

South Australia's Kerbside Waste and Recycling Performance Report 2019-20



**Government
of South Australia**

Green Industries SA

Acknowledgements

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Executive Summary

This report presents data on kerbside waste and recycling collection services in South Australia provided by the 19 metropolitan Adelaide and 49 regional councils in the 2019-20 financial year. It analyses performance and improvements in council waste management efficiency and sustainability over the past 17 years.

The focus is only on waste material collected at kerbside in bins provided specifically for residual waste (landfill), co-mingled recyclables and organics (green and/or food). Hard waste, street sweepings, Container Deposit Scheme (CDS) returns and waste collected at drop-off facilities and council-operated commercial services are excluded from the main report but results are presented in **Appendix 1**.

All 19 metropolitan Adelaide councils offer a three-bin service that has been gradually introduced from about 2001, although some only provide an organics (green and/or food) bin on an opt-in basis. In the regions, approximately half offer a three-bin system, including many where these services are provided to townships only. One regional council offers a fourth bin for paper and cardboard only. There are also some differences between councils in terms of bin ownership, full versus optional adoption, and collection frequency.

Green Industries SA is committed to working with Local Government councils to improve waste and recycling management to achieve the targets set in the *South Australia's Waste Strategy 2020-25*.

Performance

In 2019-20:

- Approximately 669,200 tonnes of Municipal Solid Waste (MSW) was collected from kerbsides across the state (up 4.2% from 2018-19). This equates to about 379 kilograms per person or 997 kilograms per serviced household.
 - » Of this, 322,400 tonnes were recovered as organics (58.4%) or recyclables (41.6%). This represents a total recovery rate of 48.2% (up 2.2% from 2018-19).
- In metropolitan Adelaide, approximately 517,800 tonnes of MSW was collected from kerbside (up 5.8% from 2018-19). This equates to 390 kilograms per person or 1,039 kilograms per serviced household.
 - » Recoverables constituted 262,600 tonnes as organics (60.2%) or recyclables (39.8%), for a total recovery rate of 50.7% (up 2.0% from 2018-19).
 - » 90% of metropolitan Adelaide households have a 3 bin system.
- In regional South Australia, approximately 151,400 tonnes of MSW was collected from kerbside (down 0.6% from 2018-19). This equates to 346 kilograms per person or 875 kilograms per serviced household.
 - » Of this 59,900 tonnes were recovered as organics (50.5%) or recyclables (49.5%) which represents a total recovery rate of 39.6% (up 2.2% from 2018-19).

Across South Australia, between 2010-11 and 2019-20, total material collected through kerbside waste collection increased by 0.5%. The increase in waste collected over this period was largely due to better organics services resulting in an additional 42,300 tonnes [29% increase]. The amount of waste going to landfill fell by 6.8% [25,300 tonnes].

The 2019-20 metropolitan Adelaide area recovery rate of 50.7% is below the *South Australia's Waste Strategy 2020-2025* (GISA 2020) household bin systems waste diversion target of 60% by 2023 and 70% by 2025, making it clear that there is still work to be done¹.

Analysis shows that the top performing councils in 2019-20 – some achieving nearly 60% recovery rate – were those that provide a weekly residual waste collection, fortnightly recyclables collection and fortnightly organics collection that includes food waste.

Recommendations

The findings of this report suggest that the following changes are necessary to improve the diversion of kerbside waste from landfill:

1. Adopting a standardised three-bin system across all metropolitan Adelaide councils to include as a minimum service to all households:
 - a. fortnightly collection of co-mingled recyclables
 - b. minimum fortnightly collection of organics, including food waste.

This will have an immediate impact on raising the kerbside diversion rate. Universal rollout of area-wide food waste diversion systems will raise waste diversion rates and may narrow the gap between best and least performing councils.

2. Standardised, consistent materials collected in kerbside bin-based services across all metropolitan Adelaide councils.

The statewide 'Which Bin' campaign launched in May 2019 has increased the consistency of education and awareness efforts, providing a standard list of materials that can be placed in the recycling and organics bins.

This reduces confusion for residents about which bin to use, reducing contamination of the recyclables stream and organics stream and diverting more food waste from the residual stream.

Inconsistent messaging where advice and language could vary from council to council was leading to confusion on the easiest way to comply with proper recycling practice. Simplifying and standardising messaging is essential to improve awareness and knowledge to entrench the culture of waste minimisation. Normalising the behaviour of recycling and improving the awareness takes time and requires constant reinforcement of the key messages. Costs on communication and education are also reduced in the longer term by providing the same message in the same format and the same brand to all households across all councils.

¹ It should be noted that South Australia's Waste Strategy 2020-25 has an MSW diversion rate of 65% by 2023 and 75% by 2025, which includes kerbside bins, hard waste, resident drop off, CDS, etc.

3. Standardisation of bin infrastructure to comply with AS 4123.7

The standard promotes the adoption of common colour coding of waste, recycling and organics kerbside bin collection services across Australia and is intended to support correct recycling 'automatic' and 'unthinking' behavior.

South Australia's Waste Strategy 2020-2025 recognises the importance to set up consistent systems and technology for MSW and one of the priority actions identified is to ensure that kerbside bins are compliant with the relevant Australian standard on mobile waste containers.

4. Developing Regional Waste Management Plans setting regionally appropriate and progressive waste diversion targets

To ensure continued progressive improvement in waste diversion in regional areas, the *South Australia's Waste Strategy 2020-25* includes a new quantitative target for regional areas – by 2023: Regional Waste Management Plans are in place for all South Australian regional local government areas and/or regional city clusters and set regionally appropriate and progressive waste diversion targets.

Regional Waste Management Plans may be progressed at the regional local government area or to leverage and optimise synergies across major regional centers where more practicable. These plans are required to be provided to GISA by 2023.

Reporting is based on the gross waste quantities reported in councils' kerbside performance data and provided without further alteration. This data therefore depicts quantities that are inclusive of contamination. The complete data enables the examination and analysis of householder behaviours and bin usage, trends and patterns and the relationship and dependency on geography and socio-economic factors.

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1. Introduction

1.1 Purpose

Information on waste streams is needed to help monitor progress towards the municipal solid waste (MSW) diversion targets set in *South Australia's Waste Strategy 2020-25* (GISA 2020) and to inform decision making, particularly in relation to programs and incentives to improve recycling rates and to target areas most in need.

This report presents data on kerbside waste and recycling collection services provided by the 19 metropolitan Adelaide and 49 regional councils in the 2019-20 financial year and analyses performance and improvements in waste management efficiency and sustainability. It also reports on trends over a 17-year period.

The focus is only on waste collected at kerbside in bins provided specifically for residual waste (landfill), co-mingled recyclables and organics (green and/or food). Hard waste, street sweepings, Container Deposit Scheme (CDS) returns and waste collected at drop-off facilities and council-operated commercial services are excluded. These extra waste streams are combined with kerbside waste when reporting on Municipal Solid Waste. The results of these waste types are presented in **Appendix 1**.

As such, the recovery rate stated in this report differs from that cited in the *South Australia's Recycling Activity Survey 2019-20*, which includes these other components of the total MSW.

It also should be noted that MSW is only one of the three sectors that contribute to SA's total waste, with each having its own recycling rate. In 2019-20, 83.3% of all waste was diverted from landfill for recycling and other purposes [Rawtec 2021].

Residential residual waste accounts for 44% of the total solid waste that goes to landfill. The remainder is commercial and industrial waste [18%] and construction and demolition waste [39%].

1.2 Background

The environmental benefits of a three-bin waste collection system are well established and the 19 metropolitan Adelaide councils have offered this service for a number of years. In regional areas, half of councils have three-bin systems and all have at least one bin collected at kerbside. One regional council implemented a four-bin system several years ago where the extra bin is solely for cardboard and paper. Differences do exist between councils even where the same number of bins are provided, due to different collection frequency and service provision for green and food organics, use of kitchen caddies, and area-wide rollout versus opt-in.

In low-density residential areas, most councils provide a 140L bin for residual waste and 240L bins for comingled recyclables and organics respectively. However, organics bins are optional in some areas and must be purchased by residents.

All metropolitan Adelaide councils collect residual waste bins weekly and recyclables fortnightly, but organics collections vary: all are fortnightly, but some are still opt-in.

The average landfill recovery rate from the three-bin system across the 19 metropolitan Adelaide councils was 50.7% in 2019-20. The top performing councils – some achieving nearly 60% – were those that provide a weekly residual waste collection, fortnightly recyclables collection and fortnightly organics collection including food waste. Regionally, the recovery rate varies from zero (single bin service for residual waste only) to rates that are on par with metropolitan Adelaide (three-bin systems) with fortnightly collection.

Councils often contract collection services to external contractors, many of which are private companies. The contractors collect the residual bins which are transported to landfill transfer stations, mixed-recycling bins which are taken to Material Recovery Facilities (MRFs) for sorting and processing and green organics bins to composting facilities. The quantities are weighed at weighbridges at each location and individual councils are charged a service fee².

1.3 Context

Since 2005 Green Industries SA, formerly Zero Waste SA, has funded metropolitan and regional councils to implement improved kerbside collection systems for residents. In particular, there has been an increased emphasis on diversion from landfill using better performing kerbside systems.

By 30 June 2020, \$23.3 million had been provided to 67 councils and 10 of their subsidiaries through a range of GISA grants programs such as: *Circular Economy Market Development; E-Waste Collections and Incentives; Illegal Dumping Prevention; Kerbside Performance Incentives; the Kerbside Performance Plus [Food Organics] Incentives which focuses on food diversion from residual to organics bins; Kerbside Recycling Campaign; Plastic Bags Reduction; Recycle Right Household Education; Regional Transport Subsidies Program; Regional Infrastructure/Implementation; Business Sustainability Program and Reuse; and Recycling/Metropolitan Infrastructure.*

The Local Government Association of SA (LGASA) has a strong interest in municipal waste management and recycling, as these services are valued by residents and present a significant cost to councils. As councils provide waste management and recycling services to their residents, they are the primary custodians of the kerbside waste data.

The SA Local Government Grants Commission (SALGGC) requests waste management data from all councils, which is provided on an annual basis.

All 19 metropolitan Adelaide councils provide their kerbside waste data directly to GISA for the purpose of this report. GISA used SALGGC data to quantify costs incurred by councils for kerbside collections and for reporting waste quantities for regional councils.

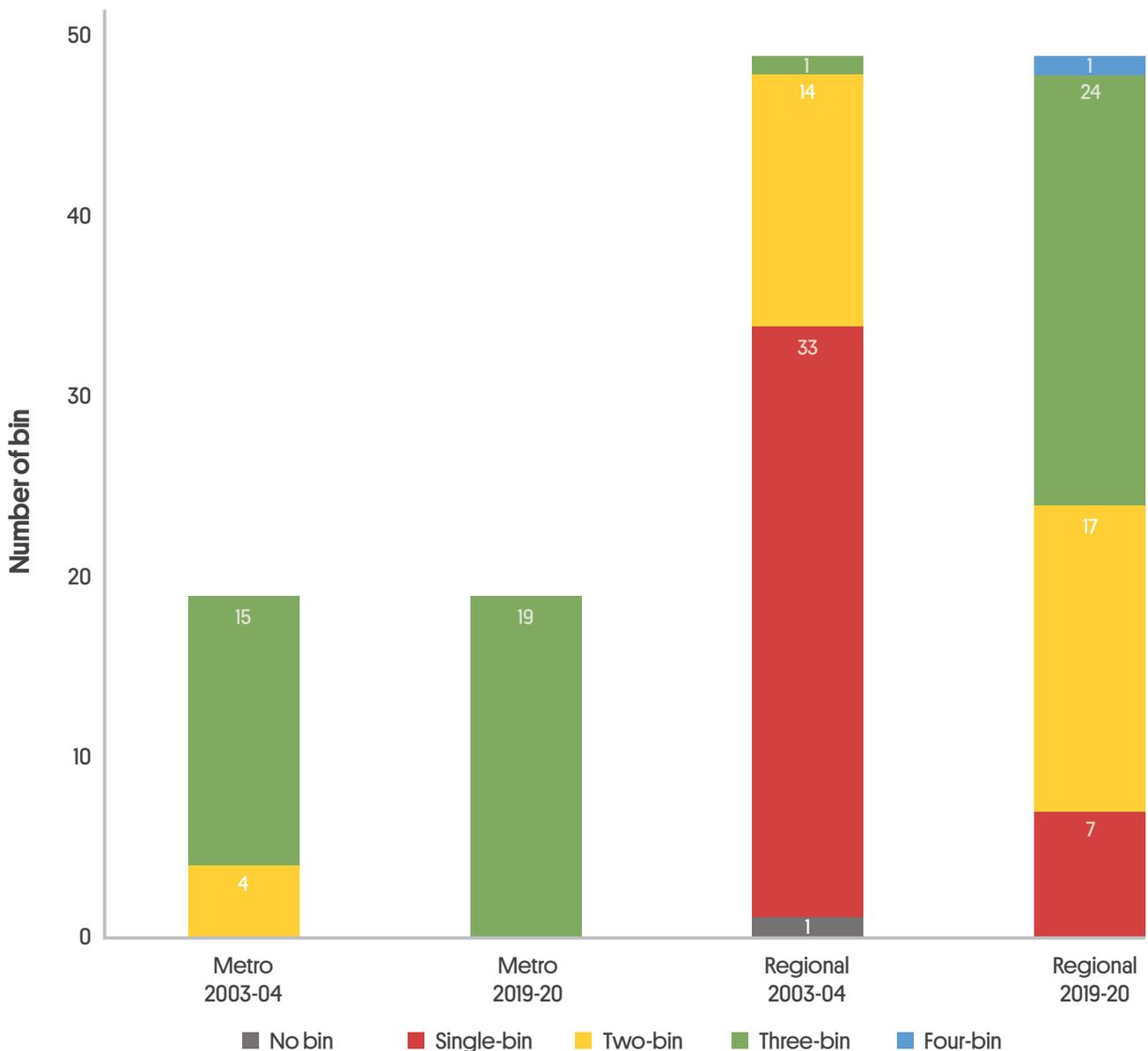
² In regulations under the Environment Protection Act, if a council sends less than 10,000 tonnes to landfill per year, the waste quantities can be estimated based on a population formula [SA EPA 2009]

