

## **SCHEDULE 2**

### **LOCAL AREA SPECIFICATIONS**

#### **Introduction:**

- 1.0 All capitalized words and phrases in this Schedule 2 will have the same meaning as those capitalized words and phrases in Article 1 of the Agreement and in Article 1 of Schedule 1 ("Specifications"), as applicable.
- 2.0 All dollar amounts expressed in this Schedule 2 exclude all applicable taxes, duties and other charges.

## LOCAL AREA SPECIFICATION #1

### CASSIAR TUNNEL ELECTRICAL SYSTEMS MAINTENANCE

#### 1. OBJECTIVE

To ensure the safe and efficient operation of all electrical systems for the Cassiar Tunnel. For clarity, electrical systems include all electrical, electronic and camera equipment connected to or fed from the Cassiar Tunnel power services and systems, on Highway 1 or connecting roads, including the camera system located on and at either end of the Second Narrows (Iron Workers Memorial) Bridge.

#### 2. DETAILED PERFORMANCE SPECIFICATIONS

##### 2.1. Routine Maintenance Services

The Contractor must:

- a) maintain, repair or replace all electrical components in accordance with the Province's and manufacturer's maintenance manuals, checksheets and the inventory list (available on the ministry website at [http://www.th.gov.bc.ca/bchighways/contracts/electrical/SA\\_lower\\_mainland.htm](http://www.th.gov.bc.ca/bchighways/contracts/electrical/SA_lower_mainland.htm)), as may be amended from time to time;
- b) repair or replace all Cassiar Tunnel electrical equipment including the following systems, as applicable:
  - i) electric pump motors;
  - ii) all electrical equipment including electric motors, uninterruptable power systems (UPS) and battery back-up systems with the exception of diesel generators;
  - iii) ventilation systems including fans, dampers and associated control systems;
  - iv) all lighting systems except for all roadway and highmast lighting outside the tunnel;
  - v) lane control systems;
  - vi) components of lane control computers (work stations); including computers located in the control room communication links to distributed control equipment, all distributed control equipment and related interface equipment;
  - vii) complete camera and video monitoring/surveillance systems including fibre optic cable, and electrical cable between the video kiosk and the video components in the tower will also be the responsibility of the Contractor.
  - viii) maintaining/upgrading the central control and PLC software and installing updates to software necessitated by recurrent operational problems.

- ix) all components related to fire alarm systems including yearly testing and certification.
- c) perform Preventative Maintenance as required;
- d) notify the PHCC of any malfunctioning tunnel electrical system causing a traffic or pedestrian disruption within 5 minutes from the time the malfunction was detected by or reported to the Contractor and notify the PHCC when repaired;
- e) repair or replace any tunnel electrical system that constitutes a Safety Hazard to the highway user and Respond within 1 hour;
- f) group relamp all HID lamps every 4 years in accordance with the schedule provided to the Contractor by the Province;
- g) replace all non-LED lamps other than HID lamps once every 12 months in accordance with the schedule provided to the Contractor by the Province;
- h) replace LED signal head light sources as required;
- i) spot relamp all burned out and clean all tunnel lighting every 6 months;
- j) Respond within 1 hour of a malfunction being detected by or reported to the Contractor to ensure minimum lighting performance levels as follows:
  - i) roadway lighting — no more than two adjacent luminaires or more than 20% of total system luminaires shall be non-operational;
  - ii) tunnel lighting — no three adjacent luminaires or more than 10% of any one lighting level shall be non-operational.
- k) provide bench testing of all lane control conflict monitors every 12 months by qualified personnel using industry standard equipment and procedures.
- l) document all activities related to electrical maintenance of tunnel lighting including but not limited to field inspections, Patrols, testing, complaints received / responses made, and all changes made to the equipment and operations in a timely manner to the Province's satisfaction.

**Note:**

If it is estimated by the Contractor and confirmed by the Ministry Representative that the cost to repair or replace systems or associated components exceeds \$10,000 per incident, the Ministry will reimburse the Contractor for that cost greater than \$10,000. The Contractor is responsible for the amount up to \$10,000.

