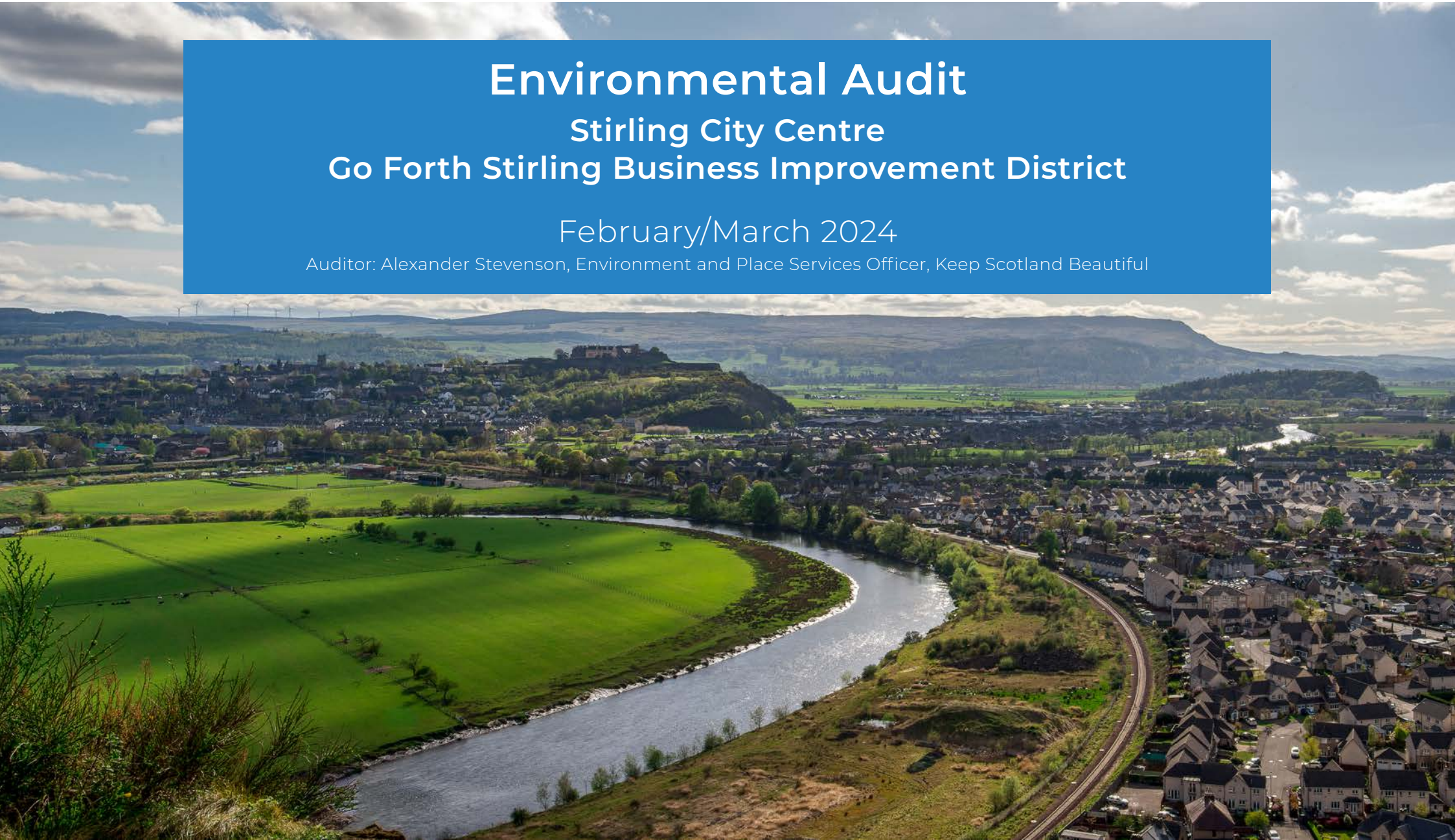


# Environmental Audit

## Stirling City Centre Go Forth Stirling Business Improvement District

February/March 2024

Auditor: Alexander Stevenson, Environment and Place Services Officer, Keep Scotland Beautiful





# Keep Scotland Beautiful

**Keep Scotland Beautiful (KSB) is your charity inspiring action for our environment.**

Our vision is for a clean, green, sustainable Scotland.

We work with you to help combat climate change, reduce litter and waste, and protect and enhance the places we care for.

We aim to change behaviour to improve our environment, the quality of people's lives, their wellbeing, and the places that they care for.

We are here to support you to fulfil and exceed your environmental responsibilities using bespoke audits and assessments and we celebrate your success with awards

We support the United Nations Sustainable Development Goals.



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# Chapter 1: Background

## 1.1. Introduction

A Business Improvement District (BID) is a geographically defined area, where businesses come together and agree to invest collectively in projects and services that will improve their trading environment. BID projects do not replace services that are already provided by the local authority or statutory bodies.

As part of the BID five-year plan (2022-2027), Go Forth BID have procured Keep Scotland Beautiful to provide an independent environmental audit of the BID area as a priority noted within the plan.

Environmental audits conducted by Keep Scotland Beautiful are underpinned by the legislative requirements outlined under Section 89 of the Environmental Protection Act 1990 and the Code of Practice on Litter and Refuse (Scotland) 2018. Using the definitions of cleanliness defined within the Code allows for consistent measuring of local environmental quality across Scotland.

Keep Scotland Beautiful has an established history of providing environmental audits through our national local government street cleanliness programme; Local Environmental Audit and Management System (LEAMS). Keep Scotland Beautiful has also supported a range of innovative solutions through infrastructure, education, community engagement and nudge behaviour change.

Since the publication of the Scottish Government National Litter and Flytipping strategy in 2014, Keep Scotland Beautiful has been working closely with Zero Waste Scotland to develop and roll out a Litter Monitoring System (LMS) under open government license for all duty bodies, statutory undertakers and stakeholders to use.





## 1.2. Aims

The project has three aims:

- 1 Quantify the environmental quality of the Stirling City Centre Business Improvement District area.
- 2 Provide a summary of the findings and recommended next steps.
- 3 To establish a monitoring tool/system for Go Forth BID to continue quantifying and measuring the impact of environmental quality management strategies at site.

## 1.3. Objectives

In order to meet the project aims, a number of objectives have been set:

- 1 Provide spatial context in the study area for key attributes linked to the project.
- 2 Quantify litter and other local environmental incivilities in the study area.
- 3 Observe and note any litter behaviours.
- 4 Monitor servicing of public use litter bins.
- 5 Evaluate any trade waste bin issues with focus on access for public, placement, presentation (including appropriate timing) and storage.
- 6 Link findings to public perception of area.
- 7 Provide a monitoring tool for Go Forth BID longer term.



#### 1.4. Study area

The project concentrates on the streetscene within the BID boundary area. The area is sub divided into five study areas, with area 1 classed as the focus for the project due to the density of businesses, activity and footfall and will be audited through each of the project phases. The other four areas will also be audited but not as intensively.

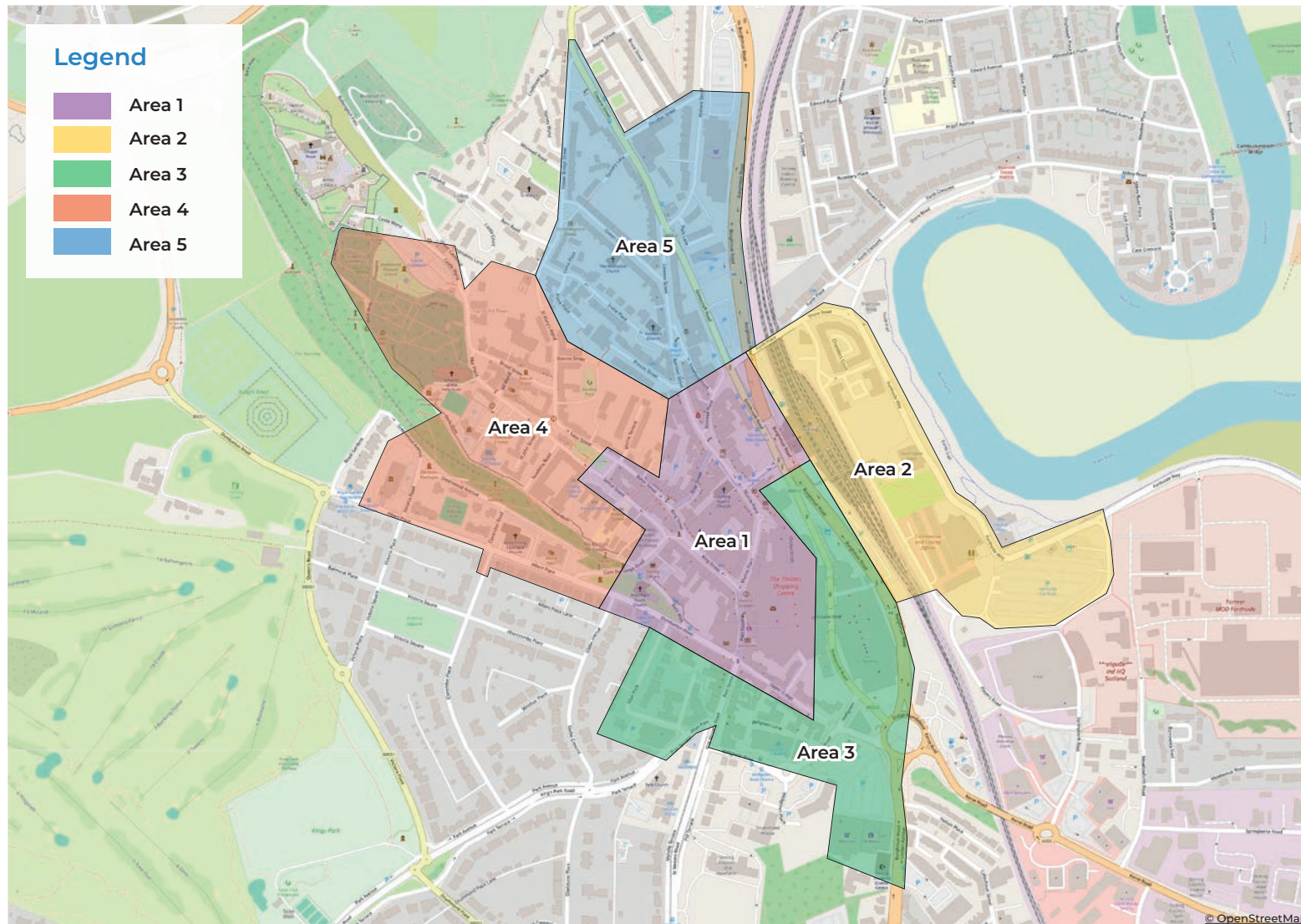


Figure 1: Map of study area





# Chapter 2: Methodology

## 2.1. Timeframe

An auditing schedule was set up, to take into account, where possible, any variations to allow for an average measure of the environmental condition, and opportunity to observe as many factors influencing the quality of the area. Audits were conducted to include primarily the working week daytime economy, but some inclusion was also given to nighttime economy and weekends.

Date	Time	Areas audited	What as audited
11/2/24	11am to 1pm	1, 2, 3, 4, 5	Public bin locations and condition
13/2/24	10am to 3pm	1, 2	Measurement of litter and other local environmental quality indicators using the Litter Monitoring System (LMS), Servicing of public use litter bins, presentation of trade waste bins, observation of any littering behaviours, observation of any other issues affecting the quality of the study area
14/2/24	10am to 3pm	1, 3	
15/2/24	9am to 2pm	1, 4	
19/2/24	10am to 2pm	1, 5	
24/2/24	11am to 2pm	1	
27/2/24	7pm to 10pm	1	
28/2/24	1pm to 4pm	1	
01/3/24	10am to 1pm	1	Location map of significant issues in focus area

Table 1: Audit schedule

## 2.2. Sampling

This section discusses sampling methodologies for objectives 1 through 6.

### 2.2.1. Objective 1 - Provide spatial context in the study area for key attributes linked to the project

In order to gain a spatial understanding of the litter challenges, digital layers of related assets for managing litter and location of issues within the study areas were mapped using GIS software. All digital layers are available as part of the project deliverables.

