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Service Delivery Review

Waste Management Services

WINGECARRIBEE SHIRE COUNCIL

Prepared for Wingecarribee Shire Council

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Approval for Release

Name	Position	File Reference
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Signature		

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1 Introduction

Wingecarribee Shire Council (WSC) engaged Talis Consultants Pty Ltd (Talis) to undertake a Service Delivery Review of its Waste Management Services to assist improve and align waste management practices with local strategies, policies and community expectations. With recent local government reforms and continued growth of WSC placing pressure on the existing waste management systems, a review was necessary to understand current priorities and provide opportunities to WSC with a focus on improving the efficiency and sustainability of its waste services. This *Waste Service Review* (WSR) will assist direct WSC in the preparation of a Strategic Waste Management Plan (SWMP) in the near future.

1.1 Background

WSC has committed to better service alignment and delivery as a core priority arising from WSC's response to the 'Fit for the Future' local government reforms. This commitment is viewed as a key tool to drive policy into the future. This commitment is outlined below:

To ensure we deliver services which are in line with community expectations a comprehensive review of all Council services will be undertaken. A detailed business analysis and a broad community engagement program will underpin the services review program.

As part of this strategy, WSC has commissioned Service Delivery Review Programs across key council services, inclusive of Waste Management.

1.1.1 Objectives

The objective of the WSR is to ensure that Council delivers waste services that are appropriate, effective and efficient. More specifically the WSR will:

- Provide a full and holistic review of the waste services delivered to customers with a view to matching these services against the community's expectations and WSC's vision;
- Determine how these services can be delivered at the right level, at what cost and in the best way possible to meet community expectations;
- Ensure value for money and operational efficiency; and
- Assess opportunities for better waste service delivery with other entities.

1.1.2 Scope

To achieve the objective, the scope of the WSR comprises the following:

- Section 2: Context from regulation and policies regarding waste management;
- Section 3: Review of Council's current waste management services;
- Section 4: Review of waste date and performance levels;
- Section 5: The results of the community consultation on waste management;
- Section 6: Identification of improvement options and SWOT analysis;
- Section 7: Types of service delivery options available to WSC;
- Section 8: Baseline and cost per service financial analysis;
- Section 9: Identification of preferred service delivery model;
- Section 10: Change Management and Task Implementation Plan; and
- Section 11: Recommendations.

2 Waste Regulation and Policy Frameworks

The WSR was undertaken within the context of key regulations, policies and guidelines relating to waste management which may have an impact on WSC current and future waste management operations. These documents are outlined in the following sections.

2.1 Legislation

Key legislation, policy, strategy, educational and economic tools relating to waste management in NSW include the *Protection of the Environment Operations (POEO) Act 1997*, the *Waste Avoidance and Resource Recovery (WARR) Act 2001*, the *Protection of the Environment Operations (Waste) Regulation 2005* and the amended draft *Protection of the Environment Operations (Waste) Regulation 2017*. These main legislative documents describe the requirements for transporting, storing, processing, managing, recovering and disposing of waste and recyclable material.

The *WARR Strategy 2014-2021* provides a framework for waste management until 2021. It sets to minimise waste, alter public behaviour through education and increase investment, innovation and improvement of environmental practices. In doing so the *WARR Strategy 2014-2021* aims to achieve the following waste diversion from landfill targets in **Table 2-1**.

Table 2-1: *WARR Strategy 2014-2021* diversion targets

Waste Type	2022 Diversion Target
Commercial and Industrial (C&I)	70%
Municipal Solid Waste (MSW)	70%
Construction and Demolition (C&D)	80%
Waste Diversion from Landfill	75%

2.2 Return and Earn (Container Deposit Scheme)

The *WARR Amendment (Container Deposit Scheme) Act 2016* established the Container Deposit Scheme (CDS) to reduce litter and recover, reuse and recycle drink containers. The CDS "Return and Earn" was introduced in 2017. Return and Earn provides positive encouragement for community recycling via its refund to consumers of a 10-cent refund per eligible container.

Eligible containers are deposited at any of the following four types of collection points:

- Reverse vending machines (RVMs);
- Over the counter collection points;
- Automated depots; and
- Donation stations.

2.3 Circular Economy and Waste Management Hierarchy

A "circular economy" is an economic system aimed at minimising waste and making the most of resources. In a circular system resource input and waste, emissions and energy leakage are minimised by slowing, closing, and narrowing energy and material loops; this can be achieved through long-lasting design, maintenance, repair,

reuse, remanufacturing, refurbishing, and recycling. As such, Australian state governments are actively targeting opportunities to incorporate circular economy principles into their respective Waste Strategies. [1]

The circular economy is an aspirational concept that will continue to drive improvement in many industries globally however, the adaptation of the circular economy to existing systems is largely difficult, time consuming and potentially quite costly.

A more practical system may combine elements of the circular economy and align them with the implementation of the Waste Management Hierarchy resulting in a sustainable waste management cycle.

The 'Waste Management Hierarchy' is an internationally adopted principle and concept which lists waste management options in order of preference according to their sustainability and environmental impacts.

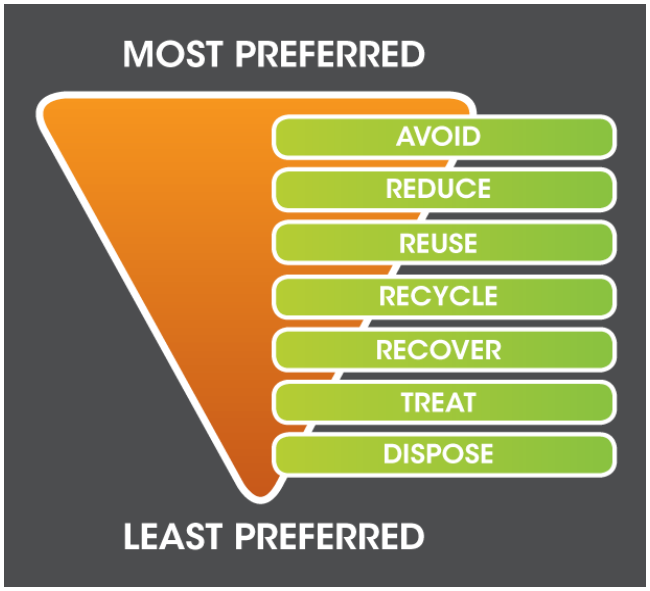

Figure 2-1: Waste Management Hierarchy

As shown in **Figure 2-1**, options which achieve outcomes higher up the Waste Management Hierarchy are preferred over those located further down the Hierarchy.

[1] NSW EPA (2019) Circular Economy Policy; Office QLD Chief Entrepreneur (2018). Towards a zero waste, circular economy; W.A. Waste Authority WARR Strategy 2030

3 Current Services

A review of WSC's current waste practices including service delivery was undertaken to obtain a thorough understanding of each aspect and is discussed in the following subsections.

3.1 Waste Education and Community Engagement

WSC employs a Waste Education Projects Officer who facilitates or participates regularly in educational WSC events at the Resource Recovery Centre (RRC) and in local community events such as the *Machinery Equipment & Small Farms Expo,* annual activities aligning with *International Composting Awareness Week* and the *Get Grubby* program (2018-2021).

The RRC Waste Education Centre runs community orientated workshops on composting, worm farming, recycling, green waste diversion, raising chooks and hosts site tours, *Waste Wise* workshops. The centre also facilitates a range of volunteer and social justice recycling programs such as *Bikes for Change.* The Reviva store, also located at the RRC, promotes reuse of materials collected at the site.

The WSC website summarises the range of waste services provided by WSC, provides an online tour of the RRC and an overview of upcoming waste-related workshops and community events. In addition, and to encourage residents to recover the organic components of their waste, WSC offers residents 50% off the recommended retail price and free delivery of compost bins, worm farms and bokashi bins.

3.2 Collection Services

The service delivery of WSC waste collections is via a contract approach. Under the current waste collection contract, the key waste services provided are:

- Supply, distribution and maintenance of bins;
- Mixed Solid Waste Collection Service;
- Recyclables Collection Service;
- Organics Collection Service;
- Clean-up Collection Service;
- Special events waste management;
- Provision and maintenance of containers at the RRC; and
- Haulage of containers and delivery of material from the RRC to nominated destinations.

Collected waste materials are transported to and held at the RRC in containers provided by the Contractor. When the containers become full, the Contractor provides for the haulage of the containers and the delivery of the stored material to Suez's sites at Kemps Creek and Spring Farm and to the C&D sorting facility at Wetherell Park (Resource CO).

3.2.1 Kerbside Collection

WSC currently provides kerbside collections of Municipal Solid Waste (MSW) from single dwelling premises including villas and townhouses, and multi-unit dwellings (MUDs). Collection of recycling is provided to premises on the same day of the week as the general waste and organics (optional upon request) collection services.

Key bin types, collections and total collections are shown in **Table 3-1.**

Table 3-1: Bin Type and Number of Residences Serviced

Mixed Solid Waste							Recycling			Organics	
Weekly					Fortnightly		Fortnightly (Weekly Dec-Jan holidays)			Fortnightly (Mthly/ Agree)	
80L	140L	240L	WOWB	80L	240L	140L	240L	360L	WOWB	240L	WOWB
79.3%	6.3%	3.3%	0.2%	10.9%	0.1%	1.0%	97.7%	1.2%	0.1%	99.9%	0.1%
18,139							19,234			18,248	

80L weekly general waste and 240L fortnightly recycling and organics collections are the standard waste collection options. The largest resident base for collections is recycling (approximately 19,200).

Wheel Out Wheel Back (WOWB) services are available to adult residents who have a physical disability which precludes them from placing the Mobile Garbage Bins (MGBs) on the kerbside.

A standard domestic waste service for strata/MUDs (Multi Unit Dwellings) consists of one 80L red general waste mobile garbage bin (MGB) collected weekly, and one 240L yellow recycling bin collected fortnightly. In most instances, each council owned premise is also provided with the same MSW and recyclables collection services as domestic premises.

3.2.2 Bulk Verge-side (Clean-Up) Collections

WSC provides bi-annual verge-side collections of up to a total of 2 cubic metres of bulky hard-waste and green waste per resident on a pre-booked, user-pays approach. These services are currently undertaken by the contractor and collections are charged at $81 per pick up and transported to the RRC.

An annual, “Summer Clean Up Program” is offered to all current domestic Council waste service users and is operated on a pre-book and pre-paid basis. Old furniture, metals, some white goods and mattresses are examples of items accepted. However, many waste types are excluded from this service including e-waste, food waste, green waste, domestic recycling, demolition materials, chemicals and hazardous items.

3.2.3 Commercial Collections

Commercial waste is currently collected by JR Richards however, businesses are also able to procure the services of an external waste collection contractor if desired.

At present WSC waste collection services are provided on a weekly, fortnightly, 4 weekly or other frequency by agreement. Services provided include:

- General mixed waste in 240L or 1,100L;
- Comingled Recycling in 240L or 360L;
- Paper and Cardboard in 240L only (fortnightly, 4-weekly, or by other agreement);
- Garden Organics in 240L only; and
- Confidential and secure documents 240L and on call only.

All charges are on a flat rate basis according to the bin size and agreed frequency. Commercial operators can deliver recyclables and waste to the RRC in addition to collections if required.

3.2.4 Public and Special Event Bins

The WSC Parks and Open Space team manage bins and waste collection for public spaces. The waste collection vehicle is WSC owned and operates seven days per week with an annual average of 120 tonnes per annum (averaged over three years).

Special events waste is managed by the event organiser in direct liaison with WSC's waste collection contractor. This waste is collected under a commercial fee and taken to the RRC for consolidation before being transported offsite for further processing or disposal.

3.2.5 Customer Management

Under the terms of the waste collection contract, the contractor has established and maintains a 1300 number for WSC residents to use regarding the waste collection services. The Customer Service Centre logs and reports to WSC on all resident calls relating to service complaints, missed services, applications for additional bins, damaged, or stolen bins and all other enquiries relating to the collection service.

Contact details are provided on the WSC website and all calls received by WSC that relate to the service are forwarded on to the Contractor to be addressed and reported on.

Customer Service Centre monthly reports to WSC address the number of complaints received, results of the investigations made into all complaints and all relevant Call Centre information including:

- General complaints and enquiries;
- Complaints in relation to missed services;
- Bin repairs, replacements and bins delivered to new services; and
- Requests for additional bins and/or changes to existing services.

The Contractor is responsible for keeping records on all enquiries/complaints, including:

- Record of the Contractor's actioned information against each request and other actioning information;
- Provision of details of each enquiry/request/complaint to the Contractor for appropriate actioning;
- Provision of electronic data and printed reports to the Council; and
- Record of unauthorized excess domestic waste.

3.3 Resource Recovery Centre (RRC)

The RRC is located in Moss Vale and is WSC's only waste management facility. The RRC is a large waste transfer operation as WSC no longer operates a landfill. WSC deliver this service in-house. It is open to residents and commercial companies from within the area. The RRC offers the following waste and waste-related services:

- Waste disposal and disposal of problem waste via a split-level drop-off facility;
- Disposal, sorting and transfer of recyclable materials;
- Community Recycling Centre (EPA funded with collection provided by ToxFree);
- Reviva Store (partnership with Resource Recovery Australia) offers a diverse range of recyclable items for sale including building supplies; furniture; books; tools and machinery, household appliances;
- Composting operations (to AS 4454) and the sale of related products;
- Mobile Muster and Drum Muster; and
- Waste Education Centre.

In addition, there is an animal shelter (WSC-owned however not part of the Business Services Unit) located on site in which residents must enter the site, pass over the weighbridge and navigate the site, to access.

All waste transported into and out of the RRC is weighed and recorded via the weighbridge. All material brought to the centre is reprocessed and diverted from landfill wherever possible.

As part of the Draft 2019/20 Operational Plan and Budget amendments, the RRC hours of operation have been reduced to 8am-4pm Monday to Saturday and 8am-1pm on Sundays.

The RRC is an EPA licenced facility (Licence No: 10300). The licence outlines which activities are "scheduled activities", that is, activities for which a licence is required for the premises at which it is carried out. It also lists the maximum scale at which the activity can be carried out. This is shown in **Table 3-2.**

Table 3-2: RRC Scheduled Activities

Scheduled	Activity Fee Based Activity	Scale
Composting	Composting	> 5,000 – 50,000 T of organics received
Resource recovery	Recovery of general waste	> 0 T recovered
Waste storage	Waste storage - hazardous, restricted solid, liquid, clinical and related waste and asbestos waste	> 0 T stored
Waste storage	Waste storage - other types of waste	> 0 T stored

Table 3-3 further defines the waste activities and the thresholds at which storage of such waste is considered a "scheduled activity" under the POEO Act and hence requires an Environmental Protection Licence.

Table 3-3: Waste Categories, Types and Thresholds Requiring an Environmental Protection Licence

Category	Waste Type	Threshold Limit
Waste storage	General solid waste (putrescible)	
	MSW - household domestic recycling waste - either kerbside collection or delivered by the householder directly to the RRC (e.g glass, plastic, cardboard, paper, aluminium, steel)	
	Waste oil/hydrocarbons mixtures/emulsions in water	
	Liquid waste Restricted solid waste Hazardous waste	Must be stored at the premises as part of the onsite Community Recycling Centre only and must not exceed the storage capacity of the Centre
	Waste tyres Asbestos waste	- Waste tyres - more than 5 tonnes of waste tyres or 500 waste tyres, or involves processing more than 5,000 tonnes of waste tyres per year - Asbestos waste as defined in POEO Act - having on site at any time more than 200 kilograms
Composting Resource Recovery	Garden waste Wood waste	- Receives from off-site more than 5,000 tonnes per year of non-putrescible organics or more than 200 tonnes per year of putrescible organics

Category	Waste Type	Threshold Limit
Waste storage Resource Recovery	Building and demolition waste Paper or cardboard	Paper – More than 5 tonnes at any one time not including excluded material (where 1,000 litres of liquid is taken to weigh 1 tonne)

The RRC is also where the WSC waste team is based. The WSC Business Services Coordinator oversees the waste collection and waste haulage services contract, the monthly budget performance and is also responsible for management of the RRC. Monthly meetings are held at the RRC with the objective of addressing operational issues, associated action plans and follow up.

Potential discharges to Air and Water and Applications to Land are monitored under the licence. These include three groundwater monitoring bores, one leachate monitoring point and three surface water monitoring points. A 25-kilowatt roof-mounted solar system at the RRC is used to power most of the daytime energy needs of the RRC. In addition, the collection and transport Contractor has been granted a licence by WSC "to occupy the domestic depot' (RRC), for the purpose of the waste collection contract.

3.4 Waste Data Management

WSC operates a weighbridge at the RRC which utilises waste data management software to record, consolidate and report information as required. The data collected through the weighbridge is utilised to generate invoices/receipts from transactions, in addition to, providing a mechanism to cross-check waste data collected and provided by the collection contractor.

The contractor has an integrated Management System (IMS) which records, monitors and reports waste data. Monthly reports to WSC include:

- Report from the Call Management Software; and
- Reports from the "Transaction Table" including:
    - Service details - missed services and corresponding details and actions. All general enquiries, bin replacement orders, new bin deliveries, requests to repair damaged bins;
    - All complaints - categorised via waste streaming, corresponding resident details and contractor's actioning information; and
    - Non-compliance - addresses of all properties with non-complying bins or unauthorised excess garbage and/or un-containerised garbage and contractor's actioning information.

Quarterly reports to WSC include:

- Collection details - MSW, Recyclables and Organics collections categorised by bin capacity;
- MGBs / bin details - including repairs, replacements, servicing;
- Missed services, contamination, overfull /underweight bins;
- Waste Quantities - all material collected and delivered to approved/nominated processors/disposal destinations together with quantities of contamination and records of receipts of delivery;
- Customer complaints and associated information;
- Noncompliance, accidents or breaches of contract; and
- RRC – Daily activities such as number and time of container haulage and the time each Container is delivered to nominated destinations; registration numbers of each haulage vehicle. Also, container weight, waste stream and destination for each container.

3.5 Summary of Service Delivery Models

WSC provides the abovementioned waste related services to its community through the use of the following service delivery models:

- In-house:
  - Waste education and community engagement;
  - Parks and gardens waste collections;
  - RRC operations;
  - Waste Data management; and
- Outsourced:
  - Collection services (except for parks and gardens).

The efficiency and effectiveness of these service delivery models are examined and compared with alternatives as part of this review.

4 Waste Data and Performance

The following section presents data on the current waste management systems across WSC, including:

- Customer call data;
- Current quantities of materials generated and/or processed by WSC;
- Typical compositions of the key waste streams;
- Performance of recovery rates against targets; a
- Waste data trends; and
- The key findings from the waste service stakeholder survey.

