

SCHEDULE 1

SPECIFICATIONS

Introduction:

1. DEFINITIONS

1.1 The following terms where used in the Specifications have the following meanings:

"HID" means High Intensity Discharge.

"Patrol" means the visual inspection of the equipment to verify its operation and structural integrity.

"Preventative Maintenance" means those maintenance activities done to minimize the possibility of problems occurring. Preventative Maintenance includes but is not limited to:

- ensuring visibility;
- tightening mounting hardware and /or replace if damaged;
- checking grounding;
- lubricating all hinges, locks, latches and bolts;
- washing lenses, reflectors, housings, etc and /or replacing if damaged;
- cleaning signs;
- checking Inventory for proper alignment and/or visibility;
- repairing leaks;
- repainting if rusted;
- checking all splices;
- documenting all maintenance activity; and
- recording all deficiencies not immediately repaired.

"Respond" and "Response" means to assess, plan and where required attend the site to initiate repairs, or commence travel by reasonable means from the nearest Base Location to the site, and proceed diligently with the work until completed. The Response time or times specified in this Schedule establishes the maximum time period for the Contractor to commence the response from the time the deficiency was detected or reported to the Contractor.

"RTMC" means the Regional Transportation Management Centre, Coquitlam, B.C., 1-866-707-7862, or such other telephone number that the Ministry may advise the Contractor in writing from time to time.

"Safety Hazard" means a reduction in the level of safety to the public compared to the level of safety provided by the item of Inventory concerned if functioning properly.

“Traffic Disruption” means a change from the typical flow of traffic at the location of the item of Inventory concerned.

And any other word or capitalized word or phrase will have the meaning ascribed in Section 1.1 of this Agreement.

2. REFERENCES AND DESIGN STANDARDS

2.1 The following documents, as may be amended from time to time by the Ministry, contain the requirements for the carrying out of any of the Routine Maintenance Services or Additional Services:

- Ministry Traffic and Electrical Engineering Manual
http://www.th.gov.bc.ca/publications/eng_publications/electrical/electrical_and_traffic_eng/2004-Electrical_Signing_Design_Manual/tableofcontents.htm
- Ministry Electrical and Signing Materials Standards
http://www.th.gov.bc.ca/publications/eng_publications/electrical/electrical_and_traffic_eng/2003_material_standards/2003_material_standards.htm
- Traffic and Electrical Technical Bulletins
http://www.th.gov.bc.ca/publications/eng_publications/TE_Bulletins/TE_bulletins.htm
- Traffic Controller Design Manual
http://www.th.gov.bc.ca/publications/eng_publications/electrical/TrafficControllerDesignManual.pdf
- Traffic Controller Assembly Manual
http://www.th.gov.bc.ca/publications/eng_publications/electrical/TrafficControllerAssemblyManual.pdf
- LMD 8000 Programming Guide
http://www.th.gov.bc.ca/publications/eng_publications/electrical/LMD8000Manual.pdf
- Naztec Traffic Controller Assembly Manual
http://www.th.gov.bc.ca/publications/eng_publications/electrical/MoTI_P6_TS2_Type_1_Drawing_Guide_REV_2.pdf
- Naztec Programming Guide
http://www.th.gov.bc.ca/publications/eng_publications/electrical/MoTH_Naztec_NTCIP_Manual_Programming_Guide.pdf
- Count Station Installation and Maintenance Guidelines
http://www.th.gov.bc.ca/publications/eng_publications/electrical/CountStationManualv5.pdf

- Guide for Inspecting and Testing Preemption of Interconnected Traffic Control Signals and Railway Crossing Warning Systems
<http://www.tc.gc.ca/media/documents/railsafety/TP13755.pdf>
- Highways Maintenance Contracts – Maintenance Specifications
http://www.th.gov.bc.ca/bchighways/contracts/maintenance/Schedule_21_Maintenance_Specifications.pdf
- Local Area Specifications contained within the Highway Maintenance Contracts as they pertain to restrictions on hours of work within the electrical service area.
http://www.th.gov.bc.ca/bchighways/contracts/maintenance/standards_and_specs_local_area.htm
- Manual of Standard Traffic Signs and Pavement Markings
http://www.th.gov.bc.ca/publications/eng_publications/electrical/most_pm.pdf
- Pedestrian Crossing Control Manual for British Columbia
http://www.th.gov.bc.ca/publications/eng_publications/Ped_X_Manual/PedX_manual.htm
- Specifications for Standard Highway Sign Materials, Fabrication and Supply
http://www.th.gov.bc.ca/publications/eng_publications/signs/2010_Catalogue/Specifications/Sign_Fabrication_Specs.pdf
- Traffic Management Guidelines
http://www.th.gov.bc.ca/publications/eng_publications/geomet/traffic_mgmt_guidelines.htm
- Catalogue of Standard Traffic Signs
http://www.th.gov.bc.ca/publications/eng_publications/geomet/geomet/signs.htm
- Standard Specifications for Highway Construction (Current Edition)
http://www.th.gov.bc.ca/Publications/const_maint/contract_serv/standardspecs.htm
- Recognized Products List
http://www.th.gov.bc.ca/publications/eng_publications/geotech/Recognized_Products_Book.pdf
- Maintenance of Perm Count Stations Strategy and Outline
http://www.th.gov.bc.ca/publications/eng_publications/geomet/Perm%20Counts/Maint_PermCount_Stat_Training_Plan.pdf

2.2 All Inventory must be maintained to at least the requirements set out in any manufacturer's specifications or operations manuals. In the case of any conflict between such manufacturer's specifications or operating manuals and the present Specifications, the present Specifications must apply.

3. MATERIALS

- 3.1 Contractor supplied materials must conform with the Ministry Electrical and Signing Materials Standards and the Recognized Products List.
- 3.2 In the event the Ministry may determine, in its sole discretion, that the following items of Inventory must be replaced by the Contractor, the Ministry will reimburse the Contractor for the cost of the device or provide that item to the Contractor at the Ministry's cost:
- (a) a 69KV transformer or its component parts;
 - (b) a web camera;
 - (c) solar equipment,
 - (d) a speed reader board;
 - (e) an electronic messaging sign;
 - (f) LED chevrons;
 - (g) overhead sign; and
 - (h) such other device selected by the Ministry needs replacement pursuant to this Article.
- 3.3 All removed and/or replaced components of Inventory including but not limited to steel, wire, concrete, lamps, batteries and plastic is to be disposed of in a environmentally appropriate manner and, if possible materials will be recycled.

