



Davisville Carhouse Pendent Power Supply System Retrofit and Facility Upgrades

Date: July 10, 2019
To: TTC Board
From: Chief Capital Officer

Summary

The purpose of this report is to obtain authorization for the award of Contract S5-82 – Davisville Carhouse DC Pendent Power Supply System Retrofit and Facility Upgrades to The State Group Inc. in the amount of \$6,729,268.65, inclusive of all taxes, on the basis of lowest total bid price.

The work under Contract S5-82 includes the supply of all labour, equipment and materials for the replacement of the DC power distribution and traction power pendent system within the carhouse building on the premises of Davisville Yard. A pendent system is used in TTC subway maintenance buildings to provide a power source in order to energize and move vehicles within the carhouse. This replacement traction power pendent system is required to improve safety for carhouse personnel.

The work also includes alterations to the women's locker room, washroom and adjacent storage spaces within the carhouse building. Alterations include structural framing, electrical installation, sprinkler rework and HVAC system upgrades.

Recommendations

It is recommended that:

1. The Board authorize the award of Contract S5-82 – Davisville Carhouse DC Pendent Power Supply System Retrofit and Facility Upgrades to The State Group Inc. in the amount of \$6,729,268.65 inclusive of all taxes, on the basis of lowest total bid price.

Financial Summary

Once approved, Contract S5-82 Davisville Carhouse DC Pendent Power Supply System Retrofit and Facility Upgrades will require funding of \$6,729,268.65, which will be expended predominantly from 2019 to 2022.

Funds for this expenditure are included in the TTC's 2019-2028 Capital Budget under 3.9 Buildings and Structures Program, Retrofit of Carhouse and Shop Traction Power Pendent System Project, State of Good Repair, which was approved by City Council on March 7, 2019. The Retrofit of Carhouse and Shop Traction Power Pendent System total project approval is \$23.6 million of which approximately \$6.20 million has been committed to date.

The Chief Financial Officer has reviewed this report and agrees with the financial impact information.

Equity/Accessibility Matters

TTC is working towards making Toronto's transit system barrier-free by implementing changes that will make its service and facilities more inclusive and accessible to everyone by 2025. This approach will be supported with the work of Davisville Carhouse DC Pendent Power Supply System Retrofit and Facility Upgrades.

The work of this contract includes upgrading the women's locker room to provide additional lockers, washrooms and showers, in support of the TTC's efforts for equity in the workplace.

Decision History

Similar contract work is underway or has been completed at other TTC Carhouses.

Wilson Carhouse North Expansion (C1-38):

[http://www.ttc.ca/About the TTC/Commission reports and information/Commission meetings/2013/March 27/Reports/Procurement Authoriz.pdf](http://www.ttc.ca/About%20the%20TTC/Commission%20reports%20and%20information/Commission%20meetings/2013/March%2027/Reports/Procurement%20Authoriz.pdf)

[http://www.ttc.ca/About the TTC/Commission reports and information/Commission meetings/2013/March 27/Reports/Decisions/Procurement Authorization Wilson Carhouse North Expansion Co.pdf](http://www.ttc.ca/About%20the%20TTC/Commission%20reports%20and%20information/Commission%20meetings/2013/March%2027/Reports/Decisions/Procurement%20Authorization%20Wilson%20Carhouse%20North%20Expansion%20Co.pdf)

Greenwood Complex - Track & Structures Building Renovation, and DC Pendent Power Supply System Retrofit (GR1-51):

[http://www.ttc.ca/About the TTC/Commission reports and information/Commission meetings/2016/May 31/Reports/16 Procurement Authorization Greenwood Complex GR1 - 51.pdf](http://www.ttc.ca/About%20the%20TTC/Commission%20reports%20and%20information/Commission%20meetings/2016/May%2031/Reports/16%20Procurement%20Authorization%20Greenwood%20Complex%20GR1%20-%2051.pdf)

Issue Background

To address arc flash and other safety concerns related to the manual connection of 600 Volt DC traction power to revenue and non-revenue subway vehicles in the carhouses and shops, the retrofit of carhouse and shop connection devices to the current design standard is required.

The existing 600 Volt DC connection system within the Carhouse is utilized to ensure that a subway vehicle can have full traction power or auxiliary power for vehicle movement and maintenance reasons within areas where no traction power is present. The conductor end of the pendent connection device is inserted directly into the subway vehicle collector shoe console to provide power directly to the appropriate vehicle circuitry.

