Bin Tagging Program

Guidelines for Local Government

Contents

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Thank you also to the Southern Metropolitan Regional Council who developed the Recycle Right branding and resources used by the Program.

ZeroWaste SA, now Green Industries SA, developed and documented the Bin Tagging Program to its current high standard. Thank you to Green Industries SA who have continued to allow WALGA to use the materials and resources they developed in Western Australia.

1.0 Introduction

The Bin Tagging Program focuses on reducing contamination and increasing resource recovery from the kerbside system. Unfortunately, general information provision alone does not necessarily change community behaviour in relation to the kerbside collection system. The Bin Tagging Program uses a combination of information provision, incentives and enforcement to achieve reduced contamination and increased resource recovery.

WALGA undertook research into effective systems for behaviour change in 2015 and identified the South Australian Bin Tagging Program. To introduce the Program in WA, WALGA worked with Local Governments to first pilot, then implement the Program. This Guide provides Local Governments with a step by step process to implement the Bin Tagging Program in their area.

1.1 How to use this Guide

These Guidelines are intended for Local Government Officers seeking to implement the Bin Tagging Program. The Guideline also provides general information about the Program that will be of interest to a wider audience. These Guidelines provide an overview of the Program and its achievements and go through step by step the planning, preparation, implementation and evaluation phases of the Program. Appendix 1 provides a check list summarising the key steps and resources available to plan, prepare, implement and evaluate the Program. Appendix two includes generic bin tags for the different kerbside systems. The other appendices include additional resources.

There is a set structure to the Program which links to how effective its implementation will be. These Guidelines identifies where certain elements of the Program are essential as opposed to when there are options for implementation.

1.2 What is Bin Tagging?

Bin tagging is a method of providing direct feedback on the content of waste, recycling and greenwaste/organics bins to residents by placing a tag on each bin to indicate if the contents are appropriate. The tags (example shown in Figure 1) provide specific feedback on the content of the bin as well as some general guidance on what can and can't be placed in the kerbside bin.

Bin auditors conduct a simple visual assessment of the contents of each bin at the kerbside (prior to collection). Data for each household is collected, based on this assessment. Then a tag is placed on the bin, providing individualised feedback about the content of the bin.

The Program can provide both incentives and enforcement options to encourage appropriate disposal practice. Enforcement occurs at the end of the tagging period and is only used when bins are severely contaminated.

Figure 1: Bin tags affixed to bins

1.3 Why does Bin Tagging work?

The community's attitude and enthusiasm towards source separation is generally good, but limited knowledge about what goes in each bin can cause contamination of those bins. Residents often do not receive direct feedback or consequences for what they place in their bin – unless the material is particularly hazardous. This means the resident does not know that they are not source separating correctly. Why the Bin Tagging Program works is that it addresses these issues – it provides specific information that is relevant at a household level and it provides a consequence for behaviour. The Tags are carefully designed and use visual prompts (see Section 1.4) to convey the messages.

1.4 Bin Tag Design

All elements of the bin tags have been carefully tried and tested to achieve the right outcomes. Figure 2 shows examples of different bin tags used.

Figure 2: Examples of different bin tags

1.4.1 Design

The bin tags are designed with bold happy and sad faces to indicate if there is correct or incorrect source separation. The happy and sad face are used because they trigger an immediate emotional response and we instantly recognise a positive or negative from them. For example, if the recycling bin is free of contamination, a yellow tag is attached to the bin with a happy face thanking the resident for doing the right thing.

Organics bins have an additional tag with a quizzical face (Figure 3). This tag is used if foodwaste is not present in the bin to let residents know that they can place the complete range of foodwaste in the bin but it does not discourage other activities like home composting the resident maybe undertaking.

Figure 3: Example of Tag from Organics bin

1.4.2 Colour

The tags are coloured to match the bin lid colours of kerbside the bins. For example, Local Governments using the Australian Standard for Bin Colours would have red tags for the general waste bin, yellow tags for the recycling bin and green tags for the greenwaste or organics bin. These can be adjusted to match the bin colours in a particular Local Government. For example, many Local Governments have a green general waste bin. The happy tags are in bright colours, while the sad tags use greyscale. This is again to give a visual cue to the content of the tag.

1.4.3 Language

The wording on the tags is very specific. For example, on the 'sad' tag it says "we ask you one small favour". Rather than telling people what to do, it is worded neutrally. If the recycling bin contains contaminants, a greyscale sad tag is attached to the bin stating the contaminant. This is to highlight the focus of the Program is about providing feedback and information to residents.

If after a number of visits the recycle, greenwaste and organics bins are severely contaminated they should not be collected. Instead, a sad face tag with "We were not able to collect your bin today" is attached to the bin. The tag informs residents that their bin was not collected due to high level/ consistent contamination and that they will need to remove the contaminants before it can be collected during the next collection.

1.5 Results in WA

Pilot Program

The Bin Tagging Pilot Program was implemented in the Cities of Joondalup, Kwinana and Town of Cambridge in February – April 2015. The Pilot Program lead to a substantial increase in correct source separation among households. A follow-up audit was carried out twelve months later and it was confirmed that improved recycling behaviour had continued in the majority of households.

The Pilot aimed to audit 2,000 households per Local Government area. Where possible, the Pilot utilised the Recycle Right Branding and website developed by the Southern Metropolitan Regional Council. Over five fortnights, auditors checked waste and recycling bins in the designated areas, collected data on the materials in the waste and recycling bins and provided residents with feedback about their bins' content.