## 2.2 Materials

The Contractor must supply and use materials in accordance with the Province's and/or manufacturer's maintenance manuals, whichever manual has the higher standard, or as proposed by the Contractor and approved in writing by the Province.

## LOCAL AREA SPECIFICATION #2

### LIONS GATE BRIDGE (FIRST NARROWS) ELECTRICAL SYSTEMS MAINTENANCE

#### 1. OBJECTIVE

To ensure the safe and efficient operation of all electrical systems on the Lions Gate Bridge. For clarity, electrical systems include all electrical, electronic and camera equipment connected to the Lions Gate Bridge and control building power services and systems, on the Lions Gate Bridge and connecting roads.

Note: The Advanced Traveller Information System (ATIS) system on the Lions Gate Bridge will be maintained in accordance with Local Area Specification #3.

#### 1.1 Excluded Infrastructure:

Excluded from this contract is all lane control system equipment located on Georgia Street owned by the City of Vancouver.

#### 2. DETAILED PERFORMANCE SPECIFICATIONS

##### 2.1. Routine Maintenance Services

The Contractor must:

- a) maintain, repair or replace all electrical components in accordance with the Province's and manufacturer's maintenance manuals checksheets and the inventory list (available on the Ministry website at [http://www.th.gov.bc.ca/bchighways/contracts/electrical/SA\\_lower\\_mainland.htm](http://www.th.gov.bc.ca/bchighways/contracts/electrical/SA_lower_mainland.htm)), as may be amended from time to time;
- b) repair or replace all bridge electrical equipment including the following systems, as applicable:
  - i) electric pump motors;
  - ii) all electrical equipment including electric motors, uninterruptable power systems (UPS) and battery back-up systems with the exception of diesel generators;
  - iii) ventilation systems including fans, dampers and associated control systems;
  - iv) all lighting systems;
  - v) lane control systems;
  - vi) components of lane control computers (work stations) including computers located in the control room, communication links to distributed control equipment, all distributed control equipment and related interface equipment;

- vii) complete camera and video monitoring/surveillance systems including fibre optic cable, and electrical cable between the video kiosk and the video components in the tower will also be the responsibility of the Contractor; and
  - viii) maintaining/upgrading the central control and programmable logic controller software and installing updates to software necessitated by recurrent operational problems.
- c) perform Preventative Maintenance as required;
  - d) notify the PHCC of any malfunctioning bridge electrical system causing a traffic or pedestrian disruption within 5 minutes from the time the malfunction was detected by or reported to the Contractor and notify the PHCC when repaired;
  - e) repair or replace any bridge electrical system that constitutes a Safety Hazard to the highway user and Respond within 1 hour;
  - f) schedule and perform inspection and routine maintenance of all electrical systems in accordance with the Province's and/or manufacturer's maintenance manuals and checksheets;
  - g) group relamp all HID lamps every 4 years in accordance with the schedule provided to the Contractor by the Province;
  - h) replace all non-LED lamps other than HID lamps once every 12 months in accordance with the schedule provided to the Contractor by the Province;
  - i) replace LED signal head light sources as required;
  - j) spot relamp all burned out lighting every 6 months;
  - k) Respond within 1 hour of a malfunction being detected by or reported to the Contractor to ensure minimum lighting performance levels as follows:
    - i) roadway lighting — no more than two adjacent luminaires or more than 20% of total system luminaires shall be non-operational;
    - ii) bridge lighting — no three adjacent luminaires or more than 10% of any one lighting level shall be non-operational.
  - l) provide bench testing of all lane control conflict monitors every 12 months by qualified personnel using industry standard equipment and procedures.
  - m) document all activities related to electrical maintenance of bridge lighting including but not limited to field inspections, Patrols, testing, complaints received / responses made, and all changes made to the equipment and operations in a timely manner to the Province's satisfaction.