2. Findings

2.1 South Australia's Kerbside Waste and Recycling Services

South Australia has 68 councils, 19 of which are metropolitan and 49 regional. In 2019-20, 44 councils across the State offered 3-bin systems to their residents (one offering a 4-bin system), compared with 16 in 2003-04. Only 7 councils now offer a 1-bin system. This improvement in recycling services offered is illustrated in **Figure 1**.

Figure 1. Regional and Metropolitan Adelaide Kerbside bin systems compared in 2019-20 and 2003-04



2.2 South Australia's Kerbside Quantities

In SA in 2019-20, approximately 669,200 tonnes of municipal waste was collected from kerbside, 517,800 tonnes from metropolitan areas and 151,400 tonnes from regional areas (**Table 1**). The 19 metropolitan Adelaide councils account for 77% of the total kerbside waste collected in SA.

Table 1. South Australia's Total Kerbside Waste Quantities in tonnes, 2019-20

Material	State - SA (tonnes)	Metro (tonnes)	%	Regional (tonnes)	%
Residual	346,800	255,300	74%	91,500	26%
Organics	188,400	158,100	84%	30,200	16%
Recyclables	134,100	104,400	78%	29,700	22%
Total	669,200	517,800	77%	151,400	23%
Recovery Rate	48.2%	50.7%		39.6%	

Sources: SALGGC [2021] and GISA [2021]

South Australians produced approximately 379 kg per person of MSW at kerbside per year, or 997 kg per household serviced (**Table 2**). There has been an increase in total waste of 4.2% from the previous financial year (**Table 3**), much of which is related to people staying home during the COVID-19 pandemic restrictions. **Table 3** also illustrates the significant progress in recovery rates from 2003-04 when a three-bin system rollout had commenced in some councils.

Table 2. South Australian kerbside waste collections per household and per person, 2019-20

Material	State – SA (tonnes)	Waste Per Capita (kg/pp/yr)	Waste Per Household (kg/hh/yr)
Residual	346,800	197	517
Organics	188,400	107	281
Recyclables	134,100	76	200
Total	669,200	379	997

Table 3. South Australian kerbside waste quantities comparing 2018-19 and 2019-20 which are contrasted with 2003-04

Material	2003-04	2018-19	2019-20	12 month Difference (%)
Residual	504,600	346,350	346,800	>0.1
Organics	83,600	163,750	188,400	15.0
Recyclables	84,800	131,500	134,100	2.0
Total Tonnes	673,000	641,600	669,200	4.2
Recovery Rate	25.0%	46.0%	48.2%	2.2%

2.3 Metropolitan Adelaide Kerbside Waste and Recycling Services Provision

In 2019-20, all 19 metropolitan Adelaide councils offered access to the three-bin system (up from 15 in 2003-04), although three – Playford, Salisbury and Gawler – only provided an organics service on request and the Adelaide Hills Council only covered about two-thirds of households (mostly in townships) for organics service.

An estimated 57% of rate payers in Playford, Salisbury and Gawler chose to pay for an organics bin under Northern Adelaide Waste Management Authority’s (NAWMA) voluntary service (NAWMA 2020), with participation increasing since 2011-12. It is estimated that about 90% of metropolitan households now have three bins in use, a figure which has risen as Northern sub-region councils move towards a full three-bin rollout.

All metropolitan Adelaide councils now offer a weekly residual service, fortnightly recyclable collections and fortnightly organics collections.

All use yellow lids for recycling bins and most use green (lime or dark green) for organics bins, but only 12 councils (covering 63% of households) use red lid for residual waste, as set out in Australian standard AS 4123.7 (see **Table 4**). The other seven use blue lids which, according to the standard, are for cardboard and paper only.

Using AS 4123.7 has been found to reduce waste sent to landfill, increase recycling and support consistent education campaigns to reduce resident confusion about how to correctly use kerbside bins collection services (MWRRG 2017).

Table 4. Some kerbside bin colours as recommended in AS 4123.7

Type of materials	Body	Lid
Garbage/General waste	Dark Green or Black	Red
Green Waste/Organics	Dark Green or Black	Lime Green
Recyclables	Dark Green or Black	Yellow
Paper/cardboard	Dark Green or Black	Blue

2.3.1 Metropolitan Adelaide Kerbside Quantities

In 2019-20, residents in the metropolitan area generated 517,800 tonnes of kerbside materials, of which 50.7% was recovered as recyclables or organics, a 2.0% increase from the previous year (**Table 5**). This was driven by a 15.7% increase in organics, much of it due to a change from monthly organics bin collections to fortnightly collections at a large council.

Table 5. Metropolitan Adelaide Councils: comparisons of 2018-19 and 2019-20 with 2003-04 Kerbside Quantities

Material	2003-04	2018-19	2019-20	12 month Difference (%)
Residual	302,300	250,900	255,300	1.7
Organics	66,800	136,600	158,100	15.7
Recyclables	74,300	101,700	104,400	2.6
Total Tonnes	443,400	489,200	517,800	5.8
Recovery Rate	31.8%	48.7%	50.7%	2.0%

Approximately 390 kg of MSW from kerbside was collected per person, or 1,039 kg per household serviced (**Table 6**).

Table 6. Metropolitan Adelaide kerbside waste collections per household and per person, 2019-20

Material	Metro Adelaide (tonnes)	Waste Per Capita (kg/pp/yr)	Waste Per Household (kg/hh/yr)
Residual	255,300	192	512
Organics	158,100	119	317
Recyclables	104,400	79	210
Total	517,800	390	1,039

Seasonal fluctuations in monthly collection trends (**Figure 2**) can affect quantities. For example, garden waste increases in spring and autumn and general waste around Christmas and Easter. Weather conditions, particularly rainfall, also can affect quantities of garden waste. Despite 2019-20 being a relatively dry year (see rainfall figures in **Table 13**), the three bin recovery rates increased compared to the previous years due to full impact of a fortnightly organics bin service being introduced in Adelaide's largest council, and the influence of a large number of people working from home due to COVID-19 restrictions.

Fluctuations in the three-bin recovery rate over 2019-20 are shown in **Figure 3**. The pick-up in organics in May is likely due to milder weather encouraging garden growth and waste from deciduous trees. COVID-19 factors such as lockdowns would also have contributed to organics changes.

Figure 2. Metropolitan Adelaide Monthly three-bin Kerbside Quantities, 2019-20

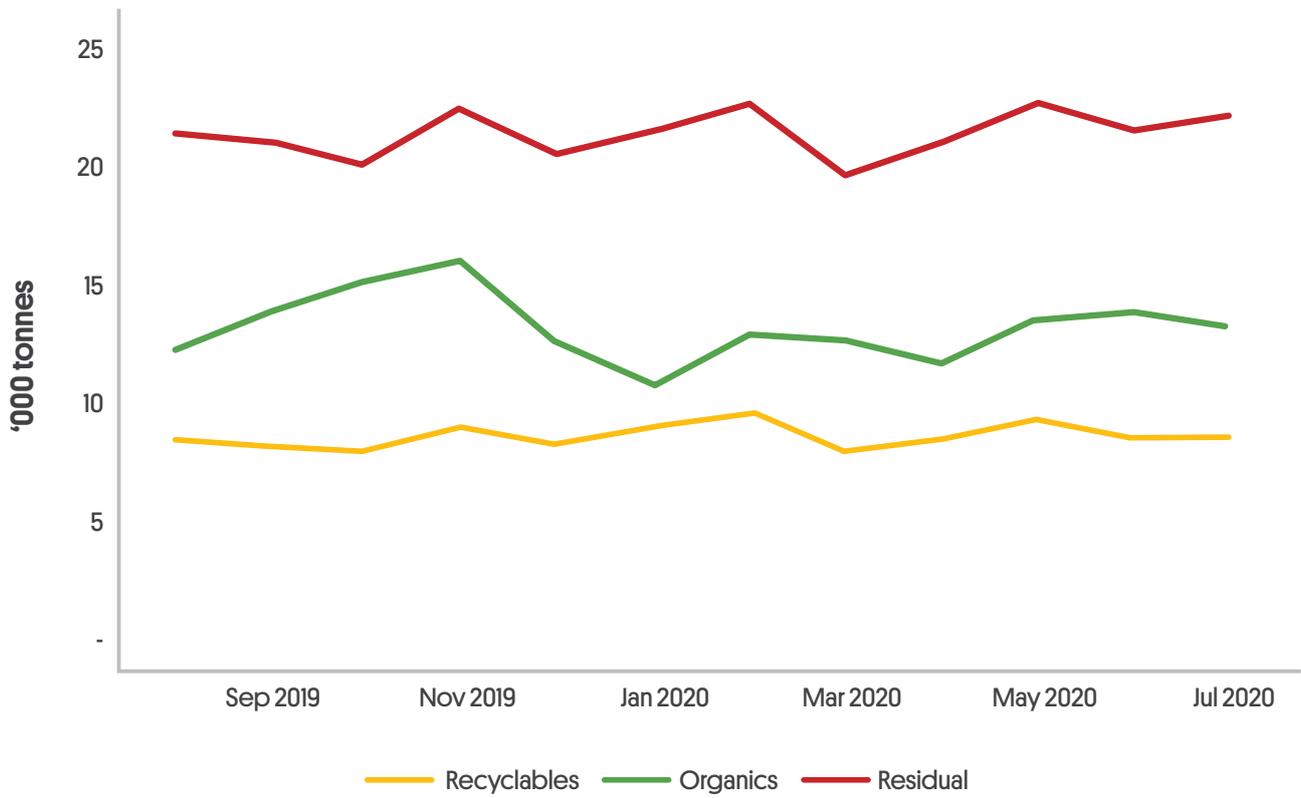


Figure 3. Metropolitan Adelaide Average three-bin Recovery Rate by Month, 2019-20