Kwinana showed the greatest increase in correct recycling rates, moving from 36% to 69% (33% improvement). Joondalup showed the next greatest change in the correct recycling rates, moving from 52% to 78.5% - a 26.5% improvement. Cambridge increased from 64% correct recycling to 76.7% over the course of the Pilot.

As shown in Figure 4, the Pilot did change behaviour, but the degree of influence on households varied, based on the starting point of the recycling behaviour. The final week of the Program involved taping recycling bins shut which had exhibited very high levels of contamination in the previous weeks. This equated to a very small proportion of households, with 4% in Cambridge, 1% in Joondalup and 5% in Kwinana. Of those bins taped shut, the

Local Government only received a small number of calls and these were residents asking how to rectify the issues and have their recycling bin collected.

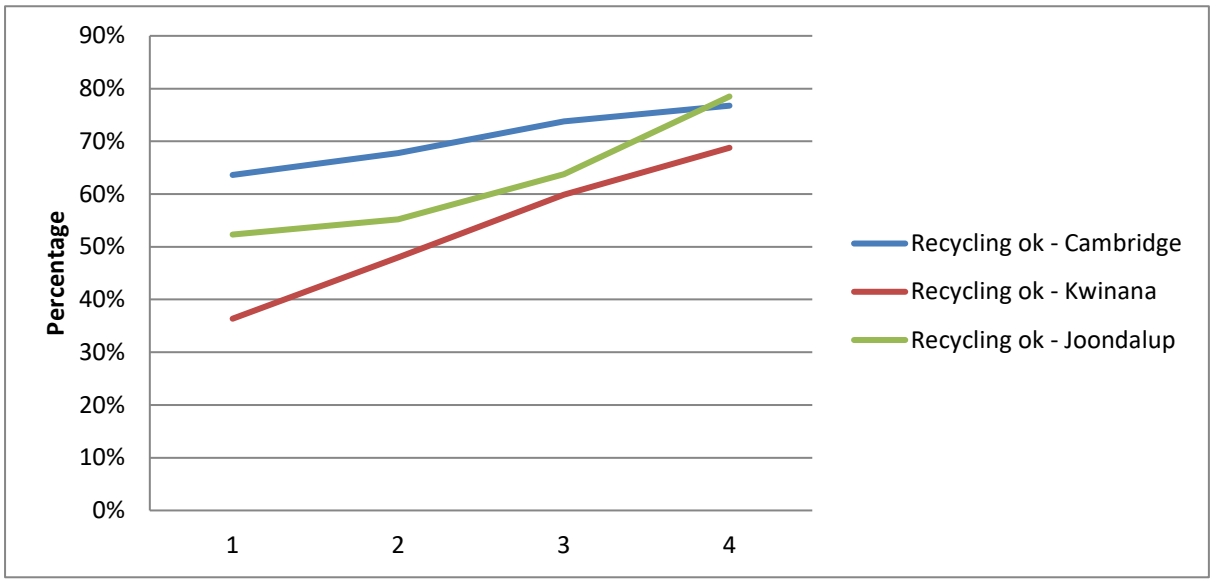

Figure 4: Comparison of Cambridge, Kwinana and Joondalup non-contaminated recycling bin (as a percentage).

In February 2016, WALGA and the Local Governments involved in the Pilot Program undertook follow up audits to gauge the long term impacts of the Program. A sample of approximately 200 households from the original 2,000 households were audited in each Local Government area. The results from this sample provide a picture of the ongoing success of the Bin Tagging Program at improving recycling behaviour. Table 1 shows the instances of no contamination in the recycling bin from the initial and final audits during the Pilot and the 1 year review. This indicates the households maintained rates of correct recycling over the 12 months.

	Baseline Audit		**Taping week**		**1 year later**	
Recycling Bin (no contamination)	**HH**	**%**	**HH**	**%**	**HH**	**%**
Cambridge	260	59.75%	303	68.75%	274	66.20%
Kwinana	89	30.15%	164	55.55%	169	57.45%
Joondalup	165	44.73%	204	55.17%	198	55.31%

Table 1: Comparison of Cambridge, Kwinana and Joondalup non-contaminated recycling bin – longitudinal results.

Reviewing the contamination rates for the recycling bin, Town of Cambridge showed a slight decrease in uncontaminated recycling bins, City of Kwinana showed a slight increase in the number of uncontaminated recycling bins and City of Joondalup essentially maintained the same contamination rate.

Since the bin tagging was completed in 2015, the Local Governments undertook varying levels of promotion/ engagement on waste management. Town of Cambridge continued its high profile newspaper campaign and active community engagement. The Cities of Kwinana and Joondalup continued their usual level of activity, with Kwinana utilising the Recycle Right branding and resources.

Bin Tagging Implementation 2016

In January 2016, WALGA implemented the Bin Tagging program with the Towns of Bassendean and Mosman Park, Cities of Cockburn and Joondalup and the Shire of Capel. Table 2 shows the instances of no contamination in the recycling or organics bin from the initial and final audits.

Cockburn had a very high correct recycling rate compared to other metropolitan Local Governments. The City had previously undertaken bin tagging in this area and at the end of the previous audit 97% of households were recycling correctly. This reduced slightly to 84% at the beginning of this audit but increased to 91% over the course of the audits – a 7% increase. These results show that repeated visits to households can increase the correct recycling behaviour, also given Cockburn have weekly recycling the more regular reminders of correct behaviour may also have had an impact.

