WasteSorted Bin Tagging Program

Step by Step Guide

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1. Introduction/background

The WasteSorted Bin Tagging Program (the Program) focuses on reducing contamination and increasing resource recovery from the kerbside collection system. Providing general information alone does not necessarily change community behaviour in relation to the kerbside collection system. The 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.

Since the 2020/21 financial year, 43,111 households in 19 Local Governments in metropolitan and non-metropolitan WA have taken part in the Program, which is supported by the Government of Western Australia and administered by the Waste Authority.

In 2021, WALGA began development of a Bin Tagging App to streamline data collection and collation, which had previously been recorded and entered manually. Following field testing in 2022, the App was finalised and used across all Local Governments implementing the Program in 2023. It will be the primary method of data collection going forward.

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. They are intended for Local Government Officers seeking to implement the Program.

2. How the Program works

Bin tagging is a method of providing direct feedback on the content of waste, recycling and Garden Organics (GO) or Food Organic Garden Organic (FOGO) bins to residents by placing a tag on each bin to indicate if the contents are appropriate.

Bin auditors conduct a simple visual inspection of the bin content which is visible when the lid is opened, at the kerbside (prior to collection). Data for each household is collected, based on this assessment. The tags, placed on the bin, 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.

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

Tag Design
The focus of the Program is about providing feedback and information to residents, through the Bin Tags. Bin tags are designed with happy and sad faces to indicate if there is correct or incorrect source separation. The happy and sad faces 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.

The tags are coloured to match the bin lid colours of the kerbside 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 GO or FOGO bin.

The tags can be adjusted to match the bin colours in a particular Local Government. For example, many Local Governments still have a dark green lidded 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. The full suite of bin tags can be found in Appendix 4.

Incentives
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.

Case study – City of Wanneroo

The City of Wanneroo first launched a reward to residents in their 2019 Bin tagging Program, which was promoted as 'The City of Wanneroo's Great Recycling Challenge'.

Following Council endorsement of expenditure up to $5000, the City introduced the following incentives:

- o *In the first two recycling fortnights, residents are entered into the daily prize pool for households that present bins with no contamination (receive a happy tag). The prize on offer was one of 20x $100 MasterCard GiftCards.*

- o *At the conclusion of the Program, households who have no contamination in their bins in the final fortnight are entered into the prize draw to win one of 5x $410 cash prizes, which is given to the resident by way of a cheque. The $410 value was the equivalent to the Waste Service Fee at the time of running the Program and is subject to change in future iterations of the Program.*

- o *The cost of a recognition ceremony is also included in the expenditure as per the Council resolution.*

Residents were informed of the incentives through a letter delivered on the first day of bin tagging. An informational flyer on how to sort your waste correctly was also included in the letter.

A 2022 post-Program survey of participants showed 57% of respondents were more motivated to recycle correctly by being eligible to win prizes, while 40.9% of respondents indicated this resulted in no change in motivation. However, compared to the 2019 survey, where only a third were more motivated, results suggest the prize pool had a positive impact on attitudes of participants.

Source: City of Wanneroo

Enforcement
An essential element of the Bin Tagging Program is the enforcement step of the process. After a pre-determined number of visits, those who have consistently (or very severely) contaminated their recycling or GO/FOGO bin, will have their bin taped shut and the bin will 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 on the next scheduled collection day. The experience to date has been that this is likely to be a relatively small number of bins, however it 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 may be 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 may be the most appropriate approach.

3. Results and Case studies

The Program was first introduced as a pilot with three metropolitan Local Governments in 2015, resulting in increases of between 13% and 33% in correct recycling rates over the course of the pilot. A follow up with a sample of the same households 12 months later showed improved recycling behaviour had continued in the majority of households.

Since the 2020-2021 financial year, the Program has been funded by the Waste Authority and has to date reached 43,111 households in 19 Local Governments in metropolitan and regional WA.