### 2.2.2. Objective 2 - Quantify litter and other local environmental incivilities in the study area

This project uses the measures defined within the Code of Practice on Litter and Refuse (Scotland) 2018 to quantify litter levels. The established LEAMS national monitoring programme methodology, for measuring streetscene quality, has been adapted for the purposes of this project to both provide confidence in the approach and consistent data that can be related to wider datasets.

The method sets out a principle of random site selection within the study areas, comprising of a 1000m<sup>2</sup> area transect, with the most littered 100m<sup>2</sup> selected for counting as per the Code of Practice guidance. If there is not an obviously littered area within the transect, an area is chosen which is representative of the more littered parts, or representative of the whole area if all the same.

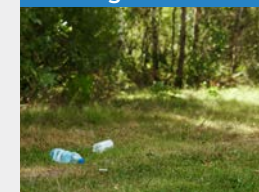
All litter items counted within this area are split by small and large items. Large items are defined as bigger than a credit card, small items as smaller than a credit card, any items counted that are smaller than a cigarette end are disregarded and treated as detritus.

#### Litter and refuse grade A



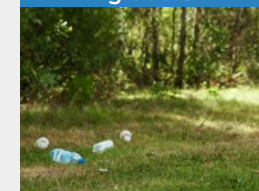
**No litter** or refuse is present on any type of land.

#### Litter and refuse grade B



**Small amounts** of litter and refuse. As a guide, fewer than **5 large items** or fewer than **30 small items**.

#### Litter and refuse grade C



**Moderate amounts** of litter and refuse, with small accumulations. As a guide, **5 - 15 large items** or **30 - 90 small items**.

#### Litter and refuse grade D



**Significant amounts** of litter and refuse, with consistent distribution and accumulations. As a guide **16-30 large items** or **91 - 180 small items**.

#### Litter and refuse grade E



**Substantial amounts** of litter and refuse, with significant accumulations. As a guide more than **30 large items** or more than **180 small items**.

Table 2: Code of Practice on Litter and Refuse (Scotland) 2018 – Litter Grades per 100m<sup>2</sup>

Table 3 below describes the different categories of litter types counted, and provides a range of examples.

While the project is focussed on litter, understanding wider local environmental quality can provide additional insight into both littering behaviours and public perception of cleanliness of the study area. Poor environmental quality has a detrimental effect on individual behaviour, and people are significantly less likely to litter in a clean local environment than in a dirty one.

Quantifying other environmental quality indicators will be completed during one audit only as due to the nature of the indicators, they are unlikely to change over the timeframe of this study.

Litter Type	Description
Smoking-related	Cigarette ends, matches, matchboxes, cigarette packs and packaging, vape liquid containers etc.
Cans, bottles and cartons	Containers, straws and lids from non-alcoholic and alcoholic drinks but not including those from identifiable fast food / takeaway outlets.
Fast food related	Fish & chip wrappers, polystyrene containers, burger wrappers, sandwich cartons, plastic cutlery, takeaway drinks containers such as coffee cups.
Confectionery related	Sweet wrappers, chewing gum wrappers, crisp packets, lollipop sticks and easily removable chewing gum.
Paper materials	Newspapers, flyers, receipts, scratch cards, lottery tickets, ATM slips, bus/train tickets but not including confectionery wrappers.
Personal protective Equipment (PPE)	Masks and other related materials.
Coffee cups	
Plastic carrier bags	
Other	All litter types not covered above such as plastic film from unidentified sources, food items.

Table 3: Litter type categories

Using the Litter Monitoring System, provided by Scottish Government, for data collection, each 1000m<sup>2</sup> transect will be audited for a range of wider environmental quality indicators including weed growth, detritus, and gum staining – the indicators are outlined in Table 4.

Litter Type	Description
Weed growth	Defined as plants located in an undesired place – for these purposes any on pavements, including at the backline, and in channel.
Detritus (roadside channel)	This Detritus grade is only applicable to road channels. Grades should not be captured for soft-standing areas or pavements. Detritus can include dust, mud, soil, grit, gravel, stones, rotted vegetation, and fragments of twigs, glass, plastic, and other materials which can become finely divided. Leaf and blossom falls are to be regarded as detritus once they have substantially lost their structure and have become mushy or fragmented. Grades should be recorded on detritus levels where an organisation is responsible for a section of road within the 1,000m <sup>2</sup> area.
Detritus (overall)	Usually comprises a combination of dust, mud, soil, grit/salt, leaf, and blossom fall and other natural debris. This should be assessed over the whole transect (backline, path, and channel) and therefore will always be the same or worse than the detritus (roadside channel).
Flyposting	Defined as stickers or posters placed in unauthorised places and not on billboards. Unauthorised places refer to those such as buildings, bus shelters, or fence posts within the site.
Graffiti	Defined as unauthorised drawing or writing on surrounding buildings or street furniture such as benches, lamp posts and litter bins.
Vandalism	Defined as wilful and senseless damage of property which adversely affects quality of life and the environment.
Gum staining	Gum that is either adhered to the surface or has been removed and has left a staining mark.
Other staining	Other unwanted markings on hard standing areas.

Table 4: Wider local environmental quality indicator types



### 2.2.3. Objective 3 – Observe and note any litter behaviours

From the initial review of the site for this project, the main shopping areas around the Marches is most suitable to observe littering behaviour. While there is no dedicated time allocated each day, any littering behaviours observed at site while auditing for litter, trade waste bins and servicing of public use litter bins were noted.

The audit comprises of the auditor's opinion on demographic (age range), whether acting as an individual, couple or group, the behaviour observed whether positive or negative and qualitative information for reporting purposes.

### 2.2.4. Objective 4 – Monitor servicing of litter bins

All public use litter bins were located, mapped, and given a unique ID. Servicing capacity of these public use bins were based on a five-point grading scale in quarterly increments; empty, quarter, half, three quarters, and over three quarters.

Information is also provided based on the physical and cleanliness condition of each of these bins using a four-point scale; excellent, fair, poor or urgent need of repairs/cleansing.

### 2.2.5. Objective 5 - Evaluate any trade waste bins issues with focus on access for public, placement, presentation (including appropriate timing) and storage

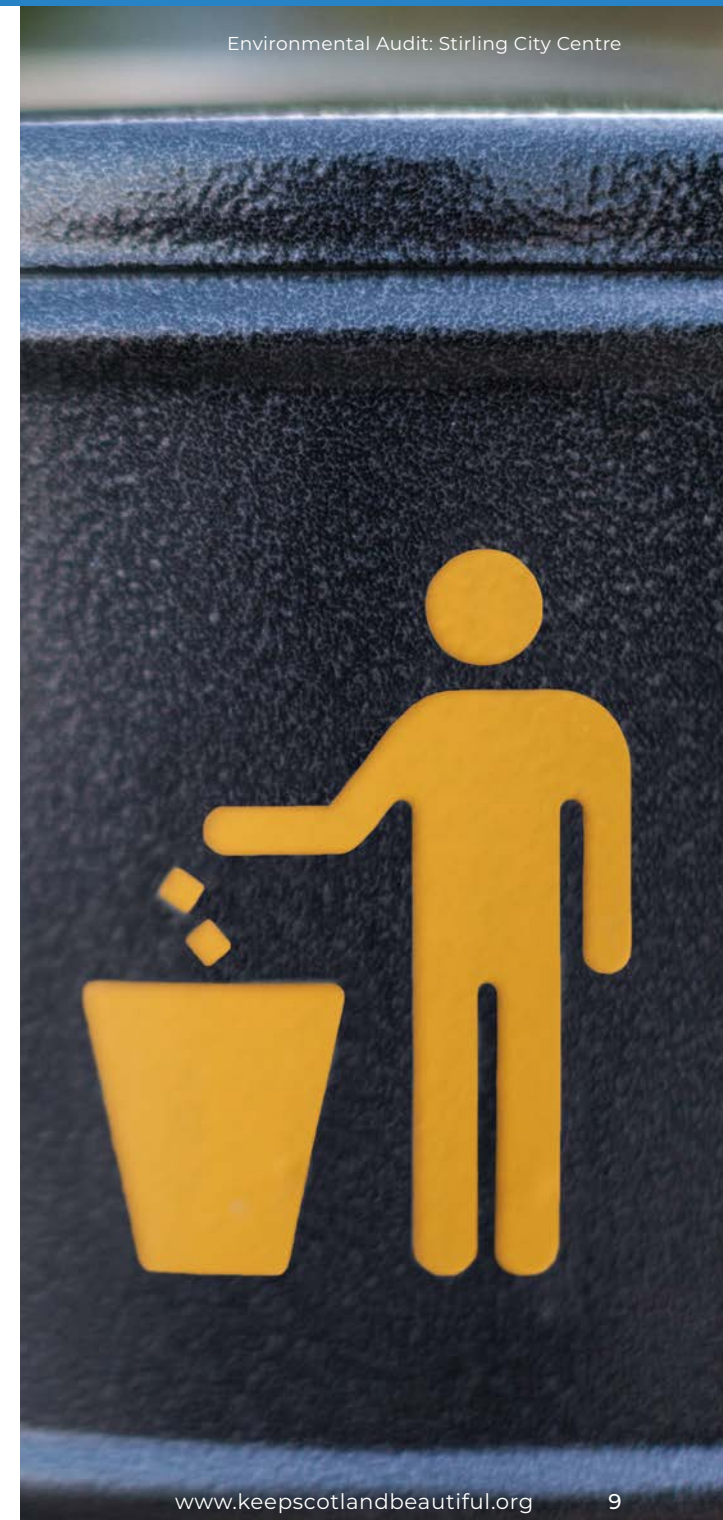
On the basis that city centre trade waste collection regulations state that bins should only be put out between 0730HRS – 1100HRS and 1700HRS – 2200HRS, observation of compliance was part of the audit.

During the audit of the streetscene, any trade waste bins visible were audited for information (contractor and business details), presentation (time), obstruction on the street for the public (none, partial or full), any side waste present and whether any escaped waste was creating a litter issue in the area.

### 2.2.6. Objective 6 – Link findings to public perception of area

From October 2023 through to February 2024, Go Forth BID provided a spreadsheet of responses to questions placed to the public visiting the area. Three questions were asked per response as follows;

1. How would you rate the overall cleanliness of the Stirling city centre?
2. What are your first impressions of the Stirling city centre?  
(based on a six grade scale of emoticons and converted to numbers 0 to 5, with 5 being most positive).
3. What aspects of the Stirling city centre do you find most appealing, and which areas or elements, if any, could be improved in your opinion?



