Briefing 22-43 October 2022

Scottish Fleet, Waste and Grounds Seminar 2022: Report Back (Waste)

To: All Chief Executives, Main Contacts and APSE Contacts in Scotland. For information only to England, Northern Ireland and Wales

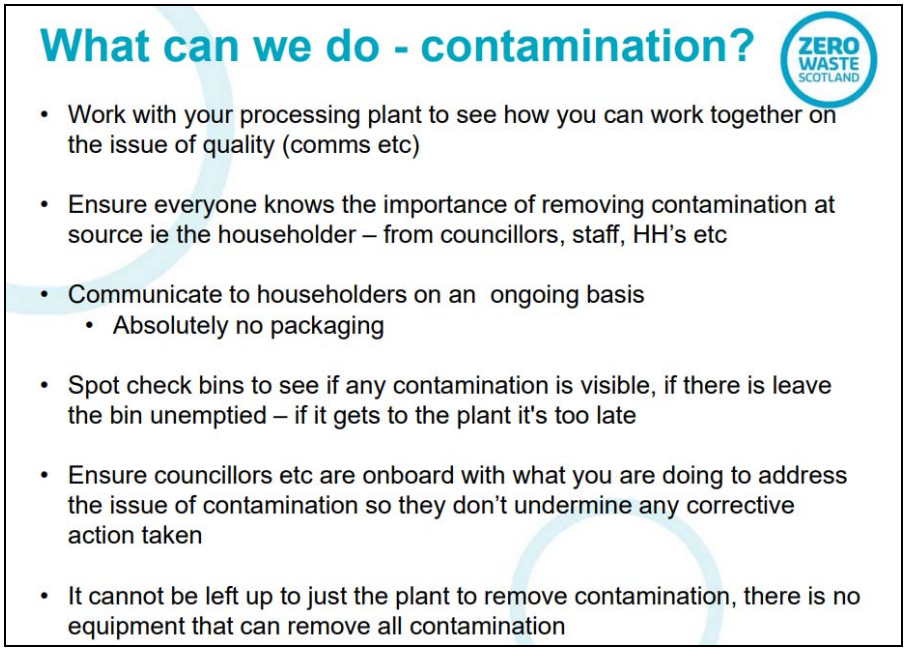
Key Issues:

On the 18th and 19th May 2022, APSE held its annual Scottish Fleet, Waste and Grounds seminar in Aviemore. This briefing provides a short summary of the seminar's waste speakers and the topics covered at discussion forums. There are three separate briefings for the fleet, waste and grounds sections. Links to all of the presentations can be found here.

