B.C. MINISTRY OF TRANSPORTATION

SA04 – Local Area Specification #4

BRIDGE AND TUNNEL SYSTEMS MAINTENANCE

1. OBJECTIVE

To ensure the safe and efficient operation of all mechanical and electrical systems in the Cassiar Tunnel and the Lion's Gate Bridge.

2. GENERAL PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

All services for this Local Area Specification are Routine.

The Contractor must perform Tunnel Systems Maintenance in accordance with this Local Area Specification at the following locations:

a) Cassiar Tunnel – all electrical, electronic, camera and mechanical equipment connected to or fed from the Tunnel power services and systems, on Route 1 or connecting roads, including the camera system located on and at either end of the Second Narrows (Iron Workers' Memorial) Bridge; the Contractor is not responsible for maintaining roadway and highmast lighting outside the Tunnel;

b) Lion's Gate Bridge – all electrical, electronic, camera and mechanical equipment connected to the Bridge and control building power services and systems, on the Route 1A/99A and connecting roads; the Contractor is not responsible for maintaining the lane control system equipment owned by the City of Vancouver.

2.2 Quantified Maintenance Services

Not applicable to this Local Area Specification.

3. DETAILED PERFORMANCE SPECIFICATIONS

3.1 Routine Maintenance Services

The Contractor must:

a) maintain, repair and replace all mechanical and electrical components in accordance with the Province's and the manufacturer's maintenance manuals and check sheets, as may be amended from time to time; the manuals and check sheets are available by contacting the District office;

b) maintain, repair and replace all bridge electrical equipment including the following systems:

   i) sumps and pumps;

   ii) generators and motors, including fuel tanks and battery back-up systems;

   iii) ventilation systems;

   iv) sprinkler systems;

   v) all lighting systems except as noted in section 2.2.1 of this Local Area Specification;

   vi) lane control systems;

   vii) components of lane control computers (work stations), including hardware contained in the work station; communication links to components in the field and interface components in the tower (PLC, Genius Blocks, I/O locks and the Communication Hub); and

   viii) complete video monitoring/surveillance systems including fibre optic cable and electrical cable between the video kiosk and the video components in the tower.

c) complete a driving inspection of the lane control system components as defined in the Counterflow Operations Manual.

Notes:

1. If it is estimated by the Contractor and confirmed by the Bridge Structural Engineer, that at any particular time, the costs to repair or replace systems or associated components exceeds $35,000, refer to Section G of the Introduction to the Maintenance Specifications.

2. The Province will maintain/upgrade the central control and PLC software and provide updates to software necessitated by recurrent operational problems.

3.1.1 Performance Time Frames

The Contractor must:

a) immediately, upon detection or notification to the Contractor of a mechanical or electrical system failure, initiate corrective maintenance and report the failure to the Province;

b) complete repairs and return the system to full functionality;

c) schedule and perform inspection and routine maintenance of electrical and mechanical systems in accordance with the Province's and/or manufacturer's maintenance manuals and check sheets;

d) ensure the sprinkler system is tested and certified at least twice per year, or more frequently if required by the local fire department;

e) complete a daily driving inspection of the lane control system components as defined in the Counterflow Operations Manual, during both normal operation and counterflow (a.m. and p.m.);

f) clean computer workstation components quarterly;

g) group re-lamp and clean all roadway lighting every 48 months and incandescent fixtures annually;

h) spot re-lamp all burned out and clean all tunnel lighting twice per year;

i) ensure minimum lighting performance levels as follows:

   1) roadway lighting – ensure no more than two adjacent luminaries or more than 20% of the total system luminaries are non-operational;
   2) tunnel lighting – ensure no three adjacent luminaries or more than 10% of any one lighting level are non-operational;

j) provide bench testing of all lane control conflict monitors every 12 months by qualified personnel using industry standard equipment and procedures.

3.2 Quantified Maintenance Services

Not applicable to this Local Area Specification.

3.3 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.

4. WARRANTY

Not applicable to this Local Area Specification.