

Metrolinx, Jacobs Team Release Feasibility Study on Hydrogen-Powered Train Technology

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DALLAS, March 20, 2018 /PRNewswire/ -- **Jacobs Engineering Group Inc.** (NYSE:JEC) and **Metrolinx**, an agency of the Government of Ontario that manages and integrates regional transportation planning in the Greater Toronto and Hamilton Area, with the support of Ernst & Young Orenda Corporate Finance Inc. and Canadian Nuclear Laboratories, has released a **Hydrail Feasibility Study Report**.

The study aimed to determine whether it is technologically feasible and economically beneficial to use Hydrogen Fuel Cells (HFCs) as a power source for electrifying the GO rail network. The study investigated several topics, including the scale of the Hydrail System, costs, safety and implications of implementing this system, as well as the risks and opportunities involved.

"We're honored to support Metrolinx's environmental and economic vision for advancing the use of Hydrogen Fuel Cells to power the GO rail network," said Jacobs Buildings and Infrastructure President Bob Pragada. "Their ambitious vision aligns directly to our own vision of providing innovative solutions for a more connected, sustainable world."

Study Findings

The Jacobs-led team determined it is technically feasible to build and operate the GO rail network using HFC-powered rail vehicles. Additionally, the study finds there is a good level of confidence the project can be achieved subject to certain assumptions and challenges. These include the functionality, size and cost of the end-to-end Hydrail System; designing and building a fleet of HFC rail vehicles and the interest of the major global rail vehicle manufacturers; the amount of electricity the system will need to consume to produce the required volume of

hydrogen; the expected ability to refuel the HFC-powered locomotives and electric multiple units (EMUs) in time frames comparable to current diesel locomotive refueling; and the existing commercial availability and technological performance of all components that will be needed for the Hydrail System. Interested parties are encouraged to read the full **report**.

One key differentiator for the Hydrail System is the opportunity for broader benefits to Ontario in terms of economic development in the technology sector. This includes the creation of new opportunities for businesses in hydrogen and fuel cells, and the development of high-skilled jobs that would be required in these businesses and for the operation and maintenance of the Hydrail System.

Next Steps

Metrolinx is now working with train manufacturers Alstom and Siemens to produce concept designs that incorporate hydrogen fuel cells into bi-level EMU rail vehicles that would be used to provide the more frequent train service planned for the GO rail network.

In addition, Metrolinx is commissioning concept designs for a Hydrail locomotive that would be used in conjunction with the existing fleet of unpowered bi-level coaches. At the completion of these designs, Metrolinx will consider building a prototype that it could introduce into service. The prototype would gather valuable feedback on operations, performance and reliability.

Since 2010, Jacobs has served Metrolinx as owner's engineer and program manager for the implementation of the largest public transit investment in Canadian history – the \$9.6-billion Rapid Transit program in Toronto. The company is also serving as program manager for the Regional Express Rail program to transform the GO rail network in the Greater Toronto and Hamilton Area.

Jacobs leads the global professional services sector delivering solutions for a more connected, sustainable world. With \$15 billion in fiscal 2017 revenue when combined with full-year CH2M revenues and a talent force more than 74,000 strong, Jacobs provides a full spectrum of services including scientific, technical, professional and construction- and program-management for business, industrial, commercial, government and infrastructure sectors. For more information, visit www.jacobs.com, and connect with Jacobs on **LinkedIn, Twitter, Facebook** and **Instagram**.

Forward-looking statements

Statements made in this release that are not based on historical fact are forward-looking statements. We base these forward-looking statements on management's current estimates and expectations as well as currently

available competitive, financial and economic data. Forward-looking statements, however, are inherently uncertain. There are a variety of factors that could cause business results to differ materially from our forward-looking statements. For a description of some of the factors which may occur that could cause actual results to differ from our forward-looking statements please refer to our Form 10-K for the year ended September 29, 2017, and in particular the discussions contained under Items 1 - Business, 1A - Risk Factors, 3 - Legal Proceedings, and 7 - Management's Discussion and Analysis of Financial Condition and Results of Operations. We do not undertake to update any forward-looking statements made herein.

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