Based on results across a range of different collection systems, bin tagging can be successfully used to alter source separation behaviour by residents, but results depend on several 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. Local Governments which have introduced the three bin FOGO system have found the Program highly valuable for both reinforcing messaging around the new system and identifying areas where further communications are required, for example if residents are using non-compostable liners in the FOGO bin.
- *Consistency and simplicity of message*: Seven Local Governments with a three bin FOGO service have participated in the Program since 2020-21 and have seen consistently positive results. Across these Local Governments, correct FOGO behaviour has been recorded at an average starting point of 80% and increased to an average 88%. This can be attributed to the simplicity of the messaging for the FOGO system (organic material only – 'if it didn't live or grow, it's not FOGO') and that the system is still relatively new for most residents. In comparison, correct recycling rates are significantly lower. Changes in the range of materials accepted in the recycling bin, and therefore those that are now considered contamination, has changed significantly over recent years. For example, materials such as soft/flexible plastic were accepted in kerbside recycling bins across half the metropolitan area until 2018 and placing these in the kerbside bin is an entrenched behaviour for many people. While wide-ranging communications campaigns have assisted in raising awareness of the changes, the benefit of bin tagging is that the household receives direct, specific feedback on where particular materials should be placed and the reasons behind it.

- *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.
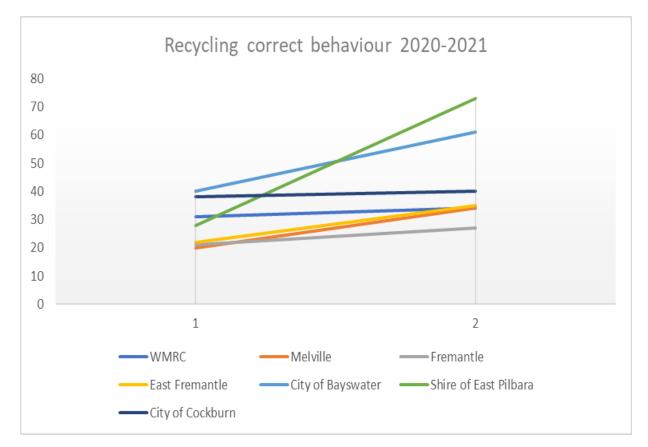

Table 1: Change in recycling behaviour by residents in participating Local Governments in the 2020-21 Program.

Case study - Shire of East Pilbara 2 bin waste and recycling

The Shire of East Pilbara introduced the Bin Tagging Program in Newman in 2020-21, as part of an ongoing waste education program to address recycling contamination rates.

Prior to commencing the Program, limited knowledge about what goes in each bin and lack of trust in recycling caused high rates of contamination in Newman's recycling bins.

The contamination rates (inappropriate items in the recycling bin) were too high for contractors to recover Newman's recycling bin contents through a Material Recovery Facility (MRF). The aim of the Program was to address these issues, by providing specific information that is relevant at a household level, provide a consequence for repeated incorrect use of household recycling bins and ensure the recycling bin could be sent to the MRF.

In the lead up to the Program an information pamphlet was distributed to each household to inform resident about the Program and why the Shire was participating. The Shire also engaged with residents through social media posts, conversations with auditors while conducting the audits and through their customer service channels.

Correct separation in recycling bins was 28% at the start of the Program, which increased to 73% [45% improvement] by the final audit.

As well as reduction in overall number of bins contaminated, the Shire also saw a significant

reduction in the levels of contamination (High = 8 or more incidents of contamination, Medium = 3 to 8 incidents of contamination, Low = 2 or less incidents of contamination);

- *Initial % High contamination 12%, final % High contamination 3%*

- *Initial % Medium contamination 28%, final % Medium contamination 5%*

- *Initial % Low contamination 32%, final % Low contamination 20%*

To support the Containers for Change refund point in Newman, the Shire tracked the incidence of CDS eligible containers in kerbside bins and provided information to residents on the refund point details and how to claim a 10c deposit. Throughout the Program, the incidence of CDS eligible containers decreased from 35% to 13%, showing households were using the Shire's Containers for Change refund point rather than recycling their containers through kerbside bins.

