
SUBJECT:	Introduction of solar powered compacting litter bins
REPORT OF:	Environment Portfolio Holder – Councillor Luisa Sullivan
RESPONSIBLE OFFICER	Head of Environment
REPORT AUTHOR	Callum Lynam - clynam@southbucks.gov.uk
WARD/S AFFECTED	Beaconsfield North, Beaconsfield South, Gerrards Cross, Denham

1. Purpose of Report

To explore the feasibility of installing high-tech litter bins, which use solar power to compact waste, within South Bucks' town centres.

2. Recommendation to the Portfolio Holder

To approve two trials of solar powered compacting bins, one in Beaconsfield New Town and one in Denham Green shop parade, at a total cost of £2900 from the existing budget for litter bin repairs.

It is recommended that at least 5 trial units are installed in Beaconsfield and 2 trial units in Denham Green.

If trials prove successful, solar-powered compacting bins should be considered an option for future procurement; if contracts go to tender, suppliers should be invited to optionally cost the installation of solar-powered bins in town centres within their bids.

In the interim, the current allocation of litter bins should be reviewed to see if existing assets could be better distributed.

3. Reasons for Recommendations

Solar powered compacting bins offer clear benefits, namely efficiencies in reduced collection requirements, improved street scene and real time fill monitoring.

A 6 week trial will provide sufficient data to see if benefits can be achieved in South Bucks.

Beaconsfield has been selected due to its large footfall, high number of shops, eateries and bars and current requirement to empty bins at least once per day. Furthermore, a survey found a number of litter bins in close proximity to each other, which solar-powered compacting bins could reduce, further reducing on-street furniture and improving aesthetics.

Denham Green shop parade has been selected due to the high number of shops/eateries, close proximity to the station and current requirement to empty bins once per day.

Purchase costs, either outright or leased, are however significant. These costs can be partially recovered through re-deployment of street cleansing resources; however, this resource is already paid for within the current contract, so savings in man hours are unlikely to generate financial savings on the current contract, but will enable for a more efficient way of utilising resource, deployed to to greater effect in other pressurised areas.

Instead, introducing solar-powered compacting bins in future contracts will allow resources to be allocated according to less frequent emptying requirements. It should however be noted that any potential savings in man hours are unlikely to fully re-coup the costs of installing solar-powered compacting bins.

Additionally, the report has highlighted inconsistencies in the allocation of litter bins across South Bucks' town centres, which would benefit from a timely review.

4. Content of Report

More 'on-the-go' waste is produced in town centre locations than other environments. Resultantly, these areas typically house a high number of litter bins, which are usually emptied once per day, sometimes more.

Frequently emptying large numbers of litter bins takes a significant portion of a limited resource. Reducing the need to empty bins as frequently will enable this resource to be allocated to other service areas, such as street sweeping and litter picking.

High-tech litter bins, which use solar energy to power an in-built compaction mechanism, reduce the need to empty bins as frequently. The compaction mechanism increases capacity up to 800litres. Comparatively, a typical litter bin has a 130 litre capacity.

Solar-powered compacting bins have been installed by numerous local authorities, including Slough Borough Council, Westminster Borough Council and Bath and North East Somerset Council. It is claimed that installing these bins has reduced emptying frequency by up to 90%.

In addition to reducing collection frequency, the significantly increased capacity of solar-powered compacting bins allows litter bins to be replaced at a 3:1 ratio, thereby improving the street scene.