4.1 Customer Data

A summary of calls received by the Contractor call centre are shown in **Figure 4-1**.

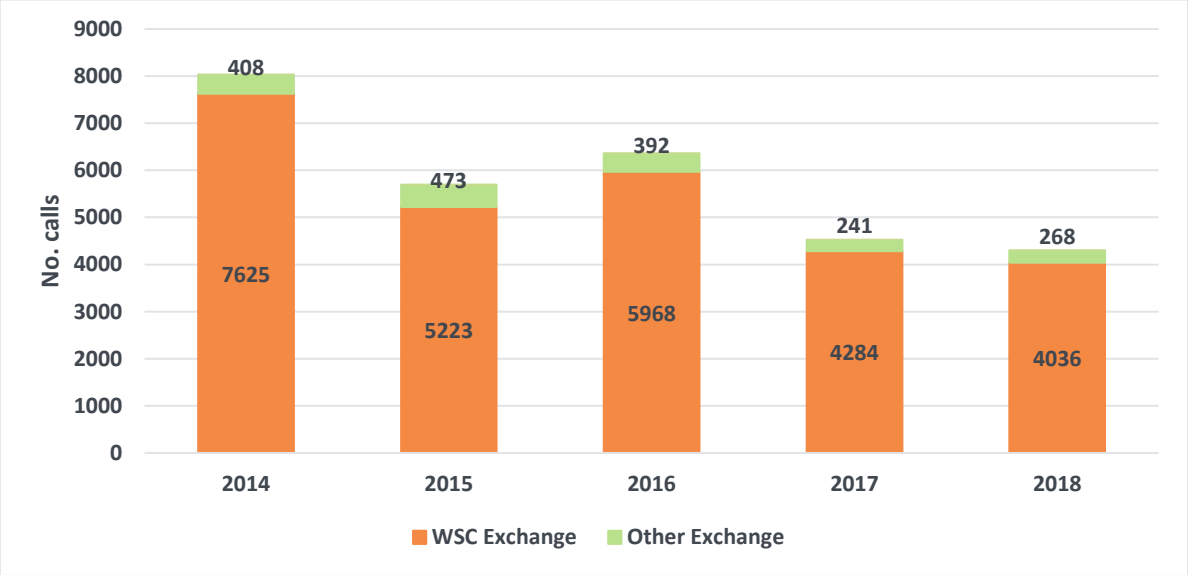

Figure 4-1: Community Complaints to Call Centre

Waste-related community calls have decreased by approximately 30% since 2016 however, the average total number of waste-related calls per week in 2018 (83 calls) have increased from January to March 2019 (106 calls).

A snapshot of call 'Actions' for the three 2019 monthly reports shows all actions as being "*Bin partially emptied - returned to empty*". Insufficient reporting data here means that WSC cannot determine what, if any, other issues customers may be experiencing regarding their waste collections.

4.2 Total Waste

Total waste arriving at the RRC between 2014 and 2018 is shown in **Figure 4-2.**

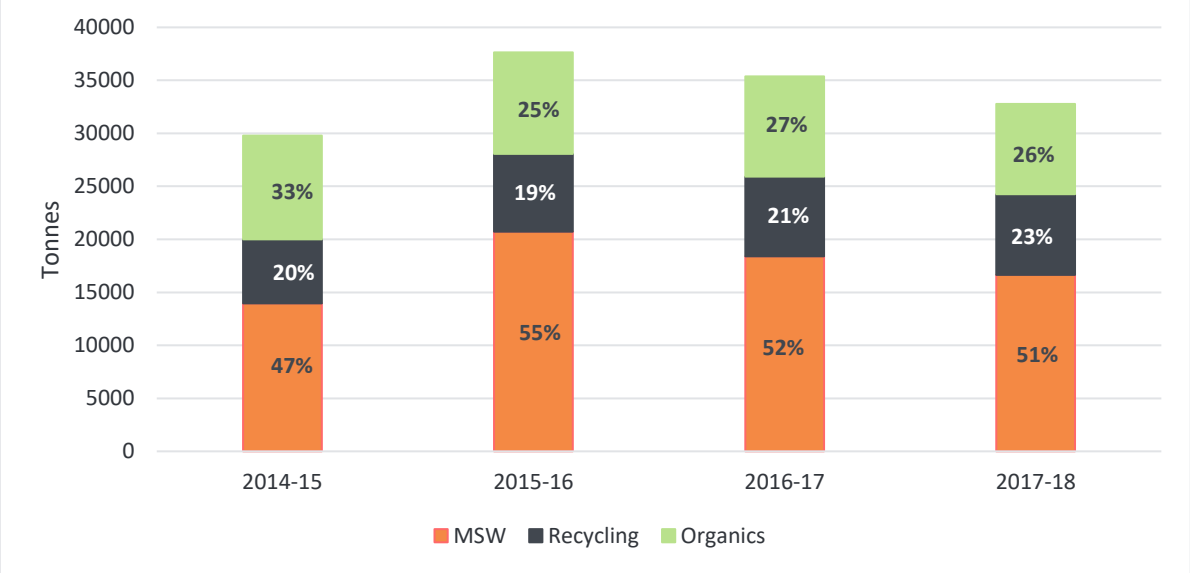

Figure 4-2: RRC Incoming waste by type and % weight

Total waste has dropped from a high of approximately 37,635 tonnes in 2015 to approximately 32,786 tonnes in 2018. In this same period general waste dropped slightly from 55% to 51% and recycling increased slightly. Incoming organic waste peaked in 2014 around the period that the WSC organics service was introduced and has then fallen by 6% in 2018 (**Figure 4-2**).

In addition, waste stream percentage (% by weight) were calculated for the nine month period from July 2018 to March 2019 (**Table 4-1**) to compare the most recent composition to the historic trends.

Table 4-1: Waste stream percentage (% by weight) Jul 2018 – Mar 2019

Recycle %	Organics %	MSW %
27%	30%	43%

Waste streams for the period July 2018 to 31 March 2019 show that the percentage of general waste entering the RRC remains comparatively low by weight for both recycling and organics than in all previous years (**Table 4-1**).

4.3 Kerbside Collection Data

Kerbside collection tonnages information for each of the three collected waste streams are shown in **Figure 4-3**.

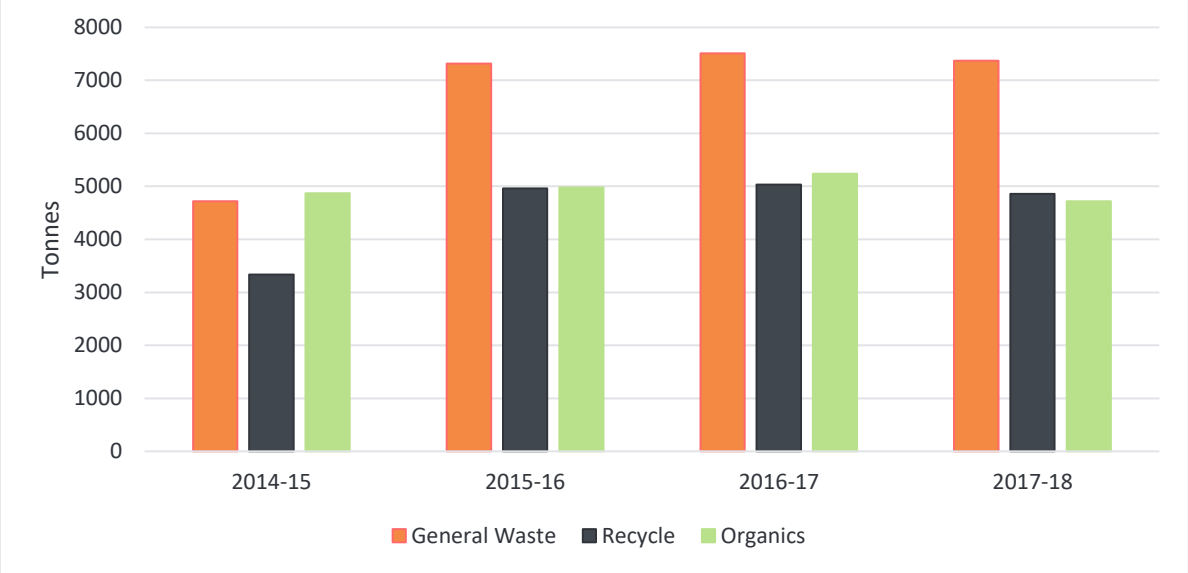

Figure 4-3: Kerbside Collections

It can be seen from **Figure 4-3** that general waste (MSW) increased between the 2014-15 and 2015-16 financial years while both recycling and organics remained relatively consistent.

4.4 RRC Inputs and Outputs

Waste outputs from the RRC include any materials recovered/recycled from the inputs plus material to landfill. The balance between material coming into and out of the RRC will be influenced by the amount of material stockpiled over a certain length of time.

RRC inputs, outputs and stockpiled tonnages between 2015 and 2018 are shown in **Figure 4-4**.

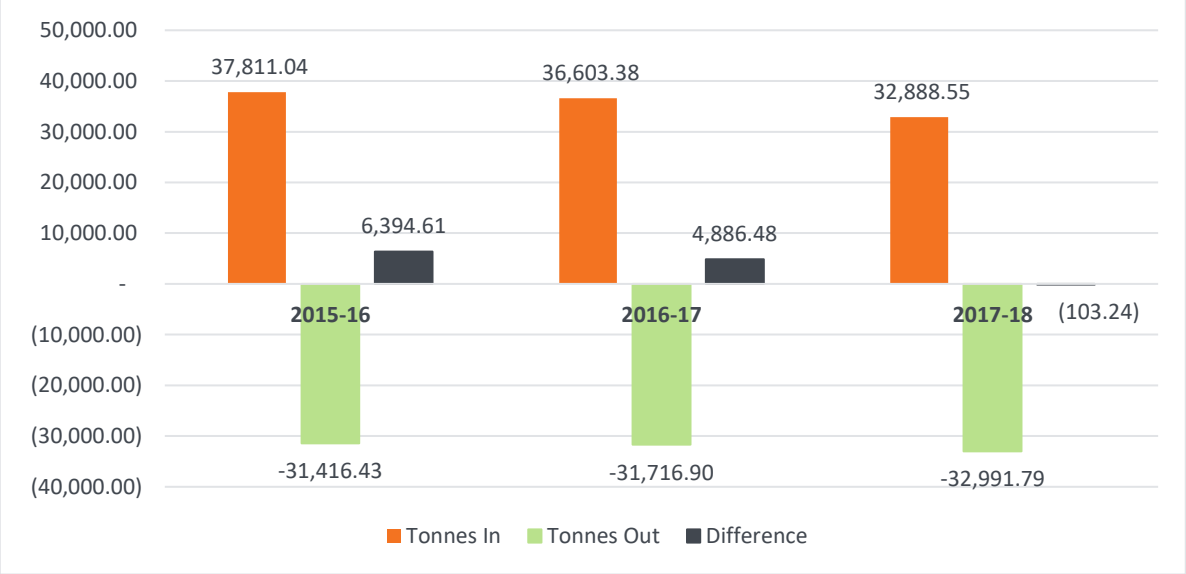

Figure 4-4: Incoming, Stockpiled and Outgoing Waste at RRC

It can be from **Figure 4-4** that waste leaving the RRC has continued to increase resulting in less material having to be stockpiled on site. This suggests that the RRC is operating effectively in terms of finding markets or end

locations for materials accepted or generated on site, along with greater operational capacity caused by a reduction in waste volumes.

4.5 Waste Composition

An audit of WSC household kerbside waste and recycling streams, including an audit of NSW Container Deposit Scheme eligible beverage containers, and a recycling bin inspection and tagging program was undertaken in 2017 (MRA Consulting (2017): Household Kerbside Bin Audit & Bin Tagging. June 2017). Key objectives of the audit included to identify opportunities for ongoing reductions in residual waste, measure diversion rates, monitor effectiveness of the current services and investigate possible effects of the Container Deposit Scheme on WSC kerbside collections. The audit revealed the following trends:

- General Waste:
  - Food/kitchen waste accounted for approximately half of the residual waste stream by weight;
- Recycling:
  - Improved diversion from landfill via recycling - 89%, an increase of over 7% since 2015;
  - Improved decrease (6%) in recyclables leakage to general waste;
  - Increased contamination since 2011 (10.00% in 2011 to approximately 15% in 2017), equating to a 5% increase in the contamination rate;
- Organics:
  - Diversion of the percentage of green waste in the residual waste stream dropped to 1.8% (by weight);
  - A 61% improvement in the contamination rate of the organics stream since a 2015 WSC audit; and
  - Food/Kitchen waste accounted for half of the residual waste stream by weight.

4.6 Waste Diversion

4.6.1 Total Waste

Total WSC waste diversion from landfill from all waste streams, 2014 onwards, is shown in **Figure 4-5**.

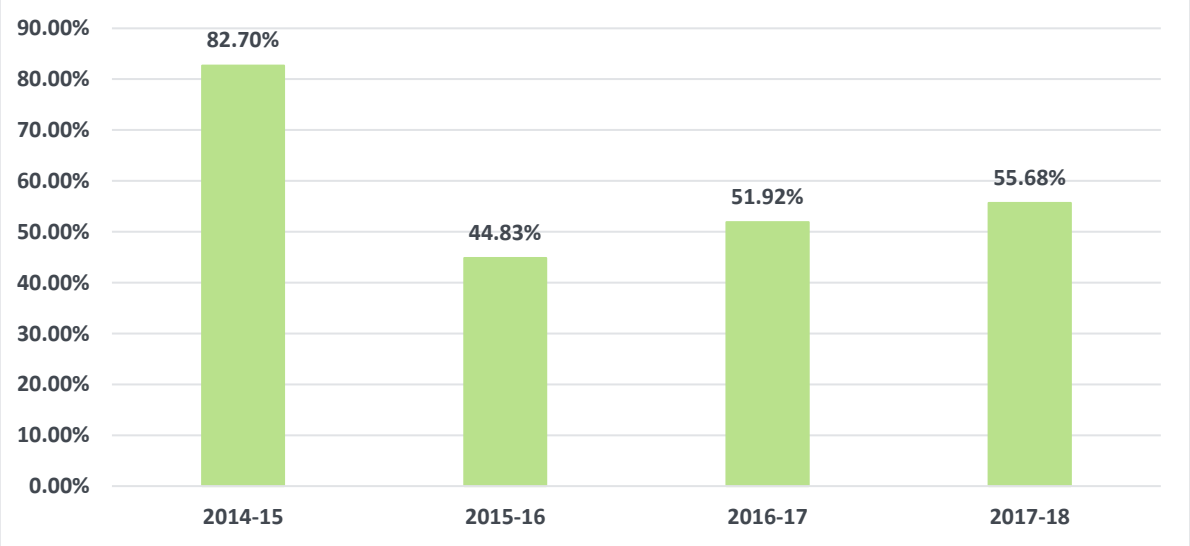

Figure 4-5: Waste Diversion from Landfill

While a diversion rate of waste from landfill of approximately 83% in 2014-15 appears very successful it is potentially influenced by stockpiling at the RRC during this period and the fact that the Welby landfill was closing during at this time. In saying this, since 2016 WSC has been steadily improving waste diversion from landfill.

A total waste diversion of 70.37% has occurred for the most recent 6-month period July 2018 to 31 January 2019. This waste diversion from landfill is very close to the state WARR diversion target of 75%.

4.6.2 Kerbside Waste

The June 2017 waste composition audit found that the overall domestic kerbside diversion rate was 65.30%. This represents a 1.77% improvement on the diversion rate determined from the previous audit in 2015 and is both well above the NSW average domestic kerbside diversion rate of 48% and only 5% below the NSW state target of 70% for 2021.

5 Community Priorities

Stakeholder Consultation has been identified by WSC as a core aspect of the Service Delivery Review in order to provide the community with a say and to ensure services delivered by Council match the community's expectations. It is seen as particularly important to ensure that the input from the key waste generators (the community) is obtained and utilised to help form future actions and recommendations moving forward.

5.1 Trends

WSC demonstrates a commitment to identifying and monitoring community expectations. Biannual community surveys since 2010 have reviewed key WSC services, inclusive of waste, and demonstrates the importance of these services to the community.

A summary of the 'Priority Rankings' focussed on waste-related services selected from a baseline set of 39 WSC services in 2012, 2015 and 2017 are shown in **Figure 5-1.** A lower number equates to a higher priority.

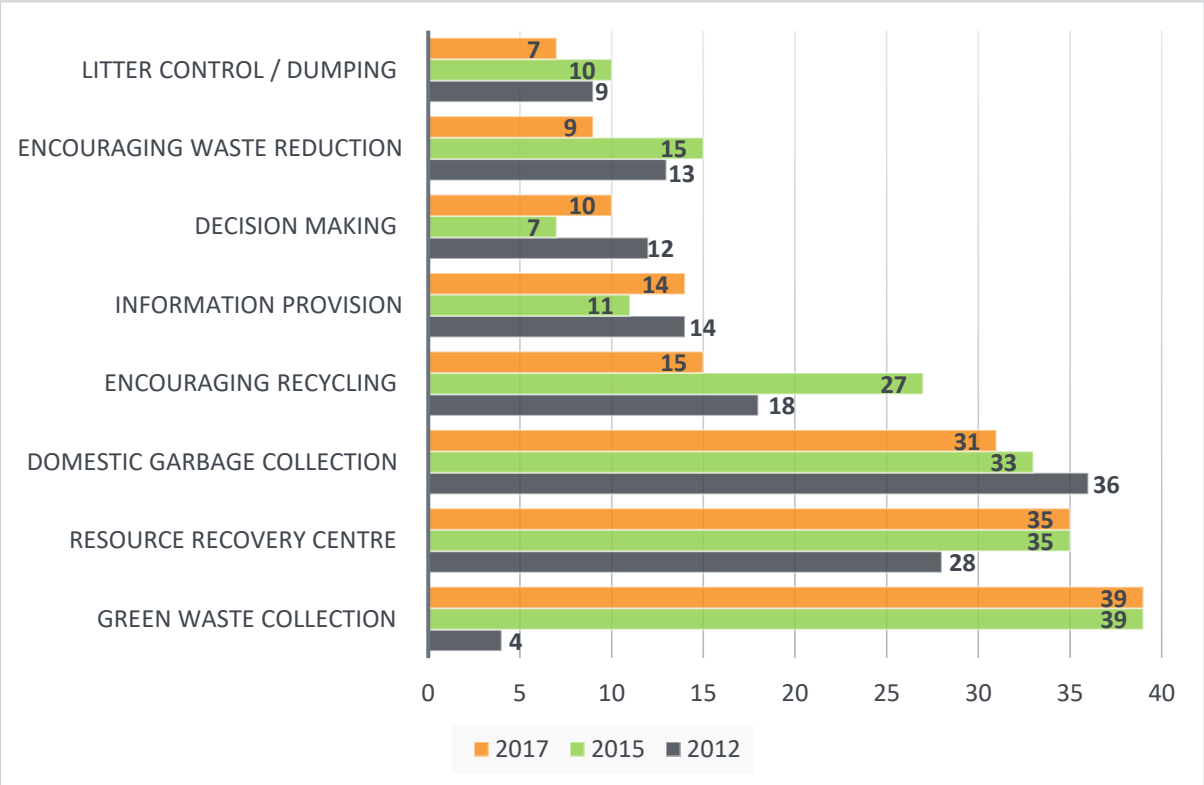

Figure 5-1: Ranked Core WSC Waste-Related Services

It can be seen from **Figure 5-1** that litter control/dumping, encouraging waste reduction and the inclusion of community views in WSC's decision-making process have consistently ranked as high priorities in all three surveys. Encouraging recycling initiatives has fluctuated over time and was a relatively high priority in comparison to all core WSC services in the 2017 survey as compared to 2015 results. Waste collections have consistently been ranked as low priority when compared to overall WSC service delivery except for green waste which was a very high priority in 2012 prior to the introduction of dedicated green waste collections, however, has since ranked closely to domestic garbage collections.