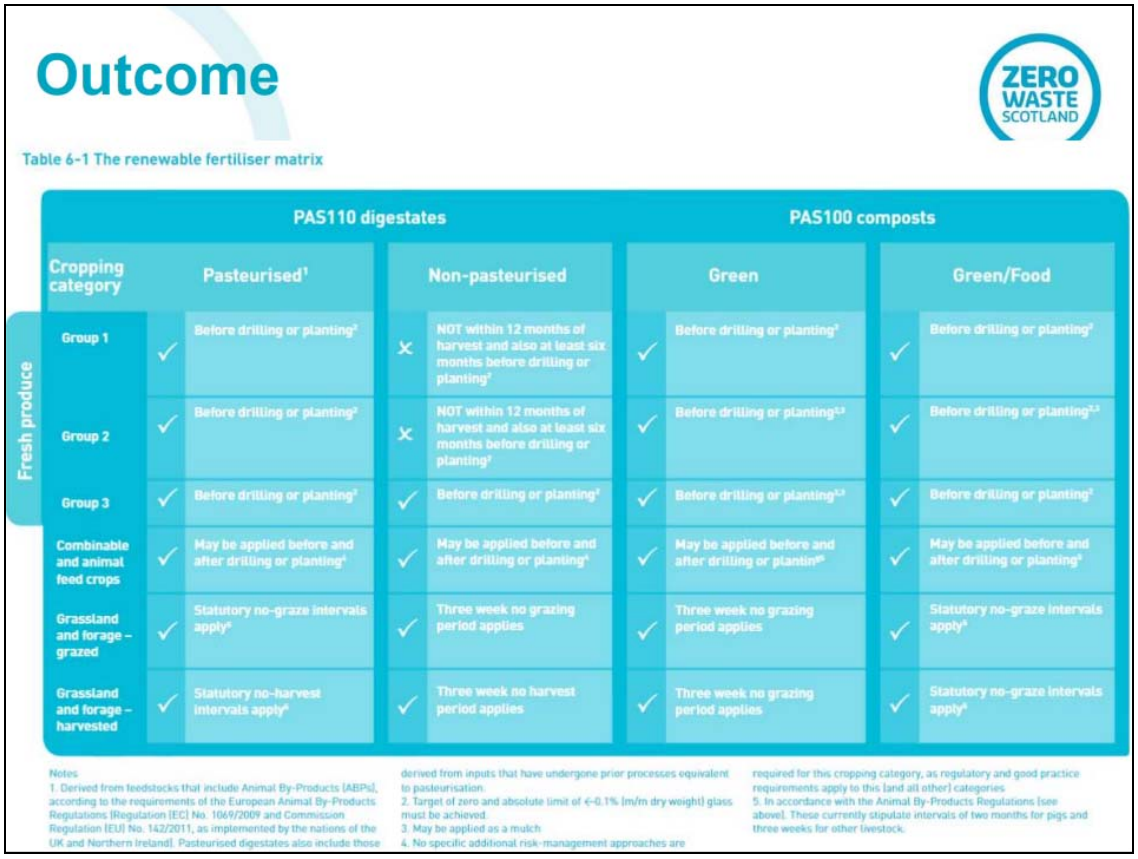
1.0 Presentations

Food waste recycling - where are we now?

Alison McKinnie, Project Manager Organics, Zero Waste Scotland



Alison McKinnie from Zero Waste Scotland presented on where we are now with food waste recycling. Food waste recycling began with very little infrastructure and some upcoming policies. In terms of infrastructure, there are compost sites with 6 operating for food and garden waste (170,000tpa) and 30 taking garden waste only (200,000tpa). There are 10 anaerobic digestion facilities handling food waste (400,000tpa), approximately 13 industrial anaerobic digestion sites (e.g. distilleries) and approximately 53 farm fed sites (600,000tpa) taking items such as rye, grass and maize silage, manures, etc. The journey so far has been bumpy, with most other countries using anaerobic digestion for maize and crops but not many for food waste. There are markets for compost and digestate. The problem is that 99% of the market for compost and digestate is agriculture. Food-chain stakeholders prompted questions on the safety of compost and digestates. The response was a wide-ranging programme of evidence gathering funded by the Waste and Resources Action Programme (WRAP) and Zero Waste Scotland covering food, plant and animal pathogens, toxins and compound. It took over 7 years of work, evidence gathering, risk assessments, field trials, lab work and literature review. The outcome of this is shown in the table below.



Outcome

Table 6-1 The renewable fertiliser matrix

	Cropping category	PAS110 digestates: Pasteurised[1]	PAS110 digestates: Non-pasteurised	PAS100 composts: Green	PAS100 composts: Green/Food
Fresh produce	Group 1	✓ Before drilling or planting[2]	✗ NOT within 12 months of harvest and also at least six months before drilling or planting[2]	✓ Before drilling or planting[2]	✓ Before drilling or planting[2]
	Group 2	✓ Before drilling or planting[2]	✗ NOT within 12 months of harvest and also at least six months before drilling or planting[2]	✓ Before drilling or planting[2,3]	✓ Before drilling or planting[2,3]
	Group 3	✓ Before drilling or planting[2]	✓ Before drilling or planting[2]	✓ Before drilling or planting[2,3]	✓ Before drilling or planting[2]
	Combinable and animal feed crops	✓ May be applied before and after drilling or planting[4]	✓ May be applied before and after drilling or planting[4]	✓ May be applied before and after drilling or planting[4]	✓ May be applied before and after drilling or planting[4]
	Grassland and forage – grazed	✓ Statutory no-graze intervals apply[5]	✓ Three week no grazing period applies	✓ Three week no grazing period applies	✓ Statutory no-graze intervals apply[5]
	Grassland and forage – harvested	✓ Statutory no-harvest intervals apply[5]	✓ Three week no harvest period applies	✓ Three week no grazing period applies	✓ Statutory no-graze intervals apply[5]

Notes
1. Derived from feedstocks that include Animal By-Products (ABPs), according to the requirements of the European Animal By-Products Regulations (Regulation (EC) No. 1069/2009 and Commission Regulation (EU) No. 142/2011, as implemented by the nations of the UK and Northern Ireland). Pasteurised digestates also include those derived from inputs that have undergone prior processes equivalent to pasteurisation.
2. Target of zero and absolute limit of <0.1% (m/m dry weight) glass must be achieved.
3. May be applied as a mulch.
4. No specific additional risk-management approaches are required for this cropping category, as regulatory and good practice requirements apply to this (and all other) categories.
5. In accordance with the Animal By-Products Regulations (see above). These currently stipulate intervals of two months for pigs and three weeks for other livestock.

There were some caveats to this. The farm assurance bodies wanted tighter restrictions on physical contaminants within both compost and anaerobic digestion. SEPA followed and incorporated these limits into their end of waste criteria as this is linked to market acceptance. This is much tighter than the baseline PAS requirements. Zero Waste Scotland and WRAP produced lots of guidance documents and videos on this. The PAS100 and PAS 110 layout the process, testing regimes, time and temperature controls for each material, and the processes themselves are certified. Both materials reach their end of waste status when certified and meet additional requirements noted by SEPA in their position statements. They still face challenges with the contamination of feedstocks, getting more food waste out of the landfill bin, the lack of capacity in composting and the limited available land and crops suitable for compost and digestate use; but there are also opportunities for innovation, biorefining and reducing fossil-based fertiliser use in farming. Alison concluded her presentation by explaining what you can do with contamination; she suggested working with your processing plant to see how you can work together on the issue of quality. Ensure everyone knows the importance of removing contamination at the source, communicate to householders on an ongoing basis, spot check bins to see if any contamination is visible and if there is leave the bin unemptied.