The Bin Tagging undertaken in the Shire of Capel had some implementation issues, including miscommunication with the waste collection contractor which resulted in bins being collected prior to the bin tagging being completed. Also the Tagging was only occurring fortnightly but the service was weekly, this meant that a number of households only received feedback once. However, for households where the organic bin was presented each fortnight, correct source separation behaviour increased from 69% to 86% by the end of the Bin Tagging. The result from those households was much better than the overall correct behaviour - 60%. This highlights the need for, and results achieved if, regular feedback is provided.

	First week No Contamination		**Taping week No Contamination**	
Recycling Bin	**HH**	**%**	**HH**	**%**
Cockburn	316	84%	378	91%
Bassendean	319	48%	507	66%
Joondalup	257	42%	384	66%
Mosman Park	340	64%	334	76%
Organics Bin				
Capel	476	70%	368	60.9%

Table 2: Number and percentage of uncontaminated recycling for Cockburn, Bassendean, Joondalup, Mosman Park and organic bins Capel.

Based on experience, bin tagging can be successfully used to alter source separation behaviour by residents, but results depend on a number of factors:

- *Initial behaviour*: The amount of improvement is dependent on the starting point – the lower the initial correct separation rate, the more improvement there is likely to be overall.
- *Frequency and consistency of feedback*: For a new service being introduced, such as an organic collection, it is vital to have regular and consistent feedback provided to residents.
- *Collection contractor commitment*: the collection contractor needs to be committed to the Program and work with the Local Government to implement the Program. For example, delaying collections or not collecting bins that have been taped.

2.0 Planning

In planning to undertake Bin Tagging, the following factors need to be considered:

- What data is going to be collected?
- How is communication with stakeholders going to occur?
- What resources are needed?
- What areas are going to be tagged?
- How many return visits to each household?
- When will the bin tagging occur?
- How will enforcement be undertaken?
- Will incentives be offered?

2.1 What data is going to be collected?

Collecting and collating data is essential in order to show the changes in kerbside recycling behaviour and measure the program's success. Data that must be collected during bin tagging is:

- If presented, whether the bin is contaminated or not contaminated: This can be done by a simple notation about contamination/no contamination or by more detailed listing of types of contamination, for example food waste or nappies in the recycling bin or recycling in the general waste bin.
- The severity of contamination: for example a single nappy in the recycling bin compared to an entire bin full of nappies.

Information on contamination allows the success of the Program to be measured. By measuring types of contamination in the bin, specific education messages can be developed to complement the Program.

Undertaking bin tagging also provides an opportunity to collect a range of other information which can be of use to the Local Government. This information includes:

- Service use: how full the bins are can be collected – a percentage based approach is suggested. This allows the Local Government to determine to what extent their current service is being used and make evidenced based decisions about future service options.
- Bin condition: broken bins / bin lids can be identified and rectified.
- General repair issues: because auditors are physically walking the streets, they can identify any road/footpath repairs needed or instances of illegal dumping.

2.2 How is communication with stakeholders going to occur?

Clear communication with both internal and external stakeholders is essential to ensure the success of the program. As a starting point, the following communication is suggested:

Internally

- Customer Service staff: share all resources that will go to households and an overview of the program to allow the staff to answer any questions. Training is available from WALGA (see Section 3.3).
- Media team: provide a briefing to the media team to assist in promoting the Program and responding to any media queries. Training is available from WALGA (see Section 3.3).

- Elected Members: provide an overview of the Program, including the experience gathered from other Local Governments. WALGA can provide a standard presentation to Council on this.
- Bin tagging staff: must be trained on what goes in each kerbside bin, how to accurately and consistently conduct audits and record data, and how to respond to queries from households. Training is available from WALGA (see Section 3.3).

Externally

- Waste contractor: will need to be informed which areas and days the tagging with take place and if they need to modify their collection schedule. During the enforcement stage, contractors should be informed from which addresses kerbside bins will not be collected due to contamination. Ensure that you have up-to-date contact details of the fleet managers, so during bin tagging drivers can easily be contacted to delay or modify their collection. Contractors may also have suggestions about which areas have higher contamination rates, so would be a good focus for the bin tagging.
- Households: provide households clear, concise information as part the lead up to implementing the bin tagging. This is to ensure households know they will be part of the bin tagging program, why it is occurring and understand how to be successful. Local Governments will need to provide this information on their website, social media and via media release. Information could also be provided through a letterbox drop and advertisement or articles in community newspapers.

2.3 What resources are needed?

The number of staff available to implement the bin tagging will determine how many properties can be included. Activities, that require resourcing, to implement the Program include:

- Selecting areas and plotting routes for bin tagging
- Setting up spreadsheets for data entry (Available on the WasteNet website)
- Preparing tags, including design and attaching elastic bands (WALGA has template tags which can be modified for use by Local Governments)
- Briefing Elected Members, customer service staff and media team
- Training bin tagging staff
- Undertaking internal and external communications.

Implementation:

- Undertaking audits
- Data entry
- Responding to community queries
- Ongoing data analysis and reporting of results.

Evaluation:

- Gathering feedback and evaluating results
- Sharing results.

Bin tagging, and the associated data entry, take time. Based on the implementation experience, it can take around 2-3 hours to tag and record information from 150-200 households. Data entry takes approximately 30 minutes per 150 – 200 households. There are two approaches to gaining coverage that have been used in the bin tagging

implementation to date. Approach 1: a team of two, tags and records data for approximately 200 households, every day, for a week. This provides coverage of approximately 1000 households. The advantage of this approach is that a broad area of a Local Government can be covered and the workload better incorporated into existing roles. Approach 2: multiple teams undertake bin tagging on the same day, covering a wider area. For example, 5 teams of two people could cover 1,000 households in a day. This works best where you have a larger area to cover and can bring in additional resources to help.

