SOCIAL ENGINE

Reducing littering in the New Forest

A behavioural insight project

Research report

November 2020

Contents

About Social Engine

Social Engine was founded in 2015 to support organisations to adopt an evidenced-based and insight-led approach. We work with charities, local authorities, social enterprises and other social purpose organisations to overcome organisational challenges through engagement, research and the practical application of evidence into practice.

Our work involves applying behavioural insights to support service improvement across a wide range of policy and service areas in order to improve outcomes for individuals and communities.

www.social-engine.co.uk

Executive Summary

New Forest District Council (NFDC) spends £1.5m each year on manual and mechanical sweeping, litter picking, the provision and emptying of litter and dog waste bins, and the collection and removal of fly-tipped waste.

The challenge is not simply a financial one – littering poses a threat to wildlife, causes traffic disruption, danger for cleaning operatives, and is the cause of dissatisfaction amongst many who live in or visit the area.

With support from the Local Government Association's behavioural insights programme, the Council commissioned Social Engine to develop a new behaviourally-informed approach to reducing littering in the area.

Originally the project was due to focus on littering thrown from vehicles, however the coronavirus pandemic resulted in a shift in focus onto the challenge of litter in coastal areas, which emerged as lockdown ended.

Initial evidence and insight gathering

Insight Initial evidence and insight gathering conducted at the commencement of the project suggested:

- o Around half of all people appear to drop litter. These figures are consistent across numerous studies conducted in a number of different countries.
- o Despite suggestions that young people are more likely to litter, there may be other explanations for these findings such as greater honesty among young people in admitting to littering.
- o Environmental factors have an impact on people's behaviour, with the more visible litter is, the more likely people are to drop litter.
- o Social norms impact behaviour. Being around others who we perceive to be 'respectable' reduces the likelihood of littering, but among our peers (particularly for young people) the presence of others can increase littering behaviour
- o Although we can draw inspiration from interventions across the UK, many interventions lack rigorous impact measurement or provide evidence of lasting behaviour change.
- o Perceptions of the problem varied significantly, ranging from 'severe' and 'horrendous' to 'not much different from elsewhere.'
- o General attitudes and perceptions of using sanctions for littering, such as prosecution, fines and enforcement, is that they are not cost effective, hard to prove and the authorities do not have the resources to easily and efficiently issue them.
- o Fast-food litter in car parks was frequently referred to and was considered an ongoing issue, with fast food packaging, plastic bottles and beer cans most commonly mentioned.

A community survey, which was widely promoted through social media channels, provided useful insight into the views of litter and littering among the general public. There were 879 responses to the survey which ran for two weeks during October 2019.

- o Around one in ten (9%) people admitted to dropping litter in the previous 6 months, with two-thirds of these saying they had done so from a vehicle.
- o People were overwhelmingly concerned about litter in the New Forest. 92% of respondents were either 'slightly concerned' or 'very concerned' about litter

We found some interesting differences between the views of those who litter and those who do not.

- o 14% of litterers agree or strongly agree that if other people litter it's not their problem compared to just 4% of non-litterers.
- o Litterers were also less likely to be concerned about litter compared with those who did not litter - 43% of litterers were 'very concerned' about litter in the New Forest vs. 64% of non-litterers.
- o 62% of litterers said they had not 'seen, read or heard any adverts or public service messages related to litter in the NF in the last year' compared to 55% of non-litterers
- o 68% of non-litterers strongly agreed that there is never an excuse for dropping litter compared to just 18% of litterers. In contrast, 18% of litterers disagreed that 'there is never an excuse for dropping litter' compared to just 2% of non-litterers.
- o Only 49% of litterers strongly agreed that they take pride in where they live, compared to 69% of non-litterers

Developing a behaviourally informed approach to tackling litter

The evidence and insight gathered through our research and engagement activity was collated and analysed. Through this process we were able to develop some initial hypotheses and personas, which were developed from different audience segments within the population.

Alongside our identified audience segments, we also developed two hypotheses which the evidence suggested might be key to developing successful interventions to reduce littering:

1. Residents of the New Forest are very proud of where they live
2. People are more likely to litter if they are alone and think they won't get caught

These two hypotheses were used to develop a framework for tackling litter which translated our two hypotheses into two distinct, concepts:

1. Local identity
2. Surveillance

These two strands were combined to develop a single identity: Look Out for Our Forest. This would act as an overarching framework beneath which a range of targeted interventions could be developed to respond to particular challenges, or to seek behaviour change among specific groups.

Having established our framework and identified a range of target audiences (supported by developing personas), we began to develop a range of possible interventions.

We explored a wide range of ideas and how they might resonate with particular groups with NFDC staff in a process of co-design to generate a short-list of possible interventions. These were mapped against our different personas and then assessed against a range of criteria to identify those most likely to be effective (and practical) to test.

Shifting our focus to coastal litter as a result of Covid-19

By late March 2020 it became clear that testing our interventions would need to be suspended due to the impact of Covid-19.

Covid-19 has presented Local Authorities with new challenges. In the New Forest, the Council have experienced a huge increase in rubbish left at coastal locations.

Discussions were held to explore whether the Look Out for Our Forest framework and learning could be adapted to create new interventions to help with this emerging problem. It was subsequently agreed to design new interventions, based on the Look Out for Our Forest identity to focus on reducing coastal littering.

The new intervention was intended to help challenge behaviours such as 'polite littering' - where litter is left by the side of an already full or overflowing bin. We also sought to ensure people understand that the responsible action is to take your rubbish home with you. Ultimately, we hoped to achieve a reduction in 'side waste' and uncontained rubbish at coastal locations.

At three specific locations (Milford on Sea, Barton on Sea and Calshot) we supplied free refuse sacks from convenient locations near the carpark and/or prime visitor points. The availability and purpose of these sacks was communicated via large advertising trailers which had been acquired by the Council independently of this project.

The trailers provided an opportunity to showcase the new brand framework and to deliver messages to the target audience at the location and time when anti-social behaviours are known to take place.

Headline findings

The trailers were positioned at our three sites at the end of July until September[1], along with the intervention posters and free refuse sacks. For evaluation purposes, July was our pre-intervention (comparison) period and August was our intervention period.

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[1] Due to logistical considerations the trailers remained in situ until the middle of October. However, the trial period concluded at the end of August and data were only evaluated up to this point.

During the intervention period (August) a total of 6,750 bags were taken by members of the public. This equates to 73 bags per site per day - approximately one roll every two days at each location.

To understand whether our intervention had impacted on the amount of litter discarded at the three coastal sites, we compared litter volumes collected during our pre-intervention period (July) with the amount of litter collected during the intervention period (August). However, in order to take account of one of the major factors which we might expect to result in variations between our pre-intervention and post-intervention period, we sought to quantify the number of visitors to our 3 sites throughout the trial period. By taking account of differences in visitor numbers, we are able to make a more accurate comparison of litter volumes in the pre-intervention and intervention periods.

Two metrics were available that provided useful proxy measures for the number of visitors to the New Forest coastal areas where our intervention was deployed. These were:

- o Number of users of public toilets in close proximity to where the intervention posters were sited, and;
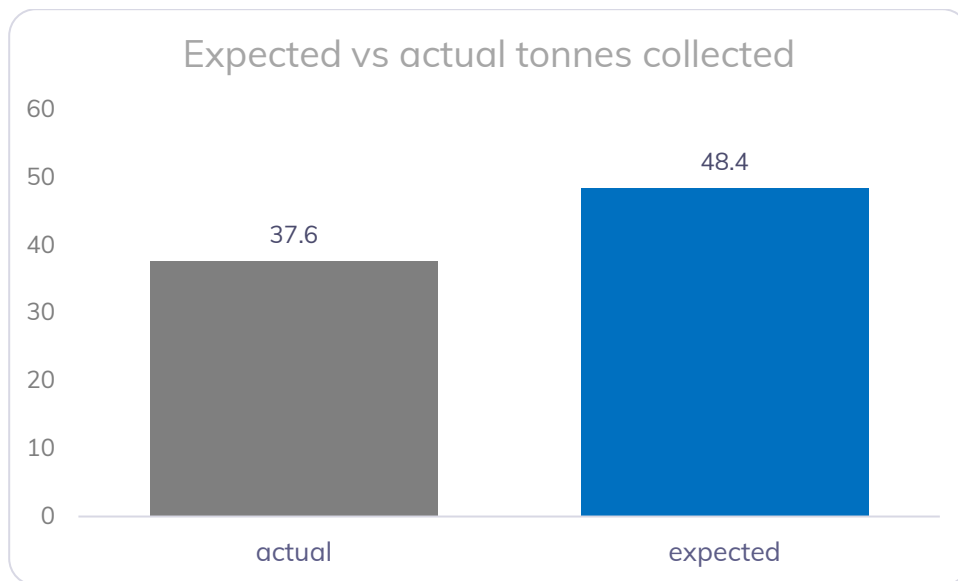- o Revenue collected in car parks at the intervention sites.

Between July 2020 and August 2020, we saw a significant increase in visitor numbers across both these metrics:

Parking revenue rose by 53% at the public car parks adjacent to the intervention sites and average daily toilet visits rose by 27% from July 2020 to August 2020. These suggest an average (mean) increase in visitors of 40% during the intervention period.

Litter volumes were measured by weighbridge data, which records the deposits by individual waste vehicles at the waste processing centre. We were able to isolate waste collected from our intervention sites on a daily (or round) basis to accurately calculate the amount of litter collected from our intervention areas during the intervention and pre-intervention period.

Waste collected from the intervention sites in July totalled 34.6 tonnes, whilst waste collected in August was 37.6 tonnes.

Whilst total waste increased during our intervention period, when we take into account the significant increases in visitor numbers the picture changes considerably.

Expected vs actual tonnes collected

	actual	expected
value	37.6	48.4

We therefore estimate that the coastal litter intervention reduced the amount of litter discarded by 10.8 tonnes over the one month intervention period.

This represents a reduction in litter of 29%.

A survey conducted after the intervention period, provided valuable insight into perceptions among the general public of litter in the area and the council's efforts to tackle it. This was compared with responses to the original community survey conducted at the beginning of the project.

Comparisons in responses to questions on perceptions of littering between the two surveys showed a positive change between pre-intervention and post-intervention results across all six perception measures.

Our post-intervention qualitative interviews with stakeholders also highlighted positive perceptions of the issue.

Conclusions and lessons learned

The combination of qualitative and quantitative evidence and of multiple sources all pointing to a similar conclusion suggest we can be confident in the observed findings, despite the limitations of the evaluation method, compared with conducting a randomised controlled trial.

Supporting evidence from the community survey and stakeholder interviews all affirm effectiveness of the intervention from the quantitative data. Consequently, we conclude that the intervention was effective in reducing coastal litter.

Our cost benefit analysis suggests that the intervention reduced the Council's litter collection costs by over £10,000 across the three sites in just one month.

Awareness of the intervention, as reported through the community survey was very high – with over half saying they were aware of local initiatives and 4 of out 10 saying they were aware of the #Crabby coastal litter campaign.

Survey responses strongly indicate that New Forest residents perceive the council as an authority that is taking action, making efforts to reduce littering and that these efforts should continue. Residents and stakeholders appeared to recognise that the intervention reflected a new and positive way of engaging people with the issue of littering and felt the initiative had been well received and had a positive impact on littering.

Developing a behaviourally-informed approach to littering represented a new way of working for the council. The project aimed to develop a framework that could be adapted and deployed in a creative and practical way to respond to a variety of challenges.

The shift in focus from littering from vehicles to coastal litter during the course of the project presented us with a real opportunity to test the Look Out for Our Forest framework in an unanticipated but highly practical way.

The coastal litter intervention was able to be designed and deployed in the space of just a couple of weeks, adapting the 'Look Out for Our Forest' framework to create a relevant, targeted and behaviourally-informed intervention. The messaging and imagery were consistent with the overarching brand identity, but tailored to the specific circumstances and opportunity.

This experience suggests the framework is fit for purpose and can provide the sort of multi-year brand and concepts beneath which numerous further interventions can be developed, to move forward with confidence beyond the lifetime of the project.