Electrical Maintenance Specifications Listing

- E-110 TRAFFIC AND PEDESTRIAN SIGNAL MAINTENANCE
- E-120 ILLUMINATED PEDESTRIAN CROSSING SIGNS AND SPECIAL CROSSWALK SIGNS MAINTENANCE
- E-130 FLASHING BEACON MAINTENANCE
- E-140 ACTUATED RAILWAY WARNING SIGN MAINTENANCE
- E-160 ONE WAY BRIDGE SIGNAL MAINTENANCE
- E-180 FIRE SIGNAL MAINTENANCE
- E-190 UNINTERRUPTIBLE POWER SUPPLY (UPS) MAINTENANCE
- E-210 POST MOUNTED FLASHER MAINTENANCE
- E-220 WARNING SIGNS WITH FLASHERS MAINTENANCE
- E-230 AVIATION, NAVIGATIONAL AND PIER LIGHTING MAINTENANCE
- E-310 STREET, ROADWAY, AREA AND SIGN LIGHTING MAINTENANCE
- E-320 HIGHMAST LIGHTING MAINTENANCE
- E-330 TUNNEL AND SNOWSHED LIGHTING MAINTENANCE
- E-340 PEDESTRIAN AND CYCLIST TUNNEL LIGHTING MAINTENANCE
- E-350 ARCHITECTURAL AND ORNAMENTAL LIGHTING MAINTENANCE
- E-410 SHORT DURATION TRAFFIC COUNTER STATION MAINTENANCE
- E-420 PERMANENT TRAFFIC COUNTER STATION MAINTENANCE
- E-510 OPEN / CLOSED SIGN MAINTENANCE
- E-520 ELECTRONIC MESSAGE SIGN MAINTENANCE
- E-530 OVERHEIGHT DETECTION SYSTEM MAINTENANCE
- E-610 WEB CAMERA MAINTENANCE
- E-700 HIGHWAY ELECTRICAL INFRASTRUCTURE INCIDENT AND VANDALISM RESPONSE
- E-710 TRAFFIC CONTROLLER EQUIPMENT DISPOSAL
- E-800 ELECTRICAL PATROL
- E-900 WEIGH SCALES

ELECTRICAL MAINTENANCE SPECIFICATION E-110

TRAFFIC AND PEDESTRIAN SIGNALS MAINTENANCE

1. OBJECTIVE

To ensure that traffic and pedestrian signals, including but not limited to ramp flow metering signals, are operational and function in accordance with their design and Ministry standards.

2. DETAILED PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

The Contractor must:

- a) repair or replace traffic and pedestrian signals and their components that constitute or have the potential to constitute an immediate Safety Hazard to the highway user or cause a Traffic Disruption, and Respond within 1 hour;
- b) repair or replace traffic and pedestrian signals and their components that do not operate as per their original design intent but are not immediate Safety Hazards, and Respond on the next Work Day;
- c) repair or replace failed traffic signal detection loops within 7 Working Days from the time the deficiency was detected or reported to the Contractor;
- d) repair or replace traffic and pedestrian signals and/or their components that operate as per the original design intent, do not create a Safety Hazard, and are structurally sound but have identified deficiencies, and Respond within 30 days;
- e) perform Preventative Maintenance of traffic and pedestrian signals as required;
- f) replace all non-LED lamps once every 12 months;
- g) replace failed LED signal head light sources as required;
- h) test all conflict monitors once every 12 months;
- i) notify the RTMC of any malfunctioning traffic or pedestrian signal causing Traffic Disruption and Respond within 5 minutes from the time the malfunction was detected by or reported to the Contractor and inform the RTMC when repaired;
- j) remove or cover graffiti in accordance with the performance time frames listed in the *Highway Maintenance Specification – Litter Collection and Graffiti Removal*;

- k) implement traffic signal timing plans as per section 600 of the *Traffic Controller Design Manual* up to a maximum number of 100% of the pedestrian and traffic signal Inventory total per year as follows:
 - (i) new traffic controllers or modifications to existing controllers – to meet the project schedule (with two week notification);
 - (ii) observed operational field problems – Respond within 12 hours of receiving the traffic signal timing plan;
 - (iii) scheduled roadway maintenance or construction activities by others – to meet the scheduled maintenance or construction activities (with one week notification); and
 - (iv) coordination plan updates – Respond within three weeks of receiving the traffic signal timing plans;
- l) collect controller volume and measure of effectiveness (MOE) logs as requested by the Ministry following the guidelines outlined in section 600 of the *Traffic Controller Design Manual* up to a maximum of 60% of the pedestrian and traffic signal Inventory total per year as follows:
 - (i) within 24 hours for 5 locations per year; and
 - (ii) within 2 weeks for the remainder of the 60% of the pedestrian and traffic signal Inventory total per year;
- m) immediately advise the railway authority, and the Ministry Representative if the traffic signal preemption system is not operational;
- n) contact the municipality and arrange to jointly test the operation of the emergency preemption sensors in the field once per year;
- o) test all traffic, railway, and emergency signal and transit preemption systems by using the “local” setting in the controller cabinet preemption cards and testing each direction of preemption to ensure operation as per the design documentation once per year;
- p) contact the railway authority and arrange to jointly test the operation of any railway preemption or railway advance warning sign system including but not limited to signal timing sequences in the field once per year; and
- q) document all activities related to electrical maintenance of traffic and pedestrian signals including but not limited to field inspections, Patrols, testing, complaints received / responses made, and all changes made to the controller equipment and operations, as per section 600 of the *Traffic Controller Design Manual* in a timely manner to the Province’s satisfaction.

2.2 Materials

Refer to Article 3 of the Introduction to the Specifications. For new traffic signal controller installations, the Ministry will supply a complete unit as per the design requirements.

ELECTRICAL MAINTENANCE SPECIFICATION E-120

ILLUMINATED PEDESTRIAN CROSSING SIGN AND SPECIAL CROSSWALK SIGN MAINTENANCE

1. OBJECTIVE

To ensure that illuminated pedestrian crossing signs and special crosswalk signs are operational, and function in accordance with their design and Ministry standards.