Variables which affect the time taken to undertake the tagging include:

- Block size
- Topography
- Whether residents engage with those undertaking the tagging
- Weather
- Level of contamination
- Experience of auditors.

Bin tagging is best conducted in teams of two people, one person to visually inspect the bin and affix the tag and the other person to record the type and level of contamination present. The skill sets that the teams need include:

- Accuracy and consistency for assessing and recording the bin content
- An understanding of the Program and waste management system in place within the Local Government
- Good customer service skills.

2.4 What areas are going to be tagged?

In considering which areas within the Local Government to implement the Program in, factors which influence selection include:

- Areas with higher contamination rates
- More densely populated areas
- Flatter areas
- Areas with later bin collections.

The higher the current contamination rate, the greater opportunity for the bin tagging program to influence outcomes. This means a greater change in behaviour for the investment of resources. More densely populated areas mean the bin auditors have less far to walk between bins, which increases the number of households which can be assessed in the same time. Larger block sizes, can increase the time the bin tagging takes. Flatter areas make the bin tagging less physically strenuous for the auditors and again reduce the time it takes to undertake the tagging. Considering which areas currently have later bin collections can assist, as if you implement the bin tagging program in these areas it means less disruption to current services.

2.5 How many return visits to each household?

The more return visits to each household the lower the contamination rates achieved. However, the positive outcome of lower contamination rates has to be balanced with the resourcing required to under the bin tagging. With 3 visits (tagging, tagging, then taping), increases in correct separation were seen in the majority (approx. 70%) of households. With further visits, correct separation again increases.

2.6 When will bin tagging occur?

The time of year the Bin Tagging takes place will depend on the climatic conditions of the area. It is best undertaken when there is minimal precipitation, as the tags and data collection is very difficult in the rain. Other considerations include the timing of school holiday's and public holidays. It is best to avoid school holidays as these may not be representative of general behaviour. Also factoring in when public holidays occur is important as it is not recommended that bin tagging take place on public holidays. For best results Bin Tagging should be planned over a 2 month period (February – April for example). Contingencies should be put in place to extend the bin tagging timeframe if for example there is unseasonal rain.

2.7 How will enforcement be undertaken?

An essential element of the Bin Tagging Program is the enforcement step of the process. This is, that after a pre-determined number of visits, those who have consistently (or very severely) contaminated their recycling or organic/greenwaste bin, will have their bin taped shut and it will not be collected. In the implementation of the Program this was very rarely needed but is a necessary final step in the Program.

If, following the taping of the bin, the household's behaviour does not change, then it is up to the Local Government to determine the next step – this maybe a conversation with the residents to identify if there is another waste management option which could work better for the household. Experience in several Local Government areas has indicated that for some, general waste only services are the most appropriate approach.

2.8 Will incentives be offered?

There are options through the Program to offer incentives to the community. These incentives focus on rewarding consistently good source separation in a financial way or by public recognition. For example, for each auditing week, households with no contamination in any of their kerbside bins could go into a draw to win a gift card for a local business. Alternatively, households with no contamination can be invited to promote their good recycling behaviour with:

- A 'Bin Ambassador' sticker on their bin (Figure 5)
- A short article on the Local Government's website and social media.

Figure 5: Recycle Right Ambassador sticker (taken from ZeroWaste SA Guidelines)

3.0 Preparation

3.1 Engage with Service Provider

As identified in Section 2.2, it is important that if the Local Government uses contractors – or the service is provided by another Department within the Local Government – that there is good communication at all stages of the project. The service provider can be consulted on which areas to undertake the bin tagging in but also needs to know the areas which are finally selected.

3.2 Ensure Equipment Available

The range of equipment needed to implement the bin tagging is listed in Appendix 4 and includes general PPE as well as specific bin tagging equipment. Figure 6 shows an example of the use of a post it note in the field. An essential tool is the list of properties that will be tagged and a laminated map of the area, with the route included. Once the area(s) to be tagged are selected, a list of street addresses should be generated, then the route for inspection mapped and the Inspection Monitoring Sheet updated to include the street addresses in the approximate order they will be walked.

Figure 6: Example of post it note and address of contaminated bin.

3.3 Undertake Training

WALGA provides training for implementing the Bin Tagging Program, including:

- Why contamination in the kerbside bin is a problem: including examples of different types of contamination and the consequences of contamination in the recycling and organics/greenwaste bins.
- Background to the Bin Tagging Program: provides examples of implementation from other Local Government areas, why the Program works and the results.
- Information on the type of feedback likely from the community: including frequently asked questions
- Step by step implementation: working through how to inspect the bins and record data
- Practice bin tagging: either classroom based activity or in the field, depending on resources.

This training is aimed at customer service staff, media staff, those physically undertaking the bin tagging and their Managers.

4.0 Implementation

All bins presented on the streets should be inspected and tagged, including general waste bins. A Tagging Key (Section 4.1) and an inspection monitoring sheet (Section 4.2) should be prepared first to make on-the-ground tagging simple. Table 3 outlines the 4 step process to implement bin tagging for a two bin waste and recycling system, with recycling collected fortnightly. In this case the Bin Tagging would be conducted fortnightly and take 8 weeks. If the system was a waste, recycling and garden waste system, the Bin Tagging would occur over the same time period but would happen weekly, tagging the recycling and garden waste bin on alternate weeks.