There is also considerable scope to expand the use of audience segmentation and personas across other service areas to enhance messaging and engagement and service design.

The success of the coastal littering intervention has, we believe, provided a good proof of concept and when the circumstances allow, we recommend testing the littering from vehicle interventions.

The onus is now on NFDC to learn from the way the coastal litter intervention was adapted from the overarching identity to respond to a specific challenge and apply the approach to future litter-reduction activity.

Introduction

New Forest District Council (NFDC) has an annual budget of £1.5m for Street Scene services including manual and mechanical sweeping, litter picking, the provision and emptying of litter and dog waste bins, the collection and removal of fly-tipped waste. They estimate that over £125,000 each year is spent on clearing litter from the verges in the area. The challenge is not simply a financial one – littering poses a threat to wildlife, causes traffic disruption, danger for cleaning operatives, and is the cause of dissatisfaction amongst many who live in or visit the area.

New Forest district boundary map, showing the area that is within the National Park

NFDC and its partners have organised various initiatives to tackle the issue, however the impact of these are often short lived. The council were keen to understand more about what motivates people to discard litter and critically, what influences and approaches can positively alter this. NFDC were successful in securing support from the [Local Government Association (LGA) through their behavioural insights programme](#), in order to develop a new approach to tackle the problem of littering in the area.

Littering is not a simple issue – within the New Forest district different types of litter, seasonal variations and diverse locations all add layers of complexity to efforts to reduce the problem. There is also the added challenge of having a range of statutory authorities including Forestry England, New Forest National Park Authority, Highways England and Hampshire County Council with different responsibilities in the area to take into consideration.

Whilst littering is a visible problem, the perpetrators are not necessarily identifiable or their motivations well understood. Whilst some may blatantly discard their waste, there is currently little understanding of the rationale behind such actions. Naturally, the activity is often covert, presenting a challenge in learning more about the reasons or the person themselves. Whilst powers to fine those caught littering currently exist, this mechanism has not necessarily contributed either to a reduction in the scale of the problem or increased understanding about its root cause.

Aims

The long term ambition for the project was to support the council to create a new cultural norm where those people who live, work or visit the New Forest have a role to play in keeping the area litter free.

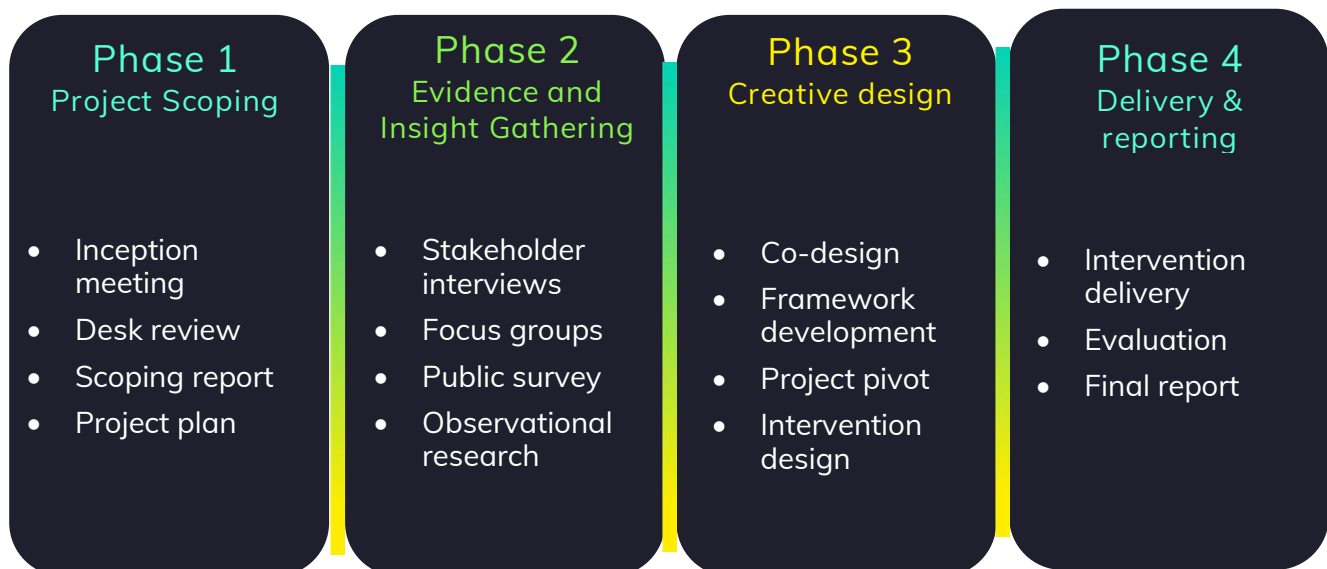Components within this overarching aim included:

Primary objectives

- Identifying audience segments in order to ensure that messaging and interventions can be appropriately prioritised and targeted.
- Provide insight into the behaviours and attitudes of those who do and do not drop litter.
- Create an overarching framework, which is evidence-based and insight-led, to address inappropriate behaviours and attitudes.
- Reduce the visibility, volume and cost of removing litter within a defined area by using an intervention informed by behavioural insights.

Secondary objectives

- Increase understanding amongst key council staff and partners about how behavioural insights can be a useful tool to enhance service design, delivery and develop effective new ways of working.

Approach

We adopted a four-phase approach to the project designed to establish a robust understanding of the issues and then to develop and test a new approach.

Phase 1 Project Scoping	Phase 2 Evidence and Insight Gathering	Phase 3 Creative design	Phase 4 Delivery & reporting
• Inception meeting • Desk review • Scoping report • Project plan	• Stakeholder interviews • Focus groups • Public survey • Observational research	• Co-design • Framework development • Project pivot • Intervention design	• Intervention delivery • Evaluation • Final report

Throughout the project a flexible, iterative approach was adopted to allow each stage to respond to the findings and learning from the previous phase. In hindsight, this flexibility became crucial to the project delivery as the onset of the Covid-19 pandemic required considerable agility to respond to the dramatically changing environment.

We considered the various influences on behaviour and the potential approaches to change this, bringing to bear an understanding of how dual processing within the brain can lead to actions or attitudes. Potential influences on behaviour that we considered included:

- Peer pressure – and the use of social or cultural norms
- Messenger – the use of influencers in messaging approaches or channels
- Intrinsic and extrinsic incentives – and how they might be applied
- Defaults/heuristics – understanding how habits and beliefs can shape behaviour.
- Salience – looking at ways to secure 'cut through' by making messaging and approaches more novel, accessible, visible and the impact of littering more easily understood.

The first phase, as specified by the LGA behavioural insights programme requirements, was to conduct brief project scoping and [produce a report](#).

Once the approach to deliver the project had been refined, based on an initial assessment of available evidence and information, a subsequent phase of primary research was conducted to gather insight from key stakeholders.

The evidence and insight generated from this second phase was analysed and formed the basis for a process of co-design which enabled a new framework to be developed. This included a range of potential intervention, personas and a brand to be created. From this a set of initial interventions to trial were agreed and plans to test them developed.

The project was paused at this point due to the onset of the coronavirus pandemic and national lockdown. When the lockdown was eased, the planned activity no longer reflected the immediate challenges and priorities faced by the council. Following discussions with the council and the LGA, it was agreed to pivot the project away from litter thrown from vehicles, onto the emerging challenges of coastal litter.

The final phase of the project deployed our new intervention and tested the effectiveness of both the intervention and the framework developed to adapt to emerging littering challenges.

Research and engagement methods

We sought to gain first hand insight into littering via a range of research methods. The insight gathering phase was intended to produce evidence and understanding of the motives behind littering, and the values needed to be held so that littering is not an acceptable behaviour. We developed a research and engagement plan, outlining our research questions and the engagement methods to be used.

Desk research/data review

- We reviewed current data and reports supplied by NFDC in order to define the nature of the problem including the locations particularly susceptible to littering, the type of litter being discarded and anything that is known about those dropping litter.
- A brief review of academic literature and practitioner evidence was undertaken in order to identify effective and novel approaches to tackling littering.

Stakeholder engagement

- We conducted in-depth interviews with key stakeholders, including partners, council staff and Members, food retailers and local interest groups to explore perceptions of the problem and gather insight into previous/current experience of tackling littering.
- Stakeholder workshops were held with a mixture of partners and interest groups including: Verderers, Highways England, Forestry England, the National Park Authority, the County Council, Town and Parish Councils and Council staff/members. These sessions provided an opportunity to engage stakeholders with the project and enabled them to contribute their ideas, knowledge and insight to inform our research design.
- Focus Groups with young people were held at Totton College and a local youth group.
- A confidential online survey of public attitudes to litter and littering was also carried out. The survey aimed to elicit honest reporting of behaviours among those who do litter, as well as wider perceptions among community members of the scale and nature of the problem.

Observational research

- We conducted three days of observational research to investigate littering attitudes and behaviours, with researchers in situ at litter hotspots and retailer locations. This involved interviews with motorists and van and lorry drivers and observation at three service stations in the area.

Co-design workshops

- We also held two co-design sessions at the completion of the insight-gathering phase with the project team and with stakeholders.
- The purpose of the first session was to share the insight gathered and to generate ideas to feed in to the creative development of our framework and persona design.
  The second co-design session was used to generate intervention ideas which were targeted at our audience segments.

Evidence and Insight Gathering

New Forest District Council (NFDC) supplied a range of data and information which provided a starting point for our evidence review. We supplemented the information with a brief review of academic literature and practitioner evidence, as well as primary research with local stakeholders, observational research and wider public opinion.

The main objectives of our evidence and insight gathering were:

- Increase understanding of littering behaviour in the UK including research that describes the type of litter discarded
- Highlight evidence and research that helps us to understand why people litter and the factors that influence the behaviour of those who drop litter
- Develop an understanding about what might deter people from littering including penalties and prosecution
- To draw on relevant research evidence of what works in reducing littering behaviour that could be used to inform our intervention design
- Consider the impact of previous and ongoing behavioural interventions which have targeted littering behaviour and evaluate effectiveness.

Summary of Evidence Review Findings

- Around half of all people appear to drop litter. These figures are consistent across numerous studies conducted in a number of different countries.
- Despite suggestions that young people are more likely to litter, there may be other explanations for these findings such as greater honesty among young people in admitting to littering.
- Women appear to have more strongly held views in relation to littering and are more opposed to littering in any circumstances suggesting a greater likelihood of littering behaviour among men.
- Smokers appear to be significantly more likely to litter than non-smokers.
- Environmental factors have an impact on people's behaviour, with the more visible litter is, the more likely people are to drop litter
- Social norms impact behaviour. Being around others who we perceive to be 'respectable' reduces the likelihood of littering, but among our peers (particularly for young people) the presence of others can increase littering behaviour
- Although we can draw inspiration from interventions across the UK, many interventions lack rigorous impact measurement or provide evidence of lasting behaviour change.

The full evidence review findings can be found in Appendix A.

Local perspectives of littering

We interviewed a total of seven local and active community members who have an interest or association with littering in the New Forest area.

Perceptions of the problem varied significantly, ranging from 'severe' and 'horrendous' to 'not much different from elsewhere.'

It was generally felt that people's attitudes contributed to the problem. Most felt that everybody litters because nobody takes responsibility for their actions and wants to do anything about it.

> *"People don't clear litter up there and it's right outside their houses. Parish councils and NFDC should encourage people to keep the outside of their property clean and take responsibility for their area."*

Stakeholders felt that attitudes towards litter influence behaviours and people tended to have an 'I'm not bothered attitude' and 'I don't live here so it doesn't matter' outlook which likely contributed to the view that it was the responsibility of somebody else to clean up litter (although not specifying who).

> *"The ordinary person won't even see the litter that is there. They think it is somebody else's problem – so why worry?"*

General attitudes and perceptions of using sanctions for littering, such as prosecution, fines and enforcement, is that they are not cost effective, hard to prove and the authorities do not have the resources to easily and efficiently issue them.

> *"Even if we had 100 enforcement officers it would be difficult because the likelihood of spotting somebody littering and prosecuting them is incredibly small."*

Concern was raised that fines would not result in long-term behaviour change, but acted only as a short-term solution.

