



Report sponsor: Director of Public Protection
and Streetpride
Report author: Streetpride Service Manager –
Street cleansing

Update of Streetpride developments

Purpose

- 1.1 To provide an update on the rollout of Whitespace within the street cleansing service.
- 1.2 To provide an update on the use of litter bin sensor technology.
- 1.3 To provide information on the correlation between Raynesway HWRC opening hours and fly-tipping.

Recommendation(s)

- 2.1 To note the contents of the report, which includes an update of Streetpride developments.

Reason(s)

- 3.1 Whitespace was introduced into the street cleansing service in November 2020, this report provides an update on the service improvements, efficiencies and impact this has made.
- 3.2 The use of litter bin sensor technology has been trialled within the street cleansing service since February 2020, this report provides an update of the trial.
- 3.3 To provide information on the correlation between Raynesway HWRC opening hours and fly-tipping.

Supporting information

Whitespace roll out in street cleansing

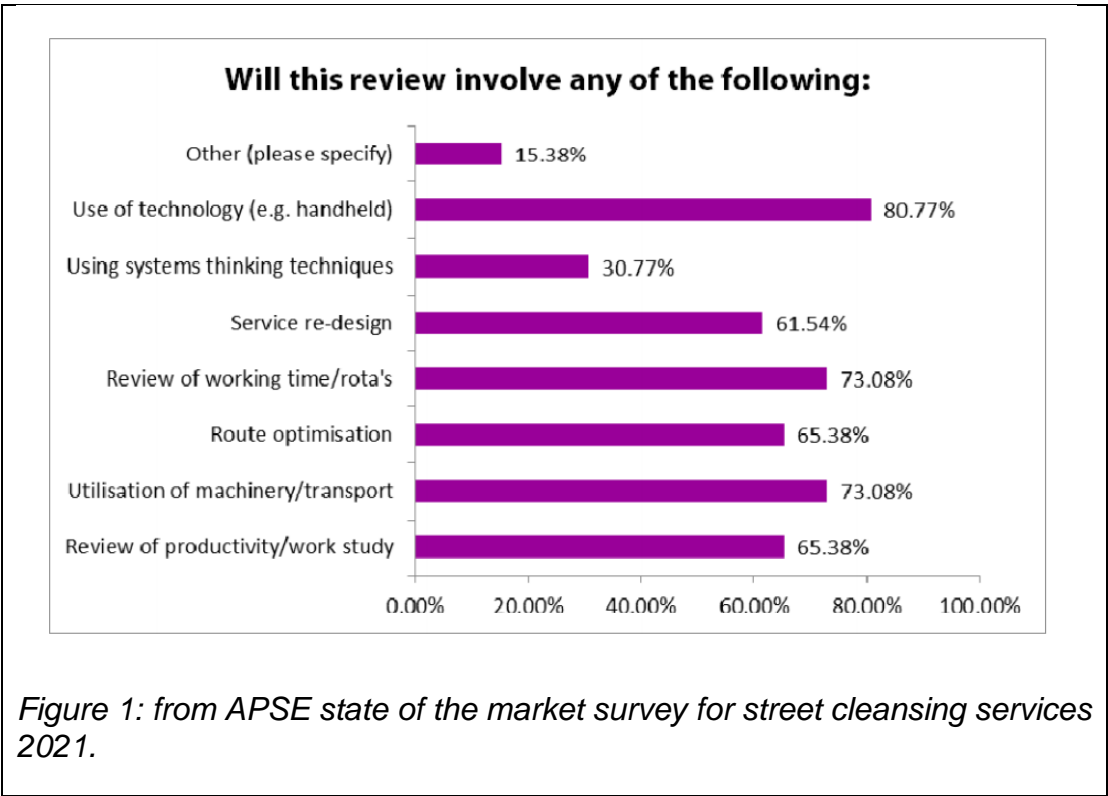
- 4.1 Whitespace is an online workforce management and mobile solution, linking frontline and office-based staff which can integrate with other systems to streamline work processes. It has the ability to send and receive worksheets digitally, programme scheduled work, optimise rounds, and view all the teams round progress from a back-office system. In addition, an analytics function provides easy to run reports which can be used for trend analysis, identification of hot-spots, provide meaningful insights, and help future resource planning.
- 4.2 Prior to implementing Whitespace, street cleansing was a paper-based service, generating over 10,000 printed worksheets a year. Communication between back

office and teams relied heavily on the use of mobile phones, and we would rely on team knowledge to navigate around their rounds and understand our hot-spot locations. Due to the nature of paper-based filing and our previous systems, we could not easily produce meaningful reports to provide insight or drive intelligence led decisions.

4.3 Adopting technology into street cleansing services to drive efficiencies is supported and many local authorities are now looking towards this way of working.

