

## BETA Project Report, BagBin Trial



20<sup>th</sup> June 2022

## **Executive Summary and Recommendations**

**Context:** Dublin City Council initiated the above trial to explore solutions “To address the challenge of On Street Storage and Presentation of Waste in Dublin City Council Administrative Area”.

The use of plastic bags for the storage and presentation of waste causes significant issues in respect of the creation of litter through the failure of such bags through mishandling or interference from vermin and animals. The appearance of waste bags presented for collection also detracts from the streetscape and visual amenity of the city generally.

After a review of the current market via a PIN notice, Dublin City Council launched a pre-commercial procurement process (PCP) seeking potential solutions to this issue and received two responses. After the evaluation one proposal was selected to trial and a six month contract was awarded to Owenbridge to pilot their “Bagbin” solution.

**Findings:** The BagBin solution has been tested in varying locations and sites across the city. Feedback and local expertise indicates the BagBin waste receptacle achieves the required result of reducing litter from ripped bags provided it is used properly. It also hides waste bags, creating a more professional look to waste presentation and may have a future market potential within designated areas of the city.

A key part of the concept is the shared location of BagBin stations to store the BagBin waste receptacles. Storage of BagBins is essential to secure them when not in use, but will require a small portion of public space and will create additional street furniture in the public realm. Shared BagBin stations have the potential to confine the deposition of waste bags to a designated location; limiting the random presentation of waste bags along long stretches of the footpath. It would also reduce the number of times a waste collector has to stop on a given street, potentially resulting in time saving efficiencies for waste collectors.

BagBin stations have the potential for design improvements (public messaging etc.) However compared to the initial proposal of individual posts located at each commercial and domestic premises, shared stations are a preferable option.

Complexity and challenges exist with this concept and the potential scaling or adaption. These include:

- Ownership, Procurement and Liability
- Management of Multiple Waste Operators
- Management of public space for stations and planning permission
- Management of station space per operator (If shared)
- Role of Dublin City Council in commercial and residential waste collection
- Cost analysis
- Ease of use for all

### **Decision and Next Steps**

Dublin City Council would like to thank Owenbridge for the passion, energy and commitment shown throughout this trial.

Dublin City Council would also like to acknowledge and give special thanks to the residents, commercial businesses and the waste operators for their participation and engagement in the trial and for providing us with valuable input and feedback.

The ‘BagBin’ BETA Project has evolved through a co-design process with the support of a DCC project team and Owenbridge Ltd., leading to a more rounded solution and additional recommendations to further develop the commercial potential of this solution.

The trial highlighted the potential merits of this type of solution and recognises the positive benefits of “BagBin” in designated places of the city centre when used correctly including creating a more professional feel to waste presentation and reduction of loose litter as a result of animal and bird interference.

It also revealed several challenges in relation to the scalability of this solution and potential roll-out to a wider area within the City Council; relating to the proposed business model and suggestion for Dublin City Council’s ownership and management of the ‘BagBin’ solution – with waste collection the responsibility of licensed waste operators.

Based on the proposed business model suggested by Owenbridge (see business model at the end of this report) Dublin City Council would be expected to own this solution, would need to procure the solution for wider roll out, engage with multiple waste operators to adopt this service, provide planning permission for station locations, have liability in the event of accident or injury caused by BagBin receptacles or BagBin Stations and provide customer service support to commercial and residential users as well as waste operators.

Alternatively, it is the view of this group, that Dublin City Council could potentially support the licensing and approval of stations and receptacles deemed appropriate for use in conjunction with Planning and Bye-Law reviews by individual waste operators or by a company offering this solution at an affordable cost and as fully managed service.

Managing this solution would involve a cross departmental approach and resource allocation from departments including, planning, waste management and public realm on an ongoing basis. Public consultation may also be required regarding the location of BagBin stations.

Dublin City Council will revisit this solution in approximately 6 months, during which time it may have further matured and developed solutions to some of the aspects raised in this report.

During this period, Dublin City Council will also focus on a review of existing processes and procedures around times allocated for the presentation and collection of bagged waste and also explore options to include a provision for brown waste. These would likely also complement the BagBin solution should it be later adopted in some form.

## Trial Description




### Project Team:

This BETA Project was carried out by Dublin City Council's Waste Management with the support of staff from Corporate Services and Transformation (BETA and Smart Cities units) and our South East Area Office. It was carried out in close collaboration with Owenbridge, the proposers of the "BagBin" concept and approach.

### Background:

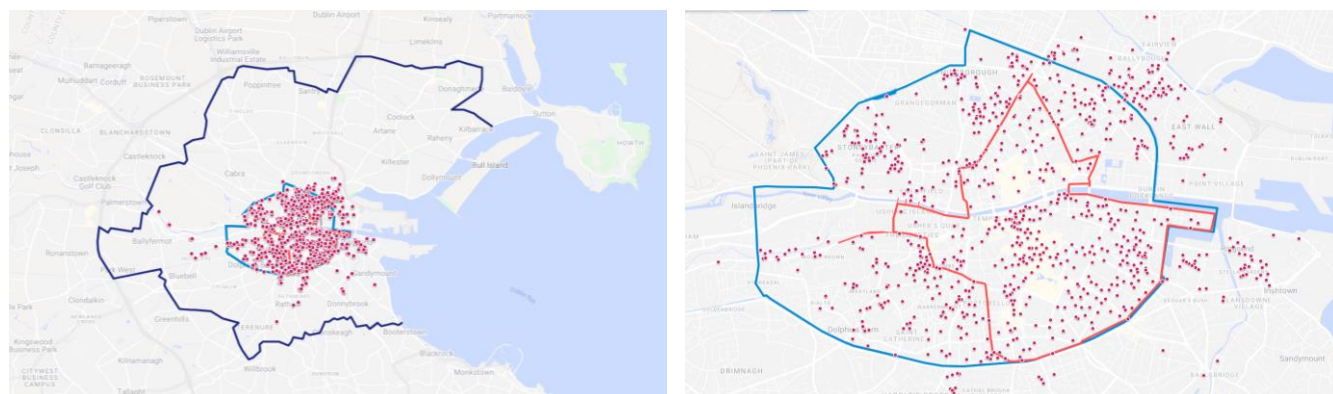
This project has arisen from the current [City Challenge on Dumping and Waste](#) – which seeks ways to improve our waste services and impact on levels of illegal dumping.

