

Regional Waste Strategy 2017-2021 and Action Plan 2017-2019

nirw

NORTHERN INLAND REGIONAL WASTE
waste matters in our region



**This project is a NSW EPA Waste Less, Recycle More
initiative funded from the waste levy**

Acknowledgements

NIRW would like to acknowledge and pay respect to the First Nations peoples of the land on which we live and work, and to elders past, present and future.

NIRW acknowledges Wright Corporate Strategy who prepared the original NIRW Regional Waste Strategy and Action Plan 2014-2017, from which this revised version is based.

NIRW also acknowledges the work by Chris Foley Consulting for the updates to the NIRW Regional Waste Strategy to 2021.

The NIRW program and associated projects are part of the NSW Environment Protection Authority Waste Less Recycle More initiative, funded from the waste levy.

The 12 NIRW member Councils are acknowledged for their valuable time and input into the Action Plan 2017-2019.



Contents

Acknowledgements	1
1. Overview and Introduction.....	3
1.1 Region Summary	3
1.2 Strategy Update.....	3
1.3 Policy and strategy context.....	4
1.4 Action Plan 2017-2019 Development.....	5
1.5 2014-2017 Key successes and challenges	6
2. Where are we today?	8
2.1 Population and Demographic Information	8
2.2 Aboriginal Communities.....	10
2.3 Waste and resource recovery collection and processing systems	11
2.4 Waste and resource recovery data	15
2.5 Current and planned waste and recycling infrastructure	25
2.6 Review of programs, initiatives and community expectations.....	26
3. Where do we want to go to?.....	27
3.1 Vision	27
3.2 Themes	27
3.3 Objectives	28
3.4 Targets	28
4. How will we get there?	29
4.1 Overview	29
4.2 Options Appraisal	29
5. How will the Strategy be implemented?.....	30
5.1 Action Plan 2017-2019	30
6. How to measure success	32
6.1 Monitor	32
6.2 Review/Evaluate.....	32
6.3 Report	33
Appendix A: Strategy Action Options	34
Appendix B: Glossary of Terms and Abbreviations	37
Contact	42

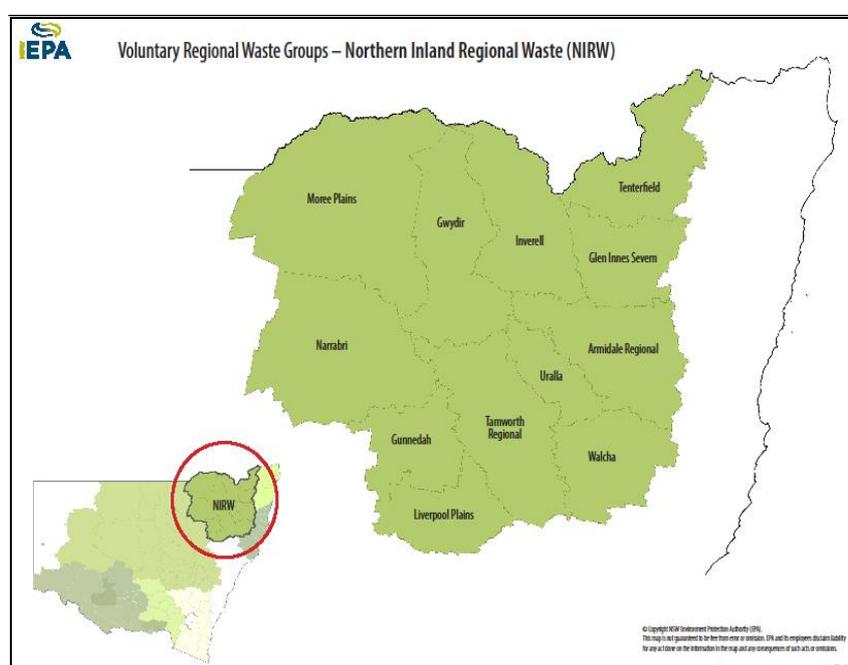
1. Overview and Introduction

1.1 Region Summary

Northern Inland Regional Waste (NIRW) represents a voluntary grouping of twelve Councils.

The Councils involved with NIRW are:

Armidale Regional Council	Moree Plains Shire Council
Glen Innes Severn Council	Narrabri Shire Council
Gunnedah Shire Council	Tamworth Regional Council
Gwydir Shire Council	Tenterfield Shire Council
Inverell Shire Council	Uralla Shire Council
Liverpool Plains Shire Council	Walcha Council



Northern Inland Regional Waste LGAs and their relative positioning

The geographic boundary of NIRW extends across the New England and North West region of NSW with a land area of nearly 100,000 square kilometres.

Member Councils will continue to have flexibility regarding their level of involvement in business cases and initiatives of the NIRW particularly those which involve capital and/or operational expenditure by their Council.

1.2 Strategy Update

The *Northern Inland Regional Waste Regional Waste Strategy and Action Plan 2014-2017* was originally prepared by Wright Corporate Strategy in October 2014. This update is a review of the Strategy for 2017-2021, and development of an Action Plan for 2017-2019.

It remains in the context of the *NSW Waste Avoidance and Resource Recovery Strategy 2014-2021*, and updated with the requirements of the *Regional Waste Strategy Review Guidelines 2017*.

The Strategy recognises that each NIRW member Council continues to independently implement its own waste management and resource recovery strategy whilst being committed to continued collaboration for improved waste management planning and service delivery regionally.

The number of member Councils in the group has reduced by 1, from 13 to 12, with the merger of Armidale Dumaresq and Guyra Shire Councils in May 2016. This Strategy review treats the two former Councils, Armidale Dumaresq and Guyra Shire separately, principally as the information from the Waste and Resource Data Report (2015-2016) is based on the former councils prior to their merger.

The section 'Where are we today' updates the tables and figures from Part 2 of the NIRW Regional Waste Strategy and Action Plan 2014–2017 to reflect both the Local Government Waste and Resource Recovery Data Report 2015-2016 and current waste management arrangements and performance of the Councils.

The NIRW Regional Waste Strategy is based on pursuit of effective waste management and resource recovery across the region including:

- better outcomes
- reduced costs
- increased flexibility
- better service provision

1.3 Policy and strategy context

National, state and regional policies and strategies are among the principal drivers for sustainable waste management.

National and NSW policy frameworks and legislation detailed in the 2014 Strategy remain current and relevant.

Key reports and information used in the update for 2017-2021 include:

Australian Bureau of Statistics Census 2016
NSW 2021: A Plan to make NSW number one
Premier's Priorities in Action
Container Deposit Scheme
NSW EPA Waste Less, Recycle More initiative 2014-2021 (2014-2017: \$465 million plus 2017-2021: \$337 million)
NSW EPA Waste Avoidance and Resource Recovery Strategy 2014–2021 (WARR Strategy)
NSW EPA Education Action Plan 2016-2017
NSW EPA Changing Behaviour Together Education Strategy 2016-2021
NSW EPA Illegal Dumping Strategy 2017-2020 (Consultation Draft)
NSW EPA Litter Prevention Strategy 2017-2020 (Consultation Draft)

NSW EPA Local Government Waste and Resource Recovery Data Report 2012-2013
NSW EPA Local Government Waste and Resource Recovery Data Report 2013-2014
NSW EPA Local Government Waste and Resource Recovery Data Report 2014-2015
Australian Association for Environmental Education. Make the Change: a framework for education and engagement for environmental sustainability 2014-2021 October 2015
NIRW Community Education and Engagement Review Jem Hanson 360Green June 2017
NIRW Community Survey: Measuring waste management attitudes and behaviours among residents in New England and North-Western New South Wales Jetty Research November 2016
NIRW 2016 Chemical CleanOut Final Report
NIRW 2016 Garage Sale Trail report
NIRW Viability assessment of introducing a combined food and garden kerbside waste service in northern NSW Wright Corporate Strategy 2017
NIRW E-waste management in the NIRW region GHD 2017
NIRW Kerbside General Waste Audit Just Waste Consulting June 2016
NIRW C&I Waste Audit: Tamworth and Narrabri Just Waste Consulting June 2016
NIRW 2016-2017 NIRW CRC Communication and Education Plan Report
NIRW CRC Sustainability Plan GHD 2017
NIRW 2016-2021 Regional Litter Plan
NIRW 2016-2017 Regional Litter Implementation Plan
NIRW Community Sharps Management Audit, Training, Infrastructure Enhancement and Awareness Project Grant Report NIRW August 2017
NIRW Illegal Dumping Research Scoping Report EC Sustainable 2017
NIRW Regional Illegal Dumping Strategy EC Sustainable 2017
NIRW Regional Report Aboriginal Communities Waste Management Program 2017
NIRW Problem and Special Waste Project Report Impact Environmental 2017
NIRW 2014-2017 Final Evaluation Program Report

1.4 Action Plan 2017-2019 Development

The Action Plan 2017-2019 attached as Appendix 2 has been determined following regional workshops of member councils in Walcha on 18 May 2017 and in Bingara on 7 September 2017.

The Action Plan 2017-2019 was finalised in Moree on 30 November 2017.

1.5 2014-2017 Key successes and challenges

Waste management and resource recovery services and operations have undergone a revolution over the last 20 years. Although the recovery rate has remained reasonable constant over at least the last ten years, the recovered and recycled quantity of the domestic component of domestic waste generated has increased from the 46% reported in the NIRW 2012-2013 Strategy, to 48% in 2014-2015, this increase although small is a reasonable improvement when considered against the total volume increase of domestic waste over the same period.

Whilst improved technologies and practices are available that could contribute to further resource recovery, particularly from the residual waste stream, these alternative waste technology processing facilities come at a very high cost. Such technology carries procurement and delivery risks well beyond the ability of NIRW councils to contemplate their use.

Key successes were the projects completed 2014-2017.