Ensure councillors are onboard with what you are doing to address the issue of contamination so they don't undermine any corrective action taken. Alison emphasised that it cannot be left up to just the plant to remove contamination, and that there is no equipment that can remove all contamination.

Aberdeenshire's food waste collection method

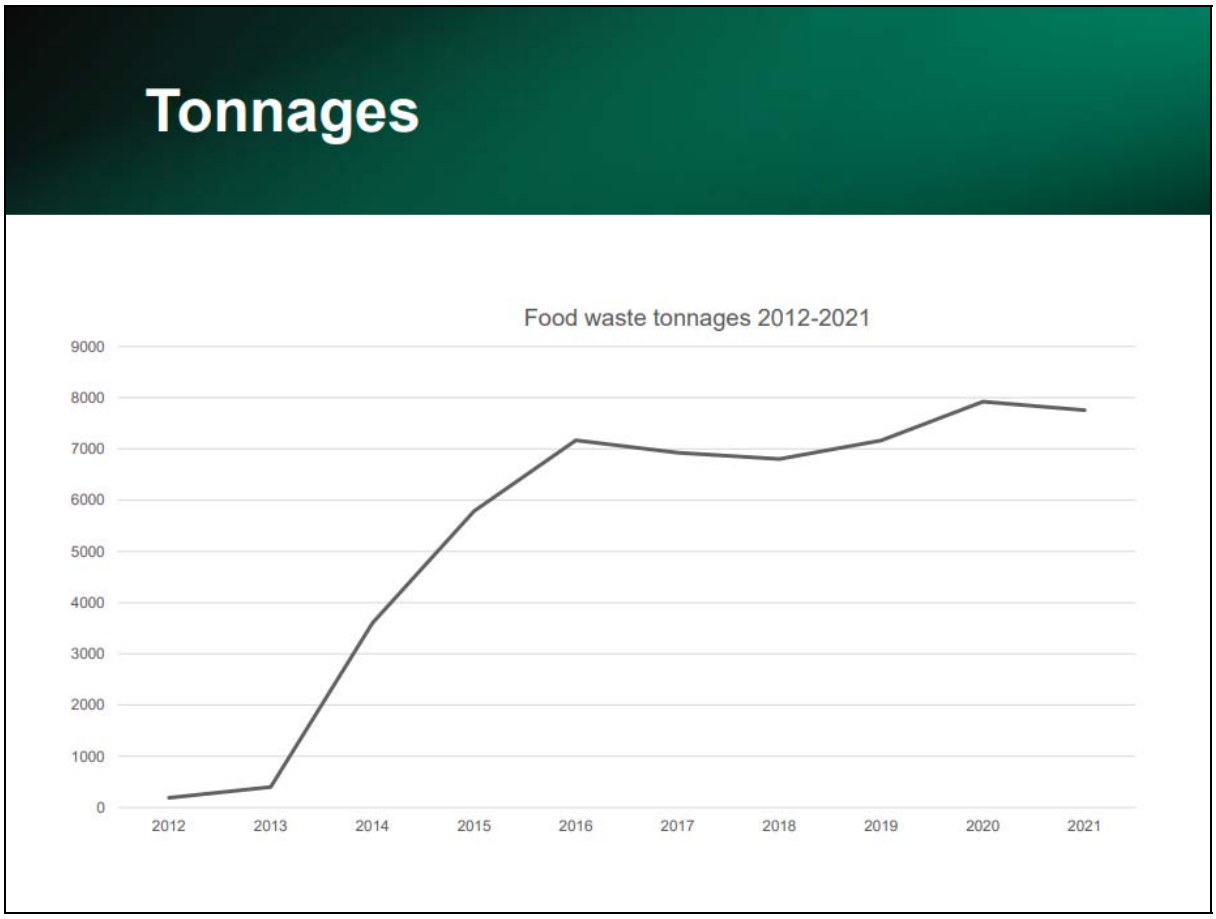
Andy Sheridan, Team Manager, Collections and Street Cleansing, Aberdeenshire Council

Andy provided some background to Aberdeenshire; it is 2,437 square miles with a population of 261,210 and a housing stock of 119,503. They have 6 administrative areas with 6 operational depots. Marr makes up 47% of the area but only has 15% of the population. Prior to 2013, they had two distinct services. Urban households were classed as settlements of 300 and above with fortnightly waste and kerbside sort of paper, cans, plastics and glass. Rural households had a fortnightly waste and paper/card collection picked up every 4 weeks. The criteria for the new collection service was to be compliant with the proposed Waste (Scotland) Regulations 2012, to provide a collection service for food waste for certain areas (areas with a population over 10,000, areas with a population of 3,000 within a 30-minute drive of a population of 10,000). This would make the collection of food waste mandatory to around 40,000 households. The aims of the new service was to

- increase recycling with recognition of the carbon metric implications of the various commodities
- to increase the range of materials collected for recycling and the recycling performance of the Council
- to increase the ease of use for the householder, to provide an equitable service to all households
- to increase ease of service delivery and to streamline their waste vehicle fleet.

