Snowy Monaro Regional Council

Waste Management Strategy

Final

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SNOWY MONARO REGIONAL COUNCIL

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Disclaimer

Strategy at a glance

Where we are today

- Snowy Monaro Regional Council (SMRC) is a Local Government Area (LGA) in the Snowy Mountains and Monaro regions of South Eastern NSW. It is home to an estimated population of 20,795 people, residing in approximately 12,424 households.
- SMRC delivers a range of waste services that include kerbside waste collection, transfer stations, landfills, community recycling centres, tip shops, drop-off points for bulky items, annual household chemical drop-offs and illegal dumping management and compliance.
- Kerbside collection service varies based on area: Cooma township is provided with a 3-bin system (general waste, comingled recycling and food organics and garden organics (FOGO). Bombala, Jindabyne and other townships are provided with a 2-bin system (general waste and comingled recycling). SMRC also provides kerbside waste collection for businesses in the LGA, on an opt-in basis.
- SMRC generated close to 9,000 tonnes of domestic waste in 2019-2020. Of this, 35% was recycled.

Where we want to go

- It is projected that by 2036, SMRC will generate over 24,000 tonnes of domestic waste per year due to the rising population and trends in waste generation.
- SMRC aim to overcome challenges such as: resource recovery underperformance; the variation of services and facilities across the LGA; high costs associated with waste management; and improve accessibility and utilisation of waste facilities.
- The vision of SMRC is to unify the LGA, reduce the recycling gap and waste to landfill, and deliver cost effective waste services that meet the needs of the community. Strategic objectives translate the vision and themes into measurable goals (Figure 1).

Figure 1 SMRC's waste strategy vision and themes

How we will get there

- Potential actions and options were identified to address the strategic objectives.
- Options for Bombala landfill, the kerbside collection service, transport of recyclables service, local CDS capture and bulky waste collection were analysed and compared based on cost and effectiveness in addressing the strategy objectives.
- The costs, benefits, disadvantages and risks were considered to assess potential actions, such as expansion of collection services and upgrades to facilities and infrastructure.
- Options for transfer station closures and upgrading of Jindabyne Landfill to a modern transfer station.

How the strategy will be implemented

- Recommended action plans for both waste infrastructure and services provide detailed steps for each potential action and option to be implemented in the short, medium and long term.
- Further investigations are recommended for a number of initiatives to determine their suitability for SMRC.

How to measure success

- Monitoring and analysis measures, including Key Performance Measures, for each theme are outlined to measure progress towards implementing the recommended action plans.

Recommended Waste Action Plans

Below are the recommended major infrastructure and waste service actions for implementing SMRC's waste management vision and strategic objectives over the short term (1-5 years), medium term (5-10 years) and long term (10+ years) for waste services. Details of the recommended actions are provided in Table 23 and Table 24 of the strategy.

Recommended Waste Infrastructure Key Actions

Table 1 Waste infrastructure key actions

Action	Description
Landfills upgrade	• Construction of new landfill areas at Cooma landfill. • Integration of weighbridge data system into SMRC financial system. • Environmental upgrades at Cooma landfill.
Modern transfer stations upgrade	• Upgrade Bombala, Cooma and Jindabyne to modern transfer stations to provide a safer, easier and more efficient layout for source-separation and drop-off for residents and commercial users.
Conversion of drop off model service to collection & BOB service model	• Implement recommendations of the closure of transfer stations, introduction of bank of bins and introduce half-yearly bulky waste drop offs.
Expansion of bank of bins	• Expansion of BOBs in some locations.
Remediate legacy landfills and convert to emergency landfills where appropriate	• Rehabilitation of sites. • Progressive capping of current sites.

Action	Description
Upgrade collection trucks	• Cooma collection truck upgrade to enhance fleet with additional side lift truck.
Review gate fee structure	• Review of gate fee structure.

Recommended Waste Services Key Actions

Table 2 Waste services key actions

Action	Description
FOGO collection service expansion	• Expansion of current residential FOGO service to all properties with a current 2-bin service within the LGA. • Opt-in commercial FOGO service for businesses.
Expand kerbside collection service	• Expansion of kerbside collection route across SMRC where applicable including but not limited to service to Numeralla. • Establishment of BoBs at some locations.
Bulky waste – service on request for pensioners and disabled	• Business case for the provision of bulky waste services. • Provision of service to pensioners, disabled people and concession holders who may find transport of bulky waste to a landfill less accessible.
Mobile CRC	• Mobile CRC for household problem waste.
Increase recycling of C&D waste	• Targeted educational programs for construction entities to source separate C&D waste.
Implement recycling of difficult-to-recycle material	• Increase recycling of difficult-to-recycle materials through targeted education and collection programs, e.g. polystyrene.
Local procurement of recycled materials	• Increase local procurement of products with recycled content in construction and reduce use of virgin materials.
Support food rescue programs	• Collection of quality surplus food from retailers and donation to dedicated charities.
Illegal dumping	• Reduce illegal dumping through working with the Health and Environment Department within SMRC to educate and reduce illegal dumping through implementation of an illegal dumping awareness campaign, including dob-in-a-dumper, and data collection
Disability employment opportunities	• Investigate whether ScrapMart tip shops are suitable to provide employment opportunities for local people with disability.

Glossary

Terminology	Description
ABS	Australian Bureau of Statistics
ACT	Australian Capital Territory
AWT	Alternative Waste Treatment
CRJO	Canberra Region Joint Organisation of Councils
CDS	Container Deposit Scheme
CPI	Consumer Price Index
CRC	Community Recycling Centre
EPA	NSW Environment Protection Authority
EPR	Extended Producer Responsibility
ERF	Emissions Reduction Fund
FOGO	Food Organics and Garden Organics
HH	Households
LFG	Landfill Gas
LGA	Local Government Area
MBT	Mechanical Biological Treatment
MRF	Materials Recycling Facility
MSW	Municipal Solid Waste
MUD	Multi Unit Dwelling
MWOO	Mixed Waste Organic Outputs
NSW	New South Wales
NWP	National Waste Policy
OTC	Over the counter (for “Return and Earn” sites)
POEO Act	*Protection of the Environment Operations Act 1997* (NSW)
RVM	Reverse Vending Machine
SMRC	Snowy Monaro Regional Council
SUD	Single Unit Dwelling

Terminology	Description
TAC	Technical Advisory Committee
VENM	Virgin Excavated Natural Material
WARR Act	*Waste Avoidance and Resource Recovery Act 2001* (NSW)

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1 Where We Are Today

1.1 Population and Demographics

Snowy Monaro Regional Council (SMRC) is a Local Government Area (LGA) covering 15,163 km over the Snowy Mountains and Monaro regions of South Eastern New South Wales (NSW). SMRC was proclaimed in 2016 with the amalgamation of three Councils; Bombala, Cooma-Monaro and Snowy River, and includes national park reserves, dedicated state forest and the catchment of Australia's famous Snowy Mountains Scheme. The LGA spans from the ACT border down to the Victorian border (Figure 1) and is part of the Canberra Region Joint Organisation of Councils (CRJO).

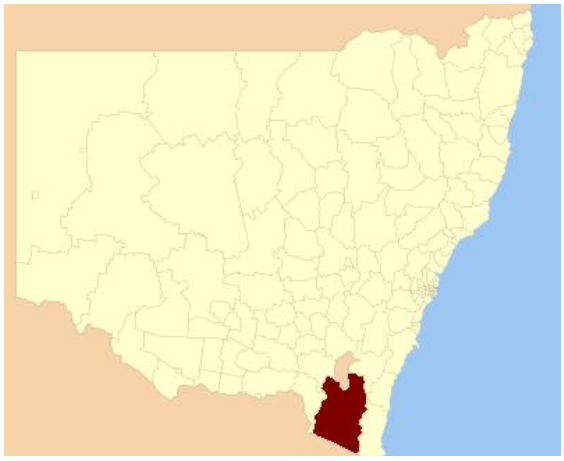


Figure 2 Map of NSW local government areas with the SMRC highlighted

The LGA is comprised of five major town centres: Cooma, Jindabyne, Bombala, Berridale and Michelago. There is an estimated population of 20,795 people[1], residing in approximately 12,424 households. Population varies significantly with seasons and the population of some towns can triple during peak skiing season. The average household size is 2.4 persons per dwelling and the population density is 1.4 persons/km^2 making SMRC one of least populated councils in South Eastern NSW. This is four times sparser than the CRJO average (4 persons/km^2) and sparser than the average in the state of South Australia (1.8 persons/km^2).

The percentage of SMRC dwellings falling into high or medium density categories is largely consistent with the NSW regional average in 2016. The breakdown of more specific dwelling types from the 2016 Census data is provided in Table 3.

Table 3 Breakdown of occupied private dwellings in SMRC among different dwelling types (ABS, 2016)

Dwelling type	Proportion of occupied private dwellings
Separate house	85.2%
Semi-detached	4.6%
Multi-unit	5.5%
Other/not stated	4.7%

The median age of SMRC's population is 43.4 years and it has been slowly trending upwards[2]. 63% of the population is of working age. The region has high English proficiency. The 2016 Census found that of the 13%

[1] Regional Population Growth, Australia (3218.0) (2019) Australian Bureau of Statistics, https://profile.id.com.au/snowy-monaro/population-estimate

[2] 2016 Census QuickStats (2016) Australian Bureau of Statistics, https://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/LGA17040?opendocument#:~:text=The%20median%20age%20of%20people,up%2019.2%25%20of%20the%20population.

of residents who were born overseas, 93% were proficient in English. This will aid in the effectiveness of waste education initiatives.

Tourism is the key industry sector for the region with accommodation and food services being the highest employers; 19% of jobs fall into this category (ABS, 2016). Other important industries include agriculture, forestry and fishing, retail and construction.

SMRC is located on the traditional lands of the Ngarigo, Walgalu, Bidawal and Southern Ngunnawal people. The population of Aboriginal and Torres Strait Islander peoples is 2.2% (ABS, 2016) and there are three protected Declared Aboriginal Places in the LGA; Coolamatong in Cooma, Curiosity Rocks in Jindabyne, and the Delegate Aboriginal Reserve. SMRC recognise the Ngario, Walgalu and Southern Ngunnawal people as the native custodians of the land and encourage a collaborative relationship with traditional landowners to further Council's core values.

The region includes a number of National Parks and nature reserves, with protected areas making up 26.9% of the total area of the SMRC LGA. This attracts tourism all year as there is abundant opportunity for fishing, horse riding, bushwalking, hiking, snow and water sports. Tourism is increasing every year both from summer and winter activities. By far the biggest drive for tourism is the ski season which runs from June to October. The region experiences unique weather patterns as it snows several times each year. SMRC is home to four main ski parks; Charlotte Pass, Thredbo, Perisher and Selwyn. The population in Jindabyne can triple during this time, greatly increasing waste generation which places extra requirements and challenges on the region's waste management system and operations.

The CRJO acts as a forum for stakeholders, Councils and government bodies to identify priorities and deliver shared projects. The CRJO's core functions include strategic planning and priority setting, intergovernmental collaboration and regional leadership and advocacy. The population across the organisation is 750,000 and provides opportunities to undertake joint waste procurements, to share learnings and educational materials. The CRJO consists of the following councils (refer to Figure 3):

- Bega Valley Shire Council
- Eurobodalla Shire Council
- Goulburn Mulwaree Council
- Hilltops Council
- Queanbeyan-Palerang Regional Council
- SMRC
- Snowy Valleys Council
- Upper Lachlan Shire Council
- Wingecarribee Shire Council
- Yass Valley Council

The CRJO is active in waste management; the Regional Waste Strategy currently in place spans from 2018-2023. It focuses on conserving resources, reducing waste to landfill and increasing recycling. In particular, it emphasises reducing organic waste to landfill. The strategy is discussed in more detail in Section 1.3.2.

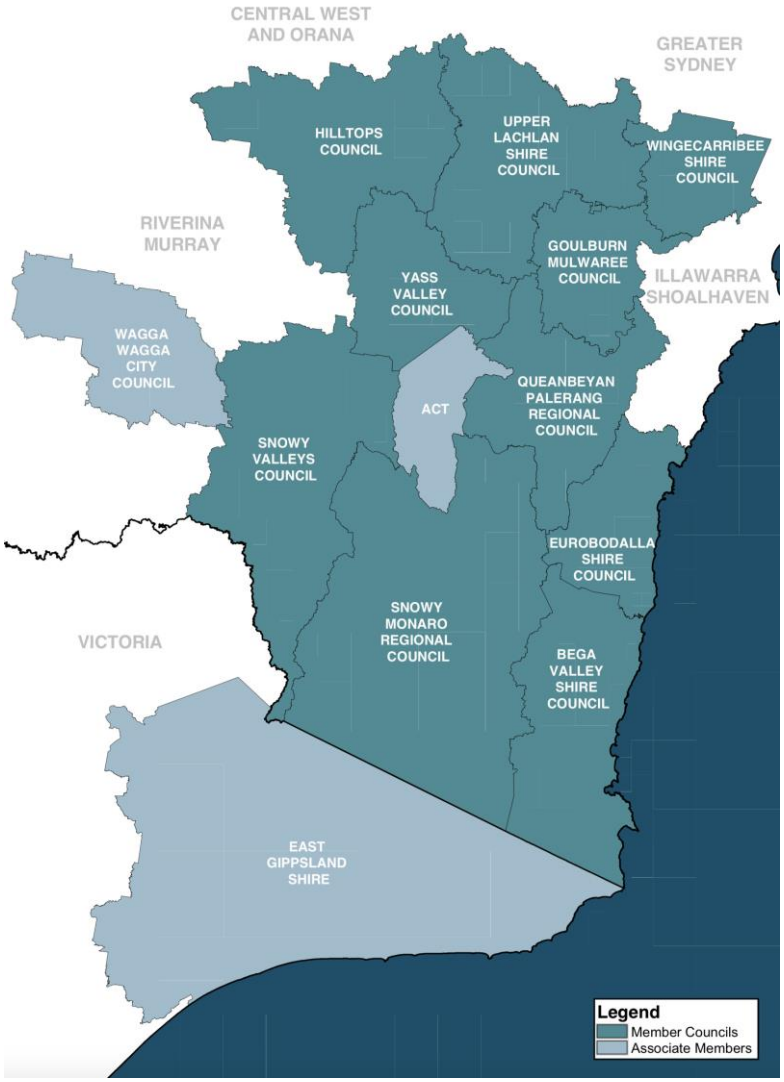


Figure 3 CRJO member councils and associated members

1.2 Government Policy and Regulatory Framework

1.2.1 National

The Australian Government (or Commonwealth of Australia) traditionally has had limited involvement in local waste management issues. This responsibility rests largely with state, territory and local governments. However, the Australian Government has a leadership role in waste management and resource recovery via the Council of Australian Governments (COAG) process.

1.2.1.1 National Waste Policy

The Australian Government prepared a National Waste Policy (NWP) in 2018 to encourage a shift away from a linear economy and 'take, make, use, dispose' behaviours to a circular economy where the system maintains the value of resources for as long as possible[3]. The policy provides five principles and fourteen strategies to underpin and guide waste management, recycling and resource recovery in a circular economy. The principles and strategies are non-binding.

The Australian Government published the National Waste Policy Action Plan[4] which create targets and actions formulated in the 2018 NWP, including the waste export bans. The targets and actions detailed in the National Action Plan include the following:

- Ban the export of waste plastic, paper, glass and tyres, commencing in the second half of 2020;
- Reduce total waste generated in Australia by 10% per person by 2030;
- 80% average recovery rate from all waste streams by 2030;
- Significantly increase the use of recycled content by governments and industry;
- Phase out problematic and unnecessary plastics by 2025;
- Halve the amount of organic waste sent to landfill by 2030; and
- Make comprehensive, economy-wide and timely data publicly available to support better consumer, investment and policy decisions.

1.2.1.2 The Recycling and Waste Reduction Bill 2020

The bill establishes a framework to regulate the export of waste plastic, paper, glass and tyres and incorporates the existing *Product Stewardship Act 2011* with improvements to encourage better product design and increase recovery[5].

The timetable for the ban of export waste is as follows:

- Unprocessed glass by January 2021;
- Mixed waste plastics by July 2021;
- All whole tyres including baled tyres by December 2021;
- Single resin/polymer plastics by July 2022; and
- Remaining waste products, including mixed and unsorted paper and cardboard, by no later than July 2024.

Materials "processed into value-added materials" will still be allowed to be exported.

The waste export bans have the potential to impact on SMRC's comingled recycling in the short term, likely in the form of increased processing costs for comingled recyclables at Materials Recycling Facilities (MRFs).

[3] National Waste Policy: Less Waste, More Resources 2018 (2018) Commonwealth of Australia, https://www.environment.gov.au/system/files/resources/d523f4e9-d958-466b-9fd1-3b7d6283f006/files/national-waste-policy-2018.pdf

[4] National Waste Policy Action Plan 2019 (2019) Commonwealth of Australia, https://www.environment.gov.au/protection/waste-resource-recovery/publications/national-waste-policy-action-plan

[5] *Recycling and Waste Reduction Bill 2020* (as passed by both houses) (2020) Commonwealth of Australia, https://parlinfo.aph.gov.au/parlInfo/download/legislation/bills/r6573_aspassed/toc_pdf/20096b01.pdf;fileType=application%2Fpdf

1.2.1.3 Extended Producer Responsibility Schemes

Extended Producer Responsibility (EPR) policies engage producers and others involved in the supply chain of a product to take responsibility for the environmental, health and safety footprint of products they produce.

Following the adoption of the first NWP in 2009, the Commonwealth *Product Stewardship Act 2011* was introduced to provide the framework for EPR schemes. The Act creates three types of schemes:

- Mandatory schemes;
- Co-regulatory schemes; and
- Voluntary schemes (either accredited or not).

There are no mandatory schemes created under the Act, and one co-regulatory scheme (the National Television and Computer Recycling Scheme). Most EPR schemes are voluntary, and include programs for:

- Mobile phones (MobileMuster, an accredited scheme);
- Fluorescent lamps (Fluorocycle, an accredited scheme);
- Tyres (Tyre Stewardship Australia);
- Agricultural chemical containers (DrumMuster);
- Paint (Paintback);
- Used Oil (Product Stewardship for Oil Scheme – PSO)
- Mattresses (Soft Landing Product Stewardship Scheme)
- PVC (PVC Stewardship); and
- Newspapers.

The Commonwealth Government establishes a "product list" every year, containing the products that it is considering for some form of EPR scheme. The 2020-21 list includes:

- Batteries;
- Child car seats;
- Electrical and electronic products;
- Plastic oil containers;
- Plastic microbeads; and
- Photovoltaic systems.

The Act is currently under review, including the "product list" process.

1.2.1.4 The Emissions Reduction Fund

The Commonwealth Government purchases abatement (in the form of Australian Carbon Credit Units (ACCUs)) from a wide range of sources through the Emissions Reduction (ERF). This provides an incentive to businesses, households and landowners to reduce emissions.

In order to participate in the ERF, project proponents must carry out a project in accordance with a methodology determination to appropriately estimate abatement from certain activities.