Visit	Action	Incentive/Enforcement
1	• Inspect and tag each bin presented with *happy* or *sad* tags • Use blank Inspection monitoring sheets to record any addresses not already listed	Incentive: Households with all bins presented, which are not contaminated, go into draw for a gift card drawn at the end of this waste collection period Enforcement: None
2	• Inspect and tag each bin presented with *happy* or *sad* tags	Incentive: As for Visit 1 Enforcement : None
3	• Inspect and tag each bin presented with *happy* or *sad* tags • Recycling bins from households that have continuously received *sad* tags OR have severe contamination receive a *sad face (We were not able to collect your bin today)* tag	Incentive: As for Visit 1 Enforcement : Bins are taped shut and waste collectors informed to not collect from these addresses
4	• Only bins that were taped shut and not collected last cycle are inspected and tagged with *happy* or *sad* tags.	Incentive: None Enforcement: households with bins that continue to be severely contaminated are contacted by the Local Government to determine the underlying issue.

Table 3: Bin tagging implementation – for two bin waste and recycling system

For a Food Organics/Garden Organics system, with weekly collection of the FOGO bin and fortnightly waste and recycling the system would be slightly different. As shown in Table 4, because of the weekly FOGO service, the activity would talk place over 6 weeks, with the FOGO bins being inspected 4 times prior to enforcement activity and the recycling bin twice.

Visit	Action	Incentive/Enforcement
1	• Inspect and tag each bin presented with *happy* or *sad* tags – FOGO and Recycling Use blank Inspection monitoring sheets to record any addresses not already listed	Incentive: Households with all bins presented, which are not contaminated, go into draw for a gift card drawn at the end of this waste collection period Enforcement: None
2	• Inspect and tag each bin presented with *happy* or *sad* tags – FOGO and Waste	Incentive: As for Visit 1 Enforcement : None
3	• Inspect and tag each bin presented with *happy* or *sad* tags – FOGO and Recycling	Incentive: As for Visit 1 Enforcement : None
4	• Inspect and tag each bin presented with *happy* or *sad* tags – FOGO and Waste	Incentive: As for Visit 1 Enforcement : None
5	• Inspect and tag each bin presented with *happy* or *sad* tags – FOGO and Recycling	Incentive: As for Visit 1 Enforcement : Bins are taped shut and waste collectors informed to not collect from these addresses – for both FOGO and Recycling
6	• Only bins that were taped shut and not collected last cycle are inspected and tagged with *happy* or *sad* tags.	Incentive: None Enforcement: households with bins that continue to be severely contaminated are contacted by the Local Government to determine the underlying issue.

Table 4: Bin tagging implementation for FOGO system

4.1 Use Tagging Key

A tagging key is a reference list of common contaminants found in kerbside bins. Using the key makes data collection simpler and less time consuming. The tagging key contains common contaminants for the waste, recycling and greenwaste/organics bin. A full tagging key is included as Appendix 5.

Other areas of concern are also included in the key (such as overfull bins) and useful record keeping information (such as no bin presented or bin already collected).

If there are contaminants in the bin, the next step is to identify the level of contamination, which is entered in the CL (contamination level) column. The tagging key also includes the scale for contamination level, with 1 being minor contamination and 3 being severely contaminated. Figure 7 shows an example of the key for the recycling bin.

Acronym	Material
NC	No Contamination
O	Overfull
B	Recycling in bags
N	Nappies
F	Food
X	Bin already collected

CONTAMINATION LEVEL	
1	Minor contamination (1 or 2 incidents*)
2	Medium contamination (3 to 8 incidents*)
3	Severely contaminated (more than 8 incidents*)

* Wrong material or behaviour (e.g. not rinsing containers)

Figure 7: Example of Tagging Key for Recycling Bin

4.2 Use Inspection Monitoring Sheet

The inspection monitoring sheet is a print out of the excel spreadsheet the data will be entered into. Appendix 6 goes through step by step the information that needs to be recorded. Figure 8 provides an example of how the sheet would be set up.

Each spreadsheet should include:

- The date of the audit
- The person responsible for data entry
- Start and finish time
- Who the auditors were
- How many properties were checked
- How long it took to enter the data.

This information must be captured every audit to allow the Local Government to better plan future audits and provides a realistic idea of the amount of time the whole process takes.

The data sheets are set up with addresses included to make data collection quicker and more accurate. Data is recorded on printed sheets and this information is then entered into an Excel spreadsheet (which is set up to automatically tally data). Information must be recorded clearly, neatly and correctly. In order to minimise variation in the results, it's preferable the same person records data every week.

	WEEK 1: Waste & Recycling - Tag Number of Properties: 145 Start Time : 6 AM Finish Time: 8 AM Data Entry Time (hrs): 0.5hrs Auditors: Rebecca & Ariane				
Street Address	**WASTE**	**CL**	**RECYCLING**	**CL**	**NOTES**
174 Clontarf Road					
174A Clontarf Road					
170 Clontarf Road					

Figure 8: Example of Inspection Monitoring Sheet for waste and recycling bin

4.3 Follow Bin Tagging Process

The Bin tagging process remains the same no matter the kerbside collection system. For simplicity the example here is for a waste and recycling kerbside service, but it can be easily adapted for an organics or garden waste service. The Bin Tagging process:

- Step 1: Is there a bin/property?
- Step 2: What's in the Waste Bin?
- Step 3: What's in the Recycling Bin?
- Step 4: Any other comments?

The individual steps to the Bin Tagging process, and data entry associated, are outlined in detail in Appendix 6.

4.4 Enforcement Protocol

The final stage of Bin Tagging is when bins are inspected, with the view to potentially tape some shut. The experience to date has been that this is likely to be a relatively small number of bins. There needs to be a clear process for this to occur and the process is included in Appendix 7. Appendix 8 includes an example letter to go along with the process.