These surveys also examined both perceived satisfaction / importance of each service individually. Results have been summarised in **Figure 5-2**.

Figure 5-2: Core Waste-Related Services – Mean Importance v Mean Satisfaction

WSC introduced a 3-bin system and green waste collections in June 2014 and these measures are reflected for example in the dramatic increase in satisfaction for green waste services between 2012 and 2017. Satisfaction and performance measures show the following waste-related trends over this period:

- Domestic garbage collections - Continues to be very important and with high community satisfaction;
- Encouraging Recycling – Was important and has grown to be very important over time with more than medium importance;
- Litter control – The importance of litter control has always been important and has increased in importance over time however satisfaction trends are medium and have decreased slightly;
- Encouraging Waste Reduction – This service is important and has increased in importance however satisfaction with such service remains as medium;
- RRC – This service was of medium importance and satisfaction. Both factors have increased over time;
- Information provision – The importance of information provision to residences about all services offered by WSC has grown over time however satisfaction has remained as medium; and
- Green waste management – This service has remained as a lower priority however community satisfaction has increased to high over time.

5.2 2019 Waste Service Stakeholder Survey

To identify performance levels, issues and community satisfaction regarding the current waste management system, the *2019 Waste Service Stakeholder Survey* was distributed across the community by WSC during April 2019.The key community waste management priorities arising from the survey are summarised in the following sections. The results of the *2019 Waste Service Stakeholder Survey* are attached as **Appendix A.**

5.2.1 Litter Control and Illegal Dumping

Litter control and illegal dumping has constantly been ranked as a high-priority Council service. Between 2015 and 2017 there was an increase in resident's concerns regarding how these were managed.

From the *2019 Waste Service Stakeholder Survey* approximately 40% of responders viewed litter as an issue within the area with the same percentage viewing the number of public waste and recycling bins around WSC's towns and village centres as not adequate / not at all adequate. Comments included the need for more waste/recycling bins generally in villages, carparks, shopping areas and in the vicinity of recreation areas such as parks and walking tracks. The lack of any recycling bins in some smaller villages was also noted.

58% of responders viewed illegal dumping as an issue, particularly along roadside verges, more heavily vegetated areas in dead-end streets, in the vicinity of Return and Earn facilities and near overflowing litter bins within town centres.

5.2.2 Kerbside Collections

Results from the 2019 *Waste Service Stakeholder Survey* regarding the level of satisfaction with supplied, sizes for kerbside bins found that 19% of responders were unsatisfied (not at all satisfied/ not satisfied) with the size of their organics bin, 17% with their general waste bin size and 7% with their recycling bin size.

Chief concerns for responders with low satisfaction regarding their kerbside bin sizes were:

- General waste: Bins are too small, especially for larger families;
- Recycling: Collections could be undertaken weekly; and
- Organics: Bins are too small, should be collected weekly or volume required varies throughout the year.

Regardless of this, 70% of respondents have never changed the way waste services are provided for their properties. The remainder self-adjusted bin sizes (17%) or collection frequencies (10%) to account for individually higher and lower waste outputs and personal needs.

As discussed previously, WSC currently offers a generous selection of bin sizes and collection frequencies for kerbside waste collections (**Section 3.2.1**). However, this survey reveals that the key, current kerbside services for responders who had a kerbside collection were:

- General waste: Weekly 80L (70%);
- Recycling: Fortnightly 240L (82%); and
- Organics: Fortnightly 240L (100%)

5.2.3 Recycling

The *2019 Waste Service Stakeholder Survey* indicated that close to 80% of responders were very happy/happy with the current kerbside recycling collections offered by WSC.

Uncertainty exists however, within the community, regarding what waste types can legitimately be placed into the recycling bin (19% of responders who received collections). 35% of respondents viewed plastics as a problematic waste type.

Disposal of recyclable materials was the most utilised service at the WSC RRC (78%). Such heavy use may potentially result from service gaps in kerbside collections or underuse / lack of knowledge on Council Clean-Ups. 54% of responders were very supportive/supportive of WSC investigating opportunities to recycle food scraps.

5.2.3.1 Return and Earn

41% of those surveyed had used Return and Earn facilities. Principle issues for those using this service related to long queues, constraints on acceptable material types and litter dumping adjacent to such facilities.

Key limitations for those not using this service were time and distance to facility (28%) and lack of or limited knowledge about the Return and Earn program itself (13%). Constraints on acceptable recyclables and the convenience of home recycling versus travelling to Return and Earn Facilities were also factors in non-use.

More than half those surveyed would like more facilities located within the Shire.

5.2.4 Verge-side Collections

Verge-side waste services typically have several impacts on the community including:

- Small sized properties or MUDs unable to utilise the service;
- Aesthetic impacts resulting from large piles of waste publicly display for long periods of time;
- Improper use of the verge-side service; and
- High volumes of verge-side waste being disposed to landfill.

70% of responders in the *2019 Waste Service Stakeholder Survey* have not used the verge-side bi-annual Council Clean-Up and there was a very low response rate to levels of satisfaction (20%). Of these limited responses, approximately half were unhappy to very unhappy with the service.

Key reasons for not using the service were expense. Expectations by those surveyed suggested that this should be a free service with restrictions on material types and the number of services per annum.

5.2.5 Problem Wastes

Mattresses, e-waste, plastics and household problem wastes (e.g. paint, gas bottles, batteries, oils) were the most challenging waste disposal types identified in the survey. However, the highest proportion of problem waste was the category ‘none of these’, indicating that further investigation needs to be undertaken.

Key issues surrounding problem wastes were distance to and expense of using the RRC, uncertainty of how best to deal with such waste, constraints and restricted offerings for Council Clean-ups.

5.2.6 RRC

The *2019 Waste Service Stakeholder Survey* indicates that the RRC is both very important and is providing high levels of satisfaction. Responses show very high usage of the RRC (94%). Many responders used multiple services with all services being utilised. More than half of responders felt that the RRC meets community expectations. 10% of those visiting the RRC found that it was difficult to navigate.

Manoeuvrability, poor signage and lack of space within the green waste area were key issues for these responders. Comments included issues with queueing, changing layouts and driving routes which caused confusion and having to sort loads then pay and queue again to complete disposal.

68% of responders perceive that they have a satisfactory understanding of the types of waste and recyclables accepted at the facility (detailed understanding 19%; don't know enough 13%).

5.2.7 Gaps in Waste Collections

The WSC covers an area of 2,700 square kilometres and the participants of the *2019 Waste Service Stakeholder Survey* reflected this geographical diversity together with the associated challenges of waste services provision that this presents. A minor gap in kerbside waste collection service provisions was identified (6.1%) within the survey. It is likely that these residents were geographically remote from the existing collection routes. Such responders relied on the RRC facilities to recycle and dispose of their waste.

6 Improvement Options

The following section outlines a variety of potential waste service improvement options to assist WSC in progressing towards a more sustainable waste management system which aligns with community expectations.

In addition, a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis was undertaken to evaluate each of the improvement options from a technical perspective.

6.1 Community Engagement and Education

Engagement and education are vital tools to improve waste management awareness and increase the adoption and correct use of WSC's waste services. WSC should ensure that it maintains a suitable number of waste education staff moving forward, and potentially look to develop a waste education plan for WSC.

6.1.1 Website upgrades

In general, the waste services component of the WSC website is difficult to navigate and find the desired information. It is suggested that a more streamlined design is included which simplifies the process of finding information. It is understood that upgrades have already commenced, and we commend WSC in this instance.

The WSC website currently includes an informative video tour of the RRC. WSC could also consider the use of a Google Street View capture which would allow the community to "walk" itself through the RRC in its own time and view the entire operation in 360 degrees (^{0}). It is envisioned that this application will allow people to see the layout of the facility prior to their visit and further ease any concerns for those unfamiliar with its operation, thereby encouraging its use in the community.

6.1.2 Problem Waste Advertising

The disposal of problem waste at the RRC is free however, results from the 2019 *Waste Service Stakeholder Survey* (**5.2.5 Problem Wastes**) indicate that this message may not be widely understood within the community. It is suggested that more widely distributed education on dealing with problem waste be provided by WSC and that the readability of all online guides and brochures are adequate in terms of print size and clarity.

6.1.3 Pricing Examples

Survey results also suggest that there is a perceived problem relating to high RRC costs for waste disposal. It is recommended that advertised costs for waste disposal on RRC signage and the WSC website could be simplified. Examples include:

- Free v/s Charged - List of waste types which are free to dispose of versus a list of waste types which must be paid for; and/or
- Waste amounts - Examples of typical costs for certain waste types e.g. "*A trailer load of green waste typically costs ….*" instead of the full cost per tonne which can deter use of the RRC

6.1.4 Recycling Education Initiatives and Provisions

Recycling within WSC continues to improve with diversion from landfill increasing over 7% since 2015 (Section **4.6**) and gross recycling tonnage increasing by 4% between 2017-2018 and 2018 (**Figure 4-2**, **Figure 4-5**).

However, the WSR notes a trend towards increasing contamination in the kerbside comingled recycling stream since 2011 with the 2019 *Waste Service Stakeholder Survey* revealing the uncertainty that exists regarding what

types of material can be recycled, particularly plastics. This has the potential to impact negatively on Return and Earn programs and, over time, on the successful diversion of waste to landfill within WSC.

Recycling education initiatives could focus on additional, simple, targeted recycling information and signage, particularly about plastics. Improved signage is recommended for kerbside bins, urban bins, Return and Earn facilities and at the RRC together with a consolidated recycling page on the WSC site providing a one-stop link to the wide range of current WSC recycling services.

WSC should optimise Return and Earn locations and the number of facilities to improve access and support this community recycling momentum. It is recommended that the provision and servicing of waste and recycling bins to these facilities also be reviewed to prevent illegal dumping.

6.1.5 Illegal Dumping Prevention

WSC has been an active partner in the Regional Illegal Dumping (RID) prevention program, working closely with the regional Illegal Dumping officer. WSC funding under the EPA's 'Combating Illegal Dumping: Clean-up and Prevention Program' is targeting awareness campaigns aiming to reduce illegal dumping at charity stores, increasing training, surveillance, and networking and information-sharing between the region's Councils.

However, combatting illegal dumping has been an ongoing issue for both the region and WSC. Illegal dumping is currently a significant problem that is occurring on a regular basis which is incurring high costs to WSC. Illegal dumping not only causes increased costs for WSC, it also can result in reduced amenity, safety issues and environmental contamination.

It is understood that illegal dumping is occurring within certain 'hotspots' within WSC. It is suggested that improving video surveillance at these hotspots to try and capture details of the illegal dumping events is important. Gathering evidence of the dumping activity is considered critical in order to ensure fines can be issued and costs recovered by WSC.

WSC should look to record a database of all illegal dumping activities to assist in determining further 'hotspots' that can be targeted with video surveillance and in identifying patterns of behaviour. This could include data such as:

- Possible date(s) when material was dumped;
- GPS coordinates of material location;
- Type of material(s); and
- Quantity of material dumped.

Suitable mapping, dumping dates and images from such database could be posted on the WSC website to encourage concerned residents to report illegal dumping in their local vicinity.

According to the NSW's *Illegal Dumping Strategy 2017-21*, there are six approaches to preventing or deterring illegal dumping as outlined in **Table 6-1**. Strategies include:

- Building an evidence base;
- Stakeholder engagement and capacity building;
- Education and awareness;
- Prevention, infrastructure and clean up;
- Regulation and enforcement; and
- Evaluation and monitoring.

Table 6-1: Mechanisms to Control Illegal Dumping

Mechanism		Actions
Make dumping harder	- Councils and land managers can make access to dumping hot spots difficult by using structural approaches.	- Strategically located gates, barriers or landscaping - Lighting
Increase the risk of getting caught	- A perceived increase in the likelihood of getting caught will deter some offenders from illegal dumping.	- WSC finance, install or increase security/surveillance cameras at known hotspots and examine footage regularly to actively identify and prosecute offenders. - Mapping, dates and photos of illegal dumping on WSC website to increase public participation in this issue.
Reduce the rewards by denying the financial benefits	- Financial incentives to dispose waste legally at the RRC include getting the price structures right, issuing fines and requiring offenders to clean up dumped waste.	- WSC to revamp pricing signage to provide examples cost of common items (not display only $/tonne) - Clearly advertise fines and consequences of illegal dumping
Reduce provocation by making legal disposal easier	- Householders are more likely to be motivated to illegally dump if they perceive that the waste collection service is not efficient or convenient. - Individuals may also feel provoked to illegally dump in areas that are not aesthetically pleasing.	- WSC extends kerbside collections to outlying residences. - WSC offers alternative waste service to those outside of the collection network area such as additional facility. - Prompt clean-up of illegal dumping incidents.
Remove excuses by educating and informing the community		- Increase signage and information on fines - WSC to partner with local charitable organisations to provide guidance on assessing the dumping, contacting council, planning and implementation actions and evaluation of such litter prevention actions. e.g. Sustainability Victoria's *Litter Prevention kit*

The SWOT analysis for this improvement option is outlined within **Table 6-2**.

Table 6-2: Community Engagement and Education SWOT Analysis

Internal		External	
Strengths	**Weaknesses**	**Opportunities**	**Threats**
- Leverage the existing, strong, community culture of recycling and waste minimisation. - Open, transparent and targeted investigation into current community buy-in to waste initiatives. - Provide opportunities to put community views into practice.	- Difficult to achieve full community engagement. - Time taken to change community perceptions.	- Less community confusion about plastics recycling and problem wastes. - Increased community buy-in to using RRC and Return and Earn facilities. - Clearer waste-related information on WSC website. - Improved use of RRC, kerbside recycling and Return and Earn facilities. - Less comingled recycling and organics contamination at kerbside.	- Lack of community support. - Lack of clarity on resources needed. - Underestimating budget allocation. - Misinformation led by special interest groups to confuse.

Significant WSC recycling trends from the WSR include strong recycling at the RRC, improving diversion from landfill to recycling at the kerbside and increasing use of Earn and Return facilities. The key strength in reviewing community engagement is the opportunity to leverage the commitment already demonstrated by residents to recycling. This aligns with WSC's objective to inform on how waste services can be improved and delivered at the right level, cost and to meet community expectations. Engaging and informing the community is imperative to achieving these goals.

Contamination of kerbside recycling and organics and uncertainty on 'what' waste to recycle particularly regarding plastics, are key identifiers and indicates that there are clear opportunities to clarify knowledge gaps and improve confidence in better recycling habits.

Whilst educational activities may be relatively inexpensive in financial terms it is critical to consider the timeframes required to change community perceptions.

6.2 RRC Optimisation

Established in 2000, the RRC has grown and changed over time to match changing demands in waste management and it is recognised that the facility has several site constraints including small footprint, shared uses and unfavourable foundations.

As a cost saving measure and as part of a recent *Funding Proposal for Council's Regional Art Gallery Contribution*, RRC hours of operation were reduced to achieve an annual cost saving of $200,000. This reduction to the RRC operating hours was introduced during the undertaking of the project and as such this report had no bearing on this action by WSC.

6.2.1 Improve Access and Amenity

Best practice facilities emphasise separate community access and promote clean aesthetics.

Such facilities typically provide dedicated entrances and parking for reuse shops and also allow direct access to other complementary facilities such as men's sheds, waste education facilities, ecological gardens and/or composting toilets.

This approach enables residents to access the facility's weighbridge directly and proceed to the recycling and general waste disposal areas, freeing up traffic congestion within the site.

Feedback from the *2019 Waste Service Stakeholder Survey* shows that 10% of responders using the RRC thought that manoeuvrability, poor signage and lack of space within the green waste processing area were key issues.

It is suggested therefore, that WSC investigate options to provide improved access to community areas, the *Reviva* shop and the Animal Shelter, separate from the weighbridge access route and also review traffic flow within the green waste processing area. The Animal Shelter has provision for an alternate access bordering with the Southern Region Livestock Exchange which should be explored.

Improved visual amenity for these community areas should also be explored to further engage the community in the waste-related events held at the Waste Education Centre.

6.2.2 Community Reuse Options

Men's Sheds and Repair Workshops have become common complimentary infrastructure to a waste management infrastructure in recent years providing the opportunity to fix, repurpose and/or upcycle items for sale. Through partnerships with community and social enterprise groups, associated opportunities to provide a community service while diverting waste from landfill, can be explored.

While the WSC does not currently have the capacity to locate a Men's Shed or similar within the RRC, there is the opportunity to develop partnerships with such agencies for regular collection of recycled timber and tools from the RRC for reuse with a longer term goal of establishing a facility at the RRC when land becomes available.

6.2.3 Site Layout and Use Improvements

The RRC accommodates both the Animal Shelter and the collection contractor's depot and administration office which do not directly provide a waste management related service to residents. In consideration of size constraints of the facility, WSC should investigate the continued provision of these uses at the RRC and determine what benefits can be drawn from relocating these elsewhere. In particular, the area utilised by the contractor would be ideal to establish a purpose built, community focussed, reuse and waste education hub. The Reviva shop would be relocated to this area and as a result, would provide greater area to undertake the composting and other associated operations.