APSE’s state of the market survey for street cleansing services 2020, and the 2021 market survey both demonstrate street cleansing services are driving towards innovative solutions to increase and maximise efficiencies. In the 2021 survey, the main efficiencies being proposed or worked towards includes ‘better use of technology to maximise efficiency’, ‘use of smart litter bins reducing emptying frequencies’ and ‘route optimisation’.

Within the 2021 APSE report, APSE also highlights ‘clear emphasis on undertaking service reviews reflect the efficient drive in local government’, where 66% of respondents stated they are currently reviewing or planning to review their services in the next 1 – 2 years. Figure 1 provides a breakdown of what these reviews will include, indicating 80.77% will involve the use of technology (e.g. handheld), and 65.38% will include route optimisation.



4.4 Since November 2020, Whitespace was introduced onto the following teams: fly-tipping, graffiti, litter bin emptying, mechanical sweeping, building cleaning contract and the supervisory Team Leaders.

In 2021 this was further rolled out onto the routine cleansing teams, and developments are currently being made to operate the bulky waste service through Whitespace.

- 4.5 Digitising scheduled and ad hoc worksheets has decreased our carbon footprint, eliminating the need to print in excess of 10,000 paper worksheets a year.
- 4.6 Digitising our service requests enables us to send work to frontline teams quickly, being received straight away and alerting the user when a new job has been received. Figure 2 shows the mobile app 'inbox', showing the user all jobs allocated to them.

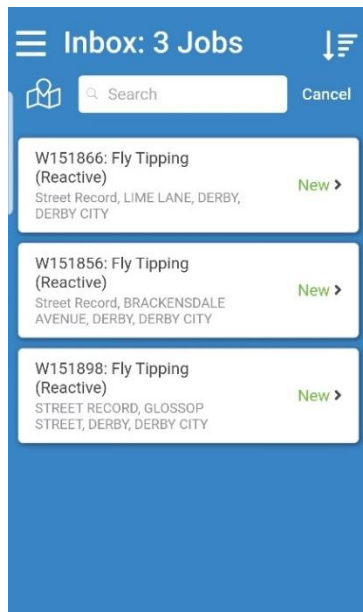


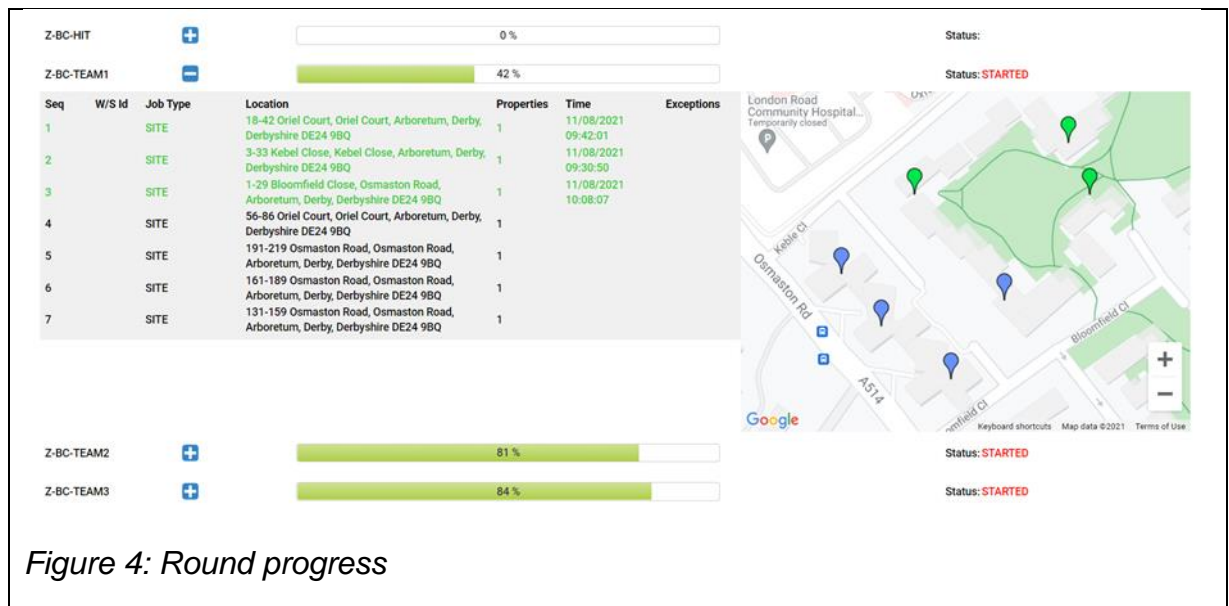
Figure 2: Inbox display

Proactive work can be recorded and submitted on site, with the ability to attach and send pictures. All worksheets have been designed by the service, and tailored for each job type to receive relevant feedback from the team which can be easily reported on. Figure 3 shows an example of a proactive worksheet.