> *"They get a fine but I wouldn't say it changes behaviour in the long term, it's only a short-term solution. If it's not sustained people just return to the norm, unless there is education to back up enforcement."*

Fast-food litter in car parks was frequently referred to and was considered an ongoing issue, with fast food packing, plastic bottles and beer cans most commonly mentioned. Litter in car parks was felt most likely to occur in the evening and at night which affected people's perceptions of the area and was harmful to both the environment and wildlife.

It was also felt that 'litter breeds litter' and locations that had bins or other waste disposals units actually encourage people to leave their litter behind even if the bin was full as the presence of a bin indicated that waste was 'somebody else's responsibility.'

> *"Bins contribute to litter. If you don't have bins people bag it, bin it, and take it home. Even if there are small bins it makes people think it's somebody else's responsibility and bin bags pile up."*

All respondents felt that retailers had a role to play in addressing littering behaviour. In particular, fast food retailers were felt to have opportunities to influence the behaviours of customers through contact in the outlet. Respondents also felt retailers had a 'moral duty' and 'corporate responsibility' for tackling waste originating from their premises.

> *"From the word go they can and could tell people where bins are or how to dispose of waste, particularly takeaways. People might then dispose of rubbish more thoughtfully."*

We spoke to five local businesses and retailers including the managers of service stations and fast-food retailers.

All of the businesses interviewed made attempts to pick up litter outside their premises at least once a week, and often considerably more frequently. This was generally undertaken by an employed cleaner or staff member with responsibility for litter and waste. One retailer told us they had a staff member go out two or three times a day to collect litter before it was blown away.

Similar to community stakeholder responses, perceptions of the problem of littering in the New Forest area varied greatly. Some felt the problem was 'not so bad' and 'only a bit of an issue' however others felt it was 'quite bad' and that 'it's manageable but I have seen an increase'.

Businesses felt strongly that 'litter breeds litter' with one business mentioning that, as a result of litter picking, litter had actually decreased.

> *"It has improved since we have started doing it because I think litter breeds litter and as we clean it up, it reduces the chances of it happening."*

Retailers did acknowledge their responsibility to look after the area around their business, with some retailers litter picking five days a week.

However, the council was mentioned by all retailers as being responsible for maintaining the environment and dealing with litter. Council bins were felt not to be well maintained which meant people were less likely to use the bins. The council were also seen as somewhat distant with one respondent commenting that;

> *"I have only seen the street cleaners come once in the morning and I have worked here for two months. I do think they should come more, but we [as a business] also have some level of responsibility."*

Retailers also felt the council could do more to work in collaboration and forge partnerships with local businesses to "solve the problem with a joint approach" and that communication could be improved so business could respond more effectively to identified problems.

Lorry drivers, who typically spent a large proportion of their day (and nights) in their vehicles tended to be well equipped to manage their rubbish without littering. They tended to have an on-board receptacle for their rubbish.

> *"I just put my rubbish in a 5p carrier bag which is low cost and keeps the inside of my cab clean"*

By contrast, van drivers appeared less well equipped to avoid littering behaviour with rubbish strewn on the floor of their vehicles.

Lorry drivers felt that drivers of 'posh cars' were most likely to drop litter; wanting to avoid having rubbish in the vehicles.

> *"It's mostly car drivers that litter, particularly BMWs and Mercedes types who don't want rubbish in their vehicle and want it clean."*

The view that drivers of expensive cars were responsible for littering was also expressed by young people who participated in the focus groups we ran.

Young people also expressed high levels of awareness of litter and littering and had strong negative connotations with littering; in particular referring to its impact on the environment.

Public perceptions of littering in the New Forest

A community survey, which was widely promoted through social media channels, provided useful insight into the views of litter and littering among the general public. There were 879 responses to the survey which ran for two weeks during October 2019.

Around one in ten (9%) people admitted dropping litter in the previous 6 months, with two-thirds of these saying they had done so from a vehicle.

People were overwhelmingly concerned about litter in the New Forest. 92% of respondents were either 'slightly concerned' or 'very concerned' about litter

- 73.6% of litterers were motorists who were driving (rather than stationary) at the time of throwing waste
- 71% of all respondents said that they keep their rubbish in their vehicle and wait to get home to dispose of it
- Only 10% of littering was reported to take place when with friends, while 56% occurred when the person was alone.
- People tended to litter in order to get rid of it quickly (21.5%) and to avoid having the rubbish in the car (35.2%).
- Litter was most likely to be organic materials such as apple cores and small items like pieces of paper. Those who admitted littering were more likely than average to consider fruit waste as acceptable to drop as litter – with 42% of litterers saying they felt it was acceptable to discard an item if it is biodegradable and will decompose.
- 50% of litterers were educated to a degree level or equivalent
- The main motivations for not dropping litter given were to avoid harming the environment and wildlife (89%), not wanting to make the area dirty (81.9%), the cost of cleaning it up (65.8%) and because it is morally wrong (77.3%).
- Attitudes towards litterers among people who do not drop litter were particularly strong with 90% of non-litterers strongly agree that people who litter are 'inconsiderate'.

We found some interesting differences between the views of those who litter and those who do not.

- While 14% of litterers agree or strongly agree that if other people litter it's not their problem compared to just 4% of non-litterers.
- Litterers were also less likely to be concerned about litter compared with those who did not litter - 43% of litterers were 'very concerned' about litter in the New Forest vs. 64% of non-litterers.
- 62% of litterers said they had not 'seen, read or heard any adverts or public service messages related to litter in the NF in the last year' compared to 55% of non-litterers
- 68% of non-litterers strongly agreed that there is never an excuse for dropping litter compared to just 18% of litterers. In contrast, 18% of litterers disagreed that 'there is never an excuse for dropping litter' compared to just 2% of non-litterers.
- Only 49% of litterers strongly agreed that they take pride in where they live, compared to 69% of non-litterers

Effectiveness of Enforcement on Perceptions

- 74% of respondents did not feel that laws to prevent littering were strictly enforced, while just 3% felt that they were enforced strictly.
- However, those who dropped litter were more likely to believe that littering was strictly enforced than non-litterers.
- Around half (52%) of respondents felt that the current fines for littering were too low while just 3% felt that fines were too high.
- Litterers were more likely to believe that fines for littering were too high, while non-litterers were more likely to believe they were too low.

Developing an insight-led approach

The evidence and insight gathered through our research and engagement activity was collated and analysed. From this we were able to develop some initial hypotheses and personas from different audience segments within the population.

The personas were based on the evidence and insight gathered including our community survey, interviews, focus groups and informal discussions and an evidence review of academic literature and previous litter-reduction initiatives.

We identified a number of variables which guided our thinking about the different influences on the behaviour of our personas. These were:

- In/Convenience
- Guilt
- Arrogance
- Local pride

We also considered – to connect the persona development with our intervention design - how easy (or difficult) a particular group were to target.

Littering and non-littering personas

Four personas were developed to reflect the types of litterers suggested through our evidence and insight gathering research.

Smarter Car Man

This group are more likely to litter simply because they don't want to keep their rubbish in their car: they don't like the smell and are lazy.

Characteristics

- They experience cognitive dissonance, because they report caring about the environment, but at the same time admit to vehicle littering.
- Likely to be concerned with the dangers and environmental hazards that litter poses, but it's not enough to deter them from littering.
- They are more likely to litter while driving and when alone, because they don't want to be seen, and they care a lot about their identity, social status and what other people think of them.
- If not alone, they are likely to litter with family members (rather than friends) who espouse the same values and attitudes and are less likely to adversely judge them.
- Very likely to experience shame if caught littering.
- They are quite proud of where they live and likely to be concerned with the 'visual' impact of littering in their local area
- There is limited evidence to make assumptions about demographics. The available evidence is principally indirect and comes from the informal discussion with lorry drivers and young people who said that vehicle litterers are more likely to be males who drive 'posh' cars.

Smarter Car Man

Why does he litter?

- Inconvenience of keeping rubbish in the car
- Wants to keep his car clean
- He is in a hurry and doesn't want to stop

What would stop him?

- Being identified as a litterer
- To feel there's a high risk of being caught
- To receive a letter
- To receive a fine

" I am not proud to say this, but I hate the smell of food in my car, so I chuck it out the window."

" If no one sees you, you can pretend you haven't done it! "

Age 29

Occupation Estate Agent

Guilt low — high

Social Validation low — high

Local Pride low — high

Easy to target difficult — moderate — easy

- Messaging: activate their sense of identity (e.g. 'don't be a tosser')
- Messaging around sense of local pride.
- Surveillance: they have to be convinced that the law is enforced strictly. This can be achieved through vicarious/ indirect learning alone (although personal or experiential leaning would cause a greater behaviour change) – i.e. learning derived from indirect sources such as hearing that other people have received fines, rather than direct, hands-on experience.

Young Rebels

The 'hardcore' litterers. They litter because they are unconcerned about the impact or the consequences of littering and to demonstrate their rebelliousness.

Characteristics
- They don't want the inconvenience of holding on to litter; once they have finished with it, they want to get rid of it as soon as possible.
- They represent a small fraction - around 5% - of vehicle litterers who report that they do not care about the environment or the impact of littering.
- It is likely that they do not experience any negative feelings, such as guilt or shame.
- Likely to litter when alone but also with family and friends.

Young rebel

Why do they litter?
- Believe it is someone else's responsibility to clean
- Do not care about the environment
- Laziness
- Express disobedience

What would stop them?
- To be convinced that they can get caught
- To receive a letter
- To receive a fine

" Yes I litter quite a lot. Someone else will clean it anyway and honestly I can't be bothered. "

| Age | 22 |
| Occupation | University Student |

Guilt — low ——► high

Social Validation — low ——► high

Local Pride — low ——► high

Easy to target — difficult ——► easy

Possible Interventions
- Surveillance approach – being seen may deter them.
- They have to be strongly convinced that the law is enforced strictly, measures are in place and that there is a real risk of being caught littering.

- Direct learning (i.e. receive a fine or intervention letter) is likely to be more effective than indirect learning alone.
- The perceived consequences of getting a fine are financial, rather than 'damage' to their identity or reputation (in fact it may be a social 'badge of honour' to have been caught).

Guilty Optimists

Members of this group litter from their car to avoid the inconvenience of having to deal with it and don't like keeping rubbish in their car.

Characteristics
- Experience strong cognitive dissonance – as they report that they find littering totally unacceptable, but still admit to doing it.
- They know that dropping litter is wrong, but find carrying litter around inconvenient, so instead they drop it furtively.
- They are very secretive about their behaviour, so they litter only when alone (not even with other family members like the Young Rebels might sometimes do).
- They are very proud of where they live.
- Will experience shame if caught littering; fines would be a strong deterrent.
- They are the most 'ready to change'.

Possible Interventions
- Mixed approach, particularly messaging around identity, but also norms and local pride.
- Surveillance: they have to be moderately convinced that they can get caught.
- Vicarious/ indirect learning likely to be effective – e.g. hearing news, stories, examples of residents in the area who have received a letter or actually been fined.

Lone Rebels

Like the Young Rebels, this group are unconcerned about the consequences of littering and have little regard for its environmental impact. They are lazy and dislike the inconvenience of having to properly dispose of rubbish

Characteristics
- Whilst they might take pride in their vans, they dislike the inconvenience of having to store rubbish and dispose of it responsibly. Consequently, they're likely to throw it out immediately.
- The impact of littering on the environment is unimportant as they are in the small (5%) number of vehicle litterers who say they do not care.
- Unlikely to feel any guilt or shame about their littering behaviour as they see it as completely normal behaviour.
- Likely to litter when alone but may also litter when with friends or work colleagues if they share similar views.

Possible Interventions
- Surveillance approach
- They have to be strongly convinced that the law is enforced strictly, measures are in place and they can get caught littering.
- Likely to be concerned about professional or financial consequences so intervening through their employer is likely to be effective.
- Less likely to be influenced by general enforcement information than through personal, direct experience of the risks of being caught.

In addition to the four personas we developed who dropped litter, we also identified two segments who did not drop litter but who it was felt were key audience segments in our intervention design.

