

## Chapter 4: Specifications & Standard Drawings

### 4.1 Key Topics Covered in this Chapter

- Purpose of Specifications and Standard Drawings.
- Structure and Components of Specifications and Standard Drawings.
- Information on Selected Specifications and Standards Drawings.

## 4.2 Standard Specifications

Highway construction specifications are a standard set of instructions, procedures and requirements directed at contractors and used to execute and manage a legal binding construction contract. The Specifications include descriptions for the scope of work, types of materials, equipment requirements, construction methods; and, measurement and payment methods for each work-related pay item.

### 4.2.1 General Overview

The *Oregon Standard Specifications for Construction* are applicable to all highway construction projects within the State of Oregon. The 2021 edition of the *Oregon Standard Specifications for Construction* has been published, distributed, and is in effect for all projects with a bid let date after December 1, 2020.

The 2018 Standard Specifications book is still available and is still valid for current construction projects that bid before December 1, 2020.

Visit the ODOT Specifications Unit website for current information on the 2018 and 2021 Standard Specifications.

### Structure and Components - Division Format

The Standard Specifications are divided into 13 Parts according to function – e.g. Roadwork, Bridges, and Water Supply Systems. Each Part is divided into Sections and Subsections. Sections are divided into ten different Subsections. Sections include only those Subsections applicable to the subject matter within the Section.

The Standard Specifications applicable to Temporary Traffic Control Plans are found in Part 00200 through 00229 as follows:

- 00220 – Accommodation for Public Traffic
- 00221 – Common Provisions for Work Zone Traffic Control
- 00222 – Temporary Traffic Control Signs
- 00223 – Work Zone Traffic Control Labor and Vehicles
- 00224 – Temporary Traffic Channelizing Devices
- 00225 – Temporary Work Zone Traffic Control
- 00226 – Temporary Roadside Barriers and Impact Attenuators
- 00227 – Temporary Traffic Signals and Illumination
- 00228 – Temporary Pedestrians and Bicyclist Routing
- 00229 – Smart Work Zone Systems

The following table describes the ten different Subsections within each Section. Names and descriptions of the Subsection names remain consistent throughout the Standard Specifications, and Special Provisions. Subsections are identified as follows:

Table 4-1: Specification and Special Provisions Subsections

Subsection Name	Number	Description
Description	.01 – .09	Includes the intended function (Scope) of the Subsection, Definitions, and other General Requirements
Material	.10 – .19	Provides details for materials used on the project site – type, sources, physical properties, functions, etc.
Equipment	.20 – .29	Details for equipment, labor or additional items needed to accomplish the work
Labor	.30 – .39	Unique labor or qualification requirements
Construction	.40 – .49	Sequence of construction operations, needed processes, pay item project site limitations, and end product requirements
Temporary	.50 – .59	Unique temporary measures needed to accomplish the work. Not meant to supplement work zone traffic control measures
Maintenance	.60 – .69	Any required maintenance, repair or avoidance measures
Finishing & Cleaning Up	.70 – .79	Other related work required before the overall work and completion of the project is accepted
Measurement	.80 – .89	Units of measure and means by which pay items and work are calculated, totaled and recorded for payment
Payment	.90 – .99	Details, limitations, exclusions regarding payment for work or individual pay items based on the units of measure from the Measurement subsection

## 4.2.2 Standard Specifications – Section 00220

### 00220.00 – Accommodation for Public Traffic

Focuses primarily on instructions and requirements for contractors to maintain facilities for all road users for the life of the project. TCP Designers should be familiar with this Section – paying particular attention to the following subsections:

#### 00220.02 – Public Safety and Mobility

*“Allow emergency vehicles immediate passage at all times”* – The TCP should consider and include measures and mitigations available to the Contractor for allowing for the passage of emergency vehicles at all times. The “at all times” clause may be accomplished, for example, through the use of a detour. However, Designers should work with Emergency Response and law enforcement agencies to ensure the detour route is viable, and does not compromise adequate response time or preclude access to sites cut off by the detour.