A screenshot of a mobile application form titled 'Complete Graffiti Offe...'. The form has a blue header bar with a back arrow on the left, the title 'Complete Graffiti Offe...' in the center, and three dots on the right. Below the header, there are three tabs: 'Job', 'Attachments', and 'Map View'. The 'Job' tab is selected. The form contains several sections, each with a title, a red asterisk indicating a mandatory field, and a red error message 'This data is mandatory.' below the title. The sections are: 'Street Name Options', 'Exact Location of the issue', 'Exact Location of the issue (Capture Coordinates)', 'More Details', 'Is the graffiti a tag?', and 'Name of Tag'. Each section has a right-pointing arrow next to it, indicating that more information can be provided.

Figure 3: Example of a proactive worksheet

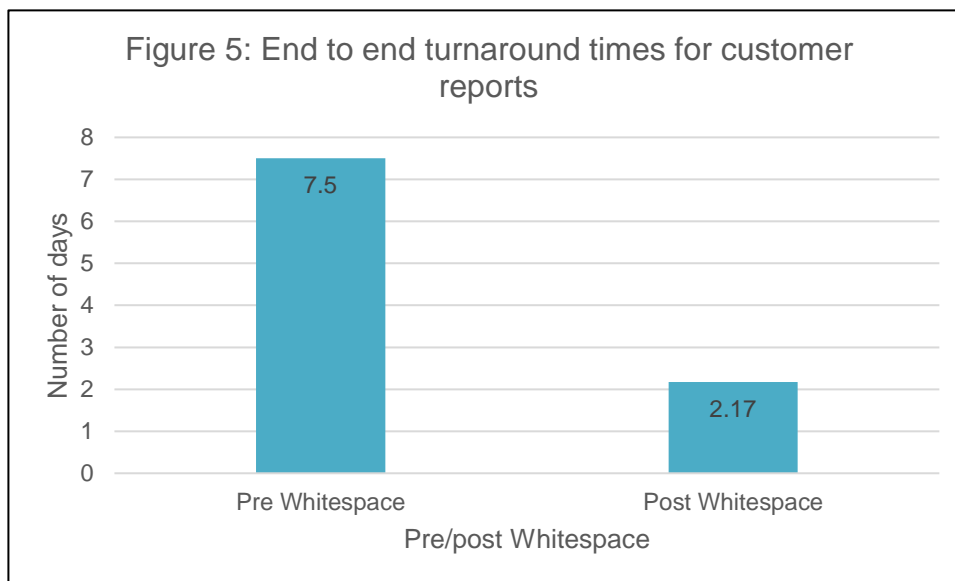
- 4.7 Submitting work on site has improved service efficiency, and we can now see in real time all the jobs the teams are proactively completing as soon as they are submitted. This has reduced the number of multiple visits to jobs which were mainly from customer worksheets being actioned which had been proactively completed earlier that day by a different team.
- 4.8 Figure 4 demonstrates the percentage of work completed, with outstanding work remaining in black, and work completed signed off in green. This enables the back office to see how each team is working through their assigned workload.



Understanding the teams progress throughout the day has improved service delivery, specifically:

- Enabling us to move work across the teams to ensure all work is completed when it is due.
 - Managing unplanned for events such as vehicle breakdowns, viewing and reallocating any outstanding work.
 - Improving decision making of sending additional work to the most appropriate team – e.g. being able to see if a team will be travelling near to an additional job or in the area.
- 4.9 Our improved way of working has resulted in teams reporting jobs as soon as they are identified, submitted via a worksheet to the back office which is allocated to the appropriate team. For example, a fly-tipping team can report a graffiti job and vice versa. Before Whitespace this would have been reported verbally at the end of the shift.
- 4.10 Digitising our processes has resulted in a decrease in the end-to-end turnaround time of customer requests. Our new ways of working have created process improvements, eliminating delays in team communication, signing off worksheets when they return to depot and closing down on the system.

Figure 5 shows the average number of days to complete customer reports end to end, based on a 6 month average of pre Whitespace data and post data. This shows the turnaround time has decreased by an average of 5.33 days, reducing the end-to-end turnaround time by 71%.



When a customer worksheet is closed down, an automated notification is delivered to the customer, since implementing Whitespace customer feedback has been received directly relating to service speed.

An example of feedback received relates to a fly-tipping report which was actioned the same morning as the report. The customer feedback after seeing the fly-tipping removed included the following:

“This afternoon I received an email confirming my enquiry had been closed. I would just like to pass on my sincere thanks for the speed of response to my report and for the excellent process of keeping me informed. Amazing customer service. Thank you”

- 4.11 Route optimisation technology and GPS mapping provides service efficiency by decreasing travel time and fuel / vehicle costs. Figure 6 shows the map view of jobs on a device inbox, where individual jobs can then be navigated to.