They chose their new method of collection, and some of the benefits of this included that one vehicle was able to pick up food and recycling/waste at the same time, it allowed residents to be provided with a weekly food waste collection, it standardised the fleet and

was the most cost-effective option. The new service started in Banff on 4th November 2013.



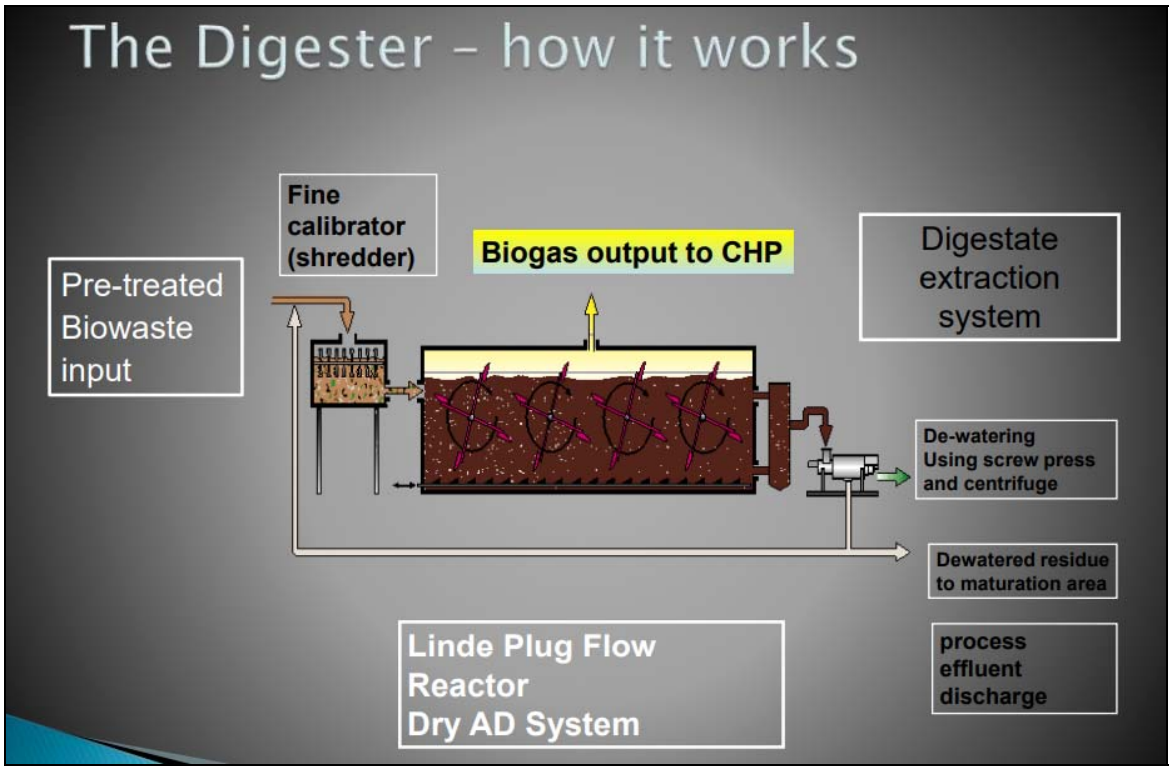
Food waste tonnages grew significantly since the introduction of the service. Aberdeenshire have a new service launching in 2023 which will have a 3 weekly collection cycle. Week 1 is the food waste caddy and non-recyclable 240 litre waste bin. Week 2 is the food waste caddy and 240 litre blue lidded recycling bin for paper, card and cardboard. Week 3 is the food waste caddy and a new 180 litre orange lidded recycling bin for mixed containers.

Outer Hebrides Local Energy Hub (OHLEH) - Delivering a circular economy

David MacLeod, Head of Municipal Services, Comhairle nan Eilean Siar

The Outer Hebrides Local Energy Hub (OHLEH) was developed to maximise the potential of constrained electricity generation by utilising the existing infrastructure at Creed Park Waste Management Facility on the Isle of Lewis. OHLEH demonstrates how different renewable energy technologies can be integrated using a local microgrid to support local energy economies and circular supply chains. OHLEH develop green disposal routes for

local sources of organic waste and provides access to green hydrogen and green oxygen. Creed Park Waste Management Facility was constructed and commissioned in 2006, it was the first Anaerobic Digestion (AD) plant in the UK to use 'dry' AD technology to treat municipal organic waste. A food and garden waste collection service is provided to 11,000 households in Lewis and Harris generating 3,000 tonnes per annum. It was designed with extra capacity for the potential treatment of fish waste from the local salmon farming industry. The Combined Heat and Power system is used to generate electrical energy and heat from biogas. The grid connection would be constrained if the plant was operating to capacity. Why anaerobic digestion? Anaerobic treatment of organic waste breaks down bio-solids, producing biogas which is used to fuel a Combined Heat and Power system. A "dry anaerobic digestion" system is more robust than traditional batch anaerobic digestion and very tolerant to feedstock variation. How the digester works is shown in the diagram below.



