

# National Litter and Flytipping Strategy

Forth Valley Litter Intervention Food and drink on the go January 2024 – March 2024



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# **1** Introduction

The Scottish Government published a new <u>National Litter and Flytipping Strategy</u> in June 2023 along with a <u>Year 1 Action Plan</u>. Keep Scotland Beautiful (KSB) is a key delivery partner for the Strategy and Action Plan and has been tasked with progressing a number of actions in relation to litter including:

Action 2: Targeted behaviour-based interventions: Work with key stakeholders (local authorities, duty bodies and businesses) to collaboratively deliver one or two innovative behaviour-based interventions utilising existing data to identify and target litter types or items (including new and emerging types), evaluating their impact and potential for wider roll-out.

This document outlines the approach taken by KSB in collaboration with key stakeholders to identify, develop and deliver an intervention in line with this action. It also includes an overview of the outcomes, learning and potential for wider roll-out.

Prior to designing the intervention an extensive period of desk-based research was conducted alongside consultation with stakeholders including a workshop in which various litter problems and available data was discussed.

This resulted in the delivery of the Forth Valley Litter Intervention aimed to raise awareness of and reduce litter that is generated by items associated with food and drink on-the-go (FOTG).

The project was a collaboration between Clackmannanshire Council, Falkirk Council, Stirling Council, Forth Valley College and was funded in-part by CCEP (Coca-Cola Europacific Partners). The intervention rolled out between January – March 2024 and sought to test effectiveness of different packages of communication interventions to address this problem.

# 2 Outcomes

The intended outcomes of the project were defined as:

1. A reduction in litter volumes in the intervention areas – specifically in the relation to food and drink litter types.

2. Raise awareness of the evidence in the prevalence of food and drink litter.

- 3. Create a food and drink litter campaign brand
- 4 Evaluate the effectiveness of collaboration between partners cross border
- 5 Evaluate the potential for wider roll-out

An additional outcome related to the project was to increase recycling, particularly of drinks items within student environments which forms part of a second phase of work to be done in partnership with CCEP in late 2024.

# 3 Methodology

Three areas of intervention were selected during the development and planning stage of the intervention – one for each of the local authority partners. These areas had a mixture of residential, business and education establishments and all had retail sources of food and drink on the go. Appendix A - C identifies the mapped-out intervention site for each area.

The monitoring schedule followed a before and after structure and utilised two survey methods: line transect surveys and casual observations. This mixed survey method was used to mitigate problems of coverage and response error that is often made when single mode survey options are utilised.



In addition to this, perception surveys were also conducted as part of the intervention within Forth Valley College which was seeking to increase recycling behaviours in employees and students. This phase of the project is in addition to the wider intervention and is ongoing. Focus groups and litter engagement activities will be conducted in April in preparation of developing a Phase Two recycling initiative.

# 3.1 Line Transect and Casual Observation Survey

A walking route was mapped out prior to conducting surveys on each site which covered 2.3 miles. The route was then split into sections of 500 meters. Within each 500m section, two 100m x 2m litter count surveys were conducted, and data was recorded using the <u>Clean Up Scotland Survey data protocols</u>. The remaining 300m underwent casual observations where the counting of individual litter in a defined survey area is exchanged for perception data that seeks to understand and hypothesis why litter is being dropped within an area, the likely sources of litter as well as to identify wider environmental issues. This also allows the surveyor to observe current infrastructure within the area that is being utilised to prevent litter, the behaviour of people within the area and presents the opportunity to discover potential interventions or further develop ideas.

# **3.2 Perception Surveys**

A survey to capture the perception of food and drink on the go habits and recycling habits was conducted at Forth Valley College with responses gathered from both students and employees.

- A SurveyMonkey baseline opinion survey was made available online and promoted through targeted social media by both Keep Scotland Beautiful and Forth Valley College before interventions were placed in the three campuses or launched externally.
- SurveyMonkey social norm's opinion survey, post interventions.