# Chapter 3: Findings

## 3.1. Objective 1 - Provide spatial context in the study area for key attributes linked to the project

Maps are provided throughout the findings within this report highlighting key information as to the location and type of relevant asset or issue, listed as;

- Figure 2: study areas (page 10)
- Figure 4: spread of litter grades across the study areas (page 11)
- Figure 6: litter counts for smoking related litter (page 12)
- Figure 7: spread of weed growth grades across the study areas (page 15)
- Figure 8: spread of detritus grades across the study areas (page 16)
- Figure 9: spread of chewing gum grades across the study areas (page 17)
- Figure 11: other identifiable issues noted (page 18)
- Figure 13: location of public use litter bins in the study areas (page 22)

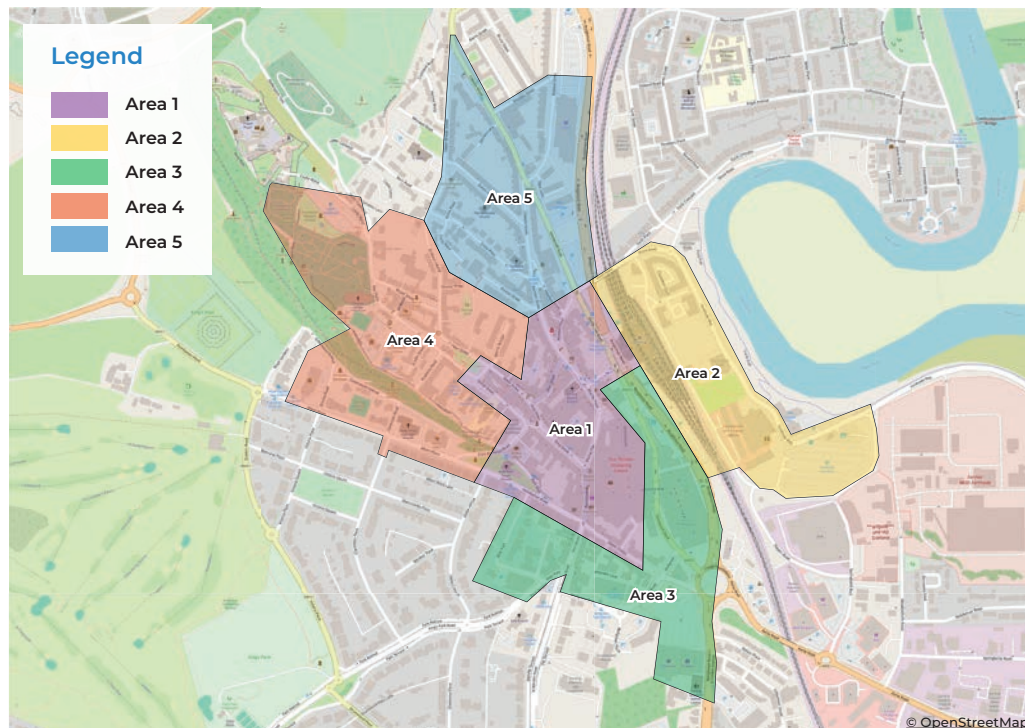


Figure 2 – study areas

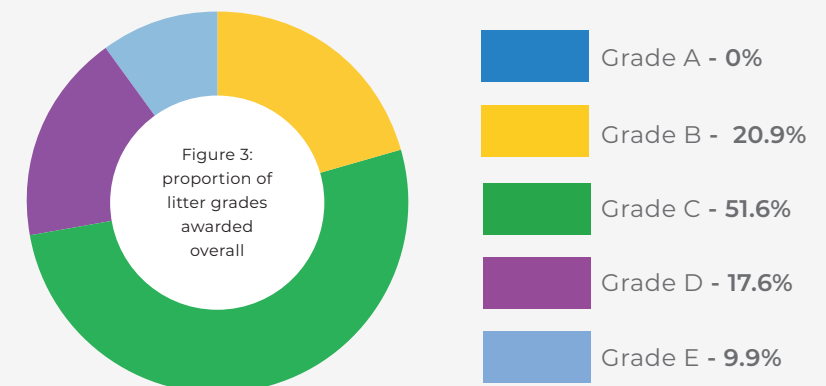
## 3.2. Objective 2 - Quantify litter and other local environmental incivilities in the study area

### Litter quantification

To effectively quantify litter and other local environmental incivilities, the study area was broken down into five areas where audits were conducted using the LEAMS national monitoring methodology.

Study area 1 has formed the largest dataset of the project representing the main location for pedestrian traffic, business, and transport links. As such, the majority of audits for litter and wider local environmental quality have been conducted within study area 1 (seven), with a further four having been conducted within study areas 2 to 5 (one audit in each).

A total of 91 sites (transects) were audited between 13th February and 28th February 2024. As expected in such a high footfall environment, none of the sites were found to be completely free of litter or refuse. 19 sites (20.9% grade B) recorded small amounts of litter, 47 (51.6% grade C) recorded moderate amounts of litter, 16 (17.6% grade D) recorded significant amounts of litter and 9 (9.9% grade E) recorded substantial amounts of litter





	Litter and Refuse Grade				
	A	B	C	D	E
Study area 1	0.0%	1.6%	68.8%	28.1%	1.6%
Study area 2	0.0%	42.9%	14.2%	42.9%	0.0%
Study area 3	0.0%	14.3%	42.9%	0.0%	42.9%
Study area 4	0.0%	83.3%	16.7%	0.0%	0.0%
Study area 5	0.0%	14.3%	71.4%	0.0%	14.3%

Table 5: Proportion of litter grades awarded by study area

In the focus area (study area 1), only **1.6%** of the 64 sites audited for litter were found to have negligible (minor) amounts of litter. Just over two thirds were moderately littered (**68.8%**) and almost a third significantly or substantially littered (**28.1%** and **1.6%** respectively).

It is important to note that these areas experience the highest foot traffic through the business hours of the day, and with this area housing numerous businesses, restaurants, public houses, and the main shopping district. These figures are slightly above the proportion of litter overall when taking into consideration the results from the other four study areas.

The sampling numbers across the other study areas were relatively low and provide only supplementary information, however, there were noted littering issues in all but study area 4 where the majority of sites were only impacted by minor litter issues.

The findings represent hotspots for litter accumulating, which may be a consequence of other local environmental quality factors influencing behaviour, or their geographical position, as highlighted in figure 4. The identification and explanation of these hotspots are explained in a further section.

Overall, **5,756** items of litter were counted, with an average per 100m<sup>2</sup> of **63.3**. The number of small items counted, those less than the size of a credit card, was **5,479** making up **95.2%** of all litter counted. Larger (and more visible) items of litter amounted to **277** items.

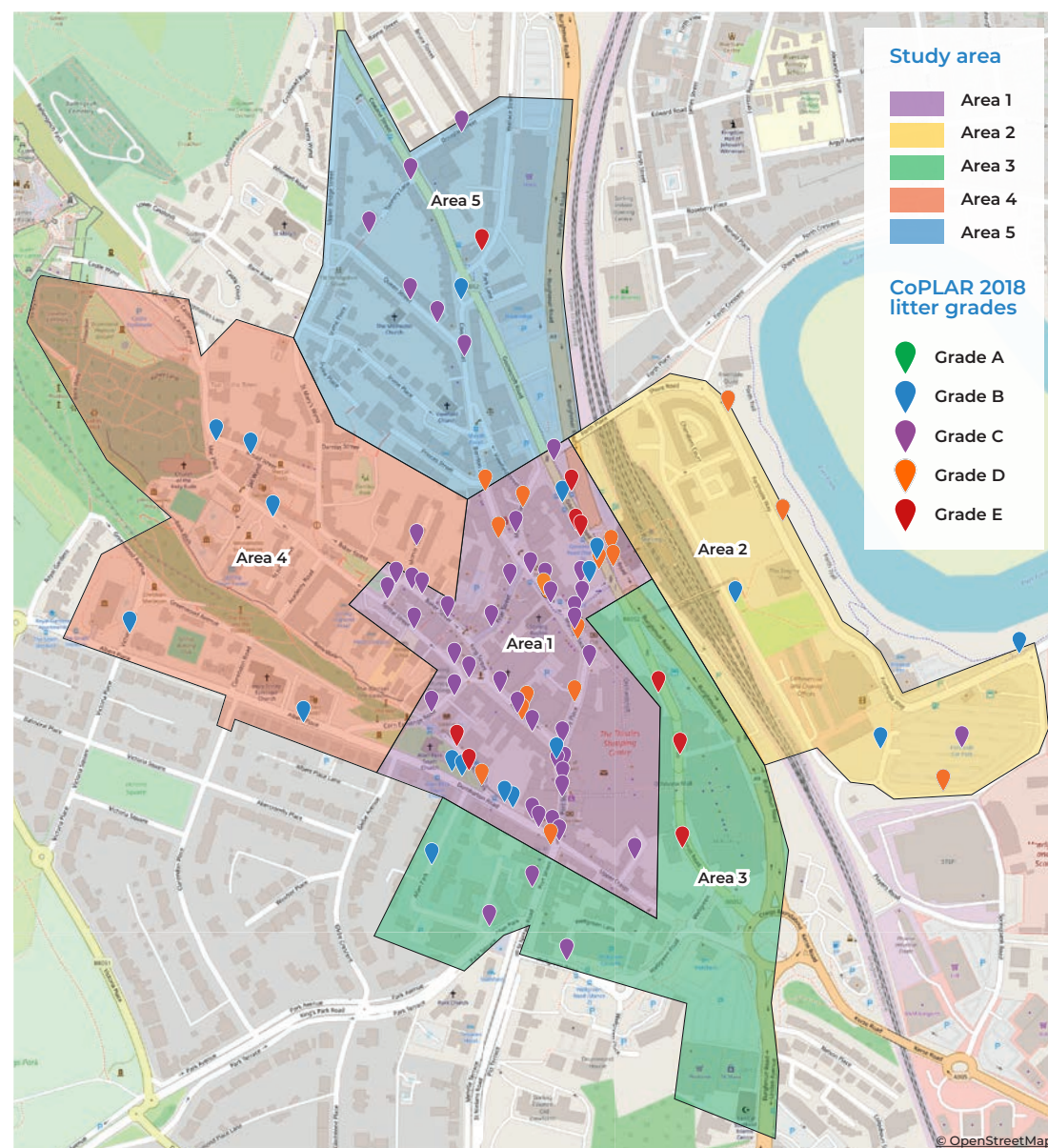


Figure 4: Spread of litter grades across the study areas



Date	Audit timing	Litter count		
		Small	Large	Average
13/2/24	Tuesday (daytime)	755	71	48.6
14/2/24	Wednesday (daytime)	1,234	59	76.1
15/2/24	Thursday (daytime)	899	20	61.3
19/2/24	Monday (daytime)	885	87	57.2
24/2/24	Saturday (daytime)	520	6	75.1
27/2/24	Tuesday (evening)	600	13	76.6
28/2/24	Wednesday (daytime)	586	21	60.7

Table 6: Litter counts by audit timing (study area 1 only)

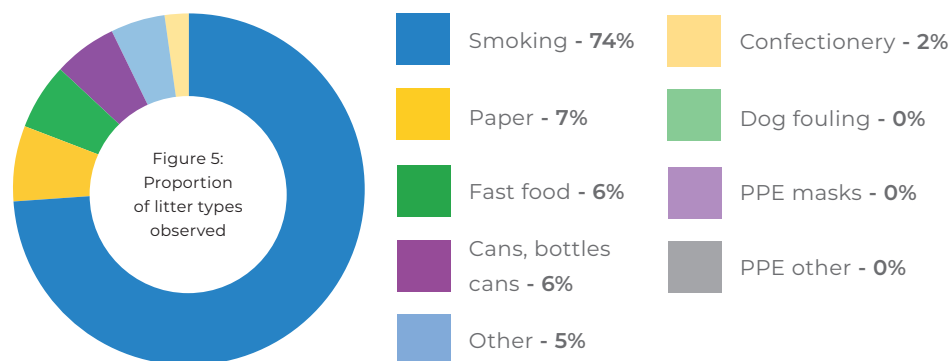


Figure 5: Proportion of litter types observed

The most common form of litter identified during the audits was smoking related, with this found in almost all (95.6%) of audited sites and making up 74.0% of individual litter items encountered. Overall, 4,195 small items (almost all cigarette ends) were found, with 51 larger items of smoking related litter found, an average count per 100m<sup>2</sup> of 46.7.

Tackling smoking related litter and the behaviour surrounding it is therefore one of the clear challenges to be addressed moving forward. Trends identified relating to where it was found included; it being discarded in disused areas, discarded around bins with effective apertures, along hard edges of buildings or at junctional areas, into areas of accumulated waste or detritus. Moreover, there was an abundance of smoking related litter found within planters of varying sizes, on Murray Place, Station Road, and King Street.