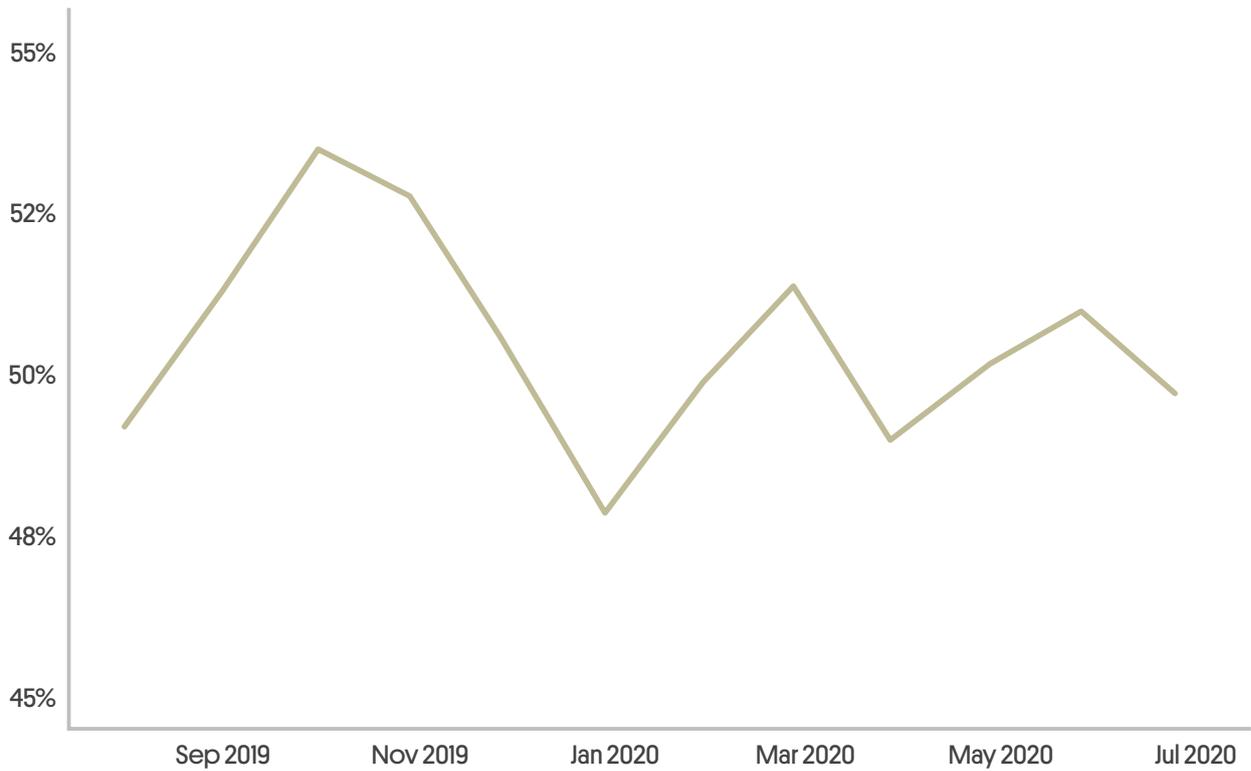
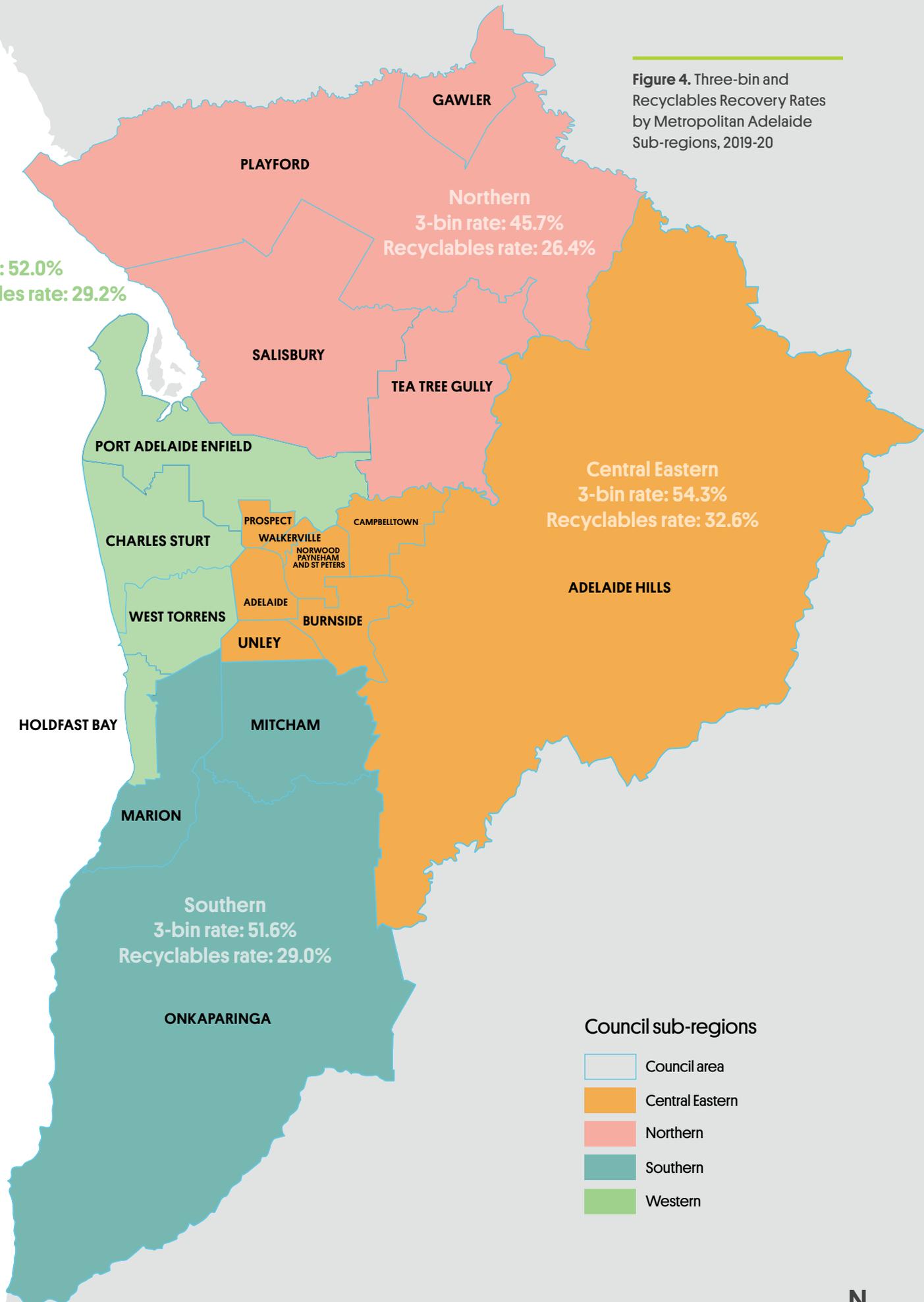


Figure 4. Three-bin and Recyclables Recovery Rates by Metropolitan Adelaide Sub-regions, 2019-20

Western
3-bin rate: 52.0%
Recyclables rate: 29.2%



2.3.2 Metropolitan Adelaide Recovery Rate Performance

Table 7 shows the three different recovery rates for each of the 19 metropolitan councils with the previous year's figures as a contrast. A description of the organics and food waste diversion service they offer residents is also provided. The councils are ranked from highest performer to lowest by the 3-bin recovery rates, but colour coding also provides relative ranking for their recyclables and organics recovery rates. This shows some of the compounding issues that make up the 3-bin recovery rates. For example, the lowest ranked council does not have as much residential garden area and cannot collect organics quantities at levels equivalent to other councils. However, their recyclables recovery rate is close to the Metropolitan Adelaide median value. This is further investigated in **Figure 10**.

Over two-thirds of these councils have three-bin recovery rates greater than 50%. Eighteen of the 19 metropolitan Adelaide councils have increased their recovery rate and only one has decreased slightly.

In general, the best performing councils have full organics bin coverage, supplemented with a food caddy and are located in an area with a high greenness index. However, direct comparisons are difficult due to different underlying factors such as geography, demography, use of food caddies and rainfall.

Figure 5 provides the three-bin recovery rates from the 19 Metropolitan Adelaide councils over a number of years. Although expressed as a three-bin rate, in a small number of councils householders may have had a two-bin only at kerbside as some systems were opt-in.

Figure 5. Metropolitan Adelaide Kerbside three-bin Recovery Rates, 2019-20 compared to the previous three years, and 2002-03

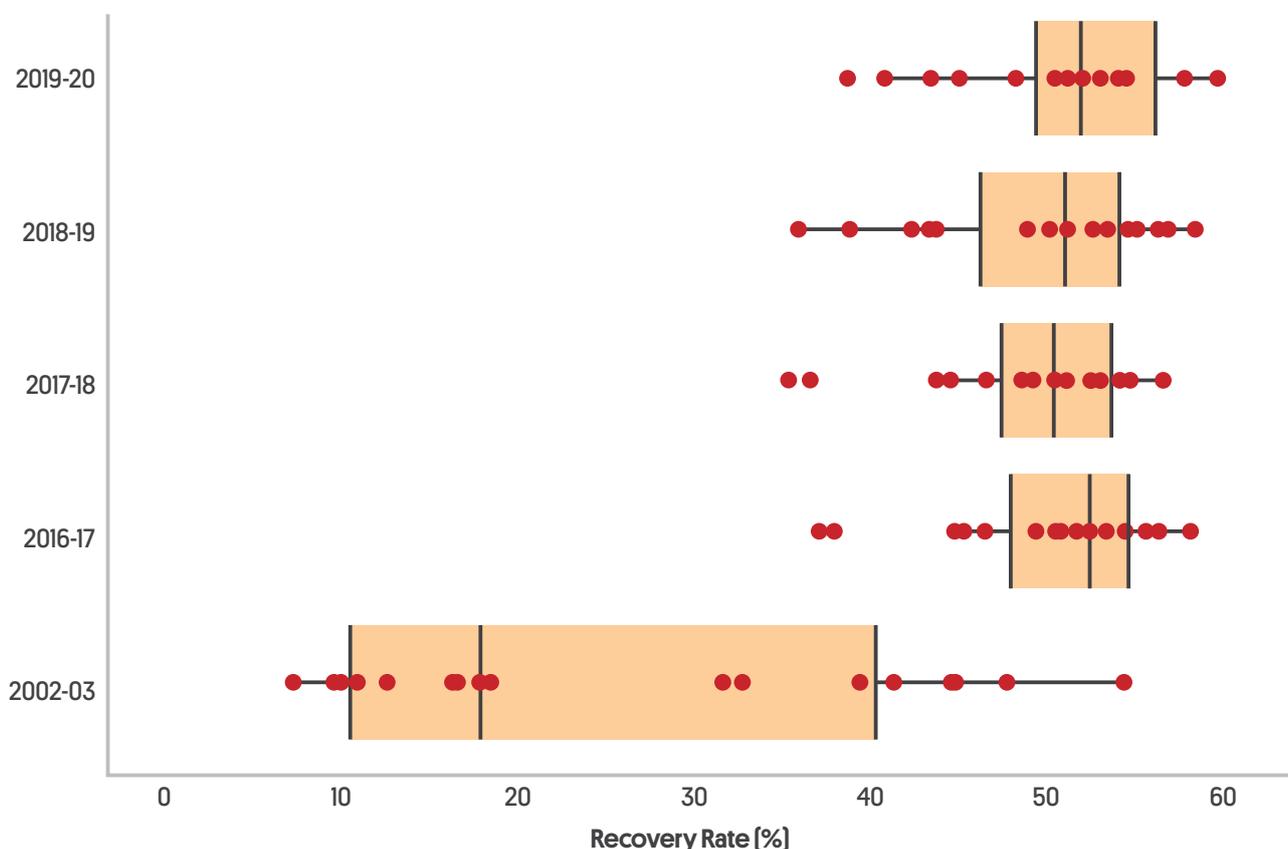


Table 7. Recovery Rates Achieved by each Metropolitan Adelaide Council, 2019-20

Sub-Regions	2019-20			2018-19			Food Waste System	Participation rate [%]	Greenness index
	3-bin RR	Org. RR	Recyc. RR	3-bin RR	Org. RR	Recyc. RR			
Central Eastern	59.7	48.4	35.3	58.5	46.8	34.6	Area-wide	100%	0.200
Southern	58.0	46.8	33.5	56.3	44.1	33.3	Limited trial	22%	0.230
Central Eastern	57.9	46.2	34.1	54.6	42.8	31.3	Opt-in	unknown	0.176
Western	57.8	44.8	35.8	55.2	41.1	34.8	Area-wide	100%	0.141
Central Eastern	57.7	45.1	35.3	56.9	43.4	35.5	Opt-in	unknown	0.171
Central Eastern	54.5	41.4	32.9	53.4	39.8	32.8	Area-wide	100%	0.146
Central Eastern	54.1	42.3	30.8	52.6	40.5	30.1	Area-wide	100%	0.152
Southern	53.3	41.8	29.8	48.8	37.8	25.7	Opt-in	8%	0.163
Central Eastern	53.0	41.4	29.6	53.3	40.9	31.0	Opt-in	11%	0.149
Western	52.1	41.7	27.0	51.2	39.9	27.7	Opt-in	16%	0.148
Western	51.9	40.3	28.9	50.4	37.8	28.9	Opt-in	26%	0.138
Northern	51.3	38.8	29.5	50.1	36.8	29.6	Opt-in	3%	0.173
Central Eastern	51.2	36.3	32.3	51.0	35.4	33.1	Limited	unknown	N/A
Western	50.4	38.1	28.6	49.0	35.6	28.9	Area-wide	100%	0.136
Southern	48.2	35.9	27.1	43.4	28.7	26.7	Opt-in	unknown	0.178
Northern	45.1	33.0	24.7	43.7	30.4	25.4	Opt-in	unknown	0.147
Northern	43.4	30.9	24.4	42.3	28.3	25.4	Opt-in	unknown	0.162
Northern	40.8	24.8	26.5	38.9	21.3	26.8	Opt-in	unknown	0.143
Central Eastern	38.8	15.3	31.2	36.0	13.0	29.2	Opt-in	unknown	0.111

2.4 Regional Kerbside Waste and Recycling Services Provision

In 2019-20, of the 49 regional councils, 25 councils offered a 3-bin service (one offers a fourth bin for paper and cardboard) compared with one council in 2003-04, and 17 had 2-bin systems, up from 14 in 2003-04. Of the 25 councils with a 3-bin system, 10 offered this service to town residents only and other residents in the council area received a 2-bin service. The number of councils with a 1-bin system decreased several years ago to seven from 33 in 2003-04 (**Figure 1**) and has remained constant since. A number of regional areas provide residents with drop off waste directly to transfer stations which would affect the reported recovery rate.

Table 8. Regional kerbside services offered by local councils by bin type, 2019-20

Kerbside Services	Recycling	Organics	Residual
Weekly	0	0	43
Fortnightly	39	20	6
Monthly	3	5	0
No service	7	24	0

The frequency of waste collections offered in regional townships is shown in **Table 8**. This table lists the main kerbside service offered for townships, but if there was no kerbside collection service, the main alternative was noted such as drop-off facilities or an 'at call' service. All 49 regional councils provide a residual kerbside collection with 43 councils collecting residual waste weekly and six fortnightly.

Recyclables are collected fortnightly by 39 councils (including one opt-in), monthly by 3 councils, and 7 councils have drop-off facilities only for recyclables. Organics are accepted at drop-off facilities at 30 councils, and 20 councils collect organics fortnightly from kerbside. Five councils have a monthly collection service for kerbside organics. Collection services for individual regional councils can be found in **Appendix 4**.

Since 2004, GISA has contributed grants to assist 48 of these councils to expand their kerbside services. This grant recipient number does not include grants to associations or commercial services within a local government area for improvements that would directly affect the council's kerbside collections.

2.4.1 Regional Kerbside Quantities

In 2019-20, residents in regional SA areas generated 151,400 tonnes of kerbside materials, of which 39.6% was recovered as recyclables or organics, a 2.2% increase on the previous year (Table 9). This was driven by a 11.2% increase in organics.

Approximately 346 kg of MSW from kerbside was collected per person, or 875 kg per household serviced in regional areas (Table 10).

Table 9. South Australian Regional Councils: comparisons of 2018-19 and 2019-20 with 2003-04 Kerbside Quantities

Material	2003-04	2018-19	2019-20	12 month Difference (%)
Residual	202,300	95,500	91,500	-4.1
Organics	16,800	27,200	30,200	11.2
Recyclables	10,500	29,800	29,700	-0.4
Total materials	229,600	152,500	151,400	-0.6
Recovery Rate	11.9%	37.4%	39.6%	2.2%

Table 10. Regional SA kerbside waste collections per household and per person, 2019-20

Material	Regional (tonnes)	Waste Per Capita (kg/pp/yr)	Waste Per Household (kg/hh/yr)
Residual	91,500	209	529
Organics	30,200	69	175
Recyclables	29,700	68	171
Total	151,400	346	875

2.4.2 Regional South Australia Sub-Regions

To provide some comparisons between councils, sub-regional aggregations have been used. Since 2004-05, populations in all sub-regions have increased [ABS 2021], which has contributed to an increase in total waste generated. Per person and per household analysis has been undertaken and can be seen in **Table 12** and are mapped out in **Figure 6**.

The box plot in **Figure 7** illustrates the range of kerbside waste recovery performance within each sub-region. The colour codes indicate the number of bins used by each council and clearly show the higher performance of using a three-bin system. The one council with a 4 bin system performs better than the 2 bin systems but lower than most of the three bin systems.

Table 11. Local Government regions: populations and households

Sub-region	Councils	Population [2020]	Occupied Private Dwellings [2016]
Central	Adelaide Plains, Barossa, Barunga West, Clare and Gilbert Valleys, Copper Coast, Flinders Ranges, Goyder, Light Regional, Mount Remarkable, Northern Areas, Orroroo Carrieton, Peterborough, Port Pirie, Wakefield, Yorke Peninsula	128,923	51,253
Eyre Peninsula	Ceduna, Cleve, Elliston, Franklin Harbour, Kimba, Lower Eyre Peninsula, Port Augusta, Port Lincoln, Streaky Bay, Tumby Bay, Whyalla, Wudinna	70,585	29,721
Murray Mallee	Berri Barmera, Coorong, Karoonda East Murray, Loxton Waikerie, Mid Murray, Renmark Paringa, Murray Bridge, Southern Mallee	73,094	29,117
Outback	Cooper Pedy, Roxby Downs	5,768	2,228
South East	Grant, Kingston, Mount Gambier, Naracoorte Lucindale, Robe, Tatiara, Wattle Range	67,365	26,154
Southern & Hills	Alexandrina, Kangaroo Island, Mount Barker, Victor Harbor, Yankalilla	92,044	34,447
Total		437,739	172,920

Sources: ABS [2016] and ABS [2021]

Table 12. Local Government Regions - Total Kerbside Waste Collected, Per Person and Per Household, 2019-20

Sub-region	Recyclables (tonnes)	Organics (tonnes)	Residual (tonnes)	Total waste (tonnes)	Waste per Capita (kg/p/yr)	Waste per Household (kg/hh/yr)
Central	8,900	6,110	27,600	42,600	330	830
Eyre Peninsula	3,650	2,960	17,000	23,600	334	794
Murray Mallee	4,390	4,040	15,200	23,700	324	813
Outback	198	60	1,480	1,730	301	778
South East	4,260	5,220	13,900	23,400	347	895
Southern & Hills	8,250	11,900	16,300	36,420	396	1,060
Total	29,700	30,200	91,500	151,400	2,030	5,170
Regional Average					339	862

Outback
3-bin rate: 14.5%
Recyclables rate: 11.8%

Figure 6. Three-bin and Recyclables Recovery Rates by Regional Sub-regions, 2019-20

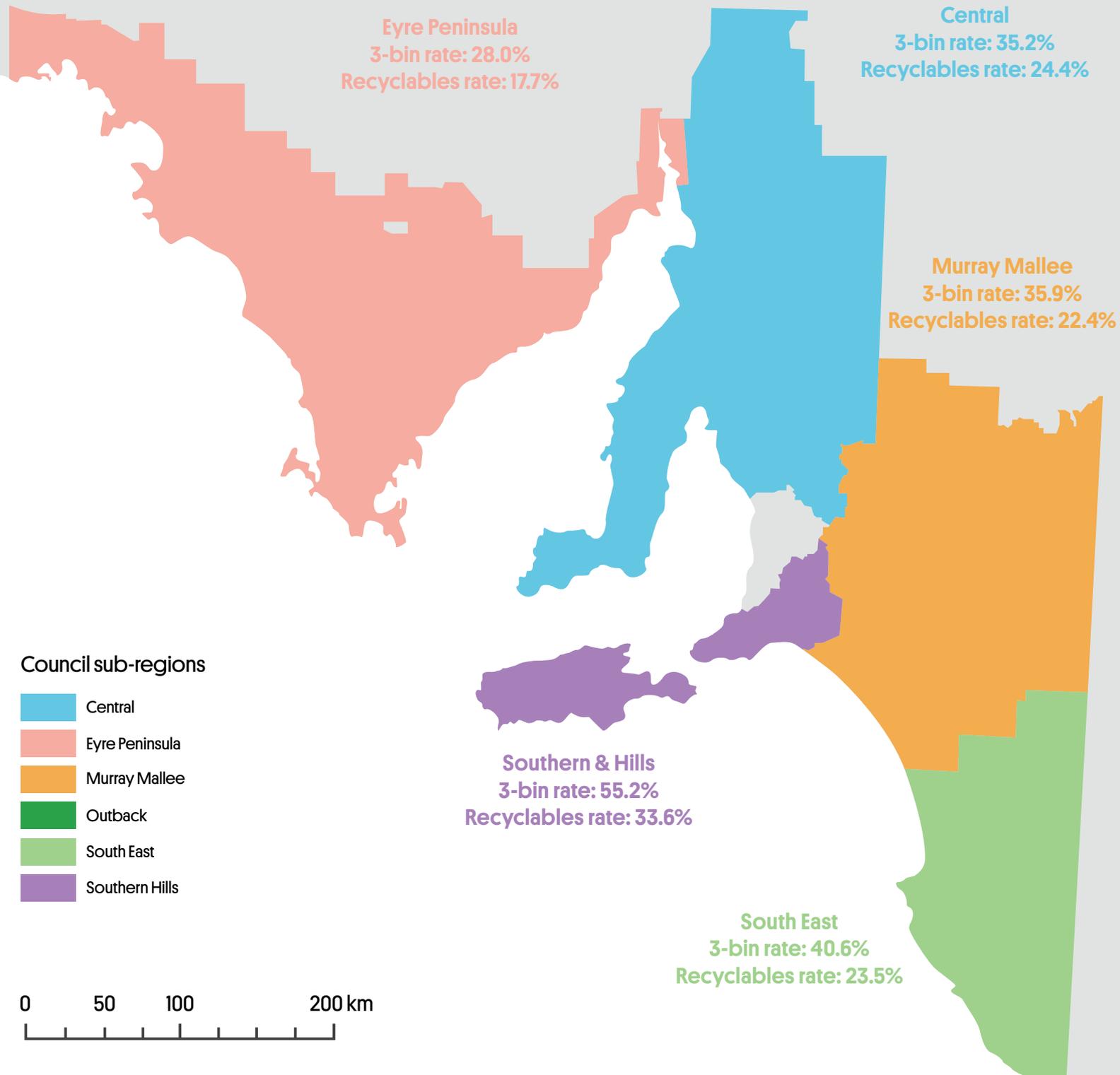
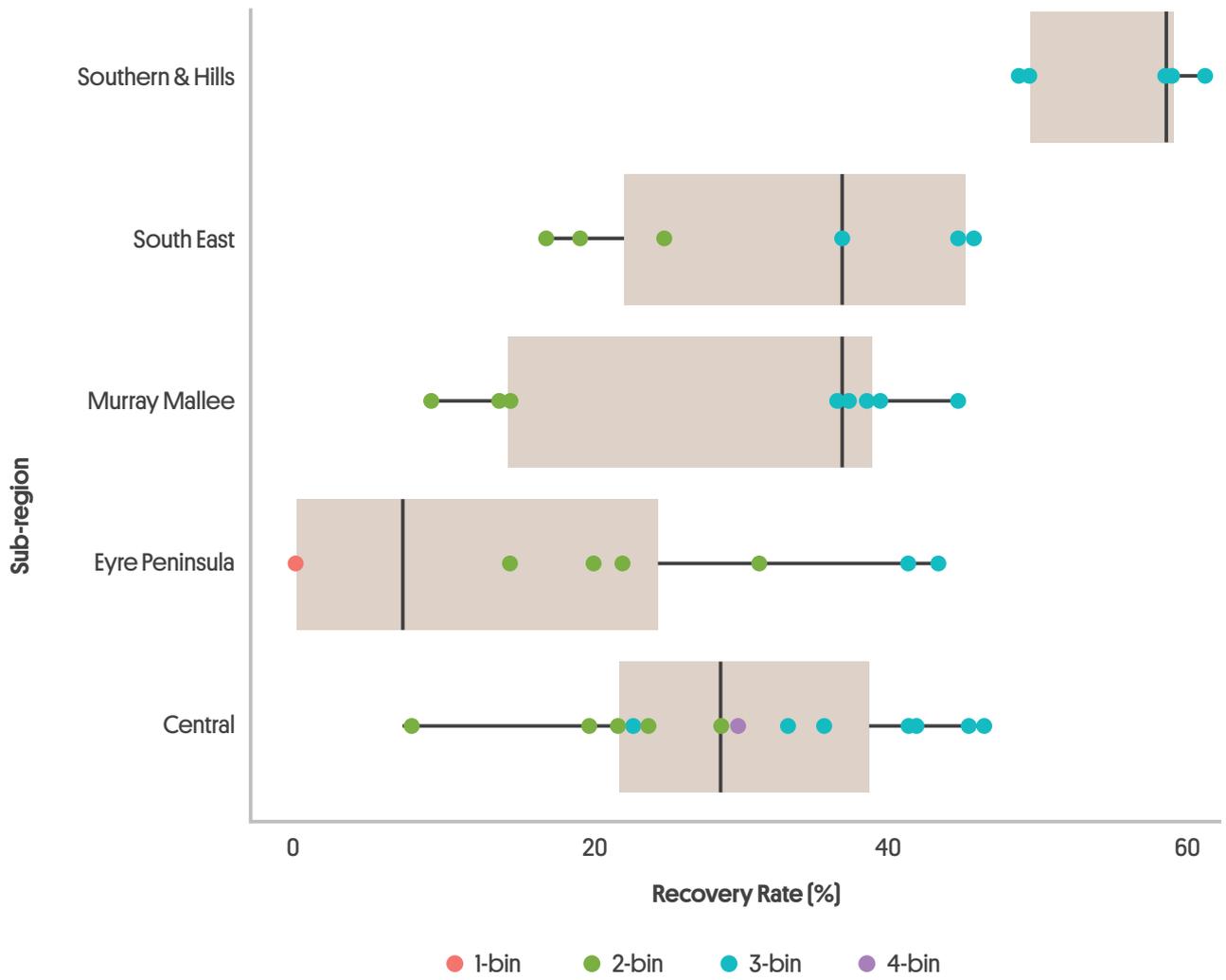


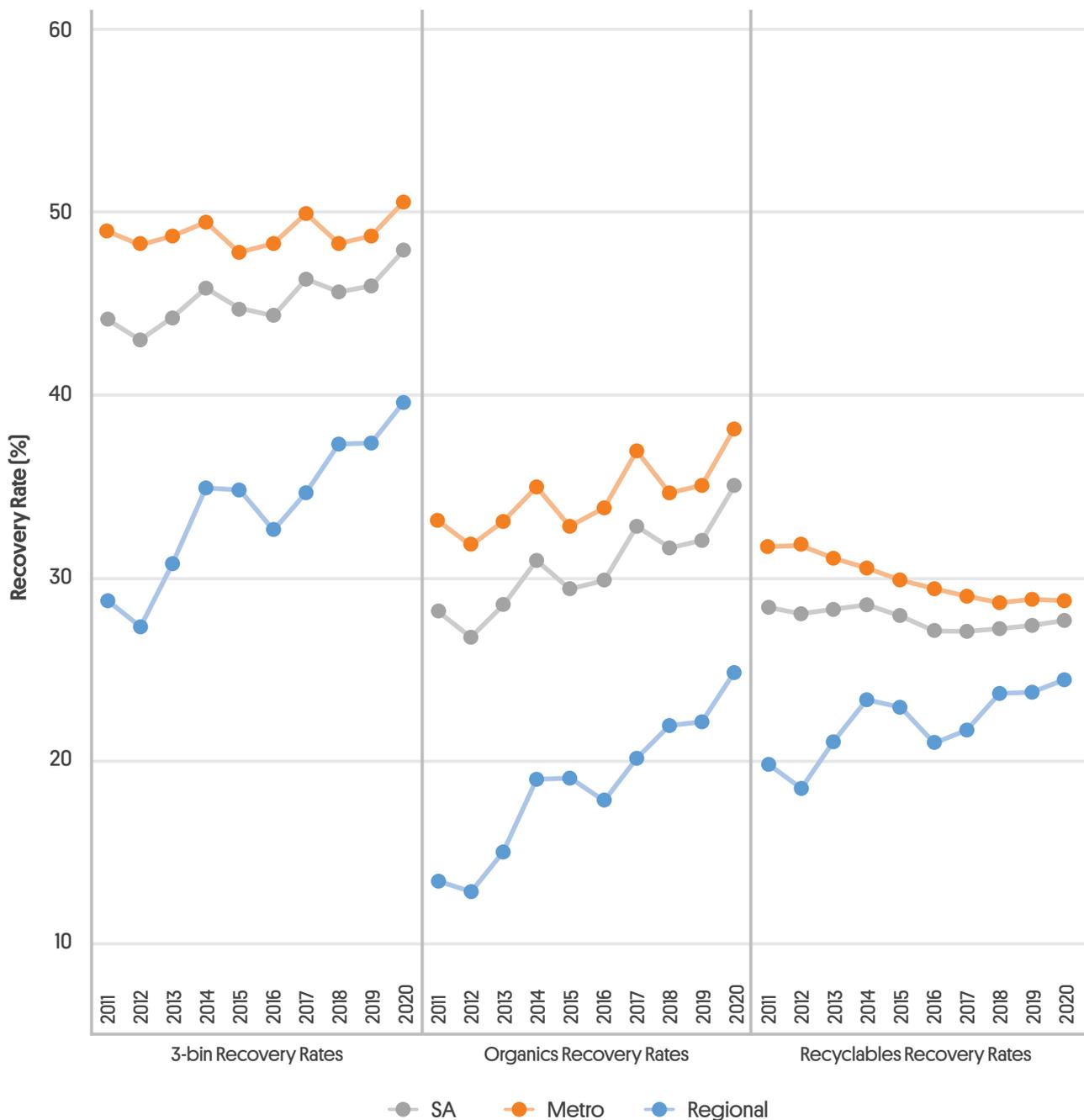
Figure 7. Range of recovery rates of councils within each sub-region



2.5 Long term trends

The long-term recovery trends for metropolitan Adelaide versus Regional SA are represented graphically in **Figure 8**. The recovery rate has improved 2.0% over the previous year for the metropolitan Adelaide area compared with only 1.5% improvement against 2010-11 performance. However, in the regional areas, there was a 2.2% improvement from the previous year compared with 10.8% over 2010-11 performance. Regional improvements are due to increased numbers of three-bin services introduced by councils whereas fluctuations in metropolitan Adelaide's rate tend to be due largely to weather factors and garden organics produced.

Figure 8. Recovery rates [3-bin, organics and recyclables] for South Australia, Metropolitan Adelaide and Regional areas over 10-year period



3. Factors Affecting Recovery Rates

3.1 Food Waste Collection Systems

Table 7 indicates where food caddy systems have been deployed and how effective these have been for the metropolitan Adelaide area. Currently most of these councils offer free caddies, although in some councils, this is on an opt-in basis rather than council-wide roll-out. For some councils, the availability of food caddy systems on their websites could be more prominent to make it easier for residents, but food caddies may have been promoted in other ways.

A full council-wide rollout of food waste diversion systems, including to multi-unit dwellings, across Adelaide would be expected to lift the recovery rate significantly. Councils with opt-in organics collections should complete the organics bins rollout to all households before more food caddies are deployed. These councils will continue to achieve low recovery rates at kerbside until they do so.

In regional areas, 13 councils offer an opt-in service to at least townships. Details can be found in **Appendix 4**. A few councils encourage home composting systems as an alternative to disposal in the organics bins. No details are available on the uptake rate but, in practice, less waste should be presented at kerbside.

3.2 Garden vegetation

High levels of garden organics tend to boost overall recovery rates (**Table 7**). For example, a Hills council with leafy suburbs has the best three-bin recovery rate, but when organics (the third bin) are discounted, its recovery rate is lower compared to a western suburbs council. Councils with opt-in organics services tend to have lower three-bin recovery rates. Some drier council areas also have alternative recovery options such as resident drop-off facilities, which would not be reflected in three-bin figures.

Adelaide's rainfall was lower in 2019-20 relative to previous years (**Table 13**), which should have contributed to a decrease in organics collected compared with 2018-19, but recent bin collection changes in one large council, and effects of COVID lock downs (more home food waste and gardening) resulted in a 15.7% increase in organics presented at kerbside.

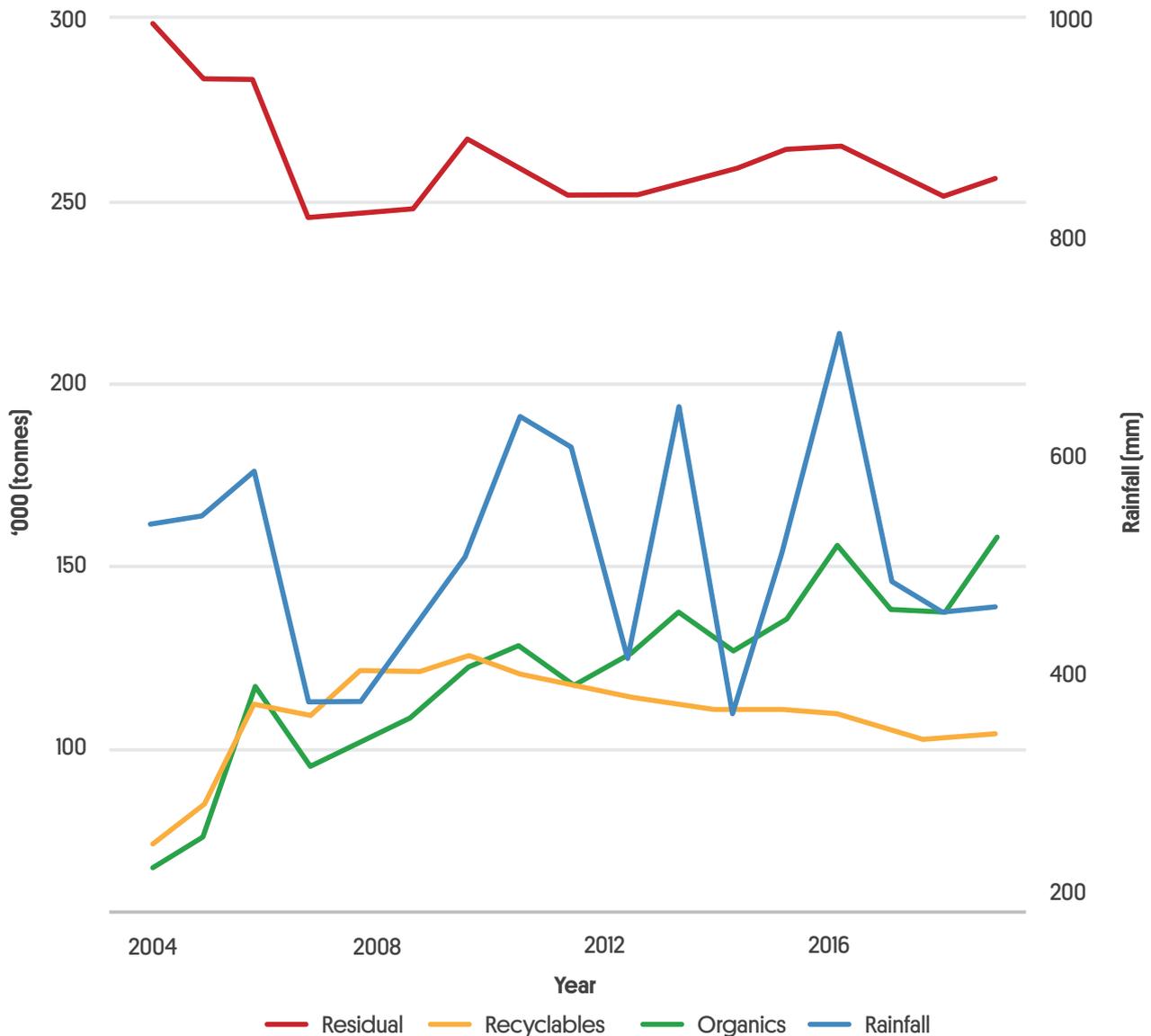
Table 13. Total Rainfall (mm) Recorded at Kent Town for Financial Years (periods ending June 30)

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Rainfall (mm)	638	609	413	647	377	523	716	487	456	451*

*From 2019-20 rainfall measurements were made at West Terrace as the Bureau of Meteorology had closed Kent Town station.

Figure 9 shows annual rainfall and total waste quantity of each of bins collected at kerbside for the years 2003-04 to 2019-20. Volumes of organics collected drop in dry years, although this is offset by watering of gardens and rainfall patterns across the year. The graph shows the rise in green and yellow bin collections from the gradual introduction of three bins. The drop-off of the volume in yellow bin volumes is likely due to the light-weighting of packaging and drop in newspaper sales. The rise in green bin volumes is likely due to increased services and the increase in food content which is heavier than garden green organics.

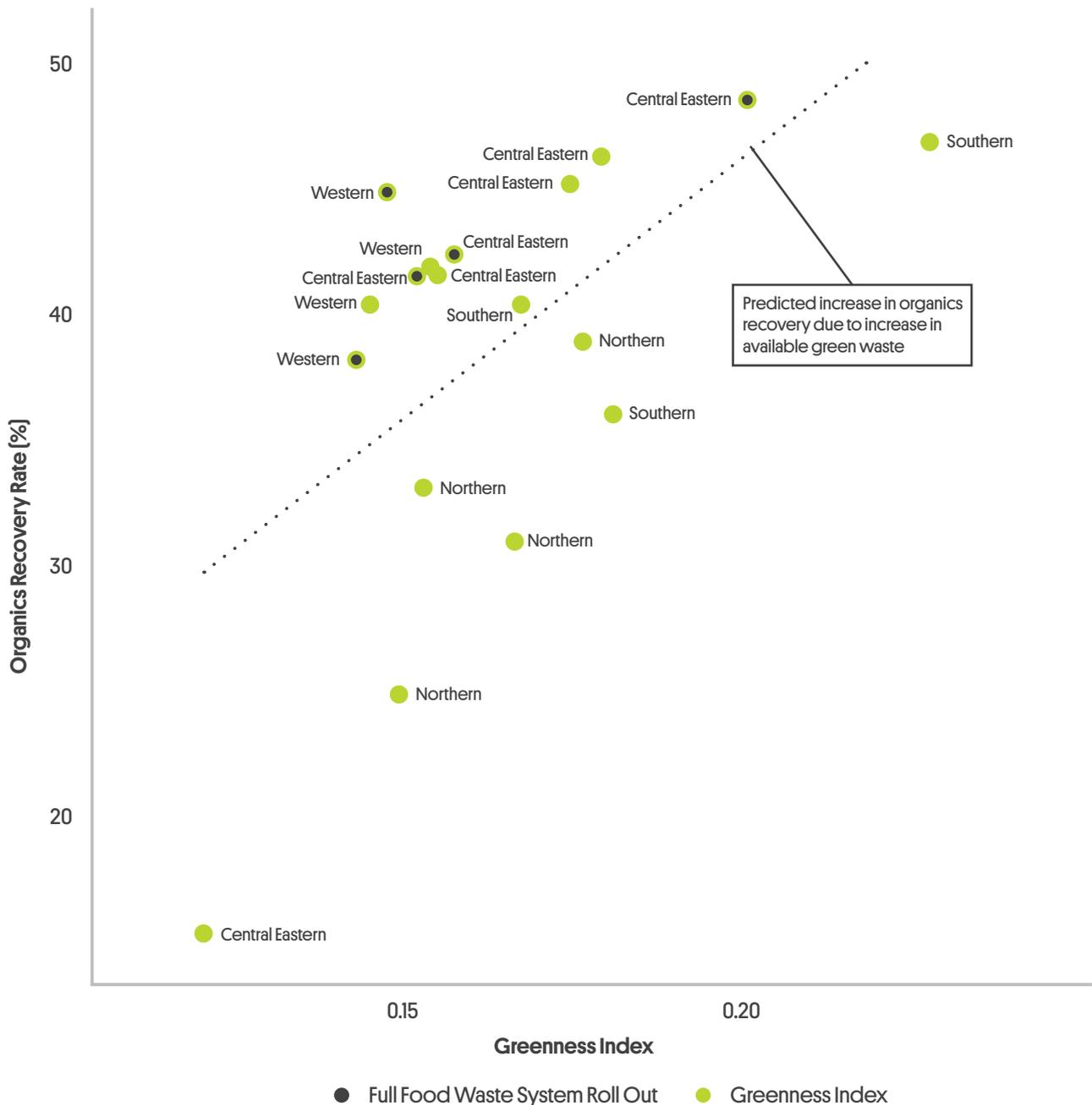
Figure 9. Trends of kerbside waste tonnages by bin compared with annual rainfall for Metropolitan Adelaide from 2003-04 to 2019-20



The organics recovery rate was plotted against the greenness index for each metropolitan Adelaide council (except Adelaide Hills) (**Figure 10**) to illustrate that the recovery rate is linked to levels of organic waste presented at kerbside, i.e. councils who can produce more green waste have more waste to recycle and could achieve better recovery rates. Conversely, councils with a residential area served by higher numbers of multi-unit dwellings and very little garden area per dwelling will score lower on a greenness index and are likely to score lower for recovery rates.

Highlighted in **(Figure 10)** are those councils who have a full food waste system deployed to their residents. All these councils scored above the trend line regardless of their greenness index which confirms that food waste diversion systems when rolled out across whole council areas do increase the recovery rate of waste at kerbside.

Figure 10. Organics recovery rate plotted against the greenness index for each metropolitan Adelaide council (except Adelaide Hills)



3.3 Recyclables

In recent years, there has been a trend to reduce the weight of glass and steel packaging or to replace these materials with lighter plastics, and consumers are reading more information digitally which results in fewer physical copies of newspapers and magazines. Newspaper sales fell 44% between 2005 and mid 2018 [see Wikipedia [2019]].

This has led to a decrease in the volume and, in particular, the weight of material being recycled – though this may be offset to some extent in the future by increased amounts of cardboard as the trend towards online shopping increases, in particular during COVID-19 lockdowns.

Waste avoidance can lead to less waste produced which may lower the recovery rates if this results in less recyclables presented at kerbside. To offset this drop, less material must be presented in residual bins and changes to householder behaviour such as food waste diversion are essential.

3.4 Economic and demographic

Economic and demographic factors influence the amount of kerbside waste and recovery rates. Residual waste per person has remained steady in recent years, but total kerbside waste has increased with population increases. With more waste generated there is the possibility of more recyclables generated. More organics can be produced from gardens being watered in dry years. All these individual factors create a situation where the recovery rate for these residents can go up, but ironically they may be generating more waste overall.

Each council has a mix of residents – from young families to older couples – which affects the profile of waste presented. ABS analysis from the 2016 census shows that some councils have slowing population growth [e.g. Prospect], while others are attracting young families and have increasing populations [e.g. Onkaparinga and Marion]. Each situation presents its own demographic and infrastructure challenges.

High-rise developments affect bin system rollouts, and as there are no gardens per household, three-bin recycling rates decrease in areas with large numbers of these developments [e.g. central Adelaide]. The recovery rate is related to household income, and councils with higher household incomes have tended to adopt a full three-bin system with food caddy to all households.

There are also many other factors that underlie this situation – such as awareness programs and education levels of households.

3.5 Contamination Rates

A number of kerbside waste audits were undertaken in recent years to determine the behaviour of residents in using the waste bins. Audits have been carried out by both metropolitan and regional councils.

Combined, they indicate that contamination was around 13% by weight [post collection] in recyclables bins and 2% in organics bins. Industry consultations have confirmed that these figures are consistent with their findings and that contamination of recycling bins, and to a lesser extent organics bins, continues to be an issue.

In addition to lowering the effective recovery rate, contamination interferes with sorting through materials recovery facilities (MRFs) and commercial composting facilities. This wastes resources that may otherwise be recycled or devalues its worth in potential markets.

The audits also show that 30-40% of the contents of the residual bins is food waste. Significant improvements in the recovery rate would be achieved if food waste was placed in the organics bin. Some audits have shown that the residual bin can contain as much as 69% recyclable and organic material.

3.6 Three, four, or more?

South Australia has shown that it is capable of good recovery rates of kerbside material from a three-bin system and these rates have steadily improved overall as more councils adopt the system. This improvement occurs particularly where food caddies are fully rolled out to households to divert food organics. Concerns over contamination are still raised by MRFs and composters as high contamination rates devalue recycled material and various proposals have been put forward to address the problem. Education efforts through the Which Bin campaign and infrastructure grant funding have been available through GISA to improve efficiency and contaminate removal processes.

One solution presented to improve kerbside recovery rates and reduce contamination of recyclable streams is to increase the number of bins offered to households. In 2020, Victoria announced it will introduce a fourth bin at kerbside in 2021 to collect glass bottles and jars separately. More recently, the Circular Economy (Waste Reduction and Recycling) Bill was introduced into the Victorian Parliament to enable it.

There is a possible balance between compaction of material to reduce costs and addressing contamination rates. In a study by APC Environmental Management for Zero Waste SA [2012], it was found that the average percentage of contamination in loads did not vary with compaction levels, probably due to contamination being primarily influenced by household behaviour, not waste collection. It did however find that the MRF contamination level was slightly higher than the kerbside contamination levels.

South Australia has had a container deposit scheme to divert a large proportion of glass from households in place for over 40 years. Combined with the three-bin system this has contributed to improvements in the kerbside recovery rate. However the three-bin system has not been fully implemented in all regional councils and greater diversion is still possible to reduce the amount of recyclables and organics presented in the residual bin at kerbside, particularly by increased provision of organics bins or increasing local processing capability to allow food waste in green bins. In September 2021, the South Australian Environment Protection Authority released a discussion paper on CDS changes. Its modelling estimated an economic benefit in SA of \$76 million with the increased recovery and recycling of glass beverage containers through an expanded CDS, where the currently excluded glass beverage containers are included in the CDS.

4. Conclusions

This report examines the effectiveness of the kerbside bin systems in South Australia both in metropolitan Adelaide and regional councils, using the recovery rate as an indicator. The most effective system of those in use is the fully implemented three-bin system and providing a weekly residual waste collection, fortnightly recyclables collection and fortnightly organics collection that includes food waste.

All metropolitan Adelaide councils have a three-bin system but some are opt-in only for the organics service. Increasingly, regional councils are offering a similar service, at least in townships. The councils that have the best recovery rates were generally those in which all households have a three-bin system with food waste system, which has achieved up to 60% recovery rate at certain times of the year.

The generation of kerbside waste materials by South Australian households has remained relatively stable over the study period. Improved recycling services have increased the amount of resources recovered and reduced the amount of material being disposed to landfill.

The recovery rate is an indicator of recycling performance. Both three-bin and recyclables recovery rates have been discussed and the latter attempts to show waste diversion without seasonal effects. Various factors influence the recovery rate at a local level or regional level:

- Weather – rain tends to increase organics weight and inflates recovery rates
- Packaging – may reduce the recycling rate in the longer term as heavier material such as glass and steel cans are light-weighted or replaced by lighter plastics, or with materials not recyclable at kerbside
- Less newsprint is being presented at kerbside
- Geography – density of housing and natural rainfall affects opportunities for vegetation growth
- Councils without any organics collections tend to have significantly lower recovery rates, but this may be partly off-set by resident drop-offs
- In the metropolitan Adelaide area, the use of opt-in system for organics collections in some councils has led to performances where recovery rates are seven to 10 percentage points lower than those with full organics bin roll out.
- Education programs, in addition to state-wide communications campaigns will assist councils to raise recovery rates through consistency of message across the state.
- Deploying a uniform three-bin system with food caddies will lead to greater recovery rates
- Economic and social attributes, such as household income and spending, influence the recovery rate. Additionally, the residual waste per person should also be viewed when considering long term trends. The data used for this report and some obtained from other sources show that there are still potential opportunities for greater diversion of recyclable material from the residual bins.
- Uniformity in the waste management message to residents across the whole SA community reduces confusion and increases good waste management practices and recovery rates.

Appendix 1

Non-kerbside bin waste collections

In 2019-20, South Australian councils reported collecting 669,000 tonnes of waste from bins placed at kerbside, but also handled an additional 166,000 tonnes not arising from the householder kerbside bins. The material discussed in this section is householder waste which is not collected in a kerbside bin but is usually presented in drop-offs by residents at transfer stations and council depots. As it is a mixture of MSW, C&I and C&D streams, it is not possible to separate the portions for each stream. The data provided by councils is the aggregate totals of the waste only at their transfer stations.

The non-kerbside waste collections include drop-offs of food and garden organics (FOGO), recyclables and residual wastes, the quantities of which are affected by the bin services offered in a given council area. For example, it would be expected that a regional council that does not offer a green or yellow bin may make provisions for householders to drop-off green organics or recyclables waste at depots such as transfer stations. Due to lesser numbers of 3-bin systems deployed regionally, the patterns in waste drop-offs are not the same in metropolitan Adelaide versus regional council areas.

In addition to residual, recyclables and organics wastes, there are also non-kerbside bin wastes such as street sweepings, street litter bins, hard waste, e-waste and hazardous waste. **Table A1.2** shows the tonnages of non-kerbside bins waste collected in metropolitan Adelaide and regional areas.

Table A1.1. Total tonnes of waste collected by South Australian councils by presentation type

Waste types presented	Waste Per Household (kg/hh/yr)
Kerbside bins	669,000
Drop-offs, special collections, sweepings etc	166,000
Total	835,000

The non-bin collections are shown by location (metro versus regional) in **Table A1.2**.

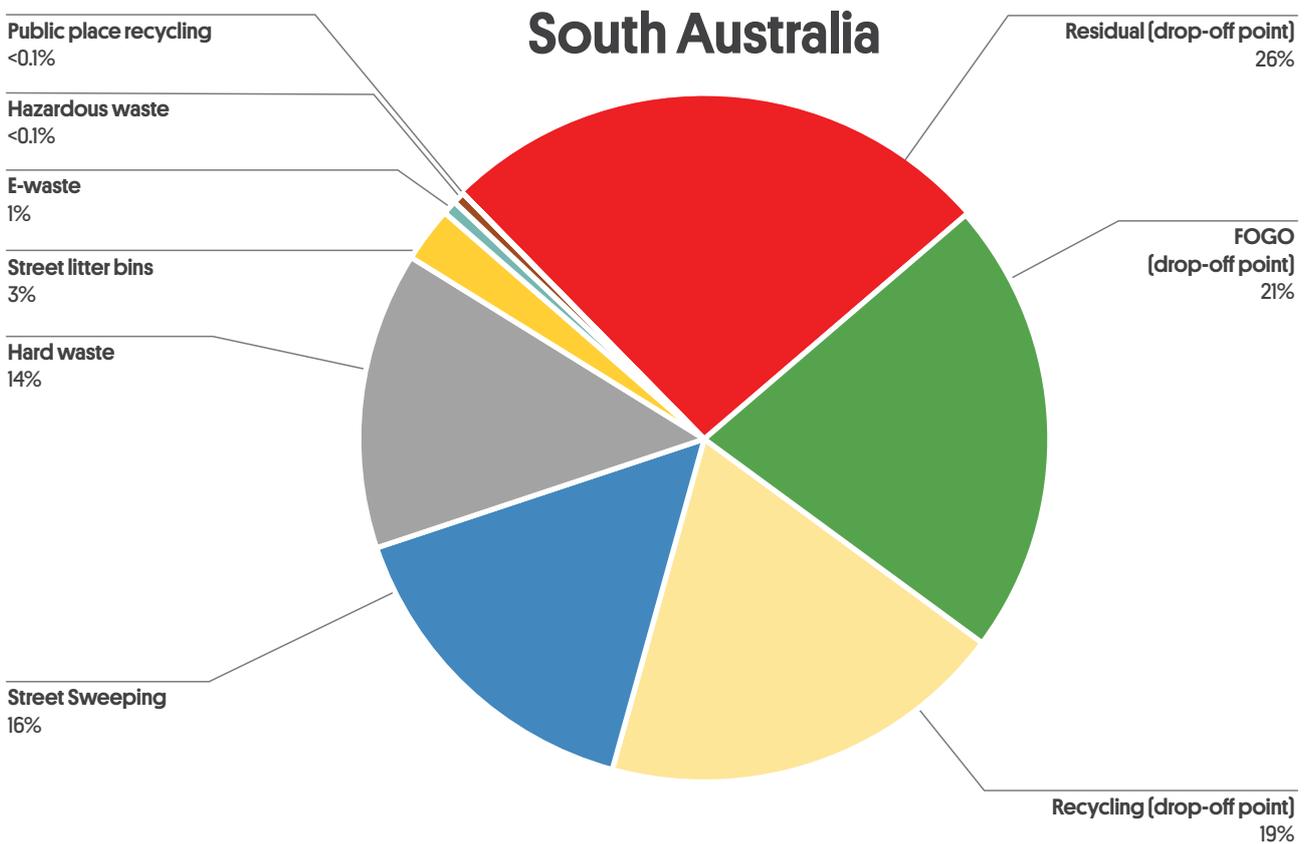
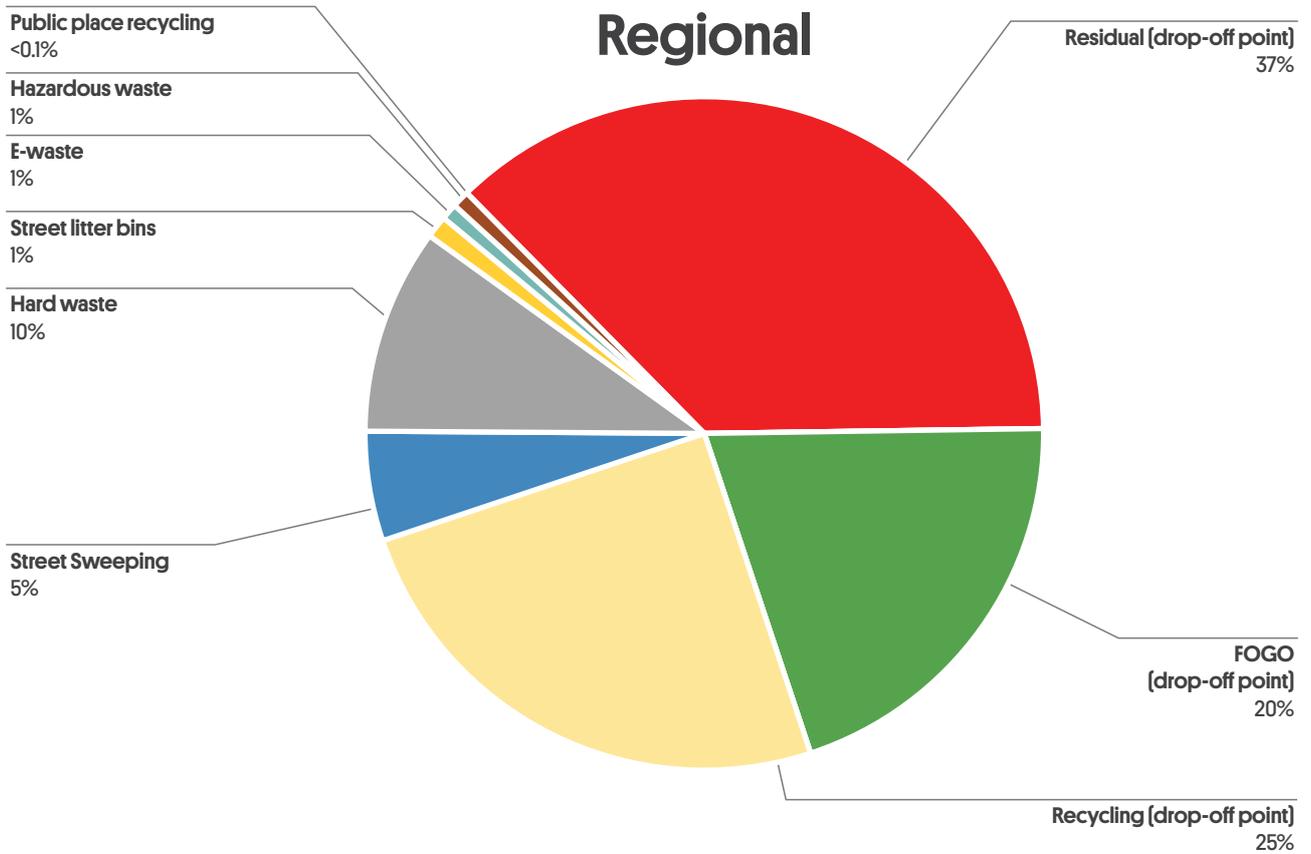
Table A1.2. Total tonnes of non kerbside bin waste collected by South Australian councils by region

Waste Type	Metro	Regional	SA
Residual (drop-off point)	4,640	38,470	43,110
FOGO (drop-off point)	14,763	20,902	35,665
Recycling (drop-off point)	5,998	25,827	31,825
Street Sweeping	20,403	5,461	25,864
Hard Waste	13,054	10,240	23,294
Street Litter Bins	3,190	1,110	4,300
E-Waste	294	813	1,107
Hazardous Waste	87	846	933
Public Place Recycling		12	12
Total	62,429	103,681	166,110

About 77% of the non-kerbside bins waste consists of organics, recyclables and residual waste similar to the material presented in kerbside bins. When street sweepings and hard waste are added, these collectively total to 96% of non-kerbside bins waste.

As previously shown in **Figure 1** in the main report, a lesser number of regional councils have 3-bin collection systems at kerbside and of those that do, many restrict collections [particularly of organics] to townships only. As a result, councils often put in place drop-off provisions for their residents. This explains the higher quantity of FOGO drop-off in regional areas. Similarly, the larger quantities of e-waste collected regionally would also reflect the lesser number of drop-off options compared to drop-off sites in metropolitan Adelaide, many of which are not council owned or managed.

Figure A1.1. Contrasting pie charts of the percentages of non-bin waste collected in South Australia as a whole and in regional SA only



Appendix 2

A2.1 Methodology

This report collates waste and recycling data from GISA, councils, contractors and the SALGGC.

Metropolitan Adelaide councils provide GISA with a monthly breakdown, in tonnes, of residual waste, co-mingled recyclables and organics whereas regional councils' tonnages are sourced from the SALGGC. Some regional councils' data was supplied to GISA in follow-ups of the data quality to clarify problems arising with data provided to SALGGC. Small amounts of commercial and industrial waste collected by councils are not counted separately as these are considered negligible and it is not possible to separate these quantities.

As the waste material streams are weighed on weighbridges, the accuracy of metropolitan Adelaide data is relatively high. While many regional councils waste goes over a weighbridge, the data supplied for some regional areas comprised all MSW waste, rather than only kerbside collected. It is also noted that the data quality for some regional councils is not as high as metropolitan data, due to the lack of weighbridges in some areas.

Data in this report has been adjusted to ensure it is kerbside only that is reported. All waste and recycling quantities in this report have been rounded to improve readability and reflect accuracy³.

Data provided annually by councils to the SALGGC is the source of many of the details of council waste services, such as bin systems and frequency of collection. As councils can offer a range of different waste services, this report summarises the main kerbside services offered to residents.

GISA has grouped councils by geographic location and other existing associations into regions taking into consideration household numbers. It should be noted that co-operative arrangements between councils in relation to waste management may exist outside the council groupings used in this report.

³ Some totals in tables may not add up due to rounding of numbers.

The three-bin recovery rate is defined as the percentage of waste that is recovered for recycling from the total kerbside waste. It can be expressed as:

$$\text{3-Bin Recovery Rate} = \frac{\text{organics + recyclables}}{\text{organics + recyclables + residual}} \times 100\%$$

The organics recovery rate is defined as the percentage of total waste from the residual and organics bin that is recovered for recycling using the organics kerbside waste. It can be expressed as:

$$\text{Organics Recovery Rate} = \frac{\text{organics}}{\text{organics + residual}} \times 100\%$$

Similarly, the recyclables recovery rate is used as a way to examine trends in the recovery rate without the effects of variations in annual rainfall. It is expressed as:

$$\text{Recyclables Recovery Rate} = \frac{\text{recyclables}}{\text{recyclables + residual}} \times 100\%$$

Demographic data [population and household figures] is based on figures from the Australian Bureau of Statistics [ABS]. Some households are in unincorporated areas and do not receive council kerbside services, so these figures are not included in this report.

The Estimated Resident Population by local government area is used for population data in this report, and 'occupied dwellings' is used for serviced-households figures from ABS 2016 Census data.

A2.2 Greenness Index

Different councils have varying geographical areas, rainfall and home garden areas per household. To help in assessing the effect of relative "greenness" of a council on the rate of recovery due to green waste, a greenness index was calculated for each metropolitan Adelaide council. Spatial analysis applied to imagery of the metropolitan Adelaide area produced Normalised Difference Vegetation Index [NDVI] values ranging from +1.0 to -1.0. Higher NDVI values indicate healthier, or greener, vegetation. Only 18 of the 19 metropolitan Adelaide councils are covered as the aerial survey did not include Adelaide Hills Council.