Originally the baseline perception was to be tested again; however, the initial data from the survey indicated that those who responded to the survey were already involved with good recycling practices, creating a bias to the survey results. For this reason, the second phase of perception survey work conducted focused on perception of social norms and the influences of social norms. The basis of this method follows published successful behaviour studies conducted at universities in China on student waste practices and behavioural norms. This phase is ongoing and will be complimented with focus groups held in April. Findings will be utilised to shape Phase Two of the student recycling campaign work which will be carried out at Strathclyde University from September 2024.

# 3.3 Limitations of research

- Litter counts provide snapshots of the environmental quality in the immediate area and at the time conducted. The indicative trends reported in the results are specific to the intervention site and as such, interventions should continue to be tested and monitored to understand the viability and transferability of their impact. The shared learnings and cross collaboration between local authorities does begin to address this limitation as does the use of a mixed survey methodology.
- The sample sizes for the public perception were small and targeted a specific demographic of interest (Higher education establishment). Understanding the potential wider impact of the recycling project is therefore limited by this factor. In addition, perception surveys which are focused on niche interests such as recycling can often attract a biased audience which may skew the data. In the case of the Forth Valley audience, much of those who chose to engage with the survey indicated they already recycled as often as possible. As such building a behaviour change campaign from the survey findings meant that assumptions had to be made using previous unrelated studies to attempt a behaviour change in non-recyclers.



# **4** Interventions

## 4.1 Forth Valley Cross border Intervention DAX

From 29 January, digital advertising (through Digital Audio Exchange (DAX)) was utilised to both raise awareness of issues relating to food and drink on the go litter and to encourage people to bin their litter while on the go. The DAX ran for four weeks within the Forth Valley area with audio impressions made from mobile and tablet devices, laptops, smart speakers and gaming platforms. The script for DAX messaging can be found in Appendix D.

# 4.2 Increasing bin visibility in Clackmannanshire, Falkirk and Stirling

During the intervention period branded bin stickers were installed on bins within Falkirk and Clackmannanshire which aimed to directly target littering behaviour by increasing the visibility of provided general waste bins.

In Alloa all bins within the survey site were stickered.

In Falkirk the increase in bin visibility was focused on bins around hotspot areas identified during the preintervention survey period with stickers placed on the sides to target pedestrians' line of sight while travelling.

In Stirling all 20 bins within the intervention area where also branded, however due to the bin type within the survey area, magnetic plaques were used over stickers. Unfortunately, it was noted that these plaques do not adhere to the bin as well as the stickered materials and are prone to falling off when the bin is being emptied resulting in a migration of the plaque as waste workers replace it. Some plaques also went missing during the intervention window. None were found littered so the plagues themselves could have ended up at a waste centre.

# 4.3 Increasing binfrastucture in Clackmannanshire

Three additional bins were introduced on Broadstreet in Alloa. The addition of the three bins increased the litter collection capacity within the intervention area. During the pre-intervention surveys it was noted that lunch time activity put pressure on the existing bins and that students would often choose to sit empty packaging on the top of bins if they were full in an attempt to 'do the right thing'.

Café





## 4.4 Billboard Advertising

On 12 February a billboard was launched on Cowane Street in Stirling with the campaign messaging of *Enjoy it on your way…bin it on the go.* The location was ideally located to attract both drivers, public transport users and pedestrians. The campaign message was displayed for two weeks and to launch the billboard Keep Scotland Beautiful performed a photograph stunt utilising a litter mascot to represent food and drink on the go items.



## 4.5 Social media

Social cards were created as part of the intervention's social media strategy. Perception study data from Forth Valley College surveys and pre-existing data from the Scottish Litter Survey found that the harm litter can do to the environment and nature is of most concern, and this data along with pre intervention survey results was utilised to create the campaign's digital resources.