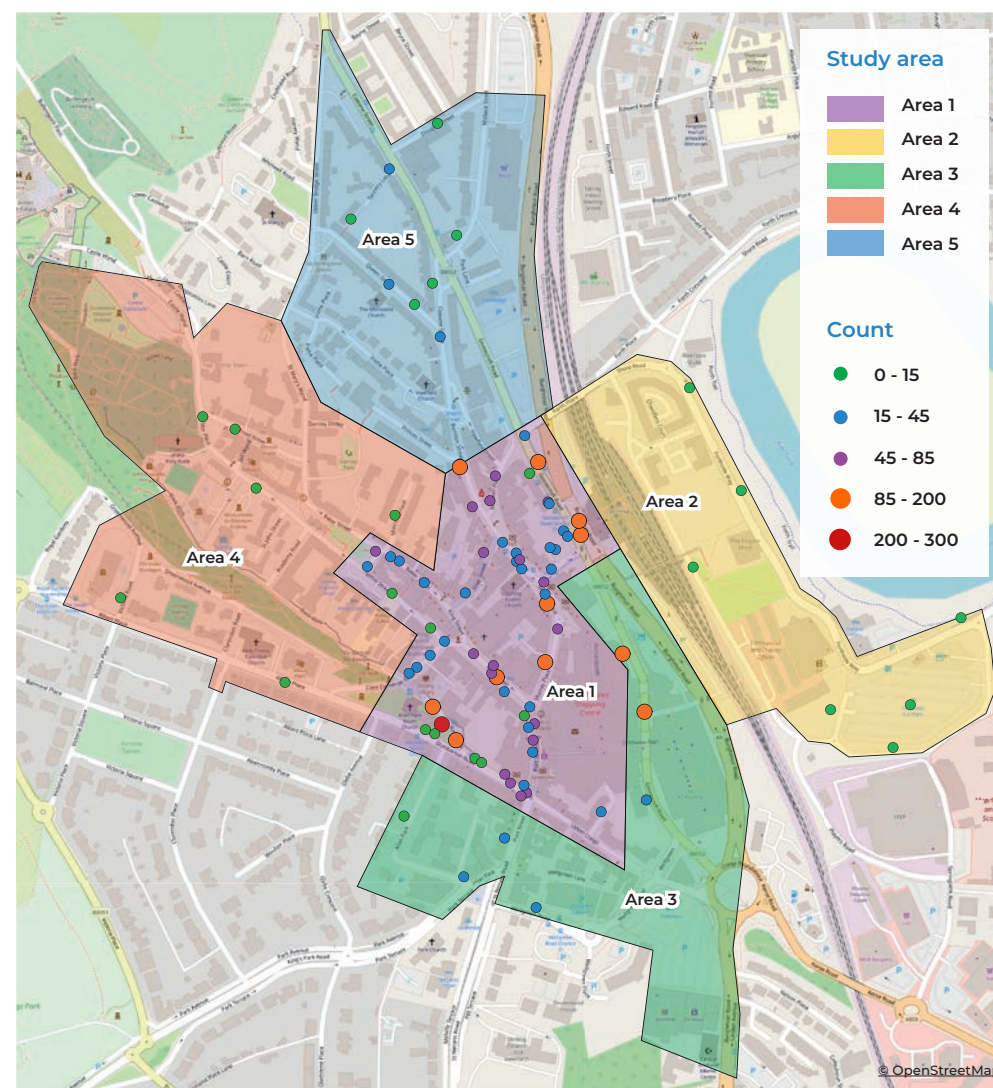


Figure 6: Smoking related litter counts





The next most identified items were paper, fast food, and cans, cartons, and bottles. Overall, it was found that **73.6%** of sites contained paper items, with **68.1%** and **47.3%** of sites all showcasing fast food and cans, cartons, and bottles respectively. For the three of these identified categories, small items of litter were found in higher numbers, however there was a more balanced variation between large and small items for cans, cartons, and bottles.

Detailed below are the findings for all, including their average counts per 100m<sup>2</sup>:



#### Paper

68 small items, 32 large items, total **400** – average count **4.4** items per 100m<sup>2</sup>.



#### Fast food

353 small items, 14 large items, total **367** – average count **4.0** items per 100m<sup>2</sup>.



#### Cans, cartons, and bottles

218 small items, 118 large items – average count **3.7** items per 100m<sup>2</sup>.

These items were anticipated to have been present in numbers within the focus area of the BID and along main transport routes. Overall paper, fast food packaging, and cans, cartons, and bottles, equated to **6.9%**, **6.4%** and **5.8%** of litter counted respectively.

However, they were also present in varying degrees within study areas 2 and 3, including the length of Goosecroft Road and accumulations between Forthside Way and Trail; areas of dead ground cordoned off preventing civilian access.

Where this barrier fencing exists, and whilst acting as a limited deterrent to gaining access, it fails to mitigate against instances of negative littering behaviour, with items discarded in areas beyond reach or out of sight. These accumulations, whilst unsightly and bringing the appearance of an area down, also have adverse implications for the environment, nature, and biodiversity.

With particular attention to the area bordering Forthside Way and Trail, failure to address this could result in the transference of litter and waste from land into the river course, with implications for habitat and wildlife along the rivers and beyond. These peripheral areas therefore require revisiting to determine how best to tackle this issue.



### Back Walk

This pedestrian walkway linking Dumbarton Road to Corn Exchange Road has seen a significant accumulation of smoking related litter. This could be to do with its proximity to a public house/restaurant or to do with the encroachment of detritus and natural debris which has gathered. The levels of discarded litter here were, for such a small site, concerning, with ownership for this needing to be taken by either council or business authorities. It was noted here that there was only one small bin able to be used for the appropriate disposal of cigarette waste.

### Wallace Street

The location identified here was directly to the rear of a fast food restaurant with additional trade waste bins on an open, unkept piece of ground. The appearance of the ground, with the build up of litter was of a poor standard, with factors influencing this hypothesized as being a consequence of the nature of the ground itself as being disused, the possibility of escaping or escaped waste or, negative behaviours from passers by.

### Goosecroft Road

The length of Goosecroft Road has been identified as a hotspot area, with particular reference to the area directly opposite the entrance to the Marches car park and directly opposite the Goosecroft Bus Stance. These areas were identified as problematic, with both demonstrating that issues of accumulating litter run parallel to these zones being partially obscured from view. As such the concept of discarding litter in an area which is deemed out of sight, out of mind seems appropriate. It is clear that in these areas a proactive approach to the removal of litter and observation of behaviour in these areas could be advantageous.

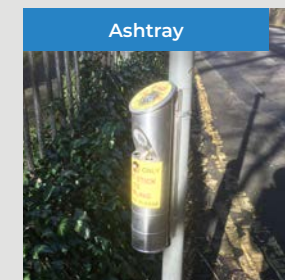
### Forthside Way/Trail intersection .

The enclosed embankment surrounded by fencing would appear to be used by passing pedestrians or vehicles. As indicated above with this area being obscured by fencing and further along the route, plantlife, the concept of out of sight out of mind is again an appropriate moniker. As stated earlier it should be addressed to prevent harm to public or animal life.

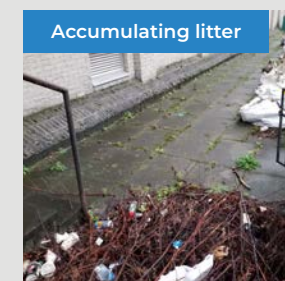
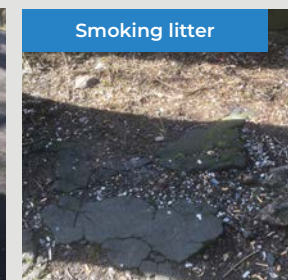
### Murray Place

As one of the main civilian thoroughfares within study area 1, and with 4 sites graded as poorly for litter, Murray Place is identified an area requiring consideration. A main point of contention centres around the planters which on inspection were predominantly full of smoking related litter. Additionally, the borders or edges of buildings or stone style seating, as well as the perimeter of public waste bins were identified as main areas where smoking litter was to be found. With the planters not being in use it would be recommended to remove them during the winter months to determine if this produces a positive impact. Alternatively, by planting species which are present all year round, this could act as a deterrent and enhance the appearance of the streets. A final point would be to ensure that appropriate messaging is available in these locations relating to the disposal of cigarette waste.

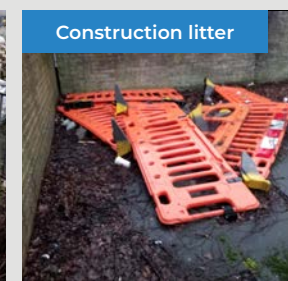
Throughout the audits it was determined the main source of litter was pedestrian littering behaviour. All of the 91 sites audited were found to have pedestrian litter as the key contributing factor, with a further **1.1%** and **2.2%** found to have forms of domestic or construction waste.



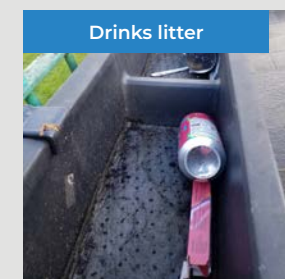
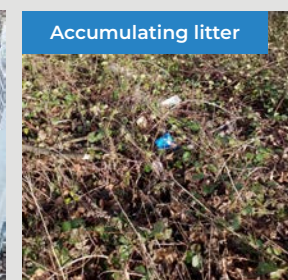
Images from Back Walk



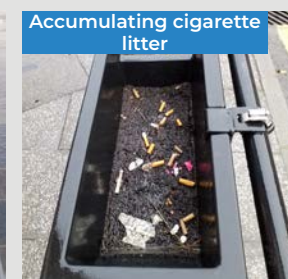
Images from Goosecroft Road



Images from Forthside Way



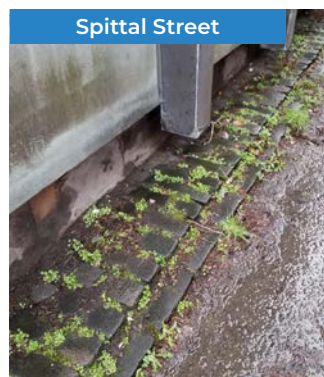
Images from Murray Place





### Additional LEQ Indicators

The audits conducted also revealed that of the 91 sites visited, **39.6%** had no visible presence of weed growth, with **46.2%** displaying a minor presence. There were 13 sites in total with a significant to severe presence of weed growth, amounting to **14.2%**; only one site, again located along Goosecroft Road was highlighted as severe. Figure 7 evidences that the majority of these sites were located within study areas 3 and 5, and with the exception of Goosecroft Road and the car park in study area 2 were situated within side streets or lesser travelled public areas. These streets may be less accessible for maintenance vehicles or less frequently inspected, and it is worth noting that cobbled streets such as Spittal or Bank Street, were also subject to this weed growth.



Images of weed growth

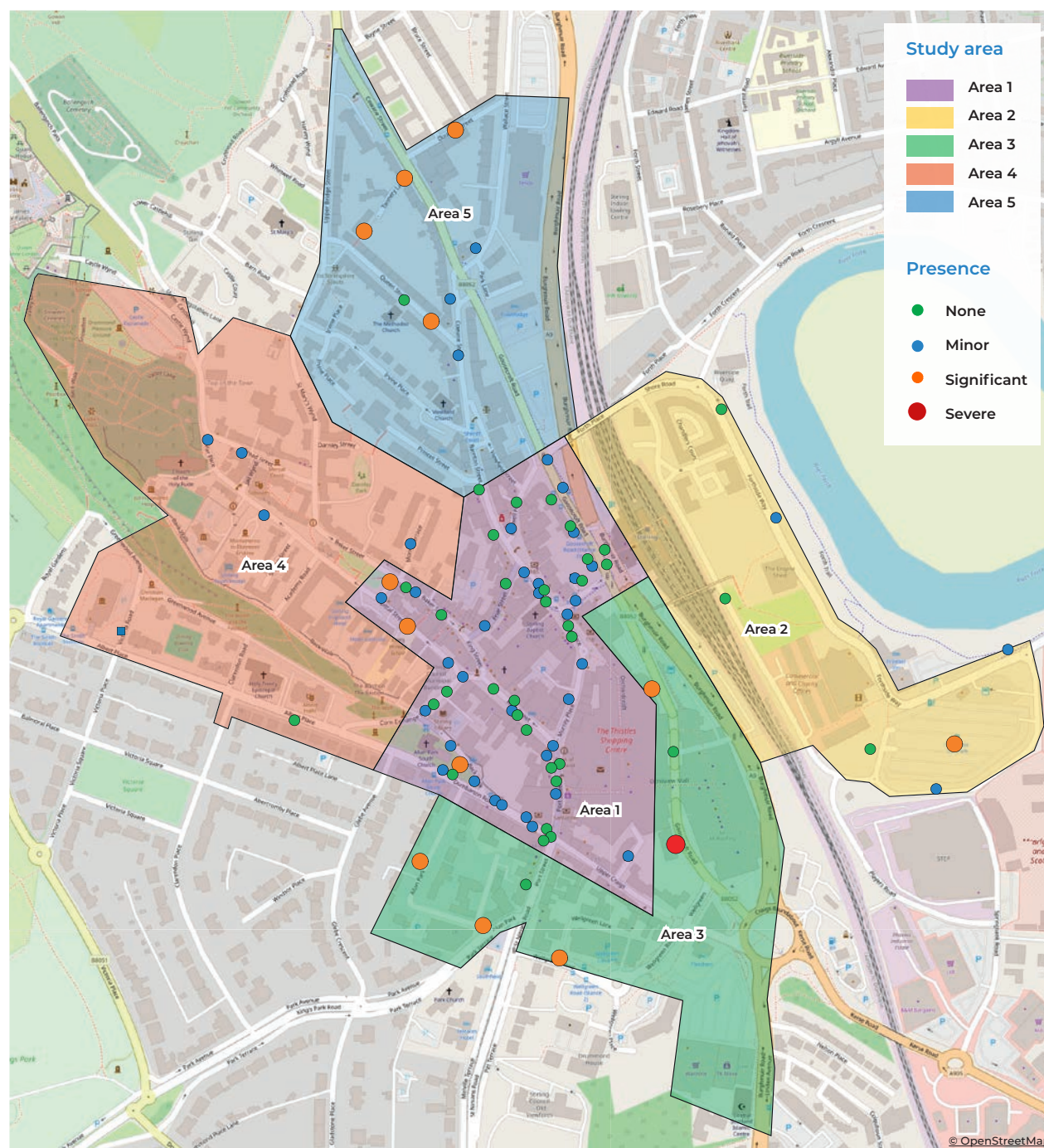
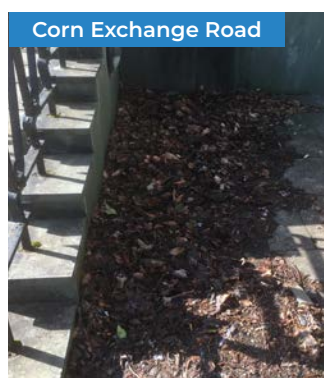