**Note:**

If it is estimated by the Contractor and confirmed by the Ministry Representative that the costs to repair or replace systems or associated components exceeds \$10,000 per incident, the Ministry will reimburse the Contractor for costs greater than \$10,000. The Contractor is responsible for the amount up to \$10,000.

## **2.2 Materials**

The Contractor must supply and use materials in accordance with the Province's and/or manufacturer's maintenance manuals, or as proposed by the Contractor and approved in writing by the Province.

## LOCAL AREA SPECIFICATION #3

### ADVANCED TRAVELLER INFORMATION SYSTEM (ATIS) MAINTENANCE

#### 1. OBJECTIVE

To ensure the Advanced Traveller Information System (ATIS) is operational and available to provide travel information. For clarity, there are 7 such systems and associated components in the service area. Specifically, 4 are located at the US Border Crossings: Highway 99, 15, 13 and 11; included in those systems are 4 associated hybrid signs: 2 on Highway 1, 1 on Highway 91 and 1 on Highway 99. The other 3 systems are located at the Alex Fraser Bridge, Lions Gate Bridge (First Narrows) and George Massey Tunnel.

#### 2. DETAILED PERFORMANCE SPECIFICATIONS

##### 2.1 Routine Maintenance Services

The Contractor must:

- a) repair or replace all electrical components in accordance with the Province's and manufacturer's maintenance manuals and checksheets, the inventory list (available on the Ministry website at [http://www.th.gov.bc.ca/bchighways/contracts/electrical/SA\\_lower\\_mainland.htm](http://www.th.gov.bc.ca/bchighways/contracts/electrical/SA_lower_mainland.htm)), and ATIS system manual whichever manual has the higher standard;
- b) repair or replace all border ATIS electrical equipment including the following systems, as applicable:
  - i) central system computer;
  - ii) webcams and their components including support structures and communication;
  - iii) advanced traffic controller units;
  - iv) detector loops including detector cards and cables;
  - v) dynamic message signs including communication;
  - vi) fibre optic cable;
  - vii) all underground equipment including junction boxes;
  - viii) all advanced traffic controller or central computer system cabinets; and
  - ix) all power distribution from the point of attachment to the power authority;
- c) immediately, upon detection or notification to the Contractor of an electrical system failure, initiate corrective maintenance and report the failure to the Province;

- d) notify the PHCC of any malfunctioning ATIS electrical system causing a traffic or pedestrian disruption within 5 minutes from the time the malfunction was detected by or reported to the Contractor and notify the PHCC when repaired;
- e) monitor on a daily basis system operation using ATIS maintenance website;
- f) repair or replace any ATIS electrical system that constitutes a Safety Hazard to the highway user and Respond within 1 hour;
- g) repair or replace central computer that is not functioning as designed within 5 Working Days;
- h) repair or replace web cameras or their components that do not create a Safety Hazard or causing a Traffic Disruption on the next Working Day and inform the PHCC when repaired;
- i) repair or replace digital message sign and their components that do not create a Safety Hazard or causing a Traffic Disruption, but are not operating as designed, within two Working Days;
- j) repair or replace advanced traffic controller units that are not functioning as designed on the next Work Day;
- k) repair or replace any detection loop and associated card within 10 Working Days;
- l) repair or replace fiber optic cable and associated modems within 1 week;
- m) document all activities related to electrical maintenance of ATIS lighting including but not limited to field inspections, Patrols, testing, complaints received / responses made, and all changes made to the equipment and operations in a timely manner to the Province's satisfaction.

**Note:**

If it is estimated by the Contractor and confirmed by the Ministry Representative, that the costs to repair or replace systems or associated components exceeds \$10,000 per incident, the Ministry will reimburse the Contractor for costs greater than \$10,000. The contractor is responsible for the amount up to \$10,000.

## 2.2 Materials

The Contractor must supply and use materials in accordance with the Province's and/or manufacturer's maintenance manuals, whichever manual has the higher standard, or as proposed by the Contractor and approved in writing by the Province.