's hardwaste was landfilled). Further, this arrangement resulted in a decrease of more than 160 tonnes of waste to landfill and a significant reduction in collection and disposal costs.

### 5.2 Litter

The data in Table 5 was reported by the your local government in the 2017-18 local government census. Additional information to be provided by the local government in Table 6 if available.

Table 5: 2017-18 litter data (LG to review prefilled and complete the table)

	Response and comments	
Litter hotspot used on a regular basis for littering in 17-18	Brockway Transfer Station / Brockway Road, Mt Claremont	
What are the main items littered at these hotspots?	General rubbish (blown from transfer station)	
Current measures aimed at contributing towards the zero littering target	City has requested litter management procedure and frequent collection by Transfer Station.	
Estimated cost of cleanup (due to collection, disposal, education, infrastructure and enforcement)	Unknown	(carried out by WMRC)

Source: Local government Census data 2017-18

Additional comments (local government to insert any additional comments that may be applicable)

City's annual littering complaints recorded as low.

Table 6: Additional litter information (LG to complete the table where information is available)

Is littering increasing or decreasing in your local government authority?	Records show that the number of littering complaints is decreasing.
How were the costs associated with cleaning up litter calculated? Employee time? Dollar value? Both?	Dollar value (contracted out to third party)
Does the city have a litter strategy? If not, what is the ETA for completing one?	No - the City may consider strategy implementation in the future.
Have any of the city's compliance and waste education officers undergone training on litter prevention? If so, what training?	No
What current policies and guidelines does your council enact to prevent litter? E.g. Event planning guidelines on the use of balloons in council facilities and the release of helium balloons; no cigarettes on the beach; no single use plastics at events.	City of Nedlands event Guidelines. Tobacco Products Control Act 2006.
How does your local government measure the effectiveness and impact of programs designed to reduce littering and illegal dumping?	This is measured by the number of complaints received.
Which division/unit/section of your organisation is responsible for litter management/prevention? Waste services? Compliance (e.g. Rangers)? Infrastructure?	Litter management/prevention - Waste Services. Compliance - Rangers
How important is litter management to your organisation? (1 - Not at all important; 5 - Highly important).	It is very important, however City does not have major concerns or issues in relation to littering or illegal dumping on the City's boundary.

### 5.3 Illegal dumping

The data in Table 7 was reported by your local government in the 2017-18 local government census. Additional information to be provided by the local government in Table 8 if available.

Table 7: 2017-18 Illegal dumping data (LG to review pre-filled data and complete the table)

	Response and Comments	
<b>Cost of cleaning up illegally dumped waste during 2017-18</b>	\$ 4,286	approx
<b>Sites used on a regular basis for illegal dumping in 2017-18. Where possible, please provide site address/es</b>	(41 complaints received). Addresses are random.	
<b>What are the main items dumped at these sites?</b>	household items and car tyres, mattresses	
<b>Current measures aimed at contributing towards the zero illegal dumping target</b>	Frequent patrolling and investigation of illegal dumping by the City's Rangers in targeted areas.	

Source: Local government Census data 2017-18

**Additional comments** (local government to insert any additional comments that may be applicable)

The City's annual illegal dumping and litter cases are low and are not considered a major concern.

Table 9 indicates the type of detailed data local governments may collect to enable better targeted monitoring and enforcement of illegal dumping. Please provide this information here, if available.

Table 9: Detailed illegal dumping data collection by the City of Nedlands

(LG to complete the table if data available)

Date of data collection:

Waste Type	# of incidents	Total approximate Weight (tonnes)	Change from previous year	Regulatory notices issued
C&I				
C&D				
E-waste				
Household waste				
Mulch & green waste				
Scrap metal				
Soil & excavated material				
Hazardous/problem waste				
Other				
<b>TOTAL</b>				
<b>Cleaned up by</b>	<b>% of total incidents</b>		<b>Cleanup costs (\$)</b>	
Local government				
Land owner				
Offender				
<b>TOTAL</b>				

Table 8: Additional illegal dumping information (LG to complete the table where data is available)

<b>Is illegal dumping increasing or decreasing in your local government authority?</b>	Decreasing
<b>How does your local government measure the effectiveness and impact of programs designed to reduce illegal dumping?</b>	By number of complaints
<b>Which division/unit/section of your organization is responsible for illegal dumping management/prevention? Waste services? Compliance (e.g. Rangers)? Infrastructure?</b>	Management/prevention - Waste Services. Compliance - Rangers

## Part 1 - Services and performance

### 6.0 Waste management tools

#### 6.1 Waste services

Local government data relating to the waste collected, recovered and landfilled is presented in Table 10. It is important to review this data when developing *Part 2 – Implementation Plan*, as it can:

- provide an understanding of how different systems are performing (e.g. recovery levels)
- highlight the need for any new collection systems or infrastructure
- identify the timing and capacity of any new collection systems or facilities required to meet the changing needs of local governments.

In working towards alignment with the Waste Strategy, the local government should focus on the materials resources with the greatest potential to support the objectives and targets of the Waste Strategy.

NB: DWER is currently developing a range of better practice guidelines. Better practice rates will need to be updated as the guidelines are released.

Table 10: Significant sources and generators of waste in 2017-18 (LG to review pre-filled data and amend/update if necessary. Add additional comments if necessary)

Service/Sources		Tonnes collected	Tonnes recovered	Recovery rate	Better Practice rate	Target rate 2025	Target rate 2030		
Kerbside	mixed waste	4,818	-			55% major regional centres	60% major regional centres		
	comingled recyclables	2,050	1,665	45%	%				
	green waste	2,674	2,648						
	FOGO	-	-						
Verge side	green waste	798	798	93%	%			67% Perth and Peel	70% Perth and Peel
	hard waste	824	710						
Drop-off	mixed waste	-	-	#DIV/0!	%				
	dry recyclables	-	-						
	green waste	-	-						
	hard waste	-	-						
Public place	mixed waste	-	-	#DIV/0!	%				
	comingled recyclables	-	-						
Special event	mixed waste	-	-	#DIV/0!	%				
	comingled recyclables	-	-						
Commercial	mixed waste	963	963						
	comingled recyclables	512	420	94%	n/a				
	paper/cardboard	-	-						
Local government waste	Illegal dumping clean up	2	0						
	street sweepings	1000	250						
	roadworks	4815	4724	86%	%				
	other C&D activities								
	roadside pruning								
	other	230	212						
<b>TOTAL</b>		<b>18,686</b>	<b>12,390</b>	<b>66%</b>					

Source: Local Government Census Data 2017/18

**Additional comments** (local government to insert any additional comments that may be applicable)

Please note illegal dumping clean up is an approximate figure.

Table 11 provides space for the local government to include bin audit information for kerbside waste services, if available. Bin audits can help local governments understand the material composition in kerbside bins, highlight where additional efforts are required to increase performance and assist in planning for future service options such as FOGO collection. **See Appendix for full breakdown of composition categories**

Table 11: Compositional audit data for kerbside waste services (Complete if data is available. Add additional comments if necessary).

General waste bin	
Yield per household (kg/hhl/week)	<b>9.66</b>
Per capita (kg/per capita/week)	<b>3.58</b>
Audit year	<b>2018/19</b>
Composition	Total %
Recyclables (paper, cardboard, plastics, steel, aluminium, glass)	10.29
Organics (organics, wood/timber, textiles, earth)	51.07
Hazardous (medical, sanitary/ hygiene, nappies, chemicals, paint, batteries, fluorescent tubes, light bulbs, oil, building material)	4.54
Other (electronic waste, miscellaneous)	34.1

Recycling bin	
Yield per household (kg/hhl/week)	<b>6.66</b>
Per capita (kg/per capita/week)	<b>2.47</b>
Audit year	<b>2018/19</b>
Composition	Total %
Recyclables (paper, cardboard, plastics, steel, aluminium, glass)	87.81
Organics (organics, wood/timber, textiles, earth)	1.33
Hazardous (medical, sanitary/ hygiene, nappies, chemicals, paint, batteries, fluorescent tubes, light bulbs, oil, building material)	0
Other (electronic waste, miscellaneous)	10.86

Garden organics or FOGO bin	
Yield per household (kg/hhl/week)	<b>6.48</b>
Per capita (kg/per capita/week)	<b>2.4</b>
Audit year	<b>2018/19</b>
Composition	Total %
Recyclables (paper, cardboard, plastics, steel, aluminium, glass)	0.1
Organics (organics, wood/timber, textiles, earth)	99.46
Hazardous (medical, sanitary/ hygiene, nappies, chemicals, paint, batteries, fluorescent tubes, light bulbs, oil, building material)	0
Other (electronic waste, miscellaneous)	0.44

# Part 1 - Services and performance

## 6.0 Waste management tools

### 6.2 Waste infrastructure

The number, type, capacity and location of key existing local government owned and/or operated waste and resource recovery infrastructure is required to understand the future need for different facility types. **This section is not relevant to local governments that do not own/operate waste facilities.**

Table 12: Current waste and resource recovery infrastructure operated by the local government (LG to complete the table)

Facility name (and licence number if applicable)	Facility Type	Location	Managed by	Licence category and approved production or design capacity	Material type	Service/activity	Remaining Capacity (if applicable)	Anticipated Closure (year)
Other								

Table 13 provides space for local governments to provide information about planned waste and resource recovery infrastructure, if relevant.

Table 13: Planned waste and resource recovery infrastructure (LG to complete the table)

Location	Managed by	Licence category and approved production or design capacity (if known)	Waste type	Service/activity	Estimated operation start date

**Additional comments** (local government to insert any additional comments that may be applicable)

The City of Nedlands does not own or operate any waste infrastructure and no new infrastructure is planned for the foreseeable future.

# Part 1 - Services and performance

## 6.0 Waste management tools

### 6.3 Policy and procurement

#### 6.3.1 Contracts

Information on your local government's existing waste contracts should be detailed in Table 14. When reviewing services, it is a good opportunity to evaluate how they are performing, opportunities for regional collaboration and to identify any opportunities for improvement, review or renegotiation.

Table 14: Existing waste management contracts (LG to complete the table)

Contractor	Services	Notes/comments
SUEZ	Kerbside waste collection and disposal	Collection and disposal contracts are due to expire on the 2 December 2020. Under the new contract scope and specifications, FOGO collection, processing options and residual disposal option for AWT will be included.
	Kerbside Recycling collection and disposal	
	Kerbside greenwaste collection and disposal	
Westip Management	Bulk collection and disposal - Hardwaste	The City's bulk collection and disposal contract minimum recovery rate for hardwaste stream is 79% (from landfill). Also the City's statistics confirms 100% recovery on the greenwaste stream, 98% e-waste recovery (Processor - total green recycling) and mattresses recovery approximately 65% (EMRC). Further reducing the collection period from eight to six weeks has significantly decreased the opportunity for illegal dumping which has been reflected in the reduced tonnages collected and consequently a reduced cost.
	Bulk collection and disposal - greenwaste, e-waste and mattress	

#### 6.3.2 Waste local laws and policies

Information on your local government's existing local laws, strategies or policies that may complement/support this waste plan and contribute to the Waste Strategy objectives should be detailed in Table 15.

Table 15: Existing waste-related local laws, strategies and policies (LG to complete the table)

Type of local law, strategy or policy	Name of local law, strategy or policy	Came into force	Comments
City of Waste Local Law 2016		2016	City of Nedlands Local Law is the compliance tool to enforce certain action plans in the City's Waste Minimisation Strategy ie contamination using different receptacles for different waste streams.

#### 6.3.3 Land use planning instruments

Information on your local government's existing local planning instruments which contribute to the management of waste should be detailed in Table 16.