4.5 Enter Data

The Excel Spreadsheets (available from the WasteNet website) have been set up so they automatically calculate some of the results. They do that based on recognising the letters that are entered into the spreadsheets, so it is essential that:

- All letters are entered as capital letters
- There are no spaces after the letters, except if it is to record another type of information/contamination (e.g. 'R O' and 'B N G' are fine, 'R ' is not).

Table 5, includes an example for data entry relating to how the formulas are set up in the Excel spreadsheet. The comments in the table are applicable to all the different bin systems. There are different spreadsheets for waste and recycling, waste, recycling and garden waste and waste, recycling and organics services.

Results Summary	Notes for data entry
Waste Bin	
Recycling in Waste Bin (R)	If there are R O bins, manually count how many and add it to the formula (Example: =COUNTIF(G8:G213,"R") **+ 4**
No Contamination (NC)	If there are NC O bins, manually count how many and add it to the formula =COUNTIF(G8:G214,"NC") **+ 3**
No Bin (NB)	No action
Overfull Bin (O)	Manual Count – should come from adding how many R O and NC O from previous fields

Table 5: Notes for data entry for the waste bin

4.6 Analyse Data

Once the data is entered into spreadsheets, it becomes much more manageable and changes each week can be tracked and graphed. The results of the data collection will provide the number of waste and recycling bins with no contamination, and the type and severity of contamination of incorrectly used bins. WALGA can assist in the data analysis if needed and compare to other Local Government results.

5.0 Evaluation

At the end of the Bin Tagging implementation it is important to evaluate how the process went and any learnings from the process. The evaluation could include:

- Behaviour change: from the analysis of the data, what were the areas of greatest improvement, what areas did not improve, what were the biggest contamination issues?
- Stakeholder feedback: what feedback was received from the different internal and external stakeholders?
- Practical implementation: were there any practical implementation issues, from those undertaking the tagging and the Local Government service provider?
- Lessons learned: what were the things you would do differently, or the same if implementing the Program again?

6.0 Appendices

Appendix 1: Bin Tagging Check List

Stage	Activity	Resources available	✓
Planning	What data is going to be collected? Required - Bin contamination, type and severity of contamination Optional - How full the bins are, bin condition any general repair issues.		
	How is communication with stakeholders going to occur? Required - Internal and external communication	Section 3.3 WALGA Training Appendix 3 Media points	
	What resources are needed? Required - Identify the range of resourcing requirements at each stage	Advice and data collection spreadsheets available on request from WALGA. Section 3.3 WALGA Training	
	What areas are going to be tagged? Required - Based on resourcing, establish number of households?		
	How many return visits to each household? Required - At least three visits to each household (tag, tag, tape). Optional - Additional visits to improve performance		
	When will bin tagging occur? Required - Select appropriate time of year and duration		
	How will enforcement be undertaken? Required - Tape the Bin Optional - Further engagement with the households		
	Will incentives be offered? Financial or recognition		
Preparation	Engage with Service provider Required - Provide information / seek feedback		
	Ensure equipment available Required	Appendix 4	
	Undertake Training Required	Contact WALGA to schedule training	

Implementation	Use Tagging Key Required	Appendix 5	
	Use Inspection Monitoring Sheet Required	Appendix 6 and WasteNet websites	
	Follow Bin Tagging Process Required	Appendix 6	
	Follow Enforcement Protocol Required	Appendix 7 and 8	
	Enter Data Required		
	Analyse Data Required	Contact WALGA for assistance and comparison data	
Evaluation	Required - including behaviour change, stakeholder feedback, practical issues and lessons learnt.		

Appendix 2: Generic Bin Tags

Waste and Recycling


WE WERE NOT ABLE TO COLLECT YOUR BIN TODAY.
Please remove the following contaminants from your recycling bin. Your bin will then be collected on the next recycling collection.
Your recycling is tied up with plastic bags. Please leave it loose in the bin.
NO nappies
NO clothing or textiles
NO food scraps or other green organic matter
Other
THANK YOU FOR YOUR EFFORTS
Council Logo here
recycle right
recycleright.wa.gov.au
localgovt.wa.gov.au


RECYCLE RIGHT
Please place your bins out the night before your bin collection day and bring them in within 24 hours.
Ensure your bin lid is able to close.
Give containers a quick rinse to ensure they are free of food.
Flatten boxes and do not bundle papers or cardboard. Place items loosely in the bin.
Remove lids and place them in your recycling bin.
DO NOT place recyclables in plastic bags, leave all recyclables loose in bin.
What DOES GO IN your recycling bin:
Glass bottles and jars
All plastic containers and meat trays
Aluminium and steel
Paper and cardboard
recycleright.wa.gov.au
localgovt.wa.gov.au


THANK YOU!
We didn't see any recyclables in your waste bin.
What DOES GO IN your waste bin:
Food scraps
Polystyrene
Nappies
Clothing and textiles
USING YOUR WASTE BIN RIGHT:
Saves water, energy and resources
Reduces harmful greenhouse gases
Is more cost effective
Council Logo here
recycle right
recycleright.wa.gov.au
localgovt.wa.gov.au


USING YOUR WASTE BIN RIGHT:
Please place your bins out the night before your bin collection day and bring them in within 24 hours.
Ensure your bin lid is able to close.
What DOES NOT go in your waste bin:
NO recyclables (these go in the recycling bin)
NO e-waste (take to nearest recovery park)
NO light globes or other household hazardous waste (take to nearest recovery park)
recycleright.wa.gov.au
localgovt.wa.gov.au