This BETA project was at **concept stage** and therefore our primary focus was on establishing the merit of the proposed solution, but with some tangential learnings about how the solution might be implemented at scale.

		
Concept Stage	Scaling Model Stage	Local Implementation Stage
Should Dublin?	How can/should Dublin?	Where in Dublin?
Does it cause any problems, is it beneficial for the city (or City Council), what sort of locations are suitable, etc?	Business model, funding, staffing, procurement, legals, maintenance, ownership of assets, insurance, planning, branding, etc.	Local feedback and input before permanent implementation of solutions in their area.
Projects at these stages 'default no' - ie they need to prove that they work as well as, or better than, what we currently do. Projects are REVIEWED and then fully REMOVED at the end of this stage.	Projects at these stages 'default no' - ie they need to prove that they work as well as, or better than, what we currently do. Projects are REVIEWED at the end of this stage.	Projects at these stages 'default yes' - ie the assumption is implementation if locals agree. Projects are permanently IMPLEMENTED at the end of this stage.

### Context:

There are many areas in Dublin and nationally where the use of wheeled bins for the presentation of waste is not possible due to the physical characteristics of the locality and the availability of waste storage space within premises. In these areas, plastic bags may be used to store and present waste for kerbside collection by authorised waste collectors, and you can see a map of these locations below.



*The dark blue boundary line is Dublin City Council's administrative area, the light blue boundary line is the area 'inside the canals' often considered "the city centre" and the red boundary line is the 'Central Commercial District'. The red dots represent bag collection streets.*

As can be seen from the above maps, the vast majority of streets which accept the presentation of waste in bags is in the city centre, and in turn about half of these streets are inside the 'Central Commercial District'.

The use of plastic bags for the on street storage and presentation of waste causes significant issues in respect of the creation of litter through the failure of such bags through mishandling or interference from vermin and animals. The appearance of waste bags presented for collection also detracts from the streetscape and visual amenity of the city generally.

Dublin City Council [sought innovative solutions](#) to better manage the on street storage and presentation of household and commercial waste in Dublin via a [pre-commercial procurement](#) tender (PCP Tender).

An entry by a company called Owenbridge was selected for trialling was 'BagBin'. It proposed a container which can be folded flat when not in use, and then unfolded to create a temporary enclosure or 'bin' in which to store the bags. They are a short-term, shared, bag waste storage covering solution that protects waste from the elements and animal interference. When collapsed and folded flat, they are stored on-street – in a BagBin 'station'.

The sequence proposed was this:

1. Customers continue to present their waste only at the appropriate day and time.
2. 'BagBins' are stored onstreet, at an onstreet BagBin 'station'. Each BagBin would be marked with the name of the particular waste collectors serving that location. (So if there were 3 waste collectors at a particular location, each provider would have its own BagBin at each station.)
3. Customers remove the relevant BagBin which is marked with the logo of their particular waste collector.
4. They open out the BagBin to form the shape of a circular bin and position it on the footpath nearby.
5. They then place their bag(s) inside the enclosure. Others who also use that same waste collector can then add further bags to that same BagBin until it reaches capacity. If full, they can take another BagBin from the post.
6. Upon arrival, the waste collector lifts the BagBins marked with their logo, and would place the waste bags into the (unchanged) waste truck.
7. The waste collector then re-folds and replaces the empty BagBins at the nearby station, ready to be reused.

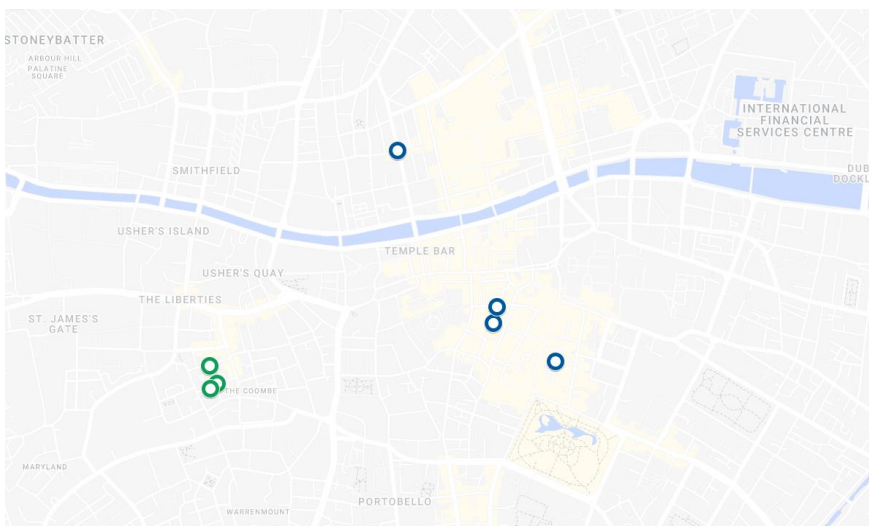
#### Trial Size/Extent:

40 businesses across 4 commercial trial locations (marked blue on below map)

- Junction of Drury Street / Castlemarket, Dublin 2
- Junction of Drury Street / Exchequer Street, Dublin 2
- Junction of South Anne Street / Anne's Lane junction, Dublin 2
- Junction of Capel Street / Mary Street Little, Dublin 7

46 households across 3 residential trial locations (marked green on below map)

- Junction of Reginald Street / Meath Place, Dublin 8
- Junction of Reginald Street / Gray Street, Dublin 8
- Junction of Gray Street / Meath Square, Dublin 8



Trial Period & Duration: Trial began October 2021, finished April 2022, with various BagBins stations in place for shorter lengths of time.