Table 16: Existing waste-related land use planning instruments related to waste management (LG to complete the table)

<b>Local Planning Strategy</b>	TITLE:	Local Planning Strategy
	ENDORSED BY WAPC:	26 September 2017
	NEXT REVIEW DUE:	2027
	Is waste considered and reflected in the Local Planning Strategy?	NO Please provide details below:
	Does the Local Planning Strategy identify current and future waste facility sites?	NO Please provide details below: The City of Nedlands does not own or operate any waste infrastructure and no new infrastructure is planned for the foreseeable future.
	Does the Local Planning Strategy identify buffers around existing and/or future sites to avoid land use conflict?	Yes City of Nedlands Local Planning Scheme 3 (LPS 3)

Local Planning Scheme	TITLE:	Local Planning Scheme 3 (LPS 3)		
	GAZETTED:		16-Apr-19	
	NEXT REVIEW DUE:	5-10 years		
	Are resource recovery facilities, waste disposal facility and waste storage facility defined as land uses (as per <i>Planning and Development (Local Planning Schemes) Regulations 2015</i> ) and included in the council Local Planning Scheme zoning table, with either a P/I/D/A/X permissibility?	YES	NO	
		If NO please provide comments below: Resource recovery centre is defined. Waste disposal facility and waste storage facility are not.		
If these land uses are not defined and not in the zoning table, how does the Scheme deal with such land uses (i.e. is an alternative definition used to that in the <i>Regulations 2015</i> ? Or are these land uses zoned as "Use not listed")?	Please provide details below: These uses would be dealt with as a 'use not listed' if an application was to be placed with the City.			
Does the Local Planning Scheme identify statutory buffers as Special Control Areas for strategic waste infrastructure facilities to avoid encroachment by incompatible land uses?	YES	NO		
	If NO please provide comments below: A Special Control Area is used for the Subiaco Strategic Water Resource Precinct. Other buffers would be applied if a waste facility was applied for in line with State Planning Policies.			
Local planning policies	TITLE:	Local Planning Scheme 3 - Draft Local Planning Policy Waste Management and Guidelines		
	ADOPTED BY COUNCIL:	TBC		
	RELATIONSHIP TO WASTE STRATEGY OBJECTIVES:	This policy refers to waste management policy for multi dwelling (mixed use) developments. Refer to <a href="https://www.nedlands.wa.gov.au/sites/default/files/2019%20PD%20Reports%20-%20PD48.19%20-%20PD56.19%20-%2017%20December.pdf">https://www.nedlands.wa.gov.au/sites/default/files/2019%20PD%20Reports%20-%20PD48.19%20-%20PD56.19%20-%2017%20December.pdf</a>		
	Does the local government have any local policies which relate to the objectives of the Waste Strategy (reduce generation, increase recovery, protect the environment)?	YES	City of Nedlands Waste Minimisation Strategy and Action Plan 2017-2020  If YES please provide comments: The policy details the requirements for waste management and minimisation which are to be considered in the design of any proposed development. The below actions will achieve the City's and state's objectives:-  1. Provide for waste management and minimisation in a manner that protects the environment, with a greater emphasis on higher levels of resource recovery and increased recycling. 2. To minimise the impacts of waste storage and collection facilities on the streetscape, public realm, building entries and the amenity for residents. 3. To allow for occupants to have convenient, safe and equitable access to both waste and recycling facilities on site. 4. To ensure industry best practice waste management design and operation for consistently high quality developments.  City of Nedlands Waste Minimisation Strategy action plan refers to improved infrastructure for resource recovery (objective 1 on page 27). Refer to <a href="https://www.nedlands.wa.gov.au/sites/default/files/City%20of%20Nedlands%20Wate%20Strategy%202017%20-%202020.pdf">https://www.nedlands.wa.gov.au/sites/default/files/City%20of%20Nedlands%20Wate%20Strategy%202017%20-%202020.pdf</a> .	
Other	TITLE:			
	ADOPTED BY COUNCIL:			
	RELATIONSHIP TO WASTE STRATEGY OBJECTIVES:			

### 6.3.4 Sustainable procurement

Local governments can be significant consumers whose purchasing decisions and procurement policies can have positive impacts. This section reviews activities relating to procurement of infrastructure, goods and services that avoid waste, promote resource recovery or encourage greater use of recyclable and recycled products. Information on existing sustainable procurement policies or practices that may contribute to the Waste Strategy objectives should be detailed in Table 17.

Table 17: Existing sustainable procurement policies and practices (LG to complete the table)

Sustainable procurement policy or practice	Date adopted by council	Actions implemented e.g. switching to recycled printer paper	Alignment with Waste Strategy targets, objectives or focus materials
Purchasing of Goods and Services - City policy and procedure	2016		The City of Nedlands is committed to sustainable development in the procurement of goods and services and will seek to minimise the social, environmental and economic impacts in procurement decision making.

#### Additional comments (local government to insert any additional comments that may be applicable)

##### Minimum requirements for all goods and services

1. All goods are environmentally sensitive in manufacture, use and disposal. Preference for products manufactured using minimum amounts of raw materials from a sustainable resource, free from toxic or polluting material, consume minimal energy during production stage, and are designed for ease of recycling, remanufacture or to minimize waste.
2. Preference will be given to locally sourced and/or recycled products, in the event that all other criteria are equal.

##### Product Specific Requirements:

Specific further requirements and minimum environmental standards have been set for Office Consumables, Office Equipment, Building Fittings and Whitegoods, Lighting, Vehicles, Horticultural, Landscape and Bushland Management and Services and Contracts. These are set out below:

##### Office Consumables:

Paper (including copier paper, stationery and externally printed publications)

##### Minimum Requirements:

- Minimum 50% Recycled Content (pre and/or post-consumer waste diverted from landfill), or made from a sustainable resource such as wheat pulp;
- Favour post-consumer recycled products over pre-consumer recycled products;
- Seek to use paper manufactured from Australian waste where cost comparable;
- Manufactured without chlorine bleaching. (Acceptable include Elemental Chlorine Free (ECF), Totally Chlorine Free (TCF) or Process Chlorine Free (PCF);
- Low Environmental Impact Packaging; and
- Paper must be able to be recycled at end of use.

##### Toilet Paper and Tissue

##### Minimum Requirements:

- Made from 100% recycled product;
- Made from minimum 50% post-consumer waste; and
- 100% Australian made.

##### Kitchen products

##### Minimum Requirements:

- Tea and coffee, and related products should be purchased in bulk and involve minimal packaging;
- Fair-trade or Australian-made where appropriate; and
- Purchase of disposable plastic water bottles for use in council meetings is not allowed.

Cleaning Products

Minimum Requirements:

- 100% phosphorous free;
- Australian made;
- Recyclable Packaging;
- No known or suspected carcinogens, mutagens or teratogens as listed by the National Industry Chemical Notification and Assessment Scheme (NICNAS);
- No volatile organic compounds; and
- No artificial colour dyes or perfumes.

Toner and Inks for Printing

Minimum Requirements:

- long-life printing drums and toner cartridges;
- Only remanufactured or refilled toner cartridges;
- Seek to use remanufactured or refilled ink cartridges; and
- Assurances from the suppliers of Remanufactured or refilled toner and ink cartridges have no adverse effect on the equipment in which they are used.

Office Equipment:

Computers and other computing equipment

Minimum Requirements:

- Must have energy management systems installed and activated before or on delivery;
- All equipment shall be Energy Star compliant ([www.energystar.gov.au](http://www.energystar.gov.au));
- Energy Star features must be enabled before or on delivery;
- Minimum 3 star rated against national Energy Star Rating System;
- Must have ability to be reused or recycled when not required by City of Nedlands;
- Seek to have low environmental impact packaging; and
- Seek to dispose of IT equipment in a sustainable manner.

Minimum Requirements:

- All equipment shall be Energy Star compliant ([www.energystar.gov.au](http://www.energystar.gov.au));
- Capacity to operate effectively using recycled paper;
- All equipment shall be double-sided printing capable excluding facsimiles;
- Capacity for photocopiers to scan paper printed on both sides;
- A guarantee that the use of remanufactured or refilled toner or ink cartridges will not void warranties or decrease reliability of equipment;
- A guarantee that the use of recycled content paper will not void warranties or decrease reliability of equipment; and
- Seek to have a seven-day clock that allows the equipment to be programmed so that turns off when it isn't needed at the end of each work day and on weekends.

Horticultural, Landscape and Bushland Management:

Landscaping

Minimum Requirements:

- Plants shall not be purchased for use by the City of Nedlands that are listed as Declared weeds by the Department of Agriculture and Food, listed as Weeds of National Significance (WONS) or if they are on the National Environmental Alert List;
- Minimum 100% recycled content in mulch;
- Soils and Mulches are to be in accordance with Australian Standard 4454-2003: Composts, Soil Conditioners and Mulches; and
- Plants are to be purchased from Nursery and Garden Industry Association Accredited nurseries.

# Part 1 - Services and performance

## 6.0 Waste management tools

### 6.4 Behaviour change programs and initiatives

Communication and engagement with waste generators and managers underpins many local government waste management activities, and are vital in driving behaviour change needed to achieve the objectives and targets of the Waste Strategy.

Behaviour change programs and initiatives refers to activities that increase awareness, skills and knowledge; provide consistent messaging; help people to use waste infrastructure; and encourage the adoption of specific, positive waste behaviours and attitudes.

Most local governments have existing behaviour change programs and initiatives and it is important to evaluate their effectiveness. This section includes an opportunity for a high level qualitative assessment process to understand what has worked and what has not. The results can be used to inform actions for *Part 2 – Implementation plan (Table 21)*.

Information on the local government's existing waste behaviour change programs or initiatives should be detailed in Table 18. This may include participation in Waste Authority funded programs, or programs/initiatives run by the local government.

Table 18: Behaviour change programs and initiatives, including Waste Authority programs and other local government initiatives (LG to complete the table)

Local government program/initiative	Description	Outcomes achieved as a result of the program (Qualitative/quantitative)	Evaluation method	What's worked/not worked	Suggested improvements
Community Education - Waste Wise School Education Programme	Provide waste education program to primary schools across the City's boundary. Key objectives of this initiative is to:- 1. Provide an understanding about how waste management affects them and the City; 2. Provide a greater understanding about how to dispose of household waste correctly and the impact when waste is disposed of incorrectly; 3. Provide an understanding about what sustainability means and how they can actively be involved in sustainability (worm farm); and 4. Foster a working relationship between the City and the Schools.	The City of Nedlands is engaging with the younger generation to encourage residents to make recycling a way of life.  'Recycle Right' was the key message for Primary School students, engaging in a range of fun activities coordinated by the City.  Full day workshops, Students from years 1 to 6 attended various recycling themed workshops, learning how to reduce waste and form positive habits around recycling practices. Taking part in short, interactive sessions gives students the opportunity to gain in-depth knowledge of effective recycling and waste disposal methods.	School feedback and questions at end of the each session.	Current waste education programme's topics/activities and structure received positive comments from teachers and parents.	Two day workshop instead one day workshop.
Public waste management and resource recovery data	Key objective is to encourage resident's participation in waste minimisation	The City conducts on-going media and publications through community newspapers, Your Voice, Facebook, and other communication channels and annual City's residential waste service brochure.	Census confirmed reduction in total tonnages to landfill.		

Waste management tender documents and contracts	Key objective is to detail the City's commitments to waste minimisation and diversion from landfill	All new waste management contracts require to demonstrate resource recovery and reduce waste to landfill.	This requirement is governed by KPI. For example with waste minimisation requirements included in the new bulk rubbish collection contract, hardwaste recovery has increased from 0% to 79%. Previously all hardwaste was landfilled.		FOGO/AWT specifications to be included on the City's upcoming tender.
Support the Keep Australia Beautiful Council	Key objective is to empower the local schools to inspire an active role in conservation.	Annual school clean-up of City's reserves, parkland and bushland areas.	Collection data is recorded based on number of bags i.e waste and recycling.	This is a very successful event over a number of years.	

**Additional comments** *(local government to insert any additional comments that may be applicable)*  
Please provide comment if your regional council is undertaking the waste education function for your local government.

### 6.5 Data

Table 19 provides an opportunity to assess existing waste data practices, identify strengths and gaps and consider the kinds of data activities which could be included in the *Part 2 – Implementation Plan* to improve the local government's waste data. It should be completed based on the data/information covered in *Part 1* of this document, as well as the individual experience of the officer/s responsible for collecting and using waste data.

Where 'no', please comment on:

- the kinds of data that is missing, where data gaps exist
- barriers to collecting or accessing adequate data
- the kinds of data collection, analysis or reporting practices that are not currently in place which would assist local government waste management functions.

Table 19: Assessment of waste data *(LG to complete the table)*

	Please ✓		Comment
	YES	NO	
Does the local government have access to adequate waste data to complete Part 1 of the waste plan?	yes		
Does the local government use waste data when undertaking planning activities for waste projects/programs?	yes		
Does the local government have access to adequate waste data for this purpose?	yes		

Does the local government use waste data when monitoring or assessing waste projects/programs?	yes		
Does the local government have access to adequate waste data for this purpose?	yes		
Does the local government use adequate waste data to measure progress toward the targets and objectives of the Waste Strategy?	yes		
Does the local government have access to adequate waste data for this purpose?	yes		
Does the local government have access to adequate waste data to fulfil annual data reporting obligations under the WARR Regulations? (previously undertaken through the Waste and Recycling Census)	yes		
Are there any types of waste data that the local government does not currently collect or have access to that would be helpful/useful?	yes		Waste tonnages for Keep Australia Beautiful event. The City intends to collect waste and recycling data statistics for this event in the future.
Are there any ways which local government waste data collection, storage or use could be improved?	yes		
Is the data collected by the local government accurate? Are any new strategies needed to improve accuracy?	yes		
Does the pre-filled data provided in this template align with the data the local government has? i.e. is this pre-filled data accurate?	yes		
Any additional comments?			