Approved methods for the waste and recycling sectors include:

- Landfill gas capture and destruction;
- Alternative Waste Treatment (AWT) [6]; and
- Source Separated Organics.

[6] This may be under review due to the NSW EPA's position to no longer allow the use of Mixed Waste Organic Outputs (MWOO) as a soil amendment on agricultural, mining rehabilitation or forestry land.

There are also two soil carbon methodologies that apply to farming practices and the improvement of agricultural lands which could be relevant to the use of SMRC compost material under specific circumstances.

1.2.2 State

The NSW Government administers the waste regulatory framework through the State's primary environment protection legislation, the *Protection of the Environment Operations (POEO) Act 1997*, together with the *Waste Avoidance and Resource Recovery (WARR) Act 2001* and the *Protection of the Environment Operations (Waste) Regulation 2014*. These key statutes contain the requirements for managing, storing, transporting, processing, recovering and disposing of waste.

1.2.2.1 Protection of the Environment Operations (POEO) Act 1997

The POEO Act aims to reduce risks to human health and prevent the degradation of the environment by the use of mechanisms that promote pollution prevention, the elimination of harmful wastes, the reduction in the use of materials and the re-use and recovery or recycling of materials.

Council owns and operates three landfills in the SMRC LGA. Council must meet the legislative requirements and responsibilities under the POEO Act in operating these facilities. Council also owns a number of legacy landfill sites which are also subject to various provisions under the Act.

1.2.2.2 Waste Avoidance and Resource Recovery Act 2001

The *Waste Avoidance and Resource Recovery Act 2001* (WARR Act) is the primary Act governing resource recovery in NSW. The objectives of the WARR Act are to promote:

- The most efficient use of resources, including resource recovery and waste avoidance;
- A reduction in environmental harm, including pollution through waste;
- A consideration of the resource management hierarchy through avoidance of unnecessary resource consumption and disposal; and
- Resource recovery, which includes reuse, reprocessing, recycling and energy recovery.

The WARR Act defines the Waste Hierarchy (Figure 3), which ranks waste management options in order of general environmental desirability. Generally, the higher waste is managed up the hierarchy, the lower the impact and risk to the environment and communities. The waste hierarchy is intended for use alongside other assessment tools, such as cost benefit analysis, to guide decision-making.

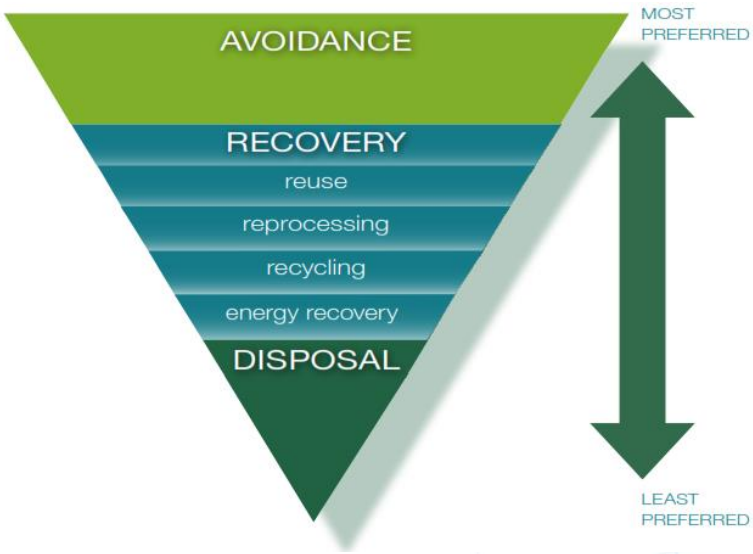


Figure 4 Waste Avoidance and Resource Recovery Act waste hierarchy

Source: Waste Avoidance and Resource Recovery Act 2001

1.2.2.3 NSW Waste Avoidance and Resource Recovery Strategy 2014–21

The WARR Strategy provided a framework for waste management in NSW. Development of a WARR Strategy, including targets for waste reduction, resource recovery and the diversion of waste from landfill disposal, is required under the WARR Act.

The following targets have been set to be achieved by 2021/22:

- Avoiding and reducing the amount of waste generated per person in NSW;
- Increasing recycling rates to 70% for municipal solid waste;
- Increasing recycling rates to 70% for commercial and industrial waste;
- Increasing recycling rates to 80% for construction and demolition waste;
- Increasing waste diverted from landfill to 75%;
- Managing problem waste better, establishing 86 drop-off facilities and services across NSW;
- Reducing litter, with 40% fewer items (compared to 2012) by 2017; and
- Combating illegal dumping, with 30% fewer incidents (compared to 2011) by 2017.

The WARR Strategy guides the development of Council's resource recovery targets. Council will also keep abreast of developments in all EPA funding schemes and have the opportunity to apply for funding to support and augment any of the described actions in order to achieve its objectives more efficiently.

The NSW Government has released a new *20-Year Waste and Sustainable materials Strategy for NSW* setting high level waste targets and new waste initiatives to replace this strategy.

1.2.2.4 NSW Waste and Sustainable Materials Strategy – Stage 1 (2021-2027)

The NSW Department of Planning, Industry and Environment (DPIE) published the NSW Waste and Sustainable Materials Strategy, Stage 1 in June 2021 with a focus on the environmental benefits and economic opportunities in how we manage waste in NSW, with the strategy focusing on the transition for NSW to a circular economy (Figure 5).

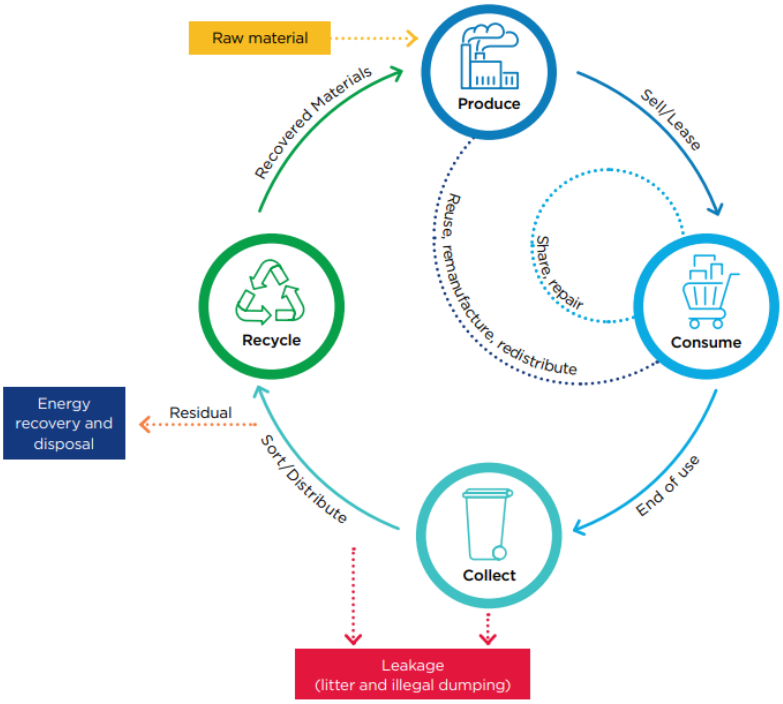


Figure 5 Circular Economy Approach (NSW 20 Year Waste Strategy[7])

The Strategy targets are to:

- Reduce total waste generated by 10% per person by 2030;
- Have an 80% average recovery rate from all waste streams by 2030;
- Significantly increase the use of recycled content by governments and industry;
- Phase out problematic and unnecessary plastics by 2025; and
- Halve the amount of organic waste sent to landfill by 2030

The strategy contains five key items that may directly impact SMRC:

1. Facilitating joint procurement of household waste services with DPIE designing a new service to facilitate local government joint procurement of waste services such as the collection and processing of waste from household bins;
2. Mandating food and garden organics collections for all NSW households and select businesses by 2030. Details are yet to be determined as to the scope and breadth of this mandate;
3. Requiring gas capture technology at all landfills over a certain size and all expanded or new landfills and require net zero emissions for landfills that have an environment protection licence. The NSW government will also invest $7.5 million to support the installation of landfill gas capture infrastructure. This may directly impact Cooma, Jindabyne and Bombala landfills;
4. The NSW Government will review the NSW Waste Levy, including to ensure it meets policy objectives and a review of the area boundaries. A review of boundaries and recommendations could place SMRC into the levy paying area;

[7] NSW Waste and Sustainable Materials Strategy 2041 (2021), NSW Government, https://www.dpie.nsw.gov.au/__data/assets/pdf_file/0006/385683/NSW-Waste-and-Sustainable-Materials-Strategy-2041.pdf

5. Household hazardous wastes, with the NSW Government to continue to support the established Community Recycling Centres (CRCs) such as at Cooma and Jindabyne and continue to support Household Chemical CleanOut events.

1.2.2.5 NSW Plastics Action Plan

The NSW Plastics Action Plan sets out how to phase out problematic plastics, tackle litter from plastic items and support innovation and research.

Key outcomes include:

- Reduce plastic waste generation;
- Make the most of our plastic resources;
- Reduce plastic leakage; and
- Improve our understanding of the future of plastics.

The plan sets out the first six actions to achieve the outcomes including:

1. Introduce new legislation to reduce harmful plastics;
2. Accelerate the transition to better plastic products;
3. Support innovation;
4. Tackle cigarette butt litter;
5. Reduce the risk of nurdles entering the environment; and
6. Support plastics research.

1.2.2.6 NSW Waste and Sustainable Materials Strategy – A guide to future infrastructure needs

The NSW Waste and Sustainable Materials Strategy – A guide to future infrastructure needs supplements the NSW Waste and Sustainable Materials Strategy 2041.

The guide provides an outline of the infrastructure network needs for managing waste and supporting the transition to a circular economy. The needs are grouped by key material type and with a focus on municipal solid waste and commercial and industrial waste streams.

It identified needs for organics, glass, paper and cardboard and tyres processing as well as the infrastructure needs of residual management facilities, materials recovery facilities and hazardous waste.

1.2.2.7 Waste Less, Recycle More Initiative

The Waste Less, Recycle More (WLRM) grant program provides funding for organisations to improve their management of waste and recovery of resources.

Phase 1 of WLRM provided $465.7 million over the period July 2012 to June 2017, focusing on funding new, large-scale waste and recycling infrastructure, recycling facility upgrades, drop off centres, food and garden organics processing and recycling innovations. Phase 2 of WLRM commenced on 1 July 2017, with the capacity to award $337 million over 4 years. Priorities have already been outlined with a number of funding areas being potentially relevant to Council:

- Local government waste and resource recovery – $70 million;
- Illegal dumping prevention and waste enforcement – $65 million;
- Household problem waste – $57 million;
- Waste and recycling infrastructure – $48 million;
- Organics infrastructure – $35.5 million;
- Litter prevention and enforcement – $30 million;

- Business recycling – $22.5 million;
- Recycling innovation – $5 million; and
- Heads of Asbestos Co-ordinating Authorities – $4 million.

An extension of the Waste Less, Recycle More initiative to 2022 was announced in November 2020.

1.2.2.8 Waste and Resource Recovery (Container Deposit Scheme) Regulation 2017

The *Waste and Resource Recovery (Container Deposit Scheme) Regulation 2017* provides the framework for the implementation and operation of the Container Deposit Scheme (CDS), established under Part 5 of the WARR Act, which was implemented on 1 December 2017 under the brand "Return and Earn".

The CDS is an EPR scheme for eligible beverage containers. Under the scheme, a deposit of 10c per container is refunded to consumers in return for eligible beverage containers sold in NSW. The CDS only covers a selection of beverage containers (eligible containers), specifically those that are often consumed away from home and thus more likely to end up as litter. This deposit can be redeemed by presenting eligible containers at designated collection depots. The Scheme Coordinator ('Exchange for Change') manages scheme payments, establishes key agreements required for the operation of the scheme, and conducts auditing and verification. The Network Operator ('TOMRA-Cleanaway') establishes and manages collection points and ensures redeemed beverage containers are ultimately recycled.

SMRC has two Return and Earn reverse vending machines (RVMs) located in Cooma and Jindabyne. The Cooma RVM is located in the carpark of Cooma Woolworths and the Jindabyne RVM is located in the carpark of Lake Jindabyne Hotel. There is an over the counter (OTC) Return and Earn site in Bombala, located at the Bombala Powers IGA. The Return and Earn program commenced in December 2017.

1.2.2.9 Changes to use of Mixed Waste Organic Outputs (MWOO)

AWT or Mechanical Biological Treatment (MBT) facilities process mixed waste or garbage from municipal and sometimes commercial sources. Their main product output is a compost-like material known as 'mixed waste organic outputs' (MWOO), which has been generally used in mine rehabilitation, forestry plantations and agriculture in NSW.

In May 2018, a Technical Advisory Committee (TAC) convened by the NSW EPA recommended that MWOO was not suitable for use on broadacre agricultural or horticultural soils (TAC 2018). As a result, in October 2018, the EPA changed its regulations to prohibit the application of MWOO to land, having the effect of driving it to landfill.

The NSW Government is now focusing on third bin collection of Food Organics and Garden Organics (FOGO) to divert domestic organics from landfill. Hence, SMRC will focus on the expansion of its existing FOGO services rather than the use of AWTs.

1.3 SMRC Policy and Strategy Framework

1.3.1 Cooma-Monaro Resource and Waste Strategy 2016 - 2021

SMRC has adopted the Cooma-Monaro Resource and Waste Strategy 2016 – 2021. This strategy focused on reducing waste to landfill and increasing recycling rates. It acknowledged waste as a resource; aiming to further Council's knowledge of the composition of waste generated and identify lost value in residential kerbside bins. It also intended to implement actions which would change the behaviour of waste generation in the region and allow Council to provide the best possible waste services. The strategy adopted the waste goals set by the WARR Strategy to increase recycling of municipal solid waste (MSW) to 70% through:

- reducing the amount putrescible waste going to landfill;
- diverting the organics from landfill with contamination rates of less than 5%, and producing marketable end products;
- ensuring disposal to landfill is the last resort in waste management;
- developing education programs for residents focussing on the benefits of organics collection; and
- achieving recycling participation rates of more than 70%.

The strategy broke down their aims into key result areas:

- **Resource recovery:** reduction in contamination rates, increase in recycling, increased participation in and services provided for recycling and organics collection and increasing community engagement.
- **Waste generation:** reducing waste generation rates by encouraging reduction, recycling, reuse and rethinking and encouraging higher participation of recycling in smaller towns and villages.
- **Landfill diversion:** increase landfill diversion of MSW to 70% and expand programs that help the effort toward this goal.
- **Local and regional collaboration:** maintain and improve communications with local and regional stakeholders and identify and implement solutions together toward waste minimisation outcomes.
- **Reduce litter:** reduce litter in public spaces through education of the community in the importance of litter reduction.
- **Bin Trim[8]:** promote the program, support the forums under the program and exchange information with regional partners regarding waste management matters of businesses.

1.3.2 Canberra Region Joint Organisation Waste Strategy 2018 - 2023

The CRJO Waste Strategy outlines a five-year plan for its member councils to drive more rapid medium-term change towards increased recycling and waste diverted from landfill.

Challenges identified in the CRJO Waste Strategy include:

- Under-priced landfills – impact resource recovery programs to sort and recycle waste streams;
- Threats to recycling – including expensive transport of comingled material to MRF's, flow-on effects for MRF operators from the CDS, collapsing export markets and a lack of investment in a domestic recycling capacity; and
- Data collection – lack of and poor data to inform strategic direction and investment.

[8] NSW EPA grant program to support NSW businesses to maximise recycling and minimise waste to landfill. https://www.epa.nsw.gov.au/your-environment/recycling-and-reuse/business-government-recycling/bin-trim

By 2021-22, the CRJO aims to improve on 2010-11 rates as follows:

- Increase domestic recycling rates from 52% to 70%;
- Increase C&I recycling from 57% to 70%;
- Increase C&D recycling from 75% to 80%;
- Increase waste diversion to from 64% to 75%;
- Establish and upgrade up to 86 drop-off points to better manage problem wastes;
- Reduce the number of litter items by 40%; and
- Develop baseline data for illegal dumping to enable targeting setting for future strategies.

To meet its aims, the CRJO Waste Strategy provides actions under seven key themes:

1. Avoid and reduce waste generation;
2. Increase recycling;
3. Divert more waste from landfill;
4. Manage problem wastes better;
5. Reduce litter;
6. Reduce illegal dumping; and
7. Develop regional collaboration and advocacy.

1.3.3 ACT Feasibility Study Roadmap and Recommendations – Discussion Paper

The 2018 ACT Waste Feasibility Study, *A Roadmap to Improved Resource Recovery*, aimed to bring the ACT closer to its ambitious target of 90% resource recovery. Currently sitting at 70%, the initiatives outlined in this study may enable the territory to reach 87% resource recovery by diverting over 170,000 tonnes of waste from landfill each year. Among the many suggested initiatives, the key points are summarised in Table 2.

Table 4 Key initiatives of the ACT Feasibility Study Roadmap

Key Area	Initiatives
Divert organics from landfill	Implement food waste social marketing and education campaigns.
	Participate in national food waste initiatives.
	Roll-out FOGO kerbside collections.
	Develop an organics processing facility.
Industry development and support	Identify and facilitate market development for materials that are currently sent to landfill.
	Government ‘buy-back’ schemes for recycled products through procurement commitments.
	Modify contracts for recovery and reuse of inert wastes.
	Source separate C&I waste.
	Improve waste advisory services to businesses.
Energy from waste	Develop waste-to-energy policy for the ACT.
	Consider establishment of a process-engineered fuel plant.

The ACT banned single use plastic shopping bans in November 2011 and is currently exploring extending this ban to a range of other single use plastics such as straws and plastic cutlery.

1.4 Waste Services and Facilities

SMRC delivers and maintains a range of waste services and facilities. A core objective of SMRC's waste strategy is to unify services and facilities across the three amalgamated councils.

1.4.1 Waste Services

SMRC delivers a range of waste services that include:

- Domestic and commercial kerbside waste collection;
- Bank of bins (BOBs) service and collection points;
- Event waste removal;
- Annual Household Chemical CleanOut drop-off service; and
- Illegal dumping management and compliance (see Section 1.8.3).

1.4.1.1 Kerbside Waste Collection

SMRC provides a kerbside collection service to all major townships in the LGA. In 2020, kerbside collection services were offered to over 7,000 households. At present, SMRC provides the following kerbside waste collection services:

- Cooma township are provided with a 3-bin system (general waste, comingled recycling and food organics, garden organics or FOGO), operated by Council in-house staff;
- Berridale/Jindabyne and surrounds (formerly known as 'Snowy River') are provided with a 2-bin system (general waste and comingled recycling), operated by Council in-house staff;
- Bombala/Delegate and surrounds are provided with a 2-bin system (general waste and comingled recycling), operated by an external contractor; and
- Bredbo/Nimmitabel/Michelago townships are provided with a 2-bin system (general waste of 120 L and comingled recycling of 360L), operated by Council in-house staff

The bin size configurations and collection frequencies for the domestic collection service for each region of SMRC are provided in Table 3. The number of households serviced and tonnes collected are an average of 2019 and 2020 figures.