Food waste is important because the contribution of food wastage emissions to global warming is almost equivalent (87%) to global road transport emissions. The United Nations Food and Agriculture Organisation said if food waste were a country, it would have the third biggest carbon footprint after the United States and China. The use of food waste as part of the anaerobic digestion feedstock produces an organic based digestate which is rich in nitrogen, potassium and phosphorous. Digestate has a longer nutrient

release than manure and is high in organic carbon. PAS110 was achieved in 2020 and local soil improvement trials are ongoing.

The Creed Park Wind Turbine is constrained to 225kW due to the limited local grid capacity; commissioned at 300kW by developing a heat store to provide a source of hot water for the anaerobic digestion process. The OHLEH microgrid allows generation to be used for hydrogen and oxygen production. The Combined Heat and Power (CHP) System uses biogas captured from the anaerobic digestion process. The CHP engine is used to generate electrical energy and heat. Electrical energy is used to power the facility or is fed to the local grid. Heat is used to maintain the anaerobic digestion plant at 58˚C and provide heating for the building. Grid connection would be constrained if the plant was operating to capacity. The hydrogen electrolyser was commissioned in 2010 as part of the Hydrogen Hebrides project. It is an Alkaline Electrolyser with high pressure hydrogen storage. They have a hydrogen fuelling station with capacity for fuelling Hydrogen Internal Combustion Engine (HICE) or Fuel Cell vehicles. OHLEH provided an opportunity to add Hydrogen Internal Combustion Engine technology to a new Comhairle Refuse Collection Vehicle. The conversion costs for the RCV are similar to adding HICE technology to a van but at a much smaller percentage of the vehicle cost. HICE allows the vehicle to operate on diesel-only mode so the vehicle can continue to be used even if the hydrogen tank is empty and there is no “range anxiety”. They believe that the best “bang for buck” is to use hydrogen as a replacement Refuse Collection Vehicle fuel. Their Ulemco converted HICE RCV can use hydrogen generated from the waste it brings to site. Having built-infrastructure with potential for improvement, OHLEH provided an ideal opportunity to develop deliverable innovative and sustainable solutions. OHLEH provided the opportunity to obtain support and commitment from the local salmon industry that would help support and sustain local production and local jobs. Financial support from the Local Energy Challenge Fund was essential for this project to succeed.

Oxygen from electrolysis is usually vented as a waste. OHLEH identified an existing island market for high-purity oxygen for industrial and medical applications. The high local market value is due to ferry transport restrictions and the cost of transporting small cylinders of gas. OHLEH is the first electrolyser to combine oxygen and hydrogen capture.

The biggest legacy of a project like OHLEH is gaining and sharing knowledge. OHLEH has generated interest from all over the world, including Scandinavia, Chile, Ireland and Germany. Flensburg University were so interested that they based a five-week placement on the OHLEH project in Stornoway for 17 Masters and PHD students. GENCOMM also considered OHLEH to be a good enough reason to hold their two-day energy conference in Stornoway so that a site visit to OHLEH could be included. OHLEH has not been without technical challenges but every challenge provided a new learning opportunity. Despite (or perhaps because) the plant operated in a stable manner for over nine years, the addition of a relatively small amount of fish waste was enough to upset the biomass. Learning to deal with the consequences of virtual collapse of gas output was an interesting experience. Bringing the anaerobic digestion plant back to life was challenging but rewarding and we now know what to do to maintain balance going forward. The Creed anaerobic digestion plant operates at thermophilic temperature (58˚C), this is efficient but stability can be difficult to maintain. Changing to mesophilic (mid-30˚C) would be more stable and could allow more fish waste to be processed but modelling has shown that gas yields would reduce significantly. Redesigning plant and making significant operational changes will always be difficult but when you operate in a remote island location it can be very challenging. Maintaining a positive partnership relationship with all project partners is essential for success helping to ensure that solutions to unexpected problems can be found quickly.

Final destination - Tracking our waste

Andrew Sullivan, Principal Policy Officer, Scottish Environmental Protection Agency

Andrew Sullivan from SEPA presented on waste tracking. He explained that digital waste tracking provides a comprehensive way to see what is happening to waste in the UK, helps support more effective regulation of waste and helps businesses comply with their duty of care. It also helps us move towards a more circular economy by enabling us to maximise value from our resources and reduces the ability for waste criminals to operate.