# 4.6 Forth Valley College Recycling

Within Forth Valley College bottle and can bins, supplied by CCEP, were installed within the refectory area and within breakout spaces on campus as well as in areas of high footfall such as the entrance. These bins were accompanied by their point of sales sustainability branding and campaign posters for *Enjoy it on the Way…Bin it on the go.* It was hoped that the introduction of a clear segregated drinks container bin alongside campaign messaging would nudge non recyclers to recycle and those already recycling to segregate further while on campus.





# **5 Results**

## 5.1 Collective cross border impact

Collectively across the three intervention sites **63%** of the litter counted during pre-intervention litter surveys was identified as litter from food and drink on the go products. Following the introduction of communicative intervention material, the presence of food and drink on the go litter was **54%**, indicating a **9%** decrease in food and drink related litter across the intervention areas during the four weeks of intervention activities.

# **5.2 Clackmannanshire Intervention Site Results**

## 5.2.1 Line Transect Litter Surveys

Overall, Clackmannanshire's survey results indicate that total litter decreased by **34%** between pre intervention and post intervention surveying of which the data indicates that **70%** is due to a reduced presence of food and drink litter.

Within Clackmannanshire (Graph 1.0) the data shows a change in total litter count between surveys for the targeted litter types. Drinks related litter (bottles and cans) followed by food packaging had the most significant decrease in presence. Cups litter, from both hot and cold drinks, also was found to have a reduced presence though to a lesser degree. Snack packets showed no significant change after the introduction of interventions.

The composition of littered food and drink within the survey area (Graph 1.1) also changed between pre and post intervention surveying. The data indicates that due to the significant reduction of drinks litter and food related packaging litter, snack packets and cups now composite more of the food and drink litter identified within the intervention site. Significantly, snack packet litter now contributes to **55%** of the composition of food and drink litter compared to **37%** pre intervention.



Graph 1.0



#### **5.2.2 Casual Observation Summary**

During the intervention surveys the wider intervention area was observed as described within the methodology of this report. From casual observation it was noted that a significant level of litter is present around the school, particularly snack packet litter which is trapped within the fence line. There was no identified change noted in the post intervention surveys, moreover much of the litter appeared to be the same litter identified previously confirming initial speculation of the litter being historic.



The addition of extra bins along the travel lunch route of local students was observed to reduce stress on bin capacity and no polite littering was observed during the post intervention survey period which was a noted issue pre intervention.

One additional bin issue observed is the open structure of the bins at the top increased the likelihood of litter escaping the bin. This is problematic for this intervention area as much of the litter observed on the ground and on the top layer of rubbish within bins is 'lightweight' waste such as soft plastics or paper food packaging. As a result, casual observation notes that some of the litter counted cannot be immediately categorised as dropped litter and may be the result of 'bin escape' or transference where litter correctly disposed of does not remain in situ and becomes littered. This phenomenon was observed multiple times during pre, and post intervention survey work, though was less of a problem because of the previously highlighted increased 'binfrastucture'.

# 5.3 Falkirk, Grangemouth

# 5.3.1 Line Transect Survey

Overall Falkirk survey results indicate that total litter decreased by **25%** between pre intervention and post intervention surveying. From that reduction the data indicates that **73%** is from a reduced presence of food and drink litter.

Within Falkirk (Graph 2.0) food packaging litter was found to decrease the most during the intervention followed by drinks related litter. Cups were found to have a slight decrease while snack packets showed no significant change which is consistent with the findings within the Clackmannanshire intervention site.

The review of the composition of food and drink litter (Graph 2.1) identified pre and post intervention found that while drinks related litter did decrease within the site, overall its contribution towards food and drink litter composition was largely unchanged. Food packaging litter however was found to contribute less to the composition while snack packets were found to contribute more post intervention.



