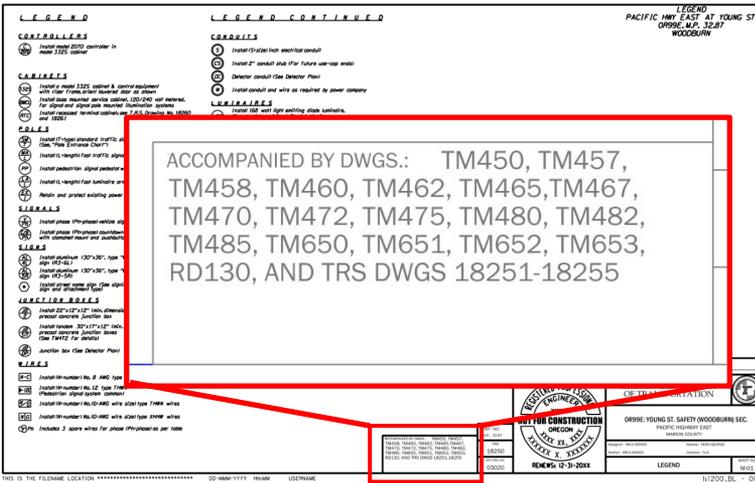


Standard Drawings

Each project will contain a list of applicable traffic signal standard drawings to be used, shown on first plan sheet of the signal plan set.



The applicable Standard Drawings should be contained within the contract plans, but they can also be downloaded as a PDF file online.*

TM400 Series - Signals

Effective Date of Dwgs. (Older versions available online in the archives)

Baseline report for each drawing

Number	Description / Baseline Report	2018 Specifications		2018 Specifications	
		06/01/18 - 11/30/18	12/01/18 - 05/31/19	12/01/18 - 05/31/19	12/01/18 - 05/31/19
TM450	Mast Arm Pole Details	dgn pdf	New dgn pdf	New dgn pdf	New dgn pdf
TM452	Strain Pole Details	dgn pdf	New dgn pdf	New dgn pdf	New dgn pdf
TM455	Temporary Signal Pole Details	dgn pdf	New dgn pdf	New dgn pdf	New dgn pdf
TM457	Vehicle, Pedestrian Signal and Pushbutton Mounting Option Details	dgn pdf	New dgn pdf	New dgn pdf	New dgn pdf

PDF and DGN for each drawing

Updated material labeled "NEW"

Std. Drawing & Specifications

*website link provided on Pg. 208

Standard Drawing List (Traffic Signal Related)

TM400 Series: Signals

- TM450 – Mast Arm Pole Details
- TM452 – Strain Pole Details
- TM455 – Temporary Signal Pole Details
- TM457 – Vehicle, Pedestrian Signal and Pushbutton Mounting Option Details
- TM460 – Vehicle Signal Details
- TM462 – Vehicle Signal Bracket Mount Details
- TM463 – Spanwire Mounting Details
- TM465 – Overhead Sign, Fire Preemption, and Photoelectric Control Details
- TM467 – Pedestrian Signal Mount and Pedestrian Pushbutton Details
- TM470 – Wire & Cable Installation and Color Code Charts
- TM471 – Trenching & Conduit Installation
- TM472 – Traffic Signal Junction Boxes/Hand Holes
- TM475 – Loop Details
- TM482 – Controller Cabinet & Service Cabinet Foundation Details
- TM485 – Service Cabinet Wiring Details
- TM488 – Terminal Cabinet Detail
- TM492 – Ramp Meter Pedestal Details

TM200 Series: Permanent Signing

- TM240 – Crosswalk Closure Detail

TM600 Series: Sign, Illumination, and Signal Support Structures

- TM650 – Traffic Signal Supports General Details & Design Criteria
- TM651 – Traffic Signal Supports Notes and Reactions
- TM652 – Traffic Signal Supports Steel Details
- TM653 – Traffic Signal Supports Foundation Requirements
- TM655 – Traffic Signal 60' through 75' Mast Arm Supports General Details & Design Criteria
- TM656 - Traffic Signal 60' through 75' Mast Arm Supports Notes
- TM657 – Traffic Signal 60' through 75' Mast Arm Supports Steel Details (SH. 1)
- TM658 - Traffic Signal 60' through 75' Mast Arm Supports Steel Details (SH. 2)

TM800 Series: Temporary Traffic Control

- TM870 – Bridge Construction (Using Signals, 1 lane, 2-way)

Standard Drawings are updated twice a year, once in January and once in July. The effective date of the standard drawing is updated at each revision, **EVEN IF THERE ARE NO CONTENT CHANGES**. Check the title block of the standard drawing to find out if any content revisions have occurred. The baseline report for each drawing (found online*) also provides info on content changes.