*“Do not stop or hold vehicles...for more than 20 minutes”* – TCP and traffic control measures should avoid conditions where the contractor could create delays to stopped traffic for periods greater

than 20 minutes. Despite current Mobility policies, during specific work operations (e.g. flagging two-way one-lane traffic), this allowance is still given to contractors. In rare cases, to more-aggressively limit traffic delays, the 20-minute duration has been reduced to as little as 10 minutes. Modification to this Standard Specification language should be carefully considered and discussed with region traffic engineers, the resident engineer and the Traffic Control Plans engineer.

*“Do not block driveways for more than two hours...”* – In developing TCP staging plans, Designers should anticipate potential disruptions of traffic flow across “driveways” due to construction activities – particularly business accesses. If necessary, additional measures may be needed (e.g. “Business Access” unique spec) to mitigate the affected accesses; or, changes to the TCP may be needed to minimize adverse impacts to the accesses.

*“Do not perform work that restricts...both sides of the travelled way at the same time”* – The intent of this language is to allow vehicles travelling in one direction along a roadway segment to have the ability to exit the roadway in at least one direction (e.g. left or right). In addition, it provides drivers with an “escape route” in one direction – away from the work area – in the case of sudden traffic incident. In rare cases, there may be exceptions to this language. For example, if work is taking place on a one-lane elevated roadway or bridge where the work type might require activity to be done on both sides simultaneously (e.g. painting).

*“Do not use steel plating...greater than 35 mph”* – Carefully consider construction staging that may result in the need to use steel plating on a high-speed road ( $\geq 45$  mph). If unavoidable, Designers should explore what other options or strategies could be used to avoid steel plating:

- Can the hazard be placed behind or protected with concrete barrier?
- Could traffic be detoured?
- Could the work be accelerated or incentivized to be completed in a single shift?
- Could flagging be used to control traffic speeds over the plating?

Ultimately, public traffic should not be left to control their speed under this situation.

## 00220.03 – Work Zone Notifications

*“Over-Dimensional Vehicle Restrictions”* – If, during the development of the TCP, there is concern over impacts, or over any restrictions to over-dimensional vehicles (including within a detour), TCP Designers should discuss the specific TCP details with ODOT’s Commerce and Compliance Division (CCD). Times and dates for these impacts are difficult to determine during project development, however, notifying CCD *early*, and updating them *often*, allows CCD more time to communicate with the trucking industry and make adjustments to their schedules.

*“Notify the CCD...at least 35 calendar days before...”* – Primarily a specification intended for contractors. But, TCP Designers can use this language to refine staging plans – particularly with on-going conversations with construction resident engineers to assist with reasonable construction schedules and other factors that may influence the TCP.

*Closures – Lanes, Roads, Interchange Ramps, and Bicycle and Pedestrian Facilities* – Intended for contractors, Designers can refer to this language to more closely examine the staging plans and TCP for details and measures the contractor will need to mitigate any of the closures applicable under this subsection.

## 00220.40(e) – Lane Restrictions

*“...Keep all traffic lanes and pedestrian facilities open during: a. Holidays”* – Intended to direct the contractor to not close the lanes when heavy traffic and congestions is anticipated during the following holidays:

- New Year’s Day on January 1
- Memorial Day on the last Monday in May
- Independence Day on July 4
- Labor Day on the first Monday in September
- Thanksgiving Day on the fourth Thursday in November
- Christmas Day on December 25

## 4.2.3 Standard Specification – Sections 00221 through 00229

### Section 00221 – Common Provisions for Work Zone Traffic Control

Focuses on providing temporary traffic control measures and furnishing, installing, moving operating, maintaining, inspecting and removing traffic control devices throughout the project area. Designers should be familiar with this subsection, paying particular attention to the following subsections:

#### 00221.03 – Traffic Safety and Operations

*“Do not use an open Traffic Lane on a freeway or multi-lane facility as an acceleration or deceleration lane for construction vehicles”* – Designers should review their staging plan and determine if this situation can be avoided. If not, Designers should be looking for alternatives including temporary accesses, or allowable lane closure times for contractor vehicle acceleration/deceleration.