Graph 2.0

Graph 2.1

# 5.3.2 Casual Observation Summary

The area within Falkirk selected for the intervention has a significant level of bins across the area with a concentrated presence in the area around the train station and the retail park (Central Falkirk Retail). Further away from this point, bin placement is spread out. It was noted during both pre and post intervention surveys that litter levels are observed to be significantly higher in these areas where dispersion is wider.



In areas not actively surveyed but observed the majority of litter is perceived to be consistent with survey findings in that it is food and drink related, however it is also noted that vape related litter increases significantly in an area closely located to a vape shop. In addition, casual observation noticed an increase in coffee cup and energy drink litter in an area around an active construction site.

Bus stops with no bin within 20 feet of the stop often had a significant presence of litter both on the ground, stuffed into crevasses of the shelter frameworks and/or within nearby greenery. Opportunities for bus stop advertising were explored for this intervention but unfortunately bookings were not available within the intervention window.

# 5.4 Stirling, Raploch and Drip Road

#### 5.4.1 Line Transect Survey

Overall Stirling survey results indicate that total litter decreased by **39%** between pre intervention and post intervention surveying. From that reduction, **90%** is due to a reduced presence of food and drink litter.

Within Stirling (Graph 3.0), food packaging litter followed by drinks containers had the most significant decrease in presence. Cups showed no significant change which is consistent across the Forth Valley Intervention sites. Snack packets, however, were found to have a lower presence within Stirling's intervention area which is not consistent with the Falkirk and Clackmannanshire sites. There is no definitive reason for why this has happened.

The changes in composition of food and drink related litter (Graph 3.1) indicated that due to the significant reduction of drinks and food related packaging, snack packets and cups now composite more of the food and drink litter identified within the intervention site at Stirling.







#### **5.4.2 Casual Observation Summary**

During pre-intervention surveying leaf fall proved an issue with winter leaf debris affecting the surveyor's ability to survey in some areas. There was concern that leaf rot between pre and post intervention surveying would expose unaccounted for litter, so care was taken to avoid heavily affected areas along the transect during pre-intervention surveying. However, cold weather meant that leaf rot was slow and much of it remained in situ during the post intervention surveying.



A 'drinking den', an area where people consume and leave a high number of alcoholic drink containers was located within the survey site; however, many of the drinks containers were already bagged within supermarket bags so its impact on the survey findings was overall low. The litter levels of the area were greatly reduced by post intervention survey time, but evidence of the locations use was still clear.

Fly tipping issues were identified at multiple spots within the survey area and significant levels of litter were identified behind a construction fence along Drip Road.

Bin availability within the survey area is reduced between the Raploch campus and the Laurencecroft roundabout and it was noted that litter levels were significantly higher in this area.

A significant level of litter was observed within private property boundaries, but it is not known if this litter was previously in a bin or bag or if it is dropped litter. Litter from the properties was observed to migrate out into the public pathway during surveys as well as from public areas into private property.

# 5.5 Summary of communication intervention, delivery of outcomes and project limitations

Each local authority has had a reduction of food and drink related litter within the intervention site meeting the first of the desired outcomes for this project. In addition, through Digital Audio Exchange (DAX) messaging across the Forth Valley, the installation of a temporary billboard and associated media, the project's secondary outcome of raising awareness of the issues around food and drink litter within the Forth Valley has also been met. In total the four weeks of DAX messaging gained **168,377** audio impressions with a **96%** listen through rate. There was also a series of press releases associated with the intervention, while the audience for the billboard in Stirling is estimated to be 39,640.

Through the simple campaign messaging of *Enjoy it on your way...Bin it on the go* we have begun to create a brand that can be further developed and rolled out into other areas to meet the requirements of outcomes three and five. Its use across multiple local authorities has allowed for the evaluation of its effectiveness in cross border campaigns and interventions which was required for outcome four. Crucially, the created brand can also be used alongside and complement existing branding such as *Give your litter a lift, take it home*.