# Part 1 - Services and performance

## 7.0 Summary

The purpose of *Part 1* of the waste plan is to consolidate information about current waste management practices, to enable you to assess and identify:

- current waste management performance
- alignment between current waste management practices and the Waste Strategy
- strengths and successes, as well as gaps and opportunities for improvement.

Table 20 provides space to analyse the data and information presented in *Part 1*, and should be used to determine waste management priorities for the short, medium and long term, and translate these priorities into actions in *Part 2 – Implementation plan (Table 21)*.

Table 20: Assessment of current waste management performance and prioritisation of future actions *(Completing this table is optional)*

<p><b>Waste management achievements</b> (for example, performance/achievement against Waste Strategy targets or objectives or where particular waste management objectives have already been met)</p>	<p>Waste management tender documents and contracts will detail the City's commitments to waste minimisation and diversion from landfill- 1) 3 bin system has been implemented - Kerbside waste, recycling and greenwaste 2) Hardwaste bulk collection recovery has been improved by implementation of new collection and disposal system 3) e-waste and mattresses recycling at source has been increased due to new recovery arrangements implemented - <b>Achievement</b> The City of Nedlands is a top waste minimiser (overall 53% recovery ) in Western Australian with high diversion rates, low waste costs and strong customer satisfaction. The implementation of the City's Waste Minimisation Strategy and Action Plan has resulted in maintaining fees and charges to ratepayers at the same rate since 2013, despite a significant increase in the State Government's landfill levies. 4) Community engagement and education remains a priority and has resulted in increased diversion.</p> <p>Community perception surveys are undertaken every three to four years (2007, 2010, 2014 and 2016) rated the City's waste management services with a high to very high satisfaction rating (80 percent to 95 percent). A positive relationship with the community is important to the City so the community's contribution to the source separation of waste targets can be met.</p>
<p><b>Opportunities for improvement</b> (for examples, where performance against Waste Strategy targets or objectives could be improved or where waste management objectives have not been met)</p>	<p>Upgrading the current greenwaste bin service into a food organic bin service and remaining residual waste processing at AWT will increase the City's recovery target over 90%. Our approach is to seek to implement industry practices that consider the most cost-effective outcome for ratepayers while also diverting the maximum percentage of waste from landfill. This initiative is subject to council endorsement.</p>
<p><b>Priority areas for action in Part 2 – Implementation plan</b></p>	<p>Ongoing (activities currently under way and/or continuously undertaken)- refer to Waste management achievements (section above).</p> <p>Short term (within the next 1-2 years) 1) Evaluating community feedback. 2) City to undertake tender process for the City's waste management services 3) Evaluate options so as to ascertain that residents are receiving the best value for money to sustain competitive waste charges 3) Provide recommendations to the Council for endorsement.</p> <p>Medium term (within the next 3-5 years). Upgrade the current greenwaste bin service into a food organic bin service subject to Council endorsement.</p> <p>Long term (more than five years) Waste recovery innovations The ability to reach the 65 percent recovery target by 2020 requires continuous improvement of existing waste services and introduction of new innovations. The City will seek a price schedule for FOGO and AWT (residual waste) in the upcoming Waste Management Services tender. The above initiatives will potentially achieve over 90% recovery targets.</p>

## Part 2 - Implementation plan

This implementation plan outlines the actions which your local government will take over the next 5+ years to contribute to the achievement of relevant Waste Strategy targets and objectives. It is where the priorities described in the summary ( Part 1 – 7.0 Summary, Table 20 ) are

Table 21: Implementation plan

Waste Management Tool	Action (OR link to existing local government plan/document that details this activity)	Is the action new or existing?	Detailed actions/sub-actions (OR link to existing local government plan/document that details this activity)	Milestones (SMART - Specific, Measurable, Achievable, Relevant, Timed)	Target (SMART)	Timeframe for delivery (completion date)	Cost of implementation incorporated into annual budget and Corporate Business Plan? Y/N - (if not, why?)	Aligns to Waste Strategy Objective/s			Responsibility for implementation (branch, team or officer title, not the names of individual officers)	Identified risks (Impact/consequences and mitigation strategies)
								Avoid	Recover	Protect		
Waste services	Introduction of FOGO (to existing kerbside collection service)	New	<ol style="list-style-type: none"> <li>Review State Government better practice guidance for 3 bin FOGO.</li> <li>City conducted a feasibility study for FOGO which was presented to Council endorsing community survey (completed)</li> <li>Community survey (completed).</li> <li>Council Report is pending.</li> <li>FOGO specification and price schedule to be included in upcoming Waste Management Service contract (due to expire on 2 December 2020).</li> <li>Subject to Council approval implement FOGO (adding food waste to existing 240L greenwaste bin). The following collection structure is proposed for the City's three bin system:- - Weekly collection of 240L FOGO bin (currently lime green lid) - Fortnightly co-mingled 240L recycling bin (yellow lid) - Fortnightly 120L waste bin (currently dark green lid) Note: Subject to Council approval, the City will consider changing bin lid colours to be consistent with the Better Practice FOGO Kerbside Collection Guidelines. For the City's FOGO specifications, please refer to the attached document.</li> <li>Undertake community educational program (6 months prior to implementation).</li> <li>Monitor and evaluation of the FOGO implementation.</li> </ol>	<ol style="list-style-type: none"> <li>Better practice kerbside guidance has been reviewed as per the City of Nedlands Waste Minimisation Strategy and Action Plan 2017-2020, pages 19 and 35 (completed) refer to <a href="https://www.nedlands.wa.gov.au/city-nedlands-waste-minimisation-strategy-and-action-plan-2017-2020">https://www.nedlands.wa.gov.au/city-nedlands-waste-minimisation-strategy-and-action-plan-2017-2020</a>.</li> <li>Feasibility study on FOGO 2018 (completed).</li> <li>Further to a community survey the City is to undertake community education to achieve a greater level of participation which will be conducted at least 6 months prior to implementation.</li> <li>Subject to Council approval implement FOGO (adding food waste to existing 240L greenwaste bin).</li> <li>Monitoring and evaluation to be completed 1 year after implementation.</li> </ol>	90% of residents will have access to FOGO by 2025.	Prior to 3 December 2025.	Yes	X	X		Waste services and Communications	Risk:- 1. Community push back on FOGO implementation especially odour issues. 2. Cost implications on FOGO service including contamination may result in higher waste charges for residents. Mitigation:- 1. Undergo extensive community education program for pre/during and post roll out addressing key area including contamination and odour. 2. Address contamination and undertake competitive tender pricing analysing cost versus benefits on resource recovery options for the City.
	Waste Recovery Innovations (AWT)	New	<ol style="list-style-type: none"> <li>Review the Waste Avoidance and Resource Recovery Strategy 2030 which reflects key objectives for this requirement (page 6).</li> <li>Undertake tender process.</li> <li>Subject to Council approval implement AWT for/residual non-recyclable waste which is currently being landfilled.</li> <li>Monitor and evaluation.</li> </ol>	<ol style="list-style-type: none"> <li>City to explore waste to energy options, as per the City of Nedlands Waste Minimisation Strategy and Action Plan 2017-2020, pages 19 and 35 (completed).</li> <li>Tender process to be undertaken by 2 December 2020 for the option of an alternative waste treatment facility (AWT) (completed).</li> <li>Subject to Council approval, the City is to implement AWT option for non-recyclable/residual waste which is currently being landfilled.</li> <li>Recovery dates to be reported to DWER under mandatory reporting arrangements under the Waste Avoidance and Resource Recovery Regulations 2008.</li> </ol>	100% non-recyclable/residual waste to be converted using waste to energy technologies.	from 2020	Yes	X	X	X	Waste Services	Risk:- 1. Technology is in its infancy stages and there is minimum or no data supporting the recovery rates. 2. Potential environmental impacts such as pollution issues. 3. Cost implications on AWT service which may result in higher waste charges for residents. 4. Community attitudes towards waste to energy. Mitigation:- 1. Undergo extensive community education program for AWT. 2. Investigate experiences from other local governments regarding the implementation of AWT.
	Recoverable Materials in Bulk Waste Services	Existing	<ol style="list-style-type: none"> <li>Review the Waste Avoidance and Resource Recovery Strategy 2030 priorities related to this initiative, that is to recover more value and resources from waste.</li> <li>Undertaken tender process.</li> <li>Bulk rubbish collection initiative implemented.</li> <li>Monitor and evaluate.</li> </ol>	<ol style="list-style-type: none"> <li>City to manage and or dispose recoverable materials to better practice facility as per City of Nedlands Waste Minimisation Strategy and Action Plan 2017-2020, pages 18 and 28. Refer to <a href="https://www.nedlands.wa.gov.au/city-nedlands-waste-minimisation-strategy-and-action-plan-2017-2020">https://www.nedlands.wa.gov.au/city-nedlands-waste-minimisation-strategy-and-action-plan-2017-2020</a>.</li> <li>Completed tender process.</li> <li>Bulk rubbish collection initiative has been implemented.</li> <li>Monitoring by recovery rates which are reported to DWER annually.</li> </ol>	To maintain or improve on 85% recovery rate which has been achieved for the past 4 years.	Ongoing	Yes	X	X	X	Waste Services	Risk:- 1. Higher waste processing costs. 2. Commodity prices decline for recyclable products. Mitigation: 1. Offer flexibility on scope and price schedule.

Policies and procurement	Waste Policy and Waste Management Guidelines for Multi Dwelling Units for mixed use developments	New	<ol style="list-style-type: none"> <li>Review Local Planning Scheme 3 guidelines.</li> <li>Draft Waste Policy and Waste Management Guidelines.</li> <li>Implementation of policy and guidelines.</li> </ol>	<ol style="list-style-type: none"> <li>Review Local Planning Scheme 3 (LPS3) (completed).</li> <li>Waste Policy and Guidelines available for public comment as per Council resolution dated the 17 December 2019 (PD 53.19). Refer to <a href="https://www.nedlands.wa.gov.au/sites/default/files/2019%20PD%20Reports%20-%20PD48.19%20-%20PD56.19%20-%2017%20December.pdf">https://www.nedlands.wa.gov.au/sites/default/files/2019%20PD%20Reports%20-%20PD48.19%20-%20PD56.19%20-%2017%20December.pdf</a>.</li> <li>Council adopted the City's Local Planning Policy Waste Management (LPP) &amp; Waste Management Guidelines at its Ordinary Council Meeting on 31 March 2020.</li> <li>The City's Planning Services Department have proposed amendments to this Policy which are due to be presented at 24 November 2020 Ordinary Council Meeting. These modifications were discussed with Council prior to advertising on 7 July 2020 Council Briefing and was advertised to the public shortly thereafter. Final Council resolution is pending.</li> </ol>	All future multi unit for mixed use developments to comply with the City's policy and guidelines.	May-20	There is no cost implementation as this is a policy.	X	X	X	Waste services and planning.	<p>Risks:</p> <ol style="list-style-type: none"> <li>Supporting smaller truck usage may impact annual waste charges.</li> <li>Occupational Health and Safety can be affected as a result of developers not providing sufficient truck accessibility to the site.</li> <li>Lack of state regulations and policies.</li> </ol> <p>Mitigation:</p> <ol style="list-style-type: none"> <li>Implement a policy and guideline to ensure the City's objectives have been met.</li> </ol>
Behaviour change programs and initiatives	Provide enhanced community education to increase recovery and ensure waste targets are met.	Existing	<ol style="list-style-type: none"> <li>Review State Government engagement and education resources, including Waste Sorted toolkit.</li> <li>Develop and provide waste education to the community and primary schools.</li> <li>Evaluation of the City community education program.</li> </ol>	<ol style="list-style-type: none"> <li>Review State Government Strategy engagement and education resources.</li> <li>Continue to develop and provide community education initiatives as the City of Nedlands Waste Minimisation Strategy and Action Plan 2017-2020, pages 19 and pages 32 to 34 (ongoing). Refer to <a href="https://www.nedlands.wa.gov.au/city-nedlands-waste-minimisation-strategy-and-action-plan-2017-2020">https://www.nedlands.wa.gov.au/city-nedlands-waste-minimisation-strategy-and-action-plan-2017-2020</a>.</li> <li>Monitor achievements using DWER annual waste statistics reporting and community feedback surveys.</li> </ol>	<ul style="list-style-type: none"> <li>Increase annual recycling tonnages and improve overall diversion targets in comparison with previous year's data.</li> <li>Reduced contamination of recyclable materials in comparison with previous year's data.</li> </ul>	Ongoing	Yes	X	X	X	Waste Services and Communications	<p>Risk:</p> <ol style="list-style-type: none"> <li>Lack of stakeholders commitment.</li> <li>Lack of Councillor support.</li> </ol> <p>Mitigation :</p> <ol style="list-style-type: none"> <li>Develop robust stakeholders communication plan.</li> <li>Ensure clear communication of project objectives.</li> </ol>
Data	Reaching the 65% recovery target	Existing	<ol style="list-style-type: none"> <li>Establish a process for reporting accurate waste and recycling data to DWER and Council.</li> <li>Prepare and submit annual Council report on the progress of the waste minimisation strategy 2017-2020 (page 20).</li> </ol>	<ol style="list-style-type: none"> <li>Recovery dates to be reported to DWER under mandatory reporting arrangements under the Waste Avoidance and Resource Recovery Regulations 2008.</li> <li>Prepare and submit Annual Waste Report to Council in March/April of each year.</li> </ol>	Monitor how the City's is progressing towards achieving its projected waste minimisation targets of 65% and any relevant targets established by the State Government including in the Waste Avoidance and Resource Recovery Strategy 2030.	2017 to 2020	No cost incurred for data collection and reporting.	X	X	X	Waste Services	<p>Risk:-</p> <ol style="list-style-type: none"> <li>Contractors providing inaccurate and/or inconsistent recovery data.</li> <li>Lack of confidence by the community due to misconception.</li> </ol> <p>Mitigation:</p> <ol style="list-style-type: none"> <li>Monitor and review data for inconsistencies.</li> <li>Guiding contractors on the City's reporting process requirements through the contract management process.</li> </ol>