Figure 7: Spread of weed growth grades across the study areas



The presence of detritus was also demonstrated through the auditing process with 49 sites, **54.4%**, having a minor presence, and a further **5.6%**, 5 sites having a significant presence. The remaining **40.0%**, 36 of the 91 sites had no presence. As evidenced from figure 8, sites with a significant presence were isolated to the periphery of the study areas or within side streets which will receive less footfall throughout the day. As such, they may not be experiencing the same levels of servicing or maintenance as more central or historic areas of the city.



Images of detritus

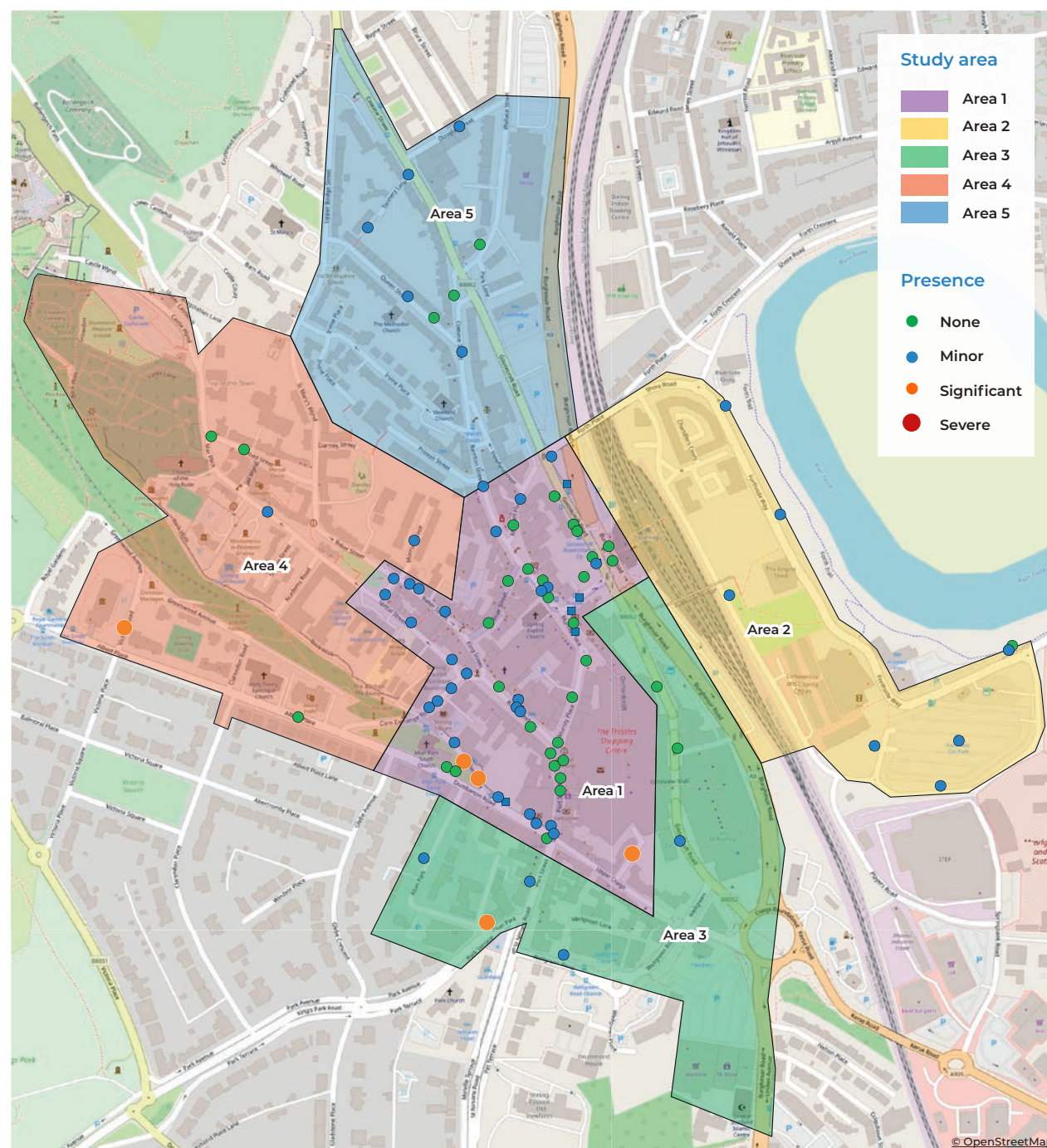


Figure 8: Spread of detritus grades across the study areas



Generally, the percentage of sites affected by vandalism, flyposting and graffiti was low, which is promising to find in the BID area. Flyposting was found to be present in only 8 sites, **8.8%**, with a further 26 sites examined having a minor presence of graffiti, **28.6%**, and 1 significant presence, **1.1%**. This is favourable to find, and it was noted that this graffiti was largely confined to study area 1.



Images of graffiti

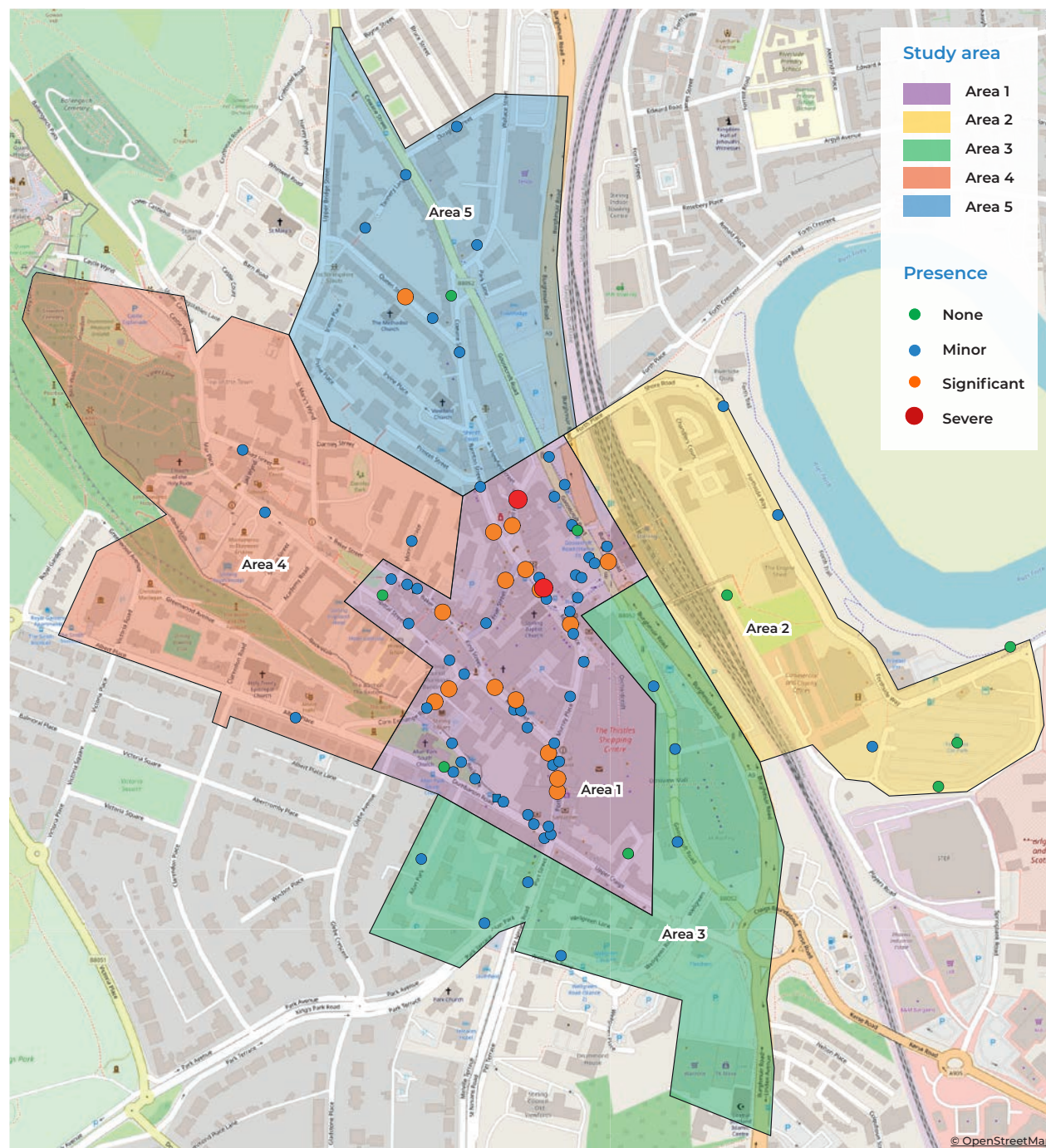


Figure 9: Spread of chewing gum grades across the study areas

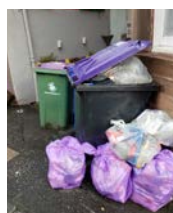


## Other Issues

While conducting audits it was noted on the Monday, 19th February 2024 around the Spittal Street and Bank Street locations that purple sacks for waste had been left out. Whilst this was done on the appropriate day, the images of this were captured at 1055HRS, with collection not due until 1630HRS the same day. The images demonstrate that domestic waste being presented earlier than required constitutes a further issue. While it leaves pedestrian walkways partially obscured, it has the potential to lead to waste escaping, through the interference of birds breaking into bags to get to possible food waste.



presentation of purple sacks for domestic waste earlier than allotted time (Murray Place)



presentation of purple sacks for domestic waste earlier than allotted time (Spittal Street) – note waste bins are overflowing



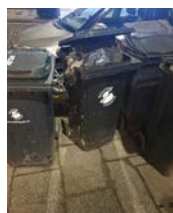
presentation of purple sacks for domestic waste earlier than allotted time – note bags have been torn open by birds leaving litter strewn on street



presentation of purple sacks for domestic waste earlier than allotted time (Baker Street)



presentation of domestic waste on pavements external to collection hours



presentation of domestic waste on pavements external to collection hours (King Street)



presentation of domestic waste on pavements external to collection hours (Bakers Street)