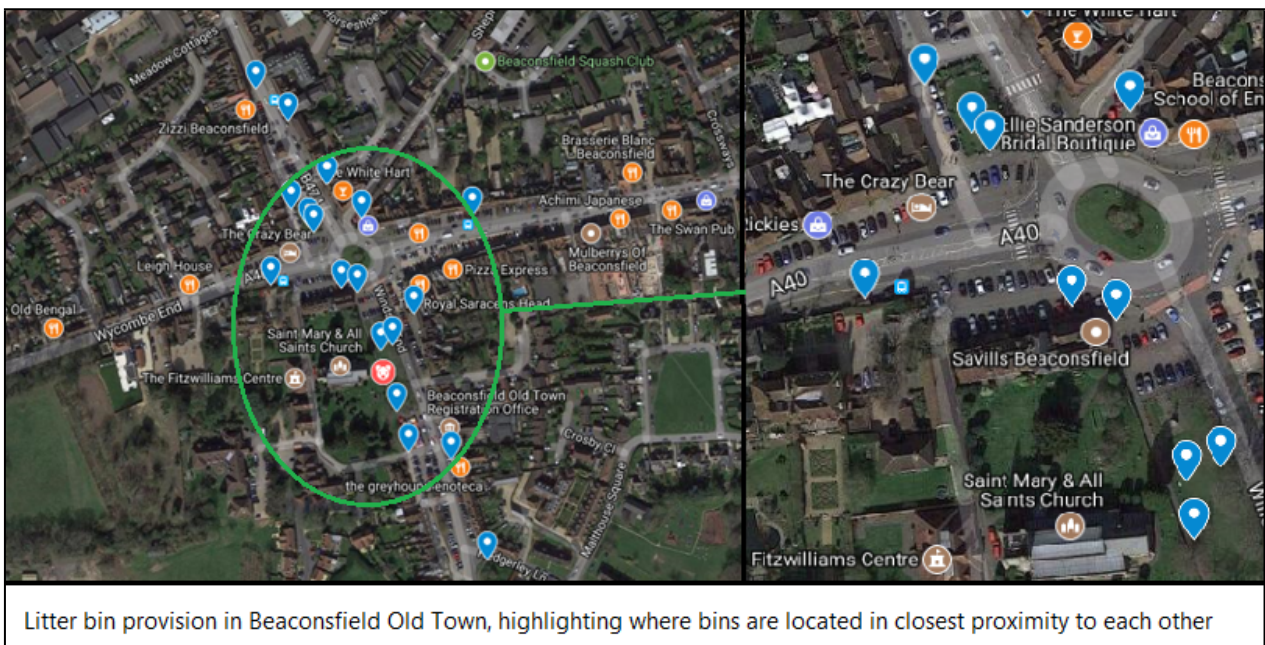
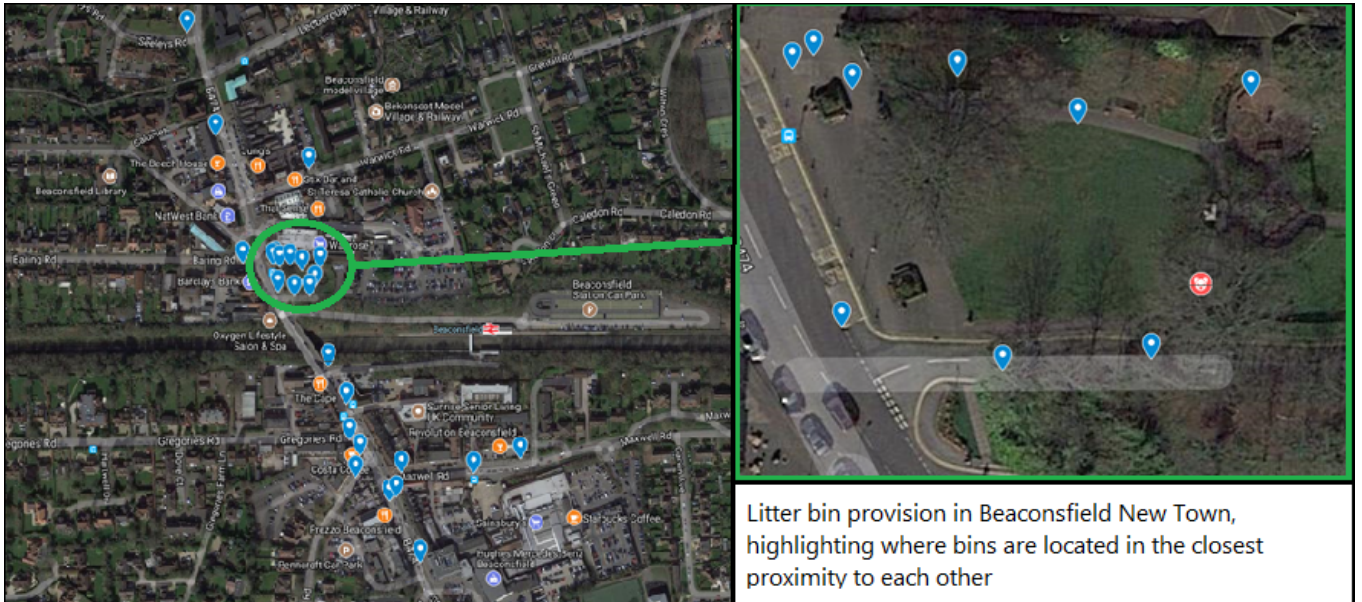
Fill level sensors in the bins are able to alert the Council and/or the contractor when they require emptying. This technology adds resilience to collections and ensures that unforeseen events that produce more litter, such as periods of hot weather, are easily managed without overflow and the adverse effect this causes, such as complaints.