The findings of the Forth Valley intervention highlights the positive results of simple, clear communicative interventions which are easy to remember (*Enjoy it on the way…Bin it on the go*) in reducing litter. However, there are risks in purely communicative interventions. There is significant variation in the effectiveness of communications campaigns in relation to audience demographic. Significant impacts rely on reaching a broad audience but ambition for wide reaching communication interventions is often tempered by budget and/or time constraints.

Regarding the Forth Valley intervention, Clackmannanshire and Falkirk had similar communication packages resulting in similar impacts. Stirling had the addition of a highly visible billboard which at the time of placement was also next to a promotion of one of the intervention's target litter types (a fast food retailer) which complimented the messaging, the result of which was broader audience engagement contributing to a higher impact.

A communication intervention may also be complimented by other messaging or interventions. During the Forth Valley intervention, other pilot programmes were occurring in or near the Forth Valley area. This includes cup schemes and the introduction of return vending machines (RVM). In addition, Keep Scotland Beautiful had ongoing promotions for campaigns alongside the promotion of the intervention including Spring Clean Scotland and Upstream Battle which contribute towards a collective nudge for behaviour change.

Finally, in addition to complimentary messaging, a new year intervention on food and drink on the go may have been supported by lifestyle changes brought on through new year's resolutions. In summary, communicative interventions rely not only on how they are delivered but also on when and are often influenced by conditions out with our control which are difficult to measure.



# 6 Results and Summary of Recycling Campaign – Forth Valley College

# 6.1 Perception study

The perception study at Forth Valley College was created with support from the Diffley Partnership. The aim of the perception study was to create a baseline data set for recycling habits of students and staff within the campuses and to establish the reasons behind choosing to recycle or not recycle. The information would then be used to develop a behaviour change campaign to improve recycling with a focus on drinks related litter. From research of Deposit Return Schemes (DRS) implemented in European countries, the demographic associated with higher education is not engaged in otherwise successful DRS so understanding motivations behind recycling is essential. However, as highlighted in the methodology the audience which chose to complete the survey was pro-environment and this skewed the results of some questions. The perception study findings include:

- 88% of respondents are concerned about the amount of littered packaging from food and drink on the go.
- 78% of respondents are most concerned about the impact food and drink litter might have on the environment and wildlife.
- 10% of respondents were concerned about the negative perception that food and drink litter had on people outside the area.
- 96% of respondents said they sort their food on the go waste into recyclable categories and then properly dispose of them in the correct bin.
- 86% of respondents said they try to recycle on the go.
- 41% of respondents said that lack of recycling bins is the main reason they don't recycle on the go.
- 15% of respondents said that messaging in relation to recycling can be confusing.
- 95% of respondents said they recycle plastic bottles when at college, work or on the go.

The pro-environment impression of the respondents' answers indicates a strong bias, making using the data to create behaviour change messaging and intervention challenging. For this reason, focus groups and a secondary survey on social norms is ongoing to establish a better and more robust understanding of recycling habitats and influences.

# 6.2 Introduction of drinks container recycling points

Consultation with college waste staff indicates that regarding college recycling bins, it is unlikely that 96% of Forth Valley College food and drink consumers are correctly disposing of their litter in recycling bins. With support from CCEP, drinks bins were added throughout the campus at appropriate points including the entrance, refectory and breakout spaces. This, coupled with campaign messaging, was done to make recycling bottles both clear and easy. However, on average it was found that only 10 bottles were recycled each day in the recycling bins for drinks containers. This was unexpected as the perception survey indicates that a single-use drinks bin would be utilised more and that having a waste point for one item would help correct any confusion issues that students or staff may have on what bin to use. Consultation with students directly has found a general behaviour consensus of the first bin passed is the correct bin.



# 7 Assessment of collaborative approach

Collaboration is a prominent feature of environmental management. Environmental problems are complex, marked by uncertainties about their causes and consequences and when considering litter problems there are often multiple interacting feedback loops. The capacity for addressing environmental problems ( leadership, staff, legal authority, technology, funding, etc.) is dispersed among actors at different levels of government and different types of organisations, none of which can solve problems by acting alone.

In addition, the timescale on which environmental changes are visible are often much longer than human management cycles. However, collaborative approaches to address environmental problems while in themselves complex offer benefits such as the alignment of effort among stakeholders to promote more efficient and responsive management; the inclusion of a diverse range of perspectives to inform decision making; and the translation and integration of knowledge. As a result, when it came to testing a communication intervention on food and drink litter, a collaborative approach involving multiple local authorities was utilised which overall had both advantages and disadvantages.

An advantage was that the communication campaign could be tested in three different areas which allows for the outcomes to be evaluated to theorize on the potential for a wider-roll out. Consequently, it also allowed for variation in the different packages to test the effectiveness of a communication message when partnered with other attributes such as increased 'binfrastucture'.

A disadvantage is that the behaviours and sources of litter problems are varied and building an intervention for each partner that also shares, in effect, a brand can be difficult. Unlike previous cross-border work which encouraged collaboration between stakeholders, the intervention – while collaborative between Keep Scotland Beautiful and individual local authorities – lacked the opportunity for cross-border joint efforts. This was due to time constraints of the overall intervention which was delivered during the winter period as well as budget constraints. In addition, each stakeholder has its own procedural timescale, so some interventions actions were not delivered in a coordinated manner as was originally intended which does impact comparison between sites. However, collaboration and the sharing of a consistent message – if not approach – offers greater prospects of sustainability.

# 8 Wider rollout potential

The Forth Valley Intervention on food and drink on the go which took place across multiple local authorities has given a foundation from which to expand on the initial concept. Food and drink on the go litter is found across Scotland and the nature of the behaviour behind this litter type means that a wider roll out of the communications campaign would be optimal given the that the litter produced by consumers moves within and across local authorities. The wider roll out of the *Enjoy it on your way…Bin it on the go* message is suited to expand with a focus on drivers in a roadside setting and public transport. In addition, the proposed Extended Producer Responsibility (EPR) packaging reform complements any food and drink on the go campaign and future rollout should aim to incorporate more business support. The formation of food and drink as a litter category has brought together some of the most prevalent litter types under one campaign brand which has the potential to be more effective and have greater reach than solo targeting or wide net targeting from general litter campaigns.

The ongoing recycling work with higher education establishments will provide valuable outputs to aid future DRS roll outs as it seeks to understand the limited engagement with students and has the potential to offer knowledge which can be used to develop other sustainability interventions.

Keep Scotland Beautiful

## Appendix A – Clackmannanshire Intervention Area Map





## Appendix B – Falkirk Intervention Area Map





## Appendix C – Stirling Intervention Area Map





# Appendix D – Digital Audio Exchange Script

CLIENT	KEEP SCOTLAND BEAUTIFUL	Т
AUDIO ID		D
CREATIVE		Α
PRODUCE BY		T
STATION(S)	DAX,	



MVO - friendly male voice - Scottish Accent FVO - natural female voice

SFX	outdoor ambience
MVO	Food and drink on the go can make your day
	Like a perfect smoothie, a super tasty sandwich for lunch or a sweet treat on the way home
SFX	Sweet bag scrunched up
FVO	Can't believe you ate the last one!
Music in	light acoustic
MVO	Just don't ruin a good time by leaving behind the packaging.
	In the Scottish Litter Survey, 9 out of 10 people believe Scotland has a problem with litter, so eat, drink, then bin on the go to help protect our environment and nature.
	To get involved, visit keep Scotland beautiful.org

DAX runtime 29 Jan – 26 February across Forth Valley area.



We support the ambitions of the United Nations Sustainable Development Goals.

Keep Scotland Beautiful is your charity for Scotland's environment. We work with you to help combat climate change, tackle litter and waste, restore nature and biodiversity and improve places.



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