The existing system has been in use for more than 30 years and has the following safety issues that will be addressed with the new system:

- The traction/auxiliary power is always available at the pendent connection device conductor end making the “live” pendent susceptible to accidental contact with tools, equipment, personnel or liquids;
- Upon connector removal or installation, the employees are potentially subjected to an arc flash hazard due to the energized end being installed in an energized state;
- There is no reach handle feature available on the existing system which requires the employee installing/removing the connector to be in very close proximity to the collector shoe assembly as the pendent end is inserted or removed;
- There is potential ceiling snagging of the conductor along the rail system which makes pulling of the pendent difficult; and
- There is no visual status indication to confirm if power is present.

The new connection system introduces the following safety features:

- Removal of the hazards associated with making a live power connection;
- Prevention of unintentional energizing of train circuits or accidental contact with other objects;
- Elimination of arc flash potential;
- Provision of an interlock system to ensure that power is only applied once the connection is installed and commanded to be “on load”; and,
- Provision of a visual status indication displaying that the connector is “energized”, or “energized and under load”.

The new pendant system prevents unintentional energizing of train circuits or accidental contact by personnel, tools, equipment, liquids or other foreign objects, which will improve employee safety in the Carhouse facility.

As well, Rail Cars and Shops Department identified a need to expand the existing women's locker room located in the basement of Davisville Carhouse. The intent is to provide a suitably sized space, including alterations to adjacent spaces.

The existing women's locker room is not sufficiently sized to accommodate the number of anticipated users. Alterations and expansion to the adjacent women's washroom facility are incorporated to accommodate the growth in female staff numbers. The storage areas adjacent to the locker and washrooms will be altered also. These alterations also include structural framing, electrical installation, sprinkler rework and HVAC upgrades.

Comments

Specifications and drawings were prepared for Contract S5-82 and a Request for Bids (RFB) was posted on the TTC's Website and MERX™ as of April 4, 2019. Eight companies downloaded copies of the bid documents. A mandatory site tour was held on April 18, 2019. Four out of the 12 companies who attended the mandatory site tour submitted a bid by the closing date of May 16, 2019. The bid validity expires on September 13, 2019. The bids are summarized in Appendix A.

The RFB specified that the bidder (including every participant of a Joint Venture, if applicable) must possess a valid Certificate of Recognition (COR™) with Infrastructure Health and Safety Association (IHSA), at the time of the closing and for the term of contract.

The State Group Inc. submitted the lowest bid price and did not state any exceptions or qualifications. The State Group Inc. is COR™ certified as indicated on the published list from the IHSA. Reference checks were completed which indicate that The State Group Inc. has satisfactorily completed work of a similar size and nature in the past. Their bid is considered commercially acceptable and they are recommended for award of contract.

Maystar General Contractors Inc. submitted the second lowest bid price and did not state any exceptions or qualifications and their bid is considered commercially acceptable. Maystar General Contractors Inc. is COR™ certified with IHSA.

J.J McGuire General Contractors Inc. submitted the third lowest bid price and did not state any exceptions or qualifications and their bid is considered commercially acceptable. J.J McGuire General Contractors Inc. is COR™ certified with IHSA.

The Agreement to Bond submitted by The State Group Inc. covers both a Labour and Material Payment Bond and a Performance Bond which was submitted by Aviva Insurance Company of Canada which has been verified as a Surety Company licensed to transact business under the Insurance Act of Ontario. As such, it is considered financially capable of performing work.

The successful bidder will be required to execute a Performance Bond and a Labour and Material Payment Bond each in the amount of 50% of the contract value.

Contact

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Signature

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Attachments

Appendix A – Summary of Bids

03075-5046-30

APPENDIX A

Davisville Carhouse DC Pendent Power Supply Retrofit and
Facility Upgrades

CONTRACT S5-82

SUMMARY OF BIDS

Bid No.	Bidder	TOTAL BID PRICE
1	The State Group Inc. *	\$6,729,268.65
2	Maystar General Contractors Inc.	\$7,198,100.00
3	J.J. McGuire General Contractors Inc.	\$8,469,350.00
4	Varcon Construction Corporation	\$8,473,870.00

*Recommended company