Theme	Details of action
Avoid and reduce waste generation	Evaluate community engagement and education campaigns
	Develop a food waste avoidance concept plan
	Implement regional food waste education program at local food events
	Delivery waste and resource recovery education program to school children
Increase recycling and divert waste from landfill	Audit residential waste and recycling
	Audit commercial and industrial waste
	Develop business case for e-waste management
	Determine business case for food and garden organic waste collection and processing
Manage problem wastes better	Develop and implement Community Recycling Centre Communication and Education Plan
	Investigate markets for materials post CRC EPA funding and service arrangements
	Coordinate annual Household Chemical CleanOuts and community education campaign
	Community Sharps Management Program-infrastructure gap analysis, education, training and bin roll out, servicing options
	Investigate the scale and extent of the problem and special wastes and develop and implement management plans/contracts
Reduce litter	Develop regional litter plan including education, training and engagement
	Implement regional litter project-recreational parks infrastructure
	Work with RMS to implement roadside litter management program
Reduce illegal dumping	Investigate the extent and scale of illegal waste dumping across the region
	Investigate the feasibility of a Regional Illegal Dumping Squad or Program
	Develop Regional Illegal Dumping Strategy
Regional Collaboration/ Program Coordination	Manage existing regional contracts and develop new contracts as required
	Aboriginal communities waste management project
	Administration and Operational requirements including social media and website
	Training/Workshops/Education program for member Councils
	Develop annual media plan
	Update NIRW and member Council webpages

Challenges include:

- Changing waste and resource recovery landscape
- Changing and new priorities of Councils and NSW EPA
- State and Federal Government legislative developments
- Change of Host Council from Tamworth (where NIRW had been hosted for 17 years) to Armidale in July 2015
- Council amalgamation delaying implementation of and commitment to future direction, and subsequent amalgamation of Armidale Dumaresq and Guyra Shire Councils in May 2016
- Continuity of funding through Waste Less Recycle More
- Level of resourcing (personnel rather than financial) to achieve aspirational action plan
- Sparse populations over a large areas and the associated need for infrastructure within a reasonable distance
- Economies of scale (how to economically process small quantities of recovered materials)
- Communicating effectively with diverse communities, including Aboriginal and Torres Strait Islander people

2. Where are we today?

2.1 Population and Demographic Information

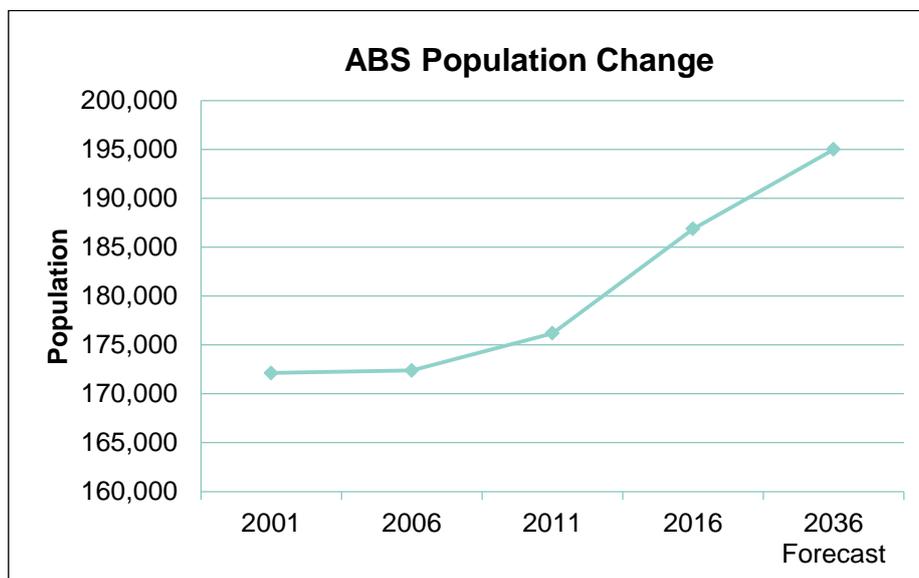
The New England North West region of NSW comprises of approximately 187,000 people, residing in over 75,000 dwellings.

The region comprises 2.45% of the population of NSW (2016 Census).

ABS Population Data

Population	2001	2006	2011	2016	Change 2001-2016	2036 Forecast #
Northern (2001 and 2006) New England North West by LGA (2011 and 2016)	172,134	172,395	176,194	186,870	+14,736	195,000

Population forecast to 2036 using trends from 2001, 2006 and 2011 ABS census data



Region Population Change 2001 to 2016 and forecast to 2036

Housing/Dwelling Composition

Dwelling Structure	2001		2006		2011		2016 [#]	
	#	%	#	%	#	%	#	%
Private Dwellings								
Separate house	57,064	77.3	58,989	77.6	58,661	77.5	58,659	77.3
Semi-detached, row or terrace house, townhouse	1,514	2.0	1,392	1.8	2,022	2.7	3,610	4.8
Sub-total SUD	58,578	79.3	60,381	79.5	60,683	80.2	62,269	82.0
Flat, unit or apartment MUD	4,674	6.3	4,885	6.4	4,362	5.8	2,595	3.4
Other dwelling	1575	2.1	1,376	1.8	747	1.0	907	1.2
Dwelling type not stated	391	0.5	58	0.1	87	0.1	536	0.7
Unoccupied	8,648	11.7	9,297	12.2	9,788	12.9	9,619	12.7
TOTAL	73,866	100	75,997	100	75,667	100	75,924	100

#ABS 2016 Dwelling Structure by Region G32

SUDs include separate houses and semi-detached, row or terrace houses, townhouses.

MUDs include flats or apartments in blocks or attached to houses.

Other dwellings include caravans, cabins, houseboats, improvised home, tent, sleep out, house or flat attached to shop, office,

Not stated are dwelling structure not stated.

In the 2016 Census, SUDs comprised 82.0% of the total occupied private dwellings, while MUDs comprised 3.4%.

There has been a slight increase in the number of SUDs in the region over the 15 year period between 2001 and 2016, while there has been a significant decrease in the percentage of MUDs for the same period.

Proficiency in English Language

87.7% of people in the New England and North West speak English only at home.

4.5% of households speak a non-English language at home. Most common other languages spoken include Mandarin 0.4% and Tagalog 0.3%.

With the majority of the population proficient in English there is greater ease of communication with residents and reduced costs associated with translation of education materials.

2.2 Aboriginal Communities

This Strategy review includes recognition of Aboriginal communities, omitted from the 2014 Strategy. NIRW acknowledges lack of recognition of Aboriginal people and their communities within the New England North West region of NSW in the 2014 Strategy.

ABS 2016 figures indicate 18,415 people (10.1%) in the New England and North West region identify as Aboriginal or Torres Strait Islander people. The regional percentage is significantly higher than in NSW (2.9%), and across Australia (2.8%).

Census data 2001 to 2016 Aboriginal and Torres Strait Islander People

Northern (2001 and 2006) New England North West (2011 and 2016)	2001	2006	2011	2016
Region	12,176	13,600	15,795	18,415
Region %	7.1%	7.9%	9.0%	10.1%
NSW %	-	-	2.5%	2.9%
Australia %	2.2%	2.3%	2.5%	2.8%

Aboriginal communities within the region are known to have a distinct demographic profile with a significantly larger youth demographic and relatively smaller aged population.

The region spans a number of traditional Aboriginal Nation overseen by seventeen (17) Local Aboriginal Land Councils that operate independently of our member Councils.

Discrete Aboriginal communities (former Missions and Reserves) in the NIRW region

Narwon Village	Walhallow Village	Mehi Crescent	Stanley Village	Toomelah	Jubullum Village	Summervale
• Armidale Regional Council	• Liverpool Plains Shire Council	• Moree Plains Shire Council	• Moree Plains Shire Council	• Moree Plains Shire Council	• Tenterfield Shire Council	• Walcha Council

Waste management practices and recycling rates in discrete Aboriginal communities vary by community and depend heavily on the waste management resources available, including the cooperative arrangements in place with their local Council.

NIRW aims to increase dialogue with Local Aboriginal Land Councils, discrete Aboriginal communities and local Councils to strengthen relationships, tailor and improve services and include Aboriginal people in communication, education and engagement initiatives.

NIRW is committed to working with Aboriginal people to develop projects that address the needs and aspirations of these communities.

Consideration should be given to creation of culturally sensitive resources that meet the needs of Aboriginal people, including imagery, language and messaging.

2.3 Waste and resource recovery collection and processing systems

All councils provide kerbside residual waste and recycling collection services in their urban areas. A number of households do not receive kerbside waste services due to the rural/remote location of the properties-they must deliver their waste and recycling to an appropriate facility.

Council	Residual Waste		Dry Recycling		Organics	
	Bin Size	Freq.	Bin Size	Freq.	Bin Size	Freq.
Armidale Regional	140L	Weekly	55L Crate	Weekly	240L	F/night (F)
Glen Innes Severn	140L	Weekly	240L	F/night	N/A	-
Gunnedah	140L	Weekly	120L	Weekly	240L	F/night (G)
Gwydir	140L	Weekly	360L	F/night	240L	F/night (F)
Inverell	240L	Weekly	240L	F/night	N/A	-
Liverpool Plains	240L	Weekly	240L	F/night	N/A	-
Moree Plains	140L	Weekly	240L	F/night	240L	F/night (F)
Narrabri	140L	Weekly	240L	F/night	240L	F/night (F)
Tamworth Regional	240L	Weekly	240L	F/night	240L	F/night (G)
Tenterfield	120L	Weekly	240L	F/night	N/A	-
Uralla	140L	Weekly	240L	Weekly	240L	F/night (G)
Walcha	140L	Weekly	240L	F/night	240L	F/night (G)

Bin Configurations and Kerbside Collection Frequencies

(F) FOGO
(G) GO

All 12 Councils provide a weekly residual waste kerbside collection service. 8 Councils utilise a 140L bin, 3 Councils use a 240L bin, and 1 Council uses a 120L bin.

All 12 Councils provide a dry recycling kerbside collection service. The service is predominantly fortnightly with a 240L bin. 1 Council still utilises a crate system. Tenterfield Shire Council commenced kerbside dry recycling on 1 July 2014.

8 of the 12 councils provide a fortnightly kerbside organics collection service, of which 4 Councils provide garden organics (GO) collection only, with the other 4 Councils providing food and garden organics (FOGO) collection. Moree Plains, Narrabri and Gwydir Councils changed from a GO to a FOGO service on 30 September 2013.

Kerbside Collection Services

In 2015-2016 NIRW Councils provided a total of 169,922 kerbside collection services.

Kerbside Domestic Collection Services	2011-2012	2015-2016	Difference
Kerbside residual waste	61,727	67,938	6,211
Kerbside dry recycling	59,829	66,168	6,339
Kerbside garden organics	19,683	27,618	7,935
Kerbside FOGO	9,175	20,021	10,864
TOTAL	150,414	181,745	31,331

There has been a significant increase in domestic kerbside collection services across the region in the past 5 years. This follows the introduction of kerbside FOGO collection in Armidale, Moree Plains, Gwydir and Narrabri Shire Councils, and garden organics at Walcha Council. Additionally, dry recycling kerbside collection was introduced at Tenterfield Shire Council.

Drop Off and Kerbside Clean Up

Waste drop off arrangements are available in every LGA, and facilities are readily accessible from all urban centres as well as rural areas. The bulk of the drop off materials recovered is organic even though many of the Councils offer a kerbside garden waste or FOGO services.

