Battery-Electric Buses

Transportation Services Department

Transit Commission
June 19, 2019

Background

- Across North America, many transit agencies have adopted initiatives to reduce emissions;
- A variety of low-emission or zero-emission solutions are being explored, including:
  - Battery-electric;
  - Hybrid diesel-electric;
  - Compressed natural gas (CNG);
  - Hydrogen fuel cell (HFC); and,
  - Renewable biodiesel.
- Many projects are currently underway, including pilot projects and initial fleet acquisitions, with many requiring additional infrastructure investments.

In Touch With Best Practices

- OC Transpo is engaged in best practice reviews both nationally and internationally;
- OC Transpo is following the progress of CUTRIC's research and projects:
  - CUTRIC is an innovation consortium that seeks to make Canada a global leader in low-carbon smart mobility technologies across heavy-duty and light-duty platforms, including advanced transit, transportation, and integrated mobility applications.
- Ongoing education and participation in zero-emission workshops/conferences; and,
- OC Transpo continues to engage other transit agencies who are implementing zero-emission initiatives.

Electric Bus Demonstration At OC Transpo

- In October 2018, OC Transpo hosted a battery-electric bus demonstration; and,
- The event featured a Nova Bus LFSe bus, a 100 per cent electric, heavy-duty 40-foot transit bus.

Electric Bus Considerations

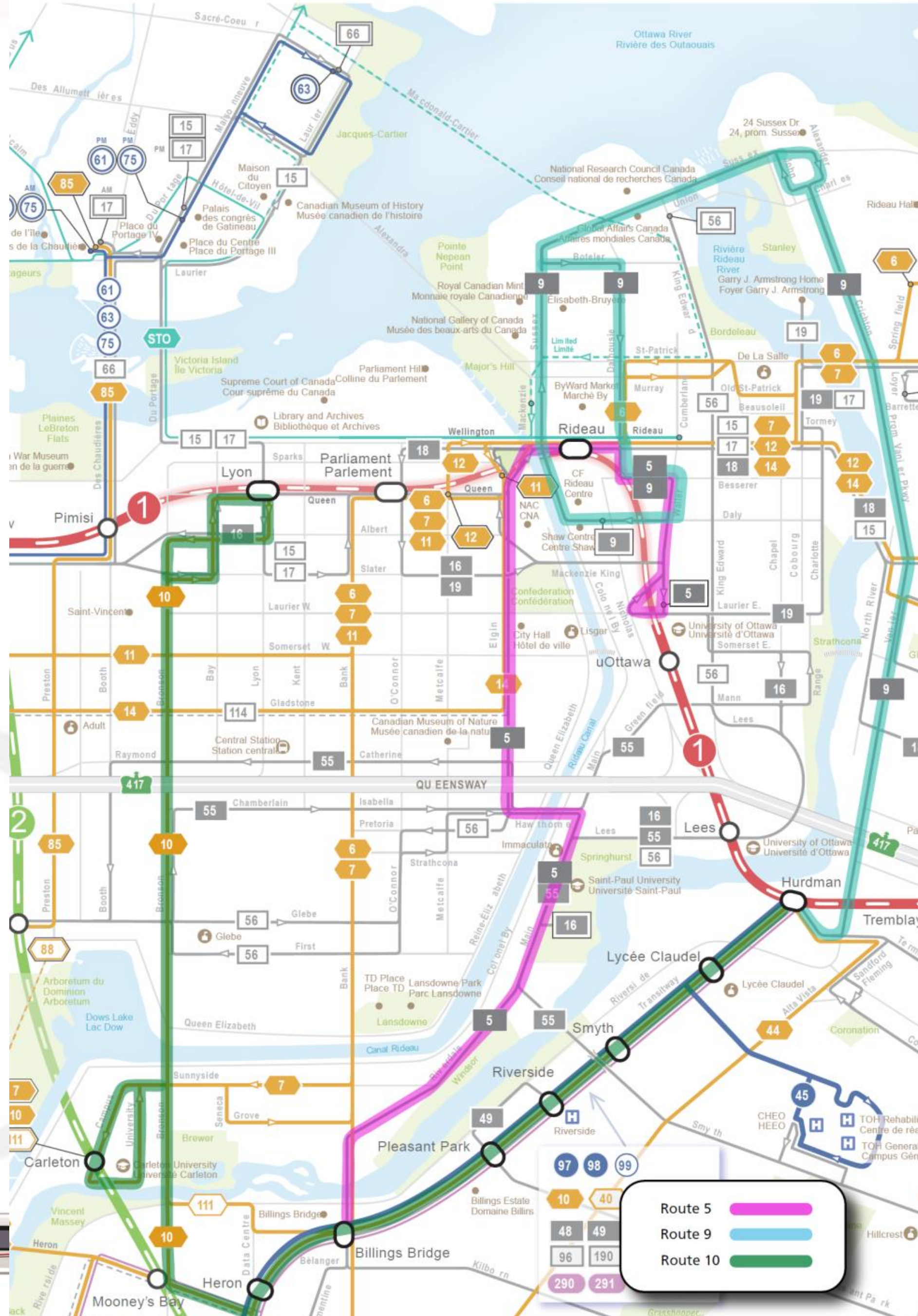
In order to proceed with the integration of a battery-electric bus into OC Transpo's fleet, staff need to consider the following:

