



SUBJECT: Single Source Procurement – Regenerative Air Street Sweeper

TO: Environment, Infrastructure & Community Services Cttee.

FROM: Roads, Parks and Forestry Department

Report Number: RPF-06-21

Wards Affected: not applicable

File Numbers: 465-12

Date to Committee: April 8, 2021

Date to Council: April 20, 2021

Recommendation:

Approve the single source purchase of one vacuum street sweeper to The Equipment Specialist Inc., 400 Parkdale Ave, N, Bldg 3, Hamilton, Ontario L8H 5Y2 at a purchase price of \$443,186.00.

PURPOSE:

In order to comply with Procurement By-law 19-2014, Section 14.8, Council approval is required for purchases with a value of \$100,000 or more. The purpose of this report is to seek approval to proceed with a single source purchase agreement for one Tymco DST-6 Dustless Regenerative Air Sweeper. The purchase will coincide with the disposal/auction of an existing street sweeper that has reached its optimum life cycle of eight years and has met replacement criteria through a condition assessment (operations & maintenance) by Fleet Services staff.

Vision to Focus Alignment:

- Support sustainable infrastructure and a resilient environment

Executive Summary:

Street Sweeping falls under the Road Maintenance Service within the Roads, Parks & Forestry Department and currently consists of a combination of internal equipment and

operators, complemented with additional external contracted street sweeping crews. The service is particularly valuable in the spring to remove winter debris, sand and residual salt. In addition to contributing to the appearance of a cleaner City, the sweepers also contribute significantly to reducing stormwater contamination and improving air quality. The level of service for street sweeping is:

- Arterial and Collector roads (curb & gutter) once per month from April to November.
- Residential streets (curb & gutter) twice per year.
- Downtown Business Area every three weeks or as required. (sweeping to be completed before 9:00 am)
- Arterial and Collector roads (no curb & gutter) as required.
- Residential streets (no curb & gutter) as required.

Preventative maintenance is performed on the street sweepers during the off season.

As we replace our fleet assets, the City looks to purchase the most environmentally friendly option available to ensure alignment with the City's Green Fleet strategy, implemented in 2008.

Background and Discussion:

Over the past two years, City staff from road maintenance operations and fleet services have completed an extensive review of available street sweeper to replace this existing unit. The review analyzed the City's existing sweeper fleet, experience from City contractors and municipal operations externally including overall sweeper pick-up performance, noise level and environmental impacts. City staff conducted on-site testing, a jurisdictional review of street sweepers in use in Canada and available independent research reports.

Strategy/process

Step 1 – City's Existing Sweeper Fleet Review

Staff conducted demonstrations in 2019 of different vacuum sweepers. Regenerative Air Sweepers have been used in the past by the City, similar to the unit proposed. In 2018, the City purchased a single engine pure vacuum purpose-built sweeper with the intention of ensuring this unit would meet road maintenance needs for traffic islands. Since this purpose-built unit has been used in operations, it has proved valuable for traffic islands and other smaller areas as well as avoiding some safety concerns during maintenance on traffic islands however a regenerative air sweeper allows the City

additional operational value given its collection performance and meet year round capability.

Step 2 – Municipal and Private Sector Best Practice Review

Staff conducted analysis of other municipal roads operations to learn and evaluate the sweepers used in their operations. The majority of municipal comparators including the Town of Oakville, the City of Toronto, the City of Hamilton, and the Town of Milton, single source the TYMCO DST-6 sweeper due to its superior operational performance and impacts on air quality. We know that municipal road sweeping brushes fine particulate matter into the air, so it is important that this particulate is removed from the air as much as possible and that the operational performance of the unit is maintained. The TYMOC DST-6 has been independently certified as meeting PM₁₀ and PM_{2.5} 90% minimum removal efficiency verified by Environmental Technology Verification (EVT) Canada.

Step 3 – Sweeper Performance Review & on-site testing

Fleet Services and Road Maintenance operations used a number of criteria to evaluate sweepers available in the market. Important criteria in addition to air quality for our evaluation included hopper capacity, suction strength, noise level, waterless collection, hopper material and single/dual steering requirements. Based on these evaluations, the TYMCO DST-6 was our clear choice given it met all of the City's needs and provided additional advantages including the largest available hopper capacity of 7.3 yards, nuclear grade suction strength, waterless collection allowing for sweeping during the winter months and less fine particulate in our storm water management system. Based on operational requirements and maintenance of the asset through the lifecycle, road maintenance requirements include single steer drive and mild steel hopper and dust box assemblies.