# Bin Audit Composition Category Details

Recyclable Components				
1	2	3	4 Descriptors	
Recyclables	Paper	Recyclable Paper	Newspaper	Newspapers, Newspaper like pamphlets,
			Glossy Paper	magazines (glossy) pamphlets, present wrapping paper,
			Office Paper	A4 document paper, writing pads, letters, stationery papers, Print / Writing Paper, envelopes
			Coloured Paper	Coloured Paper
		Non-Recyclable Paper	Composite Paper	Composite paper items where the weight of the paper is estimated to be greater the weight of the other materials, envelopes with transparent windows
			Contaminated Paper	Paper towel, Paper Napkins, Contaminated Paper - soiled not recyclable
			Other Paper	Non-Recyclable Paper, greaseproof paper, paper with wax coating, high wet strength papers, telephone books
	Cardboard	Recyclable Cardboard	Corrugated Cardboard	Corrugated cardboard boxes,
			Packaged Flat Cardboard	packing boxes etc, cereal boxes, business cards, folding cartons
			Liquid Paper Board Foil Lined and Other	UHT / Long life milk, Soy Milk Cartons, some fruit juice cartons, Carbon barriers, Milk Cartons, Cardboard with wax coating, paper/disposable cups including biodegradable cups
		Non-Recyclable Cardboard	Composite cardboard	Composite cardboard items where the weight of the cardboard is estimated to be greater the weight of the other materials, e.g. pringle boxes etc,
			Contaminated Cardboard	Contaminated Cardboard e.g. pizza boxes
			Other Cardboard	Non-Recyclable Cardboard
	Plastics	Recyclable Plastics	PET #1	Soft drink bottles, juice bottles, some food & mouthwash containers (e.g. jam & sauce bottles, peanut butter jars) including coloured PET
			HDPE#2	Milk and cream bottles, shampoo and cleaner bottles, HDPE bottles, including coloured HDPE
			PVC#3	Cordial and juice bottles, blister packs, plumbing pipes and fittings, PVC labels
			LDPE#4	Ice cream container lids, cream bottle lids, squeeze bottles, lids, builder's black plastic, black mulch film, plant nursery bags
			Polypropylene#5	Ice cream containers, drinking straws, pot plant pots, some bottle caps, plastic garden settings, potato crisp bags, compost bins
			Polystyrene #6	Yoghurt / sour cream containers, hot drink cups, take away containers, plastic cutlery, video/CD boxes, packaging foam, any foam
			Plastic#7 Other	Tupperware, Mixed unidentifiable plastics, all other resins and multi-blend plastic materials
		Non-Recyclable Plastics	Plastic Bags	Plastics Shopping Bags, Plastic Produce/Food Bags, Resealable Plastic Bags, Bin liners, Garbage bin liners, Compostable Plastics Bags
Plastic Film			Cling film	
Composite (Mostly Plastic)			Composite plastic items where the weight of the plastic is estimated to be greater than the other material items	

Recyclables	Glass	Recyclable Glass (CDS Glass)	Glass Bottles	Beer/Cider Mixed Drinks, Soft drink bottles, not broken glass	
		Recyclable Glass	Glass Other	wine bottles, food and sauce jars,	
		Non-Recyclable Glass	Miscellaneous/Other Glass	Plate glass (window and windscreen), broken light globes glass, glass particles, Black or ceramic lined glass, Including broken glass that is recyclable more than 50mm in size	
	Ferrous (Steel)	Steel	Steel Cans	Food cans, pet food cans, tins, empty paint tins,	
			Steel Aerosols	Aerosol cans	
			Composite Ferrous (Mostly Ferrous)	Composite ferrous items where the weight of the metal is estimated to be greater than the other material items	
			Ferrous Other	Beer bottle tops, 100% ferrous items that are not cans / tins / packaging materials	
	Non Ferrous (Aluminium)	Aluminium	Aluminium Cans	Beer and soft drink cans,	
			Aluminium Aerosols	Aluminium aerosol cans	
			Aluminium Foil	clean foil	
			Composite Non-Ferrous (Mostly Non-Ferrous)	Composite non-ferrous metal items where the weight of the metal is estimated to be greater than the other material items	
			Non-Ferrous Other	Copper / brass / bronze items, other metals (not ferrous / aluminium), Aluminium tamper proof seals	
	Contaminants/Non-Recyclable Components				
	Organic	Organic	Organic	Food Waste	Vegetable scraps, meat scraps, animal food, leftover food, Food particles, Bones
				Green Waste	Grass clippings, tree trimmings / pruning's, flowers, tree wood
Packaged Food Waste				(Liquid containers - quarter full or more) and (Food Waste in containers or bags)	
Other Putrescible				Animal excrement, mixed compostable items	
Other Organics		Other Organics	Wood/Timber	Milled wood / timber, wooden skewers	
Textiles		Textiles	Textiles	(Natural/Synthetic - Apparel/Bedding etc.), (Leather and Rubber)	
			Other Textiles	Shoes, handbags, millinery etc	
Earth	Earth	Soil/Dust 'n' Dirt and Inert and Broken Glass, Ash/Coal	Vacuum bag contents, soil, rocks, dirt, grit, mud, Broken Glass less than 50mm in size		
		Ceramics, Rocks/Stones, Bricks, Concrete	Bricks and stones, Cups, bowls, pottery items, concrete		
Hazardous	Medical	Medical Waste	Pharmaceuticals	Unused prescription medicine, vitamins and Minerals	
			Medical Waste	Band aids, Bandages, Used surgical gloves, Surgical Instruments, Medical aids/kits, Medical devices and radioactive materials, any solid waste generated from a diagnosis, treatment of humans or animals, /Medical Other	
			Hypodermic Syringes	Hypodermic Syringes, Epi Pens	
	Pathogenic Infectious	Pathogenic Infectious	Sanitary / Hygiene	used tissues (items with any bodily fluids), tampons/pads, cotton buds)	
			Nappies	Adult and Child disposable nappies	
	Hazardous	Hazardous	Hazardous	Chemicals	Bleach, Shampoo, Cleaning Products, (where the weight of the product is estimated to be greater than the weight of the container)
				Paint	Wet/Dry Paint
				Batteries Household	Batteries (Single Use and Rechargeable), Mobile phone battery
				Batteries Other	Vehicle Batteries e.g. Car/Boat, Industrial batteries e.g. Power Supply (UPS)
				Fluorescent Tubes/Light Bulbs	
				Oil Household, Motor & Other	
				Building Material	
Hazardous Other	Uncategorized hazardous waste				

Other	Electronic Waste	Electronic Waste	Toner Cartridges	Toner Cartridges
			Computer Equipment	Computer Components, Peripheral Devices/Computer Printer or Photocopier/Printer
			Mobile Phones	Mobile phones
			Electrical Items	Electrical Products
			Miscellaneous (Specify)	Any items not applicable to other categories
	Miscellaneous	Miscellaneous		

# GLOSSARY

<b>Avoidance</b>	Avoidance refers to the prevention or reduction of waste generation and is the most preferred option in the waste hierarchy.
<b>Better practice</b>	Better practice refers to practices and approaches that are considered by the Waste Authority to be outcomes-focussed, effective and high performing, which have been identified based on evidence and benchmarking against comparable jurisdictions
<b>Commercial and industrial waste (C&amp;I)</b>	Solid waste generated by the business sector, State and Federal Government entities, schools and tertiary institutions.
<b>Commercial waste services</b>	<ul style="list-style-type: none"> <li>• Refers to drop-off, kerbside, vergeside or other waste services provided by the local government to commercial premises.</li> <li>• Discretionary service, not offered by all local governments</li> </ul>
<b>Construction and demolition waste (C&amp;D)</b>	Solid waste produced by demolition and building activities, including road and rail construction and maintenance, and excavation of land associated with construction activities.
<b>Disposal</b>	<ul style="list-style-type: none"> <li>• Disposal refers to the discharge of waste into the environment, either into landfill or another disposal route.</li> <li>• Disposal is the least preferred option in the waste hierarchy.</li> </ul>
<b>Drop-off facilities and services</b>	<ul style="list-style-type: none"> <li>• Drop-off collections are where reportable waste is delivered to the waste depot (drop-off facility) by the residents of the local government i.e. self-hauled waste.</li> <li>• Services are provided to collect waste or recyclable materials.</li> <li>• May be temporary or permanent standalone drop-off points for one or more materials, or may form part of other waste facilities (such as landfills or transfer stations).</li> <li>• <b>Note:</b> this does not include HHW drop-off points</li> </ul>
<b>Energy recovery</b>	The process of extracting energy from a waste stream through re-use, reprocessing, recycling or recovering energy from waste
<b>Household hazardous waste (HHW) facility</b>	<ul style="list-style-type: none"> <li>• Refers to facilities for the drop-off and storage of HHW</li> <li>• Includes consideration of the drop-off and storage procedures and infrastructure, staffing and resourcing, layout, operation and management HHW facilities, etc.</li> </ul>

<b>Illegal Dumping</b>	Illegal dumping is the unauthorised discharging or abandonment of waste and is an offence under Section 49A of the <i>Environmental Protection Act 1986</i> .	
	Illegally dumped waste is generally considered to have the following attributes:	
	Volume	> 1 cubic metre
	Environmental impact	Contains items/substances that are potentially noxious or hazardous; potential for environmental harm if material leaks, spreads or degrades
	Type of waste	Commercial or industrial waste; larger-scale household waste
	Reason for offence	Premeditated decision; commercial benefit or avoidance of fee
	Mode of deposition	Deposited using a vehicle
<b>Kerbside waste services</b>	<ul style="list-style-type: none"> <li>• A regular, containerised collection service (often a wheelie bin) where the waste or recycling is collected from outside a resident's dwelling.</li> <li>• Can apply to either recycling or general waste (and in a few instances green waste).</li> </ul>	
<b>Landfill</b>	<ul style="list-style-type: none"> <li>• Refers to inert or putrescible waste, registered or licenced landfills</li> <li>• Activities related to the layout, operation, management and post closure of a landfill.</li> <li>• Includes consideration of the technology and infrastructure on site, staffing and resourcing, and any other waste facilities or services at the landfill site (e.g. greenwaste or recycling drop off, mulching, tip shop, etc.)</li> </ul>	
<b>Litter</b>	Litter is defined in the <i>Litter Act 1979</i> as including:	
	<ul style="list-style-type: none"> <li>• all kinds of rubbish, refuse, junk, garbage or scrap; and</li> <li>• any articles or material abandoned or unwanted by the owner or the person in possession thereof,</li> </ul>	
	but does not include dust, smoke or other like products emitted or produced during the normal operations of any mining, extractive, primary or manufacturing industry.	
	Litter is generally considered to have the following attributes:	
	Volume	< 1 cubic metre
	Environmental impact	Nil or minor actual or potential environmental impact
Type of waste	Personal litter	
Reason for offence	Unpremeditated, convenient disposal	
	Mode of deposition	Deposited by hand (includes dropping by hand from a vehicle)

