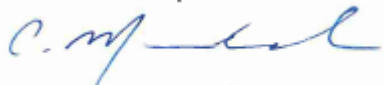




**CITY OF HAMILTON**  
**PUBLIC WORKS DEPARTMENT**  
**Environmental Services Division**

<b>TO:</b>	Chair and Members Public Works Committee
<b>COMMITTEE DATE:</b>	August 10, 2022
<b>SUBJECT/REPORT NO:</b>	Standardization of Wide Area Mowers (16-foot) (PW22068) (City Wide)
<b>WARD(S) AFFECTED:</b>	City Wide
<b>PREPARED BY:</b>	Adriana Byrne (905) 546-2424 Ext. 2156 Robert Wagner (905) 546-2424 Ext. 5379
<b>SUBMITTED BY:</b>	Craig Murdoch Director, Environmental Services Public Works Department
<b>SIGNATURE:</b>	

**RECOMMENDATIONS**

- (a) That the standardization of the Toro wide area 16-foot mower, pursuant to Procurement Policy #14 – Standardization, for the Parks and Cemeteries Section be approved until August 30, 2027;
- (b) That the General Manager of Public Works be authorized to negotiate, enter into and execute any required contract and any ancillary documents required to give effect thereto with Turf Care Products Canada Ltd., and in a form satisfactory to the City Solicitor; and
- (c) That the General Manager of Public Works be authorized to amend any contracts executed and any ancillary documents as required in the event that the supplier identified in (b) undergoes a name change or is replaced as the Ontario distributor of Toro products.

**EXECUTIVE SUMMARY**

The purpose of this report is to provide information, rationale, and support for the recommendations to standardize the purchase of the Toro wide area 16-foot mower through Turf Care Products Canada Limited.

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Wide area 16-foot mowers are a core component of the Park, Grass and Field Maintenance Programs. This category of machines cut large swaths of park land in an efficient and cost-effective manner. Reliability of equipment is critical for ensuring Council approved service standards are met. When a wide area mower is out of service, it creates a backlog of mowing and results in an increase in complaints.

The Parks and Cemeteries Section has a fleet of thirteen 16-foot wide area mowers. Due to a major breakdown, one unit is out of service. Of the remaining wide area mowers six are on the Fleet Services replacement list. The Jacobsen units are consistently breaking down causing delays and impacting the ability to meet Council approved service standards.

Entity Number	First year in service	Brand	Current Status
970904	2009	Jacobsen	Out of Service – On replacement list
971301	2013	Jacobsen	In service - On replacement list
971302	2013	Jacobsen	In service - On replacement list
971303	2013	Jacobsen	In service - On replacement list
971402	2014	Jacobsen	In service - On replacement list
971404	2014	Jacobsen	In service - On replacement list
971401	2014	Jacobsen	In service
971501	2015	Toro	In service
971601	2016	Jacobsen	In service
971801	2018	Jacobsen	In service
972001	2020	Toro	In service
972002	2020	Jacobsen	In service
972003	2020	Jacobsen	In service

In 2020, to determine the root cause of the delays and issues, the Parks and Cemeteries Section conducted an in-field side-by-side comparison of 2 new Jacobsen and Toro branded units and a review of maintenance records for the remaining units in the Parks and Cemeteries fleet. The Toro unit was determined to be more reliable and required less maintenance over the course of the review. Additionally, the Toro unit was able to manoeuvre hills and slopes that the Jacobsen unit could not, which significantly reduced the resources required to cut such areas. The review of maintenance records for the currently owned Toro and Jacobsen 16-foot wide area mowers showed the Toro units required less maintenance over the span of available maintenance records.

**Alternatives for Consideration**

N/A

## **FINANCIAL – STAFFING – LEGAL IMPLICATIONS**

Financial: The Parks and Cemeteries Section anticipate procuring approximately 20 16-foot wide area mowers over the next 10 years. The approximate per unit price is currently \$170,000. Although the initial purchase price is higher for the Toro units compared to the Jacobsen (approximately \$141,000 per unit), they are on average \$3,100 less per year in annual maintenance. The reduced annual maintenance costs will increase the expected useful life of the mowers as life to date maintenance costs are an important factor in determination of when a unit is to be replaced. As planned as part of the Capital Budget process, the purchase will be funded by Capital Project ID Fleet Vehicle and Equipment Replacement # 4942151100.

