



Going Underground ?

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What do we do now?



**Bins on
streets
24/7**



**Different
frequencies**



**Residents
having place
bins out for
collections**



What do we do now?



Food Caddy

Metal and Plastic Red Box



Glass and Cardboard Green Box

Paper, Small Appliances, Batteries, Textiles and Clothing Blue box



PA

What do we do now?





Issues with the current system?

- Cost of and storage of replacement bins & containers
- Cost of different vehicles
- Labour intensive (source segregated Vs Co-mingled)
- Vandalism of bins (crime & arson)
- Easily damaged / lost (vandals or crew)
- Costly to deliver
- Cleanliness (perceived responsibility)
- Assisted Collections



A change of mind-set Go Continental – Go Underground



**PRINCESS STREET GARDENS EDINBURGH
FROM 200 LITTER BINS TO
16 SILO BINS**



Underground Waste Storage Systems



- Mainly used in European countries.
- Access to the system can either be open or restricted access.
 - Use of a swipe card or RIDF fob.
- Volumes of storage containers vary from system to system but normally 3,000, 4,000 and 5,000 litres. (5,000 Litres = 20 wheeled bins)
- Usually made from either Stainless Steel or plastic inside a pre cast concrete unit.
- Needs to be enough void space, completely clear of all and any services to a depth of a minimum of 3 metres. (or possible additional expense for re-routing services)
- Have a minimum overhead clearance of approximately 8.8m - 9.8m and be free from any overhanging obstructions such as trees or cables.

The collection system requires that the collection vehicle needs to be fitted with a crane or Hiab.

Type of Systems Available



Type of Systems Available



Type of Systems Available



Type of Systems Available



Type of System (Cont)



Advantages of Going Underground



- Removes the adverse visual impact.
- Releases space above ground.
- Greatly minimises potential disturbances to residents, (visual, noise pollution, odours)
- Allow bins to be placed in locations where above ground systems might otherwise be unacceptable to the community.
- Resistance to vandalism, arson attacks and adverse weather conditions. (extreme wind)
- Potentially reducing collection costs through reduced collection times. (collection of a smaller number of large containers opposed to a large number of smaller ones spread over a wide area)
- Reduced operational costs. (potential for single operative operation)
 - H&S must be considered at the design stage of any development and should take into account the use of single operatives
- Resident does not have to worry about missing the collection. (No missed bin complaints)

Disadvantages of Going Underground



- Cost ??????
- Maintenance (Container requires little maintenance)
- Groundworks (On existing developments possible re-routing of services)
- Public acceptability
 - Considerable change from what is perceived as the norm
 - Distance to carry waste (should be within 30 metres)
- Operational issues
 - Staff acceptance
 - Negotiations with unions
 - Political buy-in
 - Assisted collections

Assisted Collections



- Many elderly and disabled residents see the ability to place their bin out for collection as a sign of their continued independence.
- Typically involves the operative entering the property, collecting the bin and returning it to the same place after collection.
- In an underground system the need for assisted collections should be reduced.
- How do we deal with residents that cant carry bags?
- Assisted collections are not provided in flats?
- In certain circumstances could be provided through site staff/caretakers.
- Given the generally low number of potential assisted collection requirements, it is not believed that the requirement for assisted collection is a barrier to the take up of an underground bin collection system.



Potential Efficiencies ?

Operational efficiencies up to 70%

- ✓ In time to collect. (each 5,000 Litre underground bin = 20 wheeled bins)
- ✓ Staffing costs. (potentially single operative system)
- ✓ Potential reduction in the number of vehicles. (Rounds 40% to 50% bigger)
- ✓ Free staff up to cover for sickness and holidays reducing the reliance on agency staff.

Capital efficiencies.

- ✓ Underground bins are potentially cheaper to install than wheeled bins systems?
 - primarily through the removal of costs for bin compounds and associated structures and the increase in potential building space.



Dependencies

- Number of properties (full round required)
- Excellent Communications
- Use of fill level sensors (removes the need for frequency based collections)
- Access restrictions (reduce contamination, H&S concerns)
- Location of tipping facilities (Wagons will fill up faster)
- Political support

Sources of information



APSE Article

- <http://www.apse.org.uk/apse/index.cfm/news/2016/going-underground-could-underground-waste->

Cambridge Report

- http://www.nwcambridge.co.uk/files/o2_19_sustainable_resource_and_waste_management_strategy_-_addendum.pdf

Articles used in research

- <http://network.keepbritaintidy.org/national-house-building-council-report-tackles-issue-of-bin-blight-/2396/2/9/1270/30>
- <http://www.peterboroughtoday.co.uk/news/latest-news/recycling-revolution-in-a-dustbin-1-37481>
- <http://waste-management-world.com/a/underground-bins-for-london-households>
- <http://www.letsrecycle.com/news/latest-news/hastings-installs-underground-bins-to-boost-glass-recycling/>
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Interim requirements

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