Options Considered

There are three categories of street sweepers: mechanical (broom) sweepers, vacuum sweepers and regenerative air sweepers. Our current fleet of street sweepers contain one regenerative air sweeper (TYMCO) and one vacuum sweeper. Externally hired contractor sweepers are regenerative air type sweepers. Each type of sweeper is described below:

Mechanical (broom) sweeper – Considered a basic sweeper that collects debris through the mechanical movement of a rear rotary broom. The action of the sweeping broom sends the debris through a conveyor system into the containment hopper. This type of units can be outfitted with additional side mounted gutter brooms and a series of spray nozzles to help dust control. This type of sweeper has its best application for heavy collection such as in milling operations. Because of the design, collection performance

and dust generation, mechanical sweepers are not widely accepted for municipal sweeping operations.

Vacuum Sweeper – This is a common type of sweeper for regular municipal sweeping operations. These sweepers generally incorporate a fan blower and vacuum pickup system located near the road surface. Vacuum sweepers can be single or dual engine design depending on size and power requirements. This unit has been valuable in our City operations for maintaining traffic islands. These units require the use of water to control dust and has a smaller hopper capacity than the regenerative air sweeper proposed. The suction capabilities of vacuum sweepers are less than regenerative sweepers and none of the vacuum sweepers examined meet certification for particulate matter removal efficiency.

Regenerative Air Sweeper – This is considered to be a premium sweeper that incorporates both air and vacuum systems. These units have a larger pickup head that uses air pressure as well as a vacuum. The air flow in this sweeper works in a closed loop system with the blower fan supplying a vacuum and positive pressure to the pickup head. The air stream carries the debris into an enclosed containment hopper where debris is removed and the filtered air is directed back through the blower fan in a continuous cycle. There is no polluted air exhausted to the outside air which makes this sweeper the most air quality conscious alternative. Due to the power requirements and additional components required on this type of sweeper, they are designed and built on a truck chassis with a dual-engine and are the most expensive.

Financial Matters:

The 2019 Approved Capital Budget included \$307,300 for a replacement street sweeper. As outlined above, the TYMCO DST-6 is the only unit on the market to meet our operational and environmental criteria. There is only one TYMCO dealer in Ontario and hence a direct negotiation with this dealer is recommended. Preliminary negotiations have produced competitive results of \$389,200 (excluding HST) for the unit, which is consistent with other purchases by municipalities in the region in recent years.. This pricing includes single steer drive, mid steel hopper and assemblies, automatic greasing system and three camera monitoring system. Budget savings have been achieved through the replacement of other fleet assets, and these funds are available to offset the increased cost of this acquisition under the Roads Maintenance Vehicle Replacement Account.

Total Financial Impact

From an operating budget perspective, the TYMCO DST-6 will require fuel, licensing and service/repair throughout the lifecycle of the asset, however there will be no operating budget impact as this is a replacement unit.

Source of Funding

The total cost of the replacement street sweeper is \$399,102.72 (net HST rebate) which is to be charged to capital order VR0113 and to be funded from the Vehicle Depreciation Reserve Fund - Roads Maintenance Vehicle Replacement.

Other Resource Impacts

Not applicable.

Climate Implications

The proposed unit has been independently certified as the optimum product for the maximum pickup and containment of particulate matter to a 2.5 micron level. This certification was completed by Environmental Technology Verification (ETV) Canada with support from the City of Toronto and the City of Hamilton for air quality and sweeper performance. At 92% certified pickup and control efficiency, this product is at the forefront of sweepers available on the market in North America. The ability to sweep in a waterless condition reduces contamination and particulates from entering the storm water management system.

Engagement Matters:

Not applicable.

Conclusion:

Based on the information and analysis above, Fleet Services in consultation with Procurement Services and Road Maintenance Services conclude that the Tymco Model DST-6 Dustless Regenerative Air Sweeper through The Equipment Specialist Inc., 400 Parkdale Ave, N, Bldg 3, Hamilton, Ontario L8H 5Y2 is the only unit that is available in this market of it's type that will meet City criteria and requirements as identified in this report.

Respectfully submitted,

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Manager of Fleet Services & the Operations Centre

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Report Approval:

All reports are reviewed and/or approved by Department Director, the Chief Financial Officer and the Executive Director of Legal Services & Corporation Counsel.