2. DETAILED PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

The Contractor must:

- a) repair or replace illuminated pedestrian crossing signs and special crosswalk signs and their components that constitute or have the potential to constitute an immediate Safety Hazard to the highway user or cause a Traffic Disruption, and Respond within 1 hour;
- b) repair or replace illuminated pedestrian crossing signs and special crosswalk signs and their components that do not operate as per their original design intent but are not immediate Safety Hazards, and Respond on the next Work Day;
- c) repair or replace illuminated pedestrian crossing signs and special crosswalk signs and/or their components that operate as per the original design intent, do not create a Safety Hazard, and are structurally sound but have identified deficiencies, and Respond within 30 days;
- d) perform Preventative Maintenance as required;
- e) replace non-LED lamps once every 12 months;
- f) replace failed LED light sources as required;
- g) replace all high intensity discharge lamps every 48 months;
- h) notify the RTMC of any malfunctioning illuminated pedestrian crossing sign and special crosswalk sign causing a Traffic Disruption within 5 minutes from the time the malfunction was detected by or reported to the Contractor and inform the RTMC when repaired;
- i) remove or cover graffiti in accordance with the performance time frames listed in the *Highway Maintenance Specification – Litter Collection and Graffiti Removal*; and
- j) document all activities related to electrical maintenance of illuminated pedestrian crossing signs and special crosswalk signs including but not limited to field inspections, Patrols, testing, complaints received/responses made and all changes made to the equipment and

operations as per section 600 of the *Traffic Controller Design Manual* in a timely manner to the Province's satisfaction.

2.2 Materials

Refer to Article 3 of the Introduction to the Specifications.

ELECTRICAL MAINTENANCE SPECIFICATION E-130

OVERHEAD FLASHING BEACON MAINTENANCE

1. OBJECTIVE

To ensure that overhead flashing beacons are operational and function in accordance with their design and Ministry standards.

2. DETAILED PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

The Contractor must:

- a) repair or replace overhead flashing beacons and their components that constitute or have the potential to constitute an immediate Safety Hazard to the highway user, and Respond within 1 hour;
- b) repair or replace overhead flashing beacons and their components that do not operate as per their original design intent but are not immediate Safety Hazards, and Respond on the next Work Day;
- c) repair or replace overhead flashing beacons and/or their components that operate as per the original design intent, do not create a Safety Hazard, and are structurally sound but have identified deficiencies, and Respond within 30 days;
- d) perform Preventative Maintenance as required;
- e) replace all non-LED lamps of signal heads once every 12 months;
- f) replace LED signal head light sources as required;
- g) notify the RTMC of any malfunctioning overhead flashing beacon causing a Traffic Disruption within 5 minutes from the time the malfunction was detected by or reported to the Contractor and inform the RTMC when repaired;
- h) remove or cover graffiti in accordance with the performance time frames listed in the *Highway Maintenance Specification – Litter Collection and Graffiti Removal*; and
- i) document all activities related to electrical maintenance of overhead flashing beacons 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.

2.2 Materials

Refer to Article 3 of the Introduction to the Specifications.

ELECTRICAL MAINTENANCE SPECIFICATION E-140

ACTUATED RAILWAY WARNING SIGN MAINTENANCE

1. OBJECTIVE

To ensure that actuated railway warning signs are operational and function in accordance with their design and Ministry standards.

2. DETAILED PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

The Contractor must:

- a) repair or replace actuated railway warning signs and their components that constitute or have the potential to constitute an immediate Safety Hazard to the highway user or cause a Traffic Disruption, and Respond within 1 hour;
- b) repair or replace actuated railway warning signs and their components that do not operate as per their original design but are not immediate Safety Hazards, and Respond on the next Work Day;
- c) repair or replace actuated railway warning signs and/or their components that operate as per the original design intent, do not create a Safety Hazard, and are structurally sound but have identified deficiencies, and Respond within 30 days;
- d) perform Preventative Maintenance as required;
- e) replace all non-LED signal head lamps once every 12 months;
- f) replace LED light sources as required;
- g) replace all HID lamps every 48 months;
- h) contact the railway authority and arrange to jointly test the operation of any railway preemption or railway advance warning sign system including but not limited to signal timing sequences in the field every 12 months;
- i) notify the RTMC of any malfunctioning actuated railway warning sign causing a Traffic Disruption within 5 minutes from the time the malfunction was detected by or reported to the Contractor and inform the RTMC when repaired;
- j) immediately advise the railway authority and the Ministry Representative if any warning sign is not operational;

- k) remove or cover graffiti in accordance with the performance time frames listed in the *Highway Maintenance Specification – Litter Collection and Graffiti Removal*; and
- l) document all activities related to electrical maintenance of actuated railway warning signs 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.

2.2 Materials

Refer to Article 3 of the Introduction to the Specifications.

ELECTRICAL MAINTENANCE SPECIFICATION E-160

TEMPORARY ONE WAY BRIDGE SIGNAL MAINTENANCE

1. OBJECTIVE

To ensure temporary one way bridge signals are operational and function as designed and in accordance with Ministry standards.

2. DETAILED PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

The Contractor must:

- a) repair or replace temporary one way bridge signals and their components that constitute or have the potential to constitute an immediate Safety Hazard to the highway user or cause a Traffic Disruption, and Respond within 1 hour;
- b) repair or replace temporary one way bridge signals and their components that do not operate as per their original design but are not immediate Safety Hazards, and Respond on the next Work Day;
- c) repair or replace temporary one way bridge signals and/or their components that operate as per the original design, do not create a Safety Hazard, and are structurally sound but have identified deficiencies, and Respond within 30 days;
- d) perform Preventative Maintenance as required;
- e) replace all non-LED lamps of signal heads once every 12 months;
- f) replace LED signal head light sources as required;
- g) test all conflict monitors once every 12 months;
- h) notify the RTMC of any malfunctioning temporary one way bridge signal causing a Traffic Disruption within 5 minutes from the time the malfunction was detected by or reported to the Contractor and inform the RTMC when repaired;
- i) remove or cover graffiti in accordance with the performance time frames listed in the *Highway Maintenance Specification – Litter Collection and Graffiti Removal*;

- j) store and maintain the Ministry supplied temporary one way bridge signal controller assembly including but not limited to providing, maintaining and servicing UPS batteries to enable the unit to be deployed within 7 days;
- k) implement temporary one way bridge signal timing plans as per section 600 of the *Traffic Controller Design Manual* as follows:
 - (i) new temporary one way bridge signals or modifications to existing signals – to meet the project schedule;
 - (ii) observed operational field problems – Respond within 12 hours of receiving the timing plan;
 - (iii) scheduled roadway maintenance or construction activities by others – to meet the scheduled maintenance activities (one week notification); and
 - (iv) coordination plan updates – Respond within 3 weeks of receiving the new temporary one way bridge signal timing plans;
- l) collect controller volume and measure of effectiveness (MOE) logs as requested by the Ministry following the guidelines outlined in section 600 of the *Traffic Controller Design Manual*; and
- m) document all activities related to electrical maintenance of temporary one way bridge signals including but not limited to field inspections, Patrols, testing, complaints received / responses made, and all changes made to the controller equipment and operations, as per section 600 of the *Traffic Controller Design Manual* in a timely manner to the Province's satisfaction.