*“Do not use a flagger to allow construction vehicles to access an open traffic lane on a freeway or a multilane facility”* – ODOT does not encourage or support the placement of a Flagger on a freeway or multi-lane facility acting in this capacity. During operations where multiple material delivery trucks are tasked with decelerating enough to safely enter into a closed lane to deliver construction materials (aggregate, asphalt, etc.), former practice would place a Flagger upstream of the access point to slow approaching traffic. Past experiences identified a number of issues:

- Flagger locations were far enough upstream that inbound traffic speeds were at or above the posted speed. When displayed, interpretation of the Flagger's "SLOW" paddle message by approaching traffic widely varied. Dramatic speed differentials resulted in an increase of near-misses and likely rear-end crashes.
- Placing the Flagger in a location that may not meet driver expectancy, and is usually of limited visibility (especially for nighttime operations), seemed to endanger the safety for the Flagger.
- Other effective mitigations have been developed and employed since this practice has been discontinued:
  - "CONSTRUCTION VEHICLE DO NOT FOLLOW" (CW23-14) signs on the back of each material hauling vehicle.
  - Temporary Speed Zone Reductions reducing the legal posted speed prior to the work area.
  - Speed Radar Trailers to reinforce the reduced posted speed.
  - Increased spacing between temporary channelizing devices (from 40' to 80') to allow material delivery vehicles to navigate into the closed lane at slightly higher speeds.

*"When paving operations create an abrupt edge..."* – TCP Designers can use this language to identify and determine the Standard Drawings, the TCD (e.g. temporary signing), and TCD quantities needed for the TCP.

*"...When extended traffic queues develop..."* – TCP Designers should work closely with the traffic analyst to determine the effectiveness of the staging plan and traffic control measure(s) proposed for the TCP – paying particular attention to analysis results for potential traffic queuing.

If regular queuing can be anticipated, Designers should include a reasonable quantity of Flagger Hours based on the duration of the flagging operations and the amount of time during the shift (or 24-hour day) where extended queues will occur and need to be mitigated.

TCP Designers should be very familiar with the traffic control measures and devices described in the following subsections. For consistency in safety, application, inspection, measurement and payment of these devices, agencies should refer to and enforce the language in these subsections (00220 through 00229) when using these devices in their work zones.

### **00221.60 – Temporary Traffic Control Devices**

*"Evaluate the condition of TCD using the...ATSSA...'Quality Guidelines for Work Zone Traffic Control Devices'"* – Designers should familiarize themselves with this handbook as it provides a field-level guide regarding agency expectations for device quality, maintenance and replacement during a construction project.

## Section 00222 – Temporary Signs

Includes important information regarding signs, supports and other accessories. Designers should also be aware of the cross reference to *Sections 00940 (Signs)* and *02910 (Sign Materials)* as they contain valuable information regarding temporary sign design and fabrication that is frequently referred to in a TCP.

*“Ensure that all temporary signs are properly used and consistent with the work zone”* – This attempts to get contractors to obscure temporary signs that are not applicable to the current work zone conditions, or otherwise provide erroneous information to public traffic. TCP Designers should be familiar with their staging plan and the need for all temporary signs in each Stage of the project.

Designers may consider identifying specific signs in the TCP that should be covered or removed during a given Stage when the sign is not needed. This gives the agency more power to enforce this Section and makes the need/inappropriateness of the sign clearer.

If a temporary sign is needed for only one Stage of the project, ensure all other plan sheets do not display that sign. Contractually, contractors are paid for signs “shown in the plans”. If a sign is repeated on a subsequent Stage, yet not actually needed during that Stage, contractors may still claim payment for the sign, as they may have bid the project in that manner. If a sign is needed for the duration of the project, under the first incident of the sign in the plans, “(All Stages)” may be included as a note beneath the sign. On subsequent plan sheets, only a *reference* back to the initial sign is used (see Figure 4-1).

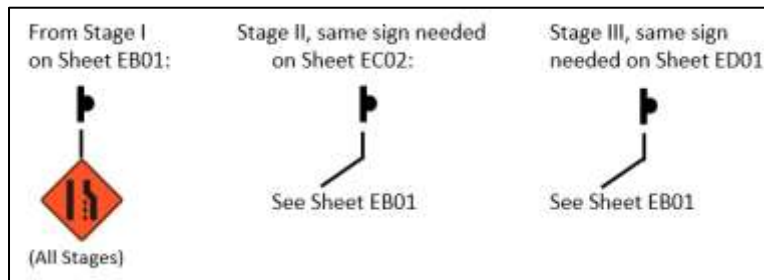


Figure 4-1: Sign Reference Example

## Section 00223 – Work Zone Traffic Control Labor and Vehicles

This section includes providing flaggers, traffic control supervisors (TCS), and furnishing, operating and maintaining associated traffic control devices such as pilot cars, AFADs, flagger station lighting ...etc.