- Range of the vehicles;
- Suitability of candidate bus routes;
- Charging requirements;
- Costs of buses, power supply and infrastructure;
- Operational costs (maintenance and charging vs. fuel);
- Rapidly changing technology; and,
- Maintenance.

Route Selection Considerations

- Round trip route distance is within range of selected bus model;
- Route provides service all-day weekdays, Saturdays and Sundays;
- Route has frequent stops/starts, to maximize environmental benefit;
- 40-foot buses can provide sufficient capacity for customers; and,
- Battery chargers can be in suitable locations.

Some Candidate Routes



Acquisition

With direction from Council, staff propose the following:

- Acquisition of two battery-electric buses and the necessary charging infrastructure;
- Estimated cost of $5M to $6M for two battery-buses and required infrastructure;
- Potential funds have been identified in Capital Works in Progress (WIPs):
  - The reallocation of these funds could be used for this project; and,
- Operating costs of the additional buses and related equipment would be incorporated in future years' OC Transpo budgets.

Acquisition *(Cont'd)*

- Nova Bus is a manufacturer of battery-electric buses and our current supplier of diesel buses, selected through a competitive procurement process; and,
- To go forward with Nova Bus acquisition:
  - Under his delegated authority, the General Manager of the Transportation Services Department will negotiate the acquisition of two 40-foot battery-electric buses directly with Nova Bus;
  - The contract award would be made in accordance with Article 22(1)(d) o the Procurement Bylaw: where there is an absence of competition for technical reasons; and,
  - The sole source rationale can be supported by the following:
    - The diesel and electric busses operate on the same platform;
    - Utilize common inventory components; and,
    - Similarities in training for Operators and Mechanics.

Acquisition *(Cont'd)*

- The City's Chief Procurement Officer supports the proposed contract award to Nova Bus;
- The Capital Closure report will be brought forward to Transit Commission in September 2019 for approval, and would include the proposed reallocation of funds for this project; and,
- Integration of electric buses into OC Transpo's fleet would take place in 2020.

Looking Ahead

- Staff recommend that the future transition of OC Transpo's bus fleet from diesel buses to lower-emission or zero-emission vehicles be considered as part of the Transportation Master Plan (TMP) Update;

- The TMP Update would develop a policy to address the role of zero-emission vehicles in contributing towards the City's objectives for reductions in greenhouse gas emissions; and,

- Following Council's consideration of the TMP update, staff would develop a fleet plan and funding strategy.

Questions?