INFORMATION REPORT

TO:	Chair and Members Public Works Committee
COMMITTEE DATE:	November 18th, 2024
SUBJECT/REPORT NO:	Ward 1 Victoria Park Solar Compacting Waste Containers Pilot (PW24075) (Ward 1) **(Outstanding Business List Item)**
WARD(S) AFFECTED:	Ward 1
PREPARED BY:	Ryan Van Balkom (905) 546-2424 Ext. 3114
SUBMITTED BY: **SIGNATURE:**	Cynthia Graham Director, Environmental Services Public Works Department 

COUNCIL DIRECTION

City Council, at its meeting 23-012, on June 21st, 2023, approved Motion 7.6:

(a) That the purchase of two solar compacting waste containers, manufactured by Bigbelly, be approved as a single source purchase pursuant to Procurement Policy #11 – Non-Competitive Procurements;

(b) That $10,000 of funding, allocated from the Ward 1 Special Capital Reinvestment Reserve Fund (#108051), to support the installation of the two solar compacting waste containers at Victoria Park, 500 King Street West, Hamilton, be approved;

(c) That staff report back on the effectiveness of the solar compacting waste containers, after one year of operation; and

(d) That the Mayor and City Clerk be authorized and directed to approve and execute all required agreements and ancillary documents, with such terms and conditions in a form satisfactory to the City Solicitor.

INFORMATION

Background:

This Information Report is to inform Council of the results and assessment of the effectiveness of the solar compacting waste containers in a park setting, after one year of operations.

Parks and Cemeteries Section, Environmental Services Division, is responsible for waste collection in City of Hamilton Parks. At Victoria Park (Ward 1) the normal waste collection program consists of fifteen standard green waste containers, purchased for $33.50 each, which are distributed throughout the park. Waste is collected three times weekly through summer months and two times weekly through fall, winter, and spring across all City Parks. All containers are emptied on each collection occasion regardless of volume of waste or “fullness”.

Increased park and open space use was observed during the pandemic across the municipality, including at Victoria Park. This increase in use contributed to waste containers frequently found to be overflowing before the normal collection schedule, contributing to litter around the park and visitor complaints.

Consistent illegal dumping of household items or larger waste has also been identified at Victoria Park. Staff face challenges with overweight bags (50 pounds or more), requiring additional staff for servicing of containers, clean-up of blowing litter, and management of illegal dumping.

As per direction from the City Council meeting 23-012 (Item 7.6 (a)), two solar compacting waste containers, equipped with technology to monitor and report waste levels, were installed at high-traffic areas in Victoria Park in December, 2023. These units were purchased for $8,491.50 each and monitored for effectiveness (Item 7.6 (c)). The intent of this trial was to identify if these units could assist with any challenges of managing waste at Victoria Park.

Pilot Program:

To assess the effectiveness of the solar compacting waste containers in a park setting, staff set out to monitor the following:

- Container use data.
- Waste collection frequency compared to standard collection schedule.
- Occasions of illegal dumping at the solar compacting waste containers measured by “Hopper Jams” and observations of illegal dumping.
- General effectiveness including impact on Parks operations.

The following was observed through the solar compacting waste container pilot:

- The solar compacting waste containers were used 4,379 times over the 10-month pilot.
- Two solar compacting waste containers were emptied 23 times in total, and only on an as-need basis when staff were notified that they were full through the container's software.
- Staff attended and emptied all the remaining 15 standard green containers 113 times on the normal operations schedule regardless of "fullness".
- 16 incidents of Hopper Jam alerts, normally caused by large items being stuffed into the containers (non-visitor waste/illegal dumping), were reported by the waste container software and attended to by staff.
- While completing the normal waste collection schedule, staff maintain a regular presence at the park and attend to illegal dumping, flyaway litter, and observe and report park deficiencies that may arise. Repeated incidents of illegal dumping adjacent to the solar waste compacting containers (in household garbage bags) were observed by staff on their normal waste collection schedule (for most visits).
- The cost of the solar compacting waste container for the pilot was $8491.50 per unit.
- The cost of a standard park waste container in 2024 was $33.50 per unit.
- Graffiti was documented on the solar compacting units. The solar compacting units were bolted to concrete and installed in well-trafficked and visible locations meant to deter theft and vandalism.
- Vandalism and occasional theft of the standard park waste containers can occur. Parks and Cemeteries typically budget for the purchase of 400 waste containers per year in order to cover for theft, irreplaceable damage, and end-of-life replacement (typically a three to five-year lifespan).
- Staff observed that the solar compacting waste containers should be installed on a concrete pad, which can limit location options as well as increase overall capital cost. Additional costs include specialized waste bags and potential fees associated with the container software.

Conclusion:

Installation of two solar compacting waste containers demonstrated a reduction of trips required by staff to attend to and empty those two containers on an as-need basis (23 times), compared to the 15 standard parks waste containers, which were emptied as per the normal operating schedule (113 times). To fully understand the impact of the solar compacting waste containers on the waste management at Victoria Park, all 15 standard park waste containers would need to be replaced with solar compacting waste containers. For example, if Victoria Park was outfitted with only solar compacting waste

containers, an overall reduction in the number of collection days may be achieved; however, it is also possible that one container would be full one day, another the next, resulting in increased collection days overall and adding scheduling pressure on parks operations.

Based on the 2023 purchase price, the extrapolated cost to outfit Victoria Park with solar compacting waste containers (15 additional units) is $127,373.50 plus the install of concrete pads, specialize waste bags, and potential software subscription fees. By comparison, the standard park waste container in 2024 costs $33.50/unit and does not require a concrete pad, specialized bag, or subscription fee.

This trial also demonstrated that staff frequently (for most scheduled trips) attend to illegal dumping around the solar compacting waste containers on those days where collection from the 15 standard waste containers occurred, as well as reporting and/or addressing other park deficiencies, such as graffiti. In a scenario where staff trips for waste collection are reduced, it is anticipated that there may be a negative impact on complaints and responses associated with illegal dumping, litter accumulation, and other deficiencies in the park.

Based on the information collected and observations through this pilot, staff do not recommend a transition to solar compacting waste containers as a change to park standards. However, should the solar compacting waste containers continue to be utilized in park operations, it is anticipated that the most benefit would come from being installed at locations that stretch the boundaries of park districts, parks that have one to two waste containers that do not fill up consistently or within the normal collection schedule, and those parks that do not experience regular illegal dumping and vandalism.

APPENDICES AND SCHEDULES ATTACHED

N/A