Table 5 Bin size configurations and collection frequencies for domestic kerbside collection service in SMRC LGA

Stream	Bin Size			Collection Frequency	Households Serviced (hh)	Service Coverage* (% hh)	Tonnes Collected (t/year)
	Bombala	Jindabyne	Cooma				
General waste	120L	240L	120L	Weekly	7,861	63%	3,315
Comingled recycling	360L	360L	140L, 360L	Fortnightly	7,472	60%	1,401
FOGO	No service	No service	240L	Fortnightly	2,736	22%	414

**Based on a total of 12,424 households located in the SMRC LGA.*

In addition, all residents have access to a self-haul and drop-off service at ten waste facilities (refer to Table 6).

Recyclables collected in the kerbside service are transported and processed at the Re.Group MRF in the ACT. Composting of FOGO waste is undertaken at the Cooma Landfill and the compost product can be purchased back by residents from Bombala, Cooma and Jindabyne landfills.

1.4.1.2 Bank of Bins and Collection Points

SMRC provides BOB sites and collection points to help service properties located in remote regions. These residents would otherwise be required to drop-off their waste at the closest waste facility.

The BOB sites consist of several bins for general and recycling streams and the bins are serviced by the domestic waste and recycling vehicles. A list of the 16 BOB sites can be found in Appendix A.

1.4.1.3 Event Waste Removal

SMRC provides temporary special event bins for events and occasions where additional waste is generated. This service includes the delivery and pick up of the bins; and waste disposal.

1.4.1.4 Annual Household Chemical CleanOut Drop-off Service

SMRC provides an annual Household Chemical CleanOut drop-off service to allow residents to dispose of unwanted chemicals, paints, oils and other hazardous items which cannot be placed in the kerbside bins. Many of the chemicals collected are recycled. The Community Recycling Centres (CRCs) located at the Cooma and Jindabyne landfills also accept problem wastes such as paint, gas bottles and oil free of charge.

1.4.2 Waste Facilities

SMRC maintains a range of waste facilities that include:

- Landfills;
- Transfer stations;
- CRCs;
- SCRAPMART tip shops; and
- “Coompost” composting facility.

SMRC’s waste facilities accept a wide range of wastes, including MSW, commercial and industrial (C&I), construction and demolition (C&D), domestic and commercial recyclables, e-waste, green waste, hazardous waste (e.g. engine oils and car batteries) ‘special’ waste (e.g. biosolids and contaminated soils) and ‘other’ wastes (e.g. mattresses and tyres). A summary of the acceptable and non-acceptable waste materials for SMRC’s transfer stations can be found in Appendix B.

Council do not own or operate any other MRFs in the region. Comingled material is sent to the ACT for processing at a considerable cost to Council. This strategy will explore options to reduce the costs associated with comingled material while maintaining or enhancing existing resource recovery rates.

1.4.2.1 Landfills and Transfer Stations

SMRC maintains a network of landfills and transfer stations across the LGA, including three operating landfills and six transfer stations (see Figure 4).

All residents, including rural residents outside the kerbside collection service area, have access to these facilities for self-haul domestic waste disposal. In 2020, these sites were charging $7 - $14 per bin for general

waste, $3 - $6 per bin for comingled recycling and $75 per tonne for green waste. Cooma and Jindabyne landfills charge by weight, whereas Bombala landfill and all transfer stations typically charge by volume. Variable charges have been set for residents, non-residents and commercial users at transfer stations and similar fees apply at landfill sites.

Domestic general waste, recyclables and green waste, which includes paper, cardboard, plastic and glass containers, aluminium and steel cans, waste oil and scrap metal, are accepted at all landfills and transfer stations. All facilities accept commercial waste; however, transfer stations do not accept large commercial loads.

All landfills accept e-waste: domestic e-waste is free of charge as part of the e-waste stewardship program while commercial e-waste is not free of charge. Accepted e-waste includes televisions, monitors, mobile phones, tablets, printers and computers. Asbestos can only be accepted at Cooma and Jindabyne landfills.

Currently each facility varies in its operating hours, see Table 6, and uncertainty about opening hours was cited in the 2020 community survey as one of the reasons these facilities are not utilised as effectively as they might be.

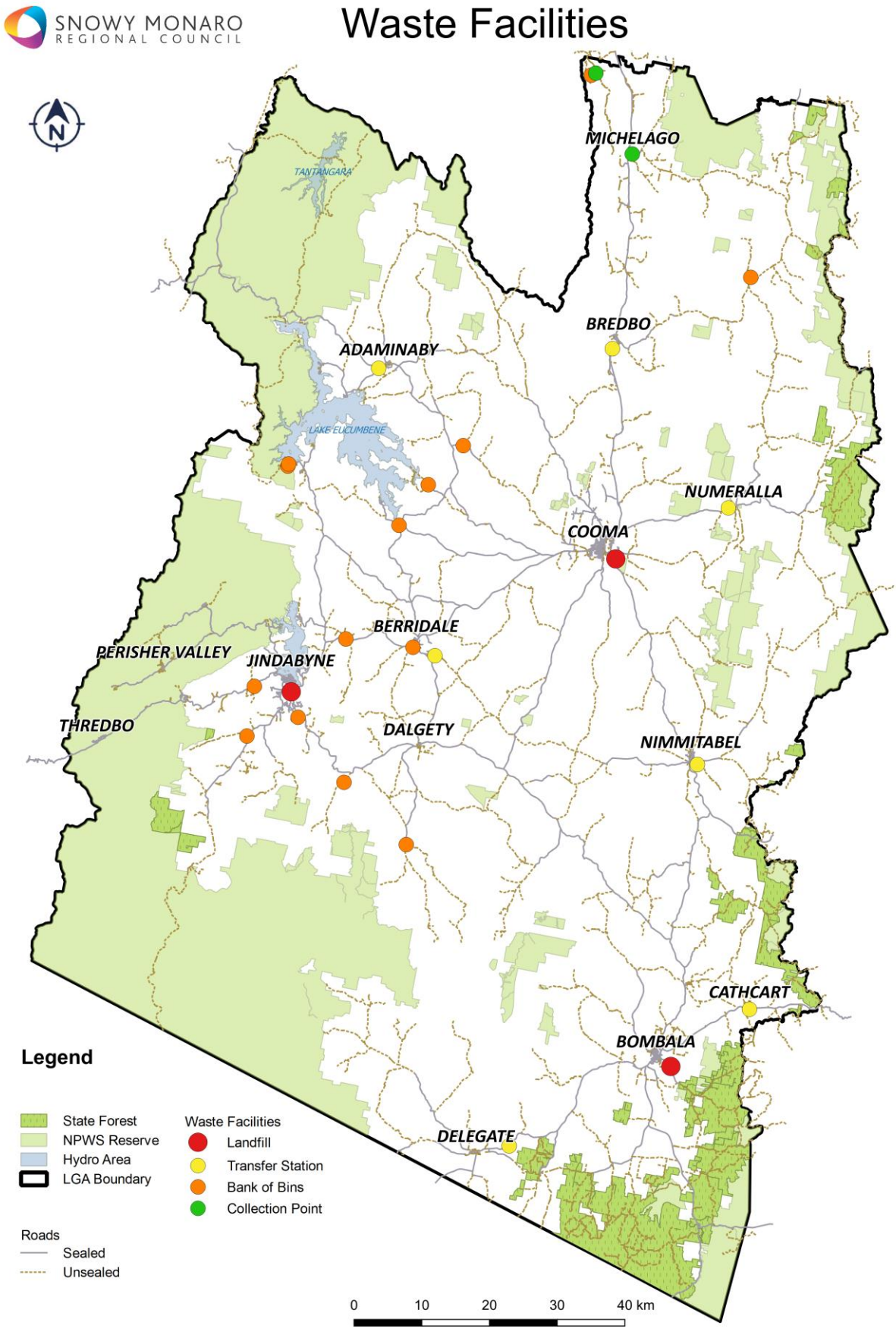


Figure 6 Waste facilities in SMRC (source: SMRC)

Table 6 SMRC transfer stations and landfills

Facility	Type of facility	Opening Hours	Projected remaining capacity
Adaminaby Transfer Station	Transfer Station (legacy landfill)	Sat 10am-3pm	Not applicable
Berridale Transfer Station	Transfer Station (legacy landfill)	Sun 10am-3pm	Not applicable
Bombala Landfill	Landfill	Fri-Mon 10am-4pm	30 – 37 years[9]
Bredbo Transfer Station	Transfer Station (legacy landfill)	Fri 10am-12pm Sun 10am-1pm	Not applicable
Clear Range (Smiths road)	Collection Point	Sat 8am-11am	Not applicable
Cooma Landfill	Landfill	Mon-Fri 9:30-4:30pm Sat 1pm-5pm Sun 11am-5pm	30 years[10]
Delegate Transfer Station	Transfer Station (legacy landfill)	Tue 9am-12pm Sat 9am-12:30pm	Not applicable
Jindabyne Landfill	Landfill	Mon-Fri 9:30-4:30pm Sat-Sun 10am-3pm	3 years*[11]
Nimmitabel	Transfer Station (legacy landfill)	Wed 9am-12pm Sun 11am-3pm	Not applicable
Numeralla	Transfer Station (legacy landfill)	Mon 8-10am Sat 9am-1pm	Not applicable

**Does not include capacity gained with quarry area expansion (32-53 years).*

1.4.2.2 Community Recycling Centres

The CRCs are situated at the Cooma and Jindabyne Landfills and are open for all NSW residents 7 days a week. Problem household wastes such as paint, gas bottles and oils can be dropped off free of charge.

1.4.2.3 ScrapMart Tip Shop

Two of Council's landfills, Cooma and Jindabyne, operate ScrapMart to sell reusable, second-hand products to the community. ScrapMart was opened in an effort to simultaneously reduce tipping fees for residents and reduce the amount of material being sent to landfill. The shop is owned and operated by Council staff who prepare items such as books, furniture, toys, outdoor goods, tools and electronics for sale.

[9] Based on estimates of the Bombala Landfill, by Tonkin.
[10] Regional Waste Strategy 2018-2023 (2017) Canberra Region Joint Organisation.
[11] Jindabyne Regional Waste Management Facility Options Assessment Report (2018) GHD.

1.5 Service Compliance

SMRC has had no compliance issues with the EPA.

1.5.1 Landfills

SMRC holds Environment Protection Licenses (EPL) for two of its three operational landfills at Jindabyne and Cooma as they receive more than 12,000 tonnes per annum, the threshold for requiring an EPL under the POEO Act (see Table 7).

Table 7 SMRC NSW EPA Environment Protection Licences

EPL number	Premises	Address	Issue Date
6194	Cooma Landfill	8448 Monaro Highway, COOMA, NSW 2630	16 Feb 2001
20060	Jindabyne Regional Waste Management Facility	6013 Kosciuszko Road, JINDABYNE, NSW 2627	01 May 2013

During 2019-2020:

- Jindabyne received 15,248 tonnes of waste;
- Cooma received 21,406 tonnes of waste; and
- Bombala received 1,297 tonnes of waste.

Note: waste received includes waste disposed to landfill and waste recycled/recovered.

Jindabyne and Cooma are licensed to accept asbestos material and other 'special' wastes such a ski's, ski boots and snowboards.

1.5.2 Transfer Stations

Transfer stations within SMRC are not required to hold EPLs as they receive less than 12,000 tonnes per annum. The average tonnes of waste received by Snowy Monaro transfer stations for 2018-19 and 2019-20 are presented in Table 8.

Table 8 Waste received at transfer stations (average of 2018-19 and 2019-20)

Facility	Mixed waste received (tonnes/yr)	Commingled recycling received (tonnes/yr)	Other waste received (tonnes/yr)	Total waste received (tonnes/yr)
Bredbo Transfer Station	43	15	74	132
Adaminaby Transfer Station	17	9	83	110
Numeralla Transfer Station	26	18	51	95
Berridale Transfer Station	17	11	105	132

Facility	Mixed waste received (tonnes/yr)	Commingled recycling received (tonnes/yr)	Other waste received (tonnes/yr)	Total waste received (tonnes/yr)
Nimmitabel Transfer Station	40	17	65	122
Delegate Transfer Station	10	4	52	65

1.5.3 Landfill Legacy Sites

SMRC has developed a landfill Legacy Sites Project Report to identify decommissioned landfill sites, determine the current level of remediation and evaluate the risk to the Council, community and environment. The report identified fourteen sites, with the possibility of five additional sites, and determined the site's risk and the approximate cost of rehabilitation. Total rehabilitation costs have been conservatively estimated at up to $30 million.

Council is in discussion with the NSW EPA about site specific remediation plans.

1.6 Waste and Resource Recovery Collection, Processing and Disposal Contracts

SMRC have a number of contracts for waste collection and resource recovery. These contracts have been summarised in Table 9 and Table 10.

Table 9 SMRC resource recovery contracts

Material	Recycling Contractor	Contract Expiry
Paper & cardboard, comingled recyclables	Re.Group ACT	Via contract with Remondis who freights the material to the Re.Group MRF in the ACT
Batteries	Dynamic Recycling	N/A
Cooking oil	Waste Away	N/A
Motor oil	Southern Oils	N/A

Table 10 SMRC waste service contracts

Service	Contractor	Contract Expiry
Kerbside collection - Bombala	Remondis	30/06/2022
Waste and Recycling Transportation Service	Remondis	30/06/2022

1.7 Waste Costs and Financial Performance

1.7.1 Domestic Kerbside Collection Service

A summary of the cost of the domestic kerbside collection service for SMRC is provided in Table 11. Figures are the average for 2018-19 and 2019-20.

Table 11 SMRC domestic kerbside collection service financial performance (2018-19 and 2019-20 averages)

Collection Service	Waste collected (tonnes/yr)	Households serviced (hh)	Total Cost ($/yr)	Cost per tonne ($/t)	Cost per hh ($)
General waste	3,315	7,861	$765,143	$232	$98
Recycling	1,401	7,472	$452,063	$324	$61
Organics	414	2,736	$107,312	$257	$39

1.7.2 Waste Facilities Financial Performance

SMRC's waste and recycling infrastructure's operations are subsidized by the Council (rate payers). MRA's analysis suggests that transfer station and landfill operations are 4 to 5 times higher (on average) than the revenue collected via gate fees. Table 12 summarises the visitors to each site including the costs to SMRC per visit. Table 13 and

Table 14 summarise Council's expenditure across these areas, averaged across 2018-19 and 2019-20.

Waste facility operations need to consider the increasing costs for future landfill remediation and potential costs associated with any contingent liability in reference to environmental legislative requirements. SMRC conservatively estimated rehabilitation costs for sites at up to $30 million.

While gate fees could be increased to a fully user-pays model this may be perceived as unfair by those using higher cost transfer stations and facilities. Furthermore, such an action may lead to greater incidence of illegal dumping (see Section 1.8.3) or other misuse of the waste system such as the contamination of kerbside bins with hazardous waste.

Table 12 SMRC transfer station visitor numbers and cost to SMRC per visit

Transfer Station	Expenses ($/yr)	Visitors per year	Annual Visits per catchment area	Annual Visits per self haul customer	Cost to Council per visit ($/visit)	Cost to Council per person in catchment area ($/pp)	Expense to Council per self haul customer ($/pp)
Bredbo	$61,937	849	0.94	1.16	$73	$69	$84
Numeralla	$52,977	1102	1.78	1.79	$48	$85	$86
Nimmitabel	$67,257	1214	2.36	3.25	$55	$131	$180
Adaminaby	$49,802	540	0.62	1.14	$92	$57	$106
Delegate	$28,765	434	1.12	1.91	$66	$74	$ 127

Table 13 SMRC transfer station financial performance (2018-19 and 2019-20 averages)

Transfer Station	Waste received (tonnes/yr)	Revenue ($/yr)	Expenses ($/yr)	Expense per tonne ($/t)	Profit/loss($/yr)	Profit/loss per tonne ($/t)
Adaminaby	110	$9,102	$49,802	$453	**-$40,700**	**-$370**
Berridale	132	$11,816	$45,453	$344	**-$33,638**	**-$255**
Bredbo	132	$6,179	$61,937	$470	**-$55,758**	**-$423**
Delegate	65	$8,794	$28,765	$445	**-$19,971**	**-$309**
Nimmitabel	122	$7,620	$67,257	$553	**-$59,637**	**-$490**
Numeralla	95	$8,016	$52,977	$556	**-$44,961**	**-$472**

Table 14 SMRC landfill financial performance (2018-19 and 2019-20 averages)

Landfill	Waste received (tonnes/yr)	Revenue ($/yr)	Expenses ($/yr)	Expenses per tonne ($/t)	Profit/loss ($/yr)	Profit/loss per tonne ($/t)
Bombala	1,297	$103,128	$306,854	$237	**-$203,725**	**-$157**
Cooma	21,406	$1,636,817	$1,226,004	$57	**$410,812**	**$19**
Jindabyne	15,248	$1,365,822	$993,525	$65	**$372,297**	**$24**

1.8 Programs, Initiatives and Community Expectations

1.8.1 Education Programs

Resource and Waste Education Sessions

A Waste Education Officer is provided by Council to run workshops which aim to improve awareness and engagement on waste diversion and sustainability. The sessions include a range of informative and fun activities and are free for school or community groups. The topics they engage with include:

- Recycling Right;
- The 5Rs – Refuse, Reduce, Reuse, Recycle, Rot;
- Beyond the Bin; and
- Composting and Sustainable Living.

Pre-school Education

The Resource and Waste Department of SMRC is a grassroots level program encouraging sustainable living. It focuses on helping pre-schoolers learn and explore topics of waste and recycling. Council also offers help to pre-schools and day-cares in accessing equipment and education on sustainable gardens and worm farm, composting, etc. The education program includes activities such as:

- Reading books such as “Worms the Mechanics of Organics” or “Beyond the Bin”;
- Sing and Learn education related songs;
- Home Composting and Sustainable Living education;

- Sorting waste and relay games;
- Colouring in and puzzle activities; and
- Worm handling.

Bournda Environmental Education Centre

The CRJO runs a Waste Education Program for all member councils though the Bournda Environmental Education Centre (BEEC). The programs are focused on diverting waste sent to landfill by schools and their communities. The program includes:

- Forming a school project team;
- Conducting a waste audit with support from the BEEC and Council;
- Visiting any relevant local resource and waste facility;
- Planning a project to divert waste from landfill;
- Record waste data before and after the project is conducted; and
- Presenting the project to the school community.

EnviroMentors Program

This mobile incursion-based environmental program is provided by Keep NSW Beautiful and runs across the state. It provides a range of educational services to boost community engagement with the environment and sustainability issues. It includes:

- School, community or corporate workshops;
- Litter and waste audits; and
- Community displays and educational material.

Waste-Free School Programs

These programs are supported by Council and aim at increasing waste avoidance through the adoption of initiatives. Some of these initiatives include:

- Bottle for Botol;
- Plastic Free July;
- Nude Food Day;
- Boomerang Bags;
- Plastic Pollution Solutions; and
- Stephanie Alexander Kitchen Garden Foundation.

1.8.2 Regional Waste Projects

- *Garage Sale Trail* provides residents, community groups and other organisations an opportunity to buy, sell and reuse second hand domestic goods. Council endorsed this program to promote the upcycle, trade and reuse of items normally sent to landfill or disposed of through designated drop-off points. In 2019, SMRC received the 'Choose to Reuse Award' for their commitment and enthusiasm in the national reuse scheme. In 2018, over 50 households and organisations took park in the program. Out of 150 councils nation-wide, SMRC was one of only 14 councils to receive the award.

- *Household Chemical Collection* – SMRC in partnership with CRJO provides an annual drop off service for hazardous chemicals to help promote the collection, treatment and safe disposal of household chemical waste.
- *Recycle Right* is a community education program that provides information to residents on the types of material accepted in the comingled recycling service. It features a serious of short videos that outlines the type of materials accepted and common mistakes such as recycling flexible and/or soft plastic material, small items and soiled material. SMRC is one of the few regional Councils who employ a Waste Education Officer, or similar, responsible for community engagement and education.

1.8.3 Illegal Dumping

Since 2018, SMRC has significantly improved the documentation of illegal dumping in the region's jurisdiction. Council have anecdotal evidence that suggest illegally dumped soil has been a significant issue in the past. Data collected by Council using the EPA's voluntary RID database between 2016 and 2019 indicates that household waste (59%), tyres (12%) and asbestos (10%) are the most common types of waste dumped illegally. Despite being the third most common, asbestos contributes 91% of the total weight of illegally dumped material (1,202 tonnes). The clean-up cost of illegal dumping cost Council over $6,000 in 2019.

Council have noticed illegal dumping spikes following increases in landfill fees and understand that disposals costs are one of the main drivers for dumping. Hence, the cost of clean-up, enforcement and education needs to be considered in the balance between user-pays gate fees at facilities versus subsidizing these facilities through charges in the general rates.

Although the Council website has information on the impacts and cost of illegal dumping and contact numbers for reporting illegal dumping, Council has not implemented education or community engagement campaigns to reduce illegal dumping, such as dob-in-a-dumper.

1.8.4 Community Expectations

SMRC conducted an extensive consultation process to ensure the Strategy is representative of community stakeholders and to build a joint understanding of Council's current challenges, alternatives and solutions. A combination of staff interviews, community survey and multi-day workshops have been conducted to shape Council's future direction for waste management and resource recovery.

1.8.4.1 Staff Interviews

Between December 2019 and April 2020, MRA interviewed Council staff involved in previous and current work within SMRC waste operations. The purpose of this consultation process was to develop an understanding of key issues for the Council and the directions and approach that MRA should take when drafting the new waste strategy. A total of 13 staff were interviewed, eight managerial and five operational staff, and responses were arranged by topic and are presented in Appendix C and the key issues raised summarised below in Table 15.

Table 15 Key issues for consideration in the Waste Strategy

Topic	Comments
Strategy	• Integrate the region's waste services to achieve consistent services and fees.
Operating facilities	• Jindabyne landfill expansion required in the short term, Cooma landfill expansion and upgrades required in the medium term; • Transfer station upgrades required to support recycling of C&D waste, easier access for the community and commercial users; • Installing a new data system would greatly improve SMRC's data collection and enable better oversight and management; • Bombala landfill costs a lot to run. May be better value as a transfer station.
Legacy landfill sites	• Keeping suitable sites for emergencies avoids costs of capping and reduces the cost and time to respond to emergencies and ensuing clean ups.
FOGO	• There is local demand for compost product; • FOGO service expansion should service properties with current 2-bin service and should be rolled out in stages.
Kerbside Service	• Lack of robust data about recycling performance but suspect recycling is falling; • Preference for in-house service to standardise and internalise service.
Bank of bins	• Change to lockable waste transfer trailer that can be moved using a light truck.
Freight cost for recycling	• The cost to freight recycling to ACT is much higher than the cost of landfilling; • Possible for new contractor to have a local glass crushing plant.
Bulky waste	• There is a demand for the service within the community.

1.8.4.2 Community Survey

SMRC conducted an online survey between 20 February 2020 to 20 March 2020 to engage residents and receive feedback for the Public Consultation Waste Strategy. The survey was promoted primarily via Council's Facebook page, website and local newspaper. 251 residents participated in the survey and provided answers to questions regarding use of available services, barriers to existing services, sources of information, issues of problem waste and illegal dumping as well as providing general feedback about the Council's waste systems. The results of the survey are summarised as follows:

- The Waste and Recycling Transfer Station and the Tip Shop are the most utilised waste facilities;
- Most available facilities were considered to be underutilised due to Council fees and charges, difficulty getting to the recycling facilities (e.g. no trailer to transport waste, too far to travel, opening hours not long enough) and inadequate information about what can be disposed of;
- Most people refer to the sticker affixed to the recycling bin for information regarding what to recycle;
- Only half of residents believe waste from the yellow-lidded bin gets recycled;
- Approximately half of respondents don't want to pay more to improve recycling at landfill;
- 10% of respondents are prepared to pay more if it actually gets recycled;
- 73% of respondents would use a FOGO collection service to dispose of food waste. 74% would use FOGO to dispose of garden waste;

- Over half of respondents believe illegal dumping is a problem and that people illegally dump because there is not enough access to bulky waste disposal;
- Respondents reported bulky/problem waste and green waste to be the hardest to dispose of;
- Feedback commonly requested green waste and bulky waste kerbside services;
- Education about what can be recycled and services available would increase recycling and benefit residents; and
- Facebook and letterbox/mail reported as best communication methods.

1.9 Waste Generation and Resource Recovery Performance

1.9.1 2018 Household Kerbside Bin Audit

SMRC engaged EC Sustainable Pty Ltd (EC Sustainable) to conduct a household kerbside waste audit for general waste, recycling and organic waste streams[12]. The audit was conducted in November 2018 and included 230 households across all three former LGA regions of SMRC: Bombala, Cooma-Monaro and Snowy River. The key findings from the audit include:

- 42.3% of waste is diverted from landfill, with the 3-bin area diverting more (56%) compared to the 2-bin area (29.5%);
- 52.9% is the potential diversion rate if all recyclable and organic material in general waste were recovered, with the 2-bin area at 34.5% and the 3-bin area at 72.7%;
- The resource recovery rate across both service areas was 77.5% for recyclables and 45.1% for organic material; and
- Households generate an average of 12.7 eligible CDS containers per week amounting to $453,000 per year in all bin streams, with $370,000 in the recycling bins.

The key recommendations from the audit include:

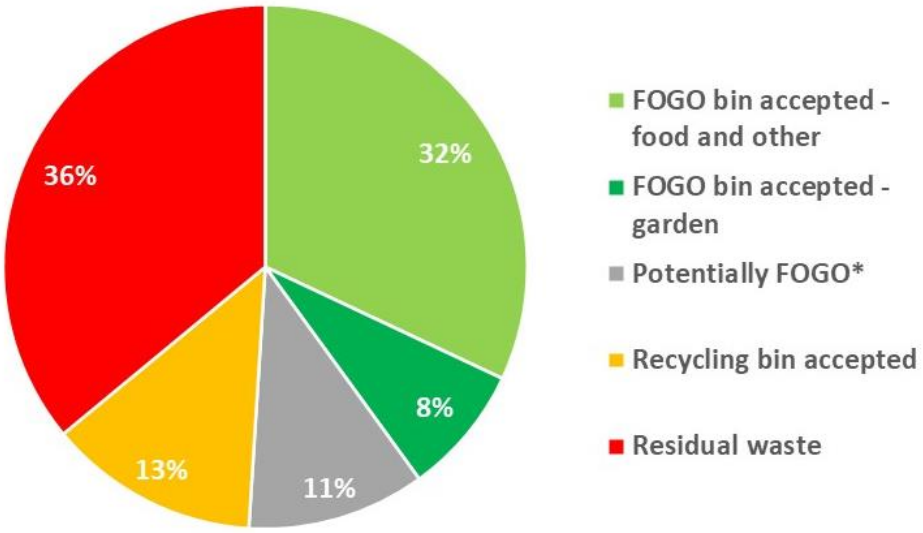
- Consider further initiatives to recover more recyclables and reduce contamination rates such as targeted education, community consultation survey to determine reasons for contamination and bin inspections to provide feedback to residents;
- Investigate option of 3-bin service in more areas to achieve higher resource recovery;
- Consider further initiatives to recover CDS containers;
- Conduct waste avoidance initiatives; and
- Conduct audits annually and seasonally to build up trend data.

1.9.1.1 General Waste

The audit found that households generate an average of 9.3kg of general waste per week. The composition of the general waste stream based on waste stream suitability is presented in Figure 5 and includes:

- 40% FOGO bin acceptable organic material (32% food and 8% garden organics);
- 11% potentially compostable material;
- 13% recycling bin acceptable material; and
- 36% residual waste.

[12] Household Kerbside Bin System Audit 2018 (2019) EC Sustainable.



*Includes other material that may be accepted in a FOGO service including contaminated soiled paper, other putrescible and wood/timber waste.

Figure 7 Kerbside general waste composition based on waste stream suitability (by weight)

1.9.1.2 Recycling

The audit found that households generate an average of 4.8kg of recycling waste per week with a contamination rate of 13%. Contaminated materials consisted of containerised food and liquid, textile/rags, plastic film and plastic bags. Composition of the recycling waste stream based on waste stream suitability is presented in Figure 6.

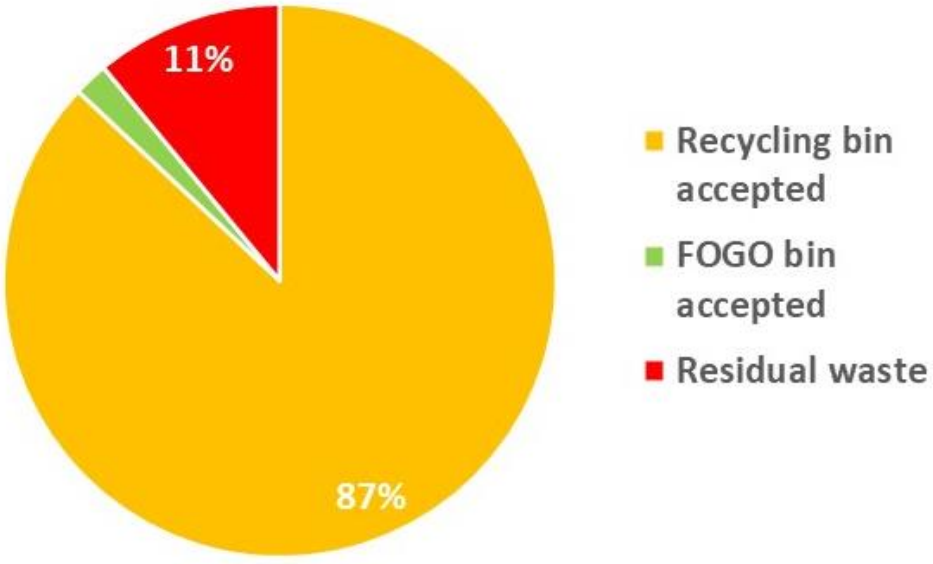


Figure 8 Kerbside recycling composition based on waste stream suitability (by weight)

1.9.1.3 Food and Garden Organics (FOGO)

The audit found that the average household produced 3.2kg of organic waste per week with a contamination rate of 3%. Contaminated materials consisted of ceramics/dust/dirt and treated wood/timber. Compositionally, 91% was garden waste and 6% was food waste, see Figure 7.

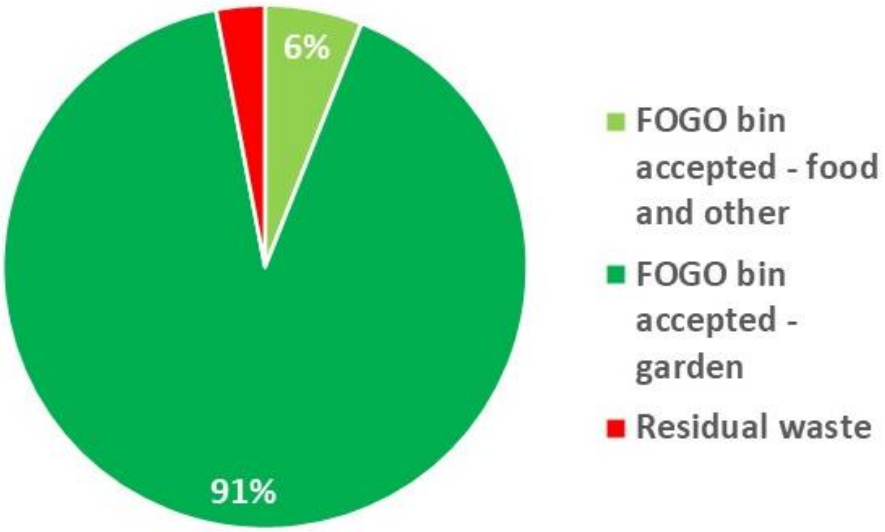


Figure 9 Kerbside FOGO composition based on waste stream suitability (by weight)

Detailed composition charts for each waste stream can be found in Appendix D.

1.9.1.4 CDS Eligible Containers

The audit analysed the weight of CDS material disposed of through kerbside collections and their composition in each waste stream. It found there was a total of 12.7 eligible CDS container in all bin streams being disposed of per household per week, weighing 1.1kg (refer to Table 16). By count, 81.7% (or 88.3% by weight) of these eligible containers were in the recycling stream.

With an assumption that the audit reflects a 100% bin presentation rate, it was approximated that $453,000 worth of eligible CDS containers per year were disposed of in kerbside recycling. Of this, $370,000 was in the recycling stream.

Table 16 CDS material disposed through comingled recycling and general waste collections

Stream	Beverage containers in the waste stream (kg/hh/wk)	Weight of those beverage containers which were CDS eligible	Weight of CDS eligible containers (kg/hh/wk)
Comingled recycling	1.63	58.6%	0.956
Residual waste	0.18	71.1%	0.127
Total	**1.81**	**-**	**1.083**

1.9.2 Comparison with Other Regions

1.9.2.1 Waste Generation

SMRC's waste generation and recycling performance can be compared with other regions for 2016-17 as reported in the CRJO Waste Strategy 2018-2023[13]. Figure 8 reveals that SMRC households generate less general waste than the average for CRJO members, NSW and the ACT. Similarly, SMRC households generate

[13] Regional Waste Strategy 2018-2023 (2017) Canberra Region Joint Organisation.

less recycling waste than the average for CRJO members, NSW and the ACT (Figure 9). SMRC households generate the same quantity of organic waste as the average for CRJO members (Figure 10).

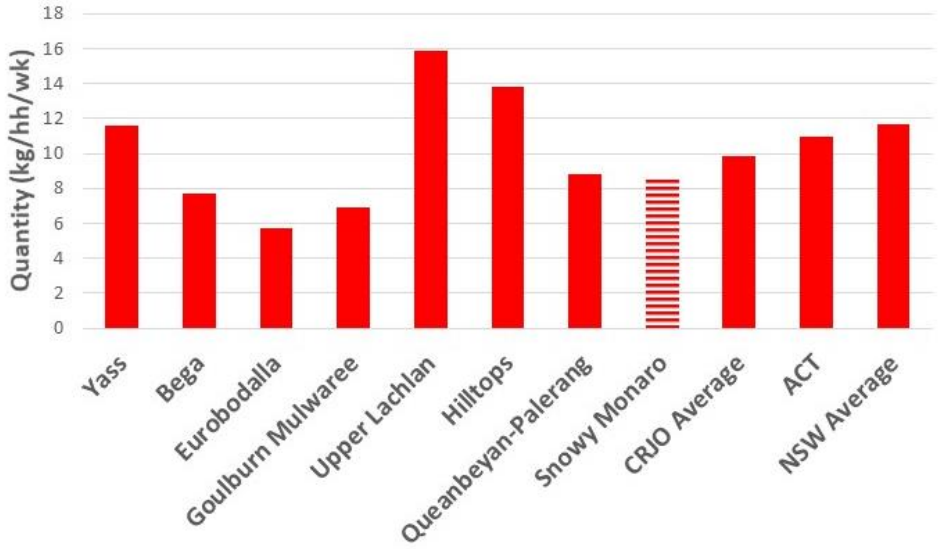


Figure 10 Comparison of household general waste generation with CRJO members, ACT and NSW 2016-17

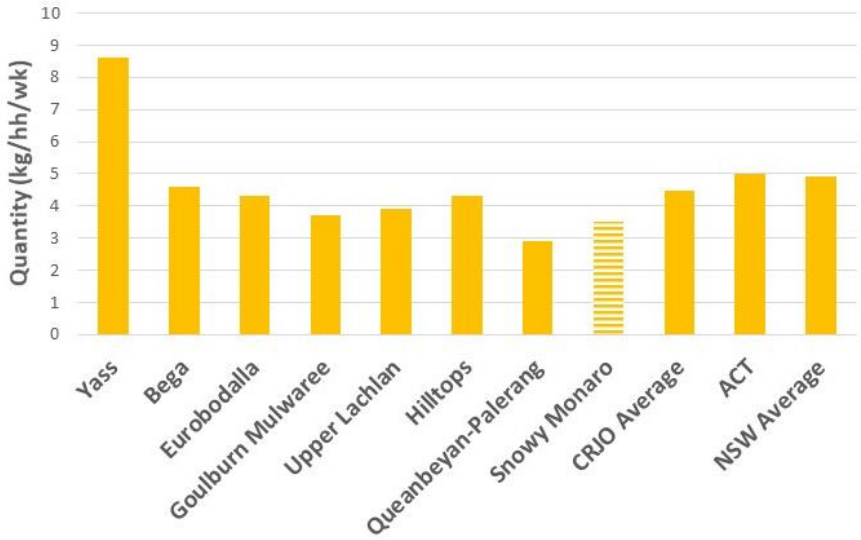


Figure 11 Comparison of household recycling waste generation with CRJO members, ACT and NSW 2016-17

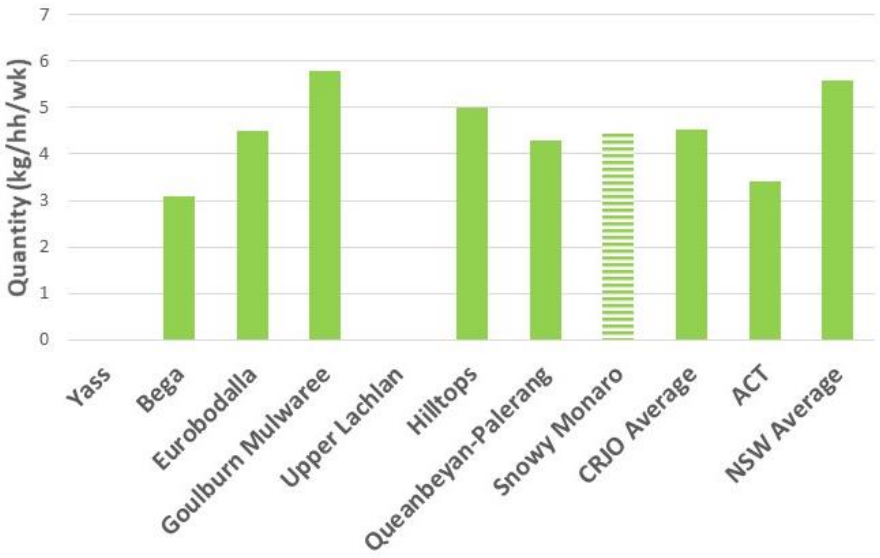


Figure 12 Comparison of household organic waste generation with CRJO members, ACT and NSW 2016-17

1.9.2.2 Recycling Performance

In 2016-17, SMRC reported the second lowest recycling rate (34%), compared to an average recycling rate of 41% for CRJO members and 45% for NSW. This rate is well below the NSW target of 70% (Figure 11).