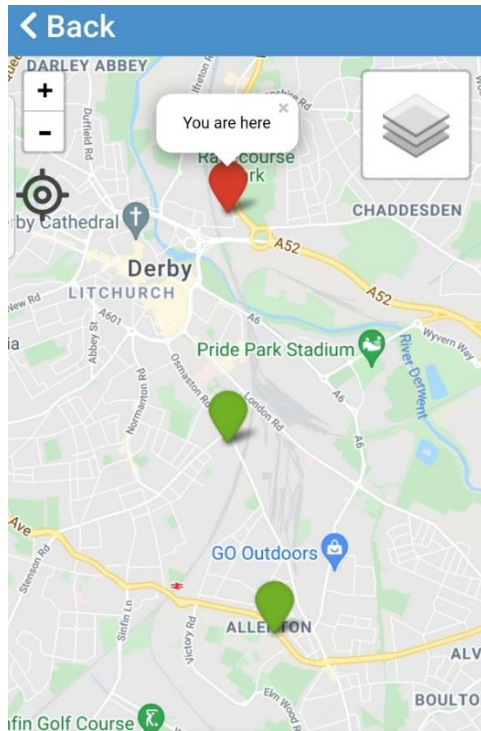


Figure 6: Map view of open jobs assigned to device

This helps reduce our carbon footprint and has a positive impact to the environment, in addition to improving time efficiency and productivity of the teams.

- 4.12 The analytics feature captures information for all scheduled and ad-hoc jobs, which allows us to produce meaningful and accurate service reports. This allows us to analyse trends, identify hot-spots, and understand if any further interventions are required. The heatmap tool can give visual indication of hot spots, helping to plan and utilise our resources as efficiently as possible, demonstrated on figure 7.

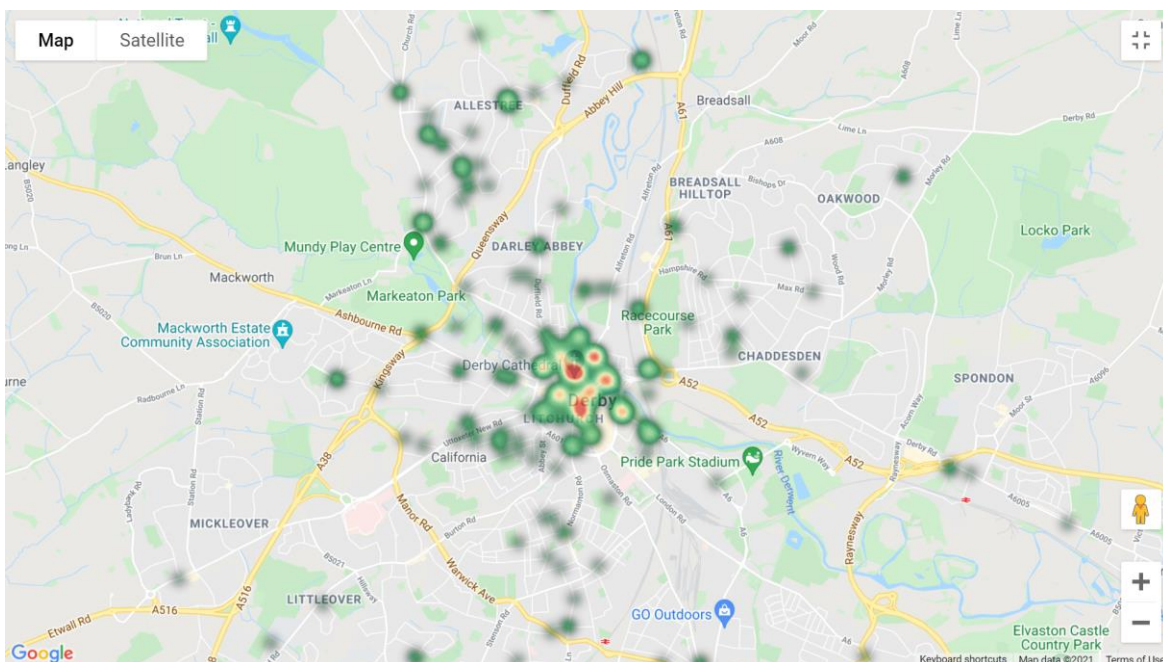


Figure 7: Heatmap example

Update on the use of litter bin sensor technology

- 4.13 APSE's state of the market survey for street cleansing services 2020 and the 2021 market survey discussed in section 4.3, demonstrates the main efficiencies being proposed or worked towards includes 'better use of technology to maximise efficiency', 'use of smart litter bins reducing emptying frequencies' and 'route optimisation'.

In February 2020, the service commissioned a trial of litter bin sensor technology within 200 litter bins, to assess the impact and benefits of the technology.

- 4.14 The litter bin sensor technology trialled uses predictive 'fill-level' technology. The wireless technology monitors how fast a bin is filling and provides an alert to action the bin to be emptied.

The litter bins selected as part of this trial are 200 of our higher usage litter bins or bins receiving a high volume of complaints, which are on an enhanced emptying cycle due to the need of emptying in between the routine area cleansing.