2.3 Materials

Refer to Article 3 of the Introduction to the Specifications. For new traffic signal controller installations, the Ministry will supply a complete unit as per the design requirements.

ELECTRICAL MAINTENANCE SPECIFICATION E-180

FIRE SIGNAL MAINTENANCE

1. OBJECTIVE

To ensure fire signals are operational and function in accordance with their design and Ministry standards.

2. DETAILED PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

The Contractor must:

- a) repair or replace fire signals and their components that constitute or have the potential to constitute an immediate Safety Hazard to the highway user or cause a Traffic Disruption, and Respond within 1 hour;
- b) repair or replace fire signals and their components that do not operate as per their original design intent but are not immediate Safety Hazards, and Respond on the next Work Day;
- c) repair or replace fire signals and/or their components that operate as per the original design intent, do not create a Safety Hazard, and are structurally sound but have identified deficiencies, and Respond within 30 days;
- d) perform Preventative Maintenance as required;
- e) replace all non-LED lamps of signal heads once every 12 months;
- f) replace LED signal head light sources as required;
- g) test all conflict monitors every 12 months;
- h) meet on site with fire department staff to confirm operation once a year and as required;
- i) notify the RTMC of any malfunctioning fire signal causing a Traffic Disruption within 5 minutes from the time the malfunction was detected by or reported to the Contractor and inform the RTMC when repaired;
- j) remove or cover graffiti in accordance with the performance time frames listed in the *Highway Maintenance Specification – Litter Collection and Graffiti Removal*; and
- k) document all activities related to electrical maintenance of fire signals 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.

2.2 Materials

Refer to Article 3 of the Introduction to the Specifications.

ELECTRICAL MAINTENANCE SPECIFICATION E-190

UNINTERRUPTIBLE POWER SUPPLY (UPS) MAINTENANCE

1. OBJECTIVE

To ensure that uninterruptible power supplies are operational and function in accordance with their design and Ministry standards.

2. DETAILED PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

The Contractor must:

- a) repair or replace non-functioning UPS and their components, including but not limited to batteries, in conformance with manufacturers' recommendations. Batteries must be replaced when their charge falls below 80% of their rated capacity;
- b) repair or replace UPS and their components that constitute or have the potential to constitute an immediate Safety Hazard to the highway user or cause a Traffic Disruption, and Respond within 1 hour;
- c) repair or replace UPS and their components that do not operate as per their original design intent but are not immediate Safety Hazards, and Respond on the next Work Day;
- d) repair or replace UPS and/or their components that operate as per the original design intent, do not create a Safety Hazard, and are structurally sound but have identified deficiencies, and Respond within 30 days;
- e) perform Preventative Maintenance annually, with the exception of battery testing which must be done at 6 month intervals;
- f) notify the RTMC of any malfunctioning UPS causing Traffic Disruption within 5 minutes from the time the malfunction was detected by or reported to the Contractor and notify the RTMC when repaired;
- g) remove or cover graffiti in accordance with the performance time frames listed in the *Highway Maintenance Specification – Litter Collection and Graffiti Removal*; and
- h) document all activities related to electrical maintenance of UPS including but not limited to field inspections, Patrols, testing, complaints received / responses made, and all changes made to the UPS in a timely manner to the Province's satisfaction.

2.2 Materials

Refer to Article 3 of the Introduction to the Specifications.

ELECTRICAL MAINTENANCE SPECIFICATION E-210

POST MOUNTED FLASHER MAINTENANCE

1. OBJECTIVE

To ensure post mounted flashers and solar powered flashers are operational and function in accordance with their design and Ministry standards.

2. DETAILED PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

The Contractor must:

- a) repair or replace post mounted flashers, solar powered flashers and their components that constitute or have the potential to constitute a Safety Hazard to the highway user or cause a Traffic Disruption, and Respond within 1 hour;
- b) repair or replace post mounted flashers, solar powered flashers and their components that do not operate as per their original design but are not immediate Safety Hazards or causing Traffic Disruptions and Respond within 7 Working Days;
- c) repair or replace post mounted flashers, solar powered flashers and/or their components that do not create a Safety Hazard, do not cause Traffic Disruptions, and are structurally sound but have identified deficiencies and Respond within 30 days;
- d) perform Preventative Maintenance as required;
- e) replace all non-LED lamps of signal heads once every 12 months;
- f) replace LED signal head light sources as required;
- g) notify the RTMC of any malfunctioning post mounted flashers and solar powered flashers causing a Traffic Disruption within 5 minutes from the time the malfunction was detected by or reported to the Contractor and inform the RTMC when repaired;
- h) remove or cover graffiti in accordance with the performance time frames listed in the *Highway Maintenance Specification – Litter Collection and Graffiti Removal*; and
- i) document all activities related to electrical maintenance of post mounted flashers and solar powered flashers 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.

2.2 Materials

Refer to Article 3 of the Introduction to the Specifications.

ELECTRICAL MAINTENANCE SPECIFICATION E-220

WARNING SIGNS WITH FLASHERS MAINTENANCE

1. OBJECTIVE

To ensure that warning signs with flashers are operational and function in accordance with their design and Ministry standards.

2. DETAILED PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

The Contractor must:

- a) repair or replace warning signs with flashers and their components that constitute or have the potential to constitute an immediate Safety Hazard to the highway user, and Respond within 1 hour;
- b) repair or replace warning signs with flashers and their components that do not operate as per their original design but are not immediate Safety Hazards, and Respond on the next Work Day;
- c) repair or replace warning signs with flashers and/or their components that operate as per the original design, do not create a Safety Hazard, and are structurally sound but have identified deficiencies, and Respond within 30 days;
- d) perform Preventative Maintenance as required;
- e) replace HID lamps every 4 years;
- f) replace all non-LED lamps other than HID lamps once every 12 months;
- g) replace LED signal head light sources as required;
- h) notify the RTMC of any malfunctioning warning signs with flashers causing a Traffic Disruption within 5 minutes from the time the malfunction was detected by or reported to the Contractor and inform the RTMC when repaired;
- i) remove or cover graffiti in accordance with the performance time frames listed in the *Highway Maintenance Specification – Litter Collection and Graffiti Removal*; and
- j) document all activities related to electrical maintenance of warning signs with flashers 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.