Cost: Dublin City Council contributed €50,000 towards this trial.



## **Findings**

### **Choosing Station Locations**

Commercial waste customers currently tend to group their waste with other commercial waste customers at a particular location in proximity to their business (for example at a nearby street corner or junction). The BagBin solution simply replaced this approach. As a result, there was no negative feedback received in relation to locating the stations as people were already accustomed to waste being presented at those locations.

Residential waste customers currently place their waste next to the property in which they live. The shared location for the BagBin introduces 4 changes:

- i. It meant that certain homes were in close proximity to the shared waste of multiple households.
- ii. Moving to a shared location required residents to walk further with their waste.
- iii. A shared location for the waste of multiple customers requires a larger area at a single point, rather than a narrower amount of space spread out over a longer area.
- iv. Shared waste was then placed on the roadway side of the footpath rather than building side of footpath.

These are discussed in detail below.

#### **Proximity to homes**

Several residents objected to having a BagBin station (and the storage of multiple household's waste) next to their home, but were supportive of the concept. For example one resident asked for the station to be moved to the other side of the street directly opposite her home, but was very supportive of the solution. Another noted

*"We don't mind it because we're at the middle of the street, but we're not sure that the people whose houses they're in front of are so happy."*

Another resident objected to the BagBin station (and associated BagBins) being placed next to his home. A wheelchair user, his downstairs bedroom was his primary room in his home and the trial would have meant up to 10 households' waste being presented directly next to his bedroom window.

#### **Carrying waste to a shared location**

Commercial customers appear to have smaller waste bags in comparison to residential users (in the commercial areas, each BagBin generally fit 3-4 waste bags whereas in residential areas, each only generally held 2-3 waste bags). Their bags may be lighter as a result. Commercial waste customers are also accustomed to grouping their waste with others at shared locations. The BagBin model didn't require them to change this practice and they gave no negative feedback in relation to this aspect.

In the residential locations, the BagBin stations were about 40m (around 20 seconds walk for an average person not carrying anything) from the midpoint of the street. Residential waste customers are not used to having to carry (potentially heavy) bags for longer distances. For example, the below resident noted that the bag was heavy and that she found it difficult to carry the distance to the BagBin station.



One solution could be to require waste operators to also or alternatively provide a smaller bag size which would cost less and weigh less.

#### **Grouping Waste**

The residential locations trialled in this instance all have buildouts which provided a natural location for a communal BagBin station and deployment of bags (and some of the residents already use these locations for placing their waste).

However much of the city would not have this advantage, and would have simple straight footpaths. The BagBin solution was not trialled at any such locations, but we mocked up this scenario as below.



The BagBins in the photos below all have a 60cm diameter when opened, and one option could be the creation of a version with a narrower footprint, which might better serve certain locations or customer types.

Another option could be to relocate waste storage from the public footpath to the public roadway space. An area of half a car parking space would probably comfortably accommodate a BagBin station and 6-8 BagBins.



#### Positioning of waste on footpath

Switching from individual customers presenting their waste outside their own home, to using a shared location, means that waste will be placed away from individuals' homes and therefore on the carriageway side of the footpath (as can be seen in the above photo).

In narrow locations where a long queue of BagBins would be presented, it could begin to have implications for the opening of car doors, BikeBunkers, and so forth.

#### Outdoor dining

Proximity of waste storage locations should be considered in relation to the welcome increase of outdoor dining and 'street living'.

#### **Adoption of the BagBin approach**

Users were introduced to the new approach in two ways – via a personal explanation, or via a leaflet dropped into the door.

A user video was produced (of limited quality and found to have limited impact), and some noted that the signage on the station helped them to understand how they were intended to use the solution.

Adoption of the approach was relatively quick, with users using the approach within a matter of weeks. For example, no customers continued to place their bag outside their front door during the trial.

## BagBin Storage

The design of the BagBin onstreet storage ('stations') evolved over the course of the trial:

- Version 1: Owenbridge originally proposed an individual model of individual posts outside each business or residence. Customers would store their own BagBins within their own premises, and following collection, the waste operator staff member would hang the BagBin back flat onto this unique post.

For many reasons, we did not feel this would be a suitable solution, including street clutter, obscuring plate glass windows on retail units, complexity of fixing into footpaths or buildings, damage to heritage structures or footpaths, etc. As a result, the solution moved to explore a shared station based model.



- Version 2: Communal, freestanding, very open design, BagBins were only accessible to key-holders.



- Version 3: Communal, freestanding, closed sides and roof provided, BagBins can be simply removed without need for a key.





- Version 4: Communal, fixed to a street post (ideally existing), BagBins can be removed by lifting or sliding from ends, 'roof' removed. This design was slimmed down also for narrower locations.



Despite this design being open at the ends in order to enable users to slide out a BagBin, all users that we witnessed removed the BagBins by lifting rather than sliding out. This is despite several users expressing difficulty with being able to lift the BagBins vertically in that manner (they weigh 5kg which is not an insignificant weight to lift about 2m vertically and above shoulder height).

*"I wouldn't have even noticed that they open from the side." [resident user]*

That appeared to be due the design of having the top open and BagBins having a visible handle at the top.

There was generally low levels of litter placed into any of the stations. There was some concern at the residential location that they would be used to store drugs, but as far as we know such activity was never actually seen occurring.



### Identifying the correct BagBin

Users were required to identify a BagBin which was marked with the brand of their chosen waste operator (the one which matched the branded waste bags which they had purchased).

