

TO:	CHAIR AND MEMBERS CIVIC WORKS COMMITTEE MEETING ON MAY 9, 2017
FROM:	KELLY SCHERR, P.ENG., MBA, FEC MANAGING DIRECTOR – ENVIRONMENTAL & ENGINEERING SERVICES & CITY ENGINEER
SUBJECT:	SINGLE SOURCE PROCUREMENTS STREET SWEEPER AND SIDEWALK SWEEPER

RECOMMENDATION

That, on the recommendation of the Managing Director - Environmental & Engineering Services & City Engineer,

- a) Approval **BE GIVEN** to exercise the single source provisions section 14.4 (d)(e) of the Procurement of Goods and Services Policy for two fleet equipment purchases > \$50,000;
- b) Single Source negotiated price **BE ACCEPTED** to purchase one (1) Ravo 5 iSeries Vacuum Street Sweeper for a total estimated price of \$274,109 + HST from Cubex Ltd., 189 Garden Avenue, Brantford, Ontario N3S 0A7;
- c) Single Source negotiated price **BE ACCEPTED** to purchase one (1) MadVac LS100 Sidewalk Sweeper at a total estimated price of \$94,429 + HST from Joe Johnson Equipment Inc. (JJEI), 2521 Bowman St., Innisfil Ontario L9S 3V6;
- d) Funding for these purchases **BE RELEASED** as set out in the Source of Financing Report attached hereto as Appendix “B”, conditional that satisfactory terms and conditions can be negotiated and approved;
- e) Civic Administration **BE AUTHORIZED** to undertake all administrative acts that are necessary in connection with this purchase and the reallocation of the necessary capital funds; and,
- f) Approval hereby given **BE CONDITIONAL** upon the Corporation entering into a formal contract or having a purchase order, or contract record relating to the subject matter of this approval.

PREVIOUS REPORTS PERTINENT TO THIS MATTER
--

Relevant reports that can be found at www.london.ca under City Hall (Meetings) include:

- Single Source Replacement of Street Sweepers – Single Source (November 3, 2015 meeting of the Civic Works Committee, Item #8)

STRATEGIC PLAN 2015-2019

This report and recommendation supports several strategic priorities including:

Building a Sustainable City

Convenient and Connected Mobility Choices – Transportation Master Plan, Rapid Transit Strategy and Bicycle Master Plan

Strong and Healthy Environment – London Downtown Plan, The London Plan

Beautiful Places and Spaces

Growing our Economy

Investing in London's Downtown as the Heart of our City – London's Downtown Plan, Dundas Flexible Street, new downtown management organization

Strengthening our Community

Healthy, Safe and Accessible City – Protecting the Thames River from contamination, enhancing recreational experiences, maintain pedestrian and cycling routes safe year round

BACKGROUND

PURPOSE

The purpose of this report is to seek approval to proceed with two single source purchases for the following equipment:

1. One (1) Ravo 5 iSeries Vacuum Street Sweeper with third outfront broom, and,



2. One (1) MadVac LS100 Sidewalk Sweeper



CONTEXT

Street sweeping and downtown sidewalk sweeping falls within the Transportation and Roadside Operations maintenance program. The established level of service for sweeping operations utilizes both internal and external resources to meet the demands:

- **Street Sweeping Service** - The street sweeping service is a critical piece of road infrastructure maintenance management and a service that is appreciated and visible to many Londoners. Currently the City owns and operates four (4) vacuum street sweepers as part of their internal fleet. The 7-8 month program functions primarily during the spring (double shifted), summer and fall. These internal resources are expanded with external contracted sweeping teams administered by the City.

In addition to the aesthetic benefits of the road sweeping program by removing road debris and sand/salt, it also contributes significantly to reducing storm water contamination and infrastructure maintenance. The technologically advanced vacuum collection systems on these sweepers also plays an important role in improving urban air quality.

- **Sidewalk Sweeping Service** - The sidewalk sweeping program is currently provided by one internal unit that is utilized almost exclusively in the Downtown area. This unit is also double shifted and works weekends and is integral to the downtown maintenance strategy and enhancing the downtown experience. The sidewalk sweeper provides important value to business owners, visitors and patrons.