2.2 Materials

Refer to Article 3 of the Introduction to the Specifications.

ELECTRICAL MAINTENANCE SPECIFICATION E-230

AVIATION, NAVIGATIONAL AND PIER LIGHTING MAINTENANCE

1. OBJECTIVE

To ensure that aviation lighting, navigational lighting and pier lighting is operational and functions in accordance with their design and Ministry standards.

2. DETAILED PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

The Contractor must:

- a) repair or replace aviation, navigational, and pier lighting and their components that constitute or have the potential to constitute a Safety Hazard to the highway, airway or navigable waterway user and Respond within 1 hour;
- b) repair or replace aviation, navigational and pier lighting and their components that create traffic or waterway disruptions and Respond within 1 hour;
- c) repair or replace aviation, navigational and pier lighting and their components that do not operate as designed, but are not a Safety Hazard, and Respond on the next Work Day;
- d) repair or replace aviation, navigational and pier lighting and/or their components that operate as designed, do not create a Safety Hazard, do not cause Traffic Disruptions, and are structurally sound but have identified deficiencies and Respond within 30 days;
- e) perform Preventative Maintenance as required;
- f) replace all HID lamps every 48 months;
- g) replace all non-LED lamps other than HID lamps once every 12 months;
- h) replace LED lamps as required;
- i) mark the replacement lamps with the date at the time of replacement;
- j) notify the RTMC of any malfunctioning aviation, navigational and pier lighting causing a major Traffic Disruption within 5 minutes from the time the malfunction was detected by or reported to the Contractor and inform the RTMC when repaired;
- k) remove or cover graffiti in accordance with the performance time frames listed in the *Highway Maintenance Specification – Litter Collection and Graffiti Removal*; and
- l) document all activities related to electrical maintenance of aviation lighting, navigational lighting and pier 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.

2.2 Materials

Refer to Article 3 of the Introduction to the Specifications.

ELECTRICAL MAINTENANCE SPECIFICATION E-310

STREET, ROADWAY, AREA AND SIGN LIGHTING MAINTENANCE

1. OBJECTIVE

To ensure that street, roadway, area and sign lighting is operational and functions in accordance with their design and Ministry standards.

2. DETAILED PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

The Contractor must:

- a) repair or replace any street, roadway, area and sign lighting that constitutes a Safety Hazard to the highway user and Respond within 1 hour;
- b) repair or replace street, roadway, area and sign lighting and their components that create Traffic Disruptions and Respond within 1 hour;
- c) except as noted in Subsections 2.1 (d) and (e) below, repair or replace street, roadway, area and sign lighting and/or their components that do not create a Safety Hazard, do not cause Traffic Disruptions, but have identified deficiencies and Respond within 30 days;
- d) Respond within 1 hour when:
 - (i) half or more of the luminaires are not operating at a signalized intersection;
 - (ii) any luminaires directly over a marked pedestrian crossing is not operating;
 - (iii) 2/3 or more of luminaires are not operating at an un-signalized intersection, interchange, or roadway between interchanges or intersections; and
 - (iv) 3 adjacent luminaires are not operating.
- e) Respond within 7 days when:
 - (i) less than 1/2 of the luminaires are not operating at a signalized intersection, signalized pedestrian crossing, or in areas of continuous lighting;
 - (ii) less than 2/3 of the luminaires are not operating at an un-signalized intersection, interchange, or roadway between interchanges or intersections;
 - (iii) 2 adjacent luminaires are not operating; and
 - (iv) warning sign luminaires are not operating.

- f) repair all other deficiencies within 30 days or as soon as possible thereafter if inclement weather prevents such activities;
- g) perform Preventative Maintenance as required;
- h) replace all HID, street, roadway, area and sign lighting lamps every 48 months with 25% being replaced each year;
- i) mark the replacement lamps with the date at the time of replacement;
- j) notify the RTMC of any malfunctioning street, roadway, area and sign lighting causing a Traffic Disruption within 5 minutes from the time the malfunction was detected by or reported to the Contractor and inform the RTMC when repaired;
- k) remove or cover graffiti in accordance with the performance time frames listed in the *Highway Maintenance Specification – Litter Collection and Graffiti Removal*; and
- l) document all activities related to electrical maintenance of street, roadway, area and sign 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.

2.2 Materials

Refer to Article 3 of the Introduction to the Specifications.

ELECTRICAL MAINTENANCE SPECIFICATION E-320

HIGHMAST LIGHTING MAINTENANCE

1. OBJECTIVE

To ensure that highmast lighting is operational and functions in accordance with its design and Ministry standards.

2. DETAILED PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

The Contractor must:

- a) repair or replace any highmast lighting that constitutes a Safety Hazard to the highway user and Respond within 1 hour;
- b) repair or replace highmast lighting and their components that create Traffic Disruptions and Respond within 1 hour;
- c) repair or replace highmast lighting and/or their components that do not create a Safety Hazard, do not cause Traffic Disruptions, or are structurally sound but have identified deficiencies and Respond within 30 days;
- d) repair or replace highmast lighting and/or their components if more than 1/3 of the luminaires are not operating on one pole or at a single interchange within 1 hour from the time the deficiency was detected by or reported to the Contractor;
- e) repair or replace highmast lighting and/or their components if 1/3 of the luminaires are not operating on 1 pole or at a single interchange and Respond within 7 days;
- f) repair all other deficiencies within 30 days or as soon as possible thereafter if inclement weather prevents such activities;
- g) perform Preventative Maintenance as required;
- h) replace all highmast lighting lamps every 48 months;
- i) mark the replacement lamps with the date at the time of replacement;
- j) service and inspect raise / lower systems every 12 months;
- k) notify the RTMC of any malfunctioning highmast lighting causing a Traffic Disruption within 5 minutes from the time the malfunction was detected by or reported to the Contractor and notify the RTMC when repaired;

- l) remove or cover graffiti in accordance with the performance time frames listed in the *Highway Maintenance Specification – Litter Collection and Graffiti Removal*; and
- m) document all activities related to electrical maintenance of highmast 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.

2.2 Materials

Refer to Article 3 of the Introduction to the Specifications.

ELECTRICAL MAINTENANCE SPECIFICATION E-330

TUNNEL AND SNOWSHED LIGHTING MAINTENANCE

1. OBJECTIVE

To ensure that tunnel and snowshed lighting is operational and functions in accordance with their design and Ministry standards.