Staffing: N/A

Legal: N/A

## **HISTORICAL BACKGROUND**

Wide area mowers are a key component of the core grass cutting deliverables of the Parks and Cemeteries Section. 16-foot wide area mowers are the largest operationally viable commercially available mowers on the market. Historically, these units have been procured through a competitive Request for Tender process, which has resulted in most of the fleet owned being a single brand, Jacobsen wide area 16-foot mowers, except for 2 Toro units. Our maintenance records indicate that the 16-foot Jacobsen wide area mowers have a high number of breakdowns requiring repairs at a repair facility, resulting in downtime caused by lengthy parts delivery timelines and high repair costs. Additionally, 3 units have been lost due to fires while equipment was in operation. There have been 2 instances during the 2022 operating season where the exhaust of the Jacobsen units has caused minor grass fires in the field while operating.

To conduct the side-by-side review of performance of Toro and Jacobsen 16-foot mowers, in May 2019, the Parks and Cemeteries Section submitted a Policy 11 request to purchase a Toro unit. The Parks and Cemeteries Section has compared 2 brands of wide area mowers (Jacobsen, and Toro) to determine which brand is the most effective and cost efficient with respect to the City's use and operations. The details of this review are outlined in the Analysis section of Report PW22068.

## **POLICY IMPLICATIONS AND LEGISLATED REQUIREMENTS**

The City of Hamilton Bylaw #20-205 as amended, Procurement Policy, Policy #14, Section 4.14, allows for standardization.

## **RELEVANT CONSULTATION**

The Business Programs Section of the Environmental Services Division and Fleet Services of the Energy, Fleet & Facilities Management Division were involved in providing information and reports to support the review of maintenance records and reviewing the performance of the equipment and operational needs of the Parks and Cemeteries Section.

The Procurement Section of the Financial Services and Taxation Division has been consulted to ensure adherence to the Procurement Policy.

## **ANALYSIS AND RATIONALE FOR RECOMMENDATION**

The recommendation of Report PW22068 is to standardize the purchase of the Toro wide area 16-foot mower through the sole supplier in the Hamilton area - Turf Care Products Canada Limited. The standardization represents the most cost-effective solution as it will result in reduced machine downtime and maintenance costs, resulting in efficiencies and increased reliability to maintain service levels.

In 2022, an in-field comparison of wide area mowing equipment was conducted to measure the performance and reliability for 2 brands of equipment. The Toro brand was selected to run side-by-side the Jacobsen for this pilot.

These two brands of mowers have been the only 2 wide area mowers for which the City has received bids in response to the Request for Tenders that have been issued. Fleet Services has confirmed that there are no other manufacturers currently making 16-foot wide area mowers. Based on market research and demonstrations, there are currently no other manufacturers that supply a 16-foot wide area mower other than Toro and Jacobsen. For example, John Deere and Kubota do not offer a 16-foot wide area mower.

The in-field comparison consisted of operating two new 2020 model units from each manufacturer for 88 working days. Table 1 of Report PW22068 details the data collected through the in-field comparison. An “issue” meant that the unit was not being used to cut grass. The most frequent issues were related to overheating and wheel/tire problems. Overall, the Toro was significantly more reliable, experiencing fewer issues in the field and fewer days out-of-service, delivering 78 fully productive days out of a total 88 days, compared to the Jacobsen which had only 36 fully productive days. Issues included waiting on parts to repair the unit, or unable to use because diagnostics were being run. Results indicated the Jacobsen mower was reliable for less than half the season, whereas the Toro mower was productive for more than double the number of days.