Figure 10: Images of other issues

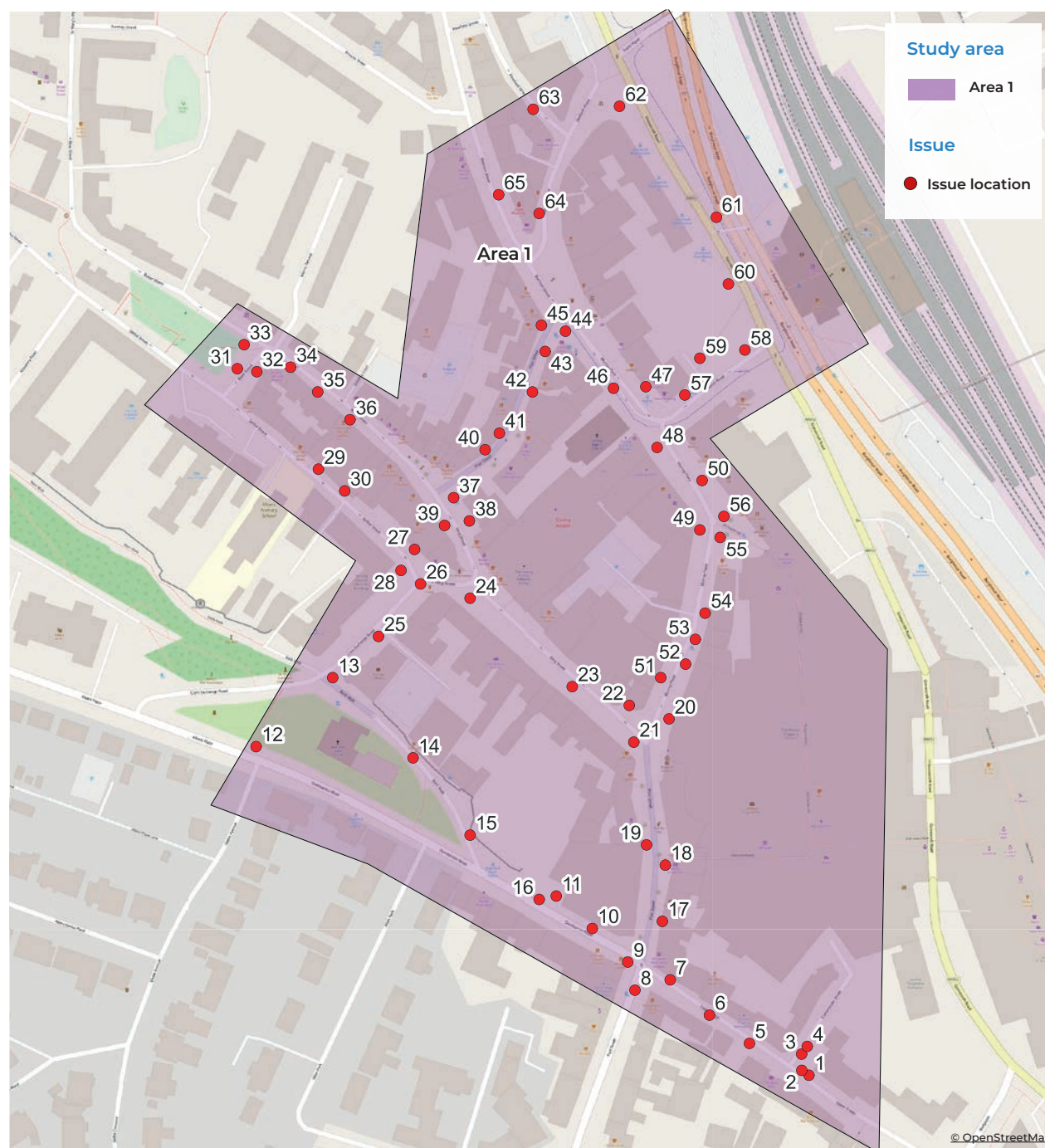


Figure 11: Other identifiable issues noted





A final day of auditing was conducted on 1st March 2024 to ascertain any further local environmental quality challenges present within study area 1 (the focus area). Attention was paid to the aesthetic appearance and impression of the study area, concentrating upon; the surface condition of roads and pedestrian walkways, the condition of buildings within the area, and presence of poor LEQ indicators, such as weeds, detritus, or issues with graffiti.

On inspection of the building condition within the study area it was noted that the guttering and downpipes of buildings needed attention. As indicated on figure 11, the presence in gutters of foliage, detritus, or other foreign objects were identified; these being prevalent in areas around Upper Craigs, Port Street, Dumbarton Road, and King Street (points – 1, 4, 5, 6, 8, 9, and 41). Coupled with the growth of invasive plants within gutters, downpipes, or high walled areas, this not only affects the appearance of the buildings but may have implications for the drainage, run-off, or structural integrity of these elements (points – 16, 20, 21, 40, 46). This was evident in areas of staining around gutters and pipework at the lower and upper ends of King Street. Invasive plants were also present on Friars Street, Murray Place, and Dumbarton Road.

The condition of several buildings located within the study area have also been identified as requiring regeneration. Building frontage in; Upper Craigs, Friar Street, and Murray Place, appear in need of rejuvenation. Vacant shop fronts appear tired, dilapidated, and present a poor impression of the BID area, with some also having been targets of vandalism which further depreciates the value and appeal of the BID area (points – 5, 6, 8, 9, 24, 34, 35, 37, 42, 43 and 47). Addressing the condition of these buildings through limited remediation work would be a positive first step to securing renewed business interest to revitalise their appearance, and turn these vacant, deteriorating properties into productive spaces (points – 53 and 54). Removing stains to the walls or restoring the outer fabric of the buildings plaster or paintwork would help to improve these spaces (points – 19, 34, and 65).

One such approach which had been identified was through the interactive art installations, also located on Murray Place, which could be replicated in other areas identified as problematic. These could then be used to transform the space and share stories about local history, folklore or as a space to highlight cultural

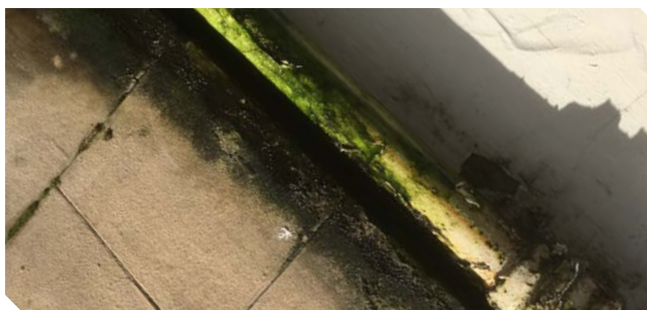
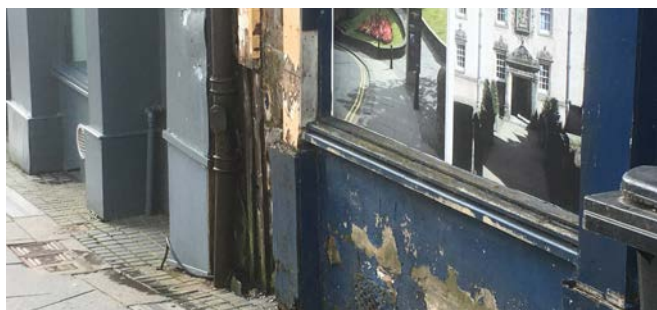
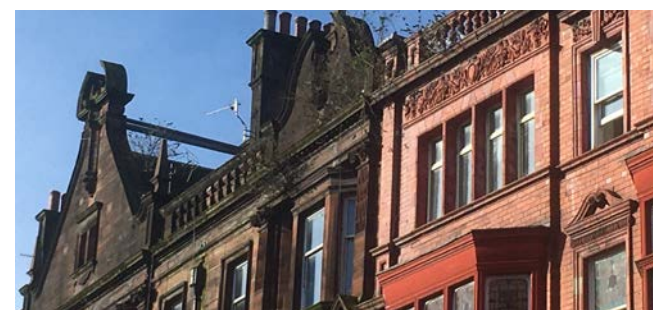
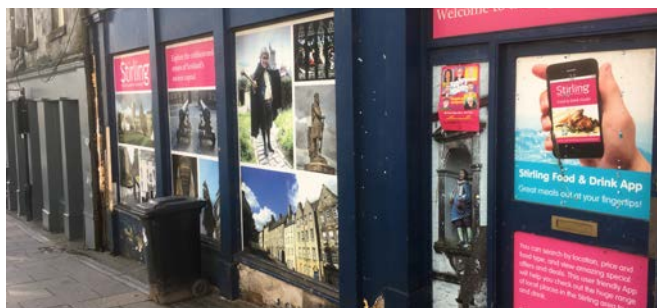
activities within the area (points – 51 and 52). A second approach could again look to enhance the appearance of disused spaces on walls by painting murals grounded in the heritage of the city itself, being used to enhance spaces devoid of colour such as at Station Road, or at King Street (above the Crossed Peels) (points – 27, 39, and 57). The removal of graffiti across the BID area would further serve to improve the visible impression of the area and go some way to tackling the limited instances of this anti-social behaviour present (Points – 7, 10, 15, 17, 18, 38, 44, 63, and 64).

Whilst generally conditions underfoot were good, areas of algae staining, weeds and detritus were present, impacting upon the appearance of the pedestrian areas and public roads (points – 4, 11, 13, 22, 23, 26, 28, 31, 33, and 61). Dependent on the weather or environmental conditions this could become more hazardous for users of the BID area. Furthermore, as discussed in an earlier section of the report, areas of detritus have the potential to act as litter traps, which present a further incentive for negative littering behaviours to develop. There were very few areas identified where remediation work was required to the surface of the roads, with this largely confined to a single location on Cameronian Street (point 3). Other issues pertaining to the condition of the roads within the BID were related to the presence of poor lining for parking spaces, and the minor presence of staining from petrols, oils, and lubricants from vehicles present at Murray Place (points – 32, 48, 50, and 62).

Finally, within the study area points were identified which if harnessed and used effectively could become useful spaces that would enhance the city centre area. As discussed in an earlier section the planters on King Street, Murray Place, and Station Road (points – 49, 56 and 58) require a concerted effort to tackle littering behaviour. However, the areas of disused space (points – 55, 59, and 60) provide another possible opportunity. Currently, these spaces at Murray Place, Station Square, and Goosecroft Road, are being poorly utilised, becoming spaces for the disposal of litter, waste, or attracting other negative forms of behaviour. With these areas being exposed to negative behaviours and in one case, being cordoned off, if left unaddressed these spaces may deteriorate further. Finding solutions here which include the business community and other local partners could invigorate and transform these spaces into something positive and beneficial for residents and visitors alike.



## Supporting Images





### 3.3. Objective 3 - Observe and note any litter behaviours

Throughout the period the study was conducted a key objective was to observe and note any litter behaviours. The dedicated area for this element to be conducted was within the boundaries of study area 1, however, any observed behaviours tracked within other areas were also collated for the purposes of the study. In addition to study area 1, behaviour was observed within study areas 4 and 5, with only one action encountered for each respectively. It should be noted therefore that:

- Area 1 had **95.3%** of all instances observed
- Area 4 had **2.3%** of all instances observed
- Area 5 Area 4 had **2.3%** of all instances observed

Over the course of the study, 43 instances of behaviour were observed. Of these observations, it must be stated that for only 41, demographic characteristics were assigned, with this being determined by the auditor in the time taken to view any actions. Of the 43 records obtained it was determined that 40 of these were considered to be correct or positive behaviours, the remaining 3 being considered to be bad practice. Taken as a percentage this equates to **93.0%** positive and **7.0%** negative behaviours observed.

It is evident from this information alone that there is consciousness and willingness among the public to dispose of waste appropriately, as evidenced by the actions of **93.0%** of observed individuals. It must be noted then that the incorrect behaviour observed was as follows, highlighting location and time of activity:

- Area 1: 1156HRS – cigarettes discarded onto ground, an intentional instance of littering, where appropriate receptacles were within a 5-10m distance
- Area 1: 1030HRS – excessive and accumulating cigarette ends disposed of around the footprint of a public waste bin. This, despite the bins having appropriate tools to stub and dispose of cigarette ends – it is essential to note across the BID area that cigarette ends formed the most prevalent issue encountered during the monitoring.
- Area 4: 1452HRS – public service bin being used to dispose of household/domestic waste, the bag being identified as too large to fit within aperture of bin

Demographic information, as stated previously, was based upon the judgment of the auditor when behaviour was observed and is detailed in figure 11.