Standard Drawing Title Block

Letter	Indication
R	Red Circular Ball
Y	Yellow Circular Ball
C	Green Circular Ball
RA	Red Arrow
YA	Yellow Arrow
CA	Green Arrow
R/Y	Flashing Yellow Arrow
R/C	Flashing Red Circular Ball
Y/C	Flashing Yellow Circular Ball

General Notes:

- All Screws, Bolts, Nuts and Washers Shall Be Type 304 Or 316 Stainless Steel Unless Noted Otherwise.
- Balls And Screws Shall Have Square Or Hex Heads Unless Otherwise Noted. Also Noted Screws Not Allowed.
- Assemble The Heavy Duty Polycarbonate Vehicle Signal Head Backboard With Bolt Connectors. Damages Shall Resulting From All Damages Shall Be Replaced.

VEHICLE SIGNAL HEAD ASSEMBLY

Effective Date: December 1, 2018 – May 31, 2019 **TM460**

VEHICLE SIGNAL HEAD ASSEMBLY

<p>CALC. BOOK NO. ___ N/A</p> <p><i>The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.</i></p>	<p>BASELINE REPORT DATE <u>2-Jul-2018</u></p> <p>NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications</p> <p>OREGON STANDARD DRAWINGS</p> <p>VEHICLE SIGNAL DETAILS</p> <p>2018</p> <table border="1"> <thead> <tr> <th>DATE</th> <th>REVISION DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>07/18</td> <td>Minor Text Change</td> </tr> <tr> <td>07/18</td> <td>Revised Signal Head Descriptions</td> </tr> </tbody> </table>	DATE	REVISION DESCRIPTION	07/18	Minor Text Change	07/18	Revised Signal Head Descriptions
DATE	REVISION DESCRIPTION						
07/18	Minor Text Change						
07/18	Revised Signal Head Descriptions						

Effective Date: December 1, 2018 – May 31, 2019 **TM460**

Effective Date (reference to the bid date of the project)

Date & description of any content revisions

ALWAYS CHECK THE STANDARD DRAWINGS FOR CONTENT CHANGES PRIOR TO USE!

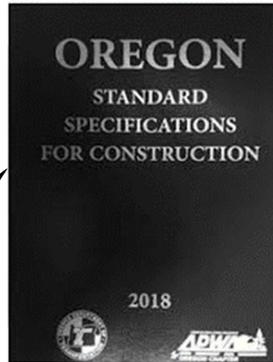
*website link provided on Pg. 208

Std. Drawing & Specifications

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Specifications and Special Provisions

Standard Specifications are contained in a published book that is updated roughly every 5 to 10 years. Each edition of the Standard Specifications lists the year that it is produced for easy identification.



2018 is current edition for all projects let on or after December 1, 2017. Special provisions will state which version is to be used on the project.

Special Provisions are specific to each project; they add, modify, or delete information that is contained in the standard specifications or standard drawings. The Engineer of Record will produce the special provisions for each project from Special Provision Boiler Plates. Special Provisions are typically used to:

- Correct typos, errors, or omissions
- Add unique features to project (i.e. ornamental pole treatments)
- Delete information that is not relevant to the project
- Limit construction methods or materials that may be used
- Make a change in standards before the next Standard Specification publication

The Order of Precedence stated in 00150.10(a) lists a hierarchy of contract documents in the event that they conflict. The Standard Specifications are near the bottom of the list because they are updated on infrequent basis and are typically generic (to make them useful for the majority of installations). Special Provisions, on the other hand are near the top of the list because they are specific to each project.

The Standard Specifications and Special Provision Boiler Plates are online.*

ALWAYS CAREFULLY READ THE SPECIAL PROVISIONS FOR YOUR PROJECT!

*[website link provided on Pg. 208](#)

Specification Section List (Traffic Signal Related)

The specifications are organized by sections. The following section lists the major specification sections that are related to traffic signals. As noted in the list below in parenthesis, the major specification sections related to traffic signals may reference additional specifications for certain components of the work.