Local Champions

Members of this group would never ever litter. They have strongly held views about the impact of litter and have low regard for litterers.

Characteristics
- Find littering totally unacceptable and would stop to pick up litter someone else had dropped if they saw it.
- Have considerable pride in the local area and care deeply about the forest.
- They are likely to be very actively involved with existing community efforts to improve the area, including litter picks and a range of other social action.
- Have a strong sense of civic duty and consider it everyone's responsibility to do their bit to improve the area.
- Want to feel listened to, that their efforts are appreciated and valued.

Possible Interventions
- Encouraged to 'do their bit' to prevent littering – rather than simply deal with the effects of littering (picking it up).
- Likely to be motivated and enthused by hearing that the council are taking the issue of litter seriously and taking action.
- Giving them responsibility to take action within the community – as part of an organised and coordinated initiative is likely to motivate them.
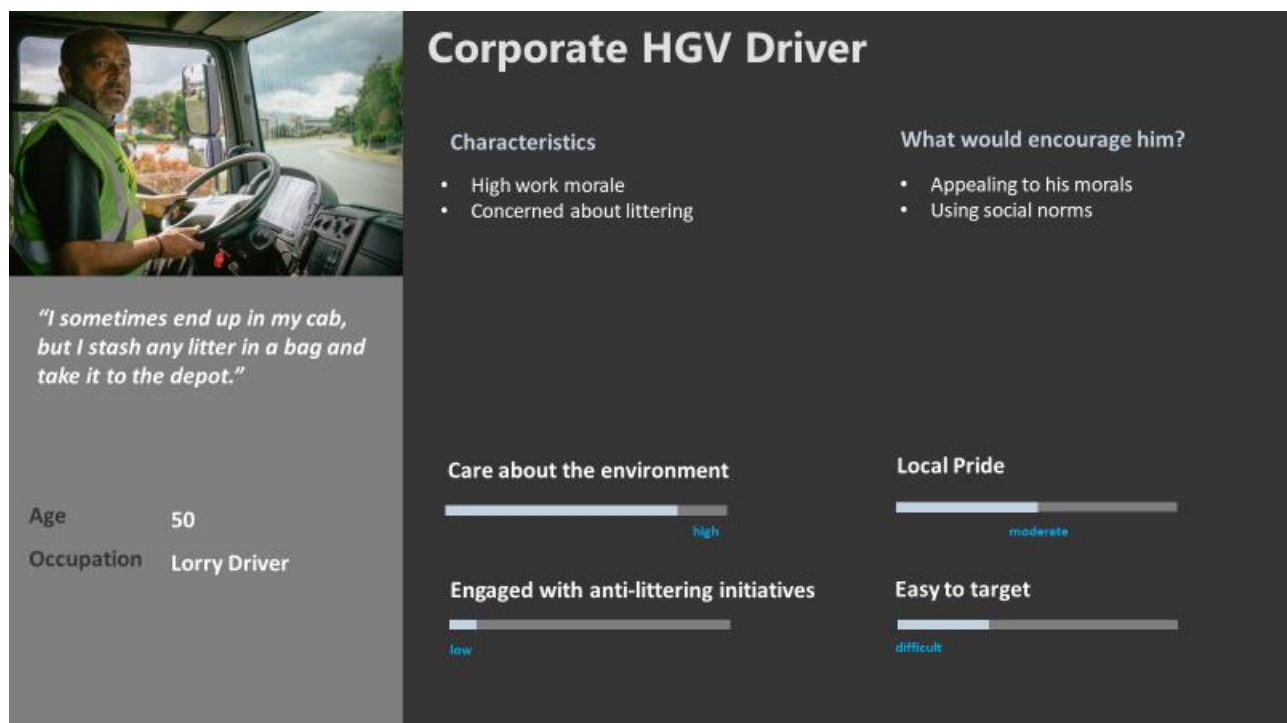
- Public recognition of their efforts could be used to sustain their engagement.

HGV Driver

Members of this group are well prepared to store rubbish in their vehicles and dispose of it in an appropriate way.

Characteristics
- As they spend large amounts of time in their lorries, they are well equipped and prepared to dispose of rubbish properly.
- They are concerned about litter and feel littering is wrong.
- Have a strong work ethic and understand that their livelihoods are dependent on adhering to the rules and take pride in maintaining their vehicles (which is also expected of them by their employer).
- The large amount of time they spend in their vehicle means they see what is happening on the roads.
- Many are members of online (and social media) campaigns to collect litter at laybys.

Corporate HGV Driver

Characteristics
- High work morale
- Concerned about littering

What would encourage him?
- Appealing to his morals
- Using social norms

"I sometimes end up in my cab, but I stash any litter in a bag and take it to the depot."

Care about the environment
high

Local Pride
moderate

Engaged with anti-littering initiatives
low

Easy to target
difficult

| Age | 50 |
| Occupation | Lorry Driver |

Possible Interventions
- Can be mobilised to assist in identifying unsociable behaviour – like littering - that they see going on.
- Scope to engage with them through their employer.
- Likely to be enthused by supporting activity to call to account those displaying selfish or anti-social behaviour (e.g. littering and unsafe driving).

Other groups

School children | Dog walkers | Local businesses

Although not a priority audience for our vehicle intervention, the framework approach can include these key stakeholders.

Developing our Litter Reduction Framework

Alongside our identified audience segments, we also developed two hypotheses which the evidence suggested might be key to developing successful interventions to reduce littering:

1. Residents of the New Forest are very proud of where they live
2. People are more likely to litter if they are alone and think they won't get caught

These two hypotheses were used to develop a framework for tackling litter which translated our two hypotheses into two distinct, concepts:

1. Local identity
2. Surveillance

Local Identity

The concept of local identity draws on the strength of local feeling and using social norms. Our approach sought to promote a local and unified sentiment which was explicitly 'pro New Forest' and emphasised a sense of identity and 'tribal pride'. This also played to the strong sense of environmental pride in the forest and recognised that the majority of people did not drop litter. We recognised the opportunity to mobilise this non-littering majority through a unified and identifiable presence which deterred people from littering.
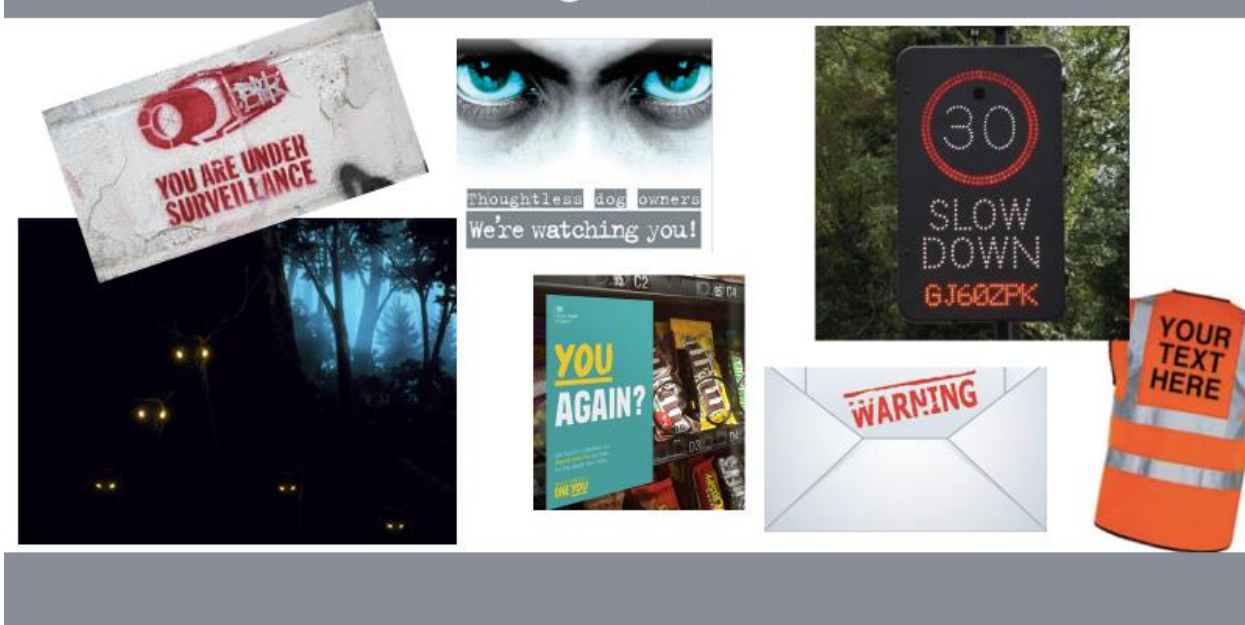
Strand 1 – Pride in the New Forest

Surveillance

Our evidence and insight gathering suggested that people are less likely to litter if they think they are being watched. We sought to emphasise this fact by highlighting the risks and consequences of littering, raising awareness of fines (loss aversion) and by making the risks of enforcement more salient.

Strand 2 – You are being watched

These two strands were combined to develop a single identity – Look Out For Our Forest – which would act as an overarching framework beneath which a range of targeted interventions could be developed to respond to particular challenges or to seek behaviour change among specific groups. Further information on the Look Out For Our Forest framework is included in Appendix B.

Intervention co-design

Having established our framework and identified a range of target audiences (supported by developing personas), we began to develop a range of possible interventions.

We explored a wide range of ideas and how they might resonate with particular groups with NFDC staff in a process of co-design to generate a short-list of possible interventions. These were mapped against our different personas and then assessed against a range of criteria to identify those most likely to be effective (and practical) to test.

Intervention Target Audiences

Intervention						
Mobilising 'Look Out' groups			✓			✓
Text to report littering			✓			✓
Letter to van depots to distribute	✓					
Letter to individual homes	✓			✓	✓	
Identity Stickers on fast food packaging	✓	✓		✓	✓	
Vehicle activated roadsigns				✓	✓	

Each of our short-listed interventions were assessed against five criteria: feasibility, impact, cost, time (required), and measurability. Each intervention was given a score for each criterion from one (least desirable) to five (most desirable) and an aggregated total score for each intervention was produced.

Intervention Assessment

➢ Each intervention was scored across 5 criteria from 1-5, where 5 was most desirable (easy, inexpensive, greater impact, quick to do etc) and 1 was least desirable
➢ Scores were generated by adding the scores from each criteria to give a final total, with the larger the score, the more promising the idea

Intervention	Feasibility	Impact	Cost	Time	Measurability	Total Score
Mobilising 'Look Out' groups	5	5	5	5	2	22
Text to report littering	4	4	4	4	3	19
Letter to van depots to distribute	5	3	4	5	1	18
Letter to individual homes	3	5	4	4	1	17
Identity Stickers on fast food packaging	3	5	1	1	5	15
Vehicle activated roadsigns	4	2	1	4	3	14

The three top ranked interventions were developed further into actionable plans. A fourth idea, adding the vehicle registration number to takeaway packaging, was also included in the list of interventions to be further developed; this idea scored slightly less highly (due to potential time and cost implications) though was felt to be potentially highly effective and innovative.

Shifting focus to coastal litter

In early March 2020 a clear direction and course of action for the project had been established. Based on the insight gathered and subsequent hypotheses, a set of key interventions that could be executed across the New Forest had been proposed.

By late March 2020 it became clear that testing our interventions would need to be suspended due to the impact of Covid-19. Further lockdown measures and additional pressures on Council staff and services meant a review of the project was delayed until late June 2020. It was decided that progressing with the project as originally planned was not viable at the current time due to the following:

- Seasonality of litter monitoring (and need to avoid the summer months when the area receives large volumes of tourists and distorting the original challenge of litter produced off season, by local people
- Reduced traffic flow through monitoring period
- Reduced council capacity for delivering and measuring the interventions
- Recruitment freeze – meaning plans to secure internal project management resource within NFDC were not possible
- A change in the local litter context with a shift to coastal and fly tipping issues.

It was felt therefore, that a focus on littering from vehicles at time of limited resource would not be appropriate.

Delaying the original intervention plan, until 2021 was discussed as an option. However, it was felt the ongoing uncertainty meant the possibility of moving forward with this project in early 2021 was also problematic and would not address the litter challenges to have emerged as a result of Covid-19.