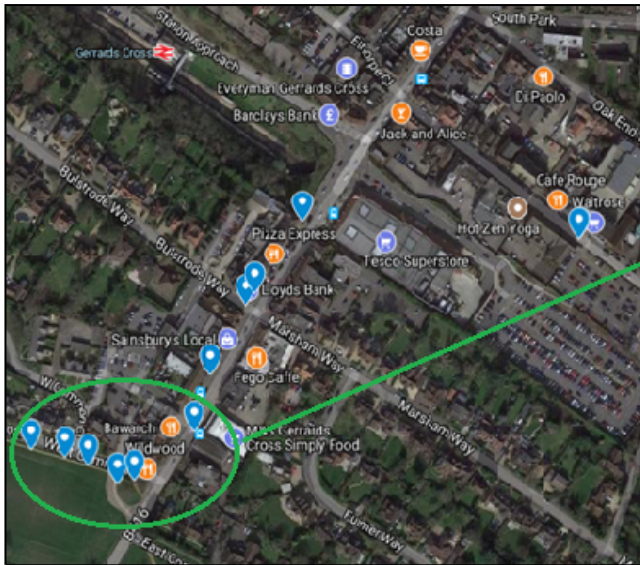
Furthermore, these bins provide total containment of litter, which reduces the risk of litter blowing out of bins into the environment.

The table below shows the results from a survey of litter bins found along the main highstreets of Beaconsfield New Town, Beaconsfield Old Town, Gerrards Cross and Denham Green

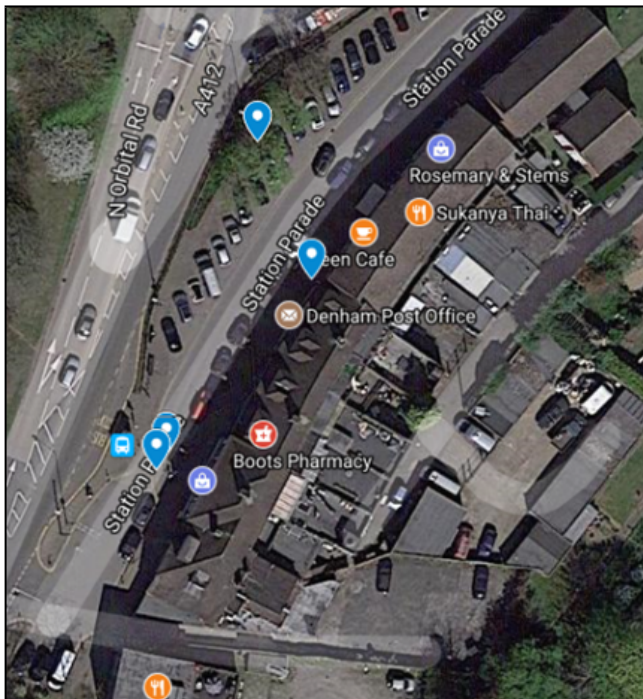
Current allocation		
Beaconsfield New Town		
Number of litter bins	Approximate capacity (litre)	Number of times emptied per day
24 (+1 dog bin)	3500	1
Beaconsfield Old Town		
Number of litter bins	Approximate capacity (litre)	Number of times emptied per day
18 (+1 dog bin)	2470	1
Gerrards Cross		
Number of litter bins	Approximate capacity (litre)	Number of times emptied per day
12	1780	1
Denham Green		
Number of litter bins	Approximate capacity (litre)	Number of times emptied per day
4	520	1

Whilst the allocation of litter bins is not excessive, distribution is inconsistent, with some areas containing large numbers of bins in close proximity to each other. This is likely due to these areas previously being 'litter hotspots'. However, town profiles' and consumer behaviour have most likely evolved since initial bin installation and community needs may be better served if assets are redistributed.





Litter bin provision in Gerrards Cross, highlighting where bins are located in closest proximity to each other



Litter bin provision in Denham Green

Two different suppliers of solar-powered compacting bins were considered in this report. The bins produced by these suppliers offer near identical functionality and are similar in appearance. The purchase and trial cost are also similar, however, for the purpose of this report, the cheapest quote has been used. If it is decided that a trial is pursued, the Waste Team will need to further consider the advantages and disadvantages of both suppliers, through a robust evaluation process.