2. DETAILED PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

The Contractor must:

- a) repair or replace any tunnel and snowshed lighting that constitutes a Safety Hazard to the highway user and Respond within 1 hour;
- b) repair or replace tunnel and snowshed lighting and their components that create Traffic Disruptions and Respond within 1 hour;
- c) repair or replace tunnel and snowshed lighting and/or their components that do not create a Safety Hazard, do not cause Traffic Disruptions, and are structurally sound but have identified deficiencies and Respond within 30 days;
- d) repair or replace tunnel and snowshed lighting and/or their components and Respond within 1 hour if:
 - (i) three adjacent luminaires or more than 10% of the luminaires in the tunnel on the emergency/night circuit are not operational in a tunnel or snowshed; and
 - (ii) more than 33% of the luminaires for a given daytime circuit are not operational in a tunnel.
- e) repair or replace tunnel and snowshed lighting and/or their components and Respond within 7 days if two adjacent luminaires on the emergency/night circuit are not operational in a tunnel or snowshed;
- f) perform Preventative Maintenance as required;
- g) replace all tunnel and snowshed lighting HID lamps every 48 months;
- h) spot relamp and clean all tunnel and snowshed lighting luminaires every 6 months;
- i) notify the RTMC of any malfunctioning tunnel and snowshed lighting causing a Traffic Disruption within 5 minutes from the time the malfunction was detected by or reported to the Contractor and notify the RTMC when repaired;

- j) remove or cover graffiti in accordance with the performance time frames listed in the *Highway Maintenance Specification – Litter Collection and Graffiti Removal*;
- k) mark the replacement lamps with the date at the time of replacement; and
- l) document all activities related to electrical maintenance of tunnel and snowshed 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.

2.2 Materials

Refer to Article 3 of the Introduction to the Specifications.

ELECTRICAL MAINTENANCE SPECIFICATION E-340

PEDESTRIAN AND CYCLIST TUNNEL LIGHTING MAINTENANCE

1. OBJECTIVE

To ensure that pedestrian and cyclist tunnel lighting is operational and functions in accordance with their design and Ministry standards.

2. DETAILED PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

The Contractor must:

- a) repair or replace any pedestrian and cyclist tunnel lighting that constitutes a Safety Hazard to the highway user and Respond within 1 hour;
- b) repair or replace pedestrian and cyclist tunnel lighting and their components that create pedestrian or cyclist disruptions and Respond within 1 hour;
- c) repair or replace pedestrian and cyclist tunnel lighting and/or their components if two adjacent luminaires or more than 50% of the luminaires in the tunnel are not operational and Respond within 1 hour;
- d) repair or replace pedestrian and cyclist tunnel lighting and/or their components if 50% or less are not operational and Respond within 7 Working Days;
- e) repair or replace pedestrian and cyclist tunnel lighting and/or their components that do not create a Safety Hazard, do not cause Traffic Disruptions, and are structurally sound but have identified deficiencies and Respond within 30 days;
- f) perform Preventative Maintenance as required;
- g) replace all pedestrian and cyclist tunnel lighting HID lamps every 48 months;
- h) replace all non-LED lamps other than HID lamps once every 12 months;
- i) notify the RTMC of any malfunctioning pedestrian and cyclist tunnel lighting causing a pedestrian or cyclist disruption within 5 minutes from the time the malfunction was detected by or reported to the Contractor and notify the RTMC when repaired;
- j) remove or cover graffiti in accordance with the performance time frames listed in the *Highway Maintenance Specification – Litter Collection and Graffiti Removal*;
- k) mark the replacement lamps with the date at the time of replacement; and

- l) document all activities related to electrical maintenance of pedestrian and cyclist 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.

2.2 Materials

Refer to Article 3 of the Introduction to the Specifications.

ELECTRICAL MAINTENANCE SPECIFICATION E-350

ARCHITECTURAL AND ORNAMENTAL LIGHTING MAINTENANCE

1. OBJECTIVE

To ensure that architectural and ornamental lighting is operational and functions in accordance with their design and Ministry standards.

2. DETAILED PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

The Contractor must:

- a) repair or replace any architectural and ornamental lighting that constitutes a Safety Hazard to the highway user and Respond within 1 hour;
- b) repair or replace architectural and ornamental lighting and their components that create Traffic Disruptions and Respond within 1 hour;
- c) repair or replace architectural and ornamental lighting and/or their components if 3 adjacent luminaires or more than 50% of the luminaires are not operational and Respond within 7 Working Days;
- d) repair or replace architectural and ornamental lighting and/or their components that do not create a Safety Hazard, do not cause Traffic Disruptions, or are structurally sound but have identified deficiencies and Respond within 30 days;
- e) perform Preventative Maintenance as required;
- f) replace all HID lamps every 48 months;
- g) replace all architectural and ornamental lighting LED lamps as required;
- h) replace all non-LED lamps other than HID lamps once every 12 months;
- i) mark the replacement lamps with the date at the time of replacement;
- j) notify the RTMC of any malfunctioning architectural and ornamental lighting 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 RTMC when repaired;
- k) remove or cover graffiti in accordance with the performance time frames listed in the *Highway Maintenance Specification – Litter Collection and Graffiti Removal*; and

- l) document all activities related to electrical maintenance of architectural and ornamental 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.

2.2 Materials

Refer to Article 3 of the Introduction to the Specifications.

ELECTRICAL MAINTENANCE SPECIFICATION E-410

SHORT DURATION TRAFFIC COUNT STATION MAINTENANCE

1. OBJECTIVE

To ensure that short duration traffic count stations are operational and function in accordance with their design and Ministry standard; and are not a Safety Hazard.

2. DETAILED PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

The Contractor must:

- a) make safe short duration traffic count stations and their components that constitute or have the potential to constitute a Safety Hazard to the highway user and Respond within 1 hour;
- b) perform 30 condition assessments of short duration traffic count stations as per the *Count Station Installation and Maintenance Guidelines Manual* once every 12 months;
- c) collect short count volumes from 10 short duration traffic counter stations every 12 months; and
- d) document all activities related to electrical maintenance of short duration traffic count stations.

2.2 Materials

Refer to Article 3 of the Introduction to the Specifications.

ELECTRICAL MAINTENANCE SPECIFICATION E-420

PERMANENT TRAFFIC COUNT STATION MAINTENANCE

1. OBJECTIVE

To ensure that permanent traffic count stations are operational and function in accordance with their design and Ministry Standards.

A permanent count station is defined in the *AASHTO Guidelines for Traffic Data Programs, 2009* as a permanently installed counting or measuring device that is intended to operate continuously through-out the year.