Covid-19 has presented Local Authorities with new challenges. In this area, NFDC have found there has been a huge increase in rubbish left at coastal locations. Reasons suggested for this rise included:

- Increased visitor numbers due to people not being able to socialise indoors
- Growth in the number of takeaways being consumed due to pubs and restaurants being closed
- Early season good weather
- An increase in tourists and day trippers due to people not being able to travel abroad

The council reported having already taking action to address the upturn in litter in coastal areas including increased staffing and more frequent bin collections, but had decided not to install more or bigger bins due to:

- Logistical difficulties in emptying them
- The association of fly tipping with bin areas
- Evidence based on images from other areas that seem to suggest that bigger bins can attract more rubbish.

Discussions were held to explore whether the Look Out for Our Forest framework and learning could be adapted to create new interventions to help with this emerging problem. On 6 July 2020 it was agreed to design new interventions, based on the Look Out for Our Forest identity and drawing evidence generated from the insight gathering phase to focus on reducing coastal littering.

What we hoped to achieve

The new intervention was intended to help challenge behaviours such as 'polite littering' - where litter is left by the side of an already full or overflowing bin. We also sought to ensure people understand that the responsible action is to take your rubbish home with you. Ultimately, we hoped to achieve a reduction in 'side waste' and uncontained rubbish at coastal locations.

Our approach

Adaption of overarching framework to include a coastal variant - the framework, with its strapline 'look out for our forest', was intended for long-term and flexible use across a range of council activities. By developing a complementary coastal variant, we sought to practically demonstrate how the framework could be applied to different contexts and challenges relating to reducing littering in the area.

Our intervention was designed by drawing on research conducted from the earlier phases of work and more recent anecdotal evidence from the council on the issue.

In line with research findings, our approach was intended to support pro-social behaviours and to specifically target the negative behaviours demonstrated by our target audiences.

It was intended to be suitable for promotion via social and traditional media forms, recognising the need to regularly refresh the activity and reassure local people that action is being taken to address coastal litter concerns.

What was the behaviour we wanted to change?

Rather than visitors to the coast leaving their litter at the coastal location – either loose, or beside a bin – we wanted people to take their litter home with them.

We also hoped (in line with our earlier planned interventions) to mobilise local people to support litter picking activities and to model desired behaviour. However, in light of the continuing public health risks with coronavirus transmission, this aspect of our plan was not felt to be viable in the circumstances.

Our intervention

Our intervention approach was informed by our behavioural research that identified a number of factors:

1) Observation and the sense of 'being seen/watched' as a powerful influence over behaviour.
2) Using salience – and the effectiveness of making a desired behaviour 'easy'.
3) Intrinsic and extrinsic motivations acting as useful prompts for behaviour change –tailored to different audience segments.
4) The significant number of local people that have been identified as potential 'litter champions' and could be motivated to become more actively involved.

At three specific locations (Milford on Sea, Barton on Sea and Calshot) we supplied free refuse sacks from convenient locations near the carpark and/or prime visitor points. The availability and purpose of these sacks was communicated via large advertising trailers which had been acquired by the Council independently of this project.

The trailers provided an opportunity to showcase the new brand framework and to deliver messages to the target audience at the location and time when anti-social behaviours are known to take place. The central framework message of 'being watched' was amplified via the trailer adverts and through social media activity.

Plans to recruit volunteers to distribute refuse bags (during key times) to coastal visitors were put on hold due to public health concerns and social distancing guidelines.

Evaluating our intervention

The shift in our plans as a result of Covid-19 meant that we had to develop and deploy our intervention and design our evaluation approach in a very short space of time. This required pragmatism and flexibility in order to determine the most appropriate and proportionate method for evaluating our intervention, whilst retaining the original intended outcomes for the project.

In conducting the scoping report for the project, we determined that the problem of littering in the New Forest has two distinct dimensions to consider. The first was the actual prevalence of litter discarded in the forest/coastal areas, and the second was public and stakeholder perceptions of litter in the area and the council's efforts to address the issue. The issue of coastal litter – and perceptions of it – were heightened as a result of local challenges experienced by neighbouring areas which experienced major public order and littering problems as lockdown was eased. National news coverage regularly reported the large number of 'staycation' tourists flocking to local beaches as they emerged from lockdown, placing the issue firmly on the public (and political) radar.

The intended outcomes of the project were defined as:

1. A reduction in litter volumes in the area – specifically in the three coastal areas which were identified as littering hotspots during the pandemic
2. Raised awareness of the council's efforts to tackle littering among the public and key stakeholders
3. Public perceptions that littering has reduced (or not increased) in the area – ideally as a result of the council's efforts to address this.

An additional outcome related to the project introducing a new approach to litter reduction and a new way of working to the council:

4. To equip the Council with the resources and capacity to deliver ongoing insight-led litter reduction initiatives.

We decided to adopt a range of evaluation methods, combining both quantitative and qualitative data, in order to provide a higher degree of confidence in the results. Combining different methods and types of data enabled us to test and validate findings from one method/source with another, and to capture some deeper understanding of the effectiveness of our intervention on our intended outcomes.

A range of metrics were available from the Council that we were able to draw on. These included weighbridge data; visitor numbers (as measured by visitors to the public toilets and car park revenue) and the number of rubbish bags distributed as part of our intervention.

To supplement these quantitative data, we conducted a community survey (as we had done during the insight-gathering phase of the project) and also used a combination of surveys and interviews with a range of stakeholders including Parish and Town Councils, Councillors and waste collection operatives.

Perception measures were used to supplement (and validate) the available quantitative data. We used the results from the community survey conducted in autumn 2019 as a baseline measure to compare against (whilst recognising that other factors may also influence any observed changes).

Findings

The trailers were positioned at our three sites at the end of July until September[2], along with the intervention posters and free refuse sacks. For evaluation purposes, July was our pre-intervention (comparison) period and August was our intervention period.

Numbers of refuse bags distributed

During the intervention period (August) a total of 6,750 bags were taken by members of the public. This equates to 73 bags per site per day - approximately one roll every two days at each location.

Council staff, stakeholders, and our own observational research on two site visits during the intervention period, reported that the bag dispensers were well stocked and that bags were available throughout the intervention period.

Litter volumes

To understand whether our intervention had impacted on the amount of litter discarded at the three coastal sites, we compared litter volumes collected during our pre-intervention period (July) with the amount of litter collected during the intervention period (August). However, in order to take account of one of the major factors which we might expect to result in variations between our pre-intervention and post-intervention period, we sought to quantify the number of visitors to our 3 sites throughout the trial period. By taking account of differences in visitor numbers, we are able to make a more accurate comparison of litter volumes in the pre-intervention and intervention periods.

Whilst not official visitor numbers are collected, two metrics were available that provided useful proxy measures for the number of visitors to the New Forest coastal areas where our intervention was deployed. These were:

- Number of users of public toilets in close proximity to where the intervention posters were sited, and;
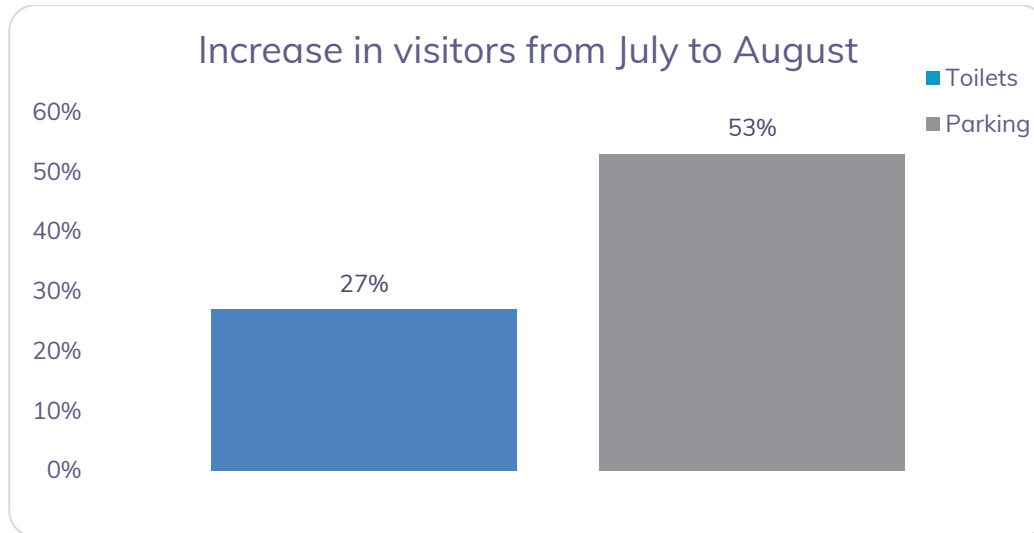- Revenue collected in car parks at the intervention sites.

For both of these metrics we compared the figures for July 2020 (the pre-intervention period) with the numbers for August 2020 (our intervention period).

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[2] Due to logistical considerations the trailers remained in situ until the middle of October. However, the trial period concluded at the end of August and data were only evaluated up to this point.

Between July 2020 and August 2020, we saw a significant increase in visitor numbers across both these metrics:

Parking revenue rose by 53% between July 2020 and August 2020 at the public car parks adjacent to the intervention sites.
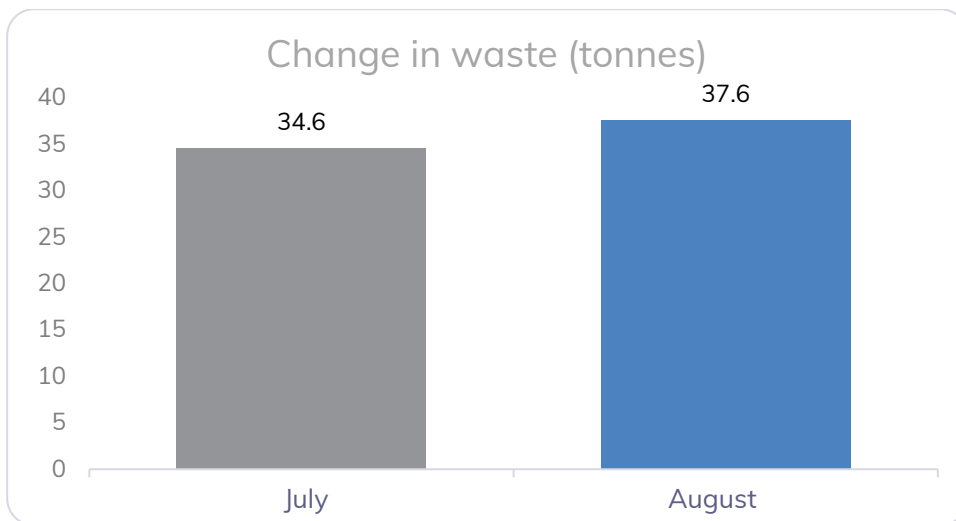
Average daily toilet visits rose by 27% from July 2020 to August 2020. Data were available from two sites, where public toilets were adjacent to our intervention sites. In July there were an average of 679 visitors per day (across both public toilets), while in August the figure was 860 visitors per day.