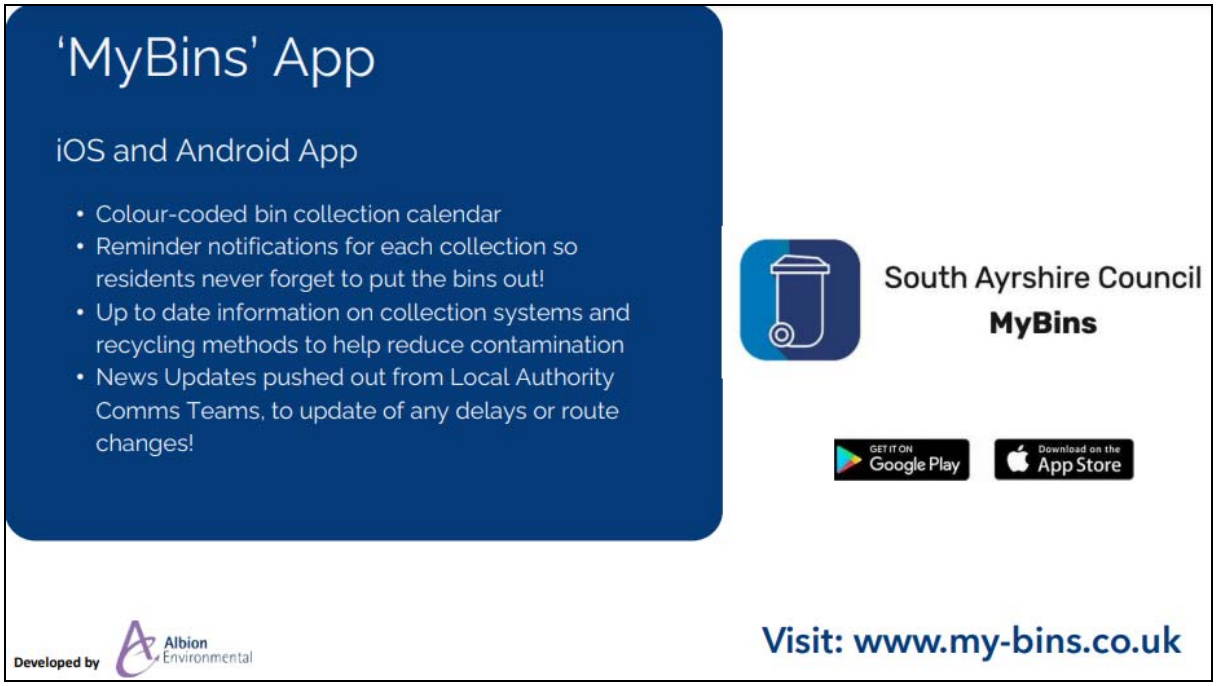
The roll out of digital waste tracking is scheduled for 2023 to 2024. It is a UK project featuring SEPA, Scottish Government, Environment Agency, Department for Environment Food & Rural Affairs, Natural Resources Wales, the Welsh Government, Department of Agriculture, Environment and Rural Affairs and Northern Ireland Environment Agency. The Environment Act 2021 received Royal Assent in November 2021; Sections 58 and 59 of the Act provide the powers for mandatory digital waste tracking to be introduced across the UK. Waste tracking regulations will be developed in each of the four UK nations. A consultation launched on mandatory digital waste tracking in January 2022 which received over 700 responses including 178 from Scottish businesses and organisations. Local authorities were involved through a user panel with surveys and user testing of prototypes. In addition, there was a SEPA study in December 2021 to understand the impact of digital waste tracking which most local authorities took part in. There was also DEFRA user research with UK local authorities in February 2022 to gather information about how local authorities gather and report data which 2 Scottish local authorities took part in. Others are being kept up to date via the SEPA newsletter and Data Practitioner events. The waste types involved are controlled waste (hazardous and non-hazardous, commercial and industrial waste), extractive waste from mines and quarries, and waste containing persistent organic pollutants (POPs). End to end tracking will cover the full journey of waste from the point of production through to its end fate (either disposal or recovery). Andrew outlined some of the changes to reporting. Separate reporting will no

longer be required for quarterly permitted/licensed site returns, special waste consignment notes, complex exemption returns, local authority waste collection and treatment information and AnnexVII forms for waste exports. Amendments will be required to legislation including waste duty of care, hazardous waste, transfrontier shipments of waste and waste permitting and licensing. Next steps include green list waste exports (the prototype for this is well advanced), hazardous waste movements (they are starting to build a prototype and test with users) and cross-cutting functionality such as user registration and taking payments. Andrew rounded up his presentation promoting the mandatory digital waste tracking website, DEFRA consultation documents, the Waste Tracking Service User Panel, the waste tracking newsletter and SEPA's email for waste tracking (wastetracking@sepa.org.uk).