- 4.15 Prior to the trial, these 200 bins formed the main workload of the enhanced litter bin team. These bins were emptied on a frequent basis, however in some cases we were still receiving reports that particular bins were overflowing in between the cycles; and in some cases the team were arriving to bins before they had reached full capacity. Until the team had travelled and arrived to each bin, there was no way of identifying the bins current fill level to be able to time the emptying of bins in the most efficient way.

The trial sensor results have shown a decrease of overflowing bin reports from customers and elected members for the bins trialling the technology – with no sensor bins receiving overflowing bin reports. The result of only emptying bins when it is needed has shown a decrease of visits to bins by 53% by cutting out unnecessary trips.

To demonstrate the reduction of unnecessary visits, figure 8 shows a bin serviced between 0 – 3 times per month since a sensor has been installed. Prior to the sensor installation, the bin was being visited for emptying 7 – 9 times per month.

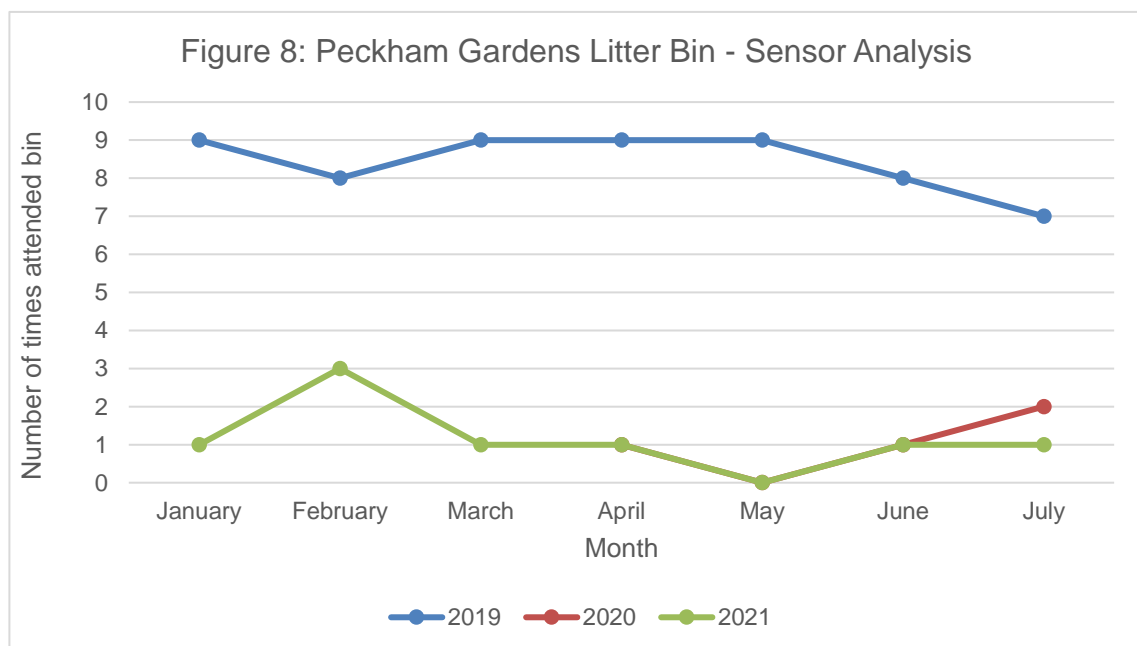
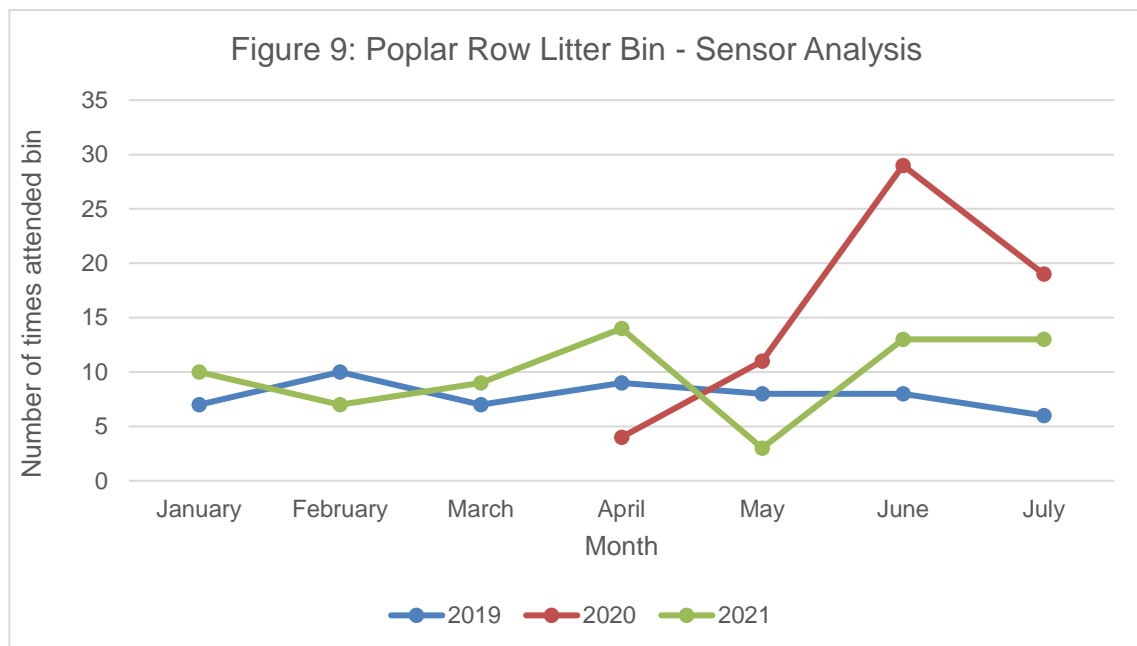