00225: Work Zone Traffic Control (references numerous other sections)

00902: Crosswalk Closure Barricades

00950: Removal of Electrical Systems

00960: Common Provisions for Electrical Systems (references 00440 & 00442)

00962: Metal Illumination & Traffic Signal Supports (references 00440 & 02560)

00963: Signal Support Drilled Shafts (references 00440 & 02510)

00965: Camera Poles and Foundations (references 02560)

00970: Highway Illumination (references 00960, 00962, & 02926)

00990: Traffic Signals (references 00960 & 00962)

Specification Division Format

Each section of the specifications is organized by divisions. There are ten divisions:

XXXXX.00 = Description (work scope and definitions)

XXXXX.10 = Materials (material properties and testing requirements)

XXXXX.20 = Equipment (unique equipment requirements)

XXXXX.30 = Labor (unique labor requirements/qualifications)

XXXXX.40 = Construction (sequence of construction and end product requirements)

XXXXX.50 = Temporary (unique temporary measures that are required)

XXXXX.60 = Maintenance (maintenance and repair responsibilities)

XXXXX.70 = Finishing and Clean-up (restoration responsibilities and warranties)

XXXXX.80 = Measurement (components that are to be measured for payment)

XXXXX.90 = Payment (bid items for which payment will be made)

Using Standard Specifications & Special Provisions

Both the Standard Specifications and the Special Provisions are required to properly inspect the project. The example below shows how the two documents are used together to make a complete project specific specification.

Standard Specification:

00440.12 Properties of Commercial Grade Concrete - Furnish a workable CGC mixture that is uniform in composition and consistency, and unless otherwise shown or specified, has the following characteristics:

- **Entrained Air** - 4.0 to 7.0 percent
- **Slump** - 5 inches or less
- **Compressive Strength** - Minimum 3,000 psi at 28 days
- **Temperature** - Minimum 50 F to maximum 90 F



Special Provision:

00440.12 Proportions of Commercial Grade Concrete - Replace the bullet that begins "Compressive strength..." with the following bullet:

- **Compressive Strength** - ASTV minimum of 3,000 psi at 28 days



Combining the two = Complete & Useable Specification on Project:

00440.12 Properties of Commercial Grade Concrete - Furnish a workable CGC mixture that is uniform in composition and consistency, and unless otherwise shown or specified, has the following characteristics:

- **Entrained Air** - 4.0 to 7.0 percent
- **Slump** - 5 inches or less
- **Compressive Strength** – ASTV Minimum 3,000 psi at 28 days
- **Temperature** - Minimum 50 F to maximum 90 F

This special provision provides additional clarification for the compressive strength requirements:
ASTV = Actual Strength Test Value

Measurement and Payment

The last two divisions of each specification section contain information on measurement and payment. Read payment section (XXXXX.90) closely to determine what IS included and what is NOT included in the bid item payment.

Bid Item	Spec. No.	Measurement (XXXXX.80)	Payment (XXXXX.90)
Temporary Traffic Signal	00225	None	Lump Sum (per specific intersection)
Portable Temporary Traffic Signal	00225	Unit	Each
Crosswalk Closure Supports	00902	Unit	Each
Removal of Electrical Systems (method "A")	00950	None	Typically no separate payment
Removal of Electrical Systems (Method "B")	00950	None	Lump Sum (per specific intersection)
36" Diameter Signal Support Drilled Shaft	00963	Length	Foot
42" Diameter Signal Support Drilled Shaft	00963	Length	Foot
Traffic Signal Installation	00990	None	Lump Sum (per specific intersection)
Traffic Signal Modification	00990	None	Lump Sum (per specific intersection)
Detector Installation	00990	None	Lump Sum (per specific intersection)
Ramp Meter Installation	00990	None	Lump Sum (per specific intersection)
Interconnect System	00990	None	Lump Sum (entire project)
Flashing Beacon Installation	00990	None	Lump Sum (per specific intersection)
Automatic Traffic Recorder Installation	00990	None	Lump Sum (per specific intersection)

Work **DETAILED** in the signal plan is included in the traffic signal lump sum bid item. Work **REFERENCED** in the signal plan and shown in the sign and post data table is **NOT** included in the lump sum bid item (00990.90):



Install aluminum (30"x36") through and right arrow sign (R3-6R) ASTM Type IX sheeting

Detailed info (paid under traffic signal lump sum bid item)



See signing plans for details on sign and attachment

Referenced info (paid under signing bid items)

Typical anticipated items for traffic signal work include electrical Power Hook-up and ITS & communication equipment.