The TCS included in this section is a challenging TCP pay item due to its intended application and the development of pay item quantities for it. TCS duties are listed in this Section. Expectations for how and when a TCS is to report to the job site during non-working on-call hours is also explained.

Consider the role of the TCS as that of the temporary traffic control “quarterback” – whose key responsibilities are centered on actions beginning as, “Notify...”, “oversee...”, “coordinate...”,

“review...”, “inspect...”, “prepare...”, “provide...”, “attend...”, etc. The TCS can be considered the TCP supervisor for the project – but often hired by the prime contractor and included in the TCP as a pay item.

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**If the TCS pay item quantity is zero, Special Provision language is added to the contract to identify a modified list of traffic control oversight “duties” the contractor is responsible for replaces the list identified under Section 00223.31 in the Standard Specifications. The modified list of duties is paid for under the Temporary Protection and Direction of Traffic (TP&DT) pay item identified in Section 00221.90(b).**

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### **00223.41 – Flagger Station Lighting**

For projects that include nighttime flagging, include an appropriate number of Flagger Station Lights in the TCP. Remember to include additional units if flagging is anticipated for extended queuing.

## **Section 00228 – Temporary Pedestrian and Bicyclist Routing**

This section consists of furnishing, installing, maintaining, and removing temporary devices for accommodating pedestrians and bicycles through the work zone.

### **00228.10 – Pedestrian Channelizing Devices (PCD)**

The PCD is used to separate, guide and protect pedestrians through or around work areas that have disrupted existing pedestrian facilities. In cooperation with *Section 00221*, PCD from the *ODOT Qualified Product List* are ADA-compatible and, when used properly, provide safe channelization for all pedestrians – particularly visually-impaired pedestrians and those requiring wheelchairs for mobility. Designers should include PCD quantities for projects where existing pedestrian facilities have been altered or disturbed by construction activities and a temporary alternate facility or route is necessary. See **Chapter 3** for additional details regarding PCD application.



## 4.3 Special Provisions

Special Provisions commonly referred to as, “Boilerplates”, and labelled as such on the ODOT Specifications Unit website. Special Provisions supplement the Standard Specifications, and serve to correct, add language to, or delete language from them. The “Boilerplate” Special Provisions also include more project-specific instructions and requirements that are used regularly in a project – but not on *every* project.

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**All ODOT highway construction projects require special provisions.**

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As the *Standard Specifications for Construction* book is updated, much of the corrective language in the boilerplates is incorporated into the new edition. The project-specific and conditional Special Provision language remains in the boilerplates.

Special Provisions can be found on the [ODOT Specifications Unit website](#), under the Highway Section, Engineering Services pages.

The Specifications Unit website also includes a link to the, *Specification and Writing Style Manual*. This manual is critical in understanding the proper writing techniques used in writing specifications for ODOT highway construction contracts. Three key principles to remember in writing specifications for ODOT construction contracts are:

- Write specifications as instructions to the contractor.
- It is implied instructions are to the contractor. Thus, “...the contractor...” can be omitted from most specifications.
- Write using the imperative mood, whenever practical.

The following provides an example of the imperative mood and preferred writing style. Instead of:

*The contractor shall install temporary markers 10' feet apart along both sides of driveways within the work area.*

The specification would use the imperative mood, remove “the contractor” as the subject, and be written as:

*Install temporary markers 10' apart both sides of driveways within the work area.*

### 4.3.1 Specification and Special Provision Writing

Before adding, deleting, or otherwise modifying Standard Specifications or Special Provisions, Designers should know the current requirements for making these edits. From the ODOT Specifications Unit website, see the [Specification Manual](#). In general, if project-specific changes

are made to Special Provision “Boilerplates” for *Sections 00220* through *00229*, they should be forwarded electronically to the state work zone traffic engineer in Salem, for concurrence.

In addition, if changes are made to the Measurements (*00220.80s, 00221.80s, 00222.80s ... and 00229.80s*) or Payments (*00220.90s, 00221.90s, 00222.90s... and 00229.90s*) subsections, these changes must also be sent to the state specifications engineer for concurrence.

Any edits to the *00100 Section* of the Standard Specifications regarding legal or contractual requirements must be reviewed by the *Department of Justice (DOJ)*. The state specifications engineer will coordinate with DOJ the review of any changes.

When a change to a published Standard Specification or Special Provision is needed or proposed, the ODOT Specifications Unit asks that a [Specification Change Request](#) Form be completed and submitted to them for processing.

## Project-Specific Special Provisions

TCP Designers typically only modify the Special Provision “Boilerplates” when developing the project-specific Special Provisions for the traffic control plan. The designer will edit the “Boilerplate” documents to meet the needs of their individual project.

In starting a new project, TCP Designers first need to download a current copy of the “boilerplates” for *Sections 00220* through *00229* from the Specifications Unit website.

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**Always download a new version of the Section 00220 through 00229 boilerplates before starting a new project. Special Provisions are updated and changed often. As a rule of thumb, if several (2-3) months lapse between the initial development of your project specifications and before the Special Provisions are to be sent out for final approval/concurrence, download a new version of the boilerplates to ensure no updates have been made that might conflict with other portions of the TCP.**

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While editing your project-specific Special Provisions, ensure “Track Changes” is *on* in Microsoft Word to record the changes made. In editing the Special Provisions, do the following:

- Delete portions that do not directly apply to the project – particularly to portions referring to pay items that have a *zero* quantity.
- Carefully read the, “Instructional Notes” in *(parentheses and in colored, bold, italicized font)*. Follow applicable instructions, and then delete Instructional Notes before providing the final draft.
- Fill-in all blanks with the appropriate information

Before submitting the final hard copy version, Designers should “Accept All Changes in Document”.

## 4.3.2 Section 00220 “Boilerplate” Special Provision

From the 2021 Section 00220 boilerplate, TCP Designers should note the following subsections:

### Section 00220.02 – Public Safety and Mobility

The bullet that begins, “When performing trench excavation...”, complements the Standard Specification addressing the use of steel plating on roadways with a posted speed greater than 35 mph. This special provision language provides additional instructions and expectations to contractors in the case where the posted speed is over 35 mph. The measures included in the language can aid the TCP designer in developing their TCP – including considering necessary pay items, pay item quantities, and modifications to staging plans to potentially avoid the situation.

### Section 00220.40(e) – Lane Restrictions

In most highway construction projects, traffic lanes may need to be closed for various lengths of time to complete the work. Within ODOT, conducting site-specific Work Zone Traffic Analysis (WZTA) will result in times and days when one or more traffic lanes can be closed. WZTA and the proper determination of when lanes can and cannot be closed is critical in preserving safety within the influence area of the work zone, managing congestion and worker exposure, minimizing travel delay; and, maintaining driver expectancy for a given facility type. WZTA can also be used to optimize construction costs and scheduling efficiencies through effective staging strategies.

Subsection *00220.40(e-1) Closed Lanes*, if modified as a result of WZTA, will include project-specific times when the contractor may close one or more traffic lanes.

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**Work zone standards unit and state specification engineer MUST approve special provision 220.40(e) on ALL projects, including projects where no modifications are made.**

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### Section 00220.40(f) – Limited Duration Road Closure

Used for a wide variety of road or facility closures, Designers may edit the language to use the subsection for interchange ramp closures, intersecting side streets, accesses, etc. In editing this subsection, Designers should include sufficient detail to clearly indicate the facility being closed, the allowable length of the closure, any additional TCM needed to safely conduct the closure, additional TCD needed to properly sign the detour, etc.

## Sections 00220.41 through 00220.45

The subsections include additional language focusing specifically on Bridge Work. Designers can use this language to provide additional details in the TCP that will aid contractors in conducting the work safely, efficiently and cost-effectively. Useful language includes:

- Instructions to begin bridge work only after all equipment, labor and materials are on hand to complete work efficiently and quickly.
- References to the TCP – indicating the need for adequate TCD and signing for proper road closures and detours.
- Load restrictions for existing bridges under construction or being used for staging.

### 4.3.3 Sections 00221 through 00229 “Boilerplate” Special provision

A considerable amount of project-specific language is contained in these subsections that a TCP designer can use to generate TCP pay items and quantities. From the 2021 Sections 00221 through 00229 boilerplate, TCD Designers should note the following Subsections

#### Section 00222 – Temporary Traffic Control Signing

This section includes a several work zone conditions signing application to guide and warn motorists including:

- Standard project signs – e.g. “ROAD WORK NEXT XX MILES”, “ROAD WORK AHEAD”, “FINES DOUBLE”, Project Identification signing, and “END ROAD WORK” signs.
- Horizontal and vertical clearance signs.
- Detour and Road Closure signing.
- Paving operations signing.

#### Section 00229 – Smart Work Zone Systems

This section covers the designing, furnishing, installing, moving, operating, maintaining, inspecting, and removing temporary Smart Work Zone Systems including:

- Construction access systems.
- Queue detection systems.
- Traffic information systems.

## 4.4 Hierarchy of Documents

A wide variety of documents are used to assemble a TCP and develop a construction contract. Designers should make every effort to avoid contradictions and conflicts within those contract documents. The *Oregon Standard Specifications for Construction* lists a hierarchy for the documents included in a construction contract. This list is identified as the, “Order of Precedence” under *Subsection 00150.10 (a)*. The hierarchy for the contract documents within your project is as following:

- Contract Change Orders;
- Special Provisions;
- Stamped Agency-prepared drawings specifically applicable to the Project and bearing the Project title;
- Reviewed and accepted, stamped Working Drawings;
- 3D Engineering Models and supplemental Agency-prepared line, grade and Cross Section data applicable to the Project;
- Standard Drawings;
- Approved unstamped Working Drawings and 3D Construction Models;
- Standard Specifications, and;
- All other Contract Documents not listed above.

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**Notes on a drawing take precedence over drawing details**

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## 4.5 Standard Drawings

General information, typical applications, and common layouts for temporary traffic control devices are shown in the *ODOT Temporary Traffic Control Standard Drawings* – currently under the TM800 Series. The TM800 series drawings show traffic control layouts for many common work zones, including 2-Lane, 2-Way Roadways, Freeway Sections, Bridge Constructions, and Signalized Intersections.

The Standard Drawings can be found on the ODOT website by using the following link sequence:

1. “Technical Services”
2. “Sections”
3. “Traffic-Roadway Section”
4. “Roadway Engineering”
5. “Visit the Standard Drawings Page”

Or, by searching the internet for, “*ODOT Standard Drawings*”.

The drawings show general information and common practices. They can be used to convey, instruct, or provide layout information for a variety of common, non-site specific work zone activities.

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### Standard Drawings should *NOT* be used to:

- **Substitute for complex, multi-stage traffic control plans. Project-specific plan sheets should be developed for more elaborate staging plans.**
- **Create excerpts by cutting small details from the drawings and copied into other documents or portions of a TCP. Standard Drawings are an engineered product sealed by the TCP engineer. Changes or deviations from Standard Drawings should be developed as separate details within a TCP and sealed by the responsible engineer (e.g. “Engineer of Record”).**

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Designers should select the Standard Drawing(s) most applicable to project activities and that contain other details that will be needed at some time during the project.

Standard Drawings selected for the project must coincide with language included in the Special Provisions written for the project. Designers should also ensure that if Special Provisions refer to a specific detail on a Standard Drawing, the temporary traffic control measures and devices shown in that detail have an associated pay item quantity (unless otherwise addressed in the special provisions).

If a construction project is not complicated and does not require extensive construction staging, it may be possible to adequately convey construction information to the contractor using only the appropriate Standard Drawings, Standard Specifications and project-specific Special Provisions. Project-specific staging plan sheets may not be needed.

Each of the current TCP Standard Drawings has been organized to include similar details making it easier to locate specific information. The set of TCP drawings have been divided into subsets, with each subset being reserved for the following categories:

- TM800 – Standard TCP Details.
- TM810s – Category I Devices (*using FHWA Crashworthy designations*).
- TM820s – Category II Devices.
- TM830s – Category III Devices.
- TM840s – Urban settings (Speeds < 45 mph).
- TM850s – High-speed roadways (Speeds 45 mph or higher).
- TM860s – Freeways applications (Speeds 55 mph or higher).
- TM870s – Special applications.
- TM880 – Freeway speed control measures for paving operations.

A brief description of the contents and function for each Drawing is included below:

### **TM800 – Tables, Abrupt Edge, and PCMS Details**

The tables on this drawing are referred to often on other TCP Standard Drawings. The most commonly used tables include:

- Concrete Barrier Flare Rate.
- Taper Rates & Buffer Lengths.
- Traffic Control Device Spacing Table.

This drawing also includes details for the application of:

- Abrupt Edge treatments and Signing.
- Portable Changeable Message Sign (PCMS) Installations.
- Flagger Station Lighting delineation.
- General Notes for All TCP Temporary Traffic Control drawings

### **TM810 – Temporary Reflective Pavement Markers**

Includes details for a variety of patterns using temporary reflective pavement markers to either simulate or supplement other pavement markings.

### **TM820 – Temporary Barricades**

Includes fabrication and notation details for Type I, II and III temporary barricades.

### **TM821 – Temporary Sign Supports**

Includes a detail describing sign post reflective sheeting placement, as well as details for the construction of the Double Post TSS and Single Post TSS sign supports.

### **TM822 – Temporary Sign Supports**

Includes a detail describing proper temporary sign placement, as well as details for the construction of the Concrete Barrier sign support.

### **TM830 – Temporary Concrete Barrier and Longitudinal Shoulder Rumble Strip Details**

Includes details for pinning temporary concrete barrier to asphalt concrete (AC) and Portland cement concrete (PCC) pavement surfaces. Also includes a detail for the removal of existing longitudinal shoulder rumble strips.

### **TM831 – Temporary Impact Attenuators**

Displays configurations for temporary (sand barrel array) impact attenuators based on the pre-construction posted (design) speed. Includes installation details for a standard installation as well as a “zero-offset” installation.

### **TM832 – Temporary Impact Attenuators**

Displays configurations for temporary (sand barrel array) impact attenuators used to protect the blunt end of a double run of concrete barrier. Configurations are based on the pre-construction posted (design) speed.

### **TM833 – Temporary Impact Attenuators**

Displays configurations for typical impact attenuator typical installations for drum arrays.

### **TM840 – Closure Details**

Includes details for establishing a variety of closures including highway, street and sidewalk closures. Also includes a detail for the fabrication of a “trailblazer” detour sign cluster.

### **TM841 – Intersection Work Zone Details**

Includes details for conducting a variety of lane closures under various work area locations and roadway configurations:

- 2-lane, 2-way streets for one-lane closures and shoulder closures.
- 4-lane, 2-way streets for right-side, near-side and far-side closures.
- 2-lane, 1-way streets for right-lane closures.

### **TM842 – Signalized Intersection Details**

Includes details for establishing and protecting work areas in the vicinity of signalized intersections on two or three-lane roadways.



### **TM843 – Multi-lane Signalized Intersection Details**

Includes details for establishing and protecting work areas in the vicinity of signalized intersections on four or five-lane roadways.

### **TM844 – Temporary Pedestrian Accessible Routing**

Includes details for routing pedestrians through and around work areas.

### **TM845 – Temporary Sidewalk Ramps**

Includes details for the construction of temporary sidewalk ramps in work areas.

### **TM850 – 2 Lane, 2-Way Roadways**

Includes details for sign placement, lane closures and flagging operations on two-lane, two-way roadways.

### **TM851 – Non-Freeway Multi-lane Sections**

Includes details for lane closures and establishing work zones on multi-lane, non-freeway roadways.

### **TM852 – Non-Freeway Multi-lane Sections**

Includes additional details for lane closures, shifts and establishing work zones on multi-lane, non-freeway roadways.

### **TM853 – Non-Freeway Multi-lane Sections**

Includes additional details for lane closures, shifts and establishing work zones on 3-lane, 2-way multi-lane, and non-freeway roadways.

### **TM854 – 2 Lane, 2-Way Roadways**

Includes details for sign placement, lane closures and AFAD operations on two-lane, two-way roadways.

### **TM855 – 2 Lane, 2-Way Roadways**

Includes details for sign placement, lane closures and operations on two-lane, two-way roadways where an AFAD cannot be utilized due to constraints.

### **TM860 – Freeway Sections**

Includes details for conducting basic lane and partial ramp closures on a freeway section.

### **TM861 – Freeway Sections**

Includes details for establishing a single-lane closure for pavement preservation work on a freeway section.