CONCLUSION

Previous Street Sweeper Procurement Process (2015-2016)

The existing City owned street and sidewalk sweeping assets were recently replaced in 2016 through the life cycle maintenance program. The replacement street sweepers were awarded to Cubex Inc. for their Ravo 5 iSeries Vacuum Street Sweeper using a Single Source purchasing process as they provided the best solution for the City's operational needs including performance, maintenance, comfort and flexibility. Based on specific field testing and examination, the Ravo street sweeper is an effective and financially responsible choice (Appendix A contains the previous review details). From a versatility perspective, the Ravo street sweeper includes a third broom that can reach previously uncollectable areas such as islands and curbside sidewalks. Throughout 2016 and so far in 2017 the new equipment has performed well both mechanically and operationally.

Previous Sidewalk Sweeper Procurement Process (2015-2016)

The sidewalk sweeper was awarded through a competitive tendering process in January 2016. The low compliant bid from that tender did not perform well for City needs and was returned to the vendor. The second low bid was then purchased from Joe Johnson Equipment Inc. (JJEI) for their MadVac LS100. This asset has been in service since then and has met the City's expectations during this time and has performed well to date.

Fleet Requirements Review to Accommodate Additional Sweeping Needs

In late 2016 and early 2017, Transportation and Roadside Operations undertook a fleet review for their maintenance requirements and identified the need to make adjustments to their equipment by adding additional units to their sweeping equipment complement. This is primarily predicated on ensuring they can continue to meet current and future demands for these types of services. More recently this program has seen growing demand to support strategic priorities and initiatives such as:

Current Expanded Requirements

- Servicing the expanded downtown district,
- Enhanced service to the market area corridors
- Improved downtown landscapes and maintenance challenges,
- Increased use of bike facilities which need an improved maintenance strategy to collect debris versus sweeping off, and
- More island and curbside sidewalk debris and weed removal.

Upcoming Expanded Requirements

- New creative spaces downtown including maintaining the “flex” street,
- Improved urban planning designs that require additional maintenance and special sweeping solutions,
- Preparing for growth in bike facilities like dedicated bike lanes and cycle tracks, and
- Preparing for Bus Rapid Transit areas in the downtown area.

Fleet Requirements Review to Accommodate Reduction in Heavy Construction Equipment

In terms of direction, the Transportation and Roadside program is seeing less demand for grader work like gravel road maintenance and more demand for urban cleanliness, infrastructure maintenance, sweeping, and removing debris from creative new urban spaces.

The length of gravel roads in London that require maintenance has been gradually reduced and will continue as more roads are converted to pavement. The City will still own two graders to perform these activities and will engage external resources to fulfill any shortfall in the grader program. Graders are readily available in the construction industry therefore the ability of renting a unit on an as required basis can be accommodated. This change will provide improvements overall in terms of flexibility, greater utilization of staff and resources and providing greater service value to a larger number of Londoners.

Outcome of Review – Need for One Additional Street Sweeper and One Additional Sidewalk Sweeper

Fleet has worked closely with the Transportation and Roadside Operations area and identified the operational changes necessary that will help meet the demand for sweeping services yet remaining fiscally responsible within existing multi-year budget parameters. The solution involves reallocating the Vehicle and Equipment Reserve Fund (VERF) contributions in Capital Project ME 201601 that were budgeted for a new road grader (that has reached its optimum life cycle) and reallocate both those capital contributions and the annual operating budget for the grader to the two additional sweeping units.

This reallocation of the budgeted funds will help fulfill Council's strategic priorities and provides a solution to the changing landscape in the city. The movement towards cleaner, healthier, and robust spaces increases the demands for innovative maintenance services and equipment to meet those initiatives. This direction supports the current requirements for maintenance and prepares for the work required as part of strategic priorities including the London Plan, Rapid Transit corridors and Designated Bike facilities and spaces.