Installing solar-powered compacting bins would reduce the bins required in the aforementioned figures, particularly in highlighted areas, where litter bins exist in close proximity to one another. The table below shows the estimated allocation of litter bins, if existing bins were replaced with solar-powered litter bins at a 3:1 ratio, where reasonably possible.

Beaconsfield new town		
Number of litter bins	Approximate capacity (litre)	Frequency of emptying (estimate)
10	7000	Once every four days
Beaconsfield old town		
Number of litter bins	Approximate capacity (litre)	Frequency of emptying (estimate)
7	4900	Once every four days
Gerrards Cross		
Number of litter bins	Approximate capacity (litre)	Frequency of emptying (estimate)
6	4200	Once every four days
Denham Green		
Number of litter bins	Approximate capacity (litre)	Frequency of emptying (estimate)
2	1400	Once every four days

This allocation could reduce time spent emptying litter bins by up to 2 hours p/d in Beaconsfield New Town, 1 and a half hours p/d in Beaconsfield Old Town, 1 hour p/d in Gerrards Cross and 30 minutes p/d in Denham Green.

The time saved in man hours could be used to improve other street cleansing services, such as sweeping, thereby further improving the local environment. The time saved is however unlikely to generate financial savings. The street cleansing resource is already allocated on the current

contract and the costs of installing solar-powered compacting bins would outweigh financial savings, even if possible.

One solar-powered compacting bin, with an ashtray and front decal, costs £5300* as an outright purchase, or £100 per month* on a 60 month lease. If the Council were to install a recycling unit beside the bin, which has no compaction but contains fill level sensor technology, there would be an additional cost of a £2700 per unit, or an increase on the lease.

*costs are not finalised and are dependent upon quantities ordered.

Whilst costs are significant, the potential benefits are substantial, especially as litter and on-street recycling provisions continue to increase in political importance.

It is recommend that the Council run a trial of solar-powered compacting bins to see if benefits can be realised in South Bucks. A 6 week trial of solar-power compacting bins costs £300 per unit and requires existing bins to be removed in the interim; removing litter bins costs £50 per bin. A minimum of 5 trial units are required. This cost is later credited against any order of future bins.

It is recommended that at least 5 trial units are installed in Beaconsfield and 2 in Denham Green. This will provide significant data to observe impacts in two different urban environments: a town centre location and a shop parade.

The table below provides a cost breakdown of the recommended trial, including hire fees and costs occurred removing litter bins. The number of bins requiring removal has been estimated by assuming that only bins existing in close proximity to another bin will require removal.

	Solar bin hire costs	Litter bin removal costs	Combined costs
Beaconsfield	£1,500.00	£600.00	£2,100.00
Denham Green	£600.00	£200.00	£800.00
	Total cost of trial		£2,900.00

This cost would be debited from the existing budget for litter bin repairs, which has a budget of £5100 p/a. There is however a risk that using a large portion of this budget for this trial will result in an overspend at the end of year, as litter bins must be repaired if they pose a danger to the public.

Data from the trial is provided on a weekly basis and demonstrates reduction in collections, volumes collected and average days till bins are full.

Data from the trial would enable the Council to see if solar-powered compacting bins would compliment future contractual arrangements by allowing resources to be allocated according to less frequent emptying schedules.

5. Consultation

Councils who have installed similar bins have raised concerns over the weight of compacted litter. Extensive testing however found that the weight of compacted litter would only exceed HSE safe manual handling limits (20kg) in exceptional circumstances e.g. bricks had been put in the bin. In most instances, compacted litter did not exceed 12 kg. Review of manual handling procedures can be considered and explored with the contractor and actions taken accordingly.

6. Options

Approve the recommended trial at a cost of £2900 from the existing budget for litter bin repairs.

Provide a recommendation for a different trial area or trial criteria, such as a greater or lesser number of units. N.B. 5 units are required as a minimum by the manufacturer

Do not approve a trial but suggest that existing assets are reviewed

Carry on as a 'business as usual' scenario

7. Corporate Implications

Financial - The financial implications are detailed above.

Legal - None.

Sustainability – The report links to one of the three headline objectives of striving to conserve environment.

8. Links to Council Policy Objectives

This matter relates to the following council objectives -

7.1 Striving to conserve the environment and promote sustainability.

7.2 Council priority to continue to improve the street scene and cleanliness of the district as a key public services coordinator.

Background Papers:	None
---------------------------	------