They needed to do this when;

- they were first to remove a BagBin from a station,
- adding a waste bag to a BagBin which had already been deployed by a previous customer.

In general, users placed the correct waste bag into the correct BagBin. Occasionally this wasn't the case which meant that the 'incorrect' waste operator left the bag for the other operator to collect from the footpath (or sometimes they placed it into the correct BagBin). However if the correct waste operator had already completed their collections, the bag remained behind on the street (usually picked up by Dublin City Council street cleaning staff).



Our observations of watching users seeking the correctly branded BagBin indicate that this aspect could be improved somewhat – for example, logos can be small or sometimes difficult to locate or read on BagBins when stowed away. They are very visible when BagBins are deployed.

### Removing and Positioning BagBins

3 issues affected the removal of BagBins from stations:

- i. Users placing BagBins around the station which interfered with access.
- ii. BagBins being incorrectly returned.
- iii. Bicycles locked to poles.

#### Users placing BagBins around Stations

Both commercial and domestic users had a natural tendency to place BagBins in close proximity to the BagBin station. This could sometimes result in it becoming difficult for later users to remove a BagBin from the station.

*“Very awkward to get to the station late in the evening when many bag bins are surrounding it.”*  
[commercial user]



One solution could be to nudge users towards a designated placement area. In the case of Drury Suggestion, some markings were provided but were ineffective. This approach would need further exploration.





### BagBins being incorrectly returned

The act of returning a BagBin to a station is generally a task done only by waste operators. In both commercial and domestic locations, the version 4 BagBin station design often caused users to incorrectly return BagBins – with their lids folded over other BagBins. When this occurred, BagBins became very difficult to remove from the station – even for an able-bodied person.

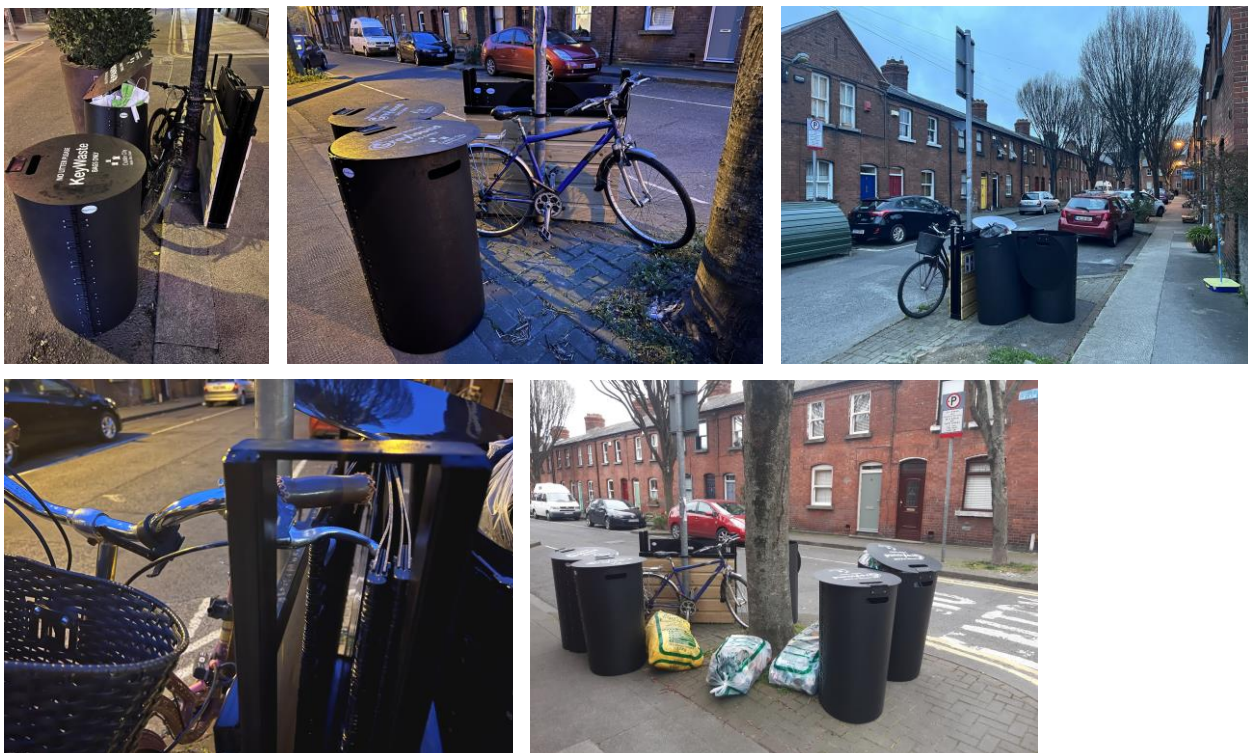


### Bicycles locked to poles

The version 4 station approach of using existing poles for BagBins meant that people often locked their bicycles next to the BagBin. This occurred in both commercial and domestic locations, but was most frequent in the domestic situation.

*“Bicycles etc in way.” [Resident user feedback]*

This sometimes affected the removal of BagBins and should warrant further consideration in a redesign of the station. Consideration of alternative bicycle parking options next to stations should also be considered for this reason, and also as the converse is also true – the BagBins could obstruct those bicycle users from easily accessing their bicycle (for example, see bottom right image).



## Opening a BagBin

There are two aspects to opening a BagBin and users often struggled with both:

- i. Users knowing how to open
- ii. Users physically being able to open

'Affordance' is a design term used to mean indicator(s) as to how an item operates and includes both its perceived and actual functions. For example, without ever reading a manual or being shown, users will usually quickly and simply understand how to use a toaster or an iPhone.