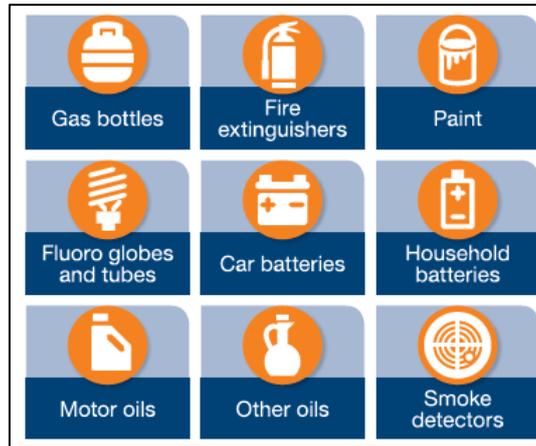
5 NIRW member Councils offer kerbside clean up services. Moree, Narrabri and Tamworth each offer 2 kerbside bulky goods collections per year.

Community Recycling Centres

Eleven Community Recycling Centres (CRCs) have been established since June 2015, with funding from Waste Less Recycle More in the following towns:

1. Armidale
2. Glen Innes
3. Gunnedah
4. Guyra
5. Inverell
6. Moree
7. Narrabri
8. Tamworth
9. Tenterfield
10. Uralla
11. Walcha

These CRCs provide broad coverage to make it convenient for people to recycle or safely dispose of common household problem wastes.



NSW EPA CRC Accepted Materials

NIRW delivers a CRC Communication and Education Plan for the region.

Household Chemical CleanOut

The annual Household Chemical CleanOut program is undertaken by specialist waste collection contractors, collecting and disposing of low volume, high toxicity materials.

Since Community Recycling Facilities commencing opening from June 2015, and allowed collection of low toxicity high volume materials year round, the numbers of participating Councils has reduced, and the volumes of materials collected at the Chemical CleanOut event has decreased significantly.

The total amount of material collected through Chemical CleanOut events over the last 18 years is 261,375.75kg.

The most commonly collected items in the 2017 collection were pesticides, paints, general household chemicals, gas cylinders, oils, batteries, hydrocarbons and acids.

Unusual/uncommon items collected included arsenic and cyanide.



NSW EPA Household Chemical CleanOut Banner

Other Resource Recovery Services

Additional opportunity is provided to recycle various materials in addition to kerbside collection services. Drop off points vary and may include Council or contractor facilities.

Accepted materials differ for each Council but may include:

- plastics
- paper and cardboard
- glass
- greenwaste
- metal
- white goods
- batteries
- gas bottles
- polystyrene
- mattresses
- tyres
- paint
- oils, filters, oily rags and oil containers
- e-waste
- DrumMuster containers
- community sharps
- C&D/C&I

Some Councils also have a Tip Shop or Second Hand Shop with goods and materials available for sale.

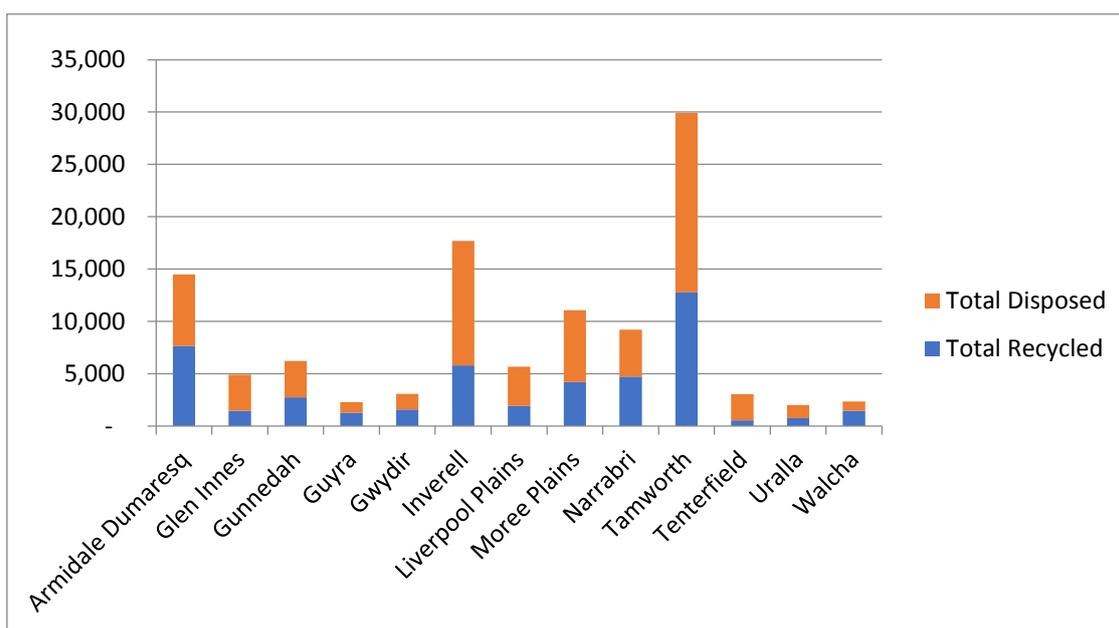
2.4 Waste and resource recovery data

Domestic Waste Generation and Resource Recovery Rates

The 12 NIRW Councils generated just over 112,000 tonnes of waste in 2015-2016.

Council	Total Waste Generated	Total Recycled	Total Disposed	Recycling Rate %
Armidale Dumaresq	14,502	7,677	6,825	52.9%
Glen Innes	4,907	1,466	3,441	29.9%
Gunnedah	6,246	2,749	3,497	44.0%
Guyra	2,284	1,305	979	57.2%
Gwydir	3,093	1,590	1,503	51.4%
Inverell	17,691	5,791	11,900	32.7%
Liverpool Plains	5,677	1,946	3,731	34.3%
Moree Plains	11,084	4,229	6,855	38.2%
Narrabri	9,223	4,749	4,474	51.5%
Tamworth	29,913	12,786	17,127	42.7%
Tenterfield	3,050	552	2,498	18.1%
Uralla	2,013	769	1,244	38.2%
Walcha	2,348	1,479	869	63.0%
NIRW	112,032	47,090	64,942	42.0%
NSW	3,707,120	1,768,961	1,938,159	47.7%

Domestic Waste Generation and Recycling Rates 2015-2016

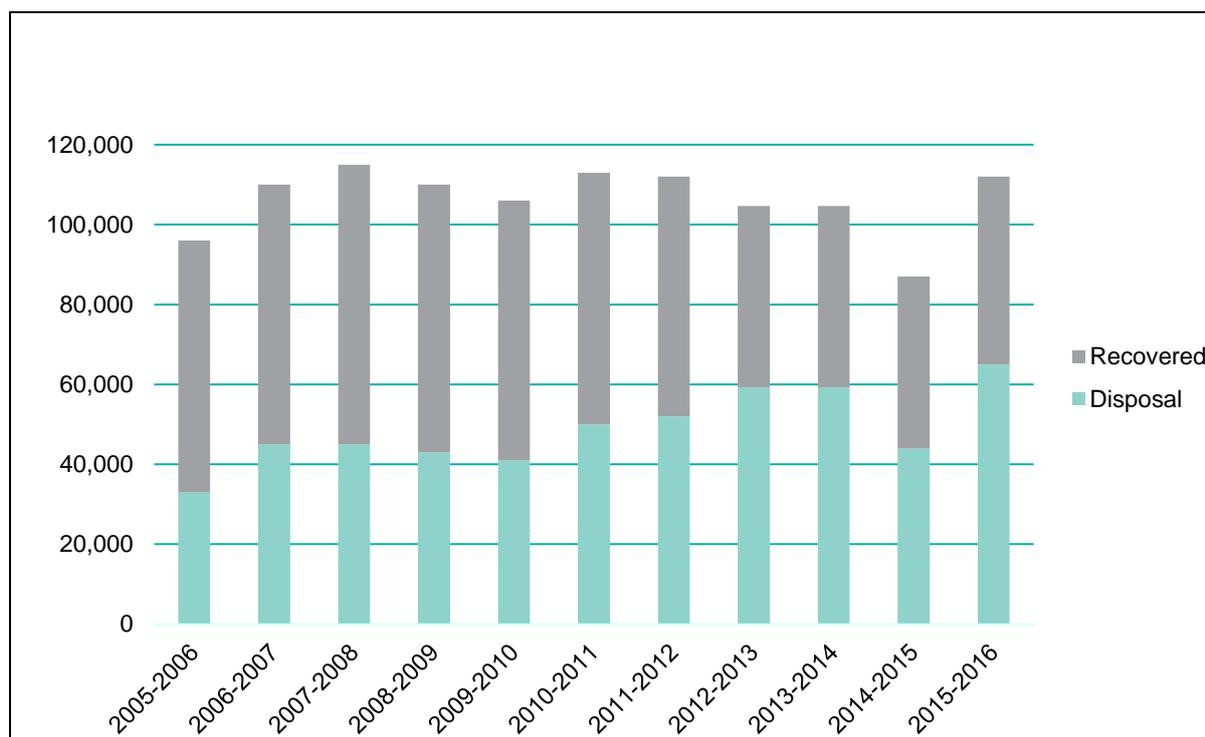


Total Disposal and Recycling Rates 2015-2016

Trends over Time 2005-2016

Year	Total	Recovered	Disposal
2005-2006	96,000	63,000	33,000
2006-2007	110,000	65,000	45,000
2007-2008	115,000	70,000	45,000
2008-2009	110,000	67,000	43,000
2009-2010	106,000	65,000	41,000
2010-2011	113,000	63,000	50,000
2011-2012	112,000	60,000	52,000
2012-2013	104,662	45,369	59,293
2013-2014	104,661	45,368	59,293
2014-2015	87,027	43,080	43,947
2015-2016	112,032	47,090	64,942

Domestic Waste Recovery and Disposal Tonnages – by Region 2005 to 2016

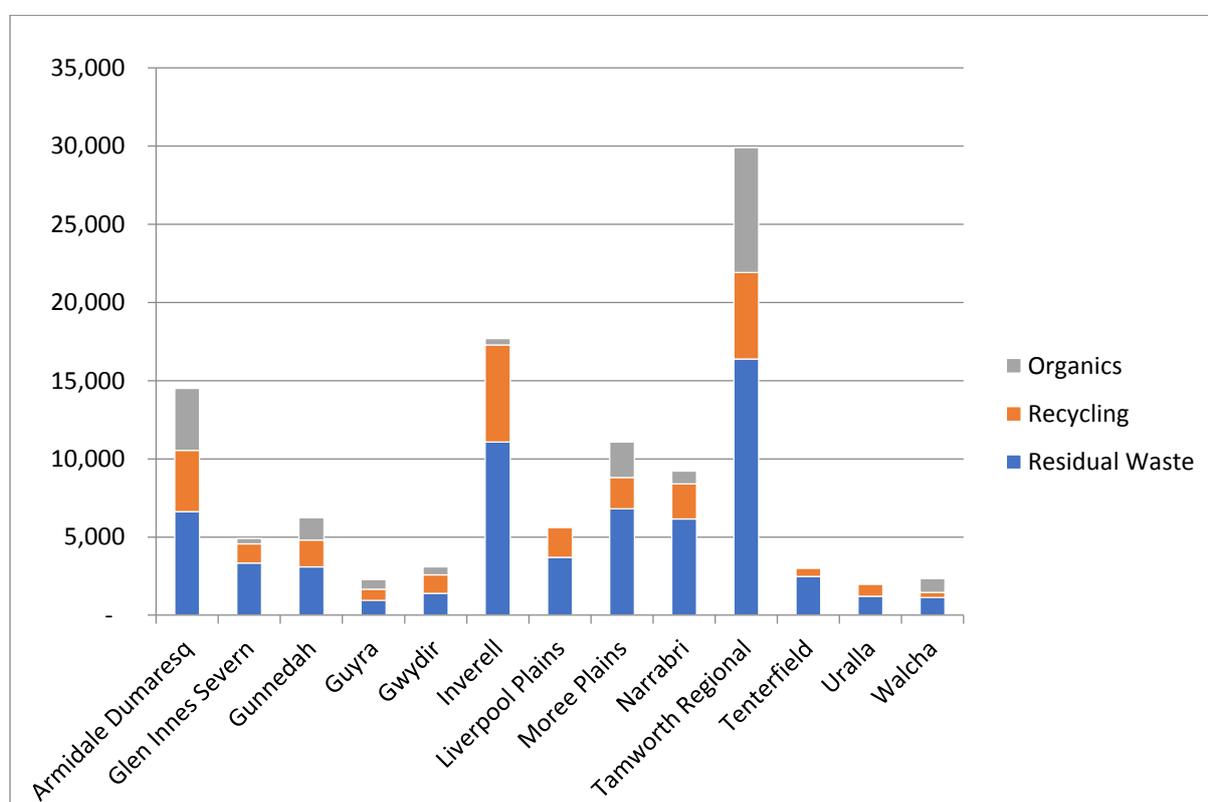


Domestic Waste Recovered and Disposed – by Region 2005 to 2016

Domestic Waste Generation by Waste Type

Council	Residual Waste	Recycling	Organics
Armidale Dumaresq	6,631	3,922	3,949
Glen Innes Severn	3,34	1,223	337
Gunnedah	3,097	1,710	1,438
Guyra	955	705	624
Gwydir	1,390	1,195	509
Inverell	11,080	6,200	411
Liverpool Plains	3,706	1,893	78
Moree Plains	6,816	1,993	2,275
Narrabri	6,155	2,258	810
Tamworth Regional	16,385	5,543	7,985
Tenterfield	2,480	523	47
Uralla	1,218	777	18
Walcha	1,128	328	892
NIRW	64,388	28,269	19,375
NSW	2,151,079	810,399	745,405

Domestic Waste Generation by Waste Type (T) 2015-2016



Domestic Waste Generation and Recovery – by Waste Type 2015-2016

Residual Waste, Recycling and Organics Generation

On a regional basis, the average total waste generation collected in all kerbside bins in 2015-2016 was 16.6kg/household/week. This is 2.5kg less than the NSW average.

In 2011-2012 the regional average was 23.6kg/household/week, representing a considerable decrease over the 4 year period.

Council	Residual	Recycling	Organics	FOGO	Total
Armidale Dumaresq	9.67	3.43		4.03	17.14
Glen Innes Severn	7.89	2.01			9.90
Gunnedah	11.26	5.91	4.88		22.05
Guyra	10.76	4.48			15.24
Gwydir	6.41	3.67		2.72	12.80
Inverell	14.79	11.83			26.63
Liverpool Plains	10.33	3.37			13.69
Moree Plains	8.80	3.49		2.80	15.08
Narrabri	7.53	2.79		2.71	13.02
Tamworth Regional	10.69	3.95	3.20		21.78
Tenterfield	17.43	5.11			22.55
Uralla	8.58	4.30	2.48		15.36
Walcha	9.25	4.02	1.30		14.58
NIRW	10.26	4.49	2.96	3.06	16.61
NSW	11.95	4.78	5.41	5.50	19.13

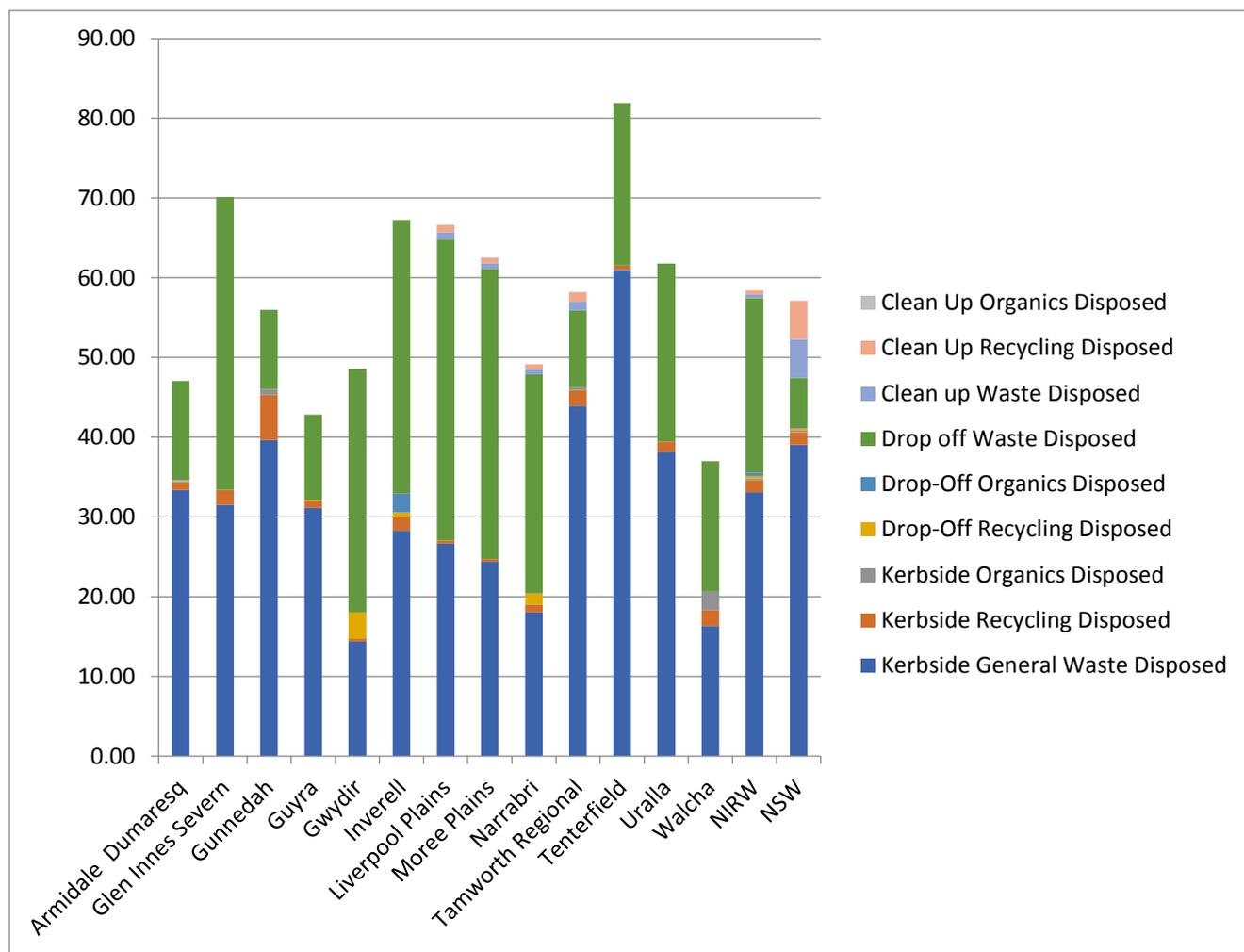
Residual Waste, Recycling and Organics - Yield (Kg/household/week) 2015-2016

Disposal

NIRW Councils generated 112,032 tonnes of domestic residual waste in 2015-2016. Of this, 64,942 tonnes of waste was disposed of to landfill.

The highest percentage of waste disposed of to landfill was Tenterfield Shire Council, at 82%. The lowest percentage of waste disposed of to landfill was Walcha Council, at 37%.

The higher result for Glen Innes Severn Council at 70% may be attributed to waste generated from state significant wind farm construction, with a significant increase in drop off waste disposal when compared to 2011-2012.



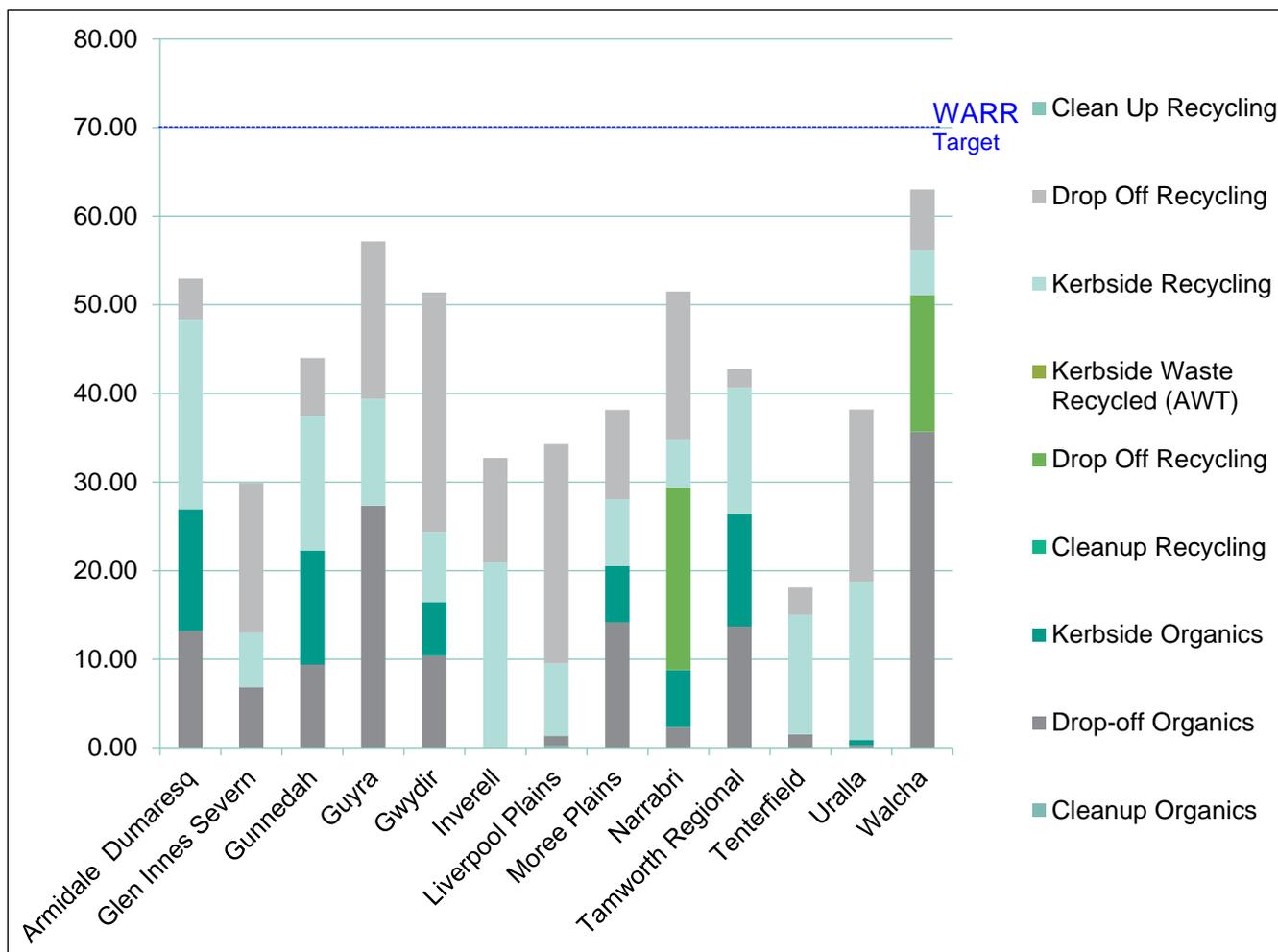
% Disposed – Domestic – All Sources 2015-2016

Recycling

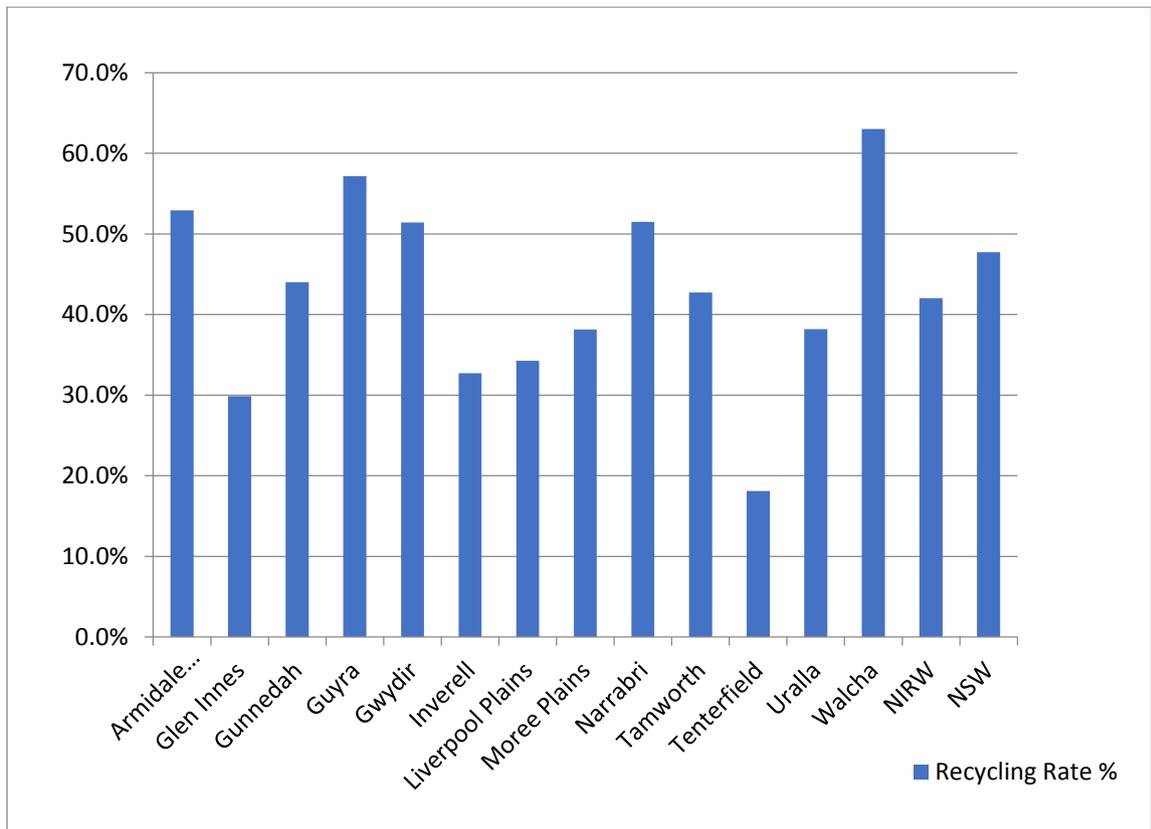
Recycling rates varied between 18% for Tenterfield and 63% for Walcha.

The overall 42% recycling rate for the NIRW region in 2015-2016 was just behind the NSW average of 48%.

This graph shows progress of each Council's efforts toward the NSW WARR Strategy recycling target of 70%. NIRW member Councils continue to make progress towards this target despite difficulties associated with long transportation distances and relatively small volumes of recycling.



% Recycled – Domestic – By Source 2015-2016



% Recycled – Domestic – Total all sources 2015-2016

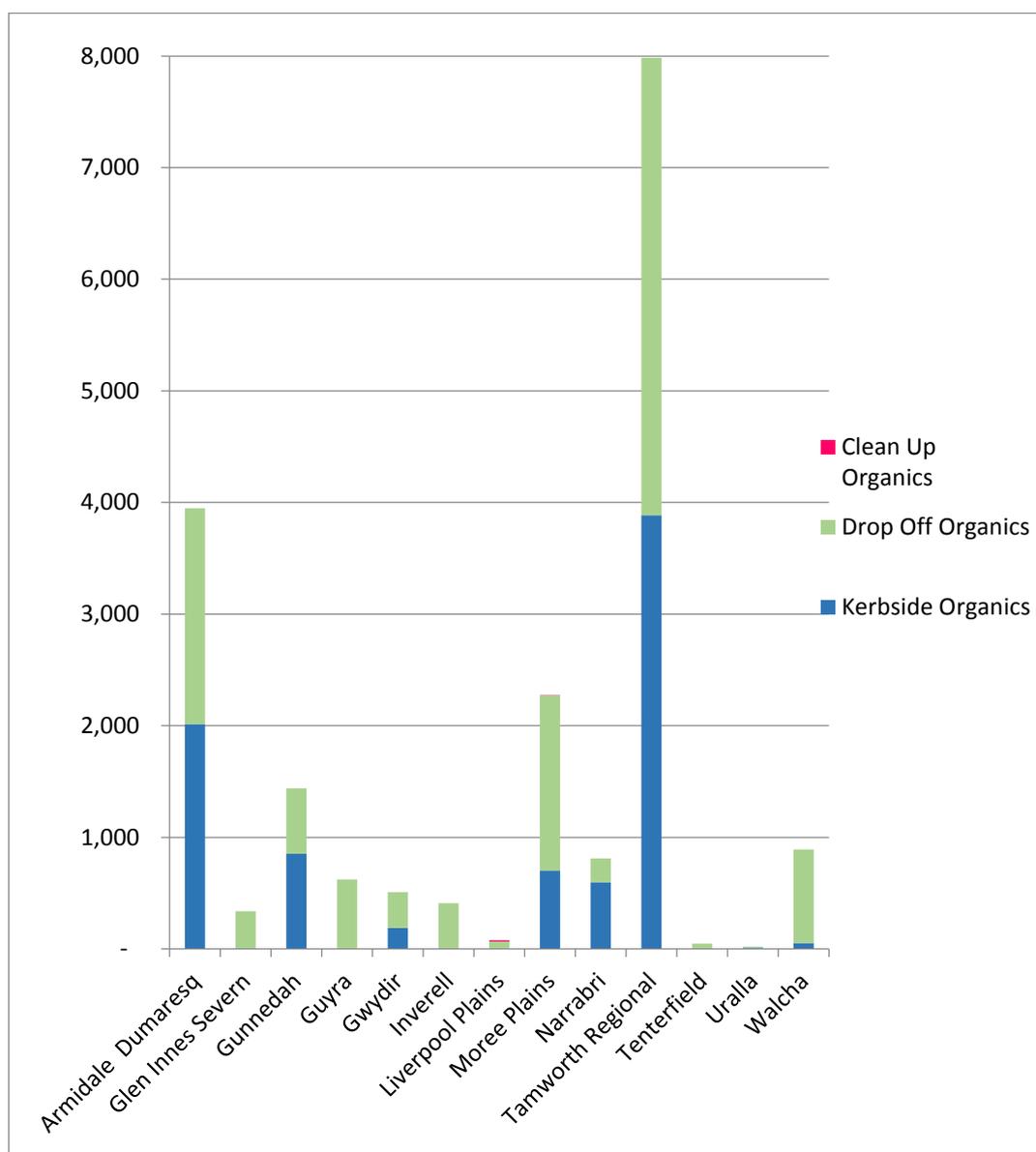
Organics

8 of the 12 councils provide a kerbside organics collection service. 4 Councils provide garden organics (GO) collection only (Tamworth, Gunnedah, Uralla and Walcha), with the other 4 Councils providing food and garden organics (FOGO) collection (Armidale, Moree, Narrabri and Gwydir Councils).

Narrabri, Moree Plains and Gwydir Shire Councils have a joint processing contract for processing food and garden organics, with the processing facility located at Moree. These 3 Councils implemented combined food organics and garden organics collection and processing on 30 September 2013.

Glen Innes, Liverpool Plains, Inverell and Tenterfield do not have kerbside greenwaste collection, but it can be dropped off at waste facilities.

Only Liverpool Plains and Moree Plains Shire Councils collect organics through clean up services.



Organics collected by Source Tonnes 2015-2016

Residual Waste Bin Audit

In June 2016 NIRW conducted a physical sub-regional residual kerbside waste audit.

Councils involved were Armidale Dumaresq, Guyra Shire, Moree Shire, Gunnedah Shire, Walcha, Narrabri Shire and Tamworth Regional Councils.

Weight (KG)	Recyclables	Garden & other	Food	Nappies	Textiles	Non-Rigid Plastics	Other
12.6	26.9	6.9	36.0	8.4	4.3	5.5	12.0

Regional General Waste Composition Averages (% of weight)

The audit identified that 36% by weight of the residual bin content is food organics, 3% garden organics and 12% paper and cardboard-(total of 51%), which is potentially recoverable in a FOGO kerbside collection service.

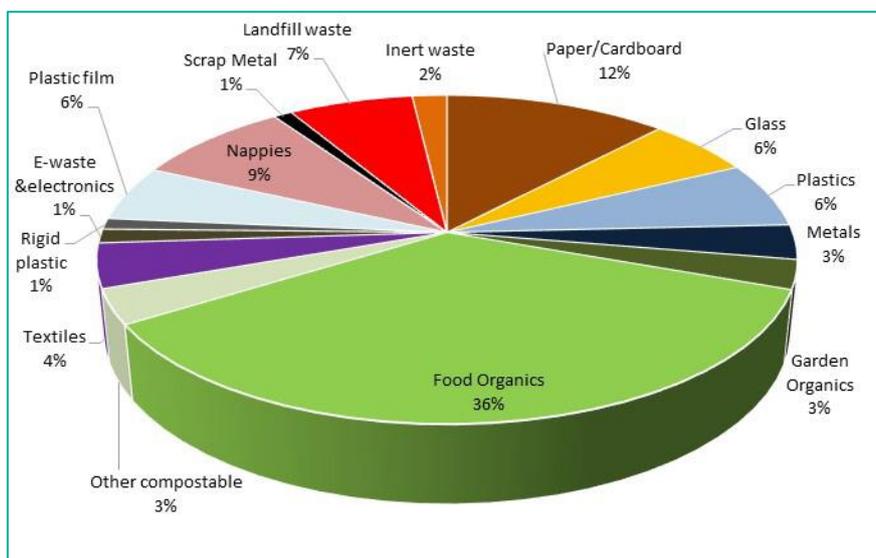
	Per household summaries		General waste (%)		Recycling (%)		Organics (%)	
	Weight (kg)	Volume (l)	Weight (kg)	Volume (l)	Weight (kg)	Volume (l)	Weight (kg)	Volume (l)
Regional average	12.6	125.1	30.3	32.6	26.9	36.2	42.9	31.3

Regional Waste Categorical Composition

Even with GO/FOGO kerbside collections, there are a significant proportion of materials in the residual bin which could be recovered via through the Organics/FOGO service.

Council	Service Available	Food Organics %	Garden Organics %	Paper and Cardboard %	Total potentially recoverable %
Armidale	FOGO	35	5	11	51
Moree Plains	FOGO	35	2	15	52
Narrabri	FOGO	43	1	13	57
Guyra	GO	35	2	14	51
Walcha	GO	38	3	7	48
Tamworth	GO	33	4	13	50
Gunnedah	GO	34	3	7	44

Sub-regional Residual Bin Audit 2016



NIRW Average Residual Waste Bin Composition

With recycling and organics composing 69.8% of the weight it is clear that residents understanding, respect and utilisation of the existing services could be improved.

Finding out why, rather than who, contaminates general waste bins will be the first important key to improvement. This should aim to identify reason why the other kerbside bins are not used to their full capacity and why the services offered at the waste transfer stations and Community Recycling Centres are not fully utilised.

Secondly, ensuring a regional coherent approach to a full FOGO services will help with education and acceptance. These steps need to focus on education and engagement as much of the infrastructure is already established.

Further diversion potential should investigate better infrastructure for recycling of soft plastic and textiles as well as trials into the use of cloth nappies.

2.5 Current and planned waste and recycling infrastructure

There are a number of waste management facilities in the NIRW region including landfills, transfer station, MRFs, organics processing facilities (with and without food organics) and Community Recycling Centres.

The cluster of 13 Councils in the region covers a considerable geographic footprint and features a dispersed population spread. The majority of residents reside in the few larger cities and towns within each LGA, while others reside across the region in rural settings. A major road system runs around the perimeter of the region, and minor roads provide for transport flow throughout the region. Travel distance between adjacent population centres around the perimeter is around 100–150km. Total distance around the perimeter is around 800km.

The spread of facilities provides a convenient basis for rural residents. However, a number of these facilities do not meet contemporary environment protection standards and are working towards improvements, closures or conversion to transfer stations to bring them up to contemporary standards.

The bulk of domestic residual waste arising in the region is moved to landfill facilities located within the LGA in which it is generated. Small amounts of residual waste are sent to adjacent LGAs for disposal.

All Councils provide kerbside recycling collection services and there is some sub-regional collaboration on recyclables processing (between Narrabri, Gunnedah and Gwydir Councils). Domestic recyclables are generally processed at facilities located within the LGA in which they are collected, although Tenterfield's recycling is processed at Lismore.

Garden organics collection, processing and materials utilisation are broadly provided, and supplemented by food organics collection and processing in four Council areas.

Garden waste is generally mulched in the LGA in which it arises; notable exceptions being Narrabri and Gwydir which send kerbside collected combined food organic and garden organic waste to Moree for processing.

Delivered bulky products including steel, drums, tyres, batteries, and timber are handled at local waste facilities and subject to considerable recycling.

Regional domestic MRF capacity appears to be modest but the level of contamination is on par or better than many MRF operations in the state.

Landfill gas collection and flaring is operating at Tamworth (commenced 2017).

An organics waste processing facility is planned for Tamworth, and is currently awaiting Joint Regional Planning Panel approval. It is estimated the facility will process up to 32,000T per year.

The emergence of large scale waste processing technologies including AWT facilities to convert waste to compost or energy is at this time unrealistic for the NIRW region. Currently no council or the region as a whole has the volume of waste to economically utilise this technology.

2.6 Review of programs, initiatives and community expectations

Key programs delivered as a result of the NIRW Regional Waste Strategy and Action Plan 2014-2017 include:

- Litter reduction programs targeting recreational parks aimed to reduce incidence of littering
- Community Recycling Centre Communication and Education Plan to educate communities about CRCs and the high volume, low toxicity materials accepted
- Annual household Chemical CleanOut events for collection and disposal of high toxicity, low volume wastes
- Food waste avoidance programs, seeking to reduce the volume of food waste disposed at the household level
- Garage Sale Trail to improve community knowledge and uptake of re-use as a preferred option to landfilling
- Community Sharps management including update of collection location information and installation of additional collection infrastructure and signage to improve knowledge and improve safe disposal

Community Survey

A community survey was undertaken in October 2016 to gain a greater appreciation of current attitudes to reducing waste and recycling, identify current waste and recycling practices and better understand the level of knowledge about ways to avoid, reuse, recycle and compost and the likely impact of education and community engagement programs. The survey showed that residents were well aware of waste and resource recovery programs throughout the region, with high usage and excellent satisfaction ratings. Some knowledge gaps were identified in relation to correct disposal of some specific items. This information will continue to be used to inform future programs.

Strategy Development and Update

NIRW councils were involved in the formulation of this waste strategy, to provide input on the current and future state of the region, and to plan for regional waste management and resource recovery programs and projects in the future.

Participating councils were engaged during strategy development to ensure that the strategy represented the needs of participating councils. Waste management staff participated in a series of workshops to identify potential projects. The workshops canvassed the findings from individual council strategies and potential projects were identified and prioritised.

Many Councils identified that targeted education initiatives are more successful than high-level, mass produced education programs in bringing about behaviour change at the local and household level. Where possible, NIRW works with other regional waste groups on initiatives. For example, the Community Recycling Centre television commercial and social media clips were a joint collaboration between five waste groups, allowing shared costs for production and to support consistent educational messaging across the state.

Member Councils have flexibility regarding their level of involvement in NIRW programs and projects, particularly those which involve capital and/or operational expenditure by their Council.

Consultation on specific actions and programs will be undertaken to ensure the outcomes of strategy projects meet community needs and expectations. Ongoing consultation with Councils and the community is important to understanding challenges in the region, to providing effective and meaningful programs, and to deliver successful regional waste management and resource recovery outcomes.

3. Where do we want to go to?

3.1 Vision

The NIRW member Councils remain committed to continued collaboration for improved waste management planning and service delivery through the shared NIRW vision:

Collaborative leadership of a distinctive regional approach to sustainable waste management and resource recovery.

3.2 Themes

Themes are consistent with the NSW *Waste Avoidance and Resource Recovery Strategy 2014-2021* (WARR Strategy).

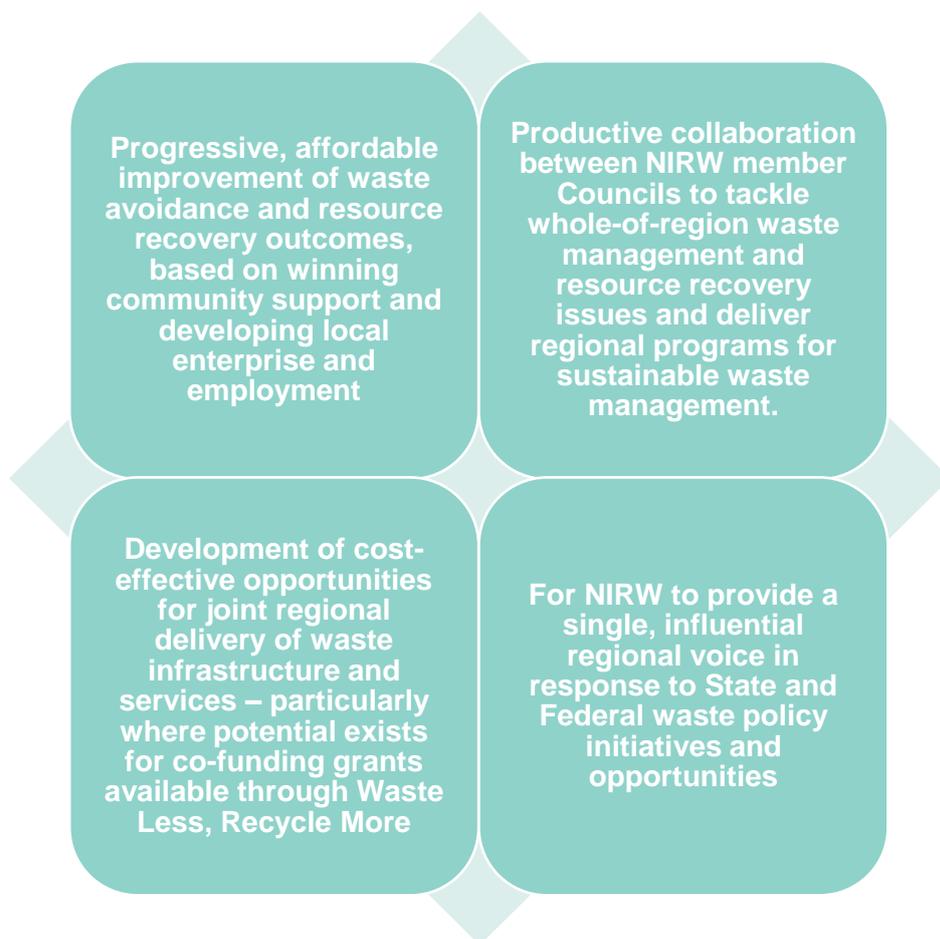
The following themes provide the framework for the Action Plan and the basis for regional projects:



The WARR Strategy themes are used as a basis to provide consistency across regional waste strategies spanning many years, and align with funding opportunities available under Waste Less, Recycle More.

3.3 Objectives

Keys objectives in achieving the NIRW vision are:



3.4 Targets

Theme 1 Avoid and reduce waste generation	<ul style="list-style-type: none"> •By 2021, reduce the rate of waste generation per capita
Theme 2 Increase recycling	<ul style="list-style-type: none"> •By 2021, work towards increasing recycling rates for: <ul style="list-style-type: none"> •municipal solid waste to 70% •commercial and industrial waste to 70% •construction and demolition waste to 80%
Theme 3 Divert more waste from landfill	<ul style="list-style-type: none"> •By 2021, work towards increasing waste diverted from landfill to 75%
Theme 4 Manage problem waste better	<ul style="list-style-type: none"> •Facilitate the availability of EPA-specified problem waste disposal options
Theme 5 Reduce litter	<ul style="list-style-type: none"> •By 2021, reduce litter by 40%
Theme 6 Reduce illegal dumping	<ul style="list-style-type: none"> •By 2021, reduce illegal dumping by 20%
Theme 7 Regional collaboration and program coordination	<ul style="list-style-type: none"> •Continued regional cooperation, collaboration and governance

4. How will we get there?

4.1 Overview

The strategy focuses on regional actions. Approaches that will be utilised to work towards achieving the WARR targets will vary from program to program and project to project.

Prior to proceeding with any program or project the following assessment will be carried out:

- relevance to the region
- relevance to individual Councils
- regional priority
- assessment of cost, environmental, social and performance benefits

The projects outlined in the Action Plan will be undertaken by NIRW staff on a regional level on behalf of participating Councils.

Funding has been provided through the NSW EPA Waste Less Recycle More Regional Coordination Support package. Further funding will be sought from grants such as Waste Less Recycle More grants program, where funding is require to develop and deliver actions.

4.2 Options Appraisal

A long list of possible action options were identified by member Councils. An options appraisal was conducted to identify priority actions to help achieve strategic objectives.

Appraisal included number of Councils intending to participating, alignment with Council waste strategies, regional priority and ability to adequately resource the option (staff and budget).

Appendix A shows all possible strategy action options considered.

Section 5.1 outlines planned Actions for 2017-2019.

5. How will the Strategy be implemented?

5.1 Action Plan 2017-2019

The NIRW Regional Waste Strategy 2017-2021 will be implemented through a range of programs across the WARR themes.

For 2017-2019 Actions are:

Action	Timing		Who
WARR Theme 1 Avoid and reduce waste generation			
Education program-visual audits, reduce, divert, reuse, recycle		2018-2019	NIRW
Plastic bag free region eg: Boomerang Bags	2017-2018	2018-2019	
100 Mile Food program- food waste avoidance, 4 seasons of food	2017-2018	2018-2019	
Garage Sale Trail	2017-2018	2018-2019	
Home composting program eg: Compost Revolution		2018-2019	
WARR Theme 2 Increase recycling			
Education Program: Measures to address/reduce contamination issues in yellow and/or green bins What can and can't be recycled (schools, community)	2017-2018	2018-2019	NIRW
Public place waste management standard		2018-2019	
WARR Theme 3 Divert more waste from landfill			
Regional contract-crushing and screening of concrete, brick and tiles		2018-2019	NIRW
Regional contract-greenwaste processing		2018-2019	
Regional contract-SFM, SNFM, LABs		2018-2019	
Training/Workshop/Education-Landfill Operator Training		2018-2019	
Training/Workshop/Education- Landfill Managers Training		2018-2019	
Training/Workshop/Education-Landfill cell construction for Operators		2018-2019	
Discrete Aboriginal communities waste management	2017-2018	2018-2019	
WARR Theme 4 Manage problem wastes better			
Mattresses-disposal, collection, handing, regional depot	2017-2018	2018-2019	NIRW
Regional contract-DrumMuster container collection		2018-2019	
Regional contract-tyre collection		2018-2019	
Regional contract-used motor oil, containers, filters, rags, cooking oil		2018-2019	
Regional contract-community sharps bin collection and disposal		2018-2019	
Regional contract-De-gassing Fridges, freezers, air cons, etc		2018-2019	
Regional contract-Ag textiles eg: silage wrap		2018-2019	
Asbestos-regional management plan/standard policy/procedure, handling, disposal at landfills, regional disposal price, training	2017-2018	2018-2019	
CRCs-Communication and Education Plan	2017-2018	2018-2019	
Household Chemical CleanOut	2017-2018	2018-2019	
WARR Theme 5 Reduce litter			
Litter reduction education program		2018-2019	NIRW
L-RIP Litter! Project Stage 3 including litter enforcement training	2017-2018		
Support Councils with Container Deposit Scheme implementation	2017-2018	2018-2019	

WARR Theme 6 Reduce illegal dumping			
Regional Illegal Dumping program	2017-2018	2018-2019	NIRW
Training/Workshop/Education-Surveillance Training		2018-2019	
Training/Workshop/Education-Illegal Dumping investigation training		2018-2019	
Training/Workshop/Education-POEO Authorised Officer Training		2018-2019	
Regional Collaboration and Coordination			
Best practice library		2018-2019	NIRW
Standardised/consistent data collection/coding-for WARR reporting, etc	2017-2018	2018-2019	
Regional contract-environmental monitoring and reporting		2018-2019	
Lobbying NSW and Federal government	2017-2018	2018-2019	
Participation in RENEW NSW	2017-2018	2018-2019	

6. How to measure success

The tools that will be used to measure the success of programs and projects are monitoring, reviewing/evaluate and reporting, to ensure that the implementation of the Strategy programs and projects deliver the most advantageous outcomes for the region and/or individual councils within NIRW.

By implementing these measures NIRW will be capable of measuring performance against the objectives and KPI's and allow for variations to the programs and projects in real time to ensure the outcomes are both meeting expectations and responding by benefiting the communities in the region.

6.1 Monitor

Monitoring will be overseen by the Program Coordinator and occur by any or all of the following:

- quarterly NIRW meetings
- quarterly RENEW meetings
- contractor performance assessments
- community surveys
- waste audits
- environmental performance
- KPI's

6.2 Review/Evaluate

Reviewing the appropriateness of the programs particularly for individual communities and councils as well as the region is imperative to maximise the benefits of the regional approach of NIRW and to ensure the best outcomes for the money spent.

Similarly the evaluation of programs at key points throughout the projects and on completion of each project will give valuable knowledge on the effectiveness of the processes followed and the value of further delivery of the projects to other councils or communities.

Disappointing reviews and evaluations should not be taken as an indictment of the project, rather as a clear signal that a reassessment of the project, the need for it, the delivery method or strategy and community acceptance should all be considered before cancelling, continuing or relaunching the project.

This strategic waste plan establishes the pathway for enhancement of regional waste and resource management. It will be important that the strategy and its programs are reviewed annually to ensure relevance, and that factors have not emerged in the intervening period that will have an effect on the strategic primary aim and objectives. The Action Plan will be updated annually and adjusted to reflect any delays in projects or changes in priorities/direction.

6.3 Report

Reporting should occur at both council and regional levels. Reporting activities of both individual councils and NIRW to member councils will help staff to be better informed on what is happening at their own council and at the other councils in the NIRW region as well as the cooperation occurring and coordinated by NIRW.

NIRW will report to NSW EPA using the Regional Coordinator Annual Progress Report 2017-2021 template, which includes details relating to resourcing of activities, project information, qualitative and quantitative performance measures, stakeholder involvement, key learnings, future opportunities, photos and financial information.

Reporting will also occur by the following means:

- quarterly report to RENEW NSW
- quarterly progress report to member councils
- project reports for specific grant funding

Appendix A: Strategy Action Options

Long List of Action Options considered:

NIRW Action Plan 2017-2021	# of mentions	Priority
WARR Theme 1 Avoid and reduce waste generation		
100 Mile Food program-Love Food Hate Waste, food waste avoidance, 4 seasons of food	4	3
Garage Sale Trail	4	3
Frugal Forest-exhibition and workshops, tour Regional Art Galleries	2	
Education program-reduce, divert, reuse, recycle	11	1
Home composting program eg: Compost Revolution	4	3
Plastic bag free region eg: Boomerang Bags	8	2
WARR Theme 2 Increase recycling		
Recycle bin contamination (visual audits and education)	7	1
Education program-bin contamination (reduction in contamination of yellow and/or green bins)	5	2
Education program- what can and can't be recycled (schools, community) (red to yellow bin)	5	2
Education program-GO/FOGO (red to green bin)	2	
Identify barriers to participation in recycling and GO/FOGO programs	1	
Measures to address contamination issues	7	1
\$ advantage for separating waste at landfill drop off	2	
Public place waste management standard	4	3
WARR Theme 3 Divert more waste from landfill		
Discrete Aboriginal communities waste management (will be done anyway, subject to EPA funding)	2	
Product stewardship programs	1	
Standardised signage at waste management facilities-landfills and transfer stations	4	3
Education program-cost of operating a landfill	2	
Consistent regional based educational messages	5	3
Bag the bag (plastic bags allowed in recycling, so long as contained in a bag, not loose)	1	
Regional contract-crushing and screening of concrete, brick and tiles	6	1
Regional contract-greenwaste processing	7	1
Regional contract-SFM, SNFM, LABs	6	1
Training/Workshop/Education (for Council staff)-Landfill Operator Training	4	2
Training/Workshop/Education (for Council staff)- Landfill Managers Training	5	2
Training/Workshop/Education (for Council staff)- Landfill cell construction for Operators	5	2
Training/Workshop/Education (for Council staff)- Compost/Organics	1	
True Cost of Landfilling	1	

WARR Theme 4 Manage problem wastes better		
CRCs-Communication and Education Plan	3	
CRC-EPA collection subsidy	0	
Household Chemical CleanOut	4	
Mattresses-disposal, collection, handing, regional depot	8	1
Asbestos-regional management plan/standard policy/procedure, handling, disposal at landfills, regional disposal price, subsidies?, WHS, impact on recovered materials	3	
e-waste management eg: collection contract	1	
Joint venture opportunities/feasibility assessments/processing opportunities- windscreens, gyprock	4	3
Consumer awareness and education	1	
Regional contract-tyre collection	7	2
Regional contract-DrumMuster container collection	5	2
Regional contract-used motor oil, containers, filters, rags, cooking oil, other oils	4	2
Regional contract-community sharps bin collection and disposal	5	2
Regional contract-Degassing Fridges, etc	5	2
Regional contract-Ag textiles eg: silage wrap	4	2
Training/Workshop/Education (for Council staff)-Safe chemical handling	2	
Training/Workshop/Education (for Council staff)- Asbestos Identification and Management	2	
Training/Workshop/Education (for Council staff)- DrumMuster Inspector-new and refresher	1	
Training/Workshop/Education (for Council staff)-Community Sharps Management (Operators and Managers)-new and refresher	1	
Engage/educate on product stewardship programs/extended producer responsibility	3	
WARR Theme 5 Reduce litter		
L-RIP Litter! Project	4	
Container Deposit Scheme	4	
Gross pollutant traps	1	
Cover your load campaign	4	3
Public notices/media on successful prosecutions	2	
Training/Workshop/Education for Council staff (Ranger/Authorised Officers)-Litter Enforcement	5	1
Consistent messaging, variable delivery and messaging to increase freshness	5	2
Litter reduction education program	5	2
Partnerships with 3 rd parties/clean up groups	2	
WARR Theme 6 Reduce illegal dumping		
Regional Illegal Dumping program	7	2
Public notices/media on successful prosecutions	4	
Training/Workshop/Education (for Council staff)-POEO Authorised Officer Training	6	3
Training/Workshop/Education (for Council staff)-Surveillance Training	8	1
Training/Workshop/Education (for Council staff)-Illegal Dumping investigation training	7	2