FINANCIAL IMPACT

Capital Budget

The impact on the Capital budget for the transfer is relatively minor. The current road grader that will be retired has a capital replacement value of \$325,000 plus an additional \$27,063 for snow plough blades for a total of \$352,063. This total amount is available in the Vehicle and Equipment Reserve fund in ME201601.

The Capital required for one additional street sweeper and one additional sidewalk sweeper based on single source negotiations with our vendors is \$274,109 plus HST for the Ravo Street Sweeper (includes a third broom) and \$94,429 plus HST for the Madvac sidewalk sweeper for a total of \$368,538.

The net capital difference is \$16,475. The difference will be covered through a one-time transfer from the operating budget in the Roads and Transportation program to fleet Capital project ME201601.

Capital Source of Financing is attached in Appendix "B".

Operating Budget

The current operating costs for the grader (already in 2017 budget for internal rental including fuel) is set at \$78,909 annually.

The new rental rate charged to Transportation and Roadside Operations for the two new units based on the experience of the existing units is \$63,301 for the road sweeper and \$29,017 for a total of \$92,318.

The ongoing operating budget impact is \$13,409 per year which can be accommodated through minor operating practice adjustments within the existing approved Roads and Transportation Operating budget.

CONCLUSION

Based on discussion and the analysis above, Fleet Services in conjunction with Transportation & Roadside Operations recommend that the replacement of an existing road grader be deleted and the capital and operating funds be repurposed to support purchasing an additional vacuum street sweeper and an additional sidewalk sweeper unit to meet the changing service requirements of the City.

This change helps facilitate alignment of services to current strategic priorities including future demands for core services in the downtown landscape like rapid transit, dedicated bike facilities, flex streets and the expanded Downtown Business District. The new infrastructure proposed will require additional equipment that can efficiently and effectively maintain these new spaces.

Since there has been recent purchases for this same equipment in January of 2016, it is recommended that the additional sweeping units be single sourced as per section 14.4(d) *requirement for compatibility with goods and service previously acquired*, and 14.4(e) *the required goods are supplied by a particular supplier having special knowledge skills expertise of the equipment*. Fleet Services believes the single source procurement approval and negotiations provides the best possible competitive price while maintaining the benefits of brand standardization. The resulting benefits materialize both on the maintenance, training and operational efficiencies throughout the life of the assets. The Manager of Purchasing & Supply supports the outcome of this review.

ACKNOWLEDGEMENTS

This report was prepared with assistance from Dave Fawcett, Specialist - Fleet Planning; and Frank Vanhie – Manager of Fleet Planning.

SUBMITTED BY:	REVIEWED & CONCURRED BY:
MIKE BUSHBY, BA DIVISION MANAGER FLEET & OPERATIONAL SERVICES	EDWARD SOLDI, P. ENG DIRECTOR ROADS & TRANSPORTATION
REVIEWED & CONCURRED BY:	RECOMMENDED BY:
JAY STANFORD, MA, MPA DIRECTOR ENVIRONMENT, FLEET & SOLID WASTE	KELLY SCHERR, P. ENG., MBA, FEC MANAGING DIRECTOR, ENVIRONMENTAL & ENGINEERING SERVICES & CITY ENGINEER

Appendix A Previous Process and Rationale Provided for Single Source of Street Sweepers

Appendix B Capital Source of Financing

c: John Freeman, Manager of Purchasing & Supply

APPENDIX A PREVIOUS PROCESS AND RATIONALE PROVIDED FOR SINGLE SOURCE OF STREET SWEEPERS

Note: These details were previously submitted as part of the November 2015 Civic Works Committee report. The details highlight the process undertaken by City staff to identify the best street sweeping solution for London.

Purchasing Processes Available to City Staff

Fleet Services in conjunction with Purchasing and Supply and Roads & Transportation considered the three available options for this procurement including releasing a Tender, a Request for Proposals (RFP) and Single Sourcing.