The BagBin design offers low affordance to users and it would have been good for Owenbridge to have explored this aspect further during this trial – for example providing cues (such as handprint markings) to the users where they need to place their hands to open them, and what they need to do to get them to 'pop' and to hold their circular shape.

In addition to users often struggling to *understand* how to open a BagBin, there was also variance in people's ability to *physically* open them.

In the case of our commercial trial locations, the users opening the BagBins tended to be able-bodied, and once they had been provided with a few demonstrations and practiced opening a BagBin, they generally didn't experience any further problems.

*"Bit hard to open at first but you get used to it after a few weeks." [commercial user]*

In the case of our residential trial locations, many found them somewhat awkward or difficult to open.

*"Doable." [residential user]*

*"Slightly awkward." [residential user]*

*"Very, very, VERY hard to open, aren't they?" "Yeah they are. They're not made for women to open." [two residential users]*

*"It's because they're new. They will be easier to open when the hinges loosen out." [residential user]*

*"I tried to assemble the bag bin with baby in a sling – impossible; lifting a bag of rubbish & nappies into bag bin while carrying baby in sling – impossible." [residential user]*

*"Impossible, a man in his 30s (neighbour) – he gave up! – was struggling, extremely challenging for most. Unsuitable for elderly – or if any injury issues etc." [residential user]*

In the case of one older user (who currently presents his waste without any assistance), he was entirely unable to open a BagBin either before or after being shown (3 times) by a DCC staff member how to open one – as his issue was physical rather than knowledge. Two weeks later, he was able to open one (and had presented his waste without assistance), but noted the below.

*"I found it very difficult. It took me about 15 minutes to get it open. I have one bad arm." [residential user]*





Owenbridge showed users one approach to open a BagBin – which involved hunkering down and then placing hands midway and squeezing together in order to cause the hinges to pop and hold the circular shape.

However users adopted other approaches such as;

- i. placing them on their side on the ground and leaning on them (Owenbridge noted that this approach would cause damage to the hinges),

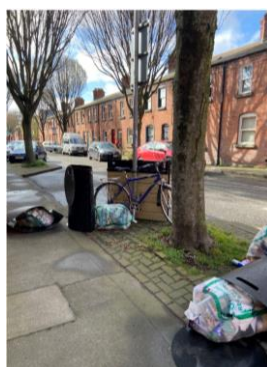


- ii. holding the base on one side with one foot, and using one arm to then squeeze against it,
- iii. holding the base with two feet, and pulling the other side of the BagBin into their chest using both arms. (This approach presumably would not be an attractive option if the BagBin was, or was perceived to be, dirty.)

There may be potential in these other approaches which could indicate alternative methods for opening BagBins (for example without the need to hunker down – a position which is likely to be physically difficult for many people).

BagBins needs to be opened correctly. Otherwise;

- i. they are prone to falling over, and



*"As you can see, the "bagbins" are causing an obstruction to the footpath, making it difficult for those with prams, using wheelchairs, etc." [local resident feedback in relation to the centre image.]*

- ii. also become much more difficult to fill with waste bags.



Finally, an unopened BagBin could be somewhat difficult to open on a windy day – with the main body and/or the lid acting as a sail. For example, one user mentioned the lid blowing up and hitting her in the face. However this aspect did not seem to be a significant issue.

### Adding waste bags to a BagBin

In comparison to the existing model of placing waste bags directly onto the footpath, the BagBin solution requires users to lift their waste bags up over the height of the opening – which would mean lifting a (maximum) 15kg bag at least 1.5m (BagBins are 1m high) above ground level. This requires a certain amount of additional upper body strength which is not required for the existing loose bag approach which only need to be held above floor/footpath level (or indeed sometimes even can be dragged as one trial user noted he does), nor generally required for wheelie bin as users generally fill them with multiple smaller lighter bags.



*One of the domestic trial users carrying her waste to the shared presentation location.*

In the commercial trial, no users raised an issue around the need to raise their waste bags when using a BagBin. However in those cases many of the users bringing out the BagBins tended to be able-bodied younger staff and their bags may also be smaller and lighter (eg in the commercial areas, each BagBin generally fit 3-4 waste bags whereas in residential areas, each generally only held 2-3 waste bags).

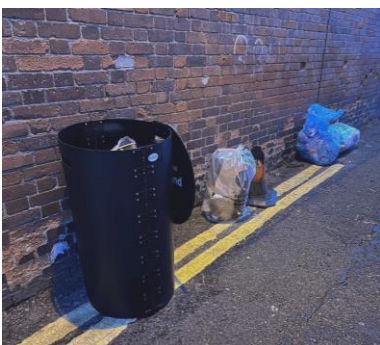
In the residential trial, some users raised this as an issue.

*“If a heavy bag, it can be difficult to lift and hold at the same time.”*

*“Very difficult to lift a full heavy bag into the bin.”*

A potential workaround is for the user to instead place the BagBin down over their waste bag – but this is unsatisfactory in several ways. A preferable solution could be to require waste operators to also or alternatively provide a smaller bag size which would cost less and weigh less.

The lids of BagBins were often not closed (approximately 25% of the time), potentially leaving them exposed to tearing by birds and littering of the street. Generally this appeared to be due to overfilling.



## Commercial Users of BagBin

Multiple commercial users negatively mentioned two aspects that domestic users did not mention:

- i. Hygiene aspects (the perception of BagBins as dirty)
- ii. The added time of using a BagBin

For commercial users, it would be worth giving these aspects specific attention to reflect these concerns.

## Waste Operators & Emptying a BagBin

During this trial, private waste operators took waste bags from their customers as usual – and 5 waste operators (Panda, Greyhound, Keywaste, Abbeywaste, CWM) were involved in various locations.

The approach didn't require them to change their equipment, but did require them to somewhat change collection practices. They lifted BagBins marked with their logo and either removed bags of all waste streams, or else replaced bags of a different waste stream for separate collection by their same company.

