(This Section requires SP00960. Requires SP00902 when crosswalk closure supports are required.)

SECTION 00990 - TRAFFIC SIGNALS

(Follow all instructions. If there are no instructions above a subsection, paragraph, sentence, or bullet, then include it in the project. The specifications may be modified to include project specific specifications, but all additions, deletions, or modifications must be sent to the ODOT Technical Resource and State Specifications Engineer for review and approval.)

Comply with Section 00990 of the Standard Specifications modified as follows:

00990.00 Scope - Replace this subsection, except for the subsection number and title, with the following:

In addition to the requirements of Section 00960 and Section 00962, install traffic signals according to the following Specifications.

Add the following subsection:

00990.02 Electrical Materials - Submit all electrical materials the Contractor proposes to install according to 00960.02.

00990.10 Backer Rod and Loop Sealant - Replace this subsection with the following subsection:

00990.10 Materials - Furnish Materials meeting the following requirements:

(Include the "Crosswalk Closure Support" reference only when SP00902 has been included.)

Crosswalk Closure Support..... 00902.10
Backer Rod 02440.14

Furnish the following Materials from the QPL:

- Hot-Melt Loop Sealant

Add the following subsection:

00990.11 Traffic Signal Control Devices - The traffic signal controllers and related Equipment shall conform to requirements of the current edition of the ODOT Standard Specification for Microcomputer Signal Controller and errata.

The most current published version of the ODOT Standard Specification for Microcomputer Signal Controller, including all published errata, on ODOT's Traffic Standards website (see 00110.05(e)) at the time of Advertisement is the version in effect for the Project.

Add the following subsection:

00990.30 Video/Radar Detector Manufacturer's Representative - Provide the services of a manufacturer's representative on-site within 1 week in advance of the anticipated signal completion date to set up devices with Agency electrical crew present.

00990.40 Cable and Wire : Delete this subsection.

00990.41 Cabinet : Replace this subsection with the following subsection:

00990.41 Inductive Loop Detectors:

(a) General - Do not begin saw cutting until the loop layout has been inspected by the Engineer.

Do not place wire in saw cuts until the cuts have been inspected by the Engineer.

(b) Saw Cut and Wire Installation - Saw cut in a manner that is the most practicable, direct line between loops and junction boxes.

Immediately after saw cutting and before the cuttings dry, thoroughly flush each cut with a high-pressure water stream. Before the cuts dry, blow cuts free of water, debris, rock, and grit with compressed air. Slots may also be cleaned by means of a high-pressure water injection/vacuum extraction system. Remove rocks or other material that may be wedged in the cut. Remove and dispose of all cuttings according to 00290.20.

Dry cuts before placing wire.

After the saw cut is cleaned of debris, place the loop wire by pushing it into the slot with a blunt nonmetallic object. Use care to avoid damaging the insulation.

(c) Sealant - Install the sealant in slots according to the manufacturer's instructions. Furnish a copy of the manufacturer's specifications including application procedures. The Engineer may order a test run of any application method or material before filling saw cuts.

In order to prevent heat damage to the insulation, do not allow the temperature of the sealant to exceed 410 °F during application. Install hot-melt sealants in layers to prevent damage to wire insulation. Allow each layer to cool before the next layer is installed. Do not use water to accelerate cooling.

Sealants that crack or pull away from the saw cuts after curing will be rejected.

(d) Resistance and Continuity Testing - The resistance to ground of the loop and loop feeder combinations, shall be 500 MΩ or greater when checked at the following conditions:

- Before splicing and sealing - continuity test
- Before splicing after sealing - resistance test
- After splicing and sealing - resistance test

Furnish a report of the resistance and continuity results for each loop at each testing condition.

00990.42 Indication Equipment : Replace this subsection with the following subsection:

00990.42 Controller Cabinet Terminations:

(a) General - Terminate all field wiring to the terminal blocks physically attached to the controller cabinet

(b) Loop Feeder Cables – When terminating loop feeder cable inside the controller cabinet, do not remove the outside jacket and shield more than 6 inches from the end of the cable. Crimp lugs used for loop wire field terminals may be insulated or non-insulated. Terminate loop feeder shield drain wire to the cabinet input panel grounding bus nearest the feeder wire termination point.

00990.43 Traffic Signal Detection Devices : Replace this subsection with the following subsection:

00990.43 Traffic Control Signs - The type of sign and method of mounting will be as shown. Signs shall conform to the applicable portions of Section 00940.

00990.44 Traffic Control Signs - Replace this subsection with the following subsection:

00990.44 Illumination on Traffic Signal Poles - Install illumination and associated appurtenances on traffic signal poles as shown and according to applicable portions of Section 00970.

Add the following subsection:

00990.45 Signal Covers - Cover mounted vehicle signals and pedestrian signals at all times until the signal installation is ready for continuous operation.

00990.46 Fire Preemption – Replace this subsection with the following subsection:

00990.46 Pushbutton Covers - Cover mounted pushbuttons at all times until the pushbuttons are operational.

Add the following subsection:

00990.60 Cabinet Protection - Keep interiors of all cabinets clean and free of dust, dirt, moisture, and other foreign matter.

00990.70(a) Delivery of Control Equipment - Replace this subsection, except for the subsection number and title, with the following:

Provide all traffic control signal Equipment for the Project according to the cabinet print(s), including all associated manuals, diagrams, and other documents. The cabinet print(s) will be made available to the Contractor by the Engineer. Deliver all traffic signal control Equipment, including wiring diagrams and operation manuals, in one shipment. Partial

shipments will not be accepted and will be returned to the Contractor at no additional cost to the Agency. Include the following information with the Equipment shipments:

- Contractor
- Location
- For controller cabinets, TSSU ID number
- Contract number
- Completed Green Sheets

Deliver the traffic signal control Equipment and information for testing to:

Oregon Department of Transportation
Traffic Systems Services Unit
2445 Liberty St. NE
Salem, Oregon 97303-6738

Add the following subsection:

00990.70(f) Control Equipment Installation - Add the following paragraph to the end of this subsection:

The Agency will be responsible for providing signal timing software and timing parameters.

00990.70(i) Interconnect System Testing - Replace the title of this subsection with "**Interconnect System Testing for Copper Twisted Pair**".

00990.80 Measurement - Add the following paragraph to the end of this subsection:

Signs shown on the traffic signal poles, mast arms, or span wires that are shown on the sign and post data table will be measured according to 00930.80 and 00940.80.

00990.90 Payment - Add the following paragraph*(*s*)* to the end of this subsection:

Signs shown on traffic signal poles, mast arms, or span wires that are shown on the sign and post data table will be paid for according to 00930.90 and 00940.90.

Replace the sentence beginning with “No separate or additional payment will…” with the following paragraph:

No separate or additional payment will be made for:

- Replacement of disturbed earthwork, Base and Surfacing
- Illumination and associated appurtenances shown on traffic signal poles.
- Steel Reinforcement

(Use the following bullet when installing conduit on or in a structure is required.)

- Conduit installed according to 00960.42(f)

(Use the following subsection .90 when crosswalk closure supports are required.)

Crosswalk closure supports will be paid for according to 00902.90.