The demographic information obtained serves as a means of further breaking down the analysis of information, enabling a more comprehensive picture to be painted of the foot-traffic within study area 1 and behaviours observed. One highlight which helps to paint a positive picture moving forward was noted in study area 1 on the first day of auditing. This involved the proactive removal of litter from raised beds at the junction where Murray Place meets Barnton Street. It is crucial to note that this was litter that was not dropped by the individual, (falling into the 20-39 demographic) but which was actively cleared and then put into the nearest bin to hand, which helped to improve the appearance of the raised beds. This is encouraging to see.

While the above is indicative of positive or appropriate behaviour, as evidenced by **93.0%** of those observed it does not negate the broad trend across the Stirling BID where waste from cigarettes is the largest issue encountered. This is despite the high proportion of bins with smoking related apertures built in being present on – Port Street, Murray Place and King Street – three of the main pedestrian walkways connecting study area 1 and with the highest footfall.

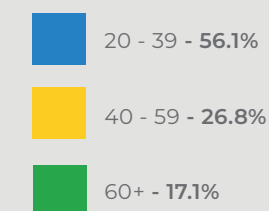
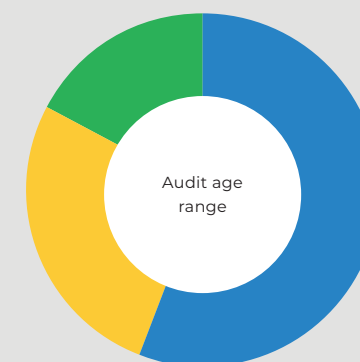
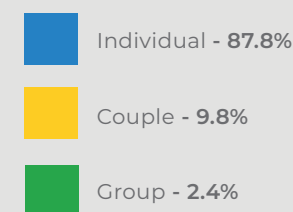
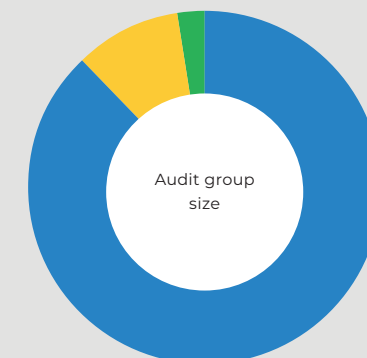


Figure 11: Proportion of group dynamic and age range for observing littering behaviours

### 3.4. Objective 4 - Monitor servicing of public use litter bins

Throughout the study areas, 153 public use litter bins were located and mapped (figure 13). This highlights that there are readily available facilities for the public to dispose of their waste appropriately.

Of these bins, four were in urgent need of replacement due to physical damage (bins 87, 92, 94 and 130, all recycling). Another eight bins were rated poor for physical condition (bins 7, 25, 50, 96, 142, 15, 145 and 146), with all but one a general waste bin (the other recycling). The majority of bins available are therefore in excellent or fair physical condition (**92.2%**).

In contrast, while none of the bins were found to be in urgent need of cleansing, 76 bins were rated poor for cleanliness (**49.7%**), with the other half rated as excellent or fair.

On observation of these bins throughout the auditing phases, it was found that over a third were recently serviced and empty (**35.4%**). One in four were found to be up to a quarter full (**25.7%**), just over a fifth up to half full (**22.1%**), around one in ten up to three quarters full (**11.5%**) and only **5.3%** above three quarters full and requiring serviced.

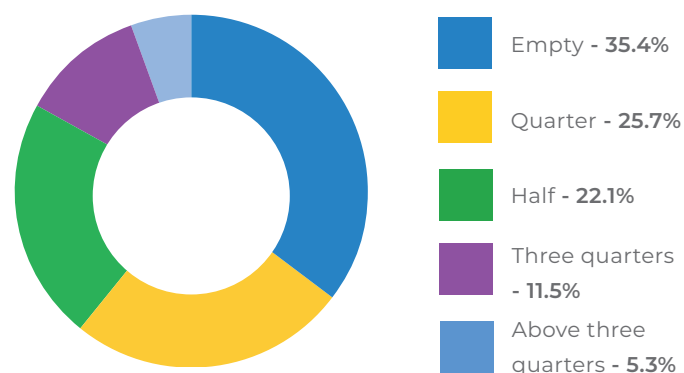


Figure 12: Service capacities of public use litter bins

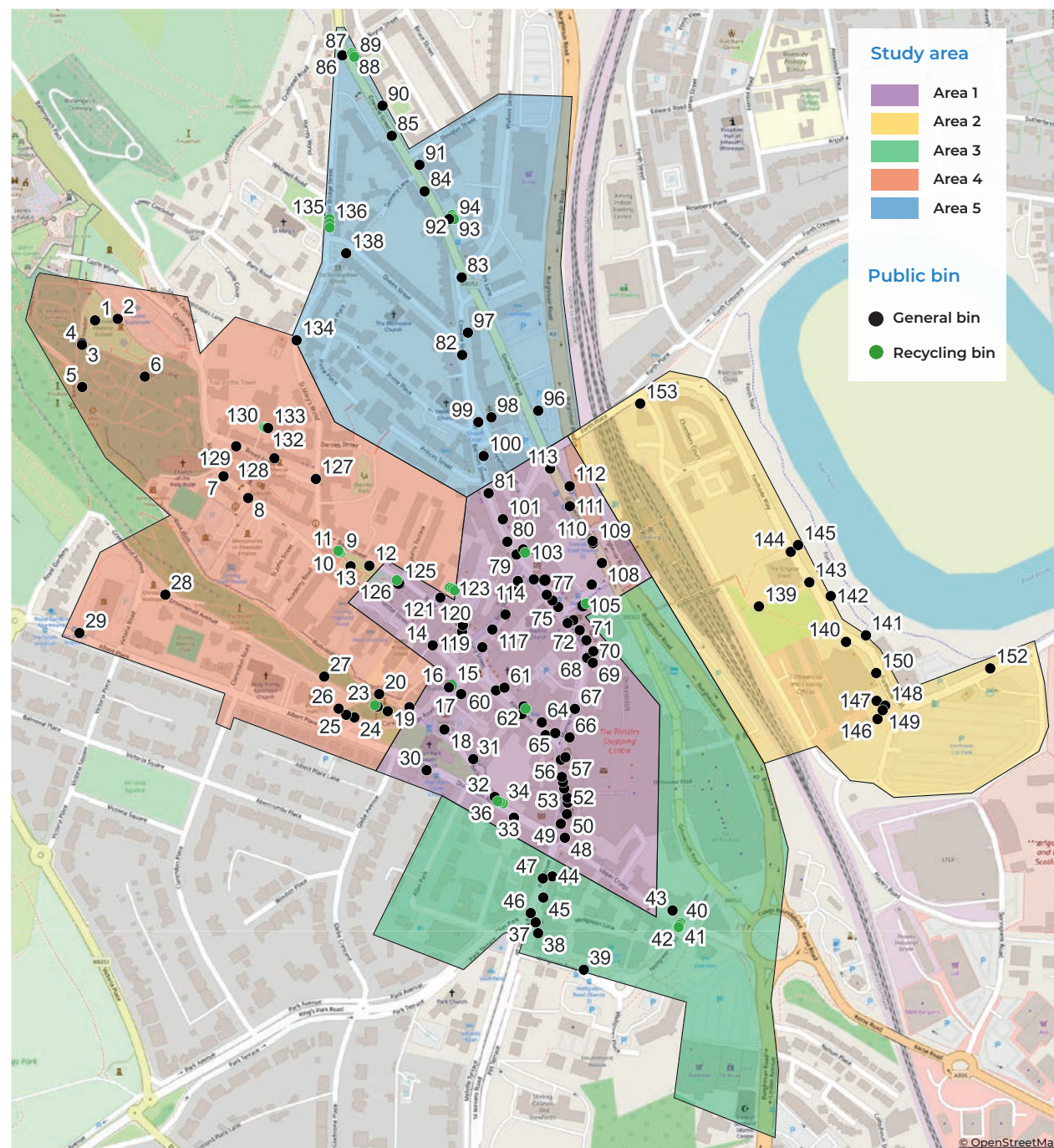


Figure 13: Location of public use litter bins in the study areas



### 3.5. Objective 5 - Evaluate any trade waste bins issues with focus on access for public, placement, presentation (including appropriate timing) and storage.

During the series of audits conducted for the project, a key component was to note any issues encountered in relation to trade waste bins that were visible. This was in relation to the quality of their presentation, location, presence of escaped waste, date and time of observation as well as, key information about the business or contractor the bins belonged to and was serviced by. It is essential to note that the servicing window for City Centre waste collection is as follows:

- Between 0730HRS – 1100HRS
- Between 1700HRS – 2200HRS
- From between 1100 – 1700HRS, a 6 hour window, it is prohibited
- From between 2200HRS – 0730HRS, a 9.5 hour window, it is prohibited

Over the course of the 5 days auditing, taking place between the 13th February and 28th February a total of 71 sites with containers were audited, comprised of either single receptacles or clusters. The number of individual containers counted overall was 217, the majority of these trade waste bins being reviewed within study area 1. Of these 217 bins, 188 were found to be displaying contractor information, constituting **86.6%**.

This was good to see as it gave a clear indication contractor responsibility for the removal of waste. Significantly, information relating to the business was severely lacking, with only 17 of 217 bins, **7.8%**, reviewed displaying this, at times the auditor having to search to locate this.

It is therefore advised that business information be displayed in a more visible, uniform manner to ensure that the business owner can be quickly identified, and to ensure that only waste relating to or from that business be found within said receptacle. Ensuring this is done effectively and consistently across the business area would be advantageous for waste collection and wider community relations.

Although the lack of business information formed a deficit in scoring it should be noted that instances of contamination or side waste fell below **10.0%**, which is a favourable outcome. Only 5 containers inspected, **7.0%** demonstrated any signs of contamination, with 4 containers, **5.6%**, showing any side waste.

On these occasions, mixed recycling bins located at the Goosecroft Road area were found to have been contaminated by non-recyclable forms of waste, a possible consequence of their placement close to a pedestrian walkway and bus links. Side and escaped waste was highly prevalent at a location in study area 5, to the rear of a restaurant, creating an eye sore and hazard for passers-by. These incidents are isolated and not reflective of the observations overall.



Evidence of good practice containing contractor and/or business information, with examples of bins being locked.



Evidence of poor practice contractor and business information.



Evidence of side waste and escaping waste.

Bin presentation was examined to determine the impact that the location of trade waste bins would have on pedestrians, vehicles, or for collection, with accessibility being a primary concern. As a result, auditors inspected trade waste when encountered and reviewed the times where bins were allowed to be present on public access ways and if they presented either; no, partial or full obstruction. Of the 71 sites, individual bins or clusters, none were recorded to have created a full obstruction, with only 8, **11.3%**, deemed to have been creating a partial obstruction. While these instances were observed in limited forms, the nature of these instances were as follows:

Located at rear area of New Look – 3 bins partially obstructed by vehicles, cages at the side, and possible escaped waste, observed on multiple occasions

While it is clear that the positioning of bins did not constitute a negative representation of findings, with **88.7%**, 63 of 71 sites, presenting no obstruction it is essential to note that containers were not often found within the allotted window for presentation on public accessways. In fact, of the 217 bins identified during the audit, over **50%** of them were observed to have not been allowed to be present on public areas. Between 1100HRS and 1700HRS, 118 bins, **54.4%**, were observed outside of this 6-hour window, the remaining 99 bins, **45.6%**, being eligible to be present. It is evident that this is a concern for businesses, commuters, visitors et al. to central areas of Stirling. With bins clearly present outside of structured timeframes it has the potential to lead to:

- Bins being used inappropriately by either other businesses or bin users
- Contamination or escaped waste
- Tipping, vandalism, graffiti, or other antisocial issues
- Increased presence of pest species where bins may be at capacity, overflowing or without suitable covering

Other factors which were reviewed included the condition and cleanliness of bins, as well as the escaped litter grade. Overall, it was found that bin sites were good in terms of condition and cleanliness, with 63 of 71 sites being judged to be fair in both categories, **88.7%**.