The private crews and their supervisors liked the following aspects of the BagBin approach:

- i. central collection points rather than having to stop every few meters for another lone bag.
- ii. easily identifying where their branded bags are when included with many other bags not of their brand saves them rooting through loose bags on the ground and running the risk of getting stabbed in the hand by sharps, and
- iii. that bags in BagBins tend to be fully intact, whereas pulling a bag out of a pile of loose bags regularly bursts the bag they are lifting, often causing the contents to spill down their clothes and boots.

Users occasionally incorrectly placed a bag into a competitor's BagBin, and were left behind for collection by the private operations staff. In those instances, timing became a factor – if the competitor had already passed, the bag was missed for collection, and it therefore fell back to Dublin City Council to remove.

Initially the approach taken was to provide separate BagBins for each waste stream. To reduce the complexity of the shared station approach, the later approach was for users to mix waste streams within a single BagBin. This worked well, but would need to be communicated well to users to ensure their trust in the value of separation is maintained – for example one resident noting *"they shouldn't mix the bags because they're supposed to be separated"*.

BagBins themselves sometimes collected loose litter with the occasional passerby using them as street bins (this behaviour was noted in both commercial and residential areas). It should be noted that this behaviour also occurs with loose bags placed on a street. On one hand, it was anecdotally felt that this behaviour slightly increased with BagBins, on the other hand BagBins clearly then contain this litter until collection.



When the BagBins are lifted for emptying, this loose litter spilled onto the footpath and needed to be swept up to avoid littering the street, and in the case of the trial, the private operations staff were generally diligent about cleaning up any litter that arose from BagBins – as regularly requested by Owenbridge.



It's unclear whether this level of service would sustain over time or if there was a large deployment of the solution – for example, as a DCC staff member noted *"I had never before seen a brush on a bin truck."* If this behaviour wasn't maintained, it could potentially undo the litter benefits otherwise resulting from the BagBin approach.

## Impact on Street

BagBins were felt to have 3 main impacts on streets:

- i. appearance and feeling of the street
- ii. mobility and accessibility
- iii. litter

### Appearance

The impact of BagBins on the 'street vista' was considered an improvement on the current approach.

*"I prefer the black bins [BagBins], they're prettier."* [Commercial user]

They were considered to make the presentation of waste feel far more professional, and preferable to unsightly piles of bags. As a result, Dublin City's BID – Dublin Town – has also sought their expansion in use.

The stations also add to the amount of street furniture on our streets and moves us away from the preferred direction of 'decluttering' our streetscape.

*"I like the idea of a container a seagull can't spread all over the street. I don't like the idea of another piece of street furniture on already crowded footpaths."* [Citizen feedback]

However they tended to be relatively visually unobtrusive – in particular the slimmer version 4 of the station.

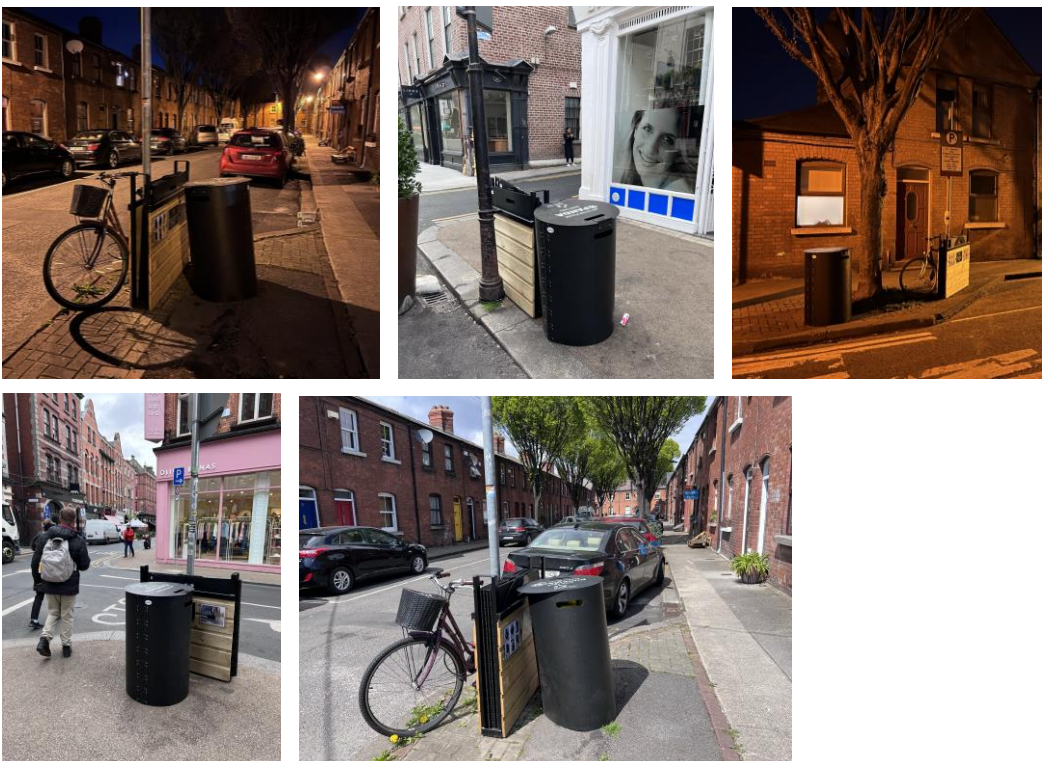




Rightsizing the quantity of BagBins required at each station is important, as otherwise users simply place bags next to the BagBins or overfill the BagBins (or both) which negates a lot of the neat appearance of the solution.



Similar to the existing waste practices, BagBins were sometimes placed out on the wrong days and times. It is possible that the neater appearance of BagBins plus their protection from animals, meant that those users felt more secure in using the solution in this manner.