The mean (average) of these two figures were used to create a single metric for the purposes of analysis – which suggests that visitor numbers increased by 40% from July to August.
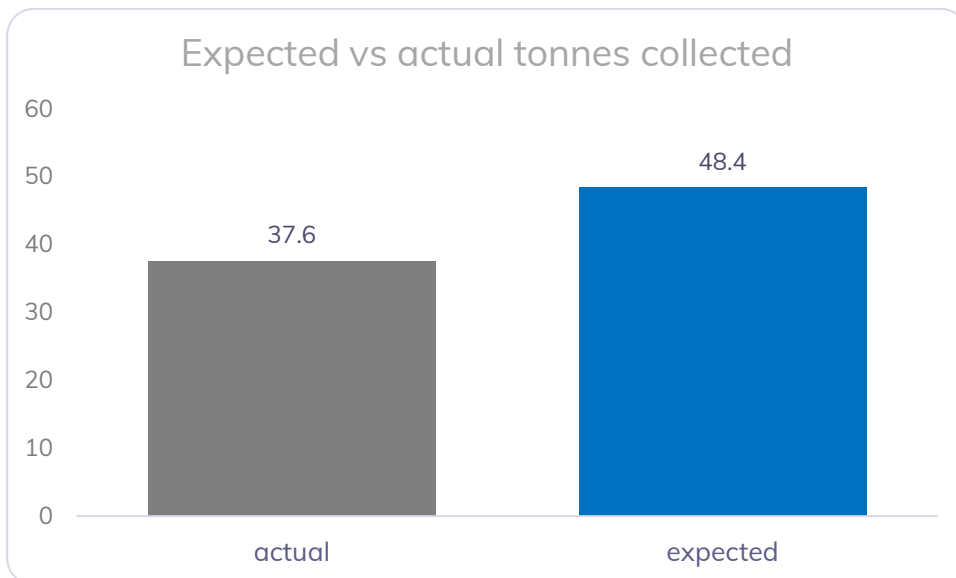
Litter volumes were measured by weighbridge data, which records the deposits by individual waste vehicles at the waste processing centre. We were able to isolate waste collected from our intervention sites on a daily (or round) basis to accurately calculate the amount of litter collected from our intervention areas during the intervention and pre-intervention period.

We compared total waste collected from the three intervention sites during July (pre-intervention) with those collected during August (our intervention period). Waste collected from the intervention sites in July totalled 34.6 tonnes, whilst waste collected in August was 37.6 tonnes.

Change in waste (tonnes)

Whilst total waste increased during our intervention period, when we take into account the significant increases in visitor numbers the picture changes considerably.

Based on an estimated increase in visitor numbers of 40%, we would have expected to see an equivalent increase in litter volumes. If this was the case then the total expected volume of litter should have been 48.4 tonnes, 10.8 tonnes more than was actually collected.

Expected vs actual tonnes collected

We therefore estimate that the coastal litter intervention reduced the amount of litter discarded by 10.8 tonnes over the one month intervention period.

This represents a reduction in litter of 29%.

Perceptions of litter and littering

A survey conducted after the intervention period, provided valuable insight into perceptions among the general public of litter in the area and the council's efforts to tackle it.

As part of the insight gathering phase of the project, we administered an initial survey to residents of the New Forest in order to inform the design of our intervention.
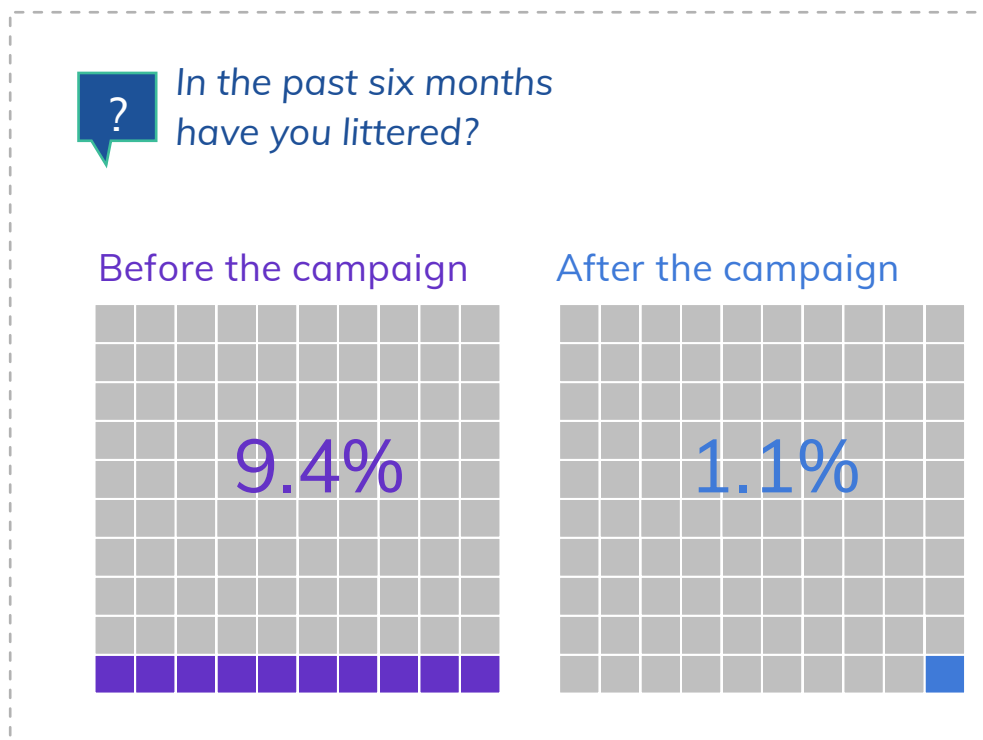
The survey included a range of questions to measure general attitudes and perceptions towards littering. Nevertheless, a significant number of questions specifically measured littering from vehicles – rather than beach littering – since this was the initial focus of the project.

However, the two surveys – the one before and the one after the campaign – did include a number of identical questions. This allows us to perform a comparison analysis to see how things changed before and after our intervention.

It should be noted however that conclusions of causality – whether our intervention caused a shift to people's perception about littering - should be interpreted with caution.

Litterers

In comparing the number of participants who admitted to littering, we found a considerable difference between the two surveys.

In the past six months have you littered?
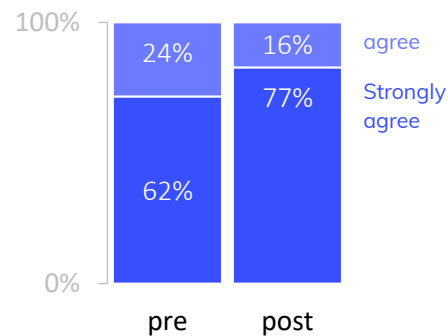
Before the campaign — 9.4%

After the campaign — 1.1%

Although this is a significant decrease in the percentage of people who admitted to littering, we should be cautious in interpreting this. Research has shown that when people are asked in surveys to report on their littering behaviour, the majority do not tell the truth - the two key reasons being social desirability and difficulty remembering their past behaviour. However, the gap between actual and self-reported littering behaviour would have been present in both the pre-intervention and post-intervention surveys and so the observed reduction in the two responses is still noteworthy.

Comparisons in the responses to questions on perceptions of littering between the two surveys are also interesting to note. We asked people whether they agreed or disagreed with six statements in order to understand their attitudes towards littering. Comparing the results across all six perception measures we found a positive change between the pre-intervention and the post-intervention results.
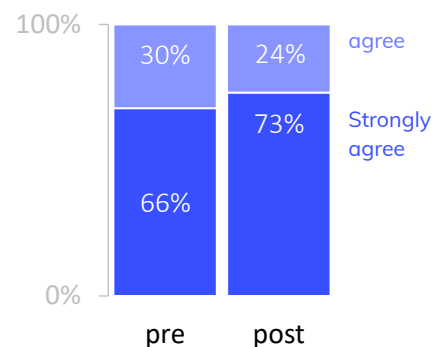
'The is never an excuse for dropping litter.'

We observed an increase of almost one quarter (24% - 15 percentage points) in the proportion of people that said they strongly agreed there was never an excuse for dropping litter. The overall proportion of those who agreed or strongly agreed also increased from 86% to 93%.
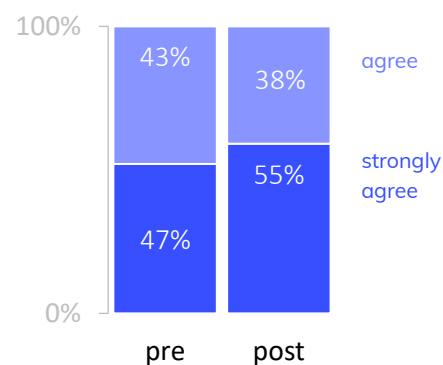

'I take pride in where I live.'

Whilst the overall proportion of those who said they took pride in where they lived remained fairly constant (96% pre vs 97% post) we did see a 7 percentage point increase in those who strongly agreed in the post-intervention survey.
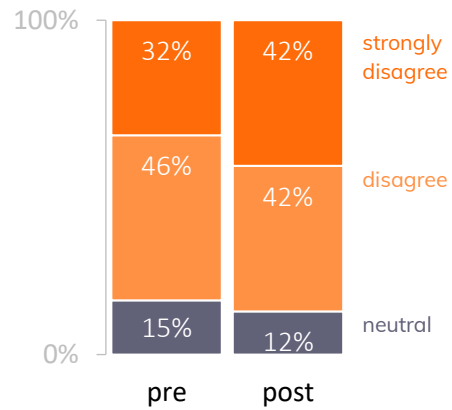

'I try to live my life in an environmentally friendly way.'

Again we found an increase in the proportion of respondents expressing strongly held views in the pre and post intervention results. There was a 17% increase in the proportion saying they strongly agreed, whilst the overall proportion that agreed increased by 3 percentage points.
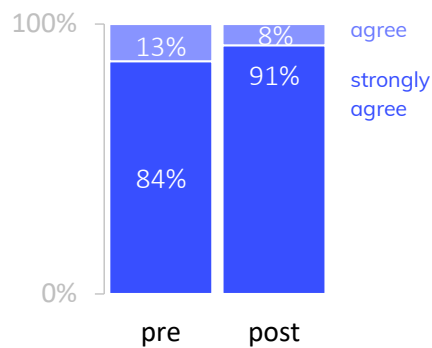
'If other people litter it's not my problem.'

We observed an increase of over 30% from the pre-intervention survey in the proportion of respondents who strongly disagreed that litter was not their problem. While the proportion that disagreed or strongly disagreed increased from 78% before the intervention to 84% afterwards.
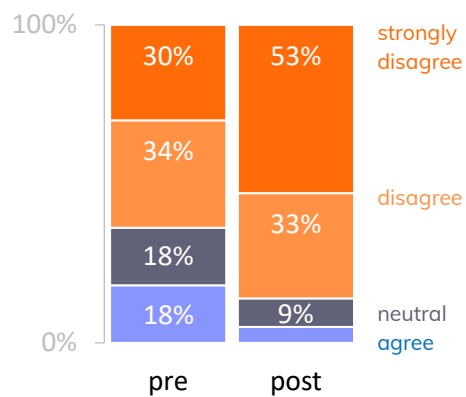

'I believe people who litter are inconsiderate.'

There was an increase of 7 percentage points in the proportion of respondents who strongly agreed (91% vs 84%) from the pre to the post-intervention results. Post-intervention 99% of respondents either agreed or strongly agreed that litterers were inconsiderate.
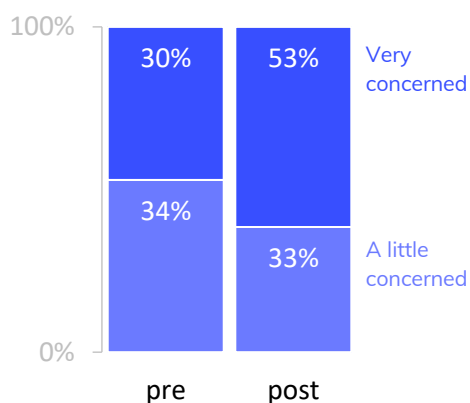

'It's ok to litter as long as the item is biodegradable.'

Attitudes towards biodegradeable litter was the perception statement that most split opinion in our pre-intervention survey, however attitudes appear to have shifted notably post-intervention. Those who strongly disagreed increased by 77% - rising from 30% to 53%.

'How concerned are you about litter in the New Forest?'

Concern about litter in the New Forest appears to have significantly grown, with an increase of 77% in those who say they are very concerned, between the pre and post-intervention surveys. The proportion of those who said they were a little or very concerned also rose from 64% to 86%, an increase of 34%.

Our post-intervention qualitative interviews with stakeholders also highlighted positive perceptions of the activity.

6 of the 7 stakeholders and operatives we heard from said they felt littering had been reduced during the intervention period. Although one stakeholder said they felt the amount of litter had stayed the same, they went on to say how littering had been a major issue in the pre-intervention period and commented on the fact that it had not increased. Given the significant increase in visitors seen during the intervention period, the evidence would support the view that littering not increasing could be considered a positive outcome.