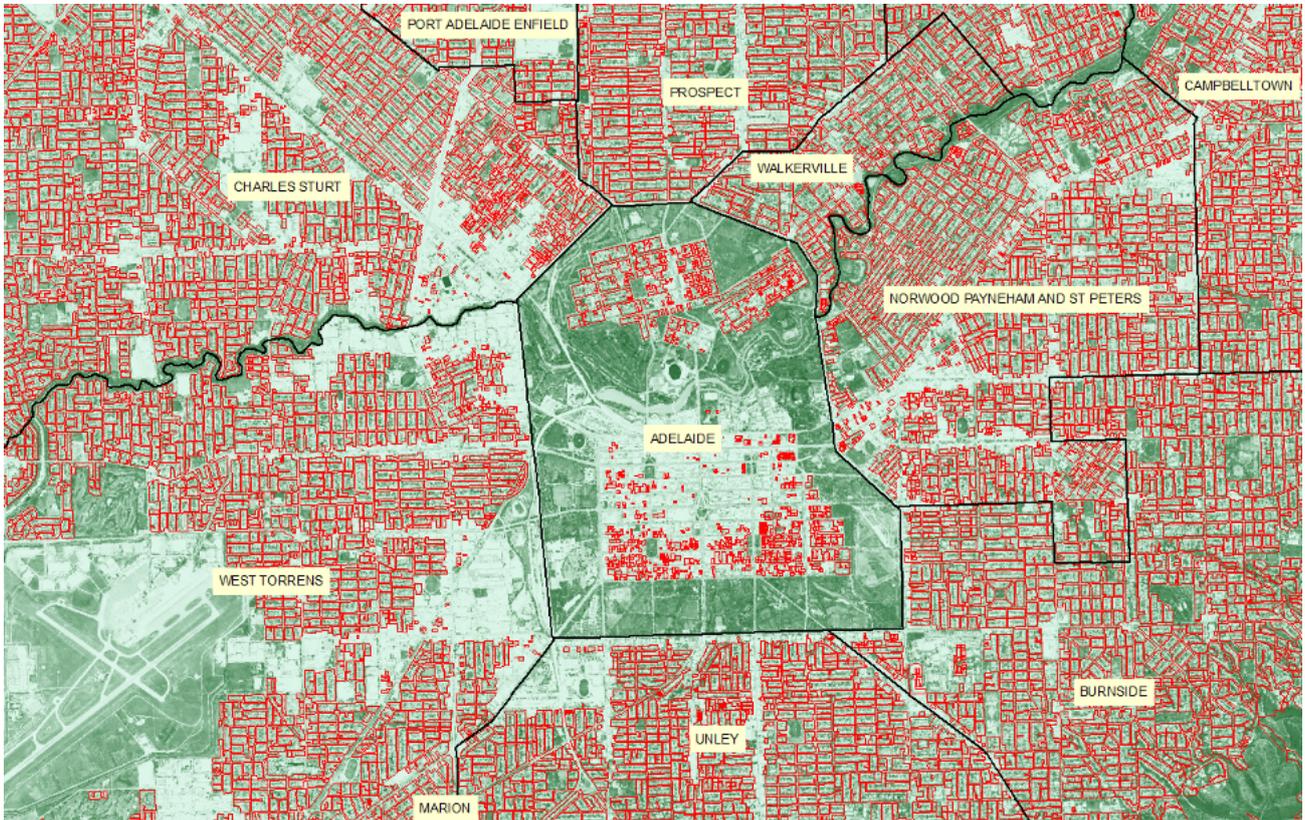
The survey was carried out in late September 2018 by Aerometrex for the Department for Environment and Water who authorised its use by GISA. The timing of the aerial capture of the imagery is appropriate for the purpose since local conditions ensure that vegetation is at its greenest and it is expected that this accurately reflects the difference between greener and drier areas.

To ensure a focus on residential waste presented at kerbside, only residential areas were selected from the land use dataset [Department for Infrastructure and Transport, 2019]. This ensures results only include green waste arising from residential land and exclude parks, street trees, etc. [Figure A2.1].

The zonal statistics tool was used to calculate an average greenness value of all the residential properties within a council boundary for each local government area.

Note that deriving a future set of average greenness index values will depend on local conditions at that time, such as immediate past rainfall and the season. Consequently, any such calculations are expected to vary from those generated in this initial work.

Figure A2.1. Example of Metropolitan Adelaide LGA with residential area overlaying NDVI imagery



Appendix 3

South Australia's Waste Management Costs

The South Australian Local Government Grants Commission [SALGGC] surveys SA's local government councils each year to make recommendations to the Minister for Local Government on the distribution of untied Commonwealth Financial Assistance Grants to local councils in South Australia. SALGGC reports publicly on the amount spent by each council in 15 different categories of which waste management is one. Determining kerbside-only costs from the figures supplied should be possible, but in many cases the data provided by some councils lacks detail to cost services for kerbside alone. The only uniform indicator of council costs is the waste management total which is inclusive of other waste management issues besides kerbside.

In 2019-20, the 68 SA local government councils spent \$228.9 million in operating expenses on waste management of which \$158.5 million was incurred in Metropolitan Adelaide and \$70.4 million in regional councils. Across South Australia councils spent an average \$341 per year on waste management per occupied household. Included in these amounts are ordinary solid waste collection and disposal, green waste collection and disposal, recycling collection and disposal, waste disposal facility, other waste management, so the figures do not relate to kerbside collections alone.

SA local government councils also earned revenue while managing the waste facilities, mainly in regional areas [\$53.9 million] as opposed to the metropolitan Adelaide councils. In regional areas, there are more council owned landfills and transfer stations and these accept waste from commercial and industrial and construction and demolition sources as well as MSW streams.

Table A3.1. South Australia's LG Councils total and per occupied dwelling operating expenditure on waste management [not only kerbside], 2019-20

	Metropolitan	Regional	SA
Total [\$ millions]	158.5	70.4	228.9
Per occupied Household [nearest \$]	318	407	341

Appendix 4

Regional kerbside bin collection frequency

Council	Number of bin	Residual	Recycling	Organics	Food waste system
Adelaide Plains	Towns 3-bin, Rural 2-bin	Fortnightly	Fortnightly	Fortnightly	Opt-in townships
Alexandrina	Towns 3-bin	Fortnightly	Fortnightly	Fortnightly	Opt-in townships
Barossa	Towns 3-bin (green opt-in), Rural 2-bin	Weekly	Fortnightly	Fortnightly	Opt-in townships
Barunga West	4-bin	Weekly	Monthly	Monthly	None
Berri Barmera	3-bin	Weekly	Fortnightly	Fortnightly	None
Ceduna	1-bin	Weekly	-	-	None
Clare and Gilbert Valleys	2-bin	Weekly	Fortnightly	-	None
Cleve	2-bin	Weekly	Fortnightly	-	None
Coober Pedy	1-bin	Weekly	-	-	None
Coorong	3-bin	Weekly	Fortnightly	Fortnightly	None
Copper Coast	3-bin (green opt-in)	Weekly	Fortnightly	Monthly	None
Elliston	2-bin	Weekly	Fortnightly	-	None
Flinders Ranges	2-bin	Weekly	Fortnightly	-	None
Franklin Harbour	1-bin	Weekly	-	-	None
Goyder	2-bin	Weekly	Fortnightly	-	None
Grant	2-bin	Fortnightly	Fortnightly	-	None
Kangaroo Island	Towns 3-bin	Fortnightly	Fortnightly	Fortnightly	Opt-in townships
Karoonda East Murray	2-bin	Weekly	Monthly	-	None
Kimba	2-bin	Weekly	Fortnightly (opt-in)	-	None
Kingston	2-bin	Weekly	Fortnightly	-	None
Light	Towns 3-bin, Rural 2-bin	Weekly	Fortnightly	Fortnightly	Opt-in townships
Lower Eyre Peninsula	1-bin	Weekly	-	-	None
Loxton Waikerie	Towns 3-bin, Rural 2-bin	Weekly	Fortnightly	Fortnightly	Opt-in townships
Mid Murray	2-bin	Weekly	Fortnightly	-	None
Mount Barker	Towns 3-bin, Rural 2-bin	Weekly	Fortnightly	Fortnightly	Opt-in townships
Mount Gambier	3-bin	Weekly	Fortnightly	Fortnightly	Opt-in townships
Mount Remarkable	2-bin	Weekly	Fortnightly	-	None
Murray Bridge	Towns 3-bin, Rural 2-bin	Weekly	Fortnightly	Fortnightly	Opt-in
Naracoorte Lucindale	3-bin	Weekly	Fortnightly	Fortnightly	None
Northern Areas	2-bin	Weekly	Fortnightly	-	None

Council	Number of bin	Residual	Recycling	Organics	Food waste system
Orroroo Carrieton	2-bin	Weekly	Fortnightly	-	None
Peterborough	2-bin	Weekly	Fortnightly	-	None
Port Augusta	3-bin	Weekly	Fortnightly	Fortnightly	Accept food waste but caddy not provided
Port Lincoln	2-bin	Weekly	Fortnightly	-	None
Port Pirie	3-bin	Weekly	Fortnightly	Fortnightly	None
Renmark Paringa	3-bin	Weekly	Fortnightly	Fortnightly	None
Robe	2-bin	Weekly	Fortnightly	-	None
Roxby Downs	3-bin	Weekly	Fortnightly	Monthly	None
Southern Mallee	2-bin	Weekly	Monthly	-	None
Streaky Bay	1-bin	Weekly	-	-	None
Tatiara	Towns 3-bin, Rural 2-bin	Weekly	Fortnightly	Fortnightly	None
Tumby Bay	1-bin	Weekly	-	-	None
Victor Harbor	Towns 3-bin	Fortnightly	Fortnightly	Fortnightly	Opt-in townships
Wakefield	3-bin	Weekly	Fortnightly	4-Weekly	None
Wattle Range	3-bin	Weekly	Fortnightly	Fortnightly	Townships
Whyalla	3-bin	Weekly	Fortnightly	Fortnightly	Opt-in townships
Wudinna	1-bin	Weekly	-	-	None
Yankalilla	3-bin	Fortnightly	Fortnightly	Fortnightly	Townships
Yorke Peninsula	3-bin	Weekly	Fortnightly	Monthly	None

Glossary

Commercial and Industrial waste (C&I)	Comprises solid waste generated by the business sector as well as solid waste created by state and federal government entities, schools, and tertiary institutions.
Construction and Demolition waste (C&D)	Includes waste from residential, civil and commercial construction and demolition activities, such as fill material (e.g. soil), asphalt, bricks and timber. C&D waste excludes construction waste from owner/ occupier renovations, which is included in the municipal waste stream.
Container Deposit Scheme (CDS)	A refundable charge imposed on a range of recyclable beverage containers. The deposit is included in the retail price and refunded when the container is returned to a collection point.
East Waste	East Waste Management Authority is a regional subsidiary of local councils formed under the Local Government Act 1999 to provide effective waste collection services for its member councils: Adelaide Hill Council, City of Burnside, Campbelltown City Council, City of Norwood Payneham & St Peters, City of Mitcham, and the Corporation of the Town of Walkerville.
Food caddy	A kitchen benchtop food container for the collection of household food waste, to be placed in the organic waste bin. It also accepts AS 4736 / AS 5810 barrier bags and fibre-based materials.
FOGO	Food Organics Green Organics, a common name used for the green organics bin
Food organics	Organic waste derived from food preparation and/or surplus food. It includes compostable items such as paper straws and contaminated pizza boxes.
Garden organics	Organics derived from garden sources e.g. grass clippings, tree prunings.
Hard waste	Large materials that are not suitable for collection in the kerbside three-bin system. Common items include furniture, appliances and mattresses.
Kerbside collection	Collection of household waste, recyclable materials [separated or co-mingled], and organic waste that are left at the kerbside for collection by local council collection service.
Municipal solid waste	Solid waste generated from domestic [household] premises and council activities such as street sweeping, litter and street tree lopping. May also includes waste dropped off at recycling centres, transfer stations and construction waste from owner/occupier renovations.
NAWMA	Northern Adelaide Waste Management Association is a regional subsidiary of local councils formed under the Local Government Act 1999 to provide waste management and resource recovery services for the City of Salisbury, City of Playford and Town of Gawler. Its clients also include businesses, industry and regional councils.

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