

SECTION 00227 - TEMPORARY TRAFFIC SIGNALS AND ILLUMINATION

(Follow all instructions and make all edits with "Track Changes" turned on. If there are no instructions [purple text] above a subsection, paragraph, sentence, or bullet, then include it in the project. Delete all purple text before preparing the final document. All other modifications to this Section will require ODOT Technical Resource and State Specifications Engineer approval.)

~~*(Use the following lead-in paragraph when none of the following subsections are included in the project.)*~~

~~Comply with Section 00227 of the Standard Specifications.~~

~~*(Use the following lead-in paragraph when any of the following subsections are included in the project.)*~~

Comply with Section 00227 of the Standard Specifications modified as follows:

00227.12 Temporary Traffic Signals - Replace the paragraph that begins "Use Materials for temporary traffic ..." with the following paragraph:

Use Materials for temporary traffic signals according to Sections 00960, 00990, 02120, and the following:

00227.12(c) Wood Poles - Replace this subsection, except for the subsection number and title, with the following:

Use poles that are of acceptable condition without visible signs of deterioration or significant longitudinal splits. Furnish poles having no more than 8 drilled holes, with holes at least 6 inches apart, for messenger and tether cable eyebolt attachments.

(Use the following subsection .13 when using portable traffic signals with extra features. Contact the Region Traffic Engineer for extra features that are required. Delete the extra features that are not required.)

00227.13 Portable Traffic Signals - Replace this subsection, except for the subsection number and title, with the following:

Use new or like-new portable traffic signals from the QPL with the following features:

(Use the following subsection (a) when live remote video monitoring of traffic and Work Zone is required.)

(a) Live Remote Video Monitoring - Provide live remote video monitoring of traffic conditions and the work zone. Provide the Engineer remote access to the video monitoring through the internet.

(Use the following subsection (b) when wait time display changeable message sign is required.)

(b) Wait Time Display Changeable Message Sign - Provide wait time display consisting of a changeable message sign (CMS) ~~which~~that is interconnected with the temporary traffic signal. The display provides the motorist with wait time information.

(1) Physical Requirements - Include the following minimum requirements on the CMS:

- Minimum dimensions of 18" H x 28" W
- 1-2 line message capability
- Line 1: characters of 10-1/4" H x 5- 3/4" W (4 per line)
- Line 2: characters of 7" H x 4" W (6 per line)
- Up to 2 screens per message

(2) Operational Requirements - Power the CMS by the power plant used to power the temporary traffic signal. Provide a wait time display (WTD) with the capability to be remotely programmed in real-time and function in traffic signal applications of fixed time operation and actuated operation as follows:

- When the signal displays a green indication, the CMS may display a "SLOW"/ "WORK ZONE" message. When the signal display changes to a yellow indication, display a "WAIT TIME"/ "UP TO # MIN" message on the CMS. When the signal display changes to a red indication, display "WAIT TIME"/ "UP TO # MIN" on the CMS where # is the remaining red time in minutes and changed with 1 minute intervals, holding on 1 minute until the signal display changes back to a green indication.

(Use the following (c) when bicycle clearance time extension pushbutton is required.)

(c) Bicycle Clearance Time Extension Pushbutton - When the pushbutton is pressed, it will call the signal system to provide an extended all-red clearance interval immediately following the green cycle termination. This call will be made whether the signal system is in an active green cycle for the direction of the call, or if it is a state of red. Pushbutton can be hardwired or be a wireless connection to the signal system.

00227.14 Temporary Flashing Beacons - Replace the paragraph that begins "Use materials for temporary ..." with the following paragraph:

Use materials for temporary flashing beacons according to Sections 00960, 00990, and the following:

00227.16 Work Zone Presence Lighting System - Replace the paragraph that begins "Furnish Work Zone presence lighting ..." with the following paragraph:

Provide Work Zone presence lighting system using flagger station lighting devices from section 00223.22 of the QPL and meeting the following requirements:

(Use the following subsection .40 only when vehicular traffic will be passing beneath falsework.)

00227.40 Temporary Illumination - Add the following paragraph to the end of this subsection:

Install 25-watt, steady-burning, amber lights on 36-inch spacing around the perimeter of the falsework as shown, facing oncoming traffic.

00227.42(a) Removal - Replace this subsection, except for the subsection number and title, with the following:

Remove the temporary traffic signal when directed. Remove all wood poles and guy anchors in their entirety. Abandon vehicle detector loops in place. Contractor provided Equipment remains the property of the Contractor. Return all Agency-furnished Materials according to 00160.30. Contact the Traffic Systems Service Unit at 503-378-2645 to confirm delivery of Agency-furnished Materials 48 hours prior to delivery.

00227.42(e) Testing and Turn-on - Replace this subsection, except for the subsection number and title, with the following:

Certify that all traffic signal cabinets and related control Equipment for temporary signals for all stages of construction have passed the ODOT laboratory tests. Successfully tested cabinets and related control Equipment are assigned permanent certification tags and will not require further environmental testing. Deliver controllers to the Traffic System Services Unit for functional testing.

00227.43(a) Location and Setup - Delete the sentence that begins "Do not install portable..."