WE ASK ONE SMALL FAVOUR
Some items are better recycled so please do not place these items in you waste bin.
NO recyclables - in your bin we noticed the following items which can be recycled:
Metal cans
Glass bottles or jars
Paper or cardboard
Plastic containers
Other
THANK YOU FOR YOUR EFFORTS
Council Logo
recycle right
recycleright.wa.gov.au
localgovt.wa.gov.au


USING YOUR WASTE BIN RIGHT:
Please place your bins out the night before your bin collection day and bring them in within 24 hours.
Ensure your bin lid is able to close.
What DOES GO IN go in your waste bin:
Food scraps
Polystyrene
Nappies
Clothing and textiles
recycleright.wa.gov.au
localgovt.wa.gov.au

Waste, Recycling and Garden Waste

Waste, Recycling and Food Organics and Garden Organics

These generic bin tags can be adapted to suit the specific service requirements of each Local Government.

Appendix 3: Media Points – Community Recycling Program

Background

- Waste management is one of the major essential services Local Government provides to the community.
- It encompasses a broad range of activities that stretch far beyond the traditional stereotype of rubbish trucks and local tips.
- Recycling has long played an integral role in Councils' waste management strategy and recycling habits are now firmly entrenched in the routines of most households within the community.
- Awareness of the environmental benefits of recycling are well known and documented. Lesser known are the economic benefits.
- In simple terms, recycling has the potential to greatly reduce the amount of money Councils spend on waste management, savings which would ultimately be passed onto ratepayers.
- However, when these services are not used correctly, it increases the overall cost of providing these services.

The Program

- The INSERT LG is working with the WA Local Government Association (WALGA) to roll out a 'bin auditing' program.
- The program involves a simple visual assessment of the contents of each household's general waste and recycling bin, followed by the provision of individual feedback about how each household can recycle more and waste less. The feedback will be provided in the form of tags attached to the bins' handles.
- In 2015, WALGA successfully piloted this Program with the Town of Kwinana, City of Joondalup and Town of Cambridge. In these Local Governments, correct recycling rates increased substantially. A follow up audit a year later has shown that correct recycling behaviour has continued.
- One of the reasons for the Program's success is that while the community's attitude and enthusiasm towards recycling is generally very good, a simple lack of knowledge about what is and isn't recyclable can cause some confusion. The program directly addresses this barrier by reminding us what can and can't go into recycling bins.

Summary

- What the bin auditing program demonstrates is that these costs can be avoided when Councils work in partnership with their communities in a practical way to achieve behaviour change.
- Most importantly, these partnerships reduce the impact of households' daily habits on the environment, the positive effects of which will be felt for generations to come.

Appendix 4: Bin Tagging Equipment

Bin Tagging materials

- *Happy* and *sad* bin tags for each type of bin (waste, recycling, greenwaste/organics)
- No. 35 Rubber bands for attached the tags to bins. These rubber bands are 115 x 3mm and are a good size for easily threading onto tags and attaching to bins. Rubber bands any smaller are harder to work with and more easily break.
- Pink highlighters for marking tags
- Camera for taking pictures of bin contamination
- Sticky notes – write the address on the note and place in photo frame to have a record of severe contamination. See Figure 4 for example.

Data recording

- Laminated map of area to be tagged, with route pre-plotted
- Laminated tagging key
- Laminated list of emergency contacts, including the Manager responsible for the program
- Inspection monitoring sheets with addresses in order they will be walked, plus extra blank sheets without addresses
- Pens
- Clipboard.

Additional resources

- Gloves
- High visibility vests
- Hand sanitizer
- Water bottles, hat and sunscreen
- Mobile phone in case of emergency
- Business cards for Local Government staff member residents should contact with further queries.

Appendix 5: Bin Tagging Key

Waste bin	
R	Recyclables
F	Foodwaste
G	Garden waste
Recycling Bin	
B	Recycling in bags
U	Un-rinsed containers
N	Nappies
T	Textiles
F	Food waste
G	Garden waste
H	Household Hazardous Waste
EW	E-waste
Garden waste	
F	Foodwaste
B	Bagged material

Food Organics and Garden Organics	
B	Bagged material
N	Nappies
CB	Compostable Bags
General	
NC	No Contamination
NB	No bin (not presented)
O	Overfull (lid cannot close)
X	Bin already collected
C	Contamination (with misc. or various items)

Contamination Level

1	Minor contamination (1 or 2 incidents*)
2	Medium contamination (3 to 8 incidents*)
3	Severely contaminated (more than 8 incidents*)

* Wrong material or behaviour (e.g. not rinsing containers)

Appendix 6: Bin Tagging Process

Step 1: Is there a bin/property?
The first thing to identify is if the bin(s) are presented. Find the address listed on the inspection monitoring sheet. If no bins are presented, record that information down next to the relevant address.

Reasons bins may not be presented include:

NB	No bin (the bin is not presented)
V	Vacant property (no house)
X	Bin already collected

Step 2: What's in the Waste Bin?
Check the waste bin for recyclables or other inappropriate items, such as household hazardous waste. Information is recorded in the Waste column in the inspection monitoring sheet.