"Busy summer holiday meant more visitors and more litter. The campaign helped not to increase litter further at Milford. It was a particular problem in May and June straight after lockdown"

"We didn't have the amount of litter that we've had in previous years even with the influx of visitors to the area."

"The beach appeared visibly cleaner."

"Given this year we have a huge number of visitors – I have never seen Calshot so busy – we didn't have as much litter as I expected at all."

Stakeholders told us that they felt that offering free bags made it easier for visitors to take their rubbish home with them. While some suggested that rather than taking the filled bag home they placed it in the bin, this is still a significant improvement on littering; street scene operatives commented on the initiative having a positive impact on their workload:

"Most people don't have their own litter bag or even think to bring a bin bag. So it's easy for them to collect the bags and put their litter in."

"Made it easier to do my job"

"People used the bins more but only a few took it [their rubbish] home"

One interviewee rightly touched on the fact that we cannot be wholly certain that the observed effect and perceptions are solely a result of our intervention, but nonetheless felt confident that there had been a positive impact.
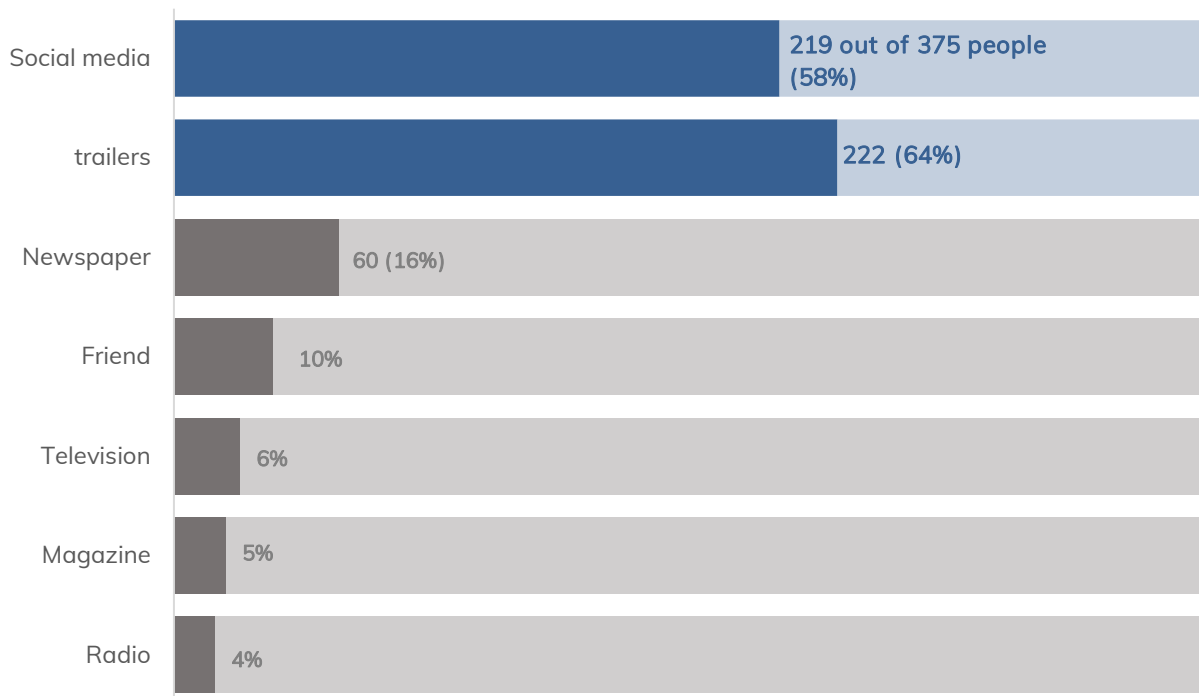
"...you can't say if that's [reduction in the amount of litter] solely the bags or not but I do think it had an effect."

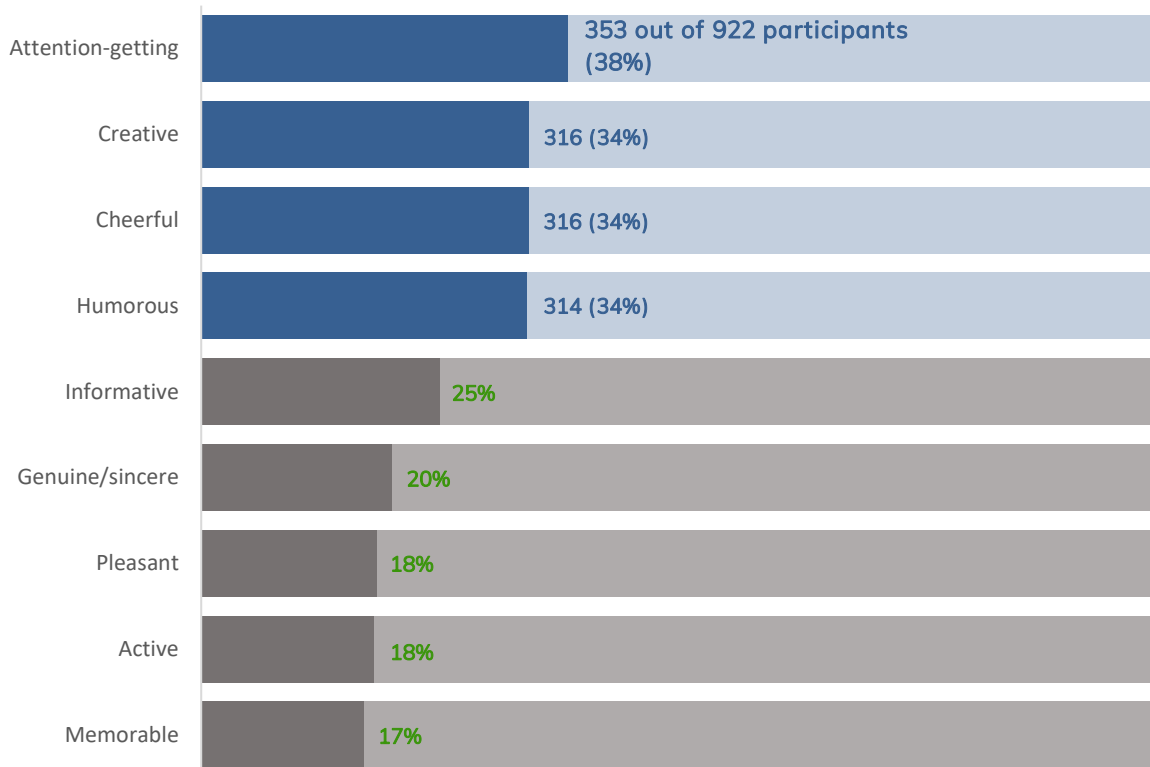# Perceptions of the Council's approach to tackling litter

When we asked people whether they were aware of any local litter campaigns during the summer 2020, the majority said they were (58% 'yes'), whilst only 47% said they were unaware of any local initiative.

A significant proportion (41%) of participants said that they were familiar with the #Crabby Coastal Litter Campaign.

Among those who were aware, the majority of the participants had seen either the #Crabby Coastal Litter trailers/billboards (59%) or heard about it through 'social media' (58%). Other sources accounted for significantly fewer instances of awareness.

Participants were shown a photo of our intervention poster and asked to select from a list of words which ones would they use to describe the ad to a friend. 'Attention-getting' was the most frequently selected word (selected by 38% of respondents), followed by cheerful, creative and humorous – which were all selected with the same frequency (34%).

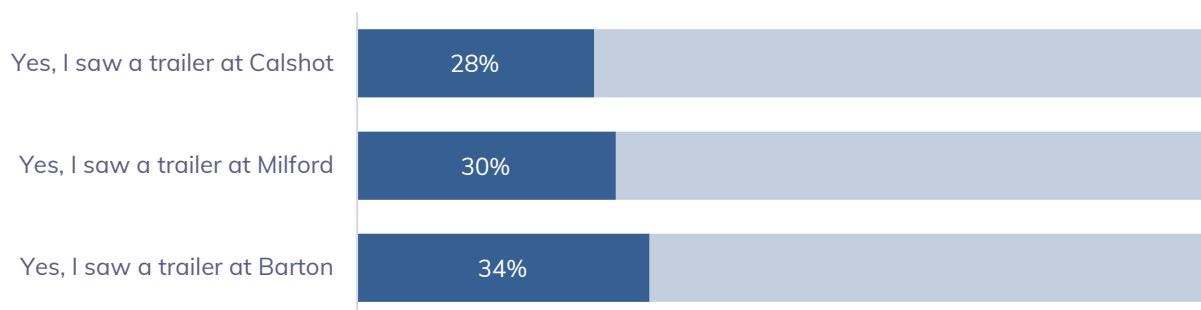|		
Attention-getting		353 out of 922 participants (38%)
Creative		316 (34%)
Cheerful		316 (34%)
Humorous		314 (34%)
Informative		25%
Genuine/sincere		20%
Pleasant		18%
Active		18%
Memorable		17%

While a significantly smaller number of respondents used fewer positive words – such as silly, immature and bossy – these do not detract from the intended salience and deliberately playful intervention approach.
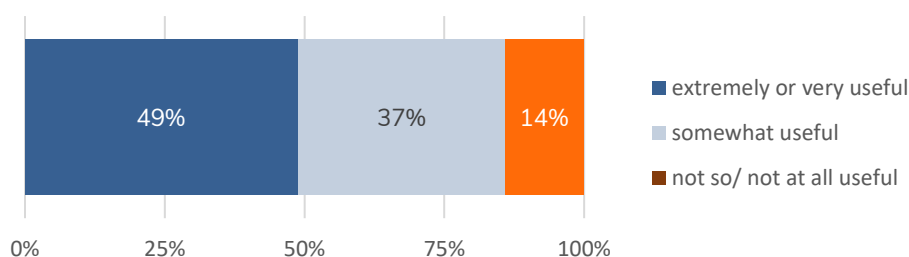

Word cloud of most frequently used words to describe the #Crabby intervention

Participants said they had seen the intervention posters at all three locations, although Barton was the most frequent (34%), whilst fewer people had seen the trailers at Calshot.

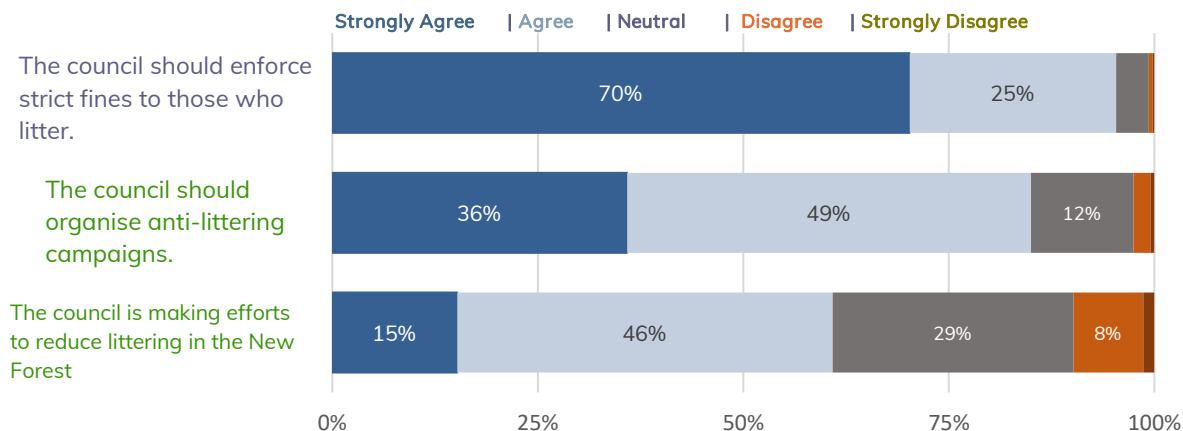|	
Yes, I saw a trailer at Calshot	28%
Yes, I saw a trailer at Milford	30%
Yes, I saw a trailer at Barton	34%

The great majority of the participants (86%) found the litter dispenser bags to be generally useful and almost half (49%) of the participants from the total sample found the bags to be *extremely useful or very useful*. Only about 1 in 10 (14%) felt that the bags were *not useful*.