There are potentially negatives in relation to mobility and the appearance of a street but it may also hint towards a means of providing a more flexible waste solution for users. It also better protects the contents when this practice takes place.

### Mobility and Accessibility

The BagBin approach requires public space for the station itself and for BagBins when being presented for collection. Generally the station can be placed in order to have minimal impact on movement, particularly when reusing existing street infrastructure such as poles.

When upright, the presentation of BagBins does not differ much from the existing approach in commercial areas, perhaps slightly aid mobility. When they topple (usually due to not being correctly deployed by users), they may present an obstacle depending on how they fall.

In residential areas or narrower footpaths, they would need to be considered very carefully for negative impacts.

### Litter impact

Both commercial and residential customers felt that the solution had made their street cleaner.

*"It was very clean. A lot cleaner. Seagulls couldn't tear them up." [Residential user]*

*"It's much better than the previous way, much tidier." [Commercial user]*

Based on DCC opinion, the sections of street with BagBins generally appeared to have lower levels of blown litter as a result of lower levels of bags being ripped by animals and birds.

As one example, the below images show two adjoining sections of the same street on the same day. The bottom left image shows a portion of the street which continued to present bags directly, and the below right image shows a portion of the street which had used the BagBin approach to present their waste.



This potential benefit would need to be balanced with other potential forms of litter that might be caused during the emptying process as a result of BagBins being used like public street bins.

*"[Waste operator] came and took the bin bags [out of a BagBin] but not the loose rubbish" [Residential user]*

### **Negative Interactions**

#### Losses

11 (16%) of the 70 BagBins that were deployed went missing during the trial period, and 2 of those were recovered with some effort.

However, it should be noted that 10 of those were all removed from just a single station, and also that 9 of those 10 were removed within the first week that it was put in place (they were taken in two batches of 4 and 5 BagBins).

1 was found in use by a homeless person. The reason for the removal of the others is unknown.

5 of the 7 stations experienced no losses.

#### Illegal Dumping

There is a possibility that the option of being able to more easily conceal dumping activity inside a BagBin would increase levels of illegal dumping.

In both commercial and residential areas, we found unbranded (ie dumped) waste bags inside and next to BagBins during this trial, but we were not able to accurately measure whether the approach resulted in an increase or decrease in the levels of illegal dumping.

#### Graffiti

No stations or BagBins received graffiti during this trial.



## Damage

No stations or BagBins received malicious damage during this trial.

Generally the BagBin design appeared to be very robust. The issue of BagBins being returned incorrectly to the station, popped off the lids in two cases – but were able to reattach them onsite with minimal effort.

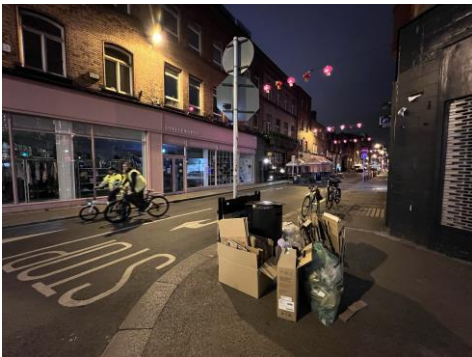


## **Impact on Waste Practices**

We do not feel that the introduction of the BagBin approach had any affect (positive or negative) on the users' segregation of waste.

This trial did not explore using the approach to provide bag users with a compost service. However if compost waste could be presented in a heavy duty bag, there may be opportunity to further explore such an option.

It also would be of great benefit if the solution could find a way to address folded cardboard which is a waste type frequently presented by commercial customers.



## The current approach versus the BagBin approach

- 32 out of 40 businesses returned their surveys. Out of the 25 who answered this question, 15 (60%) of them preferred the BagBin approach to the current solution.

*"Much more pleasing than a pile of bags" [commercial user]*

*"Caused more litter around them as people confused them for public bins." [commercial user]*

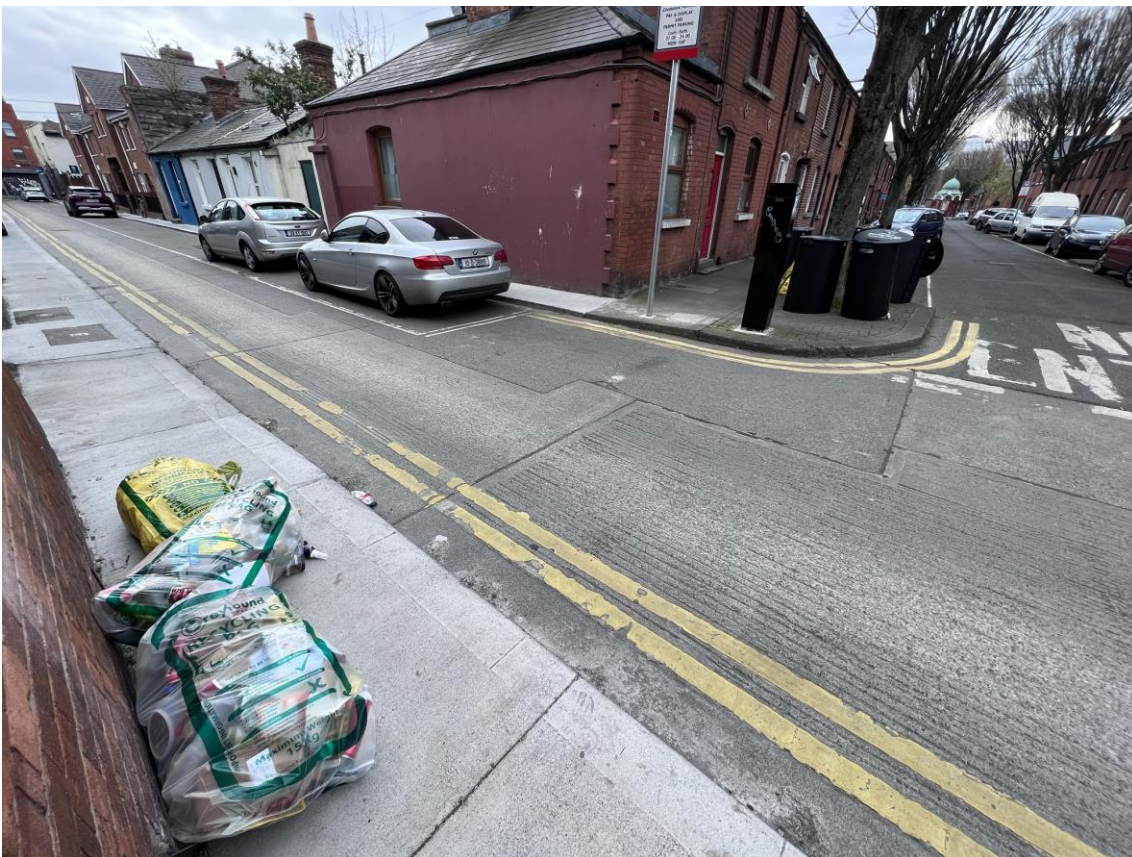
- 21 out of 46 households returned their surveys. Out of the 16 who answered this question, 13 (81%) of them preferred the BagBin approach to the current solution.