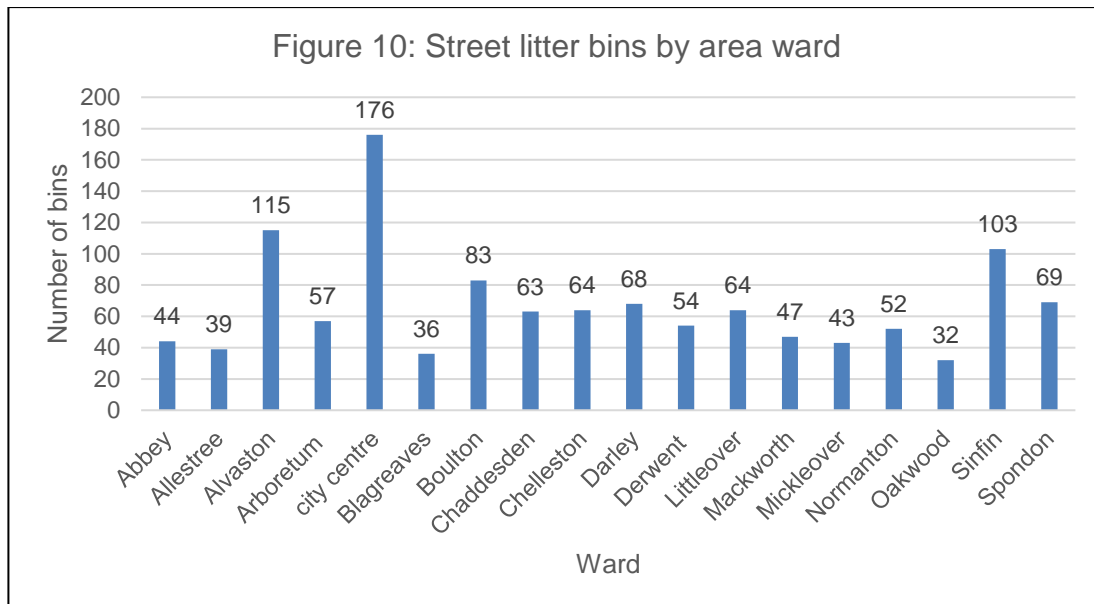
Figure 9: Prior to the sensor, this bin was emptied 6 – 10 times per month, and since a sensor has been installed this has been emptied between 4 – 29 times per month. Data suggests that before fitting the sensor, this particular bin spent a proportion of time full and overflowing. This is a typical bin which would lead us towards implementing a double capacity litter bin, which may still be emptied more frequently than the single bin was prior to the sensor being installed.



Emptying the 200 litter bins only when it is needed has freed up capacity of the litter bin team, now being able to be allocated other duties. It is anticipated this team will be able to maintain the additional sensor bins, doing ‘more with the same’. The technology can also drive us towards more intelligence led decisions, such as helping to determine if areas require additional or double capacity litter bins to reduce littering.

- 4.16 A litter bin audit across Derby has recently been completed to identify where all the bins are located, the type of bin, and the condition. This audit helps us to understand where all of our litter bins are and if they are the type and condition for sensor technology to be installed and we captured this data on Whitespace.

The audit identified there are 1209 street litter bins currently situated within Derby, and 48 litter bins on the installation programme list to be installed over the next few months. Figure 10 shows the 1209 litter bins by ward, for the purpose of this report City centre is recorded separately to the rest of Arboretum ward.



The audit also identifies the capacity of our current bins. Currently there are 120L, 240L and 50L bins installed and maintained by street cleansing. As part of this audit, all 50L capacity bins have been assessed for suitability to of replacement for a bigger capacity which we aspire to do.

We are now preparing an options report aiming to further roll out sensors across the City to increase efficiencies of the bin service, reduce the number of overflowing bins which will help the public to dispose of litter responsibly while out of their home.