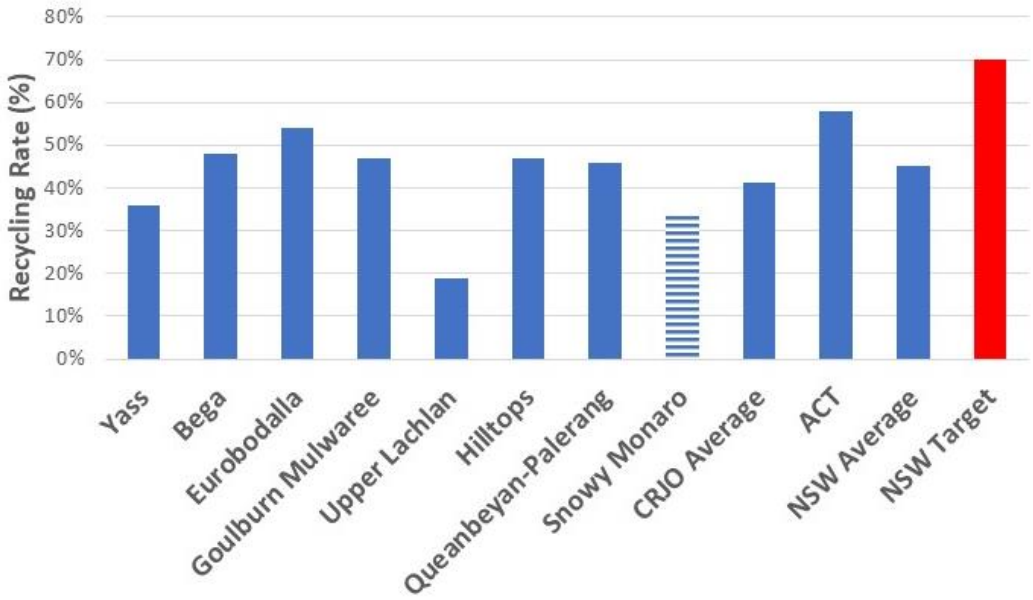


Figure 13 Comparison of recycling rates with CRJO members, ACT and NSW 2016-17

2 Where We Want to Go

2.1 Gap Analysis

2.1.1 Current Waste and Recycling Performance

SMRC aims to achieve the targets set out in the NSW WARR Strategy for waste diverted from landfill and recycling. Figure 12 displays the current waste diversion rates of 30% and 56% for 2-bin and 3-bin areas respectively in SMRC together with the NSW target of 75%. The gap between the SMRC rate and the NSW target can be reduced with a 3-bin service and increased resource recovery. A recycling rate of 35% was reported for SMRC in 2020 compared to the NSW target of 70%. Separate recycling rate data for 2-bin and 3-bin areas was not available.

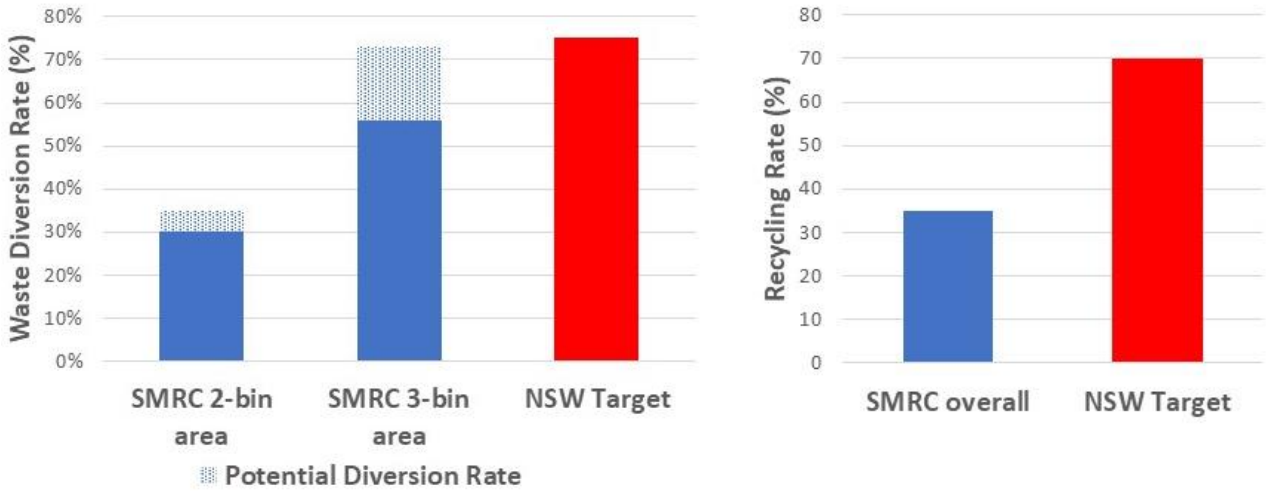


Figure 14 Waste diversion and recycling rates for SMRC compared to NSW targets

2.1.2 Future Population and Waste Generation

The population of SMRC is estimated to increase to 21,885 by 2036 according to forecasts based on ABS data[14], see Figure 13. This gradual increase may occur as residents in the Canberra region settle in townships such as Jindabyne, Berridale and Michelago. These areas will see an increase in development.

A Special Activation Precinct (SAP) has been announced for the Snowy Mountains region. Through the SAP, a new Master Plan for the Snowy Mountains will be formed which will focus on increasing year-round tourism for the local economy, growing employment opportunities, and investing in the region's infrastructure to accommodate an increase in both permanent residents as well as temporary visitors and workers. Therefore the SMRC population may increase significantly beyond the ABS projections particularly during peak tourist season.

[14] https://housing.id.com.au/snowy-monaro/population-households

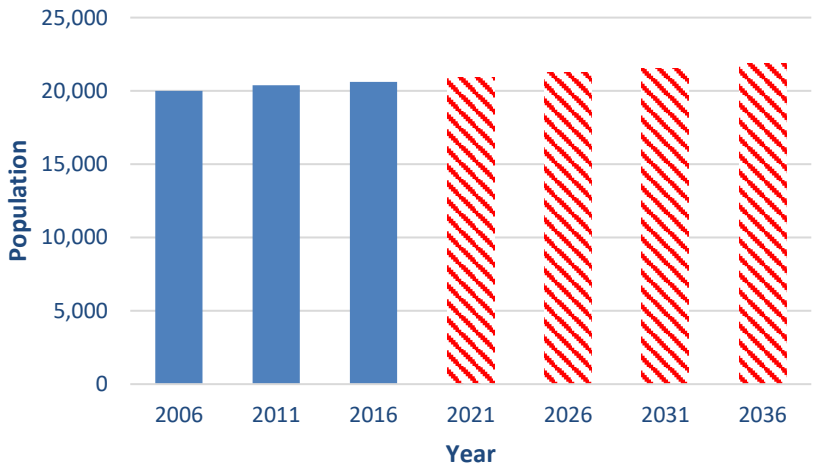


Figure 15 SMRC projected population – 2006-2036

Source data: id.community Demographic Resources Population Estimations from ABS Census data

Based on historic waste generation data from WARR surveys and the ABS population projection forecast, SMRC is projected to generate close to 24,000 tonnes of domestic waste by 2036 (Figure 14).

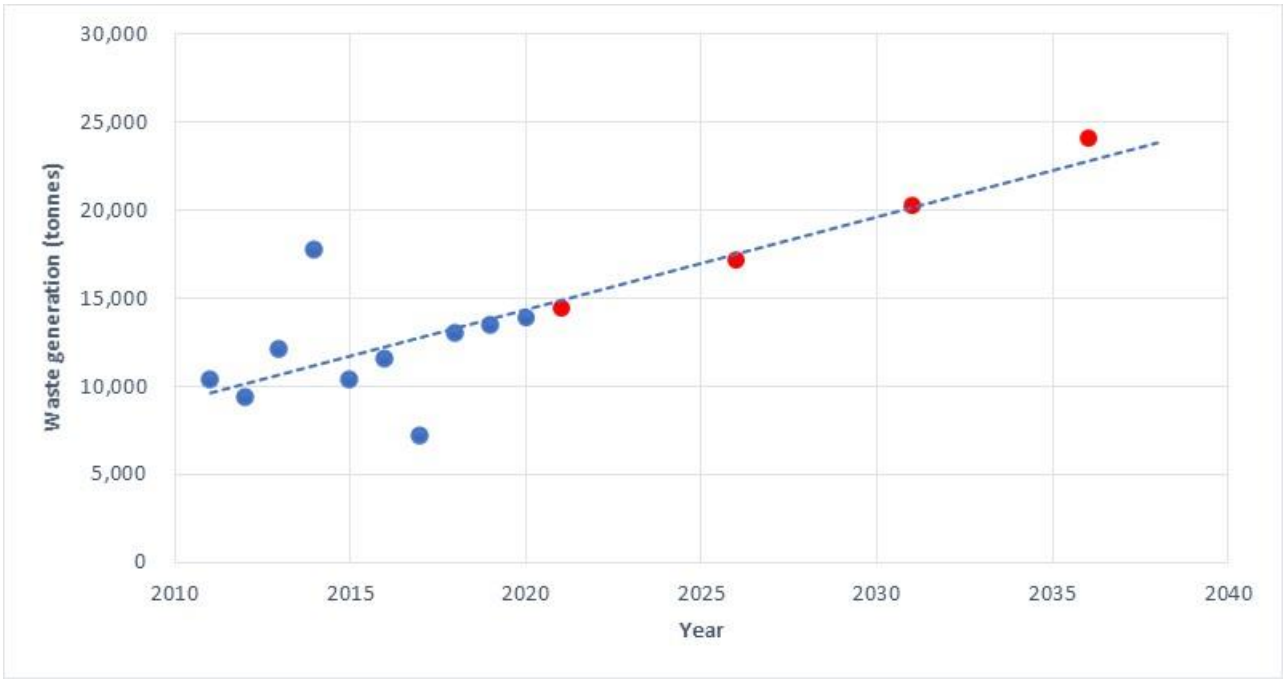


Figure 16 Projected domestic waste generation of SMRC

The upwards trend in waste generation per person from the annual WARR surveys was extrapolated using the calculated compound annual growth rate and multiplied by the estimated population. This produced the total increase in domestic waste generation over the region seen in Figure 16. It should be noted that waste generation for 2014 and 2017 have been excluded in the trend calculations due to inaccurate data reporting.

The increase in both population and waste generation rates will be a challenge for Council as it strives to provide adequate waste management services in the future.

2.1.3 Rationalisation of Transfer Stations Report

In November 2020, MRA was engaged by SMRC to review the financial and social viability of Council's six waste transfer stations and explore alternative options to reduce costs to council. A cost-benefit analysis was performed to compare the current financial performance (business as usual (BAU)) against the option to

establish BoB sites to service self-haul residents within each transfer station catchment area. Service rates of 100% and 75% of self-haul households were considered and CAPEX, OPEX and net profit for each scenario can be found in Appendix E.

Table 17 provides a traffic light summary of the comparative analysis across the transfer stations for the service catchment, and cost-benefit results. For the service catchment analysis, a sliding scale is used to rank the most preferred (green light) against the least preferred (red light) outcomes.

The cost-benefit analysis shows that there would be a financial benefit to SMRC in establishing BoB services compared with running the transfer stations for each of the six transfer station facilities analysed. This is reflected in the traffic light summary but it should be noted that the financial benefit for Delegate is significantly smaller than the other transfer station options.

Table 17 Traffic light analysis for transfer stations - summary of results

	Adaminaby	Berridale	Bredbo	Delegate	Nimmitabel	Numeralla
Service Catchment Analysis						
Average time to 2nd facility for disposal of green, bulky and problem wastes (mean)	🔴	🟢	🔴	🟢	🟠	🟠
Households travelling 60mins+ to 2nd facility (#hh)	🔴	🟢	🔴	🟢	🟢	🟢
Cumulative change in travel time[15]	🔴	🔴	🔴	🟢	🟠	🟠
Cost-benefit Analysis						
Net Revenue	🟢	🟢	🟢	🟠	🟢	🟢
Comparison to BAU	🟢	🟢	🟢	🟠	🟢	🟢
Benefit per current self-haul household	🟢	🟢	🟢	🟠	🟢	🟢

The following recommendations from the study have been incorporated into the Waste Strategy:

- Establish transition plans to convert transfer stations to BoB services, ensuring BoB services are fully operational prior to the closure of any transfer stations;
- Council may structure the BoB services as an opt-in service;

[15] Cumulative change in travel time is the difference between the average time to the 2nd facility and the average time to existing transfer station for self-haul households multiplied by the number of self-haul households.

- Review bulky waste management options for the transfer station household catchments to reduce illegal dumping; and
- Phase the conversion of transfer stations to BoB services, commencing with transfer station closures that provide the greatest benefit to SMRC and those that result in the least impact to residents.

2.1.4 Financial Options

There are several options available to Council for managing waste operations at all smaller rural transfer stations.

Option 1 is to continue to operate transfer stations with business as usual (BAU) which will not see a reduction in costs. For example the total cost to operate Numeralla is approximately $44,961 per annum.

Option 2 is to establish transition plans to convert transfer stations to BoB services, ensuring BoBs services are fully operational prior to the closure of any transfer station. The current BoB costs are $250 per year (2020/21). Savings from establishing the BoB service is shown in Table 30.

Option 3 (recommended) is to establish transition plans to convert transfer stations to BoB services, ensuring BoBs services are fully operational prior to the closure of any transfer station and to offer two cleanout days per year at the former transfer station for bulky items.

Option 4 is to increase the costs across each item delivered to the transfer stations. For example to continue to operate the Numeralla transfer station (BAU) with a loss of $44,961 per annum would require an estimated minimum cost increase of $24 per item category. A 240L residential garbage bin would need to increase from $14/bin to $38/bin. This would offset the recover the costs from the transfer stations.

For example if a 240L bin was delivered once month to Numeralla the annual cost would be in excess of $450. This is compared to a current bank of bins cost (2020/21) of $250/year.

Option 5 for example is to distribute the loss from the transfer stations over all rateable properties within a catchment area. For example Numeralla Transfer Station with an operating cost of $44,961 over the rateable properties in Numeralla would be at an estimated additional $73 per household per year. Added onto the current (2020/21) annual waste charge of $124 per bin and delivering a 240L bin once a month to Numeralla the annual cost is estimated to be $365.

High level summary of cost distributions and options for Adaminaby, Bredbo and Numeralla Transfer stations are provided in Appendix F.

Table 18 Options for Adaminaby, Bredbo and Numeralla Transfer Stations

Option	Description	Total (loss/profit)
1	Operate Transfer Stations with business as usual (BAU).	-$-254,665/ per annum
2	Establish transition plans to convert transfer stations to BoB services.	Savings $245,665 $35,465 additional revenue Assuming 75% coverage of residents
3 (recommended)	Establish transition plans to convert transfer stations to BoB services and provide two bulky clean-ups per year at each transfer station.	Savings $245,665 Additional Revenue $23,494 - $29,494 Assuming 75% coverage of residents and bulky collection estimates of $1,000 - $2,000 per year foreach site.
4	Offset costs based on each item delivered to the transfer station.	Cost neutral ($0)
5	Offset costs to the local community though increased costs of rateable properties.	Cost neutral ($0)

2.1.5 Challenges to Overcome

As outlined in previous sections of this report, SMRC faces the following waste management challenges to overcome and address in this strategy:

- Underperformance regarding NSW WARR targets, especially in areas with a 2-bin service;
- Variation of services and facilities between SMRC areas;
- High costs associated with operating waste management facilities and services; and
- Accessibility and utilisation of waste facilities.

2.2 Visions and Themes

To address the challenges faced by SMRC and enable decisions to be made, the strategy process involved developing an overall vision for SMRC's waste management system over the next 10 years. This vision was translated into a set of themes and strategic objectives. Broadly, the themes and objectives will be guided by best practices principles and revolve around a Circular Economy, consolidation and optimisation of operations, reductions in waste generation and increased recovery while delivering a comprehensive, sustainable, efficient and budget conscious waste management service to community. The themes describe the vision (Figure 15) and what it would mean for four key areas of the waste management system:

1. Improve waste management services and facilities;
2. Costs and finances;
3. The environment; and
4. Access and use.

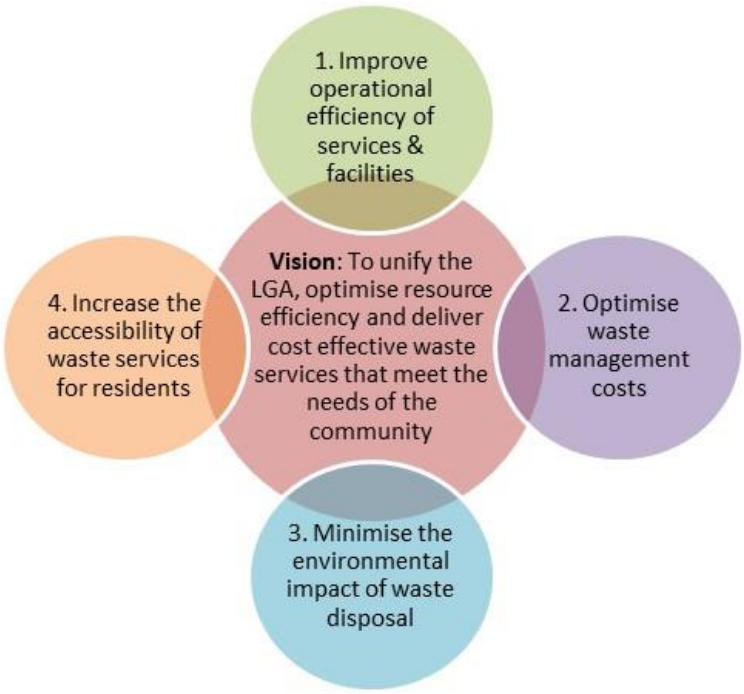


Figure 17 SMRC's waste strategy vision and themes

2.3 Strategic Objectives

Table 19 presents a list of strategic objectives developed to translate each theme into specific measurable goals. The strategic objectives were then used to develop a set of actions and options that Council could undertake over the next ten years to achieve the objectives of this strategy.