*"There are minor issues with the bag bins but we would love to see them come back!" [resident user]*

*"BagBin is a good idea however it doesn't solve our main and messy issue of illegal dumping." [resident user]*



Some examples of how commercial and domestic waste is often currently presented.



Existing approach in the foreground, BagBin approach in the background.



## BUSINESS MODEL

This BETA project was at **concept stage** and therefore our primary focus was on establishing the merit of the proposed solution, but with some tangential learnings about how the solution might be implemented at scale.

		
Concept Stage	Scaling Model Stage	Local Implementation Stage
Should Dublin?	How can/should Dublin?	Where in Dublin?
Does it cause any problems, is it beneficial for the city (or City Council), what sort of locations are suitable, etc?	Business model, funding, staffing, procurement, legals, maintenance, ownership of assets, insurance, planning, branding, etc.	Local feedback and input before permanent implementation of solutions in their area.
Projects at these stages 'default no' - ie they need to prove that they work as well as, or better than, what we currently do. Projects are REVIEWED and then fully REMOVED at the end of this stage.	Projects at these stages 'default no' - ie they need to prove that they work as well as, or better than, what we currently do. Projects are REVIEWED at the end of this stage.	Projects at these stages 'default yes' - ie the assumption is implementation if locals agree. Projects are permanently IMPLEMENTED at the end of this stage.

### 6 Potential Models for the BagBin approach:

1. Communally-presented waste
  - a) A third party company owns, administers and provides both Stations and BagBins for the waste operators.
  - b) Waste Operators own, administer and provide both Stations and BagBins.
  - c) DCC own, administer and provide Stations. Waste Operators own, administer and provide BagBins.
  - d) DCC own, administer and provide both Stations and BagBins.
2. Individually-presented waste
  - a) Waste Operators provide BagBins to individual customers (in a similar manner to how they provide wheelie bins at present). Stations not required.
  - b) DCC provide BagBins to Waste Operators or to individual customers. Stations not required.

### Phased Rollout

The BagBin solution is suited to a partial or staged rollout. For example:

- via segments of the market (eg commercial, residential)
- geographically (eg a handful of streets, the Central Commercial District, 'inside the canals', etc)
- via waste operators (eg a waste operator might see a competitive advantage, and so seek to adopt the BagBin approach ahead of others).

Equally we could use both communal and individual presentation solutions concurrently. For example the CCD might adopt the communal approach whilst residential areas used the individual approach.

## **Summary of Owenbridge's Business Proposal (as received across emails 04/05/2022 and 12/05/2022)**

Owenbridge has indicated the following business proposal for a working solution to the roll out of Bagbins and stations in Dublin's Central commercial district.

This includes responsibility by Dublin City Council to arrange, implement and manage the following:

### **1. Street survey**

A detailed survey of all the streets within the CCD is required. This survey would analyse bags presented, where, when, quantity, ownership by operator, station adaptability and location.

### **2. BagBin station installation**

Once DCC has approved each site selected for the BagBin stations they will need to be installed. The street survey will determine the adaptability to the street, quantity of bagbins per operator (changeable).

A register of all the sites with a map and all the numbered stations and the number and brand of BagBins in each station will be maintained throughout the roll-out period ready for transfer to the DCC BagBin Manager.

### **3. Training**

Training videos produced for operators and users.

### **4. Communication**

Clear communication will be required for:

- Merchants
- Waste Operators who will be emptying the BagBins, closing them and returning them to the proper station
- DCC Cleansing staff who will be monitoring the performance of the BagBins and reporting any changes required to BagBin stock levels.
- Press releases to get support from the public in general by highlighting the benefits as the system is rolled out.

### **5. Management**

DCC will use their street cleaning crews to monitor and report as required on the status of each Station.

The BagBin and station register just needs to be maintained up to date in accordance with BagBin relocations (sometimes station relocations) as requested by DCC cleansing staff (or other departments, e.g. roads), operators or merchants.

DCC at all times controls the process of determining what BagBins and stations go where.

### **6. Costs**

Approximate proposal of quantities of bagbins required and stations have been 1000 bag bins and 150 stations to cover the central commercial district.

Additional costs include street survey, stations (build and install), communication, awareness and training, ongoing annual maintenance (loss/repair begins and stations), ongoing annual management of service.

Owenbridge propose a 8c customer levy per bag to fund the rollout and management of the approach.

Owenbridge are proposing a 5-year warranty on BagBins.