Using technology to engage with our communities

John Morrison, Coordinator - Waste Strategy and Paul Dougall, Waste Management and Recycling Team Leader, South Ayrshire Council

John Morrison presented on the South Ayrshire Council MyBins App. John began by giving some background information on the council which has a population of 112,550 with 59,304 households across a mix or urban and rural areas. The current model for South Ayrshire's waste collection includes a 240 litre 4 weekly collection for plastics, metals and cartons; a 180 litre 4 weekly collection for paper, card and cardboard; a 140 litre 6 weekly collection for glass; a 240 litre 4 weekly collection for garden waste; a 240 litre 3 weekly collection for residual waste; and a 23-litre weekly collection for food waste. South Ayrshire have been working in partnership with Albion Environmental Ltd to bring residents a new app to keep up to date with bin collections and improve recycling habits. The MyBins App contains all the information you need concerning local recycling centres, collections and has a handy news section where you can find the latest updates from the council.

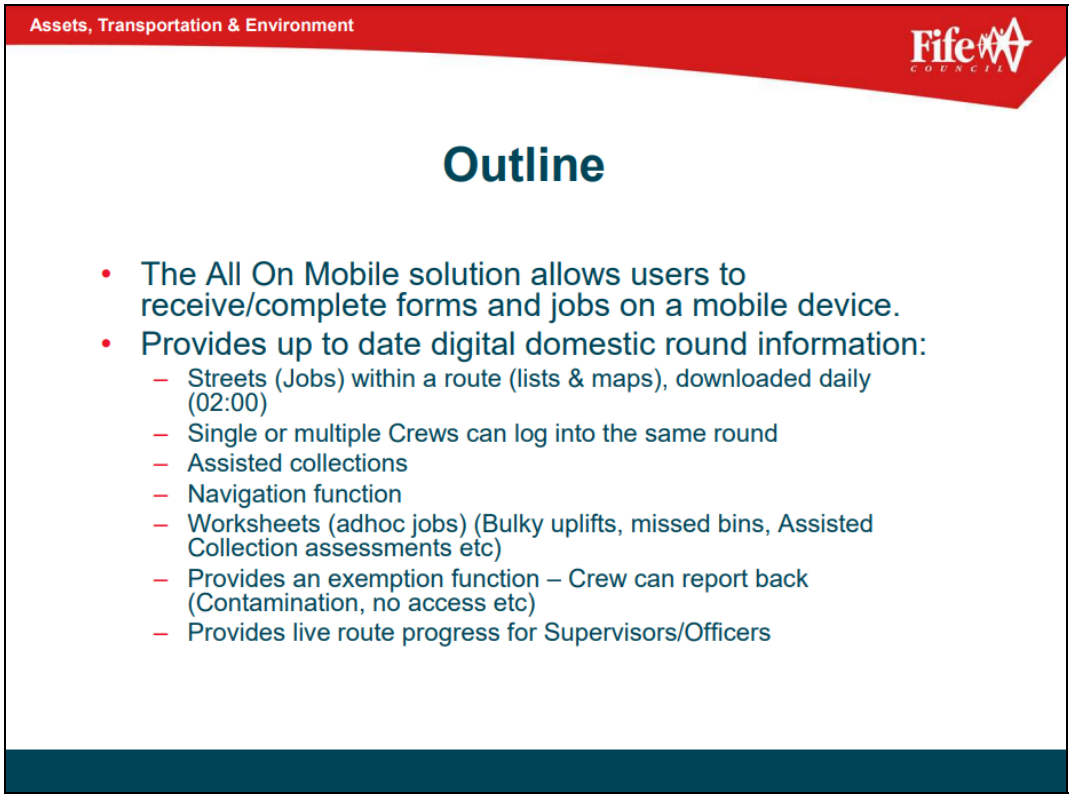


There were many reasons why they decided to introduce and invest in a bin app. There had been a significant increase in reports of missed bins, they wanted to reduce the number of return visits where bins are not put out on time or on the correct collection day. They wanted to make savings on fuel by making less journeys, to provide savings on resources by freeing up personnel to carry out other tasks, to encourage residents to separate their waste according to their Household Waste Recycling Service, and finally, to reduce contamination and improve the quality of the recycling they collect. The app is available to download on Android or iPhone and has been downloaded by 16,178 households (29%) as of January 2022. The app has a range of features including a colour-coded bin collection calendar, reminder notifications for each collection so residents never forget to put their bins out, up-to-date information on collection systems and recycling methods to help reduce contamination as well as news updated pushed out from the local authority's communications teams to update of any delays or route changes. John then went on to explain some of the functionality of the app. Residents enter their postcode and personalised colour-coded bin collection dates will be displayed, and users can click on the calendar dates to receive a pop-up with collection information. Users can set collection reminder notifications up to 3 days before collection at a specific day/time. 2 addresses can be stored on the app with notifications set for each location (e.g. to remind relatives). The app also has recycling tips and advice with a 'Which Bin?' feature that allows users to type in an item and they will be shown exactly how to recycle or dispose of the

item, and local authority specific advice with recycling and waste information provided by the council to tackle specific problems. The council can use the MyBins app data displayed on a postcode map to demonstrate the areas using the app. This data can be used to analyse the number of missed bins in the areas using or not using the app. The benefits to local authorities are reduced missed bin collections, less bin contamination and a direct communication channel with residents. John explained some of the challenges of launching the app with some residents not having smartphones, the cost spent introducing the app and some IT issues that had to be worked through. To date there has been very little negative feedback, it has been embraced by householders and South Ayrshire Council will continue to promote the app via social media and on their website to encourage more residents to use it.