The Shire found providing direct feedback to households on what can and cannot be placed in their recycling bin to have a greater effect on reducing recycling contamination rates than other community facing communications such as social media, public notices, flyers and information stalls.

4. Planning your bin tagging program

Key considerations when planning a Bin Tagging Program include the time of year tagging is carried out, the schedule of visits to each household, selecting areas to be tagged and calculating the resources required.

Timing

Bin tagging should be undertaken during the early (February – April) or later (September – November) months of the year to avoid potential disruptions from rain. It is also recommended to schedule the Program to avoid public holidays and school holidays where possible, as usual household waste behaviour may be disrupted during these periods. Bin auditors are recommended to begin each day's run between 6am-6:30am, to complete tagging with the least amount of disruption to existing collection schedules.

Schedule

The Schedule for Bin Tagging depends on the kerbside collection system in place in the selected Local Government. Table 2 outlines the number of visits for a two bin system, Table 3 for a three bin FOGO system and Table 4 for a three bin GO system.

For a two bin waste and recycling bin system, Table 2 outlines the 4 visits required. In this case the Bin Tagging would be conducted fortnightly and take 8 weeks.

Visit	Action	Incentive/Enforcement
1	• Inspect and tag each bin presented with *happy* or *sad* tags. Record data in the Bin Tagging App. • Record any addresses not already listed in the App	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. Record data in the Bin Tagging App.	Incentive: As for Visit 1 Enforcement : None

| 3 | • Inspect and tag each bin presented with *happy* or *sad* tags. Record data in the Bin Tagging App.
• Recycling bins from households that have continuously received *sad* tags OR have severe contamination receive a *Cannot Collect (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. Record data in the Bin Tagging App. | Incentive: None
Enforcement: households with bins that continue to be severely contaminated are contacted by the Local Government to determine the underlying issue. |

Table 2: Bin tagging implementation – for two bin waste and recycling system

For a FOGO system, with weekly collection of the FOGO bin and alternating waste and recycling, the activity would take 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. Record data in the Bin Tagging App. • Use the bin tagging app to record any addresses not already listed	Example 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. Record data in the Bin Tagging App.	Incentive: As for Visit 1 Enforcement: None
3	• Inspect and tag each bin presented with *happy* or *sad* tags – FOGO and Recycling. Record data in the Bin Tagging App.	Incentive: As for Visit 1 Enforcement: None
4	• Inspect and tag each bin presented with *happy* or *sad* tags – FOGO and Waste. Record data in the Bin Tagging App.	Incentive: As for Visit 1 Enforcement: None
5	• Inspect and tag each bin presented with *happy* or *sad* tags – FOGO and Recycling. Record data in the Bin Tagging App.	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 FOGO bins that were taped shut and not collected last cycle are inspected and tagged with *happy* or *sad* tags. Record data in the Bin Tagging App.	Incentive: None Enforcement: households with bins that continue to be severely contaminated are contacted by the Local Government to determine the underlying issue.
7	• Only Recycling bins that were taped shut and not collected last cycle are inspected and tagged with happy or sad tags. Record data in the Bin Tagging App.	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 FOGO system

