TO:	**CHAIR AND MEMBERS CIVIC WORKS COMMITTEE MEETING ON AUGUST 22, 2016**
FROM:	**JOHN BRAAM, P.ENG. MANAGING DIRECTOR OF ENVIRONMENTAL & ENGINEERING SERVICES & CITY ENGINEER**
SUBJECT	**SINGLE SOURCE PURCHASE OF TURBO BLOWERS FOR THE GREENWAY WASTEWATER TREATMENT PLANT**

RECOMMENDATION

That, on the recommendation of the Managing Director of Environmental and Engineering Services & City Engineer, the following actions **BE TAKEN** with respect to the single source purchase of APG-Neuro blowers for the Greenway wastewater treatment plant:

(a) the price submitted by APG-Neuros of $2,240,000 excluding HST, for the supply of 6 blowers and associated components **BE ACCEPTED**;

(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 project;

(d) the approvals given herein **BE CONDITIONAL** upon the Corporation entering into a formal contract for the work to be done relating to this project; and,

(e) the Mayor and City Clerk **BE AUTHORIZED** to execute any contract or other documents, if required, to give effect to these recommendations.

2015-19 STRATEGIC PLAN

This project supports Wastewater Business Plan and the Strategic Plan with respect to Building a Sustainable City-Robust Infrastructure through investments in energy reduction.

Corporate Energy Conservation and Demand Management (CDM) Plan

Identifying opportunities to improve energy efficiencies within corporate operations and infrastructure is one of the key strategies in City's CDM Plan. Additionally, the primary goal of the City's CDM Plan is to reduce the corporation's annual energy use by 10 percent or 30 million equivalent kilowatt-hours (ekWh) from 2014 levels by 2020. The installation of turbo blowers at the Greenway Wastewater Treatment Plant supports the key strategy of installing energy efficient equipment and represents 11 percent (3.38 million ekWh/year) of the CDM Plan's energy-saving goal. The recently completed turbo blower installations at Adelaide, Oxford and Vauxhall plants represent another 6.1 percent (1.83 million ekWh/year) of the plan. These Turbo blower installations along with the proposed Organic Rankine Cycle (ORC) installation at Greenway will contribute approximately 37 percent of the City's 30 million ekWh goal.

BACKGROUND

Purchasing Process:
Approval for these purchases is requested in accordance with the purchasing By-law section 14.4 e) and g).

Purpose:

To award the single source purchase of six (6) turbo blowers and associated components to APG-Neuros.

Context:

The main treatment process at wastewater treatment plants requires the supply of large volumes of air to provide oxygen and mixing. This air is supplied by blowers which are usually the largest single source of hydro consumption in a wastewater treatment plant. The Independent Electricity System Operator (IESO) has implemented a Process and System Upgrade (PSU) program that provides capital incentives geared towards upgrading to more energy efficient equipment. The incentives are paid in stages with the final stage being the measures and verification following installation & commissioning.

An application has been submitted under the PSU program after the success of the Vauxhall, Oxford and Adelaide blower installations. A detailed design report, previously approved by the IESO, has been used as the template for the Greenway application. London will receive a onetime incentive of $200/MW or $900,000 and an annual operational savings of $664,068 with the six new blower installations. The project payback and costs including blower purchases, expected incentives and annual power savings are summarized in Table 1.

Table 1 -- Summary of the active applications

Plant	Total Project Cost (including blower purchase)	Project incentive ($200/MW)	Annual Hydro Savings ($150/MWH)	Simple Payback(yrs)
Greenway Section 1&2	$904,700	$191,759	$143,819	4.95
Greenway Channel Basin Blower	$183,900	$38,544	$28,908	5.02
Greenway Section 3	$1,352,400	$675,311	$425,446	1.60
Total(three plants)	$2,441,000	$905,614	$598,173	2.57

Blower Selection:

RFP-16-29 was issued on May 26, 2016 and closed on June 23,2016 with two suppliers submitting a proposal, APG-Neuros and Pillerator. APG-Neuros submitted the lowest price and was the only supplier to meet all specifications including electrical code requirements while offering the best wire to air efficiency. This will result in the largest incentive amount from the Ontario Power Authority program and return the greatest energy savings over the life cycle of the asset. APG-Neuros also has the shortest delivery time and largest Canadian installation base with 57 of 676 North American installations located in Canada.

The original review of the various blower manufactures included a study conducted by the Ontario Clean Water Agency (OCWA) and a technical review and recommendation by Stantec consulting which showed APG-Neuros with the lowest life-cycle cost. The published life cycle of the turbo blowers is stated as 20+ years with proper maintenance. With the increased complexity of turbo blowers it is beneficial to standardize to one blower manufacturer for maintenance planning, training and consumables inventory.

The successful Vauxhall and Adelaide blower projects have realized the following savings and incentives after the first year of operation.

Vauxhall

Project Estimates
- $ 232,418 OPA Incentives
- 1190 MW Annual Hydro Savings
- Or $127,330

Actual
- $ 201,714 OPA Incentive
- 911MW Annual Savings (77% of estimate)
- Or $97,477
- Payback 10 months
-

Adelaide

Project Estimates
- $185,094 OPA Incentives
- 819 MW Annual Hydro Savings
- Or $87,633

Actual
- $185,094 OPA Incentive
- 769 MW (94% of estimate)
- Or $82,293
- Payback 2.3 years

Funding for this acquisition is available from various capital projects with surplus variances as noted on the Source of Financing. The incentive monies will flow back to the capital account.

Conclusions:

Direct single-source purchasing of six (6) turbo blowers from APG-Neuros which offers substantial energy savings. This project along with successful Vauxhall and Adelaide blower project will help bring us closer to our energy reduction goal which is a key strategy within the cities CDM plan.

Acknowledgements:

This report was prepared within the Wastewater Treatment Operations Division by Mark Spitzig, Operations Manager with assistance from Sneha Madur, Corporate Energy Management Engineer, Environmental Programs, and Chris Ginty, procurement Officer, Purchasing and Supply.

PREPARED BY:	**REVIEWED & CONCURRED BY:**
GEORDIE GAULD **DIVISION MANAGER** **WASTEWATER TREATMENT OPERATIONS**	**JOHN LUCAS, P.ENG.** **DIRECTOR-WATER AND WASTEWATER**

RECOMMENDED BY:
JOHN BRAAM, P.ENG. **MANAGING DIRECTOR OF ENVIRONMENTAL & ENGINEERING SERVICES & CITY ENGINEER**

Attach: Appendix “A” – Sources of Financing