2. DETAILED PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

The Contractor must:

- a) repair or replace permanent traffic count stations and their components that constitute or have the potential to constitute a Safety Hazard to the highway and Respond user within 1 hour;
- b) repair or replace permanent traffic count stations and their components that create Traffic Disruptions and Respond within 1 hour;
- c) repair or replace permanent traffic count stations and their components that do not operate as per their original design but are not immediate Safety Hazards or causing Traffic Disruptions and Respond within 14 Working Days, except for failed traffic count loops which must be repaired or replaced. In which case the Contractor must Respond within 30 days subject to suitable weather conditions;
- d) repair or replace permanent traffic count stations and/or their components that do not create a Safety Hazard, do not cause Traffic Disruptions, and are structurally sound and collecting accurate traffic count and classification data but have identified deficiencies and Respond within 30 days;
- e) perform preventative maintenance as per the *Count Station Installation and Maintenance Guideline Manual* every 12 months;
- f) remove or cover graffiti in accordance with the performance time frames listed in the *Highway Maintenance Specification – Litter Collection and Graffiti Removal*; and
- g) document all activities related to electrical maintenance of permanent traffic counter stations 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.

2.2 Materials

Refer to Article 3 of the Introduction to the Specifications.

ELECTRICAL MAINTENANCE SPECIFICATION E-510

OPEN / CLOSED SIGN MAINTENANCE

1. OBJECTIVE

To ensure open / closed signs are operational and function in accordance with their design and Ministry standards.

2. DETAILED PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

The Contractor must:

- a) repair open / closed signs and their components that constitute or have the potential to constitute a Safety Hazard to the highway user and Respond within 1 hour;
- b) repair open / closed signs and their components that create Traffic Disruptions and Respond within 1 hour;
- c) repair open / closed signs and their components that do not operate as per their original design but are not immediate Safety Hazards or causing Traffic Disruptions and Respond within 7 Working Days or as soon as practical if weather conditions do not permit;
- d) repair open / closed signs and/or their components that do not create a Safety Hazard, do not cause Traffic Disruptions, and are structurally sound but have identified deficiencies and Respond within 30 days;
- e) perform Preventative Maintenance as required;
- f) replace HID lamps every 48 months;
- g) notify the RTMC of any malfunctioning open / closed signs causing a Traffic Disruption within 5 minutes from the time the malfunction was detected by or reported to the Contractor and notify the RTMC when repaired;
- h) remove or cover graffiti in accordance with the performance time frames listed in the *Highway Maintenance Specification – Litter Collection and Graffiti Removal*; and
- i) document all activities related to electrical maintenance of open closed signs 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.

2.2 Materials

Refer to Article 3 of the Introduction to the Specifications.

ELECTRICAL MAINTENANCE SPECIFICATION E-520

ELECTRONIC MESSAGE SIGN MAINTENANCE

1. OBJECTIVE

To ensure electronic message signs are operational and function in accordance with their design and Ministry standards.

2. DETAILED PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

The Contractor must:

- a) repair electronic message signs and their components that constitute or have the potential to constitute a Safety Hazard to the highway user and Respond within 1 hour;
- b) repair electronic message signs and their components that create Traffic Disruptions and Respond within 1 hour;
- c) repair electronic message signs and their components that do not operate as per their original design but are not immediate Safety Hazards or causing Traffic Disruptions and Respond within 7 Working Days;
- d) repair electronic message signs and/or their components that do not create a Safety Hazard, do not cause Traffic Disruptions, and are structurally sound but have identified deficiencies and Respond within 30 days;
- e) perform Preventative Maintenance as required;
- f) replace all HID lamps every 48 months;
- g) notify the RTMC of any malfunctioning electronic message signs causing a Traffic Disruption within 5 minutes from the time the malfunction was detected by or reported to the Contractor and notify the RTMC when repaired;
- h) remove or cover graffiti in accordance with the performance time frames listed in the *Highway Maintenance Specification – Litter Collection and Graffiti Removal*; and
- i) document all activities related to electrical maintenance of electronic message signs 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.

2.2 Materials

Refer to Article 3 of the Introduction to the Specifications.

ELECTRICAL MAINTENANCE SPECIFICATION E-530

OVERHEIGHT DETECTION SYSTEM (ODS) MAINTENANCE

1. OBJECTIVE

To ensure that overheight detection systems are operational and function in accordance with their design.

2. DETAILED PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

The Contractor must:

- a) repair or replace ODS and their components that constitute or have the potential to constitute an immediate Safety Hazard to the highway user or cause a Traffic Disruption, and Respond within 1 hour;
- b) repair or replace ODS and their components that do not operate as per their original design intent but are not immediate Safety Hazards, and Respond on the next Work Day;
- c) repair or replace ODS and/or their components that operate as per the original design intent, do not create a Safety Hazard, and are structurally sound but have identified deficiencies, and Respond within 30 days;
- d) perform Preventative Maintenance every 12 months, with the exception of transmitter and receiver lens glass, which must be cleaned every 6 month, or as conditions warrant;
- e) test all ODS every 12 months;
- f) notify the RTMC of any malfunctioning ODS causing Traffic Disruption within 5 minutes from the time the malfunction was detected by or reported to the Contractor and notify the RTMC when repaired;
- g) remove or cover graffiti in accordance with the performance time frames listed in the *Highway Maintenance Specification – Litter Collection and Graffiti Removal*;
- h) document all activities related to electrical maintenance and operations of ODS including but not limited to field inspections; and
- i) Patrols, testing, complaints received / responses made, and all changes made to the ODS in a timely manner to the Province's satisfaction.

2.2 Materials

Refer to Article 3 of the Introduction to the Specifications.

ELECTRICAL MAINTENANCE SPECIFICATION E-610

WEB CAMERA MAINTENANCE

1. OBJECTIVE

To ensure web cameras are operational and function in accordance with their design and Ministry standards.

2. DETAILED PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

The Contractor must:

- a) repair or replace web cameras and their components that constitute or have the potential to constitute a Safety Hazard or Traffic Disruptions and Respond within 1 hour;
- b) repair or replace web cameras and their components that are not a Safety Hazard or causing a Traffic Disruption, but are not displaying a usable image, and Respond within 7 days and notify the RTMC when repaired;
- c) perform Preventative Maintenance as required;
- d) notify the RTMC of any malfunctioning web cameras causing a Traffic Disruption within 5 minutes from the time the malfunction was detected by or reported to the Contractor and notify the RTMC when repaired;
- e) remove or cover graffiti in accordance with the performance time frames listed in the *Highway Maintenance Specification – Litter Collection and Graffiti Removal*; and
- f) document all activities related to electrical maintenance of web cameras including but not limited to field inspections, Patrols, testing, complaints received, responses made, and all changes made to the equipment and operations;

2.2 Materials

Refer to Article 3 of the Introduction to the Specifications.