Furthermore, it was identified that queuing at the weighbridge occasionally is quite lengthy during peak times which results in traffic needing to wait on Bowman Road. During a review of the site uses, it is also suggested

that a new location of the weighbridge placed further into the site is considered, to extend the available queuing section of road on the site.

A review of the RRC site use would, therefore, identify the most efficient and effective uses for the site.

6.2.4 Staffing Levels

Based on the current numbers of operational employees at the RRC (16 full time and 1 part time), it is suggested that a review is undertaking of resourcing levels to ensure the optimum approach is implemented. A comparison of other council waste management facilities (within NSW) accepting a similar quantity of waste as the RRC is provided in **Table 6-3**.

Table 6-3: Site Operations and Rostering

	Maitland	Cessnock	Muswellbrook	WSC RRC
Operational Days/Week	7 Days	Cessnock - 7 Days Greta - 5 Days Thursday to Monday	Muswellbrook - 7 Days Denman - 4 Days (Friday to Monday)	7 Days
Annual Tonnes Received	24,700	33,000	30,000	34,090
Site Opening Hours	8:15 to 4:00	Cessnock 8:45 to 4:30 Greta Mon, Thur, Fri 2:00 to 5:00 Sat - 8:00 - 1200 Sun - 1:00 to 5:00	Muswellbrook 9:00 to 5:00 Denman 9:00 to 4:00	Monday to Saturday: 8:00am - 4:00pm Sunday: 8:00am - 1:00pm
Number of Staff	**12**	**11**	**5**	**16 full time** **1 part time**
5/7 day roster	5	7 Day Roster	5 Day & Optional Overtime	7 Day Roster
How long prior to opening time do the operators start	75 Minutes Assistant Team Leader 15 Minutes Waste Operators	15 Minutes	15 mins 1 operator	10 minutes
How long after to closing time do the operators finish	15 Minutes Assistant Team Leader	30 Minutes	30 minutes Landfill operators	10 minutes
On-Site off the tools Supervisor/Coordinator	Yes	Yes	No	No
On the Tools Team Leader or Senior Operator	Yes	No	Senior Landfill officer Reporting to the Waste Coordinator	Supervisors are on the tools if required (fill in for

	Maitland	Cessnock	Muswellbrook	WSC RRC
				lunches, sick leave etc)
Dedicated Weighbridge Officer	Yes	Yes	Rotated	Yes
Do operators rotate through all duties or are there specific roles	2 main operators with other covering gaps	Some plant operators and the rest rotate roles	Rotated	Rotated depending on skill sets and abilities
Onsite organic waste processing/composting	No	No	Yes	Yes

It can be seen from **Table 6-3** that the number of staff utilised at these facilities is significantly less than the RRC and therefore it is suggested that WSC consider optimising the number of staff and/or hours worked by staff.

6.2.5 Outsourced RRC Operations

Outsourcing the operation of the RRC is an approach that utilises a contractor to provide staff and plant to operate the RRC. This can provide significant cost savings to WSC and can promote the implementation of further innovation at the RRC. However, it would significantly reduce WSC's ability to engage and educate the community regarding waste management issues. The outsourced RRC operations are further discussed within **Sections 7** and **8**.

The SWOT analysis for this improvement option is outlined within **Table 6-4**.

Table 6-4: RRC Optimisation SWOT Analysis

Internal		External	
Strengths	**Weaknesses**	**Opportunities**	**Threats**
- Improve RRC operating efficiency. - Further engage the existing community user base.	- Limited facility footprint size. - Established infrastructure and operations. - Reduce staff	- Site layout to become best practice. - Promote diversion from landfill at front of site. - Simplified access to all RRC facilities. - Reduced wait times to dispose of rubbish. - Easier parking. - Reduce operational costs	- No budget. - Contractor buy-in. - Under-resourced - Redundancy payouts.
Outsourced RRC Operations			
- Less risk to WSC	- Reduced control - Not point of contact with community	- Lower cost - Greater opportunity for innovation	- Recued level of services - Performance - Community interaction reflects on WSC

The RRC has grown over time in response to changes in waste management, waste types and concerns for the environment. Key trends in RRC services which have emerged from the WSR are that the facility is heavily used,

all services are utilised, and the RRC has grown to become of high importance to the community over the last few years. However, while community satisfaction with the facility has increased, only around half of the responders to the 2019 *Waste Service Stakeholder Survey* felt that the RRC meets community expectations.

The strength in undertaking a review is the opportunity to holistically revisit the RRC layout and functionality with an eye to better meeting community expectations and amenity, increasing efficiencies and promoting a "Reduce, Reuse, Recycle" vision at "front" of facility. Consideration of whether WSC or a contractor is best placed to do this, should be undertaken.

6.3 Additional Waste Management Facility

Currently the RRC is working close to capacity within its existing footprint and historical environmental constraints. Further, the *2019 Waste Service Stakeholder Survey* suggests that distance to the RRC was an important issue (**Section 5.2.5**) for some residents.

Analysis using specialist software, based on the RRC location and WSC population centres has been undertaken to determine drive times to the RRC. Based on a current total population of 47,882 (2016 census), drive time calculations were produced and are show in **Table 6-5**.

Table 6-5: Drive time analysis to RRC

Drive Time	Within 10 Minutes to RRC	Within 20 Minutes to RRC	Within 30 Minutes to RRC
Population Covered	9,893	30,450	45,934
Percent of Total WSC Population	21%	64%	96%

It can be seen from Table 6-5 that 36% of the population are required to drive over 20 minutes (one way) to the RRC and 4% of the population has to travel over 30 minutes. Only 21% of the population is within a 10 minute drive to the RRC. The drive time mapping is provided in **Appendix B**.

These factors in tandem with the emergence of new and expanding residential developments within the Shire suggest that WSC should explore the siting and development of a complementary additional Waste Management Facility. This would recognise that the RRC remains the primary facility. Development of a new site could address the following options:

- Provision of waste services to residents who do not currently have access to kerbside collections in more remote areas of WSC;
- Reduce time and distance travelled to dispose of recyclables and waste;
- Review existing RRC processes to determine potential relocation of suitable subservices;
- Provision of a more suitable location and size for best-practice composting and associated technology improvements; and
- Allow for more efficient use of space at the RRC including improved layout of community facilities.

The SWOT analysis for this improvement option is outlined within **Table 6-6**.

Table 6-6: Complementary Additional Waste Management Facility SWOT Analysis

Internal		External	
Strengths	**Weaknesses**	**Opportunities**	**Threats**

Internal		External	
- Increased community access and satisfaction. - Ability to rationalise services at both facilities.	- Capital and operational costs. - Additional liabilities.	- Holistic review of RRC and future best practice planning for both facilities - Improved utilisation of existing RRC site. - Reduced distance to dispose of waste. - Reduce illegal dumping	- Lengthy establishment timeframes. - Community backlash regarding location. - Reduced amenity if established in wrong location.

Forward waste management planning by WSC should recognise both the importance of the RRC and its current and future physical and operational constraints. An effective RRC Review then, should ideally be undertaken in consideration of how best to expand the existing facility to cater for an increasing population and the rapid evolution in recycling technologies, feedstock, markets and waste management practices.

Thus, consideration of the 'why, when and how' of an additional waste management facility which will enhance, complement and broaden WSC's waste capacity, should be undertaken to ascertain the path for waste management infrastructure into the future.

6.4 Integrating Waste Management into Planning and Approvals

Large-scale urban developments which generate high volumes of waste (both during construction and following completion) have the potential to cause WSC significant issues with the efficiency of its kerbside collections. This is not uncommon, with multiple Local Government Areas (LGAs) across Australia experiencing waste management issues related to MUDs and other large developments.

6.4.1 Waste Management Plans

It is recommended that WSC's Planning Department require that any and all new large-scale developments prepare a Waste Management Plan (WMP) as part of their development application process. It is recommended that such waste planning also extend into all Master Plans, Concept Designs and Streetscape Masterplans early in the design phase.

Development applications should be inclusive of completed Waste Management Plans which outline the proposed waste management practices during the construction, demolition, and operation of the development. Councils need to work with building managers to deliver services and systems that meet the needs of a development wherever possible and support building managers in requests for waste education materials.

It is recommended that WSC look to develop their own specific waste management guidelines and ensure that theses reflect WSC's services and desires. Although WSC has a legacy of buildings to which new guidelines would not necessarily apply, this will ensure that consistency is maintained for all future development and expansion within WSC.

The structure of the waste guidelines for new developments may be made up of the following sections:

- Introduction;
  - WSC Waste Collection Services;
  - Who needs to submit a WMP;
- Common requirements for all developments;
- Requirements for Master Plans, Concept Designs and Streetscape Masterplans;

- Multi-unit dwellings (MUDs) requirements;
  - Size bands – 10 apartments to 20, 20 to 50 etc.;
  - Receptacle options – 120 L, 240 L, 360 L, 660 L;
  - Collection requirements – MGB's collected internally or presented to the kerbside;
- Commercial requirements;
- Medical requirements;
- Education requirements;
- Mixed-use requirements;
- Generation Rates;
- Examples of Bins Storage Areas;
- Examples of Waste Collection Vehicles;
- Standard Signage; and
- Example Waste Management Plan.

6.4.2 Sustainable Waste Planning

In addition to Waste Management Plan, Green Infrastructure Master Plans demonstrate and promote environmental excellence. The objectives of these plans centre on identifying and recommending low carbon, energy efficient, sustainable water and waste management solutions for existing and new buildings as well as streetscapes that work towards achieving environmental targets. Such an approach may see stakeholders including property owners, industry, developers and technical experts collaborate to deliver solutions which incorporate energy efficient building upgrades, smart control bioretention rain gardens to provide energy efficient, sustainable water solutions and urban waste solutions combining functional and architectural components within the WSC.

The SWOT analysis for this improvement option is outlined within **Table 6-7.**

Table 6-7: Integrating Waste Management into Planning and Approvals SWOT Analysis

Internal		External	
Strengths	**Weaknesses**	**Opportunities**	**Threats**
- Waste management considered prior to, during and following the planning approval applications. - Provide greater control to WSC regarding waste planning	- Time needed to imbed into planning processes.	- Optimise ease of collections. - Improve visual amenity, noise factors in built-up areas. - Incorporate waste management design into the design process.	- Uncooperative developers. - No buy-in from other WSC departments. - Lack of agreement on how to tailor best practice to WSC.

Many NSW councils are implementing waste management into planning and approvals under considerations of best practice and sustainability. A key strength here is the recognition of waste services as an integral urban design and planning component rather than a service designed at the end of the planning process.

6.5 Waste Collections

The following options have been identified to improve waste collection services:

6.5.1 Kerbside Bin Options Rationalisation and Collection Policy

WSC currently offers a range of bin collection sizes and collection frequencies however, as discussed in **Section 5.2.2,** the *2019 Waste Service Stakeholder Survey* identified the following key trends in the preferred collection frequency and size of kerbside bins:

- General waste: Weekly 80L (70%);
- Recycling: Fortnightly 240L (82%); and
- Organics: Fortnightly 240L (100%)

70% of respondents have never changed the way waste services are provided for their properties with more users self-adjusting bin size than collection frequency to achieve a satisfactory level of service.

Thus, it is recommended that WSC rationalise the available bin sizes and collections in line with these trends. This will simplify the service for both WSC and the contractor hence reducing additional administration and management costs.

From the survey it is noted that responders were unhappier with the organics bin size and collection frequency than other services, primarily because of insufficient space at certain times of the year. It is suggested that WSC assess the provision of periodic weekly organic collections based on increased green waste and associated demand during periods of high green waste production such as summer.

The *2019 Waste Service Stakeholder Survey* indicated a minor gap in kerbside waste collection service provision (**Section 5.2.7**). Due to WSC's large physical area, it is likely that these responders were geographically remote from the existing collection routes. To better inform these and other residents, who for similar reasons of isolation, are not currently included in waste collection routes, WSC needs a clear, advertised policy on which geographical areas are and are not covered for kerbside waste collections.

6.5.2 Verge-side Collection Review

As discussed in **Section 5.2.4,** verge-side services typically have negative impacts on the community. The *2019 Waste Service Stakeholder Survey* showed that 70% of responders did not use this WSC service with 37% of these citing that expense was a prohibitive factor in determining use. Results suggest the following trends:

- Lack of community support for the current system;
- Perceived cost is not good value for money; and
- Improved options for elderly and disabled are required.

Current verge-side collections do not include problem waste types. This suggests that a service gap exists for those community members who are incapacitated or unable to visit the RRC to dispose of this type of waste. Survey results support this perception.

It is recommended that a review of the scheduling, costs and acceptable waste types for Council Clean-Ups is warranted. It is suggested that the following options be considered in such a review:

- The number of on-demand pre-booked services permitted per annum;
- A voucher system that enables either disposal at the OR verge-side collection with less bulk collected;
- Integrate verge-side collections into WSC rates;
- Introduce a skip bin service; and
- Specific service to support elderly and disabled e.g. additional collections.

Clearer procedures and schedules for Council Clean Ups should be integrated into the review together with alternative offerings for residents who are physically unable to transport their own waste to the RRC.

It is recommended that a new code for bulk verge collections be implemented at the weighbridge to identify these collections to enable meaningful data collection and monitoring of this service.

6.5.3 Multi-Unit Dwelling (MUD) Collections

It is understood that there are multiple issues associated with the collection of refuse and recycling from MUDs. MUDs can generate high volumes of waste relative to their land parcel areas. The high density of these properties can specifically cause issues with collection and amenity. It is not uncommon for a MUD to only provide access that is suitable for small to medium vehicles, thereby limiting waste collection truck access. As a result, high numbers of receptacles require collection from accessible areas, such as the kerbside, which are typically in the public domain. Complications may also arise with the properties requiring additional space at presentation/collection points and within Bin Storage Areas.

Recyclables often end up in general waste bins or dumped in common areas. Problem items can include polystyrene, soft plastics, e-waste, mattresses and clothing. Large volumes of cardboard and polystyrene are often generated at new MUDs when tenants move in simultaneously.

In addition, MUDs which have commercial tenants located on the premises, or immediately adjacent, can result in the mixing of commercial and residential receptacles. In some LGAs, this has resulted in issues with invoicing, as well as maximising diversion from landfill.

As WSC population grows and housing density increases, if these issues are not appropriately addressed, the increase in these types of developments will leave WSC at risk of generating more undesirable collection arrangements and thereby potentially reducing the efficiency of the collection service.

WSC initiatives to address this issue can focus on implementation of clear policies within Waste Management Plans regarding the requirements to effectively promote waste diversion and collect waste from MUDs.

The Local Government NSW *Resource recovery of problem waste at MUDs* provides a useful case study on recovering and recycling problem wastes.

See also the EPA's *Better Practice Guide for Waste Management in Multi-unit Dwellings* for additional information.

6.5.4 Optimise Urban Waste Bins

This review has revealed increasing resident concerns about litter in tandem with the inadequacy in the number of public waste and recycling bins around the Shire's towns and village centres.

Therefore, in the short-term WSC should review the locations, quantities and type of bins in public spaces and look to consistently pair general waste and recycling bins in determined locations (preferably all) to improve diversion of waste to landfill. Consideration should be given to increasing urban collections during peak tourist seasons to avoid overflowing bins and litter dumping.

In the longer-term, WSC should consider the utilisation of technology such as smart solar compaction bins. Smart bins allow real time monitoring of receptacle fullness and in many cases can perform compaction to minimise servicing. Equipment such as this can work to improve both the aesthetics of an area by minimising overfull receptacles, as well as improving efficiency of waste servicing. These bins could be serviced by either in-house staff or contractors and would therefore align with any future waste service models.

6.5.5 Route Optimisation and Scheduling Review

It is recommended that WSC undertake a route optimisation and scheduling review. It is important that collection zones accurately reflect the collection areas they are divided into, logically define which streets are serviced on the same day, and the day they are serviced on and that the collection routes reflect these. Route optimisation is particularly important to accommodate planned and new development within the WSC and when considering urban growth over the life of the waste contract.

Optimising waste collections can result in key financial and environmental benefits to WSC and the Contractor with benefits to the latter being passed on to WSC. Benefits include reduced fuel and vehicle costs, fewer exhaust emissions, less noise pollution, fewer traffic jams, less damage to roads by heavy trucks and more timely and efficient delivery of waste services to the community.

A route optimisation and scheduling review can leverage largely off existing Contractor waste-related data. Information to consider includes:

- Detailed Bin Register;
- Waste Service Audit including:
  - Ride along with waste fleet staff;
  - Listing all required waste service tasks;
  - Defining all waste staff responsibilities;
  - Detailed review of waste fleet rostering;
- Narrow street, MUD and laneway collection areas which require specialist collection e.g. two-person collection crew;
- Possible amendments to WSC's waste services such as:
  - Changes to domestic waste service offerings for MUDs and other large-scale developments;
  - Changes to commercial waste service offerings; and
- Planning developments proposed for WSC.

Gathering data on factors such as those above are considered critical to route optimisation. Inefficiencies are likely to result if route optimisation does not consider future service provisions and proposed planning developments within WSC.

6.5.6 In-house Kerbside Collections

In-house waste collection services can provide full control and integration of the day-to-day kerbside collections with WSC's existing waste management operations. It would ensure that WSC are the point of contact with the community and facilitates greater educational and behavioural change opportunities. However, in-house collection services require significant initial capital and operational expenditure required to purchase, operate and maintain a new fleet of collection vehicles. In-house kerbside collections are further discussed within **Section 7**.

