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TO:	CHAIR AND MEMBERS CIVIC WORKS COMMITTEE MEETING ON TUESDAY, NOVEMBER 3, 2015
FROM:	JOHN BRAAM, P.ENG MANAGING DIRECTOR - ENVIRONMENTAL & ENGINEERING SERVICES & CITY ENGINEER
SUBJECT:	REPLACEMENT OF STREET SWEEPERS - SINGLE SOURCE PROCUREMENT #15-45

RECOMMENDATION

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

- a) The amount negotiated with Cubex Ltd., 189 Garden Avenue, Brantford, Ontario N3S 0A7, for the purchase of four (4) Ravo 5 iSeries Vacuum Street Sweepers at the total price of \$1,040,096, HST extra, **BE ACCEPTED**, it being noted that funding for this purchase was approved in the 2015 fleet capital budget;
- b) Approval hereby **BE GIVEN** to exercise the single source provisions of the Procurement of Goods and Services Policy section 14.4 (e) for the procurement;
- c) Conditional that satisfactory terms and conditions can be negotiated and that approved funding for this purchase **BE RELEASED** as set out in the Source of Financing Report attached hereto as Appendix "A",
- d) Civic Administration **BE AUTHORIZED** to undertake all administrative acts that are necessary in connection with this purchase; and,
- e) 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
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Single Source - Supply and Delivery of Regenerative Air Sweepers

(Board of Control - February 15, 2006)

<http://council.london.ca/CouncilArchives/Agendas/Board%20Of%20Control%20Agendas/Board%20of%20Control%20Agendas%202006/2006-02-15%20Agenda/Item%203.pdf>

BACKGROUND

Purpose

The purpose of this report is to seek approval to proceed with a single source purchase agreement for four (4) Ravo 5 iSeries Vacuum Street Sweepers. The purchase will coincide with the disposal/remarketing of the existing fleet of 4 street sweepers that have reached their optimum life cycle of 8 years and have been assessed from an operational (maintenance) perspective by Fleet staff.

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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:

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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:

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- 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.

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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

Financial Impact

As part of the overall 2015 Fleet Capital Budget, the need for 4 new street sweepers was identified and approved. The budget for the replacements has been funded through contributions from the service area (Transportation and Roadside Operations) to the Vehicle and Equipment Reserve Fund.

Preliminary negotiations have produced competitive results of \$252,734.27 per unit. This allows enough room in the approved budget to purchase optional 3rd broom assemblies for two of the units at an additional price of \$14,579.81 per assembly. The expected final pricing is \$1,040,096.00. Capital Source of Financing is attached in Appendix “A”.

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From an operating budget perspective, the Ravo 5 iSeries vacuum sweepers are expected to provide ongoing operational savings through fuel type, licensing, fuel consumption, and servicing/repair costs.

CONCLUSION

Based on our information and analysis above, Fleet Services in conjunction with Purchasing and Supply and Roads & Transportation has concluded that the Ravo 5 iSeries Vacuum Street Sweeper available through Cubex Ltd. 189 Garden Avenue, Brantford, Ontario N3S 0A7 is the **only** unit that is available in the market of its type that can meet the City criteria and requirements as identified in this report.

Furthermore, Fleet Services believes that the single source procurement approval and negotiations with the supplier have resulted in the best possible competitive pricing for the capital costs and further operational costs savings during the operational life of the assets.

Single Sourcing the Ravo 5 iSeries Vacuum Street Sweeper provides 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.

Acknowledgements

This report was prepared in conjunction with Edward Soldo – Director of Transportation, John Parsons, Division Manager of Transportation and Roadsides, Jack Manganaro, Manager of Transportation, Frank Vanhie Manager of Fleet Planning, Dave Fawcett, Coordinator Fleet Planning and Steve Mollon, Procurement Officer, Purchasing & Supply.

SUBMITTED BY:	REVIEWED & CONCURRED BY:
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c: John Freeman, Manager of Purchasing & Supply