ELECTRICAL MAINTENANCE SPECIFICATION E-700

HIGHWAY ELECTRICAL INFRASTRUCTURE INCIDENT AND VANDALISM RESPONSE

1. OBJECTIVE

To protect highway users from conditions that are unsafe or have the potential to become unsafe, and to restore the movement of traffic.

2. DETAILED PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

The Contractor must:

- a) attend incidents and/or vandalism that have caused damage to electrical infrastructure that constitute or have the potential to constitute an immediate Safety Hazard to the highway user or cause a Traffic Disruption, and Respond within 1 hour;
- b) install a fully actuated temporary traffic signal controller to re-establish traffic signal operations and Respond within 1 hour. The temporary traffic signal controller does not need to have volume counting capability or emergency pre-emption functions however it must have rail pre-emption. The agencies affected by the restricted functionality of the temporary traffic signal controller must be notified;
- c) repair Damage to Government Property in accordance with the appropriate electrical maintenance specification and their performance time frames;
- d) for all incidents except those at signalized intersections, forward all photographs, documentation and records within 7 days of the request for same by the Province;
- e) for incidents at signalized intersection, within 7 days of the date of the request by the Province, forward all photographs, documentation and records, including but not limited to:
 - (i) a copy of the signal timing sheet in effect at the time and date of the incident;
 - (ii) a copy of the traffic signal record form indicating when the signal timing sheet was implemented;
 - (iii) a copy of the controller programming that was in effect at the time and date of the incident;
 - (iv) a summary of all complaints and maintenance activities one week before to 7 days after the date of the incident;
 - (v) the last date the conflict monitor in the traffic signal controller cabinet was installed and tested; and

- (vi) any other information relevant to the incident;
- f) within 7 days of the detection or notification of Damage to Government Property, initiate a Damage to Government Property Claim; and
- g) within 7 days of completing repairs, forward the completed Damage to Government Property Claim with the supporting documentation including photographs to the Province.

2.2 **Materials**

Refer to Article 3 of the Introduction to the Specifications.

ELECTRICAL MAINTENANCE SPECIFICATION E-710

TRAFFIC CONTROLLER EQUIPMENT DISPOSAL

1. OBJECTIVE

To ensure that traffic controller equipment removed from the field is accounted for and disposed of.

2. DETAILED PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

The Contractor must:

- a) If the Ministry Representative determines that the integrity of a controller cabinet has been compromised and/or the cabinet has been dislodged or knocked off of its base, disable the controller and remove the cabinet and all of its components from the field, and disable the equipment in such a way that it cannot be reused;
- b) notify the Ministry claims unit immediately if a controller cabinet has been damaged and/or removed;
- c) make available the removed cabinets and all of its components available for examination by ICBC for 30 working days;
- d) document and photograph all traffic controller equipment damaged by a motor vehicle accident; and
- e) provide accurate electrical equipment disposal reports to the Ministry Representative within 30 days of each incident.

2.2 Materials

Refer to Article 3 of the Introduction to the Specifications.

ELECTRICAL MAINTENANCE SPECIFICATION E-800

ELECTRICAL PATROL

1. OBJECTIVE

To identify conditions that are unsafe or have the potential to become unsafe, to identify conditions that could threaten the electrical infrastructure, and attend to existing or changing conditions.

2. DETAILED PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

The Contractor must:

- a) complete Patrols of Highways electrical infrastructure every 2 months;
- b) take immediate and appropriate action during Patrols to protect highway users from unsafe situations;
- c) take immediate and appropriate action during Patrols to ensure that the equipment operates as designed; and
- d) report to the Province immediately upon detection or notification of any conditions which affect the Highway in performing its designed function but which are not specifically identified in these Maintenance Specifications.

2.2 Materials

Not applicable to this Maintenance Specification.

ELECTRICAL MAINTENANCE SPECIFICATION E-900

WEIGH SCALES

1. OBJECTIVE

To ensure weigh scale electrical infrastructure is operational and functions in accordance with their design and Ministry standards.

1.1 Excluded infrastructure

For clarity purposes, the following items are not included in the electrical maintenance service agreement and therefore are excluded from this performance specification:

- a) weigh scale buildings including all electrical components (interior and exterior building mounted lighting and power) and CCTV systems;
- b) weigh scale equipment including weight display sign;
- c) weigh in Motion (WIM), Automatic Vehicle Inspection (AVI) hardware and station computer equipment; and
- d) weigh2GoBC hardware and station computer equipment.

2. DETAILED PERFORMANCE SPECIFICATIONS

2.1 Routine Maintenance Services

The Contractor must:

- a) repair or replace weigh scale electrical infrastructure and components that constitute or have the potential to constitute an immediate Safety Hazard to the highway user or cause a Traffic Disruption, and Respond within one hour;
- b) repair or replace weigh scale electrical infrastructure and components that do not operate as per their original design intent but are not immediate Safety Hazards, and Respond on the next Working Day;
- c) repair or replace weigh scale electrical infrastructure and components that operate as per the original design intent, do not create a Safety Hazard, and are structurally sound but have identified deficiencies, and Respond within 30 days;
- d) repair or replace main electrical service panel supplying power to electrical infrastructure maintained under this agreement as required;

- e) repair or replace ramp and parking lot lighting in accordance with electrical maintenance specification E-310;
- f) repair open close signs in accordance with electrical maintenance specification E-510;
- g) repair or replace electrical components of scale score boards (proceed, next axle, etc.) in accordance with electrical maintenance specifications E-510;
- h) perform Preventative Maintenance as required;
- i) service and maintain power and communication supplied to Weigh in Motion (WIM) equipment by the next Work Day;
- j) notify the RTMC of any malfunctioning scale equipment causing a Traffic Disruption within 5 minutes from the time the malfunction was detected by or reported to the Contractor and notify the RTMC when repaired;
- k) remove or cover graffiti in accordance with the performance time frames listed in the *Highway Maintenance Specification – Litter Collection and Graffiti Removal*; and
- l) document all activities related to electrical maintenance of weigh scale facility 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.

2.2 Materials

Refer to Article 3 of the Introduction to the Specifications.