Of the 71 sites, no litter was found to have escaped from 60, with 6 sites having less than 4 small pieces of litter; **84.5%** and **8.5%** respectively. A small proportion of sites were found to be of poor condition and cleanliness, with the same being said of those with a significant issue with escaped waste. Only 3 bin sites, **4.2%** were found to be in poor condition, with a further 6 sites, **8.5%** found to be of poor cleanliness.



Obstruction at rear of New Look.



Placement on public pathway creating minor obstruction.



Positioned on public road.



Positioned on public road.

A similar situation was observed at Victoria Road, with bin obscuring access point for vehicles.



Only 1 site, 1.4%, was found to need urgent repair, with the fitting of secure locks needed and a replacement lid to mitigate issues around pest species and escaping waste. Additionally, sites identified as being significantly or excessively littered, comprised only **2.8%** and **1.4%** respectively, of the assessed sites.

Observations of trade waste have revealed that although well over **80.0%** of sites, either clusters of bins or individual receptacles, have been identified as being; of fair condition, fair cleanliness, presenting no escaped waste or litter, and presenting contractor details effectively, there are issues which need to be addressed.

It was observed that the vast majority of bins encountered were not locked, and on one occasion a bin required a lid. The lack of these features, as raised earlier, could result in bad practice, negative behaviour impacts or the dispersal of waste. As has been seen in recent months, adverse weather conditions have the potential to impact on waste collection and street hygiene.

Furthermore, where businesses do not display their details on bins in an accurate manner, this can lead to a lack of accountability, as well as issues over ownership and responsibility. Failing to accurately show this information sets a poor standard across the area, as well as generating issues around enforcement.

This situation may not be helped by the lack of clear, designated locations, fixed by the businesses, council authorities or, cleansing service which could help to enable a clear chain of responsibility. Ensuring that businesses have their details visible by making this a mandatory practice or enforcing licenses could help to address these concerns around trade waste, where bins are left on public accessways outside of the mandated times indicated by the council.

Evidence of bins overflowing, with no lids, insecure with no locks.



### 3.6. Objective 6 – Link findings to public perception of area

Throughout the months between October 2023 and February 2024, a total of **3,092** people responded to the questionnaire on their impressions of the cleanliness of the Stirling city centre area.

**Question 1:** How would you rate the overall cleanliness of the Stirling city centre?

**Question 2:** What are your first impressions of the Stirling city centre?

**Question 3:** What aspects of the Stirling city centre do you find the most appealing and which areas or elements, if any, could be improved in your opinion?

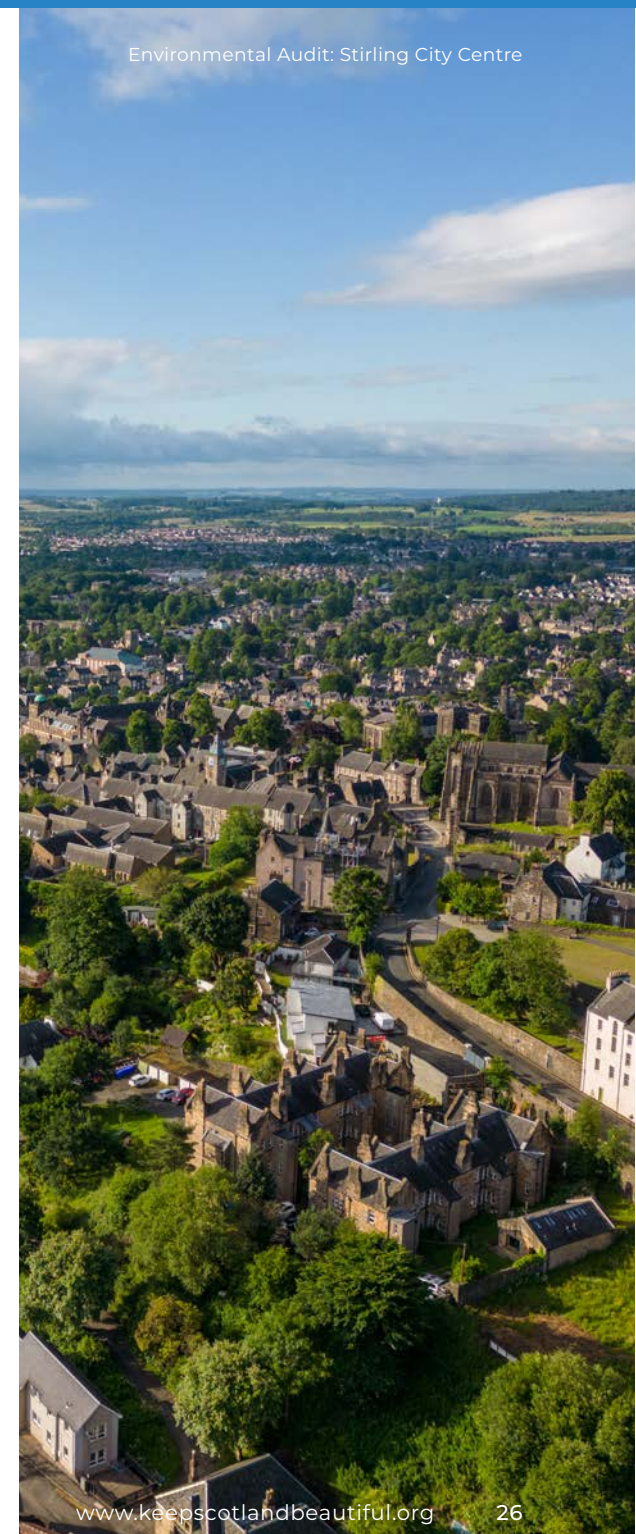
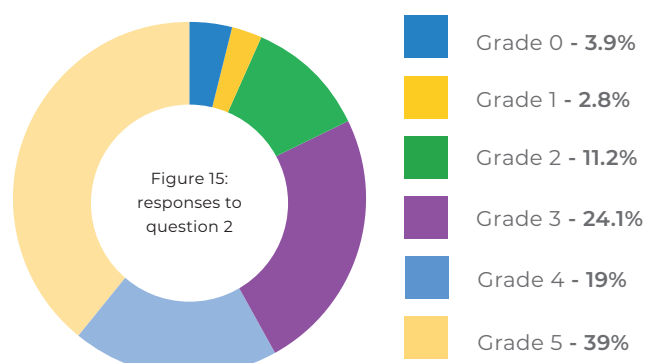
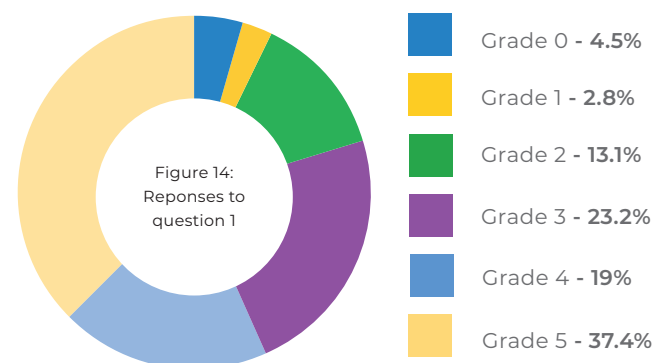
Of encouragement, over half of the respondents voted they would rate the cleanliness of the Stirling city centre positively (**19.0%** graded 4, **37.4%** graded 5). In contrast, only a small proportion rated the cleanliness negatively (**2.8%** graded 1, **4.5%** graded 0).

In response to what their first impressions of the Stirling city centre were, again, the majority of respondents were positive (**19.0%** graded 4, **39.0%** graded 5) and only a small proportion found their first impression to be negative (**2.8%** graded 1, **3.9%** graded 0).

Where there was a positive response to both questions, comments suggest the look and feel of the area, particularly historic buildings such as the castle and churches, decorations during the festive holidays while the majority of the negative responses pointed to the lack of shops available, expensive car parking, feeling vulnerable, rubbish in doorways.

As is the case with individual preferences, there were many contrasting responses, for example many felt the atmosphere was positive, many negative. There were a number of responses speaking positively of the Thistle Centre, many decried the lack of diverse shops available.

For both questions, there was just over a third of respondents straddling the middle ground (graded 2 and 3), feeling neither particularly positive or negative about their impressions of the area.





# Chapter 4: Conclusions

**The impact of litter and other environmental incivilities within the environment cannot be understated. It acts as a visible, physical, and chemical pollutant; lowering the positive perception users have of the area and harming the natural environment. This report has shown that, while there are positive indicators, there are also clearly identifiable areas of concern in maintaining a good quality local environment in the Stirling city centre area.**

Regarding litter, it is discouraging to see many areas badly affected, even though there was an abundance of public use litter bins available throughout, and that these were found to be generally in good physical condition and serviced appropriately so as not to be full. The main issue with bins was their cleanliness, with half identified as being poor and potentially, unappealing to use. Initiatives to motivate use of bins have been trialled in Paisley, [report here](#). There was also a study in Stirling city centre on whether increasing the salience of bins drives use; this report is available separately on request. Outcomes from this included a positive return in use in the short term, although it didn't eradicate littering.

Most of the identified litter was cigarette ends discarded inappropriately, with a frustrating behaviour of using street features such as planter boxes as ashtrays. While these materials were endemic to the whole area, there were hotspots identified around the train station, Murray Place and on the Back Walk, suggesting potential pilot intervention locations in the future. Some examples of these were trialled in the Grassmarket area of Edinburgh, report [available here](#).

Of encouragement, most trade waste bins were found to be in good physical condition, labelled with the contractor information, generating few side waste and escaped waste issues. However, most of these bins were unlocked without business information available, with the potential of contamination, and overfilling from public use. This was evidenced on several occasions. As part of duty of care, it is advised strongly that agreements are made with the waste contractors to have locks on all bins.

There was also evidence that trade waste bins were presented in the public realm outwith the collection windows. It is the responsibility of business owners to make sure these bins are returned to private stores when collection times have passed, and for the local council to monitor compliance.

In tandem, domestic waste presentation was clearly a potential hazard for further littering as there was regular observations of waste out overnight and outwith collection windows; that were poorly presented, providing an obstruction on the street and contents spilling out into the environment. Without the availability of containerisation for residents in core areas of the city centre, these issues are exacerbated.

While there were positive indicators of the wider streetscene, such as good clear signage, renovated shopfronts, low levels of graffiti and well swept surfaces, there were several aesthetic issues identified that require investment. Whether it be resident/business owners in regard to the maintenance of the outfacing aspects of the property or the local council in supporting removal of gum staining on the street surface.

Despite the issues that are outlined in this report, there is a general perception of a vibrant city centre environment on responses to the questionnaire. It was also clear that what the public felt were prominent issues were the appearance of buildings and the lack of diversity in shopping. There were few comments on litter and other environmental issues.

The following chapter outlines recommendations for next steps.

# Chapter 5: Next steps

Keep Scotland Beautiful recommends addressing some of the issues highlighted through a series of actions:

1

Based on the findings in this report, identify all relevant stakeholders to engage in constructive and progressive discussions in how a collaborative approach can efficiently and effectively improve the local area.

2

Work with stakeholders in supporting a deep clean of the full site and ensure particularly removal of litter and gum staining in areas identified as being missed as part of the regular cleansing schedule. Having a clean slate will allow for a better understanding of the impact of any further interventions and actions.

3

Designing a bespoke campaign and set of messaging for the local area to address the problem and appeal to users of the city centre. This could be designed using existing, national messaging and imagery, whilst also incorporating more focused messages to address the sentiment and imagery of the area.

4

Encourage businesses to lock their waste containers as this would alleviate additional issues around contamination and overspill.

5

Developing and installing interventions to tackle specific littering behaviours. This could include addressing cigarette waste with bespoke “ballot bins” and highlighting designated smoking areas, and addressing consumption and coffee cup waste through collaboration with on-site and contributing retailers.

6

Cleaning of all bins in the area to improve their appeal for use.

7

Have visible and consistent messaging across the site and encourage visitors to bin their waste. The materials should be bright, and the message should be simple to ensure it is understood







We support the Sustainable Development Goals.

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



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