1. Tendering is typically the most common process Fleet Services uses to procure vehicles and equipment replacements when a very tight specification can be met that meets the City of London needs and multiple bidders have the opportunity to bid. However in this case there is such diversity of function, design and cost for street sweepers, one standard specification would not satisfy the tender requirements or result in a fair (apples to apples) competitive bidding process.
2. The RFP competitive process was also considered. The RFP process is typically used when the City of London has certain specifications that must be met but then allows the bidders to propose a range of designs that would be evaluated using criteria provided by the City. However after conducting a needs analysis and vehicle trials it was discovered that there is only one unit that could meet the complete purpose built chassis/body vacuum street sweeper design that is very important to the City's operational, maintenance and financial needs. Therefore going through a formal RFP process would also not provide a competitive result.
3. The Procurement of Goods and Services Policy allows staff to enter into single source negotiations with suppliers provided there are valid and sufficient reasons for selecting one supplier in particular. The specific provision from the Policy being relied on is 14.4(e) "the required goods and/or services are to be supplied by a particular supplier special knowledge, skills, expertise, or experience".

Discussion/Analysis

i) Context - Level of Service Provided to Londoners and Businesses

The Street Sweeping service falls within the Transportation and Roadside Operations program and currently consists of a combination of internal equipment and operators, complimented with additional external contracted street sweeping crews. The four City-owned street sweepers are double shifted for the 7-8 month sweeping season. The service is particularly valuable in the spring to remove winter debris, sand and 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 standard for street sweeping is:

- All residential streets swept once annually,
- Main streets at least six (6) times, and;
- Downtown business areas eight (8) times.

Major preventative maintenance is performed on the street sweepers during the off season.

ii) Sweeper Types

In terms of options for the street sweeper replacements there are basically three categories of street sweepers; Mechanical (Broom) Sweepers, Vacuum

Sweepers, and Regenerative Air Sweepers. Currently the internal fleet is regenerative air sweepers and the externally hired contractor sweepers are predominately vacuum type sweepers. Each category is described below:

Mechanical (Broom) Sweeper - Considered a basic type 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 unit can be outfitted with additional side mounted gutter brooms and equipped with a series of water spray nozzles to help control dust. This type of sweeper has its best application for heavy collection uses such as in milling operations. Because of the design, collection performance and dust generation, mechanical sweepers are not widely accepted for regular municipal sweeping operations.

Vacuum Sweeper - This is the most common type of sweeper for regular municipal sweeping operations. These units are available from a number of different suppliers with slightly different configurations and capabilities. These sweepers generally incorporate a fan blower and vacuum pickup system located near the road surface. The pickup nozzle(s) vacuum the debris and material directed to it from the brooms but also collects fine particles directly from the road surface, cracks, crevices and road imperfections providing a more complete cleaning with significantly less dust.

The picked up materials are transferred via a large suction tube to the containment hopper. The airflow once inside the hopper is directed against screens to allow the material to drop out of air suspension and into the hopper. Water spray nozzles are used at the brooms, pickup nozzle and inside the containment hopper to control dust and to lubricate the vacuum system to help prevent any clogging.

Depending on size and power requirements, units in this category are typically designed and built to be mounted on conventional truck chassis and incorporate a dual engine design. However the European engineered Ravo unit provides a compact, purpose built street sweeper that integrates the chassis, body and broom components. These units offer a single engine design that allows for increased flexibility, versatility, and competitive pricing meanwhile providing many of the quality aspects of the standard pure vacuum sweeper. These units have provided municipalities with a viable alternative to traditional truck chassis vacuum sweepers.

Regenerative Air Sweeper - This is considered to be a premium sweeper that incorporates both air and vacuum systems. These units introduce a larger pickup head that utilizes pressurized air 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 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 (dual engine design) and are the most expensive.

iii) **Process Used to Justify Recommended Purchasing Process**

Step 1 – Field (Operational) Tests of Sweepers

Staff conducted trials and testing on the three different types of sweepers; regenerative air, mechanical (broom) and (pure) vacuum. Regenerative air sweepers have been used for the last 8 years. In consultation with City Roadside Operations Managers and sweeping crews a list of value added criteria and options were established to help make the replacement decision. Categories included:

