SECTION 680 TRAFFIC SIGNALS

General
This section is intended for the use of Engineers-in-charge and Traffic Signal Crewpersons as a guide for conducting in-progress and final inspections of traffic signal construction. Although this check list does not include every item that should be checked, it includes those items that when properly completed contribute to the safe and efficient long-term operation of the traffic signal.

Due to differences in regional signal construction practices, there may be items in this check list that do not apply in a particular region. The contract documents should be consulted to determine the applicability of an item.

Unless otherwise specifically cited in the check list item, the Standard Specifications and Addenda as well as Proposal Inserts, Special Notes and Engineering Bulletins comprise the reference documents for the check list items.

Traffic Signal Pole Foundation
Anchor bolts properly aligned and plumbed to ensure proper signal pole orientation with respect to load attachment, hand hole and signal cabinet / wiring access hole.

Proper alignment and placement of the reinforcement bar cage.

Correct footing dimensions.

Proper number and orientation of conduits.

Proper specification concrete and placement.

Traffic Signal Pole Installation
Signal poles properly mounted on the anchor bolts with mortar caps with adequate grouting.

Poles bonded with a continuous ground.

Weather head(s) properly installed and aligned.

All covers, disconnect boxes, nipples, conduits and pedestrian signs properly installed.

Eye bolts for spanwire properly installed and aligned.

All scratch marks properly field repainted and treated with appropriate regalvanizing material.

Site restoration properly completed.

Placement per plan or A.O.B.E.

Top of pullbox cover at proper level with respect to finish grade.

Mortaring completed around conduits and frame.

Wire hangars properly installed.

Splices properly done, secure and water tight.

Proper amount of cable slack neatly coiled.
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Ground rod installed properly.

Metal conduit properly grounded and bonded.

Location of flexible conduit properly marked.

**Signal Controller Cabinets**
- Cabinets properly and securely mounted to pole or cabinet base.
- Cabinet mount at correct height above grade or work pad.
- Service connection, field wiring and grounding properly done.
- Output field wiring properly marked or color coded designating head number and indication connected to.
- Input field wiring properly marked or color coded designating input source (detector, push-button, etc.).
- Service conduit properly secured with meter pan or disconnect as required.
- Ground rods properly installed and connected.
- Metal conduits properly bonded.
- Ground tests meets specifications.
- Electrical functional tests satisfactory.
- Proper cabinet lock and spare keys provided.
- Copy of final wiring diagram in cabinet.

**Traffic Signal Span**
- Spanwire attached to poles with proper hardware and at proper height and sag.
- Traffic signal heads and signs are placed, aligned, aimed and attached with proper hanging hardware in accordance with the contract documents.
- Traffic signal heads and signs are the proper height above the roadway.
- Wiring to heads is electrically and mechanically secure.
- If required, tether spans to signal heads and/or signs are properly secured.
- Signal cable secured to spanwire in proper manner.
- Signal cable splices are made with staggered splices and are properly sealed.

**Vehicle Detectors**
- Vehicle detectors are located and installed per plan or A.O.B.E.
- Proper wire size and type used in loop detectors and as lead in all detector types.
Loop detectors and all lead-ins are tested for continuity and leakage to ground.

**Pedestrian Push-Buttons, Indicators and Signs**

Pedestrian push-button information signs and pedestrian indications have the proper wording and/or legend.

Pedestrian push-buttons, information signs and indications are properly installed, at the proper height and are visible.

Pedestrian push-buttons actuate the proper signal / pedestrian indications.

**Evidence of Acceptance for Traffic Signal Materials**

**Acceptance Documentation**

Section 680-3.01 of the Standard Specifications discusses equipment list and drawings which may need to be obtained to ensure that material to be installed meets specifications. In addition, the Materials Inspection Manual states that except for Traffic Signal Poles and Roadway Loop Embedding Sealer, manufacturer’s certification is considered adequate evidence of acceptance for traffic signal items. The requirement that catalog cuts must be submitted in addition to manufacturer’s certification should be requested for only those items that have physical or electrical properties critical to the proper fit or operation with other components. An example would be a catalog cut showing the bolt hole sizes and pattern of a pedestrian push-button signal pole to be installed on existing anchor bolts. The need for catalog cuts as additional evidence of acceptability should be determined early in the construction process so that provision of this documentation does not delay contract completion.

**Retention of Documentation**

To aid the Traffic Signal Crews in the maintenance/repair of the items installed in the contract, a copy of the manufacturer’s certifications and any catalog cuts should be maintained in the files of the Traffic Signal Crew Engineer-in-Charge.

**Final Accounting for Federal-Aid Projects**

When traffic signals are constructed with Federal participation, the Department is required to document to the FHWA the quantity and cost of that equipment used in the project. Accordingly, the Engineer-in-Charge must complete Form TE200b (Exhibit 680-A) Traffic Signal Equipment Furnished by the New York State Department of Transportation Equipment Summary per Engineering Instruction 81-10.

**References**

EI-81-10, TRAFFIC SIGNAL EQUIPMENT FURNISHED BY NYSDOT ON CONSTRUCTION CONTRACTS