We consider this to be the most important and positive finding from the survey. Our aim was to make the desired behaviour (disposing of litter in bags) easy for people by providing them with litter bags. This finding is in line with an important principle of behavioural science; which assumes that by making things easy for people to perform a desired behaviour, we then increase the likelihood for people to act in the intended ways that an intervention aims to achieve.

49%	37%	14%

■ extremely or very useful
■ somewhat useful
■ not so/ not at all useful

When asked about their perceptions of the council, it was clear that the majority of participants recognise the council's efforts to tackle littering in the New Forest: 2 in 3 participants (61%) either *agreed* or *strongly agreed* that the council is making efforts to reduce littering, whilst only 8% *disagreed* and only 1% *strongly disagreed*.

Moreover, more than 9 out of 10 participants felt that the council should strictly enforce fines on those who litter, and 85% *agreed* or *strongly agreed* that the council should organize anti-littering campaigns.

The council should enforce strict fines to those who litter.	70% 25%	
The council should organise anti-littering campaigns.	36% 49% 12%	
The council is making efforts to reduce littering in the New Forest	15% 46% 29% 8%	

0%   25%   50%   75%   100%

Stakeholders were overwhelmingly positive about the coastal littering campaign saying they felt it had been publicly visible and had had an impact on perceptions of the council in its efforts to tackle littering.

"The style of the #Crabby was eye catching."

"#Crabby was good, I got the humour with the pincers. I have a litter picker and my husband took a picture of mimicking the crabs' pincers!"

"It was a fine campaign."

Those we interviewed were also unanimous their view that the public's reaction to #Crabby had been positive.

"I think the council did their best to encourage the right behaviours and put the message out there."

"I say 'the council have provided this' and people are impressed"

"It was a good initiative; we have never had something like that before. It brought littering to the attention of the visitors"

"I think it's a memorable slogan, the graphics and design of the posters were bright and colourful, but also had some humour."

"It was fun and people could relate to it and was a very good reminder"

Comments on social media – where the initiative was highlighted – were also positive about the #Crabby intervention:

"Good idea. The bottom line is that whilst people should take their litter home, too many people don't. This is a compelling solution that is kid-friendly and will

maybe make an activity out of some rubbish picking. Some of the piles of rubbish left on beaches during recent hot days have been appalling."

"Keep up the positive work @newforestdistrictcouncil in my opinion, you're providing solutions that responsible people can work with. 👍"

Although some questioned why providing bags for people to put their rubbish in was necessary, others recognised that the reality is that they don't (bring their own) and so adopting a more pragmatic approach was sensible:

"Not sure why they need a bag, they must have brought it to the beach in a bag...take it home in the same one."

"absolutely...of course they should...fact is some of them don't."

Although some questions were raised about the appropriateness and sustainability of supplying single-use plastic bags, the vast majority of stakeholders and operatives felt they were useful and that people had used them.

"some residents were upset because we were using single use plastic bags, and thought people should be taking their own bags, which evidence previously shows they weren't."

"I think that the bags were brilliant. It's no good asking people to pick up litter if there is nowhere to put it."

Conclusions

Reducing Littering – Coastal Litter Intervention

We recognise that there are limitations to the evaluation of our intervention, compared with more rigorous methods such as RCTs. The challenges of randomising our sample and tracking outcomes with only three available sites, coupled with the need to design and deploy our intervention at pace meant an RCT was not viable. Nonetheless, the combination of qualitative and quantitative evidence and of multiple sources all pointing to a similar conclusion suggest we can be confident in the observed findings.

We feel that with such a strong observed effect, and in the absence of any known reasons why the amount of litter dropped per person would significantly vary from July to August, we feel it is unlikely that these limitations can explain the significant variation between our intervention and comparison results. Supporting evidence from the community survey and stakeholder interviews all affirm the effectiveness of the intervention. Consequently, we conclude that the intervention was effective in reducing coastal litter.

Whilst coastal litter is something of a seasonal problem, it's worth noting that the results seen were achieved over a single month (albeit the month with the most seasonal littering in the year) in just three locations.

Cost Benefit Analysis

Since the direct costs of waste collection are relatively straightforward to quantify, it is possible to calculate the financial saving produced by the reduction in litter.

The cost of collecting the additional litter has been calculated at £950 per tonne (see calculations and assumptions below).

An additional 10.8 tonnes of litter would cost the Council approximately £10,261 to collect.

Calculations and assumptions
- The daily cost of one operative and one vehicle is £187.
- To collect 10.8 tonnes of litter over the course of a month, would require 1.77 full-time operatives and a waste collection vehicle.
- This equates to a cost of £468 per day.
- Multiplied by 31 days during August equals £10,261.

We recognise that these figures do not take into account the costs of delivering the project. However, we would argue that the vast majority of these costs were upfront costs required to develop a new approach to reducing litter across the District, and that future costs would be marginal.

These figures represent the estimated direct cost savings across the three intervention sites for one month only. If these effects were sustained across the course of a year (notwithstanding the fact that there is a seasonal increase in litter during the Summer when our intervention was carried out) and could be realised across the entire district, then the savings would be significantly higher.

Given that the Council spends over £1.5m each year on Street Scene services[3], a similar reduction in litter over just the summer months across the whole District could result in annual savings of £72,000[4].

Whilst it may not be realistic to expect to see a similar reduction across the whole of the District, these figures illustrate the significant financial benefits that relatively small reductions in littering can realise.

Nonetheless, it is important to recognise that the project aimed to achieve more than simply evaluating the effectiveness of a single intervention. It sought to improve perceptions about littering and the Council's efforts to tackle it and to provide an adaptable multi-year framework that could be used in a variety of ways in the future.

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[3] Street Scene includes: manual and mechanical sweeping, litter picking, the provision and emptying of litter and dog waste bins, the collection and removal of fly-tipped waste
[4] Figures are based on 29% reduction in Street Scene costs across July and August (i.e. one sixth of the year).

Improving perceptions – community perspectives of littering and the Council

Awareness of the intervention, as reported through the community survey was very high – with over half saying they were aware of local initiatives and 4 of out 10 saying they were aware of the #Crabby coastal litter campaign. These figures compare very favourably with marketing and brand awareness levels typically found in commercial sector advertising.

The ways people described the intervention materials – based on the words which were most frequently selected to reflect them – suggest that the intervention resonated with our target audience. They accurately reflect the underlying brand strategy for the intervention design – as outlined in the creative brief – which was to use a creative and cheerful brand logo (Crabby) coupled with a humorous statement ('Don't make me crabby) in order to draw people's attention. This aligns well with the most frequently used words used to describe the intervention materials: 'Grabbing attention', 'creative', 'cheerful' and 'humorous'.

Responses to the survey strongly indicate that New Forest residents perceive the council as an authority that is taking action, making efforts to reduce littering and that these efforts should continue. Residents and stakeholders appeared to recognise that the intervention reflected a new and positive way of engaging people with the issue of littering and felt the initiative had been well received and had a positive impact on littering.

The summer of 2020 was a unique and unusual time with the country emerging from a national lockdown and large numbers of people visiting the New Forest. There was a real possibility of litter volumes increasing to unmanageable levels, as was witnessed in a number of other national parks and seaside locations across the country.

Based on the evidence available, the use of a salient and behaviourally-informed intervention, deployed in a timely way, positively contributed to avoiding a huge rise in littering and raised awareness of the council's efforts to practically and creatively tackle the issue.

Supporting future litter reduction activity

Developing a behaviourally-informed approach to littering represented a new way of working for the council. The project aimed to develop a framework that could be adapted and deployed in a creative and practical way to respond to a variety of challenges.

The shift in focus from littering from vehicles to coastal litter during the course of the project presented us with a real opportunity to test the Look Out for Our Forest framework in an unanticipated but highly practical way. Consequently, the identification of coastal litter as a new challenge to respond to offered an opportunity to 'road test' the framework precisely as it was intended.

The coastal litter intervention was able to be designed and deployed in the space of just a couple of weeks, adapting the 'Look Out for Our Forest' framework to create a relevant, targeted and behaviourally-informed intervention. The messaging and imagery were consistent with the overarching brand identity, but tailored to the specific circumstances and opportunity. Using a

crab instead of the owl reflected the shift from forest to beach, but retained the highly visible eyes that were a key component of the surveillance strand of the framework. The framework strapline was adjusted from 'Look Out for *Our* Forest' to 'Look out for *the* Forest' in a way that offered consistency, but was also relevant in coastal setting.

This experience suggests the framework is fit for purpose and can provide the sort of multi-year brand and concepts beneath which numerous further interventions can be developed, to move forward with confidence beyond the lifetime of the project.

Lessons learnt

The Look Out for Our Forest identity has proven to be effective as an overarching framework that can be adapted to develop interventions and messages targeted at particular groups and littering challenges. The guidelines we have produced, coupled with experience of designing and delivering the coastal litter intervention, provide a clear and practical example of how the imagery and messaging can be used in future.

We found consistent evidence, both qualitative and quantitative, all pointing to the fact that the coastal litter intervention was effective at reducing littering (and thereby saving the council money) and improving perceptions of litter in the area and of the council's efforts to tackle it.

The onus is now on NFDC to learn from the way the coastal litter intervention was adapted from the overarching identity to respond to a specific challenge and apply the approach to future litter-reduction activity.

The twin concepts of surveillance and pride in the forest within the Look Out for Our Forest identity convey both 'carrot and stick' that appeals to the non-littering majority and the minority who do drop litter. It's important to recognise that the vast majority of people do not drop litter. However, these non-litterers are an important resource to be mobilised in order to tackle litter, as reflected in our littering from vehicles intervention plans.

There are already a significant body of active volunteers that undertake regular litter clean-ups. This group, along with many other local residents, can be mobilised to support prevention as well as responsive efforts to reduce litter.

Using segmentation and developing personas represents a new way of working for the council – one that allows more targeted and insight-led approaches to be used. We believe the project has demonstrated the value of identifying specific groups and considering how best to target messages, interventions ad activities more effectively.

There is considerable scope to expand the use of audience segmentation and personas across other service areas to enhance messaging and engagement and service design. However, this should be based on evidence and user-generated insight, rather than being simply a creative design process.

The shift in the project to focus on coastal litter meant that a number of developed intervention ideas to reduce littering from vehicles remain untested. The success of the coastal littering intervention has, we believe, provided a good proof of concept and when the circumstances allow, we recommend testing the littering from vehicle interventions.

Although we recognise it is less straightforward than some of the other ideas which were developed, we believe that the intervention to place stickers with vehicle registration numbers (i.e. number plates) on takeaway packaging is worth pursuing. This intervention has significant potential to be developed in partnership with fast food retailers and is the most innovative and potentially effective intervention.

The coronavirus pandemic has placed great strain on councils up and down the country, including NFDC, and this is likely to continue for some considerable time. Consequently, internal capacity to develop new initiatives and programmes is limited. However, this also makes new ways of working even more crucial as traditional ways of working are likely to become unsustainable.

There are genuine opportunities to develop new partnerships with community groups, retailers (particularly fast-food outlets) and residents to tackle litter. Many of these are reflected in the range of intervention ideas which were developed as part of the project, but there is also scope to develop new ideas, working collaboratively with partners.

These should extend to collaboration with Forestry England and other land owned by (or the responsibility of) other statutory partners. Since visitors to the area move freely between privately owned land, the National Park and highways which fall under the responsibility of the County Council, clearly any effort to tackle litter would be more effective if it was joined up. Whilst we recognise the restrictions and limitations of what can be done within the National Park, we believe there is real scope to extend the Look Out for Our Forest identity into forest car parks and other locations through partnership working with Forestry England.

The #Crabby intervention used salient, novel and accessible design to capture people's attention. This means that prolonged use is likely to see the effects degrade over time as people become more accustomed to seeing it. Nonetheless, we believe deploying the trailers during the summer months in 2021 (and potentially beyond that) would be effective at reducing litter.

Whilst the coastal litter intervention was effective, legitimate questions were raised about the sustainability of distributing single-use plastic bags for waste. With more time, it may be possible to source bio-degradable or compostable bags to be used in coastal areas and potentially other locations.

Appendix

- Look Out for our Forest style guide

SOCIAL
ENGINE