- Environmental Controls - PM10 particulate matter compliant
- Type of chassis design (single engine purpose built integrated unit vs two engine truck chassis with specialty body)
- Street dirt collection systems and performance
- Operator broom visibility to enhance effectiveness
- Functionality/flexibility and manoeuvrability of sweeper on the street
- Operator comfort and safety
- Third broom capability to collect street dirt in difficult areas
- Increased capability to operate above curb edges, medians and traffic islands, (e.g., capable to remove weeds and debris)
- Stainless steel hopper body
- Build time and delivery date (target is availability for Spring 2016)

Following the demonstrations and work trials, staff reported that the purpose built vacuum sweeper; Ravo 5 iSeries, scored the highest across the value added criteria. The Ravo Street Sweeper's strengths from an end user perspective included excellent operator safety (maximum 40 km/hr), ergonomic comfort and visibility for improved performance, effectiveness and operational flexibility (3rd broom, compact specialty chassis for maneuverability) and quality dust controls associated with a vacuum sweeper.

The mechanical (broom) sweepers scored the lowest and did not meet the needs of the sweeping operations. The Regenerative Air Sweeper performed well on dust control and collection performance but scored less on operator comfort, noise, operational flexibility/manoeuvrability and broom visibility.

Step 2 – Sweeper Maintenance

Fleet maintenance staff reviewed maintenance and service history associated with the existing regenerative air street sweepers. As mentioned these are very sophisticated sweepers mounted on a truck chassis with a two engine configuration. This configuration has resulted in maintenance time, service needs and costs consistent with those additional systems. To address the technical expertise needed an in-house technician was specially trained and dedicated in order to adequately service, repair and troubleshoot on these types of units.

From a fleet maintenance perspective staff support moving to a replacement that incorporates a simpler purpose built sweeper chassis/body design. The single engine integrated body is expected to be beneficial in terms of parts and service requirements as well as technician training. The Ravo sweeper is a European design with experience and expertise building sweeper equipment for over 50 years. In addition Ravo is available from a local supplier which helps ensure adequate support, warranty and parts availability. They have a growing number of Ontario municipal clients including the City of Woodstock, the City of Cambridge, and the City of Newmarket. Service history was examined with the other municipal clients operating comparable Ravo units and reported no major issues with parts availability and support, reliability has been good, lower servicing costs, improved end user satisfaction/flexibility, and lower fuel consumption.

Step 3 – Fleet Planning and Asset Management

Fleet Planning staff further examined the sweeper categories by examining equipment specifications, sweeper performance and asset management considerations such as expected capital costs, available budget, life cycle, estimated maintenance costs, fuel efficiency and remarketing values. The result supported the Ravo 5 iSeries vacuum sweeper as a suitable replacement, meeting the criteria specified.

Step 4 – Cost Analysis

Pricing estimates provided by suppliers during the trial period indicated that only vacuum sweepers would be within or close to approved budget available from the City.

For comparison, regenerative air sweepers pricing could be as much \$75,000 (between 25% and 30%) more per unit which would require an additional \$300,000 in capital to purchase replacements. The mechanical (broom) sweepers could potentially meet budget considerations; however it would be a sweeping unit that would not meet operational performance and environmental control requirements noted in Step 1.

In evaluating and comparing costs of pure vacuum sweepers, the Ravo was considered the best option based on expected capital and ongoing operating costs. The operating cost savings is associated with the Ravo unit being the **only** unit that utilizes a single engine purpose built chassis.

In addition, based on the lower speed and configuration of these units, they will continue to qualify as Road Building Machines (RBM) as categorized by the Ministry of Transportation. The result is financial savings from being exempt from licensing requirements and road tax charges on diesel fuel. It is estimated that this factor will provide operating savings of up to \$60,000 over the life cycle of the four units.

Step 5 – Staff Recommendation

This analysis and consultation to set priorities, operational needs, and value added features provided a well-founded basis for the recommendation to sole/single source the Ravo 5 iSeries unit (Figure 1), which is the **only** pure vacuum “purpose built” street sweeper available.



Figure 1, Ravo 5 iSeries – (Pure) Vacuum Street Sweeper

APPENDIX B
SOURCE OF FINANCING