

## **Behaviour Change Insights to approach Recycling Contamination**

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## **Introduction to behaviour change work**

Behaviour change is the process of modifying an individuals (or populations) actions, attitudes, habits, and behaviours. Behaviour change initially stemmed from Health Psychology – with behaviours being modified to protect health and wellbeing. However, the theories and models can be widely applied to a variety of contexts including:

- Public policy
- Place and business (organisational)
- Environment and sustainability.

Coventry City Council is focusing on behaviour change across many strands of work including recycling contamination, fly-tipping, and food waste. It is essential that there is consistency in approach of behaviour change work across all strands within the Council, to help with reliability and validity of intervention trials completed. This does not mean that the same behaviour change models/theories need to be but, but there should be an alignment of methodologies for conducting interventions and campaign work for behaviour change. For example, using Randomised Controlled Trials (RCT's) as a methodology for assessing the impact of behaviour change work.

## **Introduction to recycling contamination**

Recycling contamination occurs when non-recyclable items or dirty materials are placed into a recycling bin. This process compromises the quality of otherwise good recyclables, often leading to entire truckloads of material being sent to landfills or incinerators instead of being reprocessed.

### *Common types of recycling contamination*

- **Dirty recyclables:** food and liquid residue left in containers, such as un-rinsed jam jars, soup cans, which can soak into and ruin paper and/or cardboard.
- **“Wish-cycling”:** putting items in the bin hoping that they are recyclable without checking first (i.e., plastic bags, toothpaste tubes, or drinking glasses).
- **Hazardous items:** electronics, batteries, and medical waste pose contamination risk if individuals put them into recycling bins.

### ***The impact of recycling contamination for Local Authorities***

Recycling contamination has a direct, negative impact on local authorities by increasing operational costs, reducing revenue from material sales, and making it harder to meet government-mandated recycling targets. When recycling is contaminated, councils often have to pay significantly more to dispose of it as general waste.

### *Financial consequences*

- **Increased disposal costs:** disposing of contaminated recycling as general waste is more expensive for a local authority. Processing a tonne of regular waste can cost around £100 more compared to a tonne of clean recycling.
- **Lost revenue:** clean recyclable such as paper, plastic, and aluminium are valuable materials which local authorities can sell to re-processors. Contamination lowers the quality and market value of these materials – leading to lower revenues.

### *The impact for Coventry City Council*

Data indicates that in the second half of 2025, Coventry City Council faced a £900,000 overspend specially due to contamination fines from Sherbourne Recycling facility.

- **Double charges:** The council is charged twice for contaminated loads – once for the initial delivery and again for transporting the rejected waste to a specialist landfill or incinerator.
- **Target shortfall:** Coventry’s recycling rate overall was 32% in 2024/25 – this is below the national average of 42.30%, which has been indicated in data to be due to high levels of non-recyclable materials in blue bins.

### **Recycling contamination: The data**

Across the UK, recycling contamination remains a significant challenge for local authorities, with a substantial portion of collected materials being rejected at processing facilities due to incorrect sorting.

### **What is the national picture: Recycling?**

In 2023, the UK recycling rate was 44.60%, a rise from 44.10% in 2022, highlighting the motivation of individuals to recycle. Broken down into nations, Wales maintains the highest national recycling rate at 57.00%, compared to 50.20% in Northern Ireland, 44.00% in England and 42.10% in Scotland.

### **Recycling contamination statistics**

2024/25 data highlight the extreme differences in how effectively different national councils manage recycling contamination:

<b>Performance</b>	<b>Local Authority</b>	<b>Contamination percentage</b>
Highest	Barrow-in-Furness	43.91%
	Exeter	38.82%
	Liverpool	29.51%
Lowest	Tendring	0.01%
	Somerset	0.02%
	East Devon	0.03%

*West Midlands statistics*

The West Midlands statistics highlights the differences in recycling contamination rates across councils:

Local Authority	Contamination percentage
Solihull	17.50%*
Coventry	17.00%
Stratford-on-Avon	12.92%
Birmingham	8.90%
Walsall	7.00%

\*Please note: This is reported to be an estimated figure calculated by Solihull council through contamination of their dry recycling. This is not a confirmed figure.