<b>Local government waste management</b>	<ul style="list-style-type: none"> <li>• Refers to waste generated by a local government in performing its functions</li> <li>• Includes materials such as construction and demolition waste from road and footpath building and maintenance; greenwaste from parks maintenance; waste generated at local government offices, depots, and facilities</li> </ul>
<b>Municipal solid waste (MSW)</b>	Solid waste generated from domestic (residential) premises and local government activities
<b>Peel region</b>	The Peel region is the area defined by the Peel Region Scheme.
<b>Perth metropolitan region</b>	The Perth metropolitan region or the Perth region is the area defined by the Metropolitan Region Scheme.
<b>Public place services</b>	Public place waste services refers to permanent bins provided by local government in public places to collect waste and/or recycling.
<b>Recovery</b>	The process of extracting materials or energy from a waste stream through re-use, reprocessing, recycling or recovering energy from waste.
<b>Reuse</b>	Reuse refers to using a material or item again.
<b>Reprocessing</b>	Reprocessing refers to using an item or material that might otherwise become waste during the manufacturing or remanufacturing process.
<b>Recycling</b>	The process by which waste is collected, sorted, processed (including through composting), and converted into raw materials to be used in the production of new products.
<b>Residual Waste</b>	<ul style="list-style-type: none"> <li>• Waste that remains after the application of a better practice source separation process and recycling system, consistent with the waste hierarchy as described in section 5 of the WARR Act.</li> <li>• Where better practice guidance is not available, an entity's material recovery performance will need to meet or exceed the relevant stream target (depending on its source - MSW, C&amp;I or C&amp;D) for the remaining non-recovered materials to be considered residual waste under this waste strategy.</li> </ul>
<b>Special event waste services</b>	Special event waste management refers to temporary bins and/or waste collection services provided by local government to manage waste generated at events such as fireworks displays, music festivals, sports events, markets etc.
<b>Sustainable procurement</b>	Sustainable procurement involves meeting a need for goods and services in a way that achieves value for money and generates benefits not only to the organisation, but also to society and the economy, while minimising damage to the environment.
<b>Transfer station</b>	<ul style="list-style-type: none"> <li>• Refers to facilities which undertake large scale consolidation of waste or recyclable materials for transfer to another facility for processing or disposal</li> <li>• Activities related to the layout, operation and management of a transfer station</li> <li>• Includes consideration of the technology and infrastructure on site, staffing and resourcing, and any other waste facilities or services available at the site (e.g. greenwaste or recycling drop off, mulching, tip shop, etc.)</li> </ul>

<b>Vergeside waste services</b>	<ul style="list-style-type: none"><li>• Vergeside collection services are bulk, infrequent (~every 4-6 month or on demand) services.</li><li>• Material is collected from residential 'vergesides' either non-containerised or in a skip provided by the local government. Vergeside services may relate to green waste or hard waste</li><li>• Includes waste and/or recyclable materials that may be mixed or separated and the source and can include green waste or hard waste.</li></ul>
<b>Waste services</b>	<p>Waste services are defined by the <i>Waste Avoidance and Resource Recovery Act 2007</i> as the:</p> <ul style="list-style-type: none"><li>• the collection, transport, storage, treatment, processing, sorting, recycling or disposal of waste; or</li><li>• the provision of receptacles for the temporary deposit of waste; or</li><li>• the provision and management of waste facilities, machinery for the disposal of waste and processes for dealing with waste.</li></ul>

# Less waste, Less cost



## Waste Minimisation Strategy 2017 - 2020

# Table of Contents

<b>Executive Summary .....</b>	<b>4</b>
<b>1. Purpose .....</b>	<b>5</b>
<b>2. Waste Management Structure .....</b>	<b>6</b>
2.1 City of Nedlands.....	6
2.2 Municipal Waste Advisory Council (MWAC).....	8
2.3 Department of Environment and Conservation (DEC).....	8
2.4 Waste Authority.....	8
2.5 Department of the Environment, Water, Heritage and the Arts (GEWHA) .....	8
<b>3. Strategic Proposals.....</b>	<b>9</b>
3.1 Objectives .....	9
3.2 Targets .....	10
3.3 The approach .....	11
3.4 Waste hierarchy.....	11
3.5 Compliance.....	12
<b>4. City of Nedlands Waste .....</b>	<b>13</b>
4.1 Household Waste (three bin system).....	13
4.2 Annual bulk collection.....	14
4.3 Overall picture of waste collection.....	15
4.4 Construction and Demolition Waste (C&D).....	15
4.5 Corporate Waste.....	15
4.6 Commercial and Industrial Waste (C&I).....	16
4.7 Household Hazardous Waste (HHW).....	16
4.8 Event recycling.....	16
4.9 City's services recycling.....	17
4.10 Sustainability.....	17
<b>5. Waste issues and recommendations.....</b>	<b>18</b>
5.1 Contamination of existing recycling services.....	18
5.2 Contamination in putrescible bin service.....	18
5.3 Recoverable Materials in bulk waste services.....	18
5.4 Community Engagement.....	19
5.5 Recycling C&D waste materials.....	19
5.6 Recycling of (organic) material from putrescible bin.....	19
5.7 Reaching the 65 percent recovery target.....	20
5.8 Waste recovery innovations.....	20

<b>6</b>	<b>Appendices.....</b>	<b>21</b>
6.1	<i>Appendix A - Waste Minimisation Action Plan 2009-2013 outcomes.....</i>	<i>21</i>
6.2	<i>Appendix B - Waste Minimisation Strategy - Objectives and Actions.....</i>	<i>26</i>
6.3	<i>Appendix C - Waste Audit Summaries 2004 to 2014.....</i>	<i>36</i>
	<i>2004 Waste audit.....</i>	<i>36</i>
	<i>2006 Waste audit.....</i>	<i>36</i>
	<i>2014 Waste audit.....</i>	<i>36</i>

## Executive Summary

The Western Australian Government's Waste Strategy: "Creating the Right Environment" has established a clear vision of working towards a 65 percent waste diversion from landfill target by 2020. The strategy identifies and defines best practice guidelines and reporting frameworks to promote adoption in waste reduction and source separation at every level. The City of Nedlands is committed to put in place strategies that can achieve the 65 percent target.

The City introduced the three bin system in 2006 and has since proven itself to be a leading metropolitan authority for resource recovery at source by achieving high diversion rates, low waste charges and strong customer satisfaction outcomes; with a current 49 percent overall diversion rate, and highest consumer rating between 2013 and 2015. Furthermore the implementation of new technology to recover and recycle bulk rubbish streams will now put the City a significant step closer towards achieving the State Government's 65 percent diversion target.

The City of Nedlands delivers the industry's best practice of waste management and recycling services to the community. The City also engages proactively with educational programs to reduce waste and comply with correct recycling practice to achieve high diversion rates and less contamination. The City will continue to work closely with its residents to ensure waste materials are thought of in terms of a resource to be recovered, reused and recycled wherever possible.

The City's waste management service has performed strongly to date in achieving a cost effective waste service which is reflected directly in an economic return for ratepayers.

The City's waste minimisation strategy addresses the following waste management issues in order to achieve the desired diversion target by 2020:

- A strong and effective community education programme
- Proactive approach in dealing with contamination
- The availability of alternative waste technologies
- Access to cost effective and environmentally efficient infrastructure
- Greater resource recovery from bulk rubbish collections
- Greater resource recovery from construction and demolition waste.

## 1. Purpose

The purpose of the City's Waste Minimisation Strategy is to provide direction for the City to progress waste services and initiatives to achieve the State Government's 2020 target of 65 percent of all waste being diverted from landfill.

The Waste Minimisation Strategy 2017-2020 replaces the City's previous strategy 2009-2013. The outcomes of this previous Waste Minimisation strategy are included in Appendix A.

## 2. Waste Management Structure

### 2.1 City of Nedlands

The City of Nedlands is committed to achieving the State Government's 2020 target of 65 percent of waste being diverted from landfill. This strategy outlines the City's current waste management practices, the issues, the desired outcomes and provides a detailed action plan to identify practical solutions that will deliver efficient, cost effective and safe services focused on achieving the City's desired waste diversion targets.

The City of Nedlands is a Local Government located in the Western Suburbs of metropolitan Perth. It covers an area of just over 20 km<sup>2</sup> and has a population of approximately 22,000 residents living in approximately 8,020 dwellings.

In 2006 the City adopted the three bin system. The system provides for separation of waste at the source to support the goal of reducing the percentage of waste deposited in landfill.

The system includes weekly collection putrescible (general) waste collections (dark green lid) and alternate fortnightly for resident's greenwaste (light green lid) and recycling (yellow lid) services. There is also a twice yearly bulk verge collection. The City's commercial and business precincts are accommodated by kerbside waste and recycling collections on request.

The City's overall waste collection service, including special collection services for mattresses and e-waste, currently provides for a diversion of 49 percent of waste from landfill with minimal contamination. The remaining 51 percent of the City's waste is disposed of at the landfill.

The City provides separate rubbish, recyclable and verge collection services to its ratepayers utilising contract collection services (see Figure 1 overleaf).

## CITY OF NEDLANDS WASTE SERVICE

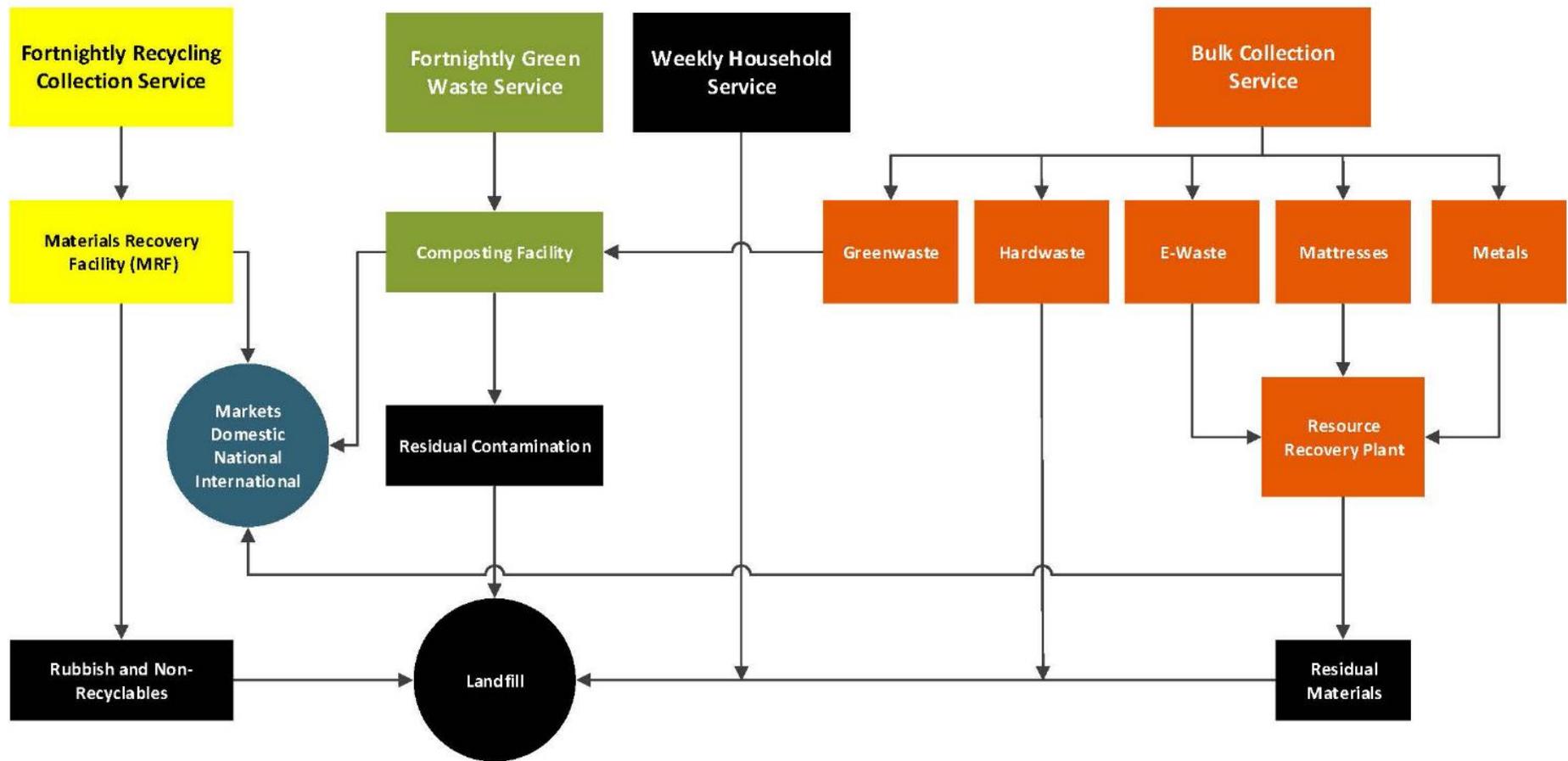


Figure 1: Waste Services Flowchart

## **2.2 Municipal Waste Advisory Council (MWAC)**

The Municipal Waste Advisory Council (MWAC) is a Standing Committee of the Western Australian Local Government Association (WALGA) with delegated authority to represent the association in all matters relating to waste management. The MWAC has been formed through collaboration with Regional Waste Management Councils and the resulting body effectively represents the views of most Local Government bodies responsible for waste management in Western Australia.

It is noted that although the City is not a member of WALGA and subsequently MWAC, it is still a source of industry information. It is also noted that the City's parks and reserves greenwaste is delivered to the Western Metropolitan Regional Council (WMRC) depot in Lemnos Street and the WMRC is a member of MWAC.

## **2.3 Department of Environment and Conservation (DEC)**

Within the Western Australian State Government the DEC administers the waste legislation including the *Waste Avoidance and Resource Recovery Act (WARR) 2007* on behalf of the Minister of Environment.

## **2.4 Waste Authority**

The Waste Authority is an independent statutory tribunal created by the Minister for Environment in 2008 to administer the Waste Avoidance and Resource Recovery (WARR) account. The WARR account is the source of waste related grants provided to Local Governments in Western Australia.

## **2.5 Department of the Environment, Water, Heritage and the Arts (DEWHA)**

The Australian Government is represented on waste issues by DEWHA. The specific mechanisms include the National Waste Policy, State of Waste Report, The National Packaging Covenant and the *Hazardous Waste (Regulation of Exports and Imports) Act 1989*.

## 3. Strategic Proposals

### 3.1 Objectives

The City of Nedlands Waste Minimisation Strategy 2017-2020 (the strategy) is aligned with The Western Australian Government's Waste Strategy: "Creating the Right Environment".

The key objectives of the Strategy have been developed in consideration of Council Policy, the 2023 Strategic Community Plan, State and Federal regulatory requirements and are further informed by ratepayer feedback on the current and desired services.

The strategy includes the following objectives:

- Minimise waste and maximise resource recovery from all waste streams
- Provide cost efficient and value for money waste management service to ratepayers
- Ensure public health is protected and promoted
- Ensure that community amenity is maintained at a high standard and reduce impacts from litter and illegal dumping
- The community is informed and educated about the benefits of waste management
- Identify innovative waste treatments which will further minimise waste to landfill.

To achieve the successful delivery of these objectives the City has provided the following:

- A series of targets (see Table 1 overleaf)
- Identification of the major issues with a series of recommendations (see section 5)
- A range of actions included in a detailed waste minimisation action plan (see Appendix B)

The Strategy is informed by results of waste audits independently conducted for the City since 2004 (see Appendix C).

## 3.2 Targets and Action Plan

The targets to meet the objectives of the Strategy are included in Table 1 below:

Focus	Objectives	Actions	Responsibility	Targets	Year		
					2017/18	2018/19	2019/20
<b>Built Environment</b>	Improve Infrastructure for resource recovery	Provide an efficient and integrated waste management system	Waste Services	Provide cost effective and environmentally responsible services	✓	✓	✓
<b>Governance</b>	Improve resource recovery	Monitor and review business processes, systems, structure and policies to ensure effective service delivery and organisational performance.	Waste Services	Resource recovery and reduce waste going to landfill	✓	✓	✓
	Collaboration in resource recovery	Establish and actively manage a range of partnerships with government, private and not-for-profit sectors	Waste Services	Changing behaviour	✓	✓	✓
	Asset management and evaluation	Identify, manage and seek to minimise risk	Waste Services	Resource recovery and compliance	✓	✓	✓
<b>Community Engagement</b>	Community engagement to support the waste reduction and sustainable community behaviours	Develop and implement a range of community education and behaviour change programs that promote, waste reduction, resource recovery, sustainable living and wellbeing	Waste Services and Office of the CEO	Changing behaviour	✓	✓	✓
<b>Economic Development</b>	Improve local business resource recovery	Support local business in resource recovery	Waste Services	Resource recovery and reduce waste going to landfill	✓	✓	✓
	Improve long term waste disposal practices	Resolve long term waste disposal option	Waste Services	Provide cost efficient value for money services	✓	✓	✓

Table 1: Targets and Action Plan

### 3.3 The approach

The City of Nedlands approach is to change community attitudes and behaviours towards waste so that waste materials can be thought of in terms of resources to be recovered, reused and recycled at every opportunity.

### 3.4 Waste hierarchy

The waste hierarchy defines the efficient use of resources which underpins the objective of the *Waste Avoidance and Resource Recovery Act 2001*. It places waste avoidance as the most preferred option and disposal the least preferred (see Figure 2).



**Figure 2: Waste Hierarchy**

In 2014 in consideration of the waste hierarchy, the Waste Authority released the Better Bins Kerbside Collection Guidelines for Local Governments in WA. The guidelines recommended that local governments implement the three bin system. The City introduced the three bin collection system in 2006 in support of the State Government's direction.

In support of the State Government's diversion, the City introduced the three bin system in 2006.

### 3.5 Compliance

The City of Nedlands is subject to a strict regulatory framework controlling the management of waste which includes:

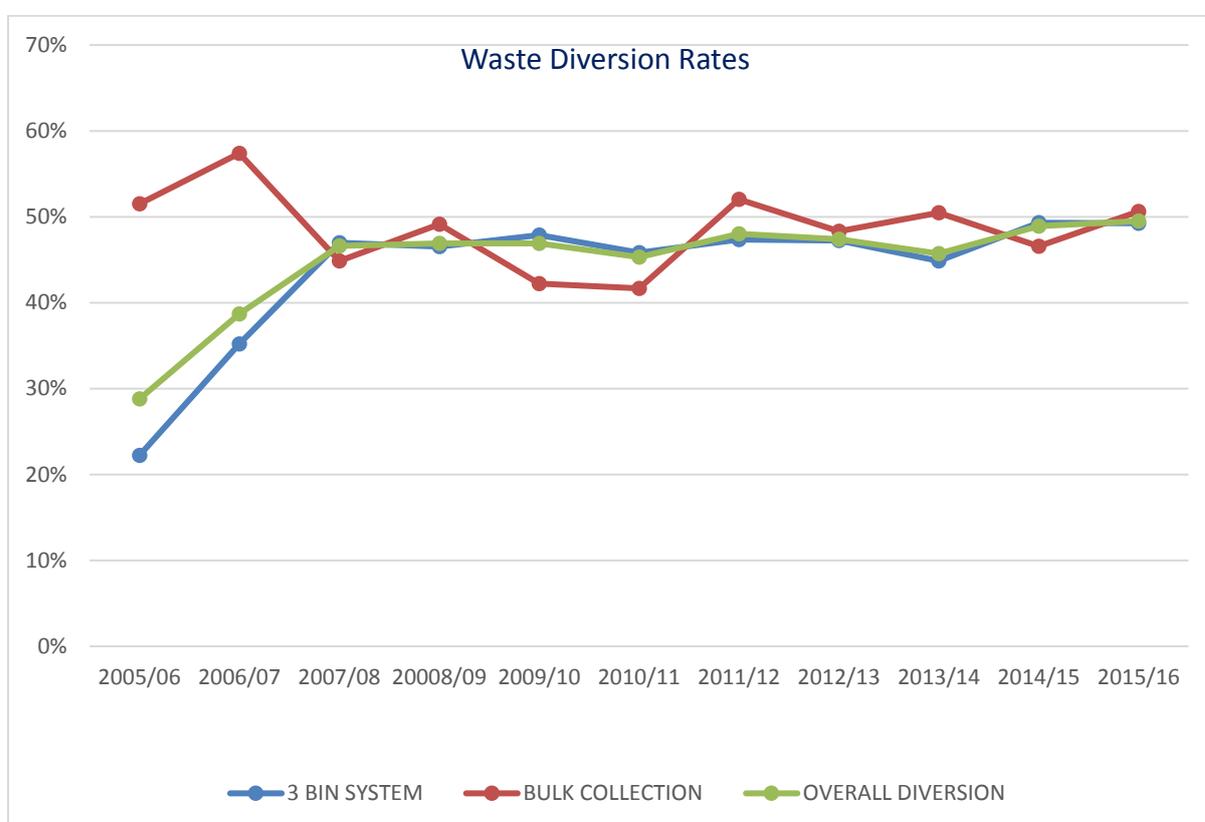
- *Waste Avoidance and Resource Recovery Act 2007*
- *Waste Avoidance and Resource Recovery Regulations 2008*
- *Waste Avoidance and Resource Recovery Levy Act 2007*
- *Waste Avoidance and Resource Recovery Levy Regulations 2008*
- *Local Government Act 1995*
- *Health Act 1911*
- *Public Health Act 2016*
- *Litter Act 1979*
- *Environmental Protection Act 1986*
- *Environmental Protection (Landfill) Levy Act 1998*

## 4. City of Nedlands Waste

### 4.1 Household Waste (three bin system)

The putrescible (general) household waste is collected weekly, in 120 litre mobile garbage bins (MGBs) or 240 litre MGBs (dark green lids). The fortnightly recycling collection (yellow lid) and greenwaste collection (light green lid) are collected alongside the putrescible waste collection, on alternating weeks in 240 litre MGBs.

Following the introduction of the three bin system in 2006, there was a 20 percent increase in the proportion of the City's waste being diverted from landfill. However since 2008 there has only been a gradual increase in the diversion rate improvement (see Figure 3).



**Figure 3: Diversion of all waste since introduction of the three bin system in 2006**

There is approximately 5000 tonnes of putrescible waste, 2400 tonnes of greenwaste and 2600 tonnes of recyclable materials collected annually by the City through the kerbside collections. This means that the City currently diverts approximately 5000 tonnes of waste annually from landfill.

### **4.1.1 Putrescible waste**

Currently the putrescible waste is delivered to landfill. It is noted that 80 percent of the putrescible waste bin component is recyclables and greenwaste which could be diverted from landfill if placed in the correct bin (2014 waste audit).

### **4.1.2 Kerbside recycling**

The City diverts approximately 2600 tonnes of recyclables (including contamination) from landfill annually. The City currently offers options for one or two 240 litre recycling bins. The 2014 waste audit noted that the first recycling bin service had four percent contamination and the second recycling bin service increased to 26 percent contamination.

### **4.1.3 Kerbside greenwaste**

The greenwaste services collects around 2400 tonnes of leaves, grass clippings, weeds, small prunings and branches which are then processed into high-grade compost. This contributes to approximately 23 percent of the total diversion rate from the three bin system.

## **4.2 Annual bulk collection**

The City provides two bulk verge collection services per year to residents. Greenwaste, e-waste, metal and mattresses are collected separately and directed to resource recovery as appropriate. All remaining hardwaste is delivered to landfill. Approximately 860 tonnes of hardwaste, 820 tonnes of greenwaste and 20 tonnes of other recyclable materials are collected annually through this stream.

### 4.3 Overall picture of waste collection

In terms of the overall waste composition of all of the City's waste, the City currently diverts approximately 49 percent from landfill (see Figure 4).

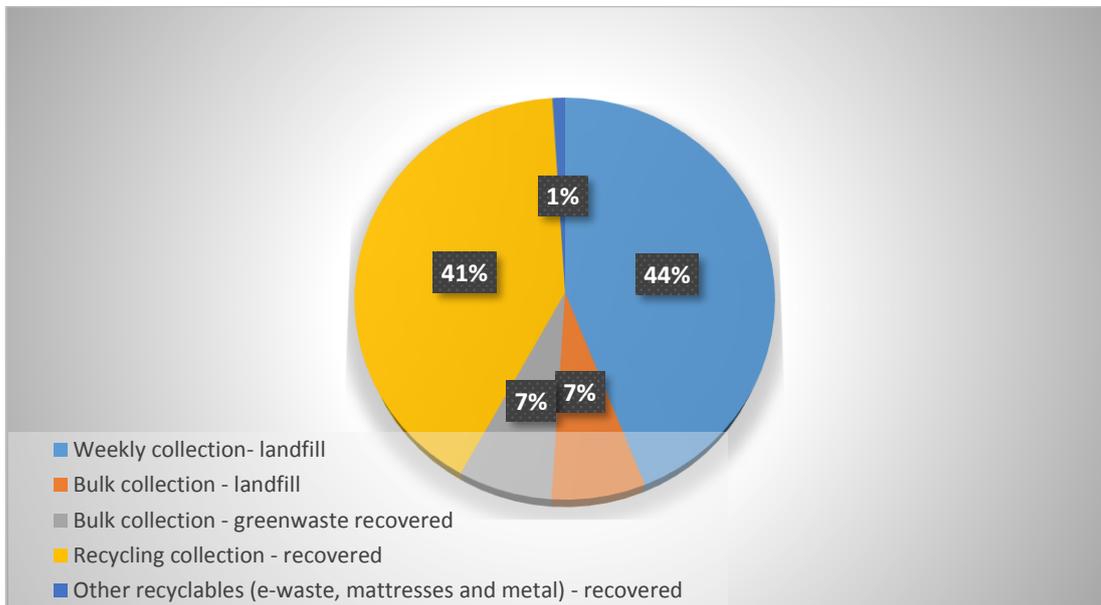


Figure 4: Overall City's Waste Composition

### 4.4 Construction and Demolition Waste (C&D)

In the 2015/16 financial year, the City issued 567 building licences and many of these projects resulted in construction and demolition waste. The City has no record of potential diversion from this source. The Waste Authority has issued guidelines on the diversion or recovery of C&D waste. However this has not been made mandatory. The City continues to promote the recycling of C&D waste.

### 4.5 Corporate Waste (CW)

The City encourages recycling of corporate waste in all its functions, and the City looks to lead the community in sustainable waste behaviours. Currently the City has a wide range of waste minimisation initiatives including:

- Recycling stations at its administration and libraries for the disposal of old mobile phones, compact florescent light globes and tubes, printer cartridges and house hold dry cell batteries
- Office administration and libraries collect and recycle paper and cardboard
- The City's depot recycles motor oil, scrap metal and educting waste
- The City's employees recycle road pavement and excavated soil where possible
- Parks teams recycle all tree pruning into mulch via the WMRC operation in Shenton Park.

## **4.6 Commercial and Industrial Waste (C&I)**

The City has around 500 commercial properties, each with various waste management and recycling collection needs. Currently the City provides approximately 950 commercial properties with general waste collection services and approximately 500 recycling collection services on demand. The City provides free recycling bins to commercial properties that utilise waste services. The commercial waste collected around the City represents approximately 20 percent of total putrescible waste delivered to landfill annually.

The City's most recent waste audit identified that the C&I waste includes 45 percent of recyclables that could be diverted from landfill.

## **4.7 Household Hazardous Waste (HHW)**

Disposal of HHW is funded by the State Government via the landfill levy. For safer disposal, the residents are requested to dispose of HHW at the Brockway Transfer station operated by WMRC at Shenton Park.

HHW is categorised as household products that contain chemicals or substances that can be harmful to humans, pets and/or the environment, that are either no longer needed or have reached their end-of life. This may include a broad range of products that are flammable, toxic, explosive or corrosive.

The City continues to discourage disposal of HHW in residential MGB's and encourages safe disposal practice. The City currently has no statistics on the quantity of HHW diverted from landfill.

## **4.8 Event recycling**

The City holds a number of community events and festivals each year. Where an event has over 100 people in attendance, the organisers are required to submit a Waste Management Plan as part of their event application. The plan specifies the waste collected and the disposal practices for all waste generated by the plan. The City does not have a record of waste collected or diverted during these events.

## 4.9 City's services recycling

Recycling of pavement materials, soils, road sweepings and tree pruning are undertaken, where possible, by the City's Waste and Parks Services Departments. Table 2 below provides the estimated quantities of recycled materials associated with these activities.

Service Description	Service 1	Service 2	Service 3	Service 4
Service Description	Parks and Gardens	Parks and Gardens	Street Sweeping	Road Works
Tonnes collected from this service in 2015- 2016	60	300	100	20
Tonnes disposed to landfill from this service in 2015- 2016	60	0	100	0
Tonnes recycled in 2015 – 2016	0	300	0	20

**Table 2: City Services Waste and Recycling**

## 4.10 Sustainability

Waste management is within the scope of the Sustainable Nedlands Committee, a community group appointed by Council who meet bi-monthly to provide research and advice to Council on sustainability issues as they relate to the City's Strategic Community Plan, projects, programs, services and operations.

Subsidised worm farms and composting bins are available to Nedlands residents for the reduction of organic waste. These are regularly advertised through newspaper advertising. The City organises a minimum of two community workshops and two community events throughout the year focusing on more sustainable living.

## 5. Waste issues and recommendations

There are a number of specific waste issues to be addressed to meet the 2020 diversion target. These are included below with recommendations and are further expanded in the Action Plan in (see Appendix B) and referenced to the Community Strategic Plan.

### 5.1 Contamination of existing recycling services

The 2014 waste audit identified that there was an increased level of contamination in the second recycling service from 4 percent in the first bin, to 26 percent in the second bin.

#### **Recommendation 5.1**

The administration review current recycling services and cost structures and prepare report for Council.

### 5.2 Contamination in putrescible bin service

The 2014 waste audit identified that there was still 24 percent of recyclable materials being placed in the putrescible bins.

#### **Recommendation 5.2**

The administration develop information sheets and education materials which encourage residents to place all recyclables in the recycle MGB.

### 5.3 Recoverable materials in bulk waste services

Approximately 50 percent of the existing bulk waste collection is currently recovered (greenwaste, mattresses and e-waste). It is estimated that a further 42 percent of the bulk collection is recoverable. The City's new bulk waste verge collection contractor has installed new sorting technology which is anticipated to recover a significant portion of the current residual.

#### **Recommendation 5.3**

The administration provide details on the performance of the new bulk waste collection service as part of an annual waste report to Council.

## 5.4 Community engagement and education

Community perception surveys are undertaken every three to four years (2007, 2010, 2014 and 2016) rated the City's waste management services with a high to very high satisfaction rating (80 percent to 95 percent). A positive relationship with the community is important to the City so the community's contribution to the source separation of waste targets can be met.

### **Recommendation 5.4.1**

The administration review the waste page on the City's website to improve the information available to the community with respect to reduce, reuse and recycle performance of the City's service.

### **Recommendation 5.4.2**

The administration develop and continually update education materials regarding waste performance for students (primary, secondary and tertiary).

## 5.5 Recycling C&D waste materials

The City currently has no measure of how much C&D waste materials may be recycled from building development projects within the City.

### **Recommendation 5.5**

The administration investigate methods to ascertain the level of actual C&D waste recycling within the City and report to Council.

## 5.6 Recycling of (organic) material from putrescible bin

The 2014 waste audit confirmed that there was still 56 percent of organic materials placed into the putrescible bin, including greenwaste and foodwaste.

### **Recommendation 5.6**

The administration to explore options to accommodate foodwaste into the greenwaste stream and report to the Council with the potential to conduct a trial of the preferred method.

## 5.7 Reaching the 65 percent recovery target

The ability to reach the 65 percent recovery target by 2020 requires continuous improvement of existing waste services and introduction of new innovations. To ensure Council is aware of the progress, the annual progress needs to be reported.

### **Recommendation 5.7**

The administration prepare an annual report to Council on the progress of the Waste Minimisation Strategy 2017-2020 with the report included in the March agenda.

## 5.8 Waste recovery innovations

The City of Nedlands strategy to recover waste at source ensures that there are materials which can then be recycled or reused, consequently reducing the demand on raw materials. While there is still a residual fraction which is directed to landfill, there are technologies both new and improving which can provide a use for this residual waste e.g. waste to energy by incineration.

### **Recommendation 5.8**

The administration continue to research options for the potential reuse of residual waste materials and include comment on these opportunities in the annual waste report.

## 6 Appendices

### 6.1 Appendix A - Waste Minimisation Action Plan 2009-2016 outcomes

These are the actions and outcomes from the previous Waste Minimisation Action Plan

Item	Action Plan	Completed	Successful	Comments
3.7.1	Investigate and implement attaching a request for a waste management plan to building licences	Yes	No	Regulatory requirements precluded inclusion
3.7.2	Waste management tender documents and contracts are to detail the City's commitments to waste minimisation and diversion from landfill	Yes	Yes	All new waste management contracts now do this and we are confident of an improvement in diversion outcomes
5.4.1	Develop a policy to reduce litter and illegal dumping within the City	Yes	Yes	City's policy and procedures deal with illegal dumping and littering
5.4.2	Develop a policy to ensure that the City dispose of household and bulk waste resource in an environmentally positive manner where practicable	Yes	Partly	Greenwaste, e-waste, metal and mattresses collection
5.4.4	Investigate alternatives to landfill for forms of residential waste and report to Executive	Yes	Yes	Successfully completed the tender process to appoint a successful tenderer to dispose of the City's putrescible (general) waste at landfill or alternative waste treatment facility

Item	Action Plan	Completed	Successful	Comments
5.4.5	Record and monitor the amount of waste generated from large city-managed facilities	Yes	Yes	Monthly contractors' waste tonnage statistics and proposed annual waste report to Council
5.4.6	Consult with City staff on internal waste reduction and recycling program ideas and reward viable waste reduction innovations from staff members	Yes	Yes	Annual recycling week and office clean ups
5.8.1	Support the Keep Australia Beautiful Council	Yes	Yes	Annual clean-up of City's reserves, parkland and bushland areas
5.8.3	Investigate positive partnerships with charity in order to reduce dumped rubbish and improve recycling	Yes	Yes	Information included in the City's annual residential waste brochure
5.8.4	Adopt consistent standards of collection for HHW and support regional collection schemes	Yes	Yes	Promote residents to drop of HHW at Brockway transfer station Information included in the City's annual residential waste brochure
5.8.5	Investigate feasibility of joining a metropolitan regional council to improve resource recovery	Yes	Yes	City remains as a non-member Council
5.8.7	Investigate the establishment of an agreement with the City's waste operators to actively support resource recovery	Yes	Yes	City's three bin collection system Bulk collection greenwaste, mattresses , e-waste and metal Recycling stations for HHW collections
5.8.8	Support great garden workshop	Yes	Yes	This initiative is now being completed. The City offers subsidised worm

Item	Action Plan	Completed	Successful	Comments
				farms and compost bins to reduce foodwaste going to landfill. Furthermore it participates in the native plant subsidiary scheme to reduce water waste
5.8.9	Research and submit a program developed through liaison with the WMRC and other organisations, with the aim of reducing commercial and industrial waste	No	No	Not applicable as the City is not a member of the WMRC
5.8.10	Investigate and report to Council on the benefits associated with the City's ongoing use of the WMRC's DiCOM Alternative Waste Treatment Facility	Yes	Yes	Appointing a successful tenderer to dispose of the City's putrescible (general) waste at landfill or alternative waste treatment facility This process has achieved significant savings on the annual waste budget, resulting in a decrease to resident's annual waste charges
5.8.11	Consult with small local stakeholders from the construction industry to encourage recycling and waste minimisation	No	No	Lack of scope available in Nedlands area
5.9.1	Periodically audit waste generated by commercial business and developing strategies for waste reduction	Yes	Yes	City's waste audit 2014 and draft Waste Minimisation Strategy 2017-2020
5.9.2	Complete an audit of commercial waste services to ensure that all services are located at their allocated business	Yes	Yes	Completed in 2012/13 Financial Year

Item	Action Plan	Completed	Successful	Comments
5.9.3	Complete an audit of the residential waste service using complimentary methodology to the 2006 audit	Yes	Yes	City's waste audit 2014. However it also included commercial waste
6.4.1	Encourage the use of household greenwaste at the source	Yes	Yes	On-going
6.4.2	Provide drop-off locations for the collection of various items for recycling	Yes	Yes	Recycling station locations at administration, Nedlands and Mt Claremont libraries for disposal of old mobile phones, fluorescent light globes and tubes and household dry cell batteries
6.4.3	Encourage household use of 120L MGB's for waste disposal	Yes	Yes	Included in the three bin service and service cost modelling
6.4.4	Conduct annual survey of target groups to assess behaviour and monitor change	No	No	Cost and resourcing issue
6.4.5	Continue providing subsidised worm farms and compost bins to residents	Yes	Yes	Ongoing. Annual recorded sales for compost bins and worm farms are approximately 20 and 15 respectively
6.4.6	Public waste management and resource recovery data to encourage resident's participation in waste minimisation	Yes	Yes	On-going. Media and publications through Community newspapers, other City's communication channels and annual City's residential waste service brochure
6.4.7	Develop an information package for residents that encourages residents' use of sustainable cleaning products	No	No	Not commenced

Item	Action Plan	Completed	Successful	Comments
6.4.8	Develop a program with the aim to implement waste minimisation strategies and to encourage recycling within the commercial and industrial sector	Yes	Partly	Free commercial recycling bin available
6.4.9	Encourage the use of recycled building materials and products in the construction of building	No	No	Limited scope available
6.4.10	Operate an e-waste drop off day annually to coincide with the commencement of the bulk collection service	Yes	Yes	Included in annual bulk collection
6.4.11	Promote and encourage the Raven Control Program	Yes	Yes	Supported “put a lid on” campaign
6.4.12	Communicate information to the community on sustainability, TravelSmart, bushcare and waste minimisation	Yes	Yes	On-going publications and media through Community newspapers, other City communication channels and the annual residential waste service brochure
7.1.1	Offer recycling bins to businesses at no extra charge	Yes	Yes	Included in the City’s waste service

## 6.2 Appendix B - Waste Minimisation Strategy - Objectives and Actions

Consistent with the City's 2023 Community Strategic Plan, the 2017-2020 Waste Minimisation Strategy has adopted the following principles:

- Resources to be reused
- Resources to be recovered
- Waste to be disposed and managed in an environmentally responsible manner.

In order to achieve the above principles the following Key Performance Indicators (KPI) have been developed:

- Achieve an overall diversion target from landfill 65 percent by 2020
- Maintain an overall customer service satisfaction on the City's waste service in excess of 85 percent

The City's Waste Minimisation Strategy outlines a number of actions. The majority of the proposed action plans can be implemented through the existing internal staff resources. The external resources required to carry out other actions proposed in the document are identified as specialised service where required.

Following acronyms being used identify the responsible officers for implementing and supporting the action plans:

- |   |     |
|---|-----|
| • Manager Technical Services              | TSM |
| • Waste Minimisation Co-ordinator         | WMC |
| • Waste Administrator and Support Officer | WAS |
| • Purchasing and Tenders Coordinator      | PTC |
| • Community Development Officer           | CDO |
| • Administration Officer (Events)         | AOE |
| • Manager Building Services               | MBS |
| • Environmental Health Officer            | EHO |
| • Other staff resources                   | OSR |

STRATEGIC OBJECTIVE	BUILT ENVIRONMENT		
<b>OBJECTIVE 1</b>	Improve infrastructure for resource recovery		
<b>ACTION PLANS</b>	Provide an efficient and integrated waste management system: <ul style="list-style-type: none"> <li>• Investigate establishing and implementing a policy relating to recycling of construction and demolition (C&amp;D) waste</li> <li>• Investigate the potential to source separate C&amp;D waste for recycling</li> <li>• Research Government policies, regulations and standards to support the implementation of compulsory recycling bins for C&amp;D on construction sites</li> <li>• Review environmental health approval process to include submission of a waste management plan</li> </ul>		
<b>RESPONSIBLE OFFICER(S)</b>	WMC		
<b>RESOURCES</b>	WMC, MTS, EHO, MBS, OSR		
<b>TIME FRAME</b>	2017-18	2018-19	2019-20
<b>PRIORITY</b>	Medium		
<b>KEY PERFORMANCE INDICATORS (KPI)</b>	<ul style="list-style-type: none"> <li>• Cost neutral for program</li> <li>• Involvement from the building industry</li> <li>• Increase in material recycled</li> <li>• Increased diversion of waste from landfill</li> <li>• Acceptable policy and procedure process established</li> </ul>		

STRATEGIC OBJECTIVE	GOVERNANCE		
<b>OBJECTIVE 2</b>	Improve resource recovery		
<b>ACTION PLANS</b>	<p>Monitor and review business processes, systems, structure and policies to ensure effective service delivery and organisational performance:</p> <ul style="list-style-type: none"> <li>• All waste management tender documents are to detail the City's commitments to resource recovery</li> <li>• Develop and implement an industry best-practice cost-efficient collection and disposal system for all waste</li> <li>• Review the City's waste disposal arrangements to identify alternative cost effective solutions to diverting waste from landfill</li> <li>• Establish and monitor recycling collection drop off locations throughout the City's facilities and out-stations</li> <li>• Review and implement recommendations endorsed by the City of Nedlands Sustainable Committee where approved by Council</li> <li>• Consult with the City's staff on internal waste reduction and recycling program ideas and reward viable waste reduction innovations from staff members</li> <li>• Investigate options to recover the remaining recyclable materials currently going to landfill from residential and commercial recycling bin</li> <li>• City continues to maintain a price incentive in the annual waste charges between 240L and 120L services.</li> </ul>		
<b>RESPONSIBLE OFFICER(S)</b>	WMC		
<b>RESOURCES</b>	WMC, MTS, WAS, PTC, OSR		
<b>TIME FRAME</b>	2017-18	2018-19	2019-20

STRATEGIC OBJECTIVE	GOVERNANCE
PRIORITY	Medium
KEY PERFORMANCE INDICATORS (KPI)	<ul style="list-style-type: none"> <li>• Benchmark the City's waste management service through audit and State Government reporting</li> <li>• Quality and number of internal City's waste reduction and recycling programs</li> <li>• Increased diversion from landfill</li> </ul>

STRATEGIC OBJECTIVE	GOVERNANCE		
<b>OBJECTIVE 3</b>	Collaboration in resource recovery		
<b>ACTION PLANS</b>	Establish and actively manage a range of partnerships with government, private and not for profit sectors: <ul style="list-style-type: none"> <li>• Support the Keep Australia Beautiful Council</li> <li>• Support the Housing Industry Association campaign “Dob in a Dumper”</li> <li>• Investigate positive partnerships with charity organisations in order to increase resource recovery and to support the community</li> <li>• Actively support schools’ waste education programs</li> </ul>		
<b>RESPONSIBLE OFFICER(S)</b>	WMC		
<b>RESOURCES</b>	WMC, MTS, WAS, OSR		
<b>TIME FRAME</b>	2017-18	2018-19	2019-20
<b>PRIORITY</b>	Medium		
<b>KEY PERFORMANCE INDICATORS (KPI)</b>	<ul style="list-style-type: none"> <li>• Materials collected that were associated with Clean Up Australia Day</li> <li>• Published information in local media regarding campaign in an effort to increase community participation</li> <li>• Number of charity organisations assisted</li> <li>• Number of Schools and number of programs delivered</li> </ul>		

STRATEGIC OBJECTIVE	GOVERNANCE		
<b>OBJECTIVE 4</b>	Asset management and evaluation		
<b>ACTION PLANS</b>	Identify, manage and seek to minimise risk: <ul style="list-style-type: none"> <li>• Encourage the use of the City’s recycling bin options to residents and commercial properties who utilise the City’s waste services</li> <li>• Implement recycling and greenwaste bin inspection program with a focus on targeting contamination</li> <li>• Set aside appropriate funds in a reserve for the provision of future bin replacement</li> </ul>		
<b>RESPONSIBLE OFFICER(S)</b>	WMC		
<b>RESOURCES</b>	WMC, MTS, WAS, OSR		
<b>TIME FRAME</b>	2017-18	2018-19	2019-20
<b>PRIORITY</b>	Medium		
<b>KEY PERFORMANCE INDICATORS (KPI)</b>	<ul style="list-style-type: none"> <li>• Over 85 percent residents utilising 120L putrescible (general) bin service.</li> <li>• Reduction of contamination of materials located in the recycling bin</li> <li>• Low contamination when City’s waste system benchmarked against other local authorities systems</li> <li>• Measure second recycling bin use</li> <li>• Funds in reserve meet target requirements</li> </ul>		

STRATEGIC OBJECTIVE	COMMUNITY ENGAGEMENT AND EDUCATION		
<b>OBJECTIVE 5</b>	Community engagement to support waste reduction and sustainable community behaviours		
<b>ACTION PLANS</b>	<p>Develop and implement a range of community education and behavior change programs that promote waste reduction, resource recovery, sustainable living and wellbeing:</p> <ul style="list-style-type: none"> <li>• Develop a waste profile for the City to clearly identify the issues to be addressed</li> <li>• Inform residents of the City's targets for waste diversion and contamination levels each year</li> <li>• Regularly promote recycling and waste minimisation initiatives through all available media units</li> <li>• Awareness and regular updates to residents regarding contamination and associated disposal cost</li> <li>• Publish waste management data to the community via all available media annually</li> <li>• Provide drop off locations for the collection of various items for recycling</li> <li>• Encourage household use of 120L MGB's for waste disposal</li> <li>• Advocate on safe disposal of HHW and promote approved drop off locations</li> <li>• Ensure waste and recycling information brochure are reviewed annually and made accessible to all residents</li> <li>• Continue providing subsidised worm farms and compost bins to residents</li> <li>• Communicate information to the community on sustainability</li> </ul>		
<b>RESPONSIBLE OFFICER(S)</b>	WMC		
<b>RESOURCES</b>	WMC, MTS, WAS, CDO, OSR		
<b>TIME FRAME</b>	2017-18	2018-19	2019-20
<b>PRIORITY</b>	High		

STRATEGIC OBJECTIVE	COMMUNITY ENGAGEMENT AND EDUCATION
<b>KEY PERFORMANCE INDICATORS (KPI)</b>	<ul style="list-style-type: none"> <li>• Increased annual recycling tonnage collected</li> <li>• City waste diversion targets achieved</li> <li>• Reduced contamination of recyclable materials</li> <li>• Financial savings on disposal cost and contamination</li> <li>• Data published annually in local newspapers and in the Nedlands News Update</li> <li>• Number of drop off locations within the City for recycling</li> <li>• Compliance with Occupational Health and Safety requirements</li> </ul>

STRATEGIC OBJECTIVES	ECONOMIC DEVELOPMENT		
<b>OBJECTIVE 6</b>	Improve local business resource recovery		
<b>ACTION PLANS</b>	Support Local business in their activities: <ul style="list-style-type: none"> <li>• Write to all community groups and sporting clubs informing the City’s initiative towards to resource recovery and impacts on contamination</li> <li>• Develop and implement public event waste management guidelines, including a review of the event approval process to include waste management requirement.</li> <li>• Invite local community groups and sporting clubs to become involved in recycling projects during special events and festivals</li> </ul>		
<b>RESPONSIBLE OFFICER(S)</b>	WMC		
<b>RESOURCES</b>	WMC, MTS, WAS, CDO, AOE, OSR		
<b>TIME FRAME</b>	2017-18	2018-19	2019-20
<b>PRIORITY</b>	Medium		
<b>KEY PERFORMANCE INDICATORS (KPI)</b>	<ul style="list-style-type: none"> <li>• Increased community awareness and efforts in recycling</li> <li>• Increased participation from sporting clubs and groups in recycling program</li> <li>• Event waste management guidelines in place</li> </ul>		

STRATEGIC PLAN	ECONOMIC DEVELOPMENT		
<b>OBJECTIVE 7</b>	Improve long-term waste disposal practices		
<b>ACTION PLANS</b>	<ul style="list-style-type: none"> <li>Investigate Alternative Waste Treatment (AWT) options and the financial implications on AWT to identify when they become a cost effective and reliable option in meeting the City's waste diversion target</li> <li>Research food-waste processing technologies to identify when they become a cost effective and reliable option in the diversion of organic material</li> </ul>		
<b>RESPONSIBLE OFFICER(S)</b>	WMC		
<b>RESOURCES</b>	WMC, MTS, OSR		
<b>TIME FRAME</b>	2017-18	2018-19	2019-20
<b>PRIORITY</b>	Medium		
<b>KEY PERFORMANCE INDICATORS (KPI)</b>	<ul style="list-style-type: none"> <li>Present relevant AWT and foodwaste processing information to Council</li> </ul>		

## 6.3 Appendix C - Waste Audit Summaries 2004 to 2013

Three independent major waste audits have been undertaken in the past twelve years. The findings of the 2014 waste audit provided the most reliable data on the City's waste profile. These findings are now a key component, and the basis of this waste strategy and the resultant action plan.

### 2004 waste audit

In 2004 the City conducted a waste audit which revealed that the two bin collection system (240 litre rubbish and recycling bins) was achieving a diversion rate of around 30 percent. Furthermore the audit highlighted that 41.2 percent of the general waste bin was greenwaste and the bin was only filled to 72 percent capacity.

This highlighted the opportunity for the City to provide a better bin service and to reduce its waste to landfill. This could be achieved through a smaller general waste bin and providing a third bin for greenwaste. In response, the City introduced the three bin collection system in 2006 to provide better waste diversion from landfill and a better waste service to the community.

### 2006 waste audit

Following the introduction of the three bin system, the City conducted its second waste audit. The main aim was to critically analyse the performance of the three bin system. The audit concluded that within the City's three bin system it was achieving a 65.6 percent diversion rate from these bins. Audit findings further revealed that greenwaste and recyclables were still being deposited in the putrescible waste bin and the audit did not include commercial waste.

### 2014 waste audit

In August 2014, the City conducted an audit of the total waste service including the three bin system for residential kerbside collection and commercial waste and recycling collection. The audit was undertaken over a sample of randomly selected properties within the City.

The key findings of the audit were:

#### Domestic residential waste

- The residential putrescible waste sample material comprised of 24 percent recyclables and 56 percent organic materials
- Residential recycling and greenwaste bins were found to be generally clean with low levels of contamination (4 percent and 0.1 percent respectively)
- Contamination in the two recycling bin stream is 22.6 percent higher than the properties with one recycling bin
- Recycling behaviours are generally poorer at residential properties utilising the second free recycling bin
- 80 percent of putrescible bin content could potentially be diverted from landfill.

### **Commercial properties**

- The commercial putrescible waste comprised of 45 percent recyclables and 33 percent organic materials
- The recycling component found in the putrescible waste bins increased by 12.9 percent during a non-recycling week
- 78 percent of commercial putrescible waste bin content could be potentially diverted from landfill.

### **Performance improvement**

A key finding of the 2014 waste audit was that under the City's existing waste management practices the City could theoretically increase its recovery rate from 49 percent to 55 percent purely through community compliance driven through a comprehensive community education program.