For a waste, recycling and GO system, the Bin Tagging would occur over the same time period as a two-bin system 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 – Waste and Recycling. Record data in the Bin Tagging App. • Use the bin tagging app to record any addresses not already listed	Example 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 – Waste and GO. Record data in the Bin Tagging App.	Incentive: As for Visit 1 Enforcement: None
3	• Inspect and tag each bin presented with *happy* or *sad* tags – Waste and Recycling. Record data in the Bin Tagging App.	Incentive: As for Visit 1 Enforcement: None
4	• Inspect and tag each bin presented with *happy* or *sad* tags – Waste and GO. Record data in the Bin Tagging App.	Incentive: As for Visit 1 Enforcement: None
5	• Inspect and tag each bin presented with *happy* or *sad* tags – waste and Recycling. Record data in the Bin Tagging App. • Recycling bins from households that have continuously received sad tags OR have severe contamination receive a Cannot Collect (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
6	• Inspect and tag each bin presented with happy or sad tags – Waste and GO. Record data in the Bin Tagging App. • GO bins from households that have continuously received sad tags OR have severe contamination receive a Cannot Collect (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
7	• Only Recycling bins that were taped shut and not collected last cycle are inspected and tagged with happy or sad tags. Record data in the Bin Tagging App.	Incentive: None Enforcement: households with bins that continue to be severely contaminated are contacted by the Local Government to determine the underlying issue.
8	• Only GO bins that were taped shut and not collected last cycle are inspected and tagged with happy or sad tags. Record data in the Bin Tagging App.	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 GO system

Resources required

The staff resources required will depend on the Local Governments' kerbside bin system, the number of households to be tagged and the number of visits required for each property.

For smaller programs, Local Governments have used in-house resources such as waste education officers or existing casual staff, however for larger programs it is recommended to recruit dedicated staff for the duration of the Program.

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 using the app.

The skill sets that the teams need include:
- An understanding of the Program and waste management system in place within the Local Government
- Accuracy and consistency for assessing and recording the bin content
- Good customer service skills.

To assess how many staff will be required, consider the approach you will take to cover all selected areas within your Program. For example, you may nominate 2,000 households as part of the tagging Program, split into blocks of 180-200 households.

Each block of up to 200 households on average will take two auditors 2-4 hours to complete. Variables which may affect the time taken include experience of auditors, topography, block size and whether residents engage with the auditors.

One approach would be to select even numbers of households for each collection day, to ensure coverage across the whole Local Government area. In this case you would require a minimum of four staff (two teams of two) who would move to a different area each day throughout the week.

Day	HH	Staff
Monday	400	4
Tuesday	400	4
Wednesday	400	4
Thursday	400	4
Friday	400	4

The benefits of this approach are that a wider geographic area is covered by the Program, and fewer staff are required each day to complete the run. A disadvantage would be collection schedules may be consistently disrupted for a longer period.

A second approach would be to target specific days of the week where high levels of contamination have been identified. For example if the recycling, garden organics or FOGO loads from Wednesday, Thursday and Friday showed high contamination focused approaches may be as below, requiring a minimum of eight and maximum of ten staff.

Day	HH	Staff
Monday		
Tuesday		
Wednesday	800	8
Thursday	800	8
Friday	400	4

Day	HH	Staff
Monday		
Tuesday		
Wednesday	1000	10
Thursday	1000	10
Friday		

The benefits of this approach are that it targets areas of high contamination and requires fewer disruptions to services across the week. However, as a larger area of the same collection day will be tagged, consultation with your waste contractor or in-house operations manager will be required to ensure the delay in collection times will not cause adverse issues.

You may choose to hire the minimum number of staff required or create a pool from which you can roster staff onto specific shifts or have backup in the case others are not available. However, it is recommended where possible the same auditors visit the same households each week throughout the Program to ensure consistency and continuity of messaging.

Your approach will also be influenced by whether all properties within the Local Government area are on the same collection schedule or if it is split into two areas, for example Area 1 residents will present FOGO and general waste bins for collection on the same week Area 2 collects FOGO and recycling. See Figure 1, from the City of Bayswater, for an example of a split recycling collection.
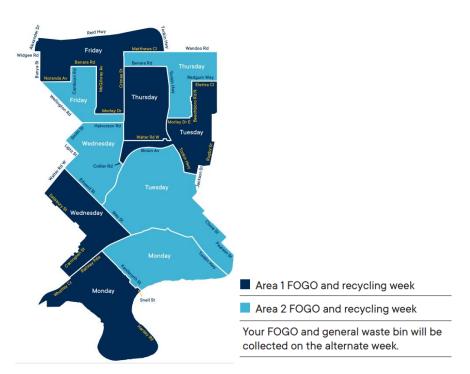

Figure 1: City of Bayswater waste collection map showing split recycling areas.