Table 19 Waste strategy themes and strategic objectives

Theme 1	**Improve operational efficiency of waste management services and facilities**			
Objectives		Description	Alignment to the Community Strategic Plan Objectives	
1.1	Improve and expand existing waste management services and facilities	Continue to provide waste services for the full range of waste streams from households and businesses while seeking to continuously improve facilities via upgrades to infrastructure, environmental protection, software, staff training and customer service.	8.2	Improve and maintain our publicly owned infrastructure, assets, and facilities to a high standard
1.2	Unify services across LGA	Ensure there is a consistent level of service provided	11.1	Public services and processes are delivered reliably and efficiently in response to community needs

		across the three historic LGAs[16].		
Theme 2	**Optimise waste management costs**			
Objectives		Description	Alignment to the Community Strategic Plan Objectives	
2.1	Increase the cost efficiency of waste facilities and services	Improve the efficiency of spending on waste management services, including reviewing contracts, to generate improved value	11.2	Council utilises sound fiscal management practices, and pursues and attracts other sources of revenue
			7.2	Water, waste, sewer and stormwater management practices are contemporary and efficient
2.2	Optimise use of waste facilities and services	Consolidate and optimise waste facilities and services to maximise value for money to rate payers while achieving SMRC's waste objectives	11.2	Council utilises sound fiscal management practices, and pursues and attracts other sources of revenue
			8.2	Improve and maintain our publicly owned infrastructure, assets, and facilities to a high standard

[16] Note there will still be a least three levels of service – full kerbside service in towns, bank of bins in remote communities, and self-haul for rural properties.

Theme 3	**Minimise the environmental impact associated with waste disposal and meet NSW WARR Strategy targets**			
Objectives		Description	Alignment to the Community Strategic Plan Objectives	
3.1	Improve resource recovery and divert waste from landfill to work towards achieving state and national targets	Undertake actions to improve the LGA's resource recovery performance and divert more waste from landfill	7.2	Water, waste, sewer and stormwater management practices are contemporary and efficient
3.2	Minimise environment impact of waste management and disposal	Undertake actions to minimise environment impact of waste management and disposal	7.1	Protect, value, and enhance the existing natural environment
Theme 4	**Increase the accessibility and utilisation of waste facilities for residents**			
Objectives		Description	Alignment to the Community Strategic Plan Objectives	
4.1	Increase access to waste services and facilities	Undertake actions to increase residents' access to SMRC's waste services and facilities	3.2	Positive social behaviours (including law and order) are fostered and encouraged to maintain our safe, healthy and connected community
4.2	Improve the ease of use of waste facilities and services	Improve the ease of disposing waste or recycling via SMRC's waste facilities and services	3.2	Positive social behaviours (including law and order) are fostered and encouraged to maintain our safe, healthy and connected community

3 How We Will Get There

3.1 Planned Waste and Recycling Infrastructure

At the time of writing this Strategy, SMRC had identified a number of waste and recycling infrastructure projects for the LGA:

- Jindabyne landfill expansion;
- Bombala landfill upgrade to a modern transfer station;
- Cooma landfill compost facility expansion and associated regulatory permitting;
- Cooma landfill surface contour and fill plan;
- Review of transfer station recommendations;
- Expansion of BOBs service; and
- Remediation of legacy landfill sites.

3.2 Options Identification

A plan of action to achieve the strategy's vision, themes and objectives has been developed in consultation with SMRC stakeholders and informed by community surveys. (Note that some actions are listed under more than one objective as they contribute to multiple objectives).

Table 20 Potential actions and options to achieve the strategic objectives

Theme 1	**Improve operational efficiency of waste management services and facilities**	
Objectives		Potential Actions/Options
1.1	Improve and expand existing waste management services and facilities	1. New landfill cell at Jindabyne landfill 2. Upgrade resource recovery areas at Jindabyne and Bombala waste facilities 3. Conduct a review and options analysis for the operation of SMRC landfill facilities 4. Investigate the establishment of emergency landfill sites at suitable legacy landfills 5. Expand compost facility at Cooma Landfill to provide capacity to receive organic waste from across the LGA 6. Upgrade waste collection trucks 7. Improve data collection and analysis to enable system optimisation, e.g. weigh bridge IT integration 8. Expansion of BOB service
1.2	Unify services across LGA	1. Expand FOGO kerbside collection service 2. Optimise and unify kerbside collection services (**option analysis**) 3. Mobile CRC

Theme 2	**Optimise waste management costs**	
Objectives		Potential Actions/Options
2.1	Increase the cost efficiency of waste facilities and services	1. CDS capture from residential comingled recycling and select commercial waste streams (**option analysis**) 2. Local sorting of recyclables (**option analysis**) 3. Council procurement of local recycled content 4. Optimise kerbside collection and waste transport services (**option analysis**) 5. Upgrade Bombala landfill to a modern transfer station (**option analysis**) 6. Utilise grant funding 7. Improve data collection and analysis to enable system optimisation, e.g. Radio Frequency Identification Device (RFID) bin-tagging and weigh bridge IT integration 8. Implement recommendations of the Rationalisation of Transfer Station report, including transition plans for conversion of transfer stations to BOBs at Adaminaby, Berridale, Bredbo, Delegate, Nimmitabel and Numeralla 9. Maintain and expand education campaigns to enhance upstream sorting and optimal use of SMRC waste services 10. Conduct review of waste facilities gate fee structure
2.2	Optimise use of waste facilities	1. Upgrade resource recovery areas at Jindabyne and Bombala waste facilities 2. Improve data collection and analysis to enable system optimisation, e.g. weigh bridge IT integration 3. Expand compost facility at Cooma Landfill to provide capacity to receive organic waste from across the LGA 4. Implement recommendations of the Rationalisation of Transfer Station report, including transfer station closure, implementation of BOBs and half-yearly bulky drop off for residents. 5. Conduct a review and options analysis for the operation of SMRC landfill facilities
Theme 3	**Minimise the environmental impact of waste disposal, meeting NSW WARR Strategy targets**	
Objectives		Potential Actions/Options
3.1	Improve resource recovery and divert waste from landfill to work towards achieving state	1. Mobile CRC 2. Expand FOGO kerbside collection service 3. Expand FOGO commercial collection service to most households with a kerbside service[17]

[17] Note that some rural properties with a kerbside service for residual waste and comingled recycling may not need a FOGO service as they will have sufficient space to compost onsite. This decision will be subject to further consultation.

	and national targets	4. Support food rescue programs from food retailers (e.g. from supermarkets & bakeries) 5. Bulky waste collection service (**options analysis**) 6. Upgrade transfer stations at Jindabyne, Cooma and Bombala to increase recovery 7. Undertake FOGO educational programs 8. Increase recycling of C&D and difficult-to-recycle waste through increased separation and targeted education programs 9. Council procurement of local recycled content 10. Maintain and expand education campaigns to enhance upstream sorting and optimal use of SMRC waste services
3.2	Minimise the environmental impact of waste management and disposal	1. Investigate illegal dumping hot spots and initiate an illegal dumping awareness campaign 2. Bulky waste collection service (**options analysis**) to help reduce illegal dumping 3. Remediate legacy landfill sites to protect the environment and human health 4. Upgrade water management systems at Cooma and Bombala waste facilities 5. Environmental improvements at waste facilities 6. Conduct a review and options analysis for the operation of SMRC landfill facilities
Theme 4	**Increase the accessibility of waste facilities for residents**	
Objectives		Potential Actions/Options
4.1	Increase access to waste services and facilities	1. Expansion of BOB services 2. Kerbside service expanded to Numeralla 3. Mobile CRC
4.2	Improve the ease of use of waste facilities	1. Upgrade transfer stations at Jindabyne, Cooma and Bombala to improve ease of use and increase recovery of resources. 2. Awareness/education of both residents and commercial users on how to access waste facilities and how to use them properly (e.g. source separation).

3.3 Options Analysis

Options were analysed and compared, based on cost and effectiveness in addressing the strategy objectives and how they align with other objectives. Table 21 displays a summary of the options considered.

Table 21 Options analysis for SMRC Waste Strategy

Project/ Service	Options	Estimated Costs & Savings ($FY20)	Benefits, Disadvantages and Risks
Bombala Landfill	Continue to operate Bombala Landfill	Useful life: 20 years **Capital cost: $3.2M** (Inclusive of closure of old cell and stormwater project) Operating cost: $350/tonne (Inclusive of staff, equipment, materials & contracts, administration and other operating costs)	**Benefits**: • Avoids freighting waste to Cooma landfill **Disadvantages & Risks**: • High operating costs due to low throughput • WHS risk for staff and community from existing facilities • Increased environmental and health risks • Higher fleet management costs
	• Upgrade Bombala to a modern transfer station • Freight general waste material to Cooma landfill[18] • Keep Bombala landfill for emergency disposal location	Useful life: 20 years Capital cost: 17% more expensive (Inclusive of closure of old cell, stormwater project, transfer station upgrades, tip shop and prime movers) Operating cost: 50% cheaper (Inclusive of disposal and freight costs to Cooma) Cost savings from not operating Bombala landfill, avoided costs of landfill upgrades and equipment replacement	**Benefits**: • Reduced risk to the environment from fewer active landfills • Improved work, health and safety through reduce vehicle movements on the tip face • Increased resource recovery and improved community waste facility experience through transfer station upgrade • Lower fleet management costs **Disadvantages & Risks**: • Increased truck movements between Bombala and Cooma

[18] Note that this option analysis does not investigate the opportunity for collection trucks to drive straight to Cooma landfill.

Project/ Service	Options	Estimated Costs & Savings ($FY20)	Benefits, Disadvantages and Risks
Council or contractor provisions of waste collection and transportation services	External contractor to provide: • Kerbside collection service (for entire LGA) • Transport of comingled recyclables to ACT MRF	These costs are being assessed internally by SMRC but remain commercial in confidence due to probity issues associated with any forth coming tender. **Kerbside collection** contract - cost for SMRC Kerbside collection residual + recycling: 35% cheaper with external contractor Kerbside collection residual + recycling + FOGO: 26% cheaper with external contractor **Comingled to ACT MRF** - cost for SMRC No capital cost Weighted average cost of transport to ACT MRF: **$235/t or $346,000/yr**	**Benefits**: • Reduced WHS risk and liability for Council • Reduced administrative costs for council **Disadvantages & Risks**: • Less direct control of service quality and delivery • Less flexibility to revise services during the contract period • Potential for staff to be sourced from outside the region and for profits to leave the region
	Council to provide: • Kerbside collection service (for entire LGA) • Transport of comingled recyclables to ACT MRF	**Kerbside collection** cost difference in % as above **Comingled to ACT MRF** cost for SMRC Weighted average cost of transport to ACT MRF: **$264/t or $388,000/yr**	**Benefits**: • Increased control of service quality and delivery • Increased flexibility • Potential to keep a greater portion of employment and funds in the region • Potential to achieve cost savings by merging and streamlining waste freight services currently provided by a range of contractors e.g. e-waste, scrap metal and other speciality wastes **Disadvantages & Risks**: • Increased WHS risk and liability for Council • Increased administrative costs for the Council

Project/ Service	Options	Estimated Costs & Savings ($FY20)	Benefits, Disadvantages and Risks
Capture CDS and glass for use locally	Continue operations as usual: collection of comingled recycling material and transport to ACT MRF.	None	**Benefits**: • Reduced WHS risk and liability for Council **Disadvantages & Risks**: • Loss of CDS revenue • Maintained or increasing waste truck movements
	Capture glass and CDS eligible beverage containers from comingled recycling at a local sorting facility. Support businesses and sporting organisations to sort and recover CDS containers onsite. Crush glass locally for use as a sand or gravel replacement in council construction projects and road works.	Costs: • Establishing a local sorting facility • Establishing a glass processing facility • Hiring and training staff • Operating and maintaining the equipment and facility • Education of businesses and sporting organisations Savings: • Freight of recyclables to ACT • Cost of processing recyclables in ACT • Income from 10c per eligible container	**Benefits**: • Local employment • Reduced trucks taking recyclables to the ACT • Keeps CDS revenue in the region **Disadvantages & Risks**: • Costs and benefits may differ from predictions – undermining the business case • Change in community behaviour may lead to CDS containers being recovered at the household level rather than left in the yellow top bin • Increased WHS risk and liability for Council
Bulky waste collection service	Continue operations as usual (no bulky waste collection)	None	**Benefits**: • Least cost to council • Minimised WHS risk and liability to the Council **Disadvantages & Risks**: • Potentially greater levels of bulky waste dumping

Project/ Service	Options	Estimated Costs & Savings ($FY20)	Benefits, Disadvantages and Risks
Bulky waste collection service (cont.)	a) Bulky waste collection service available on request to urban households Rural households have a drop-off day to specified location (2 times per year)	**Urban collection costs: $170,000-$280,000/year** **Rural collection cost $2000-$5000/year** **Estimate based on similar regional NSW Council and a 23% uptake of the service. Service fees for SMRC would need to be confirmed through a tender process.* *$90 -$150 per household urban collection per year*	**Benefits**: • Satisfy community demand for bulky waste service • Increase opportunity to recover and re-sell bulky waste at tip-shops or ensure they are recycled (e.g. fridges) • Reduced dumping • Cost recovery through fee for service **Disadvantages & Risks**: • Unsustainable service based on sparsity of residents/properties • Community dissatisfaction with fee for service • Scheme costs and WHS risks
	b) Scheduled annual bulky waste collection from kerbside	**Collection & disposal costs: $290,000-$380,000/year** *$110 -$150 per household urban collection per year* **Estimate based on similar regional NSW Council and a 33% uptake of the service. Service fees for SMRC would need to be confirmed through a tender process.*	**Benefits**: • Satisfy community demand for bulky waste service • Increase opportunity to recover and re-sell bulky waste at tip-shops or ensure they are recycled (e.g. fridges) • Reduced dumping **Disadvantages & Risks**: • Unsustainable service based on sparsity of residents/properties • Increased waste to landfill • Scheme costs and WHS risks
	c) On request collection service for pensioners, disabled people and concession holders only	Collection & disposal costs: **$65,000-$110,000/year** $90 to $150 per household urban collection per year. **Based on a 60% uptake from 1,200 hh. . Service fees for SMRC would need to be confirmed through a tender process.*	**Benefits**: • Provides service to pensioners and concession holders who may find transport of bulky waste to a landfill facility less accessible. **Disadvantages and Risks**: • Does not provide equitable service to all SMRC residents. • Scheme costs and WHS risks

3.4 Actions Assessment

The results from the assessment of the considered actions are presented in Table 22 to provide the reader with the assessed benefits of the potential actions.

Table 22 Actions assessment for SMRC Waste Strategy

Potential Action	Description	Establishment Cost ($FY20)	Estimated Operating costs & savings ($/annum)	Benefits, Disadvantages & Risks
FOGO collection service expansion	Expansion of current residential FOGO service to all properties with a current 2-bin service within the LGA. Opt-in commercial FOGO service for businesses.	Expansion of composting facility: **$230,000** (BIS_Capital Budget 2021) New bins and truck: **$392,000** Community education campaign associated with roll out: **Simple - $50,000/year** **Complete - $120,000/year**	Costs: **$55/household/year** (FOGO expansion only) **$187/tonne** (FOGO expansion only) Saving: $199/tonne residual waste collection and disposal avoided via FOGO	**Benefits**: • Satisfies community demand • Unify kerbside waste services across LGA • Increase resource recovery and diversion from landfill • Reduced environmental impacts, such as greenhouse gas emissions and leachate, due to diversion from landfill • Sale of compost – with benefits to local landscapers, farmers and gardeners **Disadvantages & Risks**: • Administrative effort and costs associated with the roll out • Product contamination risk if education campaigns are not successful • Low organic waste capture rate if community participation is low

Potential Action	Description	Establishment Cost ($FY20)	Estimated Operating costs & savings ($/annum)	Benefits, Disadvantages & Risks
RFID bin-tagging	Installing RFID tags on bins to provide real-time bin collection and servicing data for Bombala and Cooma households. Requires installation of chips into new bins or retrofitting chips into existing bins, truck readers and handheld devices.	RFID bin tags: **$14,904-$26,082** ($2-$3.50 per unit for 7,452 bins) + installation when retrofitting + labour Truck reader: Approx. **$3,000** + installation + licencing + integration into software system Handheld units: **$3,000** per unit (for bin repair teams/bin auditors)	Data analysis	**Benefits**: • Improved data collection and analysis to enable system optimisation (potential cost savings) • Collection of accurate waste data: bin presentation, weight/ fullness, contamination • Reduced collections (based on bin fullness), e.g. BOBs **Disadvantages & Risks**: • Administrative costs and effort in successful roll out • Perceived breach of privacy • Increased fleet maintenance costs
Expand kerbside collection service	Expansion of kerbside collection service to Numeralla, servicing 100 households.	240L red- and yellow-lidded bins: $75/bin x 100hh x 2 bins = **$15,000** New truck not required	Annual OPEX (collections, recycling transfer to MRF, disposal/gate fee, additional travel time off current collection route): **$32,283** Annual revenue: $37,900 Annual Net Profit: $5,617	**Benefits**: • Satisfies community demand • Services rural properties • Increased revenue to Council • Reduces WHS risk to residents now receiving a kerbside service **Disadvantages & Risks**: • Increase kerbside collection costs • Increased waste truck movements on rural roads

Potential Action	Description	Establishment Cost ($FY20)	Estimated Operating costs & savings ($/annum)	Benefits, Disadvantages & Risks
Landfill Upgrade	Construction of new landfill cells at Jindabyne and Cooma landfills. Integration of weighbridge data system into SMRC financial system. Stormwater leachate system upgrade at Cooma landfill.	Design & construction: **$11.8M** (GHD) **$500,000** (2021 budget) Weigh bridge IT replacement: $**100,000** Cooma lining cost: **$11.6M** split in three stages (SMRC) Cooma Stormwater upgrade: **$2M** (BIS_Capital Budget 2021) Cooma LFG capture system: **$400,000** (indicative cost based on similar size landfills)	No additional ongoing costs as landfill costs will transfer from old to new cell	**Benefits**: • Optimise use of waste facilities • Serve the current and future waste needs of the SMRC community • Improved data collection and analysis to enable system optimisation (potential cost savings) **Disadvantages & Risks**: • Constraints of available site at Cooma may slow regulatory approvals
Modern transfer station upgrades	Upgrade to modern transfer stations to provide a safer, easier and more efficient layout for source-separation and drop-off for residents and commercial users.	Bombala **- $600,000** Delegate - **$200,000**	N/A	**Benefits**: • Optimise use of waste facilities • Support recycling of C&D waste • Increase resource recovery **Disadvantages & Risks**: • Administrative costs and risks in delivering the project successfully
Conversion of a drop off service model to collection & BOB service model	Implement recommendations of the Rationalisation of Transfer Stations report, including transitioning to BOB sites at Adaminaby, Berridale, Bredbo, Delegate, Nimmitabel and Numeralla.	Refer to Appendix E for CAPEX, OPEX and net profit for each transfer station site		**Benefits**: • Optimise use of waste facilities • Financial benefit to council • Increased access for residents **Disadvantages & Risks**: • Decreased resource recovery • No local bulky waste disposal – may lead to dumping • Increased drive time for self-haul residents • Community resistance

Potential Action	Description	Establishment Cost ($FY20)	Estimated Operating costs & savings ($/annum)	Benefits, Disadvantages & Risks
Replace bank of bins	Waste trailers to replace BOBs in some locations.	**$12,000** for three 8m^3 split trailers	Reduced ongoing costs Utility truck hourly cost: **$54/hour** Savings from not using kerbside collection trucks for pick up: **$150/hour**	**Benefits**: • Reduced costs to rate payers • Reduced movement of large waste trucks to remote areas **Disadvantages & Risks**: • Managing community acceptance • Risk of trailers being stolen
Remediate legacy landfills and convert to emergency landfill's where appropriate	Remediation of legacy landfills to ensure sites comply with legislative requirements. Investigation into the establishment of emergency landfill sites at suitable legacy landfills.	Remediation of all (14) legacy landfills: **$30M** (legacy site report)		**Benefits**: • Reduced risk to human health and the environment from these sites • Establishment of relatively low-cost emergency landfill capacity distributed more efficiently across the SMRC **Disadvantage & Risks**: • Uncertain remediation costs that may escalate if certain contaminants are found • Gaining EPA approvals/ sign off
Mobile CRC	Mobile CRC for household problem waste	N/A	Funded by EPA	**Benefits**: • Increase resource recovery • Increase access to waste services • Reduce hazardous contamination of general waste and associated risks at landfills • Reduce community risk from household hazardous wastes **Disadvantages & Risks**: • Increase WHS from operating the CRC and receiving hazardous wastes

Potential Action	Description	Establishment Cost ($FY20)	Estimated Operating costs & savings ($/annum)	Benefits, Disadvantages & Risks
Upgrade Collection Trucks	Cooma collection truck upgrade to enhance fleet with additional side lift truck	**$425,000** per truck	Marginal reduction in operating costs	**Benefits**: • Reduced worker WHS risks • Improvement in kerbside collection efficiency • Reduced noise and emissions standards **Disadvantages & Risks**: • Minimal
Increase recycling of C&D waste	Targeted educational programs for construction entities to source separate C&D waste.	Initial funding to be provided via NSW EPA Bin Trim funding	Reduces costs to landfill	**Benefits**: • Increased resource recovery • Reduced waste disposal costs for businesses **Disadvantages & Risks**: • Administrative effort for successful program
Implement recycling of difficult-to-recycle material	Increase recycling of difficult-to-recycle materials through targeted education and collection programs, e.g. polystyrene.	Requires further investigation	Reduces costs to landfill	**Benefits**: • Increased resource recovery • Reduced waste disposal costs for businesses **Disadvantages & Risks**: • Administrative effort for successful program
Local procurement of recycled materials	Increase local procurement of products with recycled content in construction and reduce use of virgin materials	Requires further investigation	Potential cost savings	**Benefits**: • Increase resource recovery • Circular economy initiative • Increase return on waste management costs spent **Disadvantages & Risks**: • Administrative effort for successful program • Need to ensure that construction activities are not compromised by the use of recycled material

Potential Action	Description	Establishment Cost ($FY20)	Estimated Operating costs & savings ($/annum)	Benefits, Disadvantages & Risks
Support food rescue programs	Collection of quality surplus food from retailers and donation to dedicated charities	Requires further investigation	Requires further investigation	**Benefits**: • Increase resource recovery • Socially beneficial to disadvantaged community members **Disadvantages & Risks**: • Administrative effort for successful program is relatively high compared to the amount of material recovered
Illegal dumping	Reduce illegal dumping through implementation of an illegal dumping awareness campaign, including dob-in-a-dumper, and data collection	Requires further investigation	Requires further investigation	**Benefits**: • Reduce illegal dumping **Disadvantages & Risks**: • Administrative effort and cost may out way reduction in dumping
Disability employment opportunities	ScrapMart tip shops to provide employment opportunities for local people with disability	Council may undertake these investigations in house or contract a consultant to review opportunities for implementation		**Benefits**: • Employment opportunities for local disabled people • Community support **Disadvantages & Risks**: • Increased employment costs

4 How The Strategy Will Be Implemented

4.1 Recommended Waste Infrastructure Action Plan

Table 23 presents the action plan for implementing SMRC's waste management vision and strategic objectives over the short term (1-5 years), medium term (5-10 years) and long term (10+ years) for waste infrastructure.

Table 23 Recommended 10 year action plan timeline for waste infrastructure in SMRC

Action	Steps required	Complete	Short term						Medium term					Long term
			'20	'21	'22	'23	'24	'25	'26	'27	'28	'29	'30	'30+
Bombala landfill	1. Upgrade to modern transfer station													
	2. Purchase equipment													
	3. Consult with community about changes													
	4. Transition landfill to modern transfer station													
	5. Freight waste to Cooma landfill													
Jindabyne landfill	1. Review and implement landfill options analysis recommendation to upgrade to transfer station													
	2. Design modern transfer station upgrade													
	3. Construct modern transfer station upgrade													
	4. Implement weigh bridge IT replacement, including handheld devices, to integrate data into SMRC financial system.													
	5. Cap old cell													
Cooma landfill	1. Review and implement landfill options analysis recommendations													
	2. Gain regulatory approval for compost facility expansion													

Action	Steps required	Complete	Short term						Medium term					Long term
			'20	'21	'22	'23	'24	'25	'26	'27	'28	'29	'30	'30+
	3. Construct works at compost facility													
	4. Gain regulatory approval for stormwater & leachate upgrades													
	5. Construct stormwater & leachate upgrades													
	6. Implement weigh bridge IT replacement, including handheld devices, to integrate data into SMRC financial system													
Review gate fee structure	1. Conduct a review of landfill gate fee structure model													
	2. Implement recommendations													
Transfer stations	1. Establish transition plans to convert transfer stations into Bank of bin services													
	2. Transition transfer stations to bank of bins and implement recommendations of the Transfer Station Analysis Report.													
Legacy landfills	1. Gain approval for Delegate landfill to be used as an emergency landfill													
	2. Investigate opportunities for waste sites to be used as emergency landfill sites													
	3. Undertake detailed remediation plan for each legacy site, including testing and comprehensive cost estimates, to identify priority order													
	4. Rehabilitate legacy sites gradually over 20 years													
CDS collection	1. Develop business case for local glass and CDS capture (only if Council gains access to funding)													

Action	Steps required	Complete	Short term						Medium term					Long term
			'20	'21	'22	'23	'24	'25	'26	'27	'28	'29	'30	'30+
	1a. Council to proceed only if access to funding is successful													
	2. Identify site for local MRF and gain regulatory approval													
	3. Establish local MRF													
	4. Recruit and train local casual staff													
	5. Sort comingled recycling waste for CDS collection													
	6. Work with relevant Council departments to integrate use of recovered glass in roads and construction activities													
	7. Ongoing use of the recovered glass by Council													
RFID bin-tagging	1. Investigate suitability of RFID bin-tagging options													

4.2 Recommended Waste Services Action Plan

Table 24 presents the action plan for implementing SMRC's waste management vision and strategic objectives over the short term (1-5 years), medium term (5-10 years) and long term (10+ years) for waste services.

Table 24 Recommended 10 year action plan timeline for waste services in SMRC

Action	Detailed action required	Com-plete	Short term						Medium term					Long term
			'20	'21	'22	'23	'24	'25	'26	'27	'28	'29	'30	'30+
Kerbside collection service provision	1. Agree to expand collection service to entire LGA				■			■					■	
	2. Review kerbside service routes and identify expansion potential into rural areas				■			■				■		■
	3. Expand service as needed					■			■				■	■
Transporting recycling	1. Commence tender process for service contractor			■				■					■	
	2. Select contractor to provide freight service				■									
Bulky waste – service on request for pensioners, disabled people, and concession holders	1. Develop business case for service			■										
	2. Plan collection service roll-out				■									
	3. Implement education program and update website				■									
	4. Roll-out collection service				■	■	■	■	■	■	■	■	■	■
Expand kerbside collection service	1. Purchase 200 new bins and distribute to 100 Numeralla households			■										
	2. Commence waste and recycling service in Numeralla			■										
	3. Review kerbside service and expand as needed				■				■				■	■
Bank of Bins	1. Investigate which rural sites to introduce BOBs		■	■										
	2. Introduce BOBs at some rural sites				■	■								

Action	Detailed action required	Com-plete	Short term						Medium term					Long term
			'20	'21	'22	'23	'24	'25	'26	'27	'28	'29	'30	'30+
	3. Assess effectiveness of BOBs and introduce more if required						■				■			■
FOGO	1. Design and gain regulatory approval for compost facility expansion (see recommended waste infrastructure action plan for Cooma landfill)			■	■	■								
	2. Procurement: tender, evaluate and award for subcontractor, receivals building, mechanical plant & equipment				■	■								
	3. Construct works at compost facility				■	■								
	4. Perform testing/commissioning and determine roll-out schedule for households and investigate demand for commercial service					■								
	5. Perform 'before' waste audit, undertake service model survey and review collection schedule					■								
	6. Implement education program to residents and businesses. Education to be based on previous Cooma-Monaro FOGO education					■	■	■	■	■	■	■	■	■
	7. Roll-out FOGO service to Jindabyne and Bombala regions						■							
	8. Perform annual waste audit to gauge effectiveness and identify problems and barriers						■	■	■	■	■	■	■	■
	9. Address problems and barriers through changes to service/education							■		■		■		■
Mobile CRC	1. Determine mobile CRC schedule		■											

Action	Detailed action required	Com-plete	Short term						Medium term					Long term
			'20	'21	'22	'23	'24	'25	'26	'27	'28	'29	'30	'30+
	2. Advertise schedule via multiple media channels													
Support food rescue programs	1. Consult with stakeholders including local businesses that generate significant food-waste, food recue charities and charities that could use the food													
	2. Develop a business case including an implementation plan and grant funding													
	3. Roll-out food rescue grant program													
Illegal Dumping	1. Implement illegal dumping awareness campaign, e.g. dob-in-a-dumper													
	2. Implement campaign													
	3. Continue collecting data to identify illegal dumping hot spots and assess campaign effectiveness													
Education	1. Develop education campaign to target C&D waste source separation and recycling													
	2. Implement education campaign via community groups for construction entities, 'Lunch and Learn' sessions, etc.													
	3. Other community education programs													
Difficult-to-recycle material	1. Review waste materials to target													
	2. Engage suppliers													
	3. Acquire equipment													
	4. Develop and implement targeted education campaign													

Action	Detailed action required	Com-plete	Short term						Medium term					Long term
			'20	'21	'22	'23	'24	'25	'26	'27	'28	'29	'30	'30+
	5. Commence collection of material													
	6. Review and expand waste materials to target													
Disability Employment Opportunity	1. Investigate opportunity to employ local disabled people at ScrapMart tip shops													
	2. Recruitment and training													

4.3 Further Actions

In addition to the implementation of the above action plan, the following investigations are recommended:

4.3.1 Develop a Business Case for the Glass Capture and CDS Beverage Container Recovery

A high-level analysis of the recovery of glass and CDS beverage containers was undertaken as part of the option analysis for this waste strategy (see Section 3.3). There appears to be the potential for Council to significantly save on waste transport costs and to raise revenue while creating local jobs leading to social, economic and environmental benefits for the SMRC LGA. However, the costs of implementing such a scheme remains uncertain and further investigations are required to more accurately assess the costs, benefits and preferred implementation approach for such an initiative. Hence, further investigation should be undertaken and a business case developed to gain Council approval and funding for this initiative if the final business case is sufficiently compelling.

4.3.2 Investigate 4-Bin System to Replace Current Bins at End of Life

Instead of establishing a MRF to recover glass for local use the council may choose to establish a four-bin collection system with a separate bin for glass. This approach is being rolled out across Victoria. The four-bin approach could be investigated as part of the study discussed above.

4.3.3 Review of Data Collection and Analysis

Annual waste audits to be undertaken to provide up to date information to inform the efficacy of the FOGO roll out and provide more accurate data to assess the two options discussed above. Following the implementation of FOGO, further audits of residual and FOGO bins should be undertaken to help inform educational requirements and evaluate progress towards resource recovery goals.

4.3.4 True Cost of Waste Analysis

Conduct a detailed study into the whole of life costs for SMRC's landfills, transfer stations and the composting facility. Seek to benchmark facility performance against national and CRJO best practices. Develop recommendations to optimise the operation of these facilities.

4.3.5 Risk Management Review for Cooma Landfill and Waste Complex

The Cooma landfill is relatively simple with unlined cells and no landfill gas (LFG) extraction infrastructure. The landfill and composting facility are sited upon a relatively shallow groundwater body (some 2-10 meters below ground level). This potentially poses threats to ground water.

Capping of areas that have reached final height to prevent water infiltration and thus minimise leachate while new areas could be lined. However, capping may lead to LFG migrating laterally. During cold "inversion" events LFG may not disperse – creating risks of explosions or asphyxiation.

A study of human and environmental risks at the Cooma waste complex would be appropriate with mitigation measures identified and costed. Some mitigation measures may be relatively cheap – for example capping material may be received for free in the form of VENM while simple handheld methane monitors many enable LFG risks to be mitigated. The implementation of a LFG capture system would also lead to increased environmental benefits associated with LFG capture, without a significant impact in the facility's financial performance.

4.3.6 Regional Waste Contracts with CRJO

As a small council SMRC does not always attract many competitive tenders for the provision of waste services. SMRC should seek to work with CRJO to undertake regional contracts for waste services where possible to achieve economies of scale and better value for money.

4.3.7 Investigation into Recycling and Reuse of Snow Gear

As the home of Australia's snow sports, SMRC has to manage more discarded snow gear than any other council in Australia. This provides an opportunity for SMRC to lead Australia in best practice management of this material and to educate visitors about better management of end-of-life snow gear.

Such education could potentially be enhanced via community art installations and upcycling of skis into public outdoor furniture, such as tables and chairs, to be made at ScrapMart tip shops. While such initiatives will not directly make a significant difference to the quantities of waste presenting at landfill – they can lead to community awareness and behaviour change that improves the overall interaction of residents and visitors with SMRC waste facilities and services.

4.3.8 Review targets for waste reduction, resource recovery and diversion of waste

The NSW Government has released phase 1 of a new *20-Year Waste and Sustainable Materials Strategy for NSW* which set new targets and new waste initiatives. The 5-year targets are phasing out problematic and unnecessary plastics by 2025 and the plastic litter reduction target of 30% by 2025.

The 10 year targets are generally in line with the federal waste policy including an 80% recovery rate from all waste streams by 2030.

The NSW Government plans on consulting during 2021-2022 around the actions listed in the strategy. SMRC should participate in the consultation and review the SMRC Waste Strategy and set waste targets to align with the detailed 20-Year Waste Strategy.

4.3.9 Bulky Waste Collection Transition Plan

If Council introduces a bulky waste collection a detailed transition plan should be considered. This plan should include:

1. Fully understanding costs and requirements for the service including objectives and options for collection method
2. Early stage community engagement about why Council is introducing the service
3. Designing service to meet Council requirements including costs, limitations for waste types and sizes
4. Develop tender specifications and process of tender for bulky waste collection including diversion requirements
5. Preparation for transition including risk management, contractor service obligations and requirements
6. Communication plan for residents
7. Service roll-out
8. Monitoring and evaluation of the contractor and service

5 How to Measure Success

5.1 Key Performance Measures

Progress in implementing the proposed action plans will be measured to establish a consistent and reliable source of information regarding the LGA's waste performance over time. Furthermore, it will enable informed, evidence-based decisions to be made regarding the performance of the LGA's waste services and the effectiveness of the actions undertaken.

The following monitoring and analysis is recommended for each of the strategy objectives and themes.

5.1.1 Theme 1: Improve Operational Efficiency of Waste Management Services and Facilities

- Annual kerbside bin audits to measure key performance measures (KPIs) and to assess that capacity is matching demand. KPIs include bin presentation, bin fullness, waste generation, rate of resource recovery and rate of contamination. This allows greater targeting of waste education.
- Maintain local landfill capacity
    - Measure: aerial surveying of void space minimum annually
    - Analyse: determine fill rates since the last aerial survey and calculate remaining life of cell
    - Act: develop budget bids for new landfill capacity when void space falls below 7 years

5.1.2 Theme 2: Optimise Waste Management Costs

- Conduct a study into the true cost of landfill, transfer stations and other waste facilities including a review of gate fee structure to optimise waste management costs. Determine the key metric and benchmarks that can be readily recorded. Then annually review performance against these metrics to support performance management.
- Review gate fees
- Report on grant funding won and percentage contribution to waste delivery costs.

5.1.3 Theme 3: Minimise the Environmental Impact of Waste Disposal, Meeting NSW WARR Strategy Targets

Measure and record:

- Waste generation per year
    - Residual waste
    - Comingled recyclables
    - FOGO
    - C&I
    - C&D
    - Others;
- Calculate resource recovery for each sector; and
- Illegal dumping and public place litter metrics.
- Measure/estimate and record GHG

5.1.4 Theme 4: Increase the Accessibility and Utilisation of Waste Facilities for Residents

Measure and record in Excel:

- Number of households receiving kerbside services (red, yellow and green) and percentage of SMRC households receiving kerbside services;
- Percentage of households with access to kerbside collection and BOBs;
- Percentage of households with access to CRC for at least one week per year;

    - Quantity of specialty waste presenting per household; and
    - Annual community survey to determine satisfaction levels and understand of services to better target education initiatives and new waste services.
- Review the Transfer Station Rationalisation report and measure progress against recommendations provided.
- Review the Landfill Options Analysis report and measure progress against recommendations provided.

