

## Critical Ottawa Vehicle Issues

### Summary

The City has reviewed the current status of the vehicles and believe that RTG will not meet the requirements of the PA with regards to passenger capacity, headway or availability until the full complement of 34 vehicles have completed all activities, up to and including trial running.

### Completion of Vehicles

- 1) All vehicles to should be complete with all Field Modification Instructions completed. FMI tracking and reporting if open items exist.
- 2) The City has not been provided an up-to-date list of modifications required. RTG states that the missing redesigns will not impact safety or the passenger experience.
- 3) A complete list with estimated duration of each activity is required.
- 4) A summary of open modifications per vehicle number is required.

### Completion of Tests

- 1) At present, at least 8 crucial test procedures have not been submitted to the City. These tests are time consuming and may discover design issues. The remaining tests (such as full acceleration, braking and max operating speed) have a direct impact on the ability of RTG to meet the PA requirements mentioned in the summary.
- 2) Difficult tests such as pushing and towing with maximum passenger load, clearance tests, integration of CBTC, communication with the TSCC, and integration OCS and traction power stations are open. The City is unsure about timing of the tests.
- 3) It is unknown at this time if RTG has written any procedures for vehicle integration at this time. Alstom has been very clear in their responses to City queries. Their procedures are not intended to proven integration into the Ottawa infrastructure in any way.
- 4) There are at least 20 design/testing issues that the City has challenged. These items are open and resolution in RTG/Alstom's court.
- 5) There are many PA non-compliances in the vehicle design. It does not appear that Alstom/RTG intend to address the issues.
- 6) A schedule of the listed requirements should be provided. These items have not been addressed in the presentation provided yesterday, September 4<sup>th</sup>, 2018.

### Vehicle Count on Opening Day

- 1) Alstom/RTG have clearly indicated that the best case scenario for vehicle availability on opening day is 30 vehicles. 30 vehicles is the minimum number needed to meet the system capacity requirements.
- 2) Maintenance will be required, all of the open modifications need to be installed and tested, the open vehicle testing must be completed. How will this be performed when all vehicles are in service?
- 3) Early life failures of components is always an issue on new vehicle design. It appears that RTG has reduced the time for burn-in and trial running with each new schedule submitted. The risk associated with an unproven vehicle/infrastructure is very high.

**Additional Open Issues**

For reference, the following is the list of open items at present

- 1) Completion of Vehicles
- 2) Final Maintenance Manuals received and approved by RTG/The City
- 3) Commissioning on City property
- 4) Vehicle/System Integration Testing
- 5) First Article Inspection – all issues resolved
- 6) Vehicle Safety Certification
- 7) Burn-in/Trial Running - Full simulation of revenue service, all station stops and operating speeds per revenue service
- 8) Full system operation – 30 Vehicles to confirm system capacity and headway meet PA requirements
- 9) Demonstration of all PA required compliance, as requested by the City
- 10) Training - Operators, Instructors, maintenance, TSCC, police trained as applicable
- 11) Capital Spare parts
- 12) Spare parts to support warranty