Factors to consider when calculating resourcing requirements for auditing staffing include:

- Number of hours staff required including:
    - Training – approx. 2 – 4 hours
    - Admin – approx. 5 hrs/week
    - Field hours
- Base rate for casual/hourly rate for internal staff
- PPE cost per person
- Phone data allowance if using own device
- Per kilometre cost if using own vehicle.

Auditors will require the following resources:

- Fully charged smartphone/tablet with data capability
- Gloves and Hi-visibility clothing
- Bin tags
- Stapler and extra staples (to affix tags)
- Highlighter
- Pen
- Business cards for Local Government staff member who is the contact for any issues
- Optional - portable charger and charging cable.

<u>Selecting your tagging areas</u>

Undertaking the Program is a resource intensive exercise for Local Governments, so it is important to ensure it is planned to achieve the best value for efforts. In considering which areas within the Local Government to implement the Program, factors include:

- Areas with higher contamination rates

The higher the current contamination rate, the greater opportunity for the Program to influence outcomes. This means a greater change in behaviour for the investment of resources.

- More densely populated areas

More densely populated areas mean the bin auditors have a shorter walk between bins, which increases the number of households which can be assessed. Larger block sizes can increase the time the bin tagging takes.

- Low proportion of multi-unit dwellings

Areas of predominately single unit dwellings are recommended as bin tagging in multi-unit dwellings using shared bin systems, or individual bins which are not clearly marked, has previously not proved effective.

- Flatter areas

Flatter areas make the bin tagging less physically strenuous for the auditors and again reduce the time it takes to undertake the tagging.

- Areas with later bin collections.

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.

The selection process should be undertaken in consultation with your waste contractor, or operations manager if in-house services are provided. They will have insight into the areas of highest contamination and will be able to advise any operational concerns with proposed areas, for example busy main roads which are usually collected early in the morning and would create a hazard by undertaking collections later in the day should be avoided.

Once you have decided on the approach you will take, it is recommended to use your Local Government's mapping software (e.g. Intramaps or CitySpatial) to identify and block out the areas to be tagged (see Figure 2 for an example). The maps can be used as reference both by auditors and collection drivers. Address data for the selected areas will then be entered into the Bin Tagging App Admin Portal (see Section 6).

Kardinya 1 – 183 Households

Figure 2: An example bin tagging run blocked out using IntraMaps.

5. Training and Communication

To ensure the smooth implementation of the Program, clear communication with internal and external stakeholders is essential. As bin tagging is a highly visible exercise, Local Governments are likely to receive a range of feedback and a consistent response is vital to the Program's success.

Internal communication

As a starting point, it is recommended any internal staff who receive queries from members of the public, including communications, customer service and front line staff such as Rangers receive a briefing on the Program to assist in positively promoting the Program and responding accurately to any questions or feedback.

Elected Members may also receive queries directly from residents and it is recommended to provide them an overview of the Program, including the experience gathered from other Local Governments. WALGA can provide a standard presentation to Council on this.

Internal stakeholders should be provided with copies of all the resources that will go to households, such as the bin tags and taping letters. It is also useful to provide the maps/address lists of the houses to be tagged along with the tagging schedule and have an agreed process for following up specific queries from households.

WALGA provides in person/online 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 GO/FOGO 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 using the Bin Tagging App and Admin Portal.

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

<u>External communication</u>

It is important to provide households and the wider community clear, concise information as part of bin tagging implementation. This is to ensure households know the program will be taking place, why it is occurring and understand how to be successful - media points are included in Appendix 3. Local Governments will need to provide this information on their website and social media as a minimum. Some Local Governments choose to provide a postcard or flyer to households on the first week of the Program which outlines how the Program works and details of any incentives. Figure 3 provides an example of communications material used by the Western Metropolitan Regional Council.