- 4.17 Grounds maintenance are responsible for the maintenance of litter bins on parks and open spaces. A project is currently taking place to look at feasibility and options to enhance their current bin service, reviewing bin locations, bin capacity and emptying methods. As part of this project a litter bin audit has been planned to assess current bin types, locations and the asset condition, the target to complete this audit is by the end of 2021. Once this project is complete an options paper will be written and presented, drawing together the findings of the review and audit, providing recommendations to enhance this service and the impact this will have.

Raynesway HWRC opening hours and fly-tipping

- 4.18 The coronavirus pandemic has seen a fundamental change to our way of life, with residents being instructed to stay at home to stop the spread of the disease. As a result, Raynesway Household Waste Recycling Centre, alongside other HWRC's across the UK closed until they were able to adapt its service to meet the keep its staff and visitors safe.
- 4.19 Raynesway re-opened with revised times and ways of working during the first wave of the pandemic. Figure 11 lists the dates and changes undertaken by Raynesway during the first covid-19 lockdown.

Date	Action
24 th March, 2020	Raynesway closed due to Covid-19.
16 th May, 2020	Raynesway re-opens with revised times. <ul style="list-style-type: none"> - Sat – Mon (8am – 6pm) - Tues – Fri (4pm – 8pm) Slots per week of 1,472.
23 rd June, 2020	Number of slots per hour increased from 32 to 40. Slots per week increased to 1,840.
14 th July, 2020	Opening hours increased on a Tues – Fri from 1pm to 7pm. Slots per week increased to 2,160.
14 th December 2020	Number of slots per hour increased from 40 to 48. Slots per week increased to 2592.
12 th July, 2021	12 visits per year per household limit introduced.

Figure 11: Key dates at Raynesway HWRC

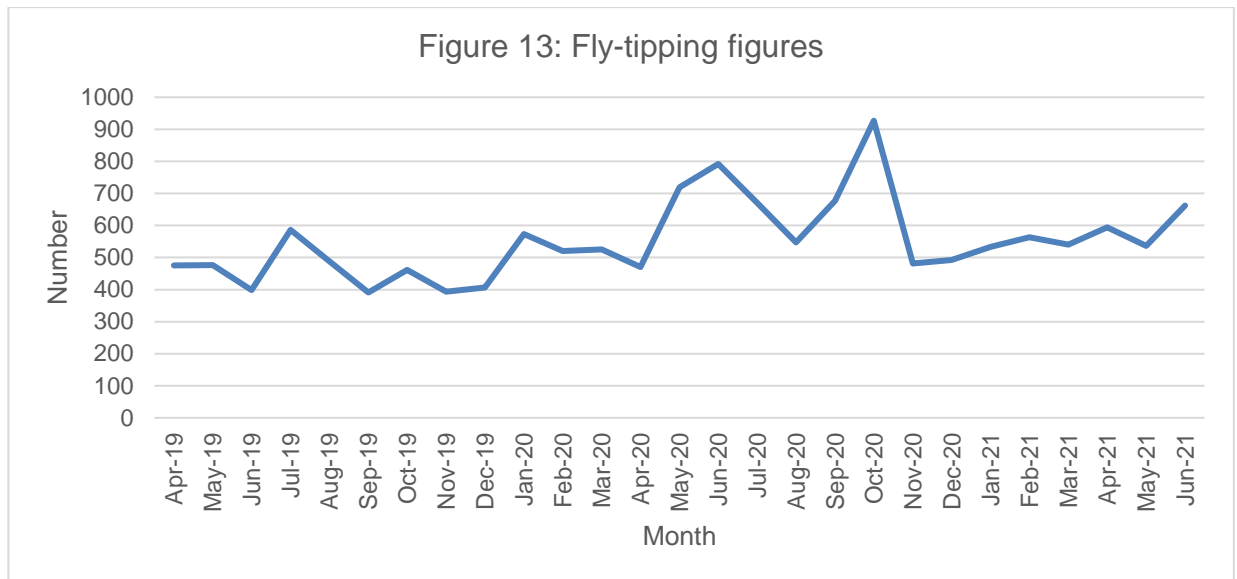
This shows slots were available throughout the pandemic, increasing capacity in June, July and December 2020, shown in figure 12.

Date	Slots per Week	Overall change in Weekly slots available
16 th May, 2020	1,472	-
23 rd June, 2020	1,840	368 extra slots (+25%)
14 th July, 2020	2,160	320 extra slots (+17%)
14 th December 2020	2,592	432 extra slots (+20%)

Figure 12: Raynesway HWRC slot availability

Since the booking system has been implemented at the HWRC 99% of the available slots are being booked.

- 4.20 There has been a national increase in fly-tipping incidents throughout the pandemic. Figure 13 shows the number of fly-tipping incidents between April 2019 and June 2021 in Derby.



- 4.21 When assessing the fly-tipping incidents reported by the Council, there was a 26% increase in overall incidents during 2020/21 when compared to 2019/20.

The primary spikes recorded during the covid-19 period were in May, June and October 2020, with October 2020 being the largest spike across the past 27 months. The HWRC reopened in May 2020 and increased capacity throughout 2020. So, while capacity was being increased at the HWRC fly-tipping was still rising, therefore the rise in fly-tipping does not correlate with the operations of the HWRC.