Modernising Fife's waste collection service through technology

Sandy Anderson, Service Manager - Waste Operations and Shaun Kenyon, Team Manager for Waste Operations, Fife Council



Every week in Fife, over 185,000 properties receive a bin collection service with 4 waste streams: landfill, cans & plastics, food & garden waste, and paper & cardboard. This is collected by twenty-seven 26-tonne frontline RCVs and three 16.5-tonne RCVs for the rural

and hard to access areas. They operate a twin shift system with day shift between 06:00 to 13:42 and a back shift between 13:18 to 21:00. They have over 6000 assisted collections per week. They use Whitespace, a back-office system to manage the domestic waste and All on Mobile to provide / receive information from the crews. They also have a CMS Supatrak integrated camera system.

From 2014 to the current day, more services have become available online through the council. All of the domestic waste services and requests are now primarily booked through the website, though the contact centre is still available for customers without internet access. Prior to All on Mobile, the process would be:

- Customer books / pays for a service online
- Information is processed and fed into Lagan
- Lagan feeds this information into Whitespace
- Whitespace prioritises the job and allocates the work to the appropriate role (Supervisor, Recycling Advisor, etc)
- Worksheets printed and handed to the crew that will carry out the work
- Crew completes the work, signs off the worksheet and hands it back to the Supervisor
- Supervisor places the completed worksheet into the Business Support tray
- Business Support uplift the closed worksheets and then close the worksheet in Whitespace (usually 2 or 3 days after the job was completed)

The process with All on Mobile is as follows:

- Customer books and/or pays for a service online
- Information is processed and fed into Lagan
- Lagan feeds this information into Whitespace
- Whitespace prioritises the job and allocates the work to the appropriate role (Supervisor, Recycling Advisor, etc)
- The role allocates the (electronic) worksheets to the crew that will carry out the job
- Crew completes the job, submits the electronic worksheet which is immediately updated in Whitespace
- Supervisor/Management provided with route/job progress

The All on Mobile solution allows users to receive and complete forms and jobs on a mobile device. It provides up-to-date digital domestic round information with: jobs within a route downloaded daily, single or multiple crews can log into the same round, assisted collections, navigation function, worksheets for adhoc jobs such as bulky uplifts, missed bins, the system allows crews to provide exemptions (e.g. contamination, no access) and provides a live route progress for supervisors and officers. Shaun then provided attendees with a demonstration of the system.

There were many key factors involved in the project's success. It was essential to get crew buy in from the beginning of the project, to provide a user-friendly in-house training package to all users, ensure the round information is accurate, to identify how the tablet will be used and to undertake extensive user acceptance testing. The benefits so far include a 100% reduction in paper worksheets (over 52,000 per annum) and an over 15% reduction in missed assisted collections. It means there is one source providing up-to-date live round information which enables crews from other areas to provide assistance which reduces service failure. The crews' ability to close jobs and report exceptions are immediately recorded on Whitespace which provides round progress.

In 2014, Fife Council had their first hard-drive based 360-degree camera, then moved in 2017 to a hard-drive with a web-based app. In 2019, the council moved to CMS Supatrak's combined telematics and camera system. The benefits of this are that there is no need to remove the hard-drive from the vehicle, there is instant downloading following an incident, there is a live feed from the vehicle, it allows for remote supervisor checks and the ability to check for missed bins.

2.0 Waste discussion forum

The waste discussion forum was organised to debate the latest challenges and opportunities for the sector. The topics includes a deep dive into the recent APSE Deposit Return Scheme report led by APSE's Assistant Chief Executive, Mo Baines. As well as discussions on films and flexibles led by David Goodenough, Service Manager – Corporate Operations and Projects, Cireco Scotland.

3.0 APSE Comment

APSE encourages our membership to engage with the best practice lessons shared by our membership at this event. The presentation slides are available online here.

Discussions are continued at APSE Scotland's Waste & Recycling advisory group which is free to attend for APSE members. Previous presentations and discussion topics can be found on the APSE website. APSE recently issued a briefing regarding the Scottish Government Consultation on Delivering Scotland's circular economy: A Route Map to 2025 and beyond.

Through our training suite, advisory groups, research programmes and benchmarking service, membership of APSE can bring significant benefits to those who work in local government – from officers to directors to elected members to chief executives – by helping them comprehensively get to grips with the latest policy and technological developments. Not a member? Sign up today!

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