Table 1

In-field Comparison		
Measure	Jacobsen HR800	Toro 5910
Days Available (Season)	88	88
Days with Issues	33 (38%)	2 (2%)
Days off Road	19 (22%)	8 (9%)
Fully Productive Days	36 (41%)	78 (89%)
Total Acreage Cut per Season	2,694	3,514
Downtime in Field (Hours)	14.6	3

A review of the work orders on file for the current Parks and Cemeteries Section fleet of 16-foot wide area mowers was completed and reviewed 11 Jacobsen units and 2 Toro units. Equipment model year ranged from 2009 to 2020. Overall, the Toro units required less maintenance, fewer number of work orders were issued to perform maintenance, and the cost of the maintenance was less overall. The lower maintenance work required was consistent across the older models as well as the 2020-year models. For the first year in service there is a marginal difference in the maintenance required and cost, however as the units age, the difference between the 2 brands is considerable. Table 2 of Report PW22068 details maintenance for the 2020 models only and Table 3 of Report PW22068 details maintenance required for the older models.

Table 2

2020 Models		
	*Jacobsen HR800	Toro 5910
Purchase Price	\$105,208	\$139,625
Years in Service	2	2
Total Work Orders*	57	47
Total Maintenance Cost*	\$8,650	\$5,582

\*2 units are owned; therefore, the average is shown.

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Table 3

2014/2015/2016 Models			
	*Jacobsen HR9016 (3x 2014 units)	Toro 5910 (2015)	Jacobsen HR800 (1x 2016 unit)
Purchase Price	\$76,212	\$94,000	\$100,419
Years in Service	8	7	6
Average Total Work Orders	249	165	171
Average Total Work Orders per Year	34.5	20	28.5
Average Total Maintenance Cost	\$112,021	\$67,044	\$78,988
Average Total Maintenance Cost per Year	\$14,002	\$9,577	\$13,164

Table 4 of Report PW22068 shows the total cost of ownership defined as purchase price plus maintenance costs for the life of the equipment to the end of the 2021 season.

Table 4

2014/2015/2016 Models			
	Jacobsen HR9016 (2014)	Jacobsen HR800 (2016)	Toro 5910 (2015)
Purchase Price	\$77,369	\$100,420	\$94,000
Years in Service	8	6	7
Total Maintenance Cost	\$122,098	\$78,988	\$67,044
Purchase plus Maintenance Cost	\$199,467	\$179,408	\$161,044

This data indicates that between the first year and fifth year of ownership, the Toro becomes the less expensive equipment to operate and after seven years of service, the maintenance cost of the Jacobsen 16-foot wide area mower exceeds the original purchase price. As the equipment ages, the maintenance cost per year and the need for additional service increases significantly. Scheduled service intervals remain the same, however unscheduled repairs tend to be more frequent.

Toro units have less hydraulic components compared to the Jacobsen unit. The Toro utilizes a belt system to transfer energy; these belts are easier to repair and replace. Generally, repairs required on the Toro units have been completed in the field with little down time. Many repairs required on the Jacobsen units relate to hydraulic issues and overheating. Resolution requires repairs to be completed at a repair facility, resulting in down time further extended by part delivery lead times. A meeting was held in May 2022 where staff met with the regional Jacobsen dealer to share concerns related to the 16-foot mowers.

The Toro unit is more robust, operators can manoeuvre hills and slopes that had been difficult in the past. For example, the Toro unit was able to cut the Albion Berm (Ward 6). This task typically requires 8 hours for a 4-person crew using weed eater trimmers; with the Toro unit it was accomplished by a single operator in 0.5 hours.

Limiting downtime is necessary to ensure that Council approved service levels are being met. The Toro units have a higher upfront price, but with their lower annual

maintenance cost, and their longer useful life expectancy, the result is a lower overall cost.

## **ALTERNATIVES FOR CONSIDERATION**

N/A

## **ALIGNMENT TO THE 2016 – 2025 STRATEGIC PLAN**

### **Clean and Green**

Hamilton is environmentally sustainable with a healthy balance of natural and urban spaces.

### **Built Environment and Infrastructure**

Hamilton is supported by state-of-the-art infrastructure, transportation options, buildings and public spaces that create a dynamic City.

### **Our People and Performance**

Hamiltonians have a high level of trust and confidence in their City government.

## **APPENDICES AND SCHEDULES ATTACHED**

N/A