00227.43(c) Testing and Turn-on - Replace the paragraph that begins "Before turning on the portable ..." with the following paragraph:

Before turning on the portable temporary traffic signal, correct all deficiencies identified by the Engineer. Do not change the timing parameters without the approval of the Engineer. Use flaggers according to Section 00223 to control traffic during initial turn on of the signal. The flaggers are required to remain on standby for 2 hours after the signal is turned on and operating properly.

(Use the following subsection .43(d) only when portable traffic signals are required to have a wait time display changeable message sign feature.)

Add the following subsection:

00227.43(d) Wait Time Display Changeable Message Signs - Locate the changeable message at a height between 7'-0" and 18'-6" as measured from the bottom of the CMS to the road surface. Do not locate the CMS over the travelled Roadway. Provide 12-inch

minimum separation between the edge of the CMS and the edge of nearest traffic signal head.

For fixed time operation, calculate the initial # for the "WAIT TIME"/ "UP TO # MIN" display by adding the programmed red clearance and yellow times of all signals plus the green time of the opposing signals.

For actuated operation, calculate the initial # for the "WAIT TIME"/ "UP TO # MIN" display by adding the programmed red clearance and the yellow times of all signals plus the maximum green of the opposing signals.

(Add the following subsection .43(e) only when portable traffic signals are required to have a bicycle clearance time extension pushbutton feature)

Add the following subsection:

00227.43(e) Bicycle Clearance Time Extension Pushbutton - Locate the pushbutton installation with sign at the stop bar. Post mount the wired pushbutton. Wireless pushbutton may be post mounted or mounted on a TSS. Furnish a mount with a maximum 24-inch reach to pushbutton. If needed, provide-furnish a manufacturer supplied pushbutton extension to achieve 24-inch reach.

00227.45 Work Zone Presence Lighting System - Replace the paragraph and bullets that begins "Turn off system ..." with the following paragraph and bullets:

Turn off system lights:

- During daytime hours;
- When no active Work is taking place; or
- All TCD have been removed from the Shoulders and Traffic Lanes.

00227.46(a) Removal - Replace this subsection, except for the subsection number and title, with the following:

Remove the temporary flashing beacons when directed. Contractor provided Equipment remains the property of the Contractor.

00227.62 Temporary Traffic Signals - Replace the paragraph that begins "The operation and maintenance ..." with the following paragraph:

The operation and maintenance of the Equipment inside the controller cabinet is the responsibility of the Agency, including:

Replace the paragraph and bullets that begins "The Contractor is responsible..." with the following paragraph and bullets:

The Contractor is responsible for:

- Providing replacement parts that fail within the controller cabinet while the temporary traffic signal is in use.

- Installing new field wiring as shown without terminating into the controller cabinet.

00227.63 Portland Traffic Signals - Replace the paragraph that begins "The log shall ..." with the following paragraph:

Keep the log with the corresponding portable traffic signal at all times.

00227.66 Temporary Flashing Beacons - Replace this subsection, except for the subsection number and title, with the following:

After successful turn-on of the temporary flashing beacons assume maintenance of the temporary flashing beacons until it is removed. The operation of the equipment inside the controller cabinet is the responsibility of the Agency, except the Contractor is required to provide replacement parts that fail within the controller cabinet while the temporary flashing beacons are in use.

00227.80 Measurement — Replace this subsection, except for the subsection number and title, with the following:

No measurement of quantities will be made for temporary traffic signals, portable traffic signals, temporary flashing beacons, or temporary illumination.

The Work Zone presence lighting system will be measured on the unit basis, for each complete system, where initially installed on the Project. A complete system consists of the number of flagger station lighting from the "PRESENCE LIGHTING SPACING TABLE" as shown.

(Use the following subsection .90 when temporary traffic signal, portable traffic signal, temporary flashing beacons, or temporary falsework illumination are required.)

00227.90 Payment —

(Delete Pay Item(s) from the list that are not included in the Schedule of Items, but do not change the alpha characters next to the Pay Items.)

Replace the Pay Items (b), (c), (e) with the following Pay Item(s):

Pay Item	Unit of Measurement
(b) Temporary Traffic Signal, _____	Lump Sum
(c) Portable Traffic Signal, _____	Lump Sum
(e) Temporary Flashing Beacons, _____	Lump Sum

Add the following paragraph to the end of this subsection:

Item (a) includes all Materials called for by the Plans and Specifications, and providing electrical power and ~~furnishing~~providing, placing, maintaining, adjusting, and removing temporary falsework illumination.

(Use the following when temporary traffic signals are required.)

In item (b), the location(s) ~~will be~~is inserted in the blank.

(Use the following when portable traffic signals are required.)

In item (c), the location(s) ~~will be~~is inserted in the blank.

(Use the following when temporary flashing beacons are required.)

In item (e), the location(s) ~~will be~~is inserted in the blank.

Replace the paragraph that begins "Item (c) includes furnishing ..." with the following paragraph:

Item (c) includes providing, operating, moving, and removing the signals and all required earthwork, Bases, Surfacing, and hard-wired interconnections.

Replace the paragraph that begins "Item (d) includes furnishing ..." with the following paragraph:

Item (d) includes providing, operating, moving, maintaining and removing the Work Zone presence lighting system.

Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing, installing, moving, operating, maintaining, inspecting, and removing the Materials and TCD, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified, except as covered in 00221.90(b).