

TO:	CHAIR AND MEMBERS CIVIC WORKS COMMITTEE MEETING ON MARCH 10, 2020
FROM:	KELLY SCHERR, P.ENG., MBA, FEC MANAGING DIRECTOR, ENVIRONMENTAL & ENGINEERING SERVICES AND CITY ENGINEER
SUBJECT:	SINGLE SOURCE PURCHASE FOR REPLACEMENT LAND SURVEYING EQUIPMENT

RECOMMENDATION

That, on the recommendation of the Managing Director of Environmental & Engineering Services and City Engineer, the following actions **BE TAKEN** with respect to the Single Source Purchase of land surveying equipment:

- a) the price submitted by Leica Geosystems Ltd. of \$134,693.04 excluding HST, for the supply of two GNSS rovers and two total stations and associated components **BE ACCEPTED**, it being noted that this is a single source purchase in accordance with Section 14.4 (d) and (e) of the City of London's Procurement of Goods and Services Policy;
- b) the financing for these acquisitions **BE APPROVED** as set out in the Sources of Financing Report attached hereto as Appendix 'A';
- c) the Civic Administration **BE AUTHORIZED** to undertake all administrative acts that are necessary in connection with this purchase;
- d) the Mayor and City Clerk **BE AUTHORIZED** to execute any contract or other documents, if required, to give effect to these recommendations.

2019-23 STRATEGIC PLAN

The following report supports the Strategic Plan through the strategic focus area of Building a Sustainable City by ensuring London's infrastructure is built and maintained to meet the long-term needs of our community.

BACKGROUND

Purpose

The purpose of this report is to seek Council approval to purchase replacement land surveying equipment used by the Geomatics Division. The equipment will be a single source purchase under section 14.4(d) and (e) of the City's Procurement of Goods and Services Policy.

Context

Geomatics Division survey staff provide land surveying services for a variety of municipal needs, but mostly prepare engineering base plans and construction drawings that support the City's Infrastructure Renewal Program. The surveying equipment used

primarily consists of a Global Navigation Satellite System (GNSS) rover and computerized measuring platforms called “total stations” which are the professional surveyor’s quintessential tools needed to accurately “capture” and map the natural and built environment. This is the starting point for all detailed engineering design and construction of new municipal infrastructure. Geomatics current surveying equipment is now 15 years and several generations old, and there are no longer replacement parts available for components which are now beginning to fail. The equipment has reached the end of its lifecycle and needs to be replaced.

DISCUSSION

In the fall of 2019, Geomatics survey staff tested various surveying equipment from the two major vendors including GNSS rovers, total stations and terrestrial based LiDAR scanning stations. After careful testing the equipment from Leica Geosystems was identified as best able to support City survey work for the next decade for reasons of product capabilities and compatibility with existing City systems. The purchase recommendation includes two Leica GS18T GNSS “smart rovers” and two TS16P 3 second total stations. After briefly testing terrestrial LiDAR technology, which is a highly specialized 3-D scanning technology, it was determined that it was not a good fit for the type of survey work done by Geomatics and is not part of this purchase recommendation.

The recommended Leica GS18T GNSS “smart rover” receives and correlates satellite signals with Leica’s SmartNet network through a cellular connection to instantly provide the surveyor with real-world centimetre level 3-D coordinates in real time and in all weather conditions, 24/7. This device is primarily used to establish three dimensional project control points and for quickly and conveniently determining the precise position of isolated but non-obstructed features in the built environment. In comparison to the equipment currently used by Geomatics, the new equipment has greatly expanded capabilities that will broaden its usefulness in a variety of surveying situations.

The recommended Leica TS16P 3 second total station is a computerized optical-mechanical measuring platform with automatic target recognition that is capable of measuring distances up to 3500 metres to a reflector and is also equipped with a reflectorless laser measuring unit that can measure distances up to 500 metres to objects with a distance accuracy under a centimetre and angular accuracy of 3 arc-seconds. The radio equipped total station is servo-controlled and fully robotic that enables a surveyor to remotely control the device wirelessly from a hand held unit. For efficiency and practical reasons most total station survey work is done by a two-person crew. The robotic capability of the Leica product allows the continued efficient use of two-person crews and expansion of this practice to working on highways since one surveyor can operate the device solo while the other acts as a “traffic spotter” as is mandated by MTO Book 7 traffic control requirements.