The SWOT analysis for this improvement option is outlined within **Table 6-8.**

Table 6-8: Waste Collections SWOT Analysis

Internal		External	
Strengths	**Weaknesses**	**Opportunities**	**Threats**
Review Kerbside Collections			

- More streamlined waste collection services. - Minimal capital. - Costs savings in bin maintenance. - Clearer collection routes. - Consistency.	- Achieving full community engagement.	- Less community confusion about waste bins and collections.	- Too little flexibility in bin sizes and collections. - Alienating large families. - Contractor cost savings not passed back to WSC.
Review Verge-side Collections			
- Improved waste service model. - Increased ability to manage a variety of waste streams.	- Increased management due to possibility of several concurrent models in operation.	- Greater community uptake of previously underused service. - Appeal to broader community base including the elderly and disadvantaged. - More service flexibility.	- Increased costs. - Misuse of the service.
Review MUD Collections			
- Creation of policy to inform future waste planning - Increased diversion of waste from landfill.	- Need contractor buy-in on certain aspects. - Increased bin options. - Potentially smaller collection vehicles	- Improved amenity. - More efficient collections. - Tailored waste solutions.	- No service improvement - No increase in landfill diversion - Difficult to police reforms
Optimise Urban Waste Bins			
- Increased diversion of waste from landfill. - Improved amenity. - Reduced litter problems in urban centres.	- Pre-existing strategies to be implemented prior. - Flexibility once established.	- Increased community awareness of waste-related activities. - Increased pride in public spaces. - Cohesive urban/MUDs waste management approach	- Cost to establish and collect. - Maintenance/ vandalism.
Route Optimisation and Scheduling Review			
- More efficient collection routes. - Waste services seen as adaptable and flexible to suit community needs. - Reduced operating costs.	-	- Reduced traffic movements and noise. - Reduced GHG emissions	- Cost reductions from contractor not passed back to WSC. - Contractor buy-in.
In-house Kerbside Collections			
- Control of service - Interaction with community	- Initial capital and ongoing operational costs.	- Better level of service provided.	- Limited vehicle contingency - Liabilities

- Quick response times		- Greater ability to adapt to industry advances/changes (not locked into a contract)	- Resourcing

The strength of undertaking a review of verge-side collections is the opportunity to address a key waste service gap (to elderly and/or disabled residents) and improve perceptions by the community on WSR's resolve to deliver a service which is inclusive, cost effective and acknowledges the difficulties encountered by disadvantaged and/or remote residents.

A review of MUD collections provides WSC the opportunity to develop a policy and standardised approach to waste collections in MUDs which will inform on future planning throughout WSC. This provides an additional avenue for improving the separation, management and diversion of waste to landfill and managing the increasing incursion of waste into the public domain.

Optimising urban waste bins is a cost effective, high-profile, achievable solution to litter control and community engagement in waste management which can be implemented in a comparatively short period. This gives WSC a unique opportunity to evolve waste management into urban development at planning stage.

A route optimisation and scheduling review will enable WSR to achieve maximum efficiency across all collection types and users inclusive of kerbside, MUD and urban collections and in consideration of emerging residential and commercial developments.

In-house kerbside collection has benefits such as the control of service and greater interaction with community however, the significant capital cost for establishing such a service eliminates this approach as a viable option.

6.6 Collection Contract Synergies

WSC undertook a formal audit of the waste collection contract in July 2017 (InConsult) to review the key processes and controls relating to management of the contract by WSC. This has enabled WSC to measure performance against assigned metrics and potential targets and identify key risks.

Several key recommended actions from the audit are still to be completed. It is suggested that WSC prioritise these inclusive of:

- Contract management – Develop a Contract Management Plan to better manage the contract and introduce an Annual Assurance Certification where a senior officer of the contractor provides assurance to WSC that the contractual conditions have been satisfactorily met and are operating effectively;
- WSC strategic waste documentation - Ensure that completion of the final Waste Management Strategy and the policies and procedures for waste management are prioritised. Ensure that operational documents pertaining to the day-to-day management of the waste collection contract are stored using a consistent methodology on WSC's 'DataWorks' document management system;
- Price adjustments - Check the rise and fall computation provided by the contractor each quarter before the adjustment is accepted; and
- WSC bin register consolidation - Undertake a reconciliation of the Contractor's bin register against Council's Rates system on an annual basis.

By implementing the above recommendations, WSC would improve the processes, controls and accountability relating to management of the waste collection contract. It would also improve the data validation between what WSC records and what the contractor provides.

A report incorporating review of the Contract Management Plan, the Annual Assurance Certification and actions arising from these should be undertaken by WSC on an annual basis.

From the contractor monthly reports, a snapshot of customer call 'Actions' for the January, February and March 2019 monthly reports shows all actions as being "*Bin partially emptied - returned to empty*". Insufficient reporting data here means that WSC cannot determine what, if any, other issues customers may be experiencing regarding their waste collections. It is recommended that WSC requests a copy of all 'Actions' on a quarterly basis to gain a clearer pattern concerning customer complaints. This will provide greater incite as to why bins are 'partially' emptied.

It is also recommended that WSC document the current waste classification approach in an internal Waste Reporting System. This will ensure that the methodology for waste data capture is continued and upheld even as the current Contractor, staff and waste management systems change. A Waste Reporting System would provide advice on:

- How the data will be captured across the various stages of its life;
- Data exchange and reporting;
- Waste data reporting procedures;
- Roles and responsibilities;
- Performance measurements; and
- Reporting procedures and timeframes.

Consistent terminology between the contractor and WSC provides a more streamlined system. The SWOT analysis for this improvement option is outlined within **Table 6-9.**

Table 6-9: Collection Contract Synergies SWOT Analysis

Internal		External	
Strengths	**Weaknesses**	**Opportunities**	**Threats**
- Clarity and assurance that kerbside waste-related issues are successfully addressed. - Knowledge of the level of contractor service delivery. - Knowledge that contractor's internal processes are meeting regulatory requirements. - Keep contractor accountable.	- Active contractor monitoring is time-consuming and resource dependent.	- Pinpoint and address ongoing community kerbside waste issues. - Improve contractor performance.	- Contractor buy-in - Missed opportunities

Waste composition, recycling methodologies, markets, management practices and contractor capacity can evolve considerably over the duration of a waste management contract. This can lead to operational inefficiencies which can impact on performance and costs

6.7 Food Organics Garden Organics (FOGO) Feasibility Study

More than half of those surveyed in the 2019 *Waste Service Stakeholder Survey* were supportive / very supportive of the introduction of Food Organics Garden Organics (FOGO) collections. However, reservations

focused primarily on maintenance of existing waste cost structures, necessity for weekly collections to avoid odour, adequate community education and opportunities for improved and less expensive mulch from the RRC as an outcome of this service.

Results from the *2017 Household Kerbside Bin Audit* reveal that the quantity of all potentially recyclable material found in the residual waste totalled almost 80% of the residual waste stream by weight.

Of this, organic compostables accounted for nearly 60% of this weight (**Table 6-10**), indicating that this avenue for diverting waste from landfill may be worth pursuing further.

Table 6-10: Potential recyclable material in the residual waste stream (2017 audit)

Recycle Potential	Material Type	Tonnes by Material Type	Tonnes	Percentage by Material Type	Percentage
Compostable	Organic Compostable***	1,060.68	1060.68	58.37%	58.37%
Comingled Recyclables (i.e. items currently accepted in kerbside recycling collection service)	Paper & cardboard	70.34	179.88	3.87%	9.90%
	Plastic	50.53		1.89%	
	Glass	34.42		2.78%	
	Ferrous	14.87		0.82%	
	Non-ferrous	9.72		0.53%	
Potentially recycleable	Plastic	167.50	194.12	9.22%	10.68%
	Ferrous	15.06		0.83%	
	E-Waste**	9.65		0.03%	
	Hazardous*	1.37		0.08%	
	Non-ferrous	0.54		0.53%	
Not recycleable	Paper & Cardboard	204.78	382.42	11.27%	21.05%
	Glass	4.05		0.22%	
	Plastic	13.13		0.72%	
	Other	160.46		8.83%	

To fully appreciate the potential economic, environmental and social impacts of a FOGO service, it is recommended that WSC undertake a feasibility assessment. This will allow WSC to gain a complete understanding of how a FOGO service could function as a waste service and will enable review of the associated risks and opportunities available dependant on its requirements. As part of this study, WSC should look to assess the following components of a FOGO service:

- **Impact of Proposed Regional Initiatives:**
  - For example, regional waste processing/disposal projects such as Project 24;
- **Case Studies:**
  - NSW;
  - National;
- **Collection:**
  - Additional receptacles required;
  - Who to target;

- Collection frequency;
- Materials targeted;
- Diversion rate;
- Education and Administration requirements; and
- Risks and challenges to the service.

- **Processing:**
  - Treatment – Discussion on the possible organic waste treatment options available to WSC, considering how this will integrate into the existing kerbside organics collection and other organic waste streams such as verge side and community drop-off;
  - Facilities and Infrastructure – For each of the treatment options, an assessment should be undertaken on the various facilities and infrastructure requirements. This should concentrate primarily on the existing RRC organics capabilities however also include other available regional facilities and infrastructure for completeness;
- **Markets:**
  - How the inclusion of food organics into the current organics stream will constrain or widen markets including:
    - External Markets such as private organic processors; farming and horticultural; large scale rehabilitation projects or operations requiring consistent organic medium;
    - WSC Internal Markets such as community supply; parks and recreation services; local rehabilitation projects or community run gardens; and
- **Education Requirements:**
  - A feasibility study will assess both the financial and technical implications. The evaluation should consider the different possible options within each scenario. It will provide WSC with a greater understanding of how a FOGO collection could impact its waste services and allow for more informed decision on its use in the future.

The SWOT analysis for this improvement option is outlined within **Table 6-11.**

Table 6-11: FOGO Feasibility Study SWOT Analysis

Internal		External	
Strengths	**Weaknesses**	**Opportunities**	**Threats**
- Leverage existing community support. - Opportunity to further divert waste from landfill. - Reduce weight and volume of waste in red bin.	- No support from senior management.	- Increased capacity in red kerbside bin for larger families. - Knowledge of current capacity for FOGO and potential impacts. - Ability to engage in a regional FOGO imitative should the opportunity arise	- Cost. - Community backlash. - Potential risk of contamination. - Limited processing capacity within WSC.

Trends highlighted within the WSR indicate that residual waste at the kerbside continues to contain large quantities of potentially recyclable food/kitchen waste, that residents are improving their capacity to reduce organics contamination and that there is community support for investigating recycling of food scraps.

Thus, a key strength of further exploring FOGO possibilities is that WSC can leverage this current community momentum to substantially divert further waste from landfill.

This study will enable WSC to come to a resolution on the value, or otherwise, of a FOGO collection and will provide the opportunity to bring the community onboard with this decision within the context of council-wide service planning.

6.8 Regional Collaboration Options

The implementation of sustainable waste management systems can be complemented through the use of partnerships and in particular can have a significant impact if undertaken on a regional scale. In addition, a regional approach supports the generation of greater economies of scale and therefore may provide WSC with lower waste management service costs and potentially greater operational efficiencies, while being mutually beneficial to all parties involved.

Potential waste related collaborative opportunities and/or synergies that may exist include the following:

- Joint tendering;
- Regional contracts;
- Shared waste education staff; and/or
- Shared waste infrastructure and/or disposal services.

It is suggested that WSC consider strategic options which can be undertaken at a regional level and seek input and involvement from neighbouring Councils. In particular, WSC should at least consider aligning contract periods where possible to assist in facilitating the development of joint contracts for services such as kerbside collections or bulk waste processing.

A regional contract in which the Contractor undertakes both kerbside collection and processing on behalf of WSC and other surrounding Councils can reduce costs and minimise the exposure risk to the recycled material commodity market. In addition, by combining both the collection and processing within a kerbside contract, it provides the contractor with greater control over the material and reduces their operational risks related to market and commodity prices. Furthermore, it facilitates the ability for a contractor to offset each cost against the other and also potentially generate greater revenues. This approach therefore, may create greater benefits than a more typical collection/transport contract.

Similar to a joint kerbside collection contract, it is anticipated that a regional Bulk Collection/Processing contract would facilitate economies of scale to obtain a better value for money services. The following bulk services could be considered at a minimum for Regional Bulk Processing Contracts:

- C&D processing;
- Scrap Metal collections;
- Mattress processing; and/or
- E-Waste processing/collections.

The SWOT analysis for this improvement option is outlined within **Table 6-12**.

Table 6-12: Regional Collaboration SWOT Analysis

Internal		External	
Strengths	**Weaknesses**	**Opportunities**	**Threats**
Joint Kerbside Collection Contract			
- Improved waste management services.	- Similar existing system.	- Integration with other strategic options. - Lower cost	- Market restrictions.

Internal		External	
- Targets large portion of waste. - Consistent approach.	- Operational complexity. - Maintaining suitable standard.		
Regional Bulk Collection/ Processing Contracts			
- Targets large portion of waste. - Regional approach. - Reliable. - Limits problematic waste to landfill.	- Capital and operational costs. - Similar existing systems. - Operational complexity.	- Generates revenue. - Integration with other strategic options. - Lower cost	- Regularity of market restrictions.

Both regional collection contracts have similar opportunities of leading to lower costs and strengths in targeting a large portion of waste. In addition, a regional bulk collection is able to generate revenue and limit problematic waste from landfill.

6.9 Preferred Improvement Options

It is appreciated that WSC are reviewing waste management services to ensure alignment with community expectations. Based on the SWOT analysis the following preferred Improvement Options have been identified to increase effectiveness and efficiencies of the overall waste management system:

- Community Engagement and Education:
  - Website upgrades;
  - Problem Waste Advertising;
  - Pricing Examples;
  - Recycling Education Initiatives and Provisions;
  - Illegal Dumping Prevention;
- RRC Optimisation:
  - Improve Access and Amenity;
  - Community Reuse Options;
  - Site Layout and Use Improvements;
  - Staffing levels;
- Additional Waste Management Facility:
- Integrating Waste Management into Planning and Approvals:
  - Waste Management Plans;
  - Sustainable Waste Planning;
- Waste Collections:
  - Kerbside Bin Options Rationalisation and Collection Policy;
  - Verge-side Collections review;
  - Multi-Unit Dwelling (MUD) Collections;
  - Optimise Urban Waste Bins;
  - Route Optimisation and Scheduling Review;
- Collection Contract Synergies; and
- Regional Collaboration.

Through the SWOT analysis process, it was identified that WSC would not likely pursue in-house kerbside collections due to the significant capital cost nor would an investigation into FOGO collections be well supported. As a result, they were not considered as preferred improvement options.

7 Service Delivery Model Options

The following section outlines the key service delivery options available to WSC regarding its waste management services and discusses the implications of each.

7.1 Outsourced Services

This option involves WSC continuing to provide waste management services in the same manner as is currently undertaken with the collection service remaining outsourced to a private waste services provider. The contractor continues to provide both staff and plant to run the collection and transport services.

Furthermore, consideration needs to be given to potential discounts arising from procurement methodologies available to WSC. WSC has the potential to offer waste collection services that provide the market with economies of scale, and thereby attracting a discounted rate. In addition to its current service delivery model, this could include engaging with neighbouring local governments and align their procurement timelines in order to present to the market a regional/collection waste service.

An alternative service delivery option to the current system is outsourcing the operation of the RRC. This approach facilitates the use of a contractor to provide staff and plant to operate the RRC. However, for this approach, it was assumed that WSC would continue to operate and manage the weighbridge.

Market rates and anticipated commercial returns have been applied to this option in order to estimate outsourced costs to operate the RRC.

7.2 In-house Services

The in-house RRC operations approach is an assessment of its ability to be cost neutral, which for a local government providing a service, is a suitable indicator for Council owned waste services infrastructure. The main cost components of operating the RRC are plant and labour costs. The review of WSC's operating costs were categorised as income and expenses. Expenses included labour, site maintenance, vehicle expenses and utility service costs. Labour costs refer to staff salaries with labour overheads. Income related to the gate fees received at the RRC from residents and commercial business along with the sale of recyclables.

Compared with the outsourced approach, in-house collection services require significant initial capital and operational expenditure required to purchase, operate and maintain a new fleet of collection vehicles. In addition, corporate overheads related to the management of in-house services can include items such as such as infrastructure costs, administration costs, insurances, utilities and supervisor salaries. Corporate overhead costs associated with the management of In-house waste management services can be considerable once fully tallied.

Due to the significant costs, it was anticipated that WSC had no desire to pursue this service delivery approach and was therefore, not considered further as part of the Service Delivery Review.

7.3 Service Delivery Discussion

The key aspects that were considered in assessing the delivery models for WSC's waste services and outlined in the following sections.

7.3.1 Control of Service

If WSC were to continue to operate the RRC in-house, it would be able to retain full control over the management and day to day operations. Conversely, WSC carries all of the risks associated with these services, including managing labour shortages and plant breakdowns on site. Positive engagement by WSC's senior staff in the management of an in-house service can ensure control of the service is maintained and operating at an efficient level. In contrast, where senior staff have limited capacity for involvement in the management of in-house run services, there is a risk that the quality of the service also lowers. This can create difficulties as the development of poor practises over time can result in an internal resistance to change, making control and implementation of improvements difficult.

If WSC were to outsource its RRC operations to a contractor, the level of control of these services would be dictated by the operations and management contract. When prepared appropriately, the contract is a valuable tool in which WSC could specify relevant standards for the various services. A key aspect of this process is to ensure adequate detail is provided on the required services, including a range of discretionary services, as part of the procurement and contract drafting process. Additionally, the operations contract can utilise key clauses relating to performance in order to ensure that control and the quality of service is maintained. These include:

- Contract term and extension mechanisms;
- Outlining requirements for a customer service system;
- Complaint management and recording requirements;
- Performance standards and Key Performance Indicators (KPIs);
- Reporting and meeting requirements; and
- Mechanisms for Termination.

The use of strongly worded clauses relating to the above, coupled with positive engagement with the contractor, can allow WSC to exert a high degree of control over contracted services. As an example, non-compliance by a contractor of their contractual KPIs over a period of time may be classified as grounds for termination. It is common that these mechanisms have ensured strong control by the Local Government over waste operations and services resulting in a high quality of service being maintained.

In summary, WSC can, ultimately, retain the same level of control of services under an in-house or outsourced model. However, under an outsourced model, the operational risks sit with the Contractor as opposed to WSC. The content of the operations contract will determine the control and risks of the service. Therefore, WSC would need to develop a well-worded contract in order to encourage the contractor to perform to the standards set by WSC or risk termination.

7.3.2 Community Interaction

In terms of waste management services, direct interaction with the community mainly occurs through two methods – feedback from operational staff (educational officer, weighbridge attendant, RRC staff) or through a customer service/complaint system. Through the in-house RRC operations, WSC receives and manages all feedback from the community relayed to operational staff. With an outsourced model for waste collections, the contractor manages the customer service/complaints system.

If an operations contract was established to outsource the RRC operations, WSC would no longer receive direct feedback from the community through its operational staff as these staff would be employed by the contractor. However, as previously discussed, WSC would maintain control of the weighbridge to continue to provide a WSC staff presence at the site. Depending on WSC's preferences, community interactions could be solely managed by WSC, by the appointed contractor or jointly managed by WSC and contractor. Therefore, strong consideration

must be given to the level of community interaction reporting that would be required as part of the operations contract. Through the outsourced collection contract, WSC has the ability to control the level of information it receives from the community, via conditions which set out the customer service system requirements.

In addition, the RRC outsourced operations contract can encourage greater connection with the community by requiring the contractor to carry WSC's logo on vehicles and uniforms used as part of the service.

7.3.3 Employment

It is understood that for some Local Governments employing local staff is a desirable outcome of running in-house services. However, consideration also needs to be given to the difficulties in securing long term, suitably qualified staff. This difficulty would exist for both WSC and a contractor. However, it is anticipated that a contractor would have the added ability to tap into its existing network of qualified staff and, depending on the contractor, this could potentially be a national network of waste staff. In addition, it is common that the engagement of a contractor has resulted in significant investment by that contractor within a region. Securing a long-term contract could incentivise the contractor to invest in the region and look to expand operations in addition to the local government contract. In most instances, the service offerings by the contractor are also broader than those that could be provided by the Local Government in-house. The net result can be increased local employment as well as improved environmental outcomes for the region.

7.3.4 Service Risks

There are considered to be a number of risks involved in the successful operation of waste services including, but not limited to, the following:

- Labour contingency;
- Plant contingency.; and
- Damage to property or persons.

In terms of labour risks, Talis is aware of a number of examples where in-house services provided by Local Governments have experienced internal labour issues. In some instances, issues have arisen where low staff numbers for a service have resulted in staff being moved from other service areas to address the shortfall, resulting in an overall loss in quality of the service or reduced efficiency across the Local Government.

Financial issues also arise when staff shortages have required resources to be sourced by a third party or needing to utilise current waste service staff to work overtime. Both scenarios result in increased labour costs. This risk to WSC is minimised through the use of a contractor whereby quoted/tendered rates are set irrespective of changes to their internal staffing situation.

There are a number of examples with Local Governments operating an in-house service with little or no contingency for plant in the event of a major breakdown or failure. This has resulted in significant costs to source replacement plant from third parties during these downtime periods. However, this issue can be avoided through the utilisation of a contractor, whereby quoted/tendered rates are firm, and they are contractually obligated to provide a reliable service irrespective of problems with their operational plant.

Any waste service involves risks to damage of property or persons ranging from minor to severe. In-house operations place the management of these risks solely with WSC. Contractors look to establish adequate insurance policies as well as robust operational and occupational health and safety (OHS) systems to ensure risks and liabilities are kept to an absolute minimum across all waste contracts. As part of the procurement process, tenderers would need to provide evidence of their insurances and operational systems to ensure these are adequate.

There are a number of service risks under both the in-house and outsourced models for waste operations. An in-house model requires WSC to manage these risks internally, which can result in operational difficulties and increased costs. If RRC site operations were outsourced to a contractor, these service risks would need to be managed by the contractor who would be better placed to manage them than WSC, particularly in relation to labour and plant contingencies.

7.3.5 Waste Management Innovations

Local Governments that manage operations in-house tend to have less capacity to innovate due to budgeting, staff and resource limitations. Generally, contractors are better placed to develop and roll-out innovative technologies and waste management practices as they operate on significantly larger scales than Local Governments – often with state, national or international coverage facilitating knowledge sharing and innovation that could benefit WSC and its community. Contractors also have a commercial interest to innovate in order to provide operational efficiencies and cost savings for their business and compete with other companies in the market.

7.4 Summary

The level of control, community interaction and service risks could be appropriately managed, even in an outsourced delivery model with the preparation of a well-worded contract. An outsourced delivery model would result in much of the operational risks laying with the contractor, rather than WSC. A well prepared contract can clearly outline the contractor's obligations and standards and the implications if the contractor does not comply. In addition, an outsourced contract delivery model could deliver additional benefits to WSC and its community through increased local employment and innovations.

However, in-house operations of the RRC provide WSC with direct control of the site and facilitates ongoing community interaction and transparency, which for Local Governments, is a strong way to promote awareness and educate residents. Operation of the site provides greater operational flexibility and adaptability meaning the RRC can more easily evolve in the short-term as opposed to a outsourced model which is potentially limited by contract conditions. In addition, operating the RRC in-house allows WSC to be a significant local employer and demonstrate its community commitment, which in most instances are difficult to quantify, and is sometimes viewed as more important to Local Government than the bottom line.

A financial analysis of the service delivery models is outlined within the following section.

8 Financial Analysis and Performance

A review of WSC's waste management financial information was undertaken to produce a baseline for the financial analysis so that 'costs per service' could be compared against relevant rates to understand current market position.

It should be noted, a competitive tendering process is regarded as the most effective means for gathering accurate market rates for services. Therefore, the market rates utilised in the following section should not be regarded as a definitive assessment of the current market costs and instead should only serve as an indicator to assist WSC in deciding whether outsourcing services would be a valuable exercise moving forward.

8.1 Data Inputs and Assumptions

A review of WSC's waste management financial information was undertaken across the 2016-17 and 2017-18 financial years. Data utilised and assessed included all income streams along with all associated operating expenses.

The following assumptions have been applied to the financial assessment:

- Kerbside collections are undertaken 52 weeks per year and recycling and organics collections are undertaken on alternative fortnights;
- Number of Residential properties – 20,390;
- Total collection cost is split between contractor expenses relating to costs incurred for waste transfer and waste disposal (60%) and waste collection (40%);
- A change to operational hours at the RRC from mid-July 2019 will reduce expenses by $200,000;
- All RRC site operational staff are paid the same hourly rate for comparative purposes with the market;
- An outsourced model utilises a profit margin of 15%, 14 full time staff to operate the RRC each working a 40 hour week;
- Internal charges and overheads have not been included within the analysis due to the complexity of comparing such, with market rates; and
- Waste Management financial data from the 2016-17 and 2017-18 financial years was used as the basis for analysis.

8.2 Income

Primary waste management income is derived from the following:

- Annual charges (rates);
- User charges (gate fees at the RRC);
- Tipping charges (internal fees at the RRC from other council areas); and
- Contribution from other areas of Council.

Tipping charges from various WSC departments are classed as 'non-cash' and comprises the internal tipping fee income minus the internal charge for waste disposal. Such income is recognised by monthly journal entries.

Figure 8-1 outlines the significance of these income streams to the WSC's waste management operations across the last two full financial years.

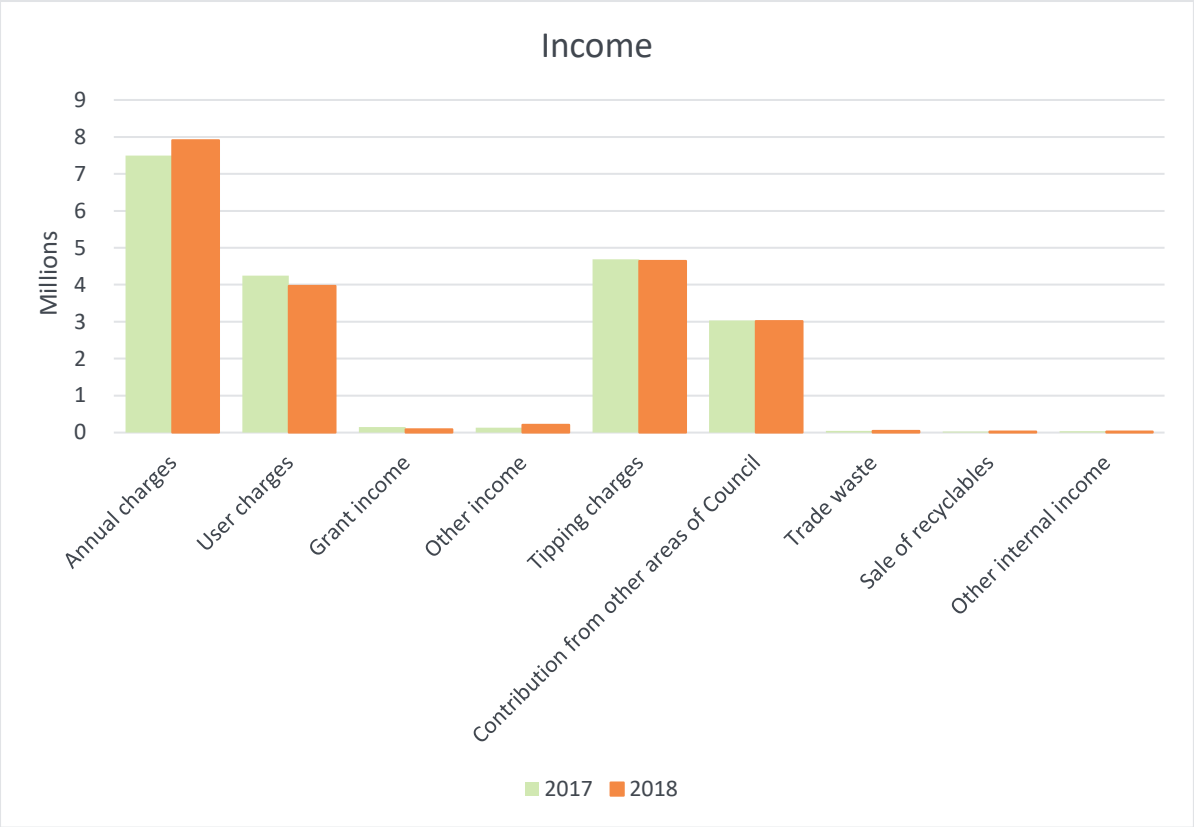

Figure 8-1: Waste Management Income

It can be seen from **Figure 8-1** that Annual Charges account for the majority of waste management income, followed by Tipping Charges, User Charges and Contribution from Council. It is also evident that there is very little additional income beyond these four categories.

Total income was $20.95 million and $21.81 million for the 2016-17 and 2017-18 financial years respectively, resulting in a difference of $862,000.

8.3 Expenses

A key WSC waste expense is for contractor fees which relate to any work undertaken by a third party on WSC's behalf and range from waste collections to tradespersons engaged to undertake maintenance on RRC buildings and security at the RRC. Approximately 60% of contractors' expenses relate to costs incurred for waste transport and waste disposal. Most of the remaining cost is for waste collection.

The following figure (**Figure 8-2**) shows the types of expenses associated with the delivery of the waste management services.

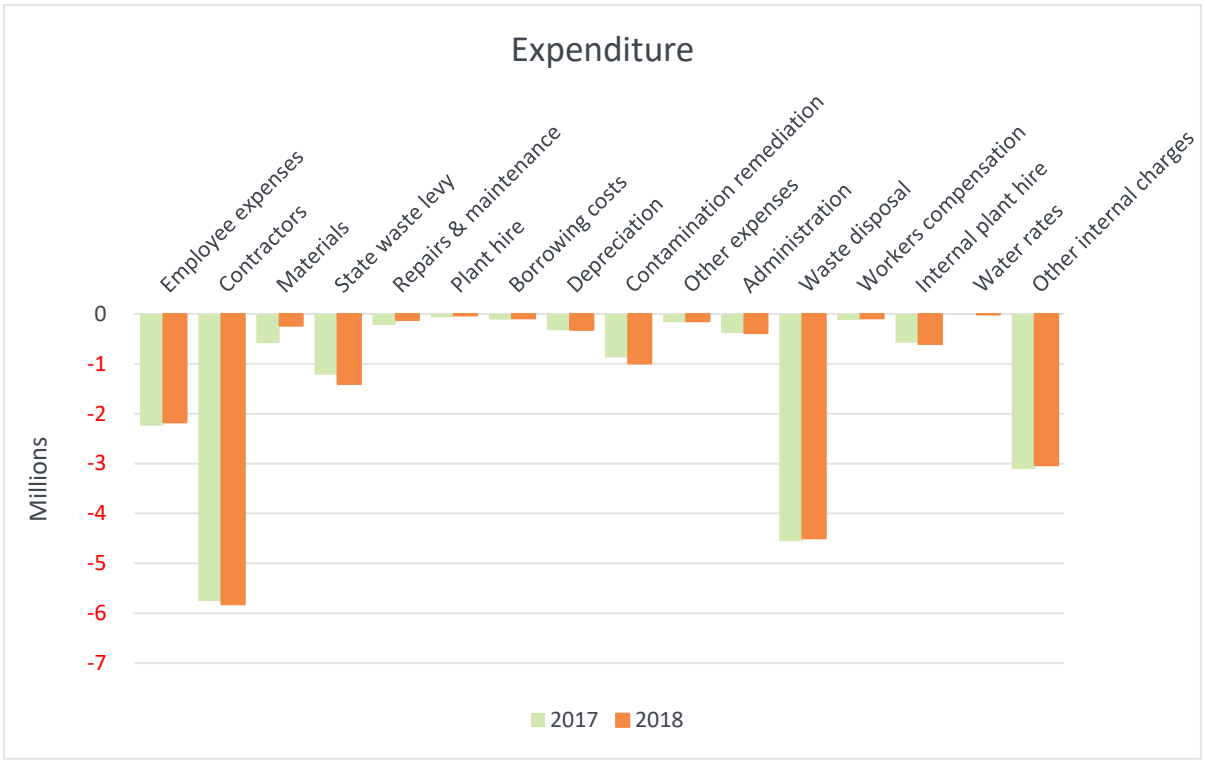

Figure 8-2: Waste Management Expenses

As previously mentioned, it can be seen that the costliest item is Contractors at approximately $6 million per annum. Secondary to this, is the internal charge of Waste Disposal which is the expense side of the journal entry which recognises the tipping fee internal income. Thirdly, Other internal charges (approximately $3 million per annum) is the RRC operation's contribution to Council overheads and some minor plant hire charges.

Employee expenses and the State Waste Levy account for approximately $2.2 million and $1.2 million respectively which is to be expected for a waste management operation of the current scale.

The total combined expenses for the 2016-17 and 2017-18 financial years were calculated to be $22.11 million and $22.62 million respectively. The change in expenses between financial years was $506,000.

8.4 Reserves

WSC has two specific waste reserves, being:

- A general fund reserve which includes funds set aside to manage WSC's costs associated with operating the RRC and former landfill site; and
- A domestic waste reserve which is derived from fees paid for the collection of kerbside waste. This is an externally restricted reserve and monies held in the reserve can only be employed towards domestic waste activities.

A summary of the reserves over time is shown in **Table 8-1**.

Table 8-1: Balance of the waste reserves

Reserve Type	2015 - 2016 ($000's)	2016 - 2017 ($000's)	2017- 2018 ($000's)
General fund waste reserve	1,014	2,678	1,413
Domestic waste reserve	2,235	2,740	3,779

It can be seen from **Table 8-1** that WSC maintains healthy waste management reserves and appreciates the importance of doing so in order to ensure that current operations can continue uninterrupted while rehabilitating and monitoring long-term legacy sites.

It should be noted that the allocation of monies to the waste management reserves is classified as an expense.

8.5 Income vs Expenses

The total income versus the total expenses were compared across the two financial years and are shown in **Table 8-2**.

Table 8-2: Income versus expenses

	2016 - 2017 ($000's)	2017- 2018 ($000's)
Income (Total)	20,947	21,809
Expenses (Total)	22,110	22,616
Difference	**-1,163**	**-807**

From **Table 8-2** it can be seen that in both financial years the total resulting difference of the income and expenses were a negative value. This is further presented in **Figure 8-3** which shows all income and expenses on a waterfall diagram for the 2017-18 financial year.

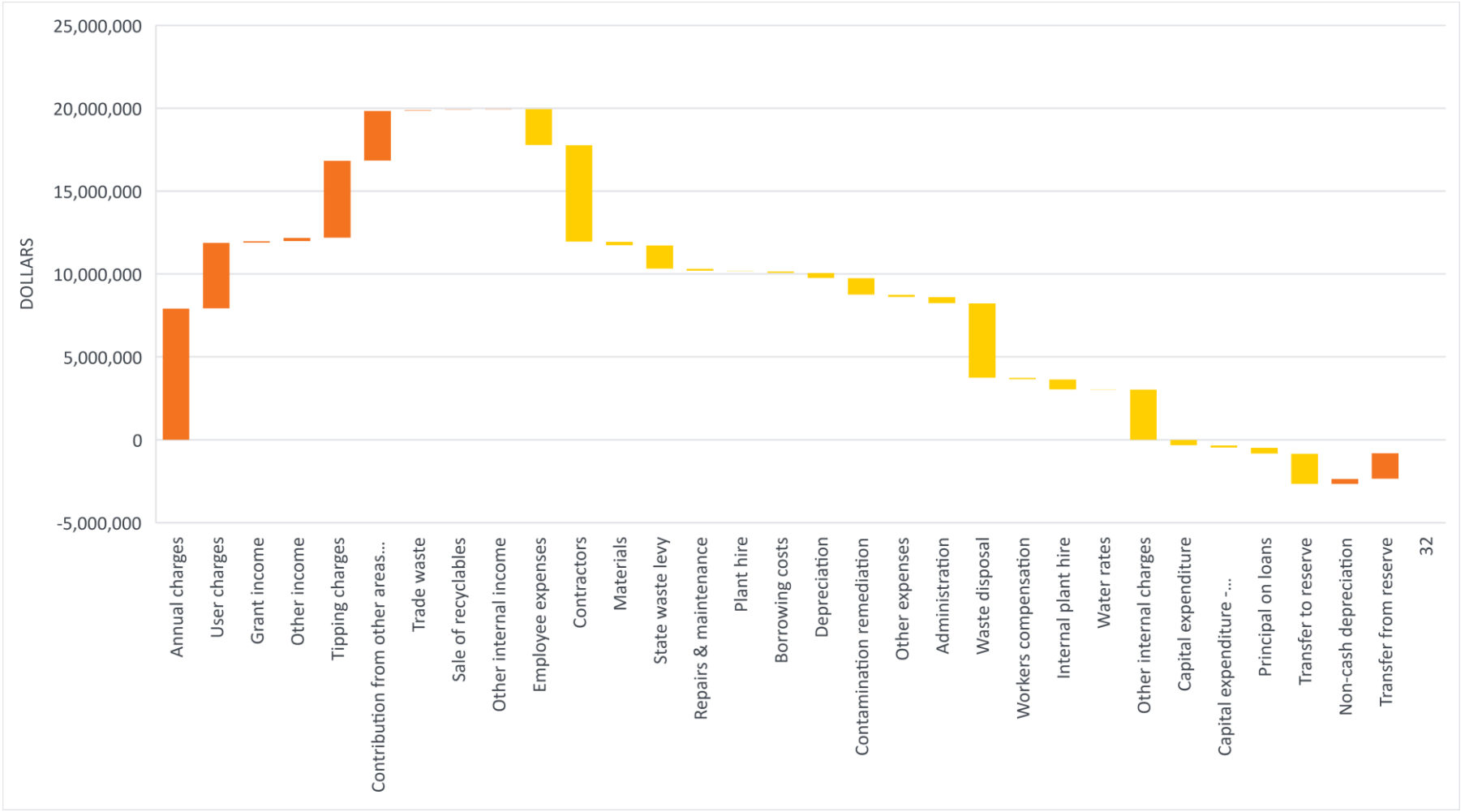

Figure 8-3: Total Income versus expenses 2017-2018

A net negative value does not necessarily mean that performance was poor as there were substantial amounts transferred to the waste reserves notably; $1.35 million in 2016-17 and $1.84 million in 2017-18. Both amounts transferred to the reserves are greater than the total difference between income and expenses per annum. Therefore, if we were to exclude the transfer of monies to the waste reserves, the overall performance of the waste operations would be in a net positive position.

However, this is not an accurate approach due to the importance of the waste reserves which are required for long-term operations and maintenance. Therefore, alternatively, a more realistic approach would be to assess the sustainability of waste operations alone if the difference of income verses expenses was zero (i.e breakeven). This approach would result in only $187,000 being transferred to the waste reserves in 2016-17 and $1.063 million in 2017-18, which more clearly conveys the WSC's waste operations true financial position.

8.6 Costs per Service

A high level financial model was developed to provide a comparison of the current service delivery model against the viable alternatives. The modelling utilised a breakdown of waste management income, expenses or appropriate market rates to determine suitable comparative data.

8.6.1 Outsourced Collection services

Although previously identified that WSC should not pursue in-house collection services, a review of the current outsourced model demonstrates its strengths. The outputs from the financial modelling and analysis for outsourced collection services are shown in **Table 8-3**.

Table 8-3: Outsourced Collection Services (2017-18)

Input	Value
WSC Households	20,390
Collections per annum	2,120,560
Cost of collection service	$2,327,170
Cost per collection (twice weekly)	$1.10

It can be seen from **Table 8-3** that the average cost per collection is $1.10 for every resident within the WSC that receives a collection. These collections occur twice weekly for each resident with the red lid bin collected weekly and the yellow and green lidded bins collected on alternate weeks. The total collection cost is based on the components of contractor costs being split between expenses relating to costs incurred for waste transfer and waste disposal (60%) and waste collection (40%).

The average cost per collection ($1.10) calculated from this analysis is considered by Talis to be competitive within the current market and is deemed beneficial to WSC. It is considered very unlikely that WSC could viably introduce an in-house collection service at this rate and therefore, it is suggested that WSC continue with an outsourced service delivery model for waste collections into the future.

Future WSC collection contracts should strive to achieve the same competitive pricing. To do this, it is recommended that WSC continue a similar procurement and contract model that includes waste collections, transfer and disposal for all three kerbside bins and regional collaboration to provide economies of scale and attract competitive market rates.

8.6.2 In-House RRC operations

The current inputs comprised of the existing in-house RRC operations service delivery model are shown in **Table 8-4.**

Table 8-4: In-house RRC Operations (2017-18)

Input	Value
Annual Income (User Charges)	$3,972,811
Annual Expenses	
Employee expenses	$2,173,208
Materials	$234,326
Repairs & maintenance	$120,140
Plant hire	$34,262
Borrowing costs	$90,352
Depreciation	$318,664
Contamination remediation	$996,241
Other expenses	$145,488
Total expenses	$4,112,681
Difference between Income and Expenses	**-$139,870**

From **Table 8-4 it** can be seen that annual RRC income derived from User Charges such as the gate fees paid by residents and commercial entities along with commingled recycling charges, council clean up fees, and the sale of recyclables, accounts for approximately $4 million. However, it can also be seen that the expenses associated with operations of the RRC exceed this at $4.1 million.

WSC provides the RRC as an essential service to its community to compliment the kerbside collections services and to provide a service at a cost of $139,870 is considered suitable for the range of services and complex operations occurring at the site. It is recognised that additional income from Annual Charges such as rates may offset this cost however, this direct comparison provides an indication of the RRC's self-reliance which is important in long term financial viability.

It is understood that the operational hours of the RRC have recently been reduced and will assist in reducing the expenses at the site by an estimated $200,000. However, a review of the staff numbers and hours must also occur when a reduction in operational hours is implemented. Prior to this reduction in operational hours, the number of staff for the RRC was considered above average for an operation of that scale, with a reduction in the hours, this is further exacerbated. In particular, the number of plant operators (10 in total) requires further review and consideration to understand the operational requirements of the RRC and determine if further efficiencies can be obtained from a reduction in staff numbers or hours.

8.6.3 Outsourced RRC operations

The largest expense associated with operating the RRC is the labour component. Therefore, a focus has been placed on the differences in labour allocations between an in-house and outsourced service at the RRC. Much of the other costs associated with operating a facility are difficult to examine and compare without testing the market via a procurement process. Whereas, labour rates are well known along with typical profit margins, overheads and weekly worked hours. Therefore, the financial considerations associated with the use of a contractor to operate and maintain the RRC are outlined within **Table 8-5**.

Table 8-5: Outsourced RRC Operations

Input	Value
Operations Manager	1 full time employee (FTE)
Leading Hand	1 FTE
Plant operators	8 FTEs

Input	Value
Operations crew members	3 FTEs
Senior Waste Attendants	1 FTE
Working Week	40 hours
Profit Margin	15%

It can be seen from **Table 8-5** that in total a contractor would likely utilise less staff than WSC to operate the RRC. It was assumed that a contractor would require 14 full time staff to operate the RRC. This number is considered conservative as it is likely to be less however, it is appropriate based on the scale of the operations as outlined within **Section 6.2.4**: Staffing Levels. Whereas WSC currently utilise 18 FTEs (including a Senior Supervisor and Supervisor) and 1 part time employee. In addition, it was assumed that WSC would continue to operate and manage the weighbridge resulting in a reduction of staff numbers by three for the contractor. Furthermore, it was assumed that a team of 8 plant operators could provide the same level of service over an extended working week (40 hours) for the outsourced delivery model. Based on the proposed number of employees (offset by a small increase in weekly working hours) it is anticipated that a contractor would have reduced labour cost to operate the RRC than WSC.

However, contractors are established to make money and in doing so require their contracted services to include a level of profit. It was assumed that a baseline profit margin of 15% was applied and subsequently the calculation for labour cost still indicated that a contractor operating the RRC would be more cost effective. To provide further insight, a sensitivity analysis was undertaken to determine what profit margin would equate to an equal labour cost (to the WSC RRC operations) based on the above-mentioned FTEs. A 22% profit margin was calculated, which was considered an unlikely value in a competitive market. This confirms that a contractor operated RRC would be more cost effective however, in order to identify a preferred service delivery model and understand the true implications of such an approach, other financial, technical and risk related aspects should be considered.

9 Preferred Service Delivery

The following section discusses the financial, technical and risk related aspects associated with the improvement and service delivery options available to WSC.

9.1 Improvement Considerations

As outlined within **Section 6**, there are avenues for WSC to improve and align its waste management services with local strategies, policies and community expectations. The improvements rely on both WSC's and the contractor's desire to transition towards a more sustainable waste management system. Therefore, there needs to be collaboration and understating regarding the implementation of these improvement options when assessing any new service delivery models. The SWOT analysis identified the preferred improvement options which WSC should explore further and consider identifying implementation synergies within future service delivery models. Therefore, the preferred service delivery model would provide the most flexibility to facilitate the inclusion of the most preferred improvement options.

9.2 Financial Considerations

As outlined in **Section 8,** the Financial Analysis demonstrated that WSC performs well delivering in-house operations at the RRC with a marginal difference between income and expenses. With recent changes in operational hours of the RRC, this is likely to result in a cost neutral operation or potentially a slight profit. Further suggested improvements such as optimising the site use and potentially reducing staff numbers/hours would further enhance the opportunity to be profitable and ensure the long-term viability of the RRC.

The outsourced collections contract is considered to provide good value for money based on an average cost per collection. However, the implementation of suggested improvement options such as a review of kerbside and verge-side collections in tandem with increased route optimisation, could further improve collection efficiencies. As a result, the cost to provide the service may reduce. However, it is unlikely that the difference will be passed onto WSC. It is therefore important that WSC approach the contractor to participate in a collaboration to optimise the implementation of the contract to benefit both parties. The preferred delivery model for waste collections in the future would provide WSC with a suitable level of control, oversight and ability to assess performance while providing a high quality service that integrates with existing WSC systems.

However, WSC needs to consider a number of factors which have not been included within the Financial Analysis. As noted within the assumptions (Section 8.1), the Financial Analysis has excluded any consideration of Internal Chargers such as:

- Workers compensation;
- Internal plant hire;
- Administration;
- Waste disposal;
- Water rates; and
- Other internal charges.

These overheads associated with the management of in-house waste management services account for $8.75 million. As a consequence, their omission from the Financial Analysis results in a discounted comparison to market rates as market rates typically include overheads into their costings. If WSC were to contract out RRC operations, this would work to reduce some of these overheads but not eliminate them. However, without knowing a breakdown of the outsourced model overheads, and true representation cannot be identified. This is why resourcing was the focus of the RRC delivery model comparison, and not total cost, and again proves the

difficulty of comparing an in-house, to an outsourced approach, without a procurement process to ascertain relevant market rates for site operations.

Furthermore, consideration needs to be given to potential discounts arising from a procurement process brought about by a competitive market. The market rates utilised in the Financial Analysis for the outsourced kerbside collections are based on an average rate for the collection of three waste streams (MSW, recycling and organics). WSC has potential to offer waste collection services that provide the market with economies of scale, and thereby attracting a further discounted rate. This could include engaging with neighbouring local governments and align their procurement timelines in order to present to the market a regional/collection waste service. It is anticipated that WSC would achieve a discounted rate compared to the current approach.

9.3 Technical Considerations

In-house operations of the RRC provide two significant benefits which are difficult to quantify including:

- Greater flexibility to evolve in the short-term; and
- Control of the RRC to facilitate ongoing community interaction and educate residents.

With the waste management industry currently in a transition period away from overseas recycling since the China SWORD policy, the ability to adapt and be flexible is particularly important when providing a community service which is susceptible to commodity markets. In addition, the WSC has no landfill facility meaning the ability to adapt quickly, to redirect waste away from the RRC as required, is critical in times of disaster or emergency.

However, there are a range of technical or operational risks which exist to both an in-house and outsourced service that should be considered. Some of the key risks identified are presented in **Table 9-1** which utilises a traffic light scoring system and provides commentary on the risks to WSC dependant on the service delivery type.

Table 9-1: Service Delivery Risks

Criteria	Service Option		Commentary
	In-House	Outsourced	
Control of Service			• A service provided by WSC would likely have flexibility in comparison to that of the outsourced approach. • Contractor's service is strictly defined and managed according to the adopted waste service contract.
Community Interaction			• A service utilising a Contractor requires that they also handle all incoming customer complaints and queries. • An in-house service would allow WSC to interact directly with the community and gather immediate feedback.
Direct Local Employment (employed by WSC)			• An in-house model would allow WSC to pursue employment of local staff. • Employment of experienced waste operators could potentially be difficult. • Contractors commonly utilise staff which rotate between service areas and therefore may not improve local employment.
Service Risks			• An in-house model increases WSC's liability to operational risks such as damage to property or personnel.

Criteria	Service Option		Commentary
	In-House	Outsourced	
			• In an in-house system, WSC would be at risk of a significant reduction of required services in the event of unanticipated changes to staffing e.g. multiple staff departures, industrial action/strike.
Innovations			• Contractors have a commercial interest to investigate and roll-out innovative technology/waste practises in a timely manner.

From **Table 9-1** it can be seen that there a number of risks both in favour of either an in-house or outsourced service delivery model and each should be carefully assessed via a thorough risk assessment before amendments to the current system are implemented. Importantly, WSC must assess the importance of each risk and identify which are priorities and which are most beneficial. This assessment process will assist in identifying the preferred service delivery model.

9.4 Preferred Service Delivery Model

As previously discussed, it is difficult to analyse the cost benefits of waste management delivery models such as in-house versus outsourced approaches without a tailored procurement process. In addition, there are several benefits to either approach that are difficult to quantify however, based on current financial position, the waste management services and the operations of the RRC are performing well.

Council owned waste management facilities are created to provide essential community services and therefore are not necessarily a profit-making enterprise. Furthermore, the in-house operations of the RRC provide two critically important benefits; flexibility and control. Through the implementation of the improvement options, flexibility and control will assist WSC significantly enhance performance operationally, financially and socially now and into the future.

In light of the findings from the Service Delivery Review, the preferred service delivery model is to further improve and optimise the existing waste management system comprising of the following:

- Outsourced waste management collections; and
- In-house RRC operations.

The preferred service delivery model provides a balance between cost effective services and the most opportunities to improve performance.

10 Change Management Plan

Based upon the preferred improvement options and service delivery model presented within this Service Delivery Review, a Change Management Plan was devised. The Change Management Plan identifies the relevant tasks and actions required to be undertaken to achieve the desired outcome, the responsibilities for each action and the priority of the actions. The actions are identified as tasks to be implemented over the next five years and are shown in **Table 10-1.**

Due to the preferred service delivery model being based on the current system, significant changes to the service delivery are not required to be implemented by WSC. Therefore, the Change Management Plan was simplified to include the preferred improvement options with each providing improvement to either the outsourced waste collections or in-house RRC operations service delivery models.

10.1 Reviewing

Once adopted the Change Management Plan becomes a working document and therefore a dynamic document that requires reviewing and updating on a regular basis. This will allow for performance monitoring of the Change Management Plan and ensure that it remains accurate and relevant to the current waste management practices and priorities across WSC.

It is recommended that the Change Management Plan is reviewed annually by WSC for the next five years (2019/2020 to (2023/2024). The annual review should concentrate on updating what has been achieved. In addition, it is anticipated that new tasks and actions may be added to the Change Management Plan as part of the annual review. Following the end of the five year period, it is recommended that the Change Management Plan is completely revised for use in the following five years.

10.2 Budgeting

It is suggested that WSC review the Change Management Plan and identify the tasks that are a priority to be undertaken within the current and forthcoming financial years and budget accordingly. Throughout the life of the Change Management Plan it is recommended that WSC give due consideration to the Change Management Plan whilst preparing budgets. Potential funding options are identified within the review and applications should be considered prior to budgeting for items within the Change Management Plan if funding criteria can be met.

10.3 Task Implementation Plan

Based on the works undertaken as part of this study, Talis has prepared the following Action Plan setting out the key waste management opportunities and their associated priority levels.

Table 10-1: Task Implementation Plan

Improvement Option	Priority	Action	Responsibility	Resources
Review Community Engagement and Education				
Website upgrades	H	Continue upgrades to website focusing on simplicity of use.	WSC	In-house or Website designer
Problem Waste advertising	M	Promote more frequently and more widely the free acceptance of problem waste at the RRC.	WSC	In-house
Pricing examples	H	Provide examples on the website and at the RRC weighbridge of cost for a 'trailer load' or 'ute load' of certain material in addition to the per tonne cost.	WSC	In-house
Recycling education initiatives and provisions	M	Investigate and target recycling education initiatives including improved signage for kerbside bins, urban bins, Return and Earn facilities and at the RRC together with a consolidated recycling page on WSC website.	WSC	In-house or Consultant
Illegal Dumping Prevention	H	Investigate suitable options and implement initiatives to prevent illegal dumping.	WSC	In-house or Consultant
RRC Review				
Improve Access and Amenity	L	Investigate options to improve access to community areas separate from the weighbridge access.	WSC	In-house or Consultant
Community Reuse Options	L	Develop community partnerships with social enterprise to reduce waste to landfill.	WSC	In-house or Consultant
Site Layout and use Improvements	M	Investigate options to relocate the contractor's depot and the RRC weighbridge. Alter the location of the animal shelter entrance to Berrima Road.	WSC	In-house or Consultant
Staffing levels	H	Investigate and assess options to reduce RRC operational staff numbers or hours worked at the RRC.	WSC	In-house

Improvement Option	Priority	Action	Responsibility	Resources
Additional Waste Management Facility				
Additional Waste Management Facility	L	Explore opportunities to establish a new waste management facility to complement the RRC.	WSC	In-house and Consultants
Integrating Waste Management into Planning and Approvals				
Waste Management Plans	M	Develop and implement a Waste Management Plan policy and guideline.	WSC	In-house and/or Consultant
Sustainable Waste Planning	L	Develop and implement a Green Infrastructure Master Plan.	WSC	In-house and/or Consultant
Waste Collections				
Kerbside bin options rationalisation and Collection Policy	M	Reduce the available number of kerbside bin options and develop a policy which clearly explains what WSC areas are not provided a kerbside collection, why they are not and what those areas are to do with waste/recycling.	WSC and Contractor	In-house
Verge-side Collections Review	M	Investigate how to operate the service to increase diversion of material from landfill. Utilise the Waste Education Officer to advise the elderly and/or disabled how to organise their waste on the kerb/verge to increase aesthetics and decrease illegal dumping and scavenging.	WSC and Contractor	Consultant
Multi-Unit Dwelling (MUD) Collections	M	Include in the Waste Management Plan policy and guideline, requirements for MUDs to effectively promote waste diversion and facilitate waste and recycling collections.	WSC and Contractor	In-house
Optimise Urban Waste Bins	M	Review the locations, number and type of urban bins and always pair general waste and recycling bins together (side by side). In the longer-term, explore opportunities to utilise smart solar compaction bins.	WSC	In-house and smart bin providers
Route Optimisation and Scheduling Review	M	Undertake a thorough route optimisation and scheduling review to improve efficiencies and accommodate planned and new development within the WSC.	WSC and Contractor	In-house or Consultant

Improvement Option	Priority	Action	Responsibility	Resources
Collection Contract Synergies				
Collection Contract Synergies	L	Implement the recommendations from the waste contract audit (2017) that are yet to be actioned. Develop and formalise an internal Waste Reporting System to document the current waste classification approach utilised by both WSC and the contractor.	WSC and Contractor	In-house or Consultant
Regional Collaboration				
Regional Collaboration	M	Investigate joint kerbside collection contracts with interested surrounding Councils and take a lead role is progressing this regional initiative. Investigate regional bulk collection and processing contracts with interested surrounding Councils. Take action implementing contracts.	WSC	In-house or Consultant

Legend: Priority Levels L = Low, M = Medium, H = High

11 Recommendations

Following review of WSC's waste management system and identifying potential opportunities to improve service delivery, it is recommended that WSC undertakes the following:

- Implement the preferred improvement options (**Section 6.9**) to align with the preferred service delivery model;

- Optimise the preferred service delivery model comprised of the following:
  - Outsourced waste management collections; and
  - In-house RRC operations; and

- Implement the Change Management Plan.

Appendix A: Waste Service Stakeholder Survey

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6 May 2019

Claire Digger
Corporate Strategy Project Officer
Wingecarribee Shire Council
Civic Centre, 68 Elizabeth St.
Moss Vale
NSW 2577

Dear Claire,

Waste Management Stakeholder Survey Response – Summary

As part of the Wingecarribee Shire Council (WSC) current Service Delivery Review – Waste Management, a Stakeholder Survey (2019 Survey) was undertaken by Council in consultation with Talis Consultants between 29 March and 24 April 2019 to seek feedback on the current waste services delivered by WSC to the community. A key objective was to identify areas for improvement and to provide guidance on future expectations.

This brief Letter summarises the findings from the 2019 Survey and analyses trends identified in previous across-council service delivery surveys undertaken periodically for WSC since 2010.

1 Survey Context

The Wingecarribee Shire covers an area of 2,700 square kilometres and the participants (339) of the 2019 Survey reflect this geographical diversity, together with the associated waste services provision challenges this presents. Respondents were primarily from residential properties (94.5%) and a small portion from strata dwellings (4.6%) receiving individual waste collection services.

A minor gap in kerbside collection service provision was identified (6.1%) via the survey, namely residents who solely relied on the Resource Recovery Centre (RRC) facilities to recycle and dispose of their waste. In addition, a small number of businesses who employed private waste collection contractors also contributed to the survey. The shortage of responses from the commercial sector suggests the need to further investigate waste perceptions and needs from this group or to specifically target this group with a follow-up waste survey in the future.

2 Key Waste-Related Trends

Micromex Research has previously undertaken surveys (2010 – 2017) to inform on the priority (ranking) across core WSC services, the individual importance of a service and satisfaction of service delivery.

An analysis of trends from earlier survey data includes information on both how waste-related services were viewed in relation to other core Council services i.e. 'Priority Ranking' and 'Importance' of the service itself, in comparison with perceived 'Satisfaction' of delivery.

A summary of the 'Priority Rankings' focussed on waste-related services selected from a baseline set of 39 WSC services between 2012 and 2017 is shown in **Figure 2-1.**

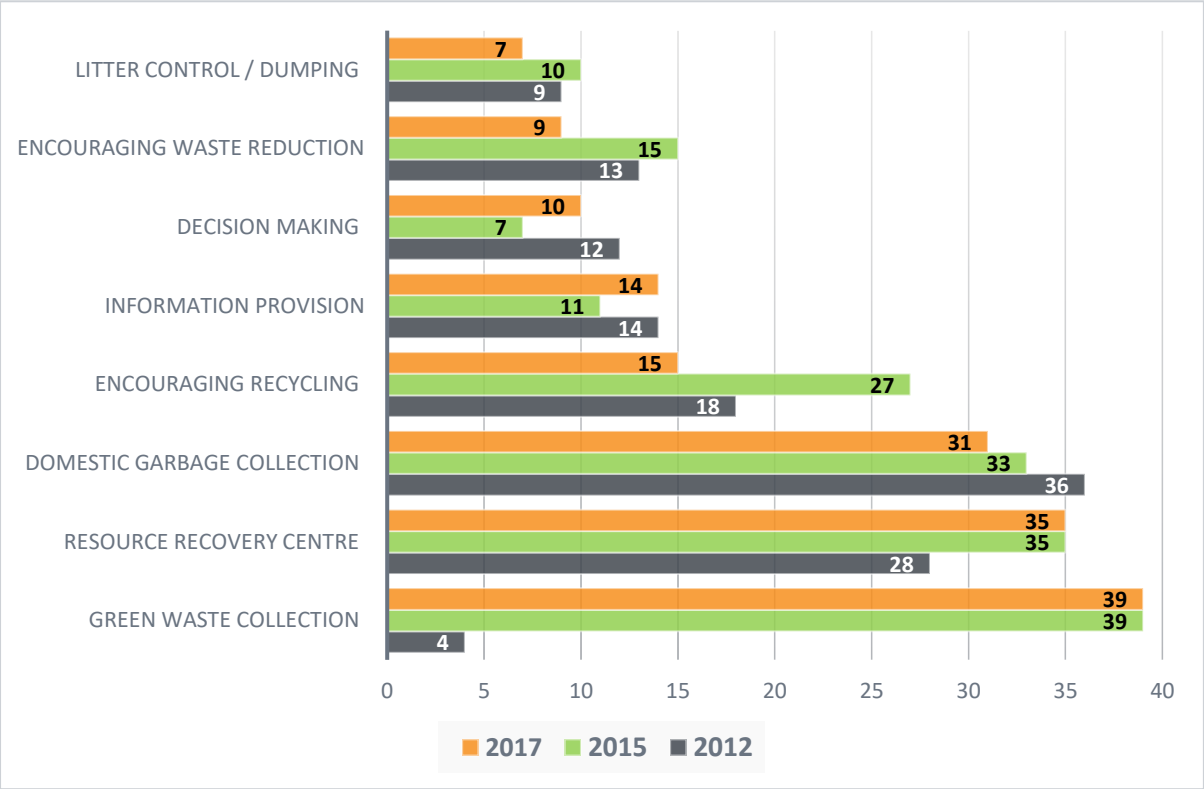

Figure 2-1: Priorities Core WSC Services

Litter control, encouraging waste reduction and the inclusion of community views in WSC's decision-making process have consistently ranked as high priorities. Encouraging recycling initiatives has fluctuated over time and was a relatively high priority in comparison to all core WSC services in the 2017 survey as compared to 2015 results. Waste collections have consistently been ranked as low priority when compared to overall WSC service delivery except for green waste which was a very high priority in 2012 prior to the introduction of dedicated green waste collections, however has since ranked closely to domestic garbage collections.

An analysis over time of perceived 'Importance' versus 'Satisfaction' for each individual waste-related service is shown in **Figure 2-2**.

Figure 2-2: Core Waste-Related Services – Mean Importance v Mean Satisfaction Scores

In summary, most services maintained or slightly improved in terms of mean importance/satisfaction scores in 2017 as compared to 2012. A significant increase in satisfaction was recorded for green waste services, potentially because of the introduction of dedicated kerbside organics collections.

The importance of managing litter/rubbish dumping and domestic garbage collection grew, however satisfaction with these WSC services decreased slightly.

2.1 Litter Control and Rubbish Dumping

Litter control and rubbish dumping has constantly been ranked as a high-priority Council service. Between 2015 and 2017 there was an increase in resident's concerns regarding how these were managed.

From the recent Waste Management Stakeholder Survey (2019 Survey) approximately 40% of responders viewed litter as an issue within the area with the same percentage viewing the number of public waste and recycling bins around the WSC's towns and village centres as either not adequate or not at all adequate.

The 2019 Survey responses show that Illegal dumping was seen by 58% of responders as an issue, particularly along roadside verges, more heavily vegetated areas in dead-end streets, in the vicinity of Return and Earn facilities and near litter bins within town centres.

While satisfaction with WSC management of these services was not measured in the current survey, the results suggest that WSC would benefit from a closer analysis of waste management in urban areas and that litter control and illegal dumping services continue to be improved.

3 Waste Services

Domestic waste collections ranked as low priority in comparison to other Council services between 2012 and 2017 (**Figure 2-1**). Nevertheless, these services, when considered in isolation, were viewed as of very high importance and high satisfaction (**Figure 2-2**).

WSC currently offers a generous selection of bin sizes and collection frequencies for kerbside waste collections yet the 2019 Survey reveals clear preferences for the following services:

- General waste: Weekly 80L (70%);
- Recycling: Fortnightly 240L (82%); and
- Organics: Fortnightly 240L (100%).

Responders were most satisfied with the size of their recycling bin and least happy with the organics bin size (Table 3-1). However, it can be seen that overall satisfaction in high.

Table 3-1: Satisfaction with Bin Size

Satisfaction level	General waste	Recycling	Organics
Very satisfied 1	196	231	179
2	41	40	41
3	26	27	39
4	25	22	26
Not at all satisfied 5	37	5	40

93% response rate

70% of respondents have never changed the way waste services are provided for their properties. The remainder of residents self-adjusted their bin sizes (17%) or collection frequencies (10%) to account for individually higher and lower waste outputs.

Survey results suggest that opportunities may exist for WSC to simplify kerbside collection options by rationalising the available bin sizes and minimising adjustments to collection frequency whilst still retaining some minor flexibility in bin size.

Mattresses, e-waste, plastics and household problem wastes (e.g. paint, gas bottles, batteries, oils) were the most challenging waste disposal types identified in the 2019 Survey. However, the highest proportion of problem waste was the category ‘none of these’, indicating that further investigation needs to be undertaken to identify what is included in this category. Key issues surrounding problem

wastes were distance to and expense of using the RRC, uncertainty of how best to deal with such waste, constraints of kerbside bulk collections and restricted offerings for Council Clean-Ups.

While 70% of responders have used the bi-annual Council Clean-Up at some point there was a very low response rate to levels of satisfaction (20%). Of these limited responses, approximately half were happy to very happy with the service. Key reasons for not using the service were expense, expectations by those surveyed that this should be a free service, restrictions on material types and number of services per annum.

Results suggest that a service gap exists for problem wastes and that a review of the scheduling, costs, acceptable waste types and education regarding Council Clean-Ups is warranted.

3.1 Recycling

Figure 2-1 reveals a large drop in the priority of recycling in comparison with all WSC services in 2015 (ranked 27 of 39) and it would be useful to investigate possible factors underpinning the significant improvement ranking (15 of 39) in 2017, for example the impact of advertising, educational or service delivery.

Community satisfaction with WSC recycling initiatives in 2010 was in line with established benchmarks across multiple LGAs (Micromex Research, 2010). Between 2012 and 2017, encouraging recycling has retained a high importance / high satisfaction mean (**Figure 2-1**).

The 2019 Survey indicated that close to 80% of responders were very happy/happy with the current recycling collections offered by WSC. The 240L fortnightly collection was clearly the choice of service (82%) and the least popular service was the 360L fortnightly (1.5%) collection.

Uncertainty exists within the community regarding what waste can legitimately be placed into the recycling bin (19% of responders who received collections). This has the potential to impact negatively over time on the successful diversion of waste to landfill within WSC. 35% of respondents viewed plastics as a problematic waste type suggesting that there could be more targeted recycling education to clarify which plastics can be accepted for recycling.

Delivery of recyclable materials was the most utilised service at the RRC (78%). Such heavy use may potentially result from service gaps in kerbside collections or underuse / lack of knowledge on Council Clean-Ups. Further educational information will assist to advise the community across the range of current WSC recycling services and initiatives.

3.1.1 Return and Earn

More than half of those surveyed have visited Return and Earn facilities. Principle issues for those using this service related to long queues, constraints on acceptable material types and litter dumping adjacent to such facilities.

Key limitations for those not using this service were time and distance to facility (28%) and lack of or limited knowledge about the Return and Earn program itself (13%). Constraints on acceptable recyclables and the convenience of home recycling were also factors in non-use.

More than half those surveyed would like more facilities within WSC.

WSC waste service management could be improved by increasing education, optimising Return and Earn locations to improve community access and by reviewing the provision and servicing of waste and recycling bins to these facilities to reduce any associated litter at these sites.

3.1.2 Organics

The 2019 Survey reveals that responders dispose of food waste in multiple ways, primarily home composting (84%), general waste (53%) and animal feed (29%).

More than half of those surveyed are supportive / very supportive of an investigation into Food Organics Garden Organics (FOGO) collections. Reservations focused primarily on existing costs necessity for weekly collections to avoid odour, adequate community education and opportunities for improved and less expensive mulch from the RRC as an outcome of this service.

3.2 Resource Recovery Centre (RRC)

The RRC has ranked as a low priority service in comparison with other WSC services (**Figure 2-1**). In contrast when examining the service itself, mean scores from 2012 and 2017 show the RRC as growing from medium to high importance and satisfaction over time.

The 2019 Survey shows very high usage of the RRC (94%) with all services being utilised. More than half of responders felt that the RRC meets community expectations. 90% of those visiting the RRC found that it was not difficult to navigate. Manoeuvrability, poor signage and lack of space within the green waste area, however, were key issues for the remaining responders.

68% of responders perceive that they have a satisfactory understanding of the types of waste and recyclables accepted at the facility. Those with a detailed understanding (19%) are in contrast to those who don't know enough (13%).

The 2019 Survey results indicate that the RRC is both very important and is providing high levels of satisfaction.

3.3 Education and Community Involvement

Encouraging waste reduction initiatives and resident involvement in Council decision-making have consistently emerged as core priorities for residents. (**Figures 2-1** and **2-2**).

44% of responders in the 2019 Survey have sought information on waste and recycling within the Shire in the last twelve months, with the majority utilising WSC's website among other sources. 60% of responders found exactly the information they were after however, 32% did not find the complete answer and 7% did not find an answer at all. In addition, responders were not overly aware of any waste education campaigns or educational services, suggesting that very little of this type of information is distributed or easily accessible within WSC.

3.4 Waste Treatment

The 2019 Survey indicates that all six identified kerbside waste treatment types are supported by the majority of the responders. It may suggest that the community understands the need to have a range of treatment types to develop a sustainable waste management system. In addition, it demonstrates the community's acceptance of the benefits associated with undertaking these types of processes either in general or specifically within the WSC.

4 Conclusion

Acceptance of 339 responses demonstrates that the WSC community are engaged and are determined to be involved in any decision making process, and that any changes to existing waste management services should be undertaken in consultation with residents.

The 2019 Survey presents some expected and some interesting results for consideration within the Service Delivery Review – Waste Management. Overall, waste management is viewed as a high priority which in most instances needs to continually improve to meet the WSC's community's expectations. Areas for improvement have been identified through this process, along with aspects to potentially guide WSC in the future. All results will be closely considered during the course of the Service Delivery Review – Waste Management and provides WSC with the opportunity to clearly improve waste management services based on strong community input.

If you have any questions or require further clarification, please do not hesitate to contact me.

Yours sincerely,

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Appendix B: RRC Drive Time Analysis

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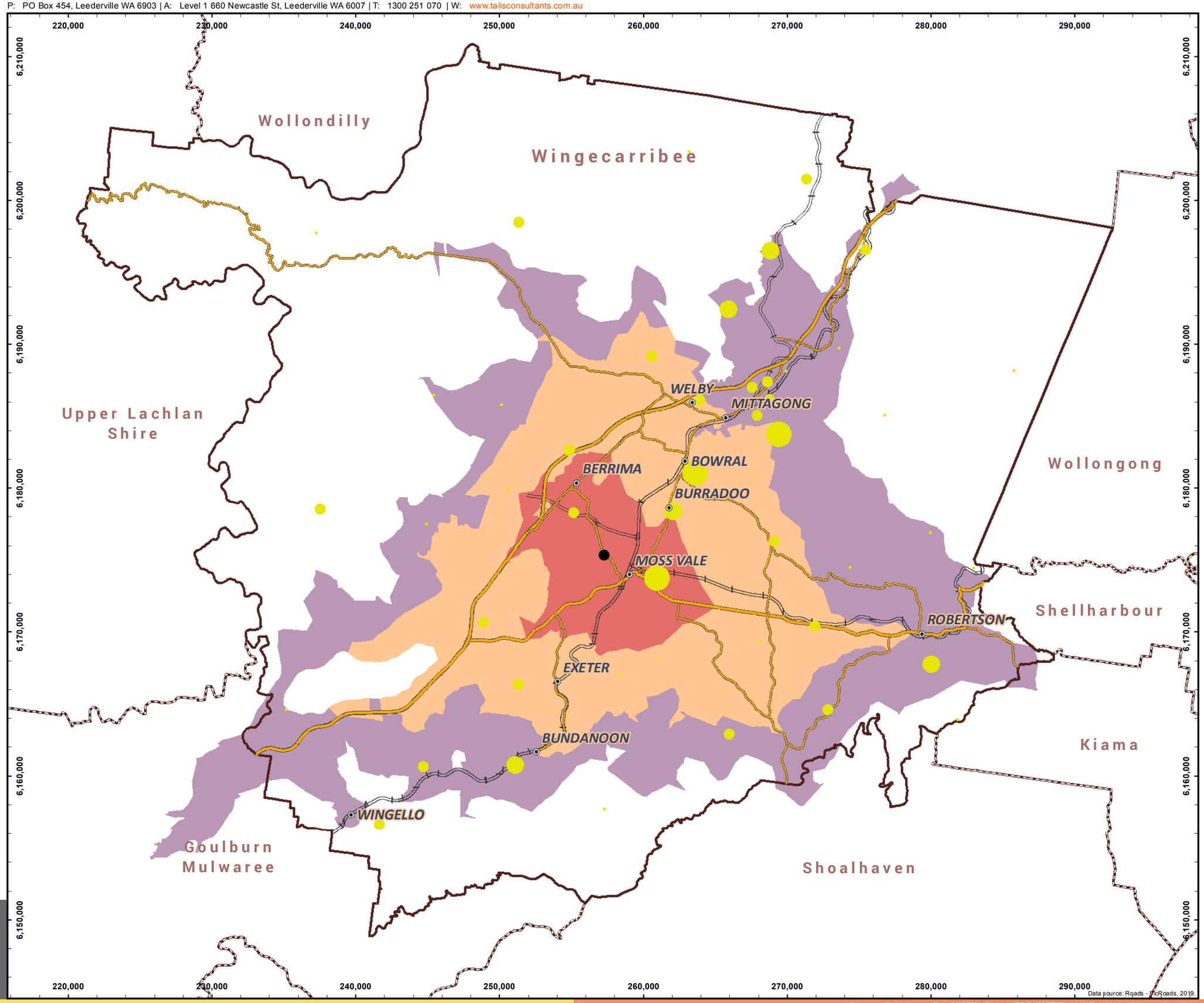

LEGEND

- Wingecaribee Shire Council LGA
- Other LGAs
- Wingecaribee RRC

Drive Time

- 0 - 10 minutes
- 10 - 20 minutes
- 20 - 30 minutes

Suburb Population

- 0 - 200
- 201 - 1500
- 1501 - 3000
- 3000+

0 50 100 200 300 400 km

DRIVE TIME ANALYSIS

Wingecaribee Waste Services Review
Wingecaribee Shire Council

N
0 2.5 5 7.5 10 Km

Coordinate System: GDA 1994 MGA Zone 56
Projection: Transverse Mercator, Datum: GDA 1994
Scale @ A3: 1:250,000

Prepared:	F Walker	Date:	4/07/2019
Checked:	A Upitis	Project No:	TW19009
Reviewed:	A Upitis	Revision:	A

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Figure 01

Data source: Roads - VicRoads, 2019

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