References

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Australian Bureau of Statistics (2016) 2016 Census QuickStats – Snowy Monaro Regional Council

Canberra Region Joint Organisation (2018) Regional Waste Strategy 2018-2023

Commonwealth of Australia (2018) National Waste Policy: less waste more resources

Commonwealth of Australia (2019) National Waste Policy Action Plan 2019

Commonwealth of Australia (2020) Recycling and Waste Reduction Bill 2020 (as passed by both houses)

EC Sustainable, 2019, Household Kerbside Bin System Audit 2018

GHD (2018) Jindabyne Regional Waste Management Facility Options Assessment Report

NSW Department of Planning and Environment, 2016, 2016 New South Wales State and Local Government Area Population and Household Projections, and Implied Dwelling Requirements

NSW EPA (2019) Local Government Waste and Resource Recovery Data Survey 2018-19 (SMRC)

Appendix A Bank of Bin Sites

Table 25 Bank of bins sites

Facility	Operator
Clear Range (Yellowbox road)	SMRC
Jerangle (Jerangle road)	SMRC
Dry Plain (Caddigat road)	SMRC
Frying Pan (Frying pan road)	SMRC
Buckanderra (Buckenderra road)	SMRC
Eucumbene (Happy jacks road)	SMRC
Eucumbene (Cove hill road)	SMRC
Avonside (Avonside road)	SMRC
Berridale (Rockwell road)	SMRC
Jindabyne (The snowy river way)	SMRC
Crackenback (Alpine way)	SMRC
Beloka (Paupong road)	SMRC
Numbla Vale (Jimenbuen road)	SMRC
Cathcart Bank of Bins	SMRC
Delegate Bank of Bins	SMRC
Michelago Bank of Bins Shed	SMRC

Appendix B Materials Accepted at Waste Facilities

Table 26 Materials accepted at SMRC Landfills

Transfer Station	MSW	C&I	C&D	Recyclables						E-Waste	Green Waste	Hazardous Waste	Other waste
				White goods	Scrap metal	Batteries	Dom. COM	Comm. COM	Waste Oil				
Cooma	✓	✓	×	×	✓	✓	✓	✓	✓	✓	✓	×	×
Jindabyne	✓	✓	×	×	✓	✓	✓	✓	✓	✓	✓	×	×
Bombala	✓	✓	×	×	✓	✓	✓	✓	✓	✓	✓	×	×

Table 27 Materials accepted at SMRC transfer stations

Transfer Station	MSW	C&I	C&D	Recyclables						E-Waste	Green Waste	Hazardous Waste	Other waste
				White goods	Scrap metal	Batteries	Dom. COM	Comm. COM	Waste Oil				
Bredbo	✓	✓	×	×	✓	✓	✓	✓	✓	✓	✓	×	×
Adaminaby	✓	✓	×	×	✓	✓	✓	✓	✓	✓	✓	×	×
Numeralla	✓	✓	×	×	✓	✓	✓	✓	✓	✓	✓	×	×
Berridale	✓	✓	×	×	✓	✓	✓	✓	✓	✓	✓	×	×
Nimmitabel	✓	✓	×	×	✓	✓	✓	✓	✓	✓	✓	×	×
Delegate	✓	✓	×	×	✓	✓	✓	✓	✓	✓	✓	×	×

Appendix C Staff Interviews

Table 28 Managerial council staff interview comments

Topic	Comments
Strategy objectives	• Integrate the region's waste services to achieve consistent levels of service, fees and targets; • Integrate practical strategy with NSW EPA guidelines and CRJO waste strategy for a 3-5 year, 10 year and 20 year vision.
Urgent actions needed	• Capping and remediating legacy landfills, developing new landfill cells (Jindabyne and Cooma), exploring CDS opportunities, new weigh-bridge data systems to integrate with SMRC financial system, fire control infrastructure, changing BOBs to waste collection cages, new waste truck(s), expanding the composting facility and FOGO service, food rescue.
FOGO	• There is local demand for compost product; • Compost facility expansion will require additional composting equipment; • Shredders and loading equipment needed at other transfer stations to shred FOGO material before freighting to Cooma site; • Demand for FOGO service is mainly from urban residents; • FOGO service expansion should service properties with current 2-bin service excluding households on larger rural-residential blocks as they can compost onsite; • Expand FOGO service in stages to gauge success: first Bombala then to intermediate towns like Michelago, Berridale and Adaminaby. Jindabyne should be last: logistical problems such as high-density dwellings, less street space, tourism, etc. • Commercial FOGO is a good idea as restaurants and cafes have large quantities of organic waste and some in Jindabyne are asking Council for FOGO collection; • Smaller towns aren't generating large volumes of FOGO waste.
CDS	• Currently people already rummaging through street bins, CDS collection not needed; • Don't have the quantity required to set up infrastructure or the capacity, funds or manpower to collect, sort and crush locally; • No issue with use of recycled glass/sand in construction; • Currently no awareness among local builders to use recycled products, need to target education to construction entities; • Start by backloading material from ACT for a demonstration construction project.
Education	• FOGO service education should mimic the successful campaign used for the former Cooma-Monaro council; • Need to communicate why fees and charges are levied and the requirements to provide waste services to the community; • Pop-up education stalls in shopping centres are very effective and allow voluntary face-to-face contact; • Face-to-face communication, such as 'Lunch and Learn', is much more effective than written communication; • Main challenge is reading the whole community, especially rural community, only option is through mail;

Topic	Comments
	• Campaign targeting construction entities could involve a community group with entity owners or providing Council building department with leaflets to give to new construction developments to educate about recycling C&D waste, cost savings and using recycled products.
Kerbside Collection Service	• Reducing general bins from 240L to 120L in Jindabyne to encourage diverting material to recycling and FOGO services could increase contamination; • Reuse 120L bins as FOGO bins by replacing lids; • Lack of robust data about recycling performance but suspected recycling is falling; • Preference for in-house service to standardise and internalise service; • One of Cooma's collection trucks is old and still involves manual rear lift of bins. Does not meet modern WHS expectations. Plan to replace it this year however, it may be kept in service for commercial collections of skips for which it is still suitable.
Bank of Bins	• BOBs are expensive to service if not located near a conventional kerbside collection run; • One solution is to change to a lockable waste transfer cage or trailer that can be moved using a light truck. Likely to be best option for Jerangle and Smith's Road BOB site.
Freight to ACT service	• The cost to freight to ACT is much higher than the cost of landfilling; • Costs are expensive relative to what other members of the CRJO are paying; • Sometimes using a contractor is more efficient than in-house service – requires less workers, costs less and specialises in service. No WHS risk for Council; • Possible for new contractor to have a local crushing plant.
Operating Facilities	• Maintaining local landfills is critical to keeping SMRC's waste disposal costs down (avoiding freight costs and gate fees along with earnings from commercial waste); • Jindabyne landfill expansion required in the short term, Cooma landfill expansion required in the medium term; • Transfer station upgrades required to support recycling of C&D waste, easier access for the community and commercial users. Upgrades needed at Delegate and Bombala to increase safety of disposal process; • Jindabyne landfill has best practice stormwater management; • Stormwater and leachate management system at Cooma landfill needs improvements during next fill plan; • Strategy should rationalise opening hours and service provision; • Weigh bridges at Jindabyne and Cooma landfills use different data management systems which are not integrated with SMRC's new financial data system. Installing a new data system, that supports handheld devices, would greatly improve SMRC's data collection and enable better oversight and management; • Bombala landfill is remote and has no onsite power or weight bridge. The facility likely receives waste from individuals and businesses in Bega Valley Shire and Victorian residents; • Connecting three phase power to Bombala landfill would cost around $60,000. There is lots of airspace but costs a lot to run. May be better value as a transfer station; • Bombala's population similar to Berridale who are serviced quite well with a 1 day a week for 5 hours transfer station;

Topic	Comments
	• Bombala community would strongly oppose shorter opening hours, would require serious community consultation. Gradual change in opening hours to allow community to adjust.
Legacy Landfills	• Recent bushfires and storms have underlined the need for emergency landfills to take non-putrescible material from the clean up process; • SMRC is currently in consultation with Snowy Hydro 2.0 project managers regarding the provision of a new emergency landfill; • There are at least 15 legacy landfills that may need to be capped and remediated. SMRC has conservatively noted $30 million of liabilities associated with these remediation works in budget however these estimates could fall considerably as more detailed investigations are undertaken; • Keeping suitable sites for emergencies avoids the costs of capping and remediating these landfills and reduces the cost and time to respond to emergencies and ensuing clean ups; • Need a detailed investigation into the potential residual capacity of these sites along with an assessment of suitability for future use and more detailed closure plans and cost estimates for sites deemed unsuitable for future use; • Attempts to fill up Cooma landfill in January (after bushfires) as part of the remediation process proved too expensive and difficult to get EPA approval; • There is currently a written proposal to set up old Delegate landfill for remediation, doesn't require DA. Cooma landfill would require DA process.
Fees & Charges	• General belief that waste fees and charges are too high but reducing fees wouldn't be sustainable and would require services be cut back dramatically; • Need to communicate true cost of waste management to community.
Bulky Waste Collection Service	• Not supportive of a bulky waste collection service due to its costs, complexity, risk to operate and significant generation of waste; • Area too big. Would need more staff and transport which would greatly increase expenses; • Understanding about demand for service within the community; • Good option could be targeted service for concession card holders on request; • Instead of bulky waste pickup, free weekend for drop off; • Including the possibility in the strategy would give false hope.
Illegal Dumping	• Possibility for further community awareness campaigns to further target these issues. E.g. Council website doesn't have much information on how to "dob in a dumper".

Table 29 Operational council staff interview comments

Topic	Comments
Strengths of waste management	• Happy with equipment upgrades, e.g. waste collection trucks and compactor ordered for Jindabyne landfill; • Bank of bins work well; • Kerbside service are worth the fees as residents get a good service.
Improvement Opportunities	• Reported issues with polystyrene being blown around at Jindabyne landfill sites exposed to high winds. Polystyrene also creates problems for landfill compaction rates; • Would like to see more education for FOGO, often see contamination; • Expanding FOGO kerbside service would increase fees due to requiring additional staff, trucks, fuel, etc; • Commercial FOGO collection would have high contamination. Current FOGO in ski areas has high contamination. Difficult to get employees to comply (care factor is low); • Advertise the Council website and Facebook page for education material more; • Lower fees for recycling and increase fees for landfill to encourage source separation and recycling. Landfill staff are often pulling recyclable material out of tip face. It shouldn't cost people so much to recycle. • Commercial waste price vs commercial recycling (they save $10/tonne) – not much incentive for businesses to recycle. It would cost more for them in wages to properly sort waste than it does to put it in landfill; • Builders are sorting at the tip: paying as waste but putting material aside for staff to grab and put it in recycling; • Need more landfill infrastructure; • More education required about what can be recycled.

Appendix D Waste stream compositions based on material categories

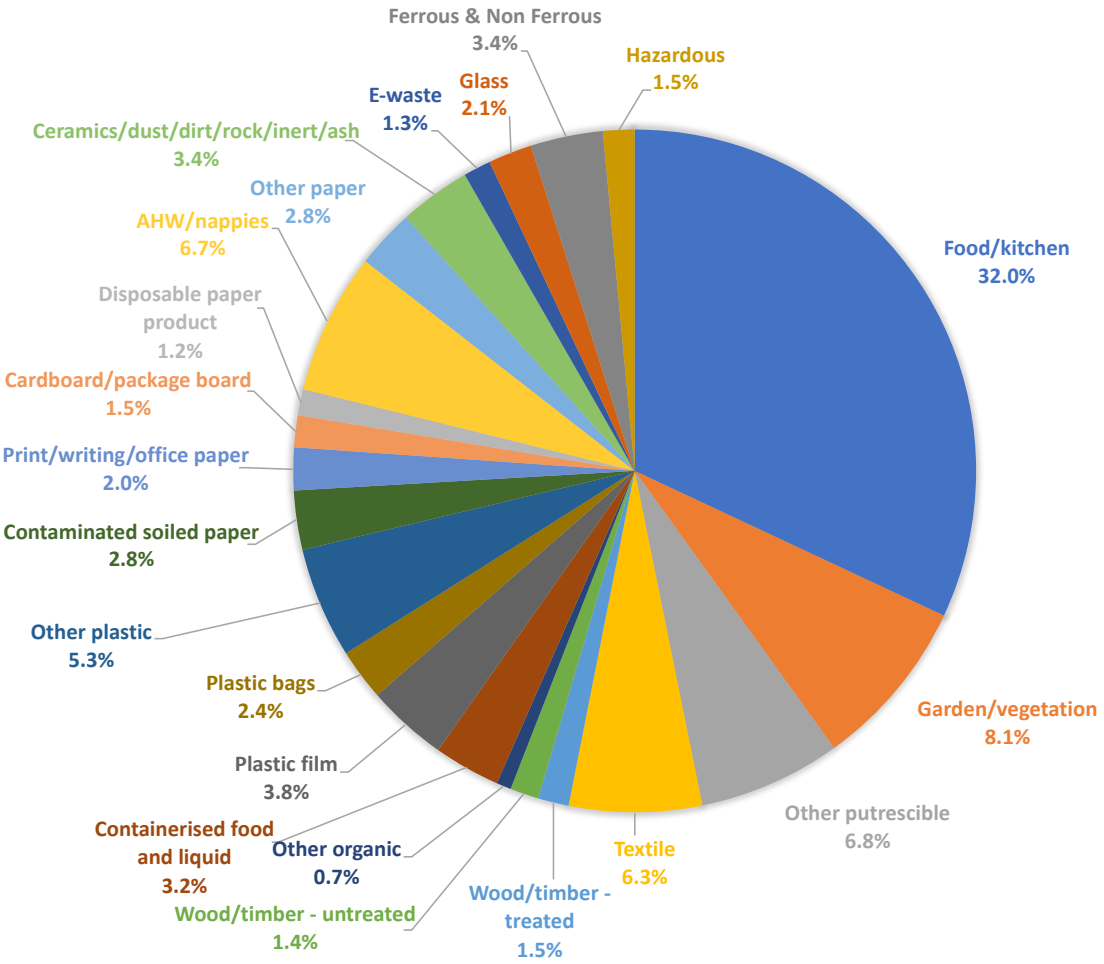

Figure 18 Kerbside general waste composition based on material category (by weight)

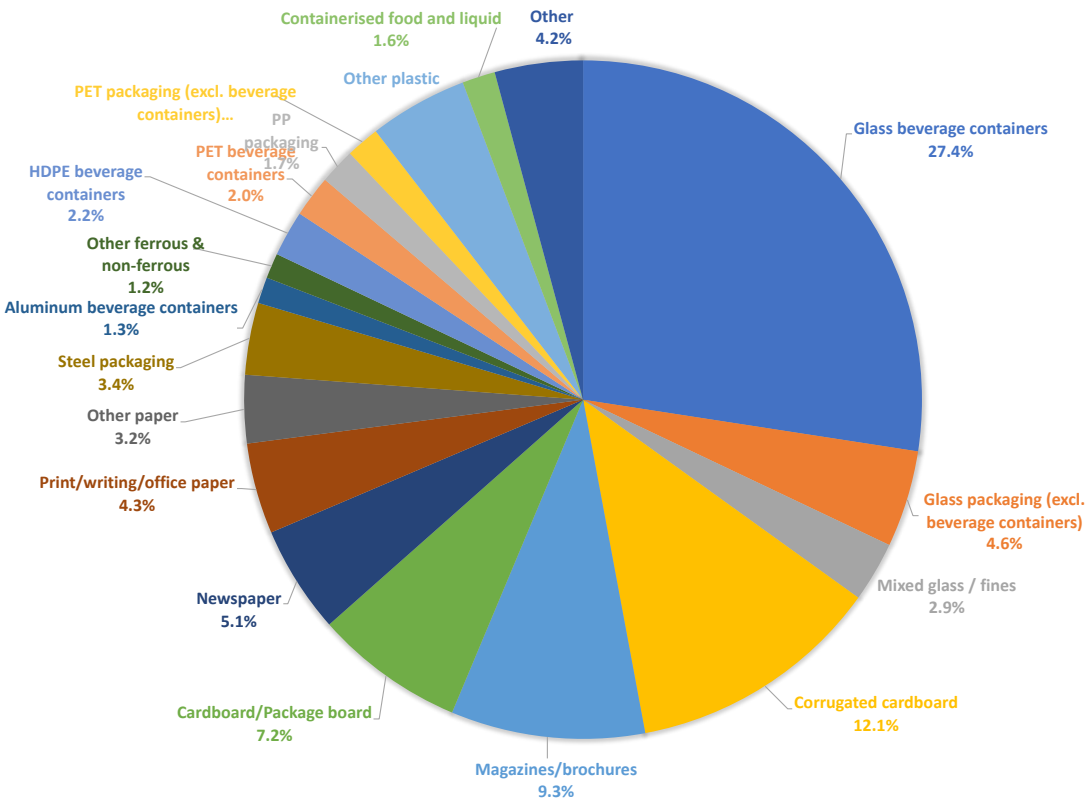

Figure 19 Kerbside recycling composition based on material category (by weight)

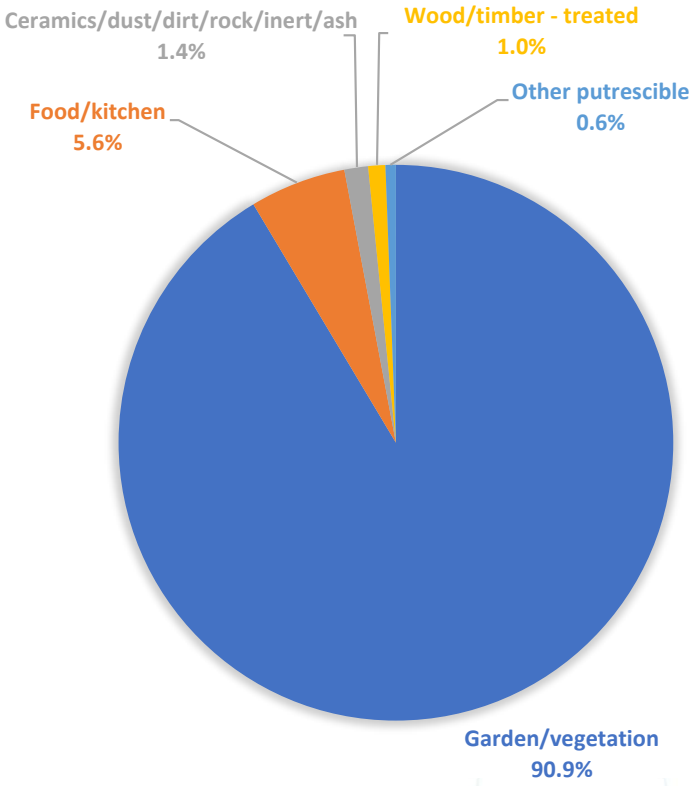

Figure 20 Kerbside FOGO composition based on material category (by weight)

Appendix E Transfer Station Financial Analysis

Table 30 CAPEX, OPEX and net profit for transfer station scenarios

	Adaminaby	Berridale	Bredbo	Delegate	Nimmitabel	Numeralla
Business as Usual						
Net Profit	-$40,520	-$34,503	-$55,290	-$19,795	-$59,873	-$44,684
Scenario 1 – 100% Service Rate						
CAPEX	$276,330	$285,460	$428,370	$133,510	$220,920	$303,720
OPEX	$78,529	$80,657	$110,128	$56,027	$60,566	$76,954
Net Profit	$11,838	$12,547	$30,285	-$12,628	$10,842	$25,292
Scenario 2 – 75% Service Rate						
CAPEX	$207,270	$216,310	$322,430	$101,240	$165,780	$225,710
OPEX	$62,065	$62,440	$84,615	$48,142	$47,586	$66,215
Net Profit	$5,708	$7,242	$20,580	-$15,703	$5,961	$11,706

Appendix F Estimated Costs to households

Table 31 Estimated costs for residents for different funding options of transfer station operations

	Adaminaby	Bredbo	Numeralla
Option 1	**-$40,520**	**-$55,290**	**-$44,684**
Number of Households in catchment	**876**	**903**	**620**
Option 2 Cost of BoB (2020/2021)	**$250/year**	**$250/year**	**$250/year**
Option 3 Estimated additional cost per household to maintain transfer station as cost neutral if costs were applied to each rateable property in catchment area	**$46 +annual waste charge**	**$62 + annual waste charge**	**$73 + annual waste charge**
Option 3 Estimated annual cost per household and cost of 240L garbage delivered to transfer station once a month.	**$46+$124+14x12 = $330/year**	**=$62+$124+14x12 = $354/year**	**=$73+$124+14x12 = $365/year**
Option 4 Estimated average cost of 240L garbage bin based on current $14 charge (2020/2021)*	$88 per 240L bin	$56 per 240L bin	$38 per 240L bin
Option 4 Estimated annual cost of 240L* garbage bin delivered to transfer station once a month.	$1,052/year	$670/year	$458/year

*** Charges are based on 2020/2021 financial year. Costs would increase across all categories including recycling and general waste.**