### TM862 – Freeway Section

Includes details for establishing a two-lane closure for pavement preservation work on a multi-lane freeway section.

### TM870 – Bridge Construction

Includes details for establishing a two-way, one-lane operation using either flaggers or a temporary traffic signal during the construction of a new bridge.

### TM871 - Blasting Zones

Includes details for protecting traffic from a blasting zone on either two-lane or divided highways.

### TM880 – Freeway or Divided Highway Speed Reduction (Paving Operations)

Includes details for speed reductions related to paving work on a freeway/divided highway.

## Other Relevant Drawings

Other Standard Drawings that could be included in the contract based on the scope of work and contents of the TCP include:

- RD410 – Guardrail Parts (Thrie Beam).
- RD420 – Energy Absorbing Terminal.
- RD425 – Non Energy-Absorbing Terminal 3' or 4' Flare.
- RD503 – Precast Concrete Barrier Pin and Loop Assembly.
- RD510 – Concrete Barrier Terminal.
- RD530 – Guardrail Transition to Concrete Barrier.
- RD535 – Concrete Barrier (Modified) Around Median Obstacle.
- RD545 – Precast Tall (42") Concrete Barrier.
- RD560 – Cast-in-Place Tall Barrier Transition to Standard Concrete Barrier.
- BR233 – Thrie-Beam Rail and Transition.
- BR236 – Trailing End Bridge Connection Concrete Bridge Rail to Guardrail.
- TM204 – Flag Board Mounting Detail.
- TM211 – Signing Details US and Interstate Route Shields.
- TM212 – Signing Details Oregon Route Signs.
- TM570 – Traffic Delineators.
- TM575 – Traffic Delineator Installation for Freeways.
- TM576 – Traffic Delineator Installation for Non-Freeways.
- TM670 – Wood Post Sign Supports.
- TM671 – 3 Second Gust Wind Speed Map.
- TM677 – Sign Mounts.
- TM681, TM687, TM688 – Perforated Steel Square Tube Sign Support Installation and Foundation.

## 4.6 Standard Details

Standard Details may be used to provide additional information for a specific task, material or construction procedure not already described for the contractor in either the Special Provisions or on a Standard Drawing. Standard Details are intended to be copied into the Traffic Control Plan sheets at the beginning of the plan set (see the ODOT Contract Plans Manual for details). Standard Details may also, in some circumstances, be used to supplement Special Provision language and traffic control plan sheets.

In the Special Provisions, include the reference to the specific Standard Detail by calling out the traffic control plan sheet number where the detail has been inserted – e.g. “See Rumble Strip Detail on Sheet EA02.” This helps ensure the contractor sees the Detail and uses it to complete the specific work activity.

A number of Traffic Control Plan Standard Details are available on the ODOT “Traffic Series Detail” link under the “[DET4700 – 4799 – Temporary Traffic Control](#)” website. The following are the Temporary Traffic Control Details:

- DET 4703 – Portable Traffic Signal
- DET 4710 – Temporary Transverse Rumble Strips.
- DET 4720 – Diversions and Cross Overs.
- DET 4730 – Single Lane Roundabout Flagging Operations.
- DET 4732 – Multilane Roundabout Partial Closure.
- DET 4734 – Multilane Roundabout Flagging Operations.
- DET 4740 – Rolling Slowdown Method.
- DET 4750 – 3 Lane 2-way Roadways.
- DET 4760 – Temporary Glare Screen.
- DET 4770 – Smart Work Zone System Dynamic Late-Lane Merge.
- DET 4772 – Work Zone Presence Lighting.
- DET 4773 – Mobile Barrier with Speed Reduction.
- DET 4774 – Mobile Barrier System.
- DET 4780 – Temporary Curb Ramps.
- DET 4781 – TPAR Table.
- DET 4782 – TPAR Sidewalk Closure, Two Corners per Intersection.
- DET 4783 – TPAR Sidewalk Diversion within Roadway Partial Corner Closure.
- DET 4784 – TPAR Sidewalk Diversion within Roadway Full Corner Closure.
- DET 4785 – TPAR Sidewalk Diversion with Additional Right of Way Partial Corner Closure.
- DET 4786 – TPAR Sidewalk Diversion with Additional Right of Way Full Corner Closure.
- DET 4787 – Temporary Midblock Crossing.