Regional Collaboration and Coordination		
Governance-administration, operations, reporting	5	will occur anyway
Greater transparency/availability of NIRW progress reporting/performance	1	
Lobbying NSW and Federal government	5	
RENEW	2	
Establish/support regional sustainability educators network-collaborative, cross-sectoral, professional network	3	
Best practice library-asbestos handing, rural landfills and transfer stations	5	1
Standardised/consistent data collection/coding-for WARR reporting and other projects	5	2
Village waste challenge	2	
Regional contract-environmental monitoring and reporting	4	3

Appendix B: Glossary of Terms and Abbreviations

Term	Explanation
ABS	Australian Bureau of Statistics
Anaerobic	In the absence of air (oxygen)
Avoidance	Eliminating waste at its source
AWT	Alternative waste treatment (AWT) Generally a facility that applies a combination of mechanical, biological and (sometimes) thermal processes to separate organic materials from a mixed residual waste stream (usually household waste)
Biosolids	The residual sludge produced from wastewater treatment at sewerage plants
Bulky Goods Waste	Larger household waste not usually accepted in the residual waste bin such as mattresses, household whitegoods, furniture, bric-a-brac, electrical appliances, which is collected on a regular or on-demand pick-up by Councils
Capture Rate	The proportion of material captured for reuse, recycling or recovery (including composting or energy recovery)
C&D	Construction and Demolition Solid waste sourced from construction and demolition works including building and demolition waste, asphalt waste and excavated natural material
C&I	Commercial and Industrial Solid waste generated by businesses, industries (including shopping centres, restaurants and offices) and institutions (such as schools, hospital and government), but not C&D waste or MSW
Collection system	System for collecting materials from the kerbside, including bin type and collection frequency
Comingled recycling	A system in which all paper fibres, plastic containers, metals and others are collected together for processing.
Composting	The process of controlled biological decomposition of organic material
Contamination	The introduction of a material in a concentration into a product that makes it unfit for its intended use
Contamination rate	The percentage of the bin which is contaminated by materials not suitable for its stream.
CRC	Community Recycling Centre
Disposable	Any product or material that is designed to be thrown away after a single use
Disposal Fee	The fee charged at designated facilities for the disposal of waste
Diversion	The recycling or reprocessing of materials that would have otherwise been sent to landfill
Diversion rate	The proportion of all recycled materials or those otherwise recovered compared with total amount of waste generated.
Earth based materials	A natural material (such as clay, gravel, sand, soil or rock fines) which includes excavated material which meets criteria for virgin excavated natural material.
EPA	NSW Environment Protection Authority
EPS	Expanded polystyrene

EfW	Energy from Waste The process of recovering energy from waste materials: the energy is used to produce useable heat, steam, electricity or a combination of these.
ETS	Emission Trading Scheme
E-waste	End-of-life electronic equipment, such as televisions, computers, mobile phones, stereos and small electrical appliances (but not whitegoods).
Extended Producer Responsibility	An environmental policy approach in which a producer's responsibility for a product is extended to the post-consumer stage of the product life cycle
Feedstock	The raw material used to supply a process.
FOGO	Food organics and garden organics
Food waste	Includes meat, fruit and vegetable scraps, out of date food
Gap analysis	An assessment of current performance against required performance (targets) and quantification of the shortfall. As part of gap analysis, there is an identification of what measures need to be implemented to address the gap in performance
Garden waste	Grass, leave, plants, loppings, branches, tree trunks and stumps and any mixture of these materials.
Generators	Those responsible for waste creation
GO	Garden Organics
Greenhouse gases	Gases such as methane and carbon monoxide, that are implicated in the greenhouse effect, which in turn is thought to cause global warming
Green lid Bin	Refers to the Australian Standard (AS 4123.7-2006 mobile waste containers– Part 7: colours, markings and designation requirements): bin-lid colours for household kerbside waste and recycling bins. The Green lid bin is for organic materials. These generally include weeds, grass clippings, flowers, leaves, prunings and small branches. The Green lid bin may also be used for food waste depending on the facility where the materials are taken for processing and the availability of downstream markets for the processed materials.
Greenwaste	Waste comprising vegetative organic materials including garden waste, food waste and wood waste
HHW	Household Hazardous Waste A substance which is explosive, corrosive, flammable, reactive, contagious, and/or toxic, as sourced from the domestic sector
Household problem wastes	Household products and materials in the waste and recycling stream that pose potential harm to the environment and human health and/or make the recovery and recycling of other materials more difficult or uneconomic
Household waste	Total amount of household kerbside material left out for council collection (garbage, recycling and greenwaste)
Industrial ecology	Using the by-products from the production process of one company as a resource in another.
Kerbside waste/collection	Waste collected by Councils from residential properties, including garbage comingled recyclables and garden organics, but excluding hard waste
Landfill	A facility designed and operated for the disposal of waste material by burying. Modern landfills are engineered, lined and fitted with gas capture systems to minimise environmental impacts.
Landfill Gas	Gas generated as a result from the decomposition of decaying waste buried at landfills under anaerobic conditions
LGA	Local Government Area

Litter	A form of pollution, considered to be the most visible. Anything left where it is not meant to be.
MGB	Mobile garbage bin
MRF	Material recovery facility A facility at which recyclable materials are separated into individual commodities A materials recovery facility handles a range of recyclables which typically have already been separated from other waste streams (e.g. by householders or businesses at the collection stage). At the MRF the materials are sorted into individual streams before being sent for recycling. Any components of the incoming material not suitable for recycling will be separated as 'contaminants' at the MRF
MSW	Municipal solid waste Solid waste from households and local government operations, including waste placed at the kerbside for council collection and waste collected by councils from municipal parks and gardens, street sweepings, council engineering works and public council bins
MUD	Multi-unit dwelling
NIRW	Northern Inland Regional Waste
NSW Government Landfill Levy	The waste and environment levy is a NSW Government key market based instrument for driving waste avoidance and resource recovery, applied to municipal, commercial, industrial and prescribed wastes disposed of at licenced landfills in the levy paying areas. The levy does not apply to waste that is recycled.
Organic Waste	The part of the waste stream that is comprised solely of animal or vegetable matter and typically from which compost can be created
pa	Per annum
Problem Wastes	Household products and materials in the waste and recycling stream that pose potential harm to the environment and human health and/or make the recovery and recycling of other materials more difficult or uneconomic.
RDF	Refuse Derived Fuel
Recycling	The process of source separating from the solid waste stream products that are no longer useable in their present form and that can be used in the manufacture of new products
Recycling Rate	Proportion of an overall waste stream which is reprocessed, recycled and put back into the economy.
Recyclable Material	Material that is able to be re-processed and used as an input for the manufacture of either the same product or another product
Red lid Bin	Refers to the Australian Standard (AS 4123.7-2006 mobile waste containers – Part 7: colours, markings and designation requirements): bin-lid colours for household kerbside waste and recycling bins. The red lid bin is for residual waste
Residual Waste	Waste remaining from household sources containing material not separated for recycling or reprocessing Residual garbage waste disposed of in the red-lidded bin for either disposal at landfill or further processing by an AWT
Resource Recovery	Recycling waste material. Recovery may also include extracting embodied energy from waste through thermal processes
Reuse	The repeated use of a product in the same form but not necessarily for the same purpose, without further manufacture
RID	Regional Illegal Dumping

RRA	Regional regulated area
SME	Small to medium enterprises
Solid Waste	Unwanted solid materials (does not include liquid waste.)
Source Separation	The separation of recyclables from the waste stream at the source of generation
SUD	Single Unit Dwelling
Sustainability	Activities that meet the needs of the present without compromising the ability of future generations to meet their own needs. It is a triple bottom line approach that includes social, economic and environmental considerations
Tpa	Tonnes per annum
Transfer Station	An intermediate facility where waste material can be delivered locally before transportation to a disposal site
WARR	Waste and Resource Recovery
WARR Report	<i>NSW Local Government Waste and Resource Recovery Data Report 2014-2015</i>
WARR Strategy	<i>NSW Waste Avoidance and Resource Recovery Strategy 2014-2021</i>
Waste	Anything that is no longer valued by its owner for use or sale and which is, or will be discarded. Includes (as defined by the NSW Protection of the Environment Operations Act 1997): <ul style="list-style-type: none"> • any substance (whether solid, liquid or gaseous) that is discharged, emitted or deposited in the environment in such volume, constituency or manner as to cause an alteration in the environment, or • any discarded, rejected, unwanted, surplus or abandoned substance, or • any otherwise discarded, rejected, unwanted, surplus or abandoned substance intended for sale or for recycling, processing, recovery or purification by a separate operation from that which produced the substance, or • any processed, recycled, re-used or recovered substance produced wholly or partly from waste that is applied to land, or used as fuel, but only in the circumstances prescribed by the regulations, or • any substance prescribed by the regulations to be waste a substance is not precluded from being waste for the purposes of this Act
Waste Avoidance	Waste that does not enter the waste-management system.
Waste Generation	The total amount of waste disposed of to landfill and diverted (based on available data) Waste generation = Landfilled plus Diverted (Total recycled, reused or reprocessed)
Waste Management System	Waste materials from MSW, C&I and C&D sectors that are collected kerbside, recovered from the waste stream for recycling or energy recovery or disposed to landfill
Waste Minimisation	Reducing the quantity of waste requiring disposal through waste reduction, reuse, or recycling. Reducing waste generation by avoiding or preventing the creation of waste, where possible, along the various parts of the supply chain. The aim is to use less material to achieve the same or equivalent outcome.
Waste Strategy	A strategic plan of action developed in consultation with an affected community with the goal of managing their waste streams
WCS	Wright Corporate Strategy-authors of <i>NIRW Regional Waste Strategy and Action Plan 2014-2017</i> (2014 Strategy)
Windrow	Row of composting greenwaste material

WLRM	Waste Less Recycle More
Yellow Lid Bin	Refers to the Australian Standard (AS 4123.7-2006 mobile waste containers– Part 7: colours, markings and designation requirements): bin-lid colours for household kerbside waste and recycling bins. The yellow lid bin is for dry recyclable materials. These generally include paper, cardboard, glass, some hard plastics and ferrous and non-ferrous metals. The type of recyclable materials collected in the yellow lid bin can vary depending on the facility where the materials are taken for further separation and the availability of downstream markets for the materials.

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