## Practical application of behaviour change models for reducing recycling contamination

To move beyond simple awareness, councils can begin to apply specific behaviour change and psychological frameworks to understand why people contaminate their recycling and how to stop it.

### ***Nudge Theory (Choice Architecture)***

Nudge Theory focuses on making the "correct" choice the easiest or most obvious one without banning alternatives.

- **Priming:** Placing a "No Food Waste" sticker on the handle of the recycling bin, so the resident sees it at the exact moment of disposal.
- **Defaults:** Setting up new housing developments with built-in, multi-compartment under-sink bins so that sorting is the "default" setup.
- **Incentives/Gamification:** Points-based systems where residents earn rewards for scanning or reporting clean recycling.

### ***Social Norms Theory***

The Social Norms Theory highlights that people are heavily influenced by what they perceive their community (such as friends, family, neighbours) to be doing. If a community is all behaving in a certain way (i.e., recycling correctly), an individual is more like to comply with social norms so that they do not feel out of place within their community.

Practical examples of Social Norms Theory within a local authority to reduce recycling contamination could be:

- Exploring **descriptive norms:** For example, highlighting a key statistic such as “*8 out of 10 people in Coventry recycle correctly*” which would then shift an individual’s perspectives into complying with social norms and not contaminating their recycling with incorrect items.
- Exploring **injunctive norms:** For example, using ‘Thank you’ type stickers on clean bins. Although on its own, not an effective method, combined with other campaigns,

messaging, and intervention work – the stickers could signal social approval, positively reinforcing the “good” behaviour of recycling correctly for an entire street to see.

### ***The COM-B Model (Behaviour Change Wheel)***

The COM-B Model (also referred to as the Behaviour Change Wheel), is seen as the ‘gold’ standard for designing public health and environmental behaviour change campaigns and interventions. For the context of recycling, the model highlights that for an individual to change their behaviour (recycle correctly) three key factors must align:

- 1) **Capability** (Psychological and Physical) – For example: Do individuals know which bin to use? Can they physically rinse the jars to avoid recycling contamination?
- 2) **Opportunity** (Social and Physical) – For example: Is there enough space in the recycling bins? Is ‘wish-cycling’ the social norm in a street?
- 3) **Motivation** (Reflective and Automatic) – For example: Do individuals care if they recycle incorrectly? Is recycling a habit which is done subconsciously?

Example of how the COM-B model and APEASE Criteria for evaluation can be used in practice to design and implement campaigns/interventions for behaviour change

#### **Step 1: Defining the specific target behaviour**

- *The Action* – Recycling correctly
- *The Actor* – Who needs to change? (i.e., does data highlight that it’s specific wards in Coventry which are higher for recycling contamination)
- *The Context* – When and where does the new behaviour (recycling correctly) need to happen?

#### **Step 2: Conducting a COM-B analysis**

- *Capability* – Do individuals know how to recycle correctly (psychological)? Can individuals physically rinse jars (physical)?
- *Opportunity* – Is there a recycling bin for each household (physical)? Does an individual’s neighbours, friends/family also “wish-cycle”, making recycling incorrectly a normal behaviour (social)?
- *Motivation* – Does an individual feel that it is ‘worth it’ to recycle correctly (reflective)? If throwing everything into one bin just a subconscious habit (automatic)?

#### **Step 3: Selecting the campaign/ intervention functions**

Using the baseline insights collected in step 2, this step requires local authorities to implement campaign messaging and interventions to encourage behaviour change.

- **If capability is low** – important to use education and/or training to inform individuals how to recycle correctly.
- **If opportunity is low** – potential to use environment restructuring to help encourage behaviour change (i.e., provision of larger recycling bins, or better signs/stickers)
- **If motivation is low** – use incentivisation (rewards for clean bins) or persuasion (to help demonstrate the environmental impact of recycling correctly)

#### **Step 4: Using behaviour change techniques within behaviour change work**

Behaviour change techniques are essentially ‘active ingredients’ of any campaign or intervention, which work alongside any behaviour change models to help improve likelihood of behaviour change. Some examples for recycling contamination behaviour change work could include:

- **Feedback:** using bin tagging to give residents immediate, personalised information on their mistakes when recycling
- **Social norms:** using signs, messaging to highlight data such as “90% of your street recycle correctly” to encourage individuals who are reluctant to change behaviour
- **Prompts:** Act as a ‘timely’ reminder if messaging is located on or near recycling bins – just as someone is about to recycle they are reminded of how to recycle correctly.