For example:

NC	No Contamination, there is no recycling or hazardous waste visible in the bin
R	Recycling is visible in the bin

If the Bin is overfull this should be recorded:

O	Overfull (the bin lid isn't closing properly)

If there are recyclables in the bin, the next step is to identify the approximate amount of recyclables, which is entered in the CL column. These levels are as follows:

1	Minor contamination (1 or 2 incidents*)
2	Medium contamination (3 to 8 incidents*)
3	Severely contaminated (more than 8 incidents*)

* Wrong material or behaviour (e.g. not rinsing containers)

For example:

Street Address	WASTE	CL	RECYCLING	CL	NOTES
174 Clontarf Road	NB				
174A Clontarf Road	NC				
170 Clontarf Road	NC O				
170A Clontarf Road	R	2			
164 Clontarf Road	R	1			
164A Clontarf Road	R O	3			
162 Clontarf Road	V				

Step 3: What's in the Recycling Bin?
Check the recycling bin carefully and enter data in the same order as the Key. For example, if a recycling bin has recycling in bags, a nappy and garden waste, the entry in the Recycle column should read B N G. Recording in order makes it much easier to analyse the data once it has been collected.

For example:

NC	No contamination
B	Recycling in bags
U	Un-rinsed containers
N	Nappies
C	Contamination (general)
T	Textiles
G	Garden waste
F	Food waste

If the Bin is overfull this should be recorded:

O	Overfull (the bin lid isn't closing properly)

If there are contaminants in the bin, the next step is to identify the level of contamination, which is entered in the CL column. These levels are as follows:

1	Minor contamination (1 or 2 incidents*)
2	Medium contamination (3 to 8 incidents*)
3	Severely contaminated (more than 8 incidents*)

* Wrong material or behaviour (e.g. not rinsing containers)

Example:

Street Address	WASTE	CL	RECYCLING	CL	NOTES
174 Clontarf Road	NB		NB		
174A Clontarf Road	NC		NC		
170 Clontarf Road	NC O		B O	1	
170A Clontarf Road	R	2	B	2	
164 Clontarf Road	R	1	NC		
164A Clontarf Road	R O	3	B N G	3	
162 Clontarf Road	V		V		

Step 4: Any other comments?
Use the Notes column to record any other information, such as particular feedback received from the residents, if a bin was broken or if there were too many bins.

Appendix 7: Bin Taping Protocol

Not collecting the recycling or garden waste or organics bin is a serious step, therefore we have to make sure that we get it right and focus on severe contamination.

STEP 1: Examine Recycling / garden waste / organics Bin

STEP 2: Determine if the bin is so contaminated it should not be collected*. The type of things that might lead to the bin being too contaminated:

- The majority of the content is tied up in bags (not just one or two bags)
- Recycling bin - The bin has a lot of greenwaste in it (for example ¼ full of lawn clippings) or lots of food waste
- There are nappies in the bin – even one nappy
- There are multiple items of electronics, e.g. a printer, keyboard or monitor
- There are multiple items of clothing/shoes/textiles
- There is something dangerous in it, e.g. a flare, gas bottle, household hazardous waste such as paint, solvents or oil containers with liquid in them.
- Building rubble

**If there is contamination in the bin that doesn't warrant taping it shut, but still relatively bad, then use a usual sad face recycling bin tag.*

STEP 3: To confirm your judgement, in relation to taping the bin shut, look at the previous weeks' information – is this behaviour a consistent? This means that despite repeated warnings (2 x) the behaviour has not improved.

STEP 4: Take a picture of the bin's content, with a post it note visible showing the address.

STEP 5: Tape shut the bin lid – as shown. Don't press the tape down too hard as it can be difficult to get off.

STEP 6: Tag the bin, identifying the contaminant. Be specific with what the contaminants were in the bin that need to be removed/rectified.

STEP 7: Put Letter from the Local Government into the letterbox.

STEP 8: On the data sheet, highlight the household name in pink.

STEP 9: At the end of the tagging, let the Local Government representative know the addresses that were taped.

Appendix 8: Bin Taping Letter

[Can be modified for Garden Waste or Food Organics / Garden Organics bin]

Dear Resident

Over the past weeks, you will have noticed 'tags' placed on both your waste and recycling bins. These tags were part of a pilot project the Town/City has been involved in and were used as an education tool to provide you with direct feedback on what was in each bin. The aim of the project has been to reduce waste to landfill which saves the ratepayers money and helps the environment.

Unfortunately when your bin was inspected today, the level of contamination in the recycle bin was above the general acceptable level. Therefore, the bin has been taped shut, and it will not be collected until the contamination has been removed.

Please read the tag on your bin, it will identify the material that needs to be removed or action that needs to be taken (e.g. please place recyclables loose in the bin - not in bags).

Contact the Town/City on xxxxxx to let us know when the bin is ready to be emptied.

The reasons some materials are considered a 'contaminate' in the recycling bin include:

- Recyclables must be placed loose in the recycling bin (not in bags). The recycler does not open or empty bags for safety reasons and the recyclable material ends up in landfill. Not only have your efforts to do the right thing been wasted, the more recyclable material that we send to landfill the higher the cost to the Town/City which will be reflected in your annual rubbish rates.

- Other items, such as nappies, food and green waste, when placed in the recycling bin contaminate the other recyclable materials in the bin. This can mean that the entire truck load of recyclables may go to landfill as they are no longer of good quality.

- Most electronic items such as TV's and Computers are recyclable – just not through the kerbside recycling bin, they should be taken to an e-waste drop off day or one of the local transfer stations/landfills (xxxxxxxx)

- For materials like lightbulbs, paint, pesticide, batteries, solvents and gas bottles, these can all be recycled but again not through the kerbside recycling bin. You can recycle these at xxxxxxx.

If you would like to discuss this project or have any other queries regarding waste and recycling at the Town/City, please do not hesitate to contact me on xxxxxxxx.

Yours sincerely