

TS 811**FLASHING BEACONS****TABLE OF CONTENTS****1. DRAWINGS**

- TTD 811.001 FLASHING BEACON & SIGN POLE MOUNTED
- TTD 811.010 AERIAL FLASHING BEACON INSTALLATION
- TTD 811.020 ACTIVE ADVANCED FLASHING BEACON AND SIGNAGE
- TTD 811.025 ACTIVE ADVANCED FLASHING BEACON MOUNTING BRACKET
DETAILS

2. CONSTRUCTION SPECIFICATIONS

- TTS 811.100 CONSTRUCTION SPECIFICATION FOR INSTALLATION OF
FLASHING BEACONS

3. MATERIAL SPECIFICATIONS

NOT USED

4. RECOMMENDATIONS

NOT USED

TABLE OF CONTENTS

- 1.0 Scope**
- 2.0 References**
- 3.0 Construction & Materials**
 - 3.1 Flashing Beacons
 - 3.2 Flashing Mechanisms
 - 3.3 Wiring
 - 3.4 Grounding
 - 3.5 Removals
 - 3.6 Quality Control
- 4.0 Quality Assurance**
- 5.0 Measurement for Payment**
- 6.0 Basis of Payment**
 - 6.1 All Inclusive Price Method
 - 6.2 Individual Item Method

1.0 Scope

This specification covers the requirements for the installation of flashing beacons and flashing mechanisms.

The requirements of TS 1.00 and TS 801 shall apply to this work.

2.0 References

This specification refers to the following standards, specifications or publications:

Toronto Transportation:

TS 1.00	Maintenance of Traffic
TS 801	Electrical Work
TS 802	Handwells
TS 804	Cables
TS 808	Traffic Signal Equipment
TS 813	Grounding
TS 815	Removals

Others:

ITE Publication No. ST-017B-2001 - Equipment and Material Standards of the Institute of Transportation Engineers

CSA C22.2 No. 45 - M1981 (R1999) - Rigid Metal Conduit

CSA Standard C22.2 No. 84 – 95 (R2004) - Incandescent Lamps

CSA C22.2 No. 211.2-M1984 (R2003) - Rigid PVC (Unplasticized) Conduit

3.0 Construction & Materials

3.1 Flashing Beacons

Flashing beacons for pole front or side mounting shall be aligned facing the direction of approaching traffic and mounted on double arm brackets or mast arms and signal hangers in accordance with the requirements of TS 808 pertaining to the installation of traffic signal heads. The flashing beacon shall be 300mm.

Flashing beacons, single or in multiple clusters, for aerial mounting shall be arranged on the overhead support cable to give the required visibility and clearances for each direction of approaching traffic to be controlled. Mounting hardware shall be securely tightened.

Flashing beacons shall meet the requirements of TS 811.

Incandescent lamps shall meet the general requirements of CSA Standard C22.2 No. 84 – 95 (R2004).

3.2 Flashing Mechanisms

Flashing mechanisms shall be mounted on poles in enclosures with the accompanying conduit, conduit fittings and wiring systems. Flashing mechanisms shall be of electronic or electronic type complete with weather proof enclosure.

3.3 Wiring

Wiring between the flashing beacon and the pole handhole or pole mounted junction box shall be installed and connected in accordance with the requirements of TS 808.

Connectors shall meet the requirements of TS 804 and TS 813.

Rigid PVC conduit and fittings shall meet the requirements of CSA C22.2 No. 211.2-M1984 (R2003). Rigid galvanized steel or aluminum conduit and fittings shall meet the requirements of CSA C22.2 No. 45 - M1981 (R1999).

3.4 Grounding

Traffic control devices shall be grounded in accordance with the requirements of TS 813.

Ground materials shall meet the requirements of TS 813.

3.5 Removals

Removals of traffic control devices necessary for the installation of work described herein shall be done in accordance with the requirements of TS 815.

3.6 Quality Control

The Contractor shall locate, space and aim flashing beacons to the instructions of the Engineer.

4.0 Quality Assurance

The Engineer will provide direction for the aiming of flashing heads to the Contractor. The Contractor shall give the Engineer 24 hour notice of when final test is to be performed.

5.0 Measurement for Payment

Where the contract includes tender items using the Individual Item Method, measurement for payment for flashing beacons and flashing mechanisms will be made of each device.

6.0 Basis of Payment

6.1 All Inclusive Price Method

Payment at the contract price for the tender item "Beacons" shall be full compensation for all labour, equipment and materials required to do all work

specified herein including the installation of all flashing beacons, flashing mechanisms, conduit and fittings, lamps, double arm brackets, mast arms, signal hangers, wiring and connections, associated pole mounted conduit, junction boxes and fittings, grounding, the removal of devices not included in other tender items and all testing and accessories required.

6.2 Individual Item Method

Payment at the contract price for the tender item(s) "Flashing Beacons" and "Flashing Mechanism" shall be full compensation for all labour, equipment and materials required to install each type of device regardless of size, mounting arrangement, or number of lamps and shall include all associated wiring, grounding, and connections, lamps, conduit, fittings and associated hardware and all testing and accessories required.