Figure 3: Information provided to residents on the first visit of the Program.

It is recommended to involve your collection contractor or internal operational staff in each stage of the planning and implementation process. They will need to agree with the areas and days the tagging will 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 and check in regularly to identify and resolve any issues once tagging begins.

6. Data collection using the App and Administration Portal

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

- If bins are presented for each waste stream
- If presented, whether the bin is contaminated or not contaminated: Noting no contamination/ contamination and selection 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 instance of bagged recycling in the recycling bin compared to an entire bin full of bags.
- Service use: how full the bins are using a percentage based approach. This allows the Local Government to determine to what extent their current service is being used and make evidence based decisions about future service options.

It is important to note the Program focuses on identifying and reducing contaminants which affect the waste stream on a large scale, for example bagged recycling, nappies in FOGO or recycling, non-compostable bags used for food waste in FOGO or hazardous materials which cause safety risks during collecting and processing. Further information on contamination types and effects can be found in Appendix 2.

Local Governments may wish to collect information on smaller contamination items which can be recovered through other waste streams (eg loose bottle lids) for their own records using the notes function in the App, however as these do not have a significant effect on overall contamination or recovery they are not identified as major contaminants through the App or on the tags.

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:
- 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.

Bin tagging App and Administration Portal

The Bin tagging App and Administration Portal (Admin Portal) were developed to streamline the data collection process, replacing manual pen and paper recording in the field. The Admin Portal allows data collected in the field through the app to be immediately collated and saved.

Auditors will use the app to enter the data and will require a data capable smartphone or tablet. The app will also work in offline mode but will require a data connection to upload the collected data to the Admin Portal following the day's run.

WALGA provides training to all participating Local Governments on how to use the app and Admin Portal. Local Government admins can view, edit and create new programs for their assigned Local Government Area. General users for each Local Government Area (bin auditors) will have access to the front end of the app to enter data but will not have access to the Admin Portal. The Admin Portal allows data for each program to be exported in Excel for subsequent analysis.

7. In the field - bin tagging process and data collection

All bins presented on the streets should be inspected and tagged, including general waste bins. The Bin tagging process remains the same no matter the kerbside collection system.

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

Step 1

Open the Bin tagging App and select your Local Government. Select the appropriate Run for the day and enter the Auditor names.

Select the property address from the run and select the first bin (either general waste, FOGO, recycling or GO.) The example is a recycling bin inspection.

If a bin is presented, select 'bin presented'.

If no bin has been presented for that waste type, select 'no bin presented'.

If the bin has already been emptied, select 'bin already emptied'.

Check the bin for contamination relevant to that waste stream or other inappropriate items, such as Household Hazardous Waste. If contamination is present, select the contaminant from the list on the app. If more detail is required, use the 'Other' function to enter the contaminant. If no contamination is present, select 'no contamination'.

○ No contamination

○ Recycling in bags

○ Unrinsed containers

⦿ Plastic bags or packaging

○ Nappies

○ Textiles

○ Food scraps

○ Garden organics

○ General contamination

⦿ Other

If there is contamination in the bin, after identifying it from the list the next step is to record the level of contamination. This refers to the wrong material or behaviour, such as food in non-compostable packaging for FOGO or unrinsed containers for recycling. Note that nappies (even one nappy) in the FOGO, GO or Recycling bin are always considered severe contamination due to the risk they pose during sorting and processing.

⦿ Minor (1-2 incidents)

○ Medium (3-8 incidents)

○ Severe (more than 8 incidents)

Next, record the level of bin capacity being used to the closest 25%, using the sliding scale. Note that a bin is considered overfull if the lid is unable to fully close.

Empty   Overfull

0%   100%

Select the appropriate tag (happy or sad), highlight the contaminant and write any notes required on the tag and attach it to the bin. Record the tag type in the app.

- ⦿ Happy
- ○ Sad
- ○ Cannot collect

Step 3

Repeat the process for the second bin presented.

Step 4

Use the Notes function in the app to record any other comments, such as feedback from residents, if a bin needs repair or if there were too many bins at the property.

8. Enforcement – Bin taping protocol

After several visits, bins which are severely and consistently contaminated with no improvement will be taped shut and not collected. Depending on the kerbside system and schedule selected, the bins will have been inspected between two and four times before enforcement takes place.

Not collecting the recycling, garden organics or FOGO bin is a serious step, therefore it is important to focus on severe contamination.

Step 1: Examine Recycling / GO / FOGO Bin

Step 2: Determine if the bin is so contaminated it should not be collected*, this includes:

- Recycling bin – the majority of the content is tied up in bags (not just one or two bags)
- Recycling bin - The bin has a lot of green waste in it (for example ¼ full of lawn clippings) or lots of food waste
- FOGO bin – the majority of the content is non-organic (eg general waste in bags)
- GO bin - the majority of the content is non-organic (eg general waste in bags, garden pots or tools)
- 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
- There is significant quantities of 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 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 the behaviour has not improved. The exception here is if the bin has not been

severely contaminated on previous visits but on this occasion contains something hazardous which poses a safety risk on collection (eg hazardous waste, building rubble) the bin should be taped.

Step 4: Enter the information into the bin tagging app and take a picture of the bin's content using the photo function.

Step 5: Tape shut the bin lid – as shown. Don't press the tape down too hard as it can be difficult to remove. Highlight or write the contaminants on a 'can not collect' tag and affix it to the bin.

Figure 3: Taped FOGO and Recycling bins

Step 6: Pull the bin back away from the kerb and notify coordinator/fleet manager the address of the taped bin to ensure it is not collected.

Step 7: Place the letter from the Local Government in the letterbox (example in Appendix 1).

Taped bins should be checked on the next collection day to ensure the contaminants have been removed before they are collected. If the bin is still severely contaminated, refer to the Local Government's contamination management process to follow up further with the household.

9. Data analysis

Data collected during the Program will be collated through the Admin Portal and available to export as a Microsoft Excel spreadsheet. It is recommended to export and save your data following the completion of each day's tagging.

The analysis of the data should include the following key areas:

- Overall increase/decrease in correct behaviour for each waste stream over the tagging period
- Key contaminants for each waste stream and their incidence over the tagging period
- Bin capacity used throughout the tagging period
- Bin presentation rates for each waste stream.

10. Evaluation and reporting

At the end of the Bin Tagging implementation it is important to evaluate how the process went and any learnings.   The evaluation should 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?

Appendices:

1. Local Government example letter
2. Contamination list
3. Media points
4. Bin Tags

Appendix 1: Bin Taping Letter

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

Dear Resident

Over the past weeks, you will have noticed 'tags' placed on your FOGO/GO, waste and recycling bins. These tags 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 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).

Please remove the contamination from your bin. Once the contamination is removed, place your bin out on your next scheduled collection day.

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 waste service 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

Appendix 2: Contamination types

Affects Processing

Strapping

Clothing

Rope / cable / hose

Affects Safety

Hazardous wastes and Aerosols

Nappies   Batteries

Needles / syringes

Affects Quality

These items can damage trucks and machinery during collection and processing if placed in recycling or FOGO bins. None of these items can be recovered through the kerbside system.

Hazardous wastes such as chemicals, aerosols and batteries placed in kerbside bins can cause fires in trucks and waste facilities as well as pose a safety risk to workers. Nappies and syringes are extreme contaminants in recycling, FOGO and GO bins which can lead to export bans for recycling or rejection of loads for FOGO processing.

Recycling is a commodity and relies on a good quality feedstock being produced in order for material to be sold to recycling processors. Food scraps, soiled containers and green waste can contaminate all recycling streams and lead to rejection of recycling loads.

Appendix 3: Media Points – Waste Sorted Bin Tagging 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 the WasteSorted Bin Tagging Program. This project is supported by the Government of Western Australia and administered by the Waste Authority.
- The Program involves a simple visual assessment of the contents of each household's FOGO/GO, general waste and recycling bin, followed by providing individual feedback about how each household can recover more and waste less from their kerbside bins. The feedback will be provided in the form of tags attached to the bins' handles.
- 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 each of the kerbside bins.
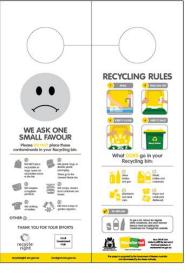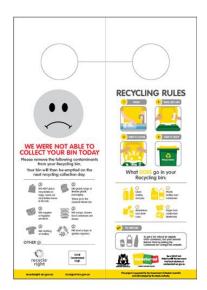
Summary
- What the WasteSorted Bin Tagging Program demonstrates is that increased costs can be avoided when Local Governments work in partnership with their communities in a practical way to achieve behaviour change.
- Most importantly, these partnerships reduce the impact of households' daily habits on the environment, the positive effects of which will be felt for generations to come
- Recycling is a shared responsibility and everyone needs to work together to ensure the right thing is put in the right bin. By using our bins correctly, we can create a clean compost from FOGO bin contents, ensure recyclable material gets recycled, send less waste to landfill and reduce disposal and processing costs.
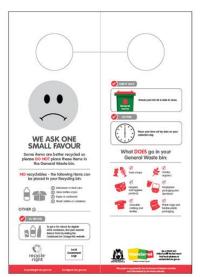
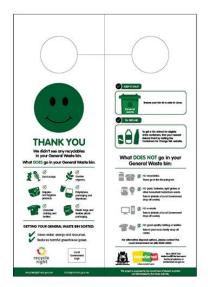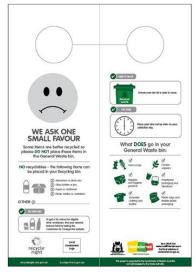# Appendix 4: Bin tags

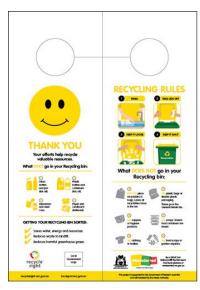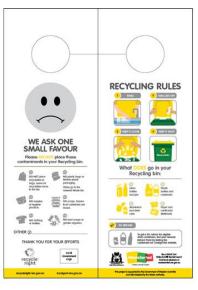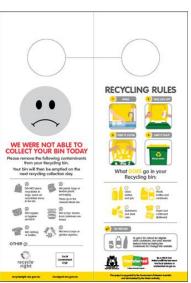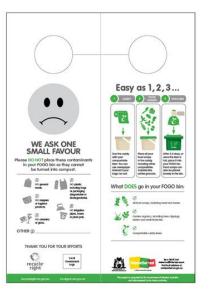## Two bin system – General Waste and Recycling

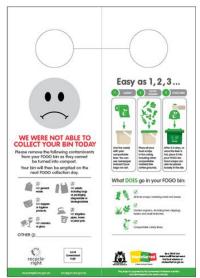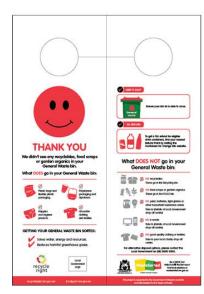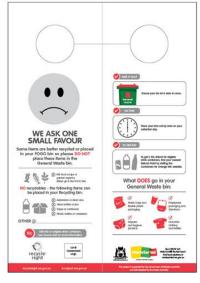## Three bin FOGO system – General Waste, Recycling and Food Organics, Garden Organics

Three bin GO system – General Waste, Recycling and Garden Organics