The City currently uses Leica products so the recommended equipment will create efficiencies and cost savings via specialized product capabilities and compatibility with existing systems. The recommended Leica equipment is fully compatible with the equipment Geomatics currently uses, and therefore integrates seamlessly with existing systems and eliminates having to purchase and integrate new software and field coding systems. Additionally, the GS18T GNSS rover is natively compatible with Leica’s SmartNet Global Navigation Satellite network Real Time Kinematic service that the City currently subscribes to. A feature unique to the Leica GS18T rover is the integration of a tilt sensor that enables it to be used to measure a wider variety of hard-to-access features, thus extending its usefulness. Industry professionals have confirmed real productivity improvements based on this feature alone.

The new GNSS rovers and total stations are faster, more powerful and more flexible yet less expensive than the 15 year old equipment they will replace.

The purchase recommendation is for two fully equipped GS18T GNSS “smart rovers” and two Leica TS16P 3 second total stations which will fully equip the two Geomatics survey crews. The compatibility of the new equipment will improve flexibility since it enables survey crews to operate as a team or to work independently when circumstances allow for it.

An assessment of procurement approaches was also undertaken. The most cost-effective option is for the City to purchase the equipment outright and use it as long as possible rather than acquire it through a short term lease or renting it, and that is the recommendation of this report.

CONCLUSION

The Single Source Purchase of replacement surveying equipment will enable Geomatics to continue to provide essential surveying services to the Corporation using specialized equipment compatible with existing systems from a proven supplier that will integrate seamlessly into the City’s existing systems and improve production, flexibility and efficiency.

PREPARED BY:	REVIEWED AND CONCURRED BY:
A. GARY IRWIN, OLS, OLIP CITY SURVEYOR AND DIVISION MANAGER, GEOMATICS	DOUG MACRAE, P.ENG., MPA DIRECTOR, ROADS AND TRANSPORTATION
RECOMMENDED BY:	
KELLY SCHERR, P.ENG., MBA, FEC MANAGING DIRECTOR ENVIRONMENTAL & ENGINEERING SERVICES AND CITY ENGINEER	

c: John Freeman, Manager of Purchasing and Supply

APPENDIX 'A'

#20022

Chair and Members
Civic Works Committee

March 10, 2020
(Award Contract)

**RE: Single Source Purchase for Replacement Land Survey Equipment
(Subledger RD200007)
Capital Project TS1025 - Survey Equipment Replacement
Leica Geosystems Ltd. - \$134,693.04 (excluding H.S.T.)**

FINANCE & CORPORATE SERVICES REPORT ON THE SOURCES OF FINANCING:

Finance & Corporate Services confirms that the cost of this project can be accommodated within the financing available for it in the Capital Works Budget and that, subject to the adoption of the recommendations of the Managing Director, Environmental & Engineering Services & City Engineer, the detailed source of financing for this project is:

<u>SUMMARY OF ESTIMATED EXPENDITURES</u>	<u>Approved Budget</u>	<u>This Submission</u>	<u>Balance for Future Work</u>
Vehicle & Equipment	\$200,000	\$137,064	\$62,936
NET ESTIMATED EXPENDITURES	<u>\$200,000</u>	<u>\$137,064</u>	<u>\$62,936</u>
<u>SUMMARY OF FINANCING:</u>			
Capital Levy	\$200,000	\$137,064	\$62,936
TOTAL FINANCING	<u>\$200,000</u>	<u>\$137,064</u>	<u>\$62,936</u>

1) **FINANCIAL NOTE:**

Contract Price	\$134,693
Add: HST @13%	17,510
Total Contract Price Including Taxes	152,203
Less: HST Rebate	15,139
Net Contract Price	<u>\$137,064</u>

kw

Jason Davies
Manager of Financial Planning & Policy