#### **Step 5: Evaluation – Prior to launch of intervention! The APEASE Criteria**

The APEASE criteria can be used prior to a launch of a campaign or intervention for behaviour change, to ensure that any work is realistic and has the potential to be successful. The APEASE criteria explores:

- **Acceptability** – would individuals be offended by bin stickers providing feedback on recycling behaviour?
- **Practicability** – does the local authority have enough staff to manage this new behavioural change work?
- **Effectiveness** – Has this type of approach worked in other local authorities? Can any learnings from previous intervention work be taken forward to this current work?
- **Affordability** – Is the cost of the campaign or intervention less than the fine for recycling contamination?
- **Side-effects** – Will people just start fly-tipping instead if the behaviour is seen as too difficult and/or challenging?
- **Equity** – is the information provided in the campaign or intervention accessible for all individuals (such as individuals with English as second language)?

#### **Step 6: Launch of the campaign/intervention – Set SMARTER objectives, monitor and evaluate**

Defining what success looks like when developing a campaign/intervention for behaviour change is essential, as this will ensure that success, outcomes and impact can be measured from baseline to post intervention to capture behaviour change.

Evaluation should be mixed-methods in approach, using a combination of quantitative (statistics and data) and qualitative (resident feedback) to indicate the success of the behaviour change work being conducted.

#### ***The Messenger Effect (EAST Framework)***

The EAST (Easy, Attractive, Social, Timely) Framework offers a simple, actionable approach for policy makers and practitioners to design effective interventions and campaigns by understanding how individuals behave in a certain context.

The key principles are:

- **Easy** – reduce the effort required to act, making the new behaviour look simple and easy to achieve.
- **Attractive** – drawing attention to the desired behaviour, by using incentives, rewards, visual designs to make the new behaviour stand out to encourage individuals to focus on the new behaviour.
- **Social** – leverage the influence of others. Showing that a behaviour is popular, normative, or expected helps individuals to comply through social norms.
- **Timely** – prompting individuals when research/data signifies that they are most likely to be receptive. Consideration of the right time to send messages and help people to plan their actions for the new behaviour.

The ‘Social’ element of the EAST Framework suggests that who delivers the message can matter as much as the campaign and messaging itself for behaviour change. In the context of recycling contamination, residents may ignore impersonal council letters which are received in the post with no personable or relatable content. Using a messenger effect involves strategically selecting individuals or entities which possess authority, trust, or peer-level relatability to influence the community’s behaviour.

When designing a local authority campaign or intervention, there are 4 key dimensions which need to be considered when looking at the ‘Messenger Effect’:

- 1) **Authority and expertise:** people are more likely to comply with instructions from a source they perceive as knowledgeable.
  - a. Council application - Use a "Recycling Quality Officer" (such as the CCC Waste Education Officers) rather than a generic bin crew. Seeing an expert in a high-vis vest auditing bins can signal that the council is taking contamination seriously.
- 2) **Relatability (peer-to-peer):** individuals are heavily influenced by people who are seen as “like them” and have strong relatability.
  - a. Council application – Recruit “Street Champions” – residents who already recycle correctly to talk to their neighbours. A recommendation from a neighbour feels less like an ‘enforcement’ and more like a shared community norm / standard approach.
- 3) **Trust and neutrality:** If a resident distrusts a council (for any particular reason), they may ignore official advice.
  - a. Council application – Partnerships with local VCFSE’s, charities, and/or schools may be valuable to help deliver any messaging.
- 4) **Personalisation:** Information is more effective when individuals feel as if the message is personally directed towards them.
  - a. Council application – Bin tagging has been demonstrated in research to be an effective technique. The ‘messenger’ is the physical tag left on an individual’s bin which provides immediate, and personal feedback on their specific recycling error.

*Applying the Messenger Effect within the EAST Framework with Local Authority examples*

<b>EAST Element</b>	<b>Messenger integration technique</b>	<b>Local Authority example</b>
Easy	Use a messenger who simplifies the rules (i.e., a local 'sorting' coach)	<a href="#">ReLondon</a> used dedicated officers to walk ahead of council crews to identify contamination
Attractive	Make the messenger's message stand out with personalised, colourful bin tags	<a href="#">Wigan</a> saw a 10.70% drop in rejected recycling loads using personalised bin hangers.
Social	Use the messenger to highlight that 'most people on this street ...' recycle correctly	<a href="#">Hampshire County Council</a> used digital and offline volunteer outreach to leverage social norms in communities. Saw a 4% reduction in one pilot.
Timely	Ensure the messenger provides feedback at the 'point of disposal' (the bin)	<a href="#">Vale of White Horse District Council</a> used online recycling quizzes and interactive videos to reach individuals at home.

The examples above were developed within Local Authorities collaboratively between Council Services and Communications teams to develop clear and strategic communications as part of all behaviour change campaign and intervention work.

## **Local Authority Behaviour Change interventions for recycling contamination**

### Wigan Council - Applying behavioural insights to increase food waste recycling

Wigan Council partnered with the Behavioural Insights Team (BIT) to increase food waste recycling by applying behavioural "nudges," resulting in a significant rise in caddy orders through social norms messaging.

#### **The TESTS Framework**

##### *Target and Explore*

In these first two stages, Wigan Council and the BIT used desk-based research and fieldwork to answer the following key questions:

- What specific recycling behaviours should they concentrate on changing?
- What are the barriers to those behaviours?
- How will they measure if the work has been successful?



*Understanding  
the resident  
perspective*

- Interviews with residents at two community events.
- An online survey with 50 GM residents to test their understanding of waste and recycling rules
- Telephone interviews with residents who had recently ordered a food caddy



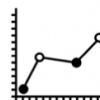
*Understanding  
the council  
perspective*

- Interviews with Council staff from waste, housing and related services.
- Two days shadowing bin collection rounds and waste audits
- Four workshops with Wigan staff to develop and refine ideas



*Secondary  
research*

- Reviewed the evidence base on waste and recycling
- This included behavioral science literature on increasing recycling and relevant behavioural findings from other domains
- We later concentrated on food waste recycling



*Data*

- Exploratory analysis of Wigan's internal recycling data.
- Review of national data on waste and recycling trends.

**Source:** [Wigan council and Behavioural Insights Team report](#)

### *Solution*

In this phase, Wigan Council and the BIT used findings from the explore phase and broader behaviour change literature (evidence-base) to develop an intervention to encourage households to begin recycling their food waste. They answered two questions:

- What behaviour levers can they use to get people to begin recycling?
- How can they introduce the intervention in a feasible and cost-effective way?

Within the solution phase, the team came up with 3 'solutions' (behaviour change mechanisms) to encourage individuals to change their behaviour. This included\*:

- Component 1: Bin hangers – tagging of all black bins on a target round with a door hanger feature a message prompting people to request a new food caddy if they do not have one.
- Component 2: Caddy information pack – if people ordered a caddy, they received an information leaflet and caddy sticker to tackle key information gaps.
- Component 3: Email reminders – if people ordered a caddy, they had the option to sign up for timely email reminders for a limited time post caddy delivery to encourage people to start recycling properly.

*\*Please note:* Full information on the detail of the three components is available in the report which hyperlinked in the 'Wigan Council – Applying behavioural insights to increase food waste recycling'. The full report includes examples of how each component looked in theory and practice, how each component addressed key barriers, and the phases of each component throughout the intervention.

### *Trial and Scale*

In these two phases, they implemented the intervention and tested results using a mixed-methods approach – several evaluation methods were used in the single pilot. This allowed for the team to assess:

- What messages are most effective at getting older people to consider starting to recycle their food waste?
- Once they built initial interest, was the intervention successful at helping people to start building a food recycling habit?
- What did they learn, and how can they apply it in future work?

The intervention was piloted in two rounds in Wigan, chosen specifically due to their low levels of food recycling – highlighted in data examined in the ‘Target and Explore’ phases. The intervention was piloted using a Randomised Controlled Trial (RCT) approach – which allowed for the impact of the intervention to be measured. Due to the RCT using a ‘no no-action control’ approach where all households received one of three tags, the team completed a pairwise comparison between each treatment group. This allowed for the team to identify whether any of the messages were more effective than others.

### **Trial results – Overview**

- 3643 households received a bin tag
- 138 kitchen caddy’s were ordered by houses in target rounds: 47% of those who ordered a caddy also signed up to email reminders.
- 4.7% of households ordered a caddy after receiving the most effective tag (focused on social norms)
- 4.6% increase in weight of green waste collected on target rounds.

### **Conclusions**

- Bin tagging had a significant impact on the rate of caddy orders.
- Social norms messaging was more effective than the ‘Ease’ message at encouraging people to order a caddy.
- Although in the pilot, bin tagging did not have a statistically significant impact on the overall tonnage of food waste recycled, the intervention demonstrated promise and Wigan Council continued with this work post pilot.

### **Post-pilot results and continuity at Wigan Council**

Wigan Council has continued to apply and evolve its use of behavioural insights and technology following the initial pilot.

- **Targeted strategy adoption:** Building on the pilot's findings, the council now uses a targeted strategy for food waste. This includes enhanced social media campaigns and focused interventions in "hotspot" areas where recycling performance is lower.
- **Technological Integration:** The council implemented a new waste collection system where crews use iPads to record real-time data on missed collections or contamination issues. This data is used for proactive communication with residents, similar to the "timely prompts" explored in the pilot.
- **Strong Performance:** As of 2025/2026 reporting, Wigan's recycling rates continue to exceed the national average by 2–3%.
- **Long-Term Infrastructure:** In February 2024, the council awarded a major 3-year contract to Wastewise to process approximately 9,000 tonnes of mixed food and garden waste annually into high-quality compost.

## **Hampshire County Council: Recycling using behavioural insights**

Hampshire County Council adopted a new targeted approach to improve recycling behaviours. Gathering baseline insights from interviews and focus groups, audience profiles were developed based on values and the behaviour was mapped using the Transtheoretical Model of Change.

The intervention aimed to “*wake people up*” surrounding their recycling behaviours. Hampshire County Council commissioned the digital agency Net Natives and behavioural insights experts Kin&Co to develop an intervention to engage residents to improve their recycling behaviours. The aim was to move away from ‘one size fits all’ approach to campaigns and messaging to more targeted interventions and messaging.

### **Key audience segments**

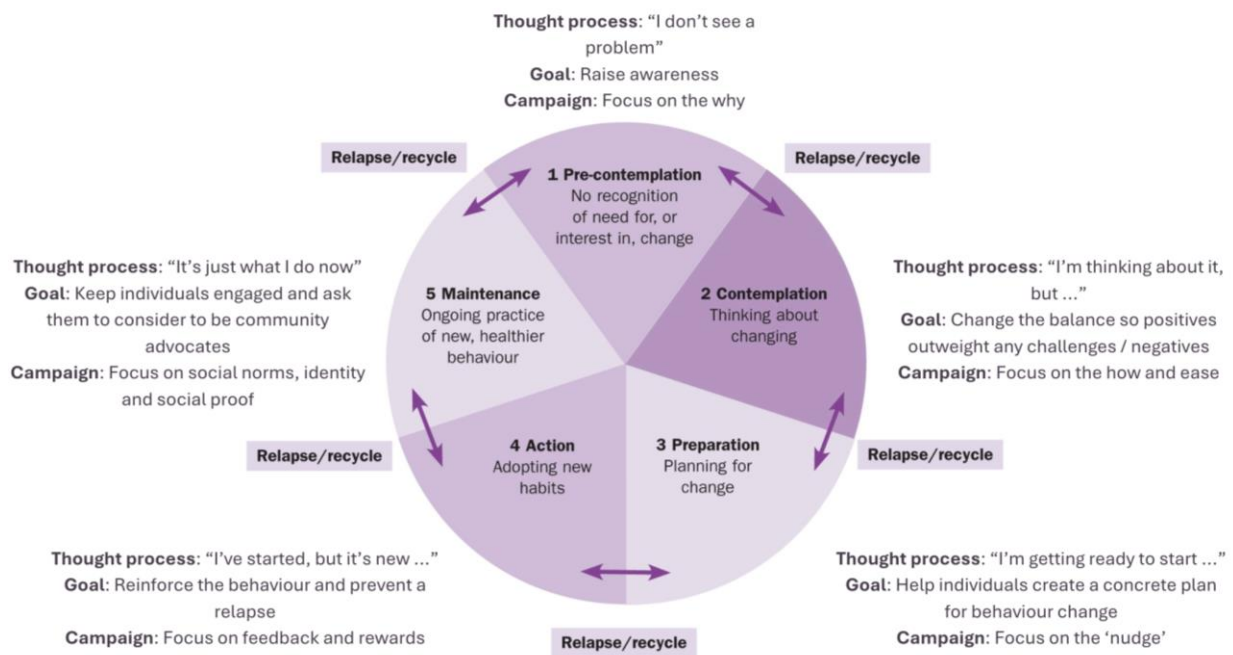
The strategy identified that there were three specific groups to target for intervention work, groups were identified based on values in combination with demographic data:

- 1) “*Lack of routine*” young people – young urban working renters, mainly in shared accommodation, who have high awareness of environmental issues, have grown up with social networks and care about peer opinions.
- 2) “*Good enough*” recyclers – a large group of individuals who already felt that recycled well and were unlikely to reassess their habits.
- 3) “*Knowingly disengaged*” – residents who were apathetic or unmotivated, despite knowing that they should recycle.

The target audience profiles were matched with Mosaic UK Types to identify locations and concentrations in Hampshire. The project team developed three targeted pilots, measured through waste data, digital engagement and quantitative and qualitative surveys.

### **The Transtheoretical Model of Change (Stages of Change model)**

Mapping the audience’s behaviours on the Transtheoretical Model of Change identified that getting some residents to ‘contemplation’ would be necessary before considering how to get them to ‘action’.



**Source:** Transtheoretical Model adapted by Dr Chloe Ryder to demonstrate potential thought processes and how campaign work could be implemented at each phase.

## Pilot Interventions

The project team developed three targeted pilots, measured through waste data, digital engagement and quantitative and qualitative surveys.

### *Pilot 1: Winchester – 'Lack of routine' young people*

- Activity combined unusual offline tactics (like chalk sprayed messages on the pavement to show the way to local glass banks) and heavy social media use.
- An online pledge tool based on the 'theory of intent' served as one hard measure of behaviour change
- **Results** – contamination fell from 29% to 25%, and glass found in general waste reduced from 12% to 4%.

### *Pilot 2: Gosport – 'Good Enough' recyclers and 'knowingly disengaged'*

- This pilot was aimed at parents of school-aged children
- Schools were a common touch-point, so we installed eye-catching leopard-print-wrapped bins and a banner near the school gates, reminding pupils and parents of school assembly information they'd received about 'changing their spots', and reminding them to play an online game to learn about what can and cannot be recycled.
- **Results** – plastic bottle recycling increased from 6% to 10%, 43% of participants reported that they had improved recycling habits.

*Pilot 3 – Eastleigh – ‘Good Enough’ recyclers*

- This pilot was aimed at young couples who had recently moved into their first home together and were establishing new recycling habits. This audience was categorised as a subgroup of the ‘good enough’ recyclers
- Digital messages and visits by local volunteers, who delivered local recycling information and goodie bags.
- **Results** – 92% of those who saw the campaign said they would change recycling behaviours, 43% said they’d already changed as a result. 25% of people who saw the campaign sought further information and awareness of the Council’s recycling facilities doubled.

**Continuity at Hampshire County Council**

Following all pilot results, Hampshire County Council agreed to a county-wide roll out of the intervention work. This included:

- New infrastructure – Hampshire County Council is constructing a £50.5 million materials recovery facility in Eastleigh, expected to open in 2027.
- Wider material range – the new facility will allow for residents to recycle more items correctly, and include plastic pots, tubs, trays, cartons and soft-films.
- Real time data – following data collection during the intervention, the council now continues to refine measurement and data collection (such as sampling waste from roads with high populations of the target audiences) to ensure that intervention work remains effective.