The majority of the fly-tipping incidents are proactively removed by the teams, opposed to reports from customers.

- 4.22 This does correlate to the national trend of an increase in fly-tipping. However, comparing our rise in cases compared to the wider Derbyshire and East Midlands area shows Derby City contributed to a slim percentage within the wider East Midlands area. This can be shown in figure 14.

	Incidents April - March 19/20	Estimated clearance costs 19/20	Incidents April - March 20/21	Estimated clearance costs 20/21	% change in incidents	% change in costs
Derby City Council	5,728	£243,831	7,207	£334,851	26%	37%
Derby and Derbyshire	10,006	£502,420	13,059	£680,614	31%	35%
Derby and Derbyshire (excluding Derby City)	4,278	£258,589	5,852	£345,763	37%	34%
East midlands	75,081	£3,710,752	88,967	£4,503,705	18%	21%

Figure 14: Fly-tipping incidents Derby, Derbyshire, East Midlands

- 4.23 Opening arrangements of other HWRC's across Derbyshire and the East Midlands vary from site to site. Raynesway was operational again back in May 2020 during the first spike of Fly Tipping incidents and was able to respond to the higher rates of demand, with increasing capacity throughout June and July to accommodate more visitors.

Data suggests that following the spikes in fly-tipping shown on figure 13, this reduced to more normal pre-COVID levels in November 20 – June 21. Throughout this period, the HWRC maintained the opening hours and a bookable system.

- 4.24 There is a HWRC annual survey is currently taking place, the results of this survey will provide feedback and identify the level of satisfaction of the current booking system. It is worth noting a number of compliments have been received since the booking system has been implemented relating specifically to queuing times and site congestion.
- 4.25 It is also worth noting, residents requiring Bulky Waste Collections continued to be collected over the lockdown period, whilst demand has soared, this service has still been able to operate by the council. This indicates the pandemic has created a change in lifestyles and with more people at home, 'around the house' tasks may be carried out at a higher rate which generates waste. The rise in demand for bulky waste suggests residents are less inclined to fly-tip and dispose of their waste responsibly.

Public/stakeholder engagement

- 5.1 APSE's state of the market survey for street cleansing services 2020, and the 2021 market survey both demonstrate street cleansing services are driving towards innovative solutions to increase and maximise efficiencies. In the 2021 survey, the main efficiencies being proposed or worked towards includes 'better use of technology to maximise efficiency', 'use of smart litter bins reducing emptying frequencies' and 'route optimisation'.
- 5.2 Litter bin sensor technology is now being used globally to drive efficiencies. Douglas Borough Council embarked in using sensor technology and adapting the size of their litter bins a number of years ago. The results of this was an increase of service efficiency, and in 2017 Douglas Borough Council waste services team was given the Keep Britain Tidy award for quality improvement based on the results of the bin sensor project.

Financial and value for money issues

- 6.1 Both the Whitespace system and litter bin technology has allowed us to realise efficiencies and achieve benefits outlined in this report.
- 6.2 To enable social distancing at the Raynesway HWRC site, opening times were reduced, bays were restricted to one resident per bay and a booking system was implemented which received positive feedback from residents and local businesses. A saving of £575k realised from the changes were include in the Council's MTFP to support the balancing of the Council's finances during significantly increasing demands across all Council Service through the pandemic.

Legal implications

- 7.1 The legal implication of enhancing the litter bin emptying and improving efficiencies within the street cleansing service is in line with the standards set out within the Environmental Protection Act 1990 and the Code of Practice on Litter and Refuse 2006. Implementing sensor technology will reduce the risk of breaching the requirements set out within the Environmental Protection Act 1990, by providing bin capacity for the public to responsibly dispose of their litter.

Climate implications

- 8.1 Introducing Whitespace technology into street cleansing has digitised our service, eliminating the need to print over 10,000 worksheets a year. Receiving work digitally allows for route optimisation, structuring the teams work in the optimum way. This has a positive impact on our carbon footprint and the environment.

The trial of sensor technology explored within this report has demonstrated we can use the technology to eliminate unnecessary trips to bins, only emptying the litter bins when

they are required. Again, this has a positive impact on our carbon footprint and the environment.

Other significant implications

- 9.1 The roll out of sensor technology is a new and exciting opportunity for the service. While it is anticipated further roll out will provide a positive impact to Derby and the community, monitoring of resources will be required throughout the first year. A possibility is that the service may need to increase resources should the demand consume the resources we currently have. An example of this is the litter bin in figure 9, where emptying has increased from 6 – 10 times per month to 4 – 29 times per month.

This report has been approved by the following people:

Role	Name	Date of sign-off
Legal		
Finance		
Service Director(s)		
Report sponsor		
Other(s)		

Background papers:
List of appendices: