



# *traffic control plans design*

*Scott M. McCanna, P.E.  
ODOT State Traffic Control Plans Engineer*

# ***CONTACTS & INFORMATION***

➤ **Scott McCanna, P.E.**

- **State Traffic Control Plans Engineer  
(503) 986-3788 or (503) 580-6095 (cell)  
scott.m.mccanna@odot.state.or.us**

➤ **Don Wence**

- **TCP Standards Engineer  
(503) 986-3791  
donald.e.wence@odot.state.or.us**

➤ **Irene Toews, P.E.**

- **TCP Work Zone Analysis Engineer  
(503) 986-3595  
irene.toews@odot.state.or.us**

***This presentation available on ODOT FTP site until Sept. 1:***

***<ftp://ftp.odot.state.or.us/outgoing/trafficcontrol>***



# **FUNCTION & FORM**

# TCP in a Nutshell

- **The Traffic Control Plan tells the Contractor:**
  - A. When & Where the Contractor can work**
  - B. Where to place Traffic Control Devices (TCD)**
  - C. Where to place live traffic**
  - D. How to do all of this *safely and efficiently***

# From simple...



# To complex...



aug 2007

# TCP NEED

- So, do we **NEED** a TCP on every project?
- **Manual on Uniform Traffic Control Devices (MUTCD)**
  - *'The needs and control of all road users through a TTC zone **shall be an essential** part of highway construction, utility work, maintenance operations and the management of traffic incidents.'*
  - **2003, Sec. 6A.01**
- **Oregon Revised Statutes (ORS)**
  - **Sections 810.000 and 810.200 (Authority & TCDs)**
- **Oregon Administrative Rules (OAR)**
  - **Chapters 731 – 741 (Dept. of Transportation)**

# ***FUNCTION***

## **➤ Overall Purpose of Temporary Traffic Control:**

- 1) Warn all roadway users of work zone activities**
- 2) Advise motorists of appropriate actions to take**
- 3) Delineate the work zone and guide motorists safely through or around it**
- 4) Separate all roadway users from the work area and Protect them from work zone activities**

# **FUNCTION**

➤ **A “Successful” TCP is based on:**

- 1) **Inhibiting users as little as *practical* (Mobility)**
- 2) **Routing traffic through WZ as “*normal*” as possible (via signing, devices & geometry)**
- 3) **Avoiding *abrupt changes* in geometry, widths, lanes**
- 4) **Providing a *safe* environment for workers**
- 5) **Encouraging the use of *alternate routes***
- 6) **Accommodating *all modes* – bicycles, peds, ADA users**
- 7) **Scheduling work during *off-peak* times (night work?)**
- 8) **Early & Frequent coordination with other Agencies**

## **REMEMBER...**

- **Drivers will reduce their speed only if they clearly perceive a need to do so!**



# Work Zone Limits

➤ **Oregon Vehicle Code (ORS 811.230):**

1) **“Highway work zone”** is an area identified by advance warning where road construction, repair or maintenance work is being done by highway workers on or adjacent to a highway, **regardless of whether or not highway workers are actually present.**

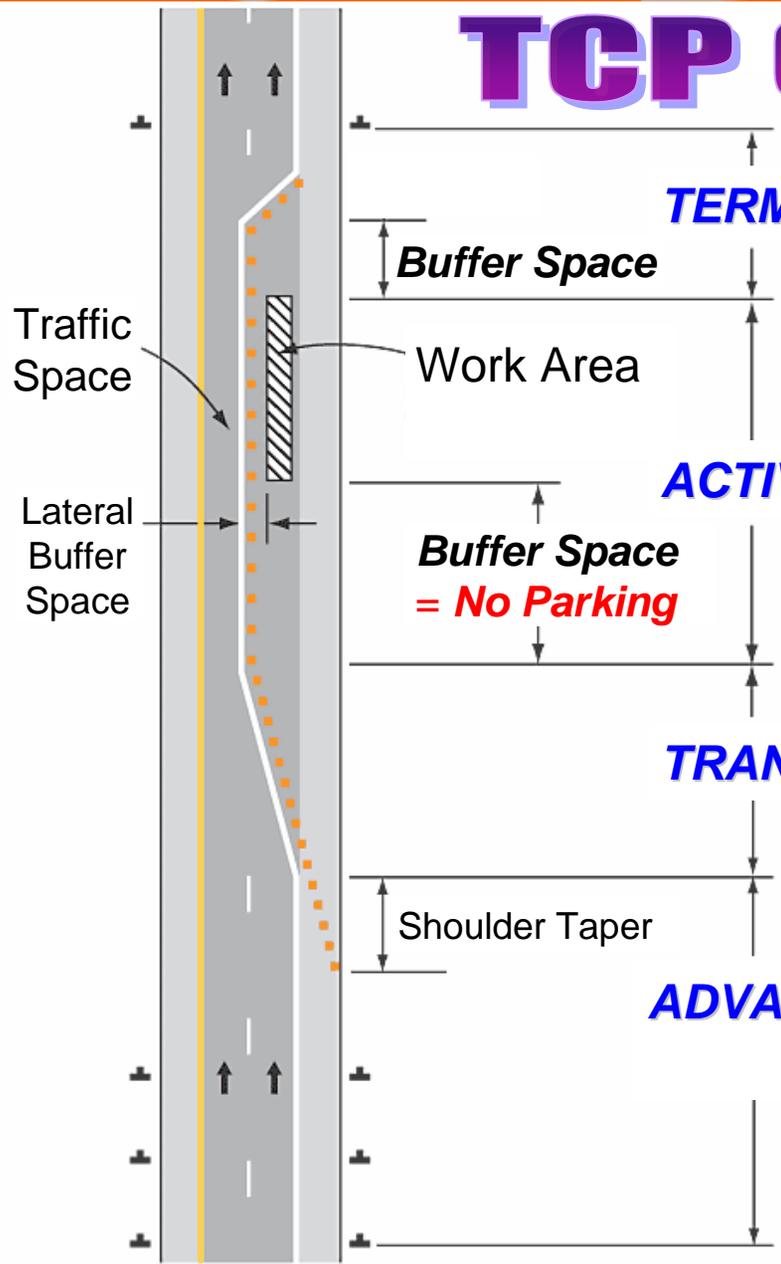
➤ **MUTCD, Part VI, Section 6C.02:**

1) **“Work zone”** is an area of a highway with construction, maintenance, or utility work activities. A work zone is typically marked by signs, channelizing devices, barriers, pavement markings, and/or work vehicles.

2) **It extends from the first warning sign or high-intensity rotating, flashing, oscillating, or strobe lights on a vehicle to the ‘END ROAD WORK’ sign or the last TTC device.**

3) **MUTCD definition, above, is being taught to TCP Designers**

# TCP Components



**TERMINATION AREA** - Where traffic is returned to normal conditions and flow patterns

**Buffer Space**

**Work Area**

**ACTIVITY AREA** - Space reserved for actual road work. Includes **Buffer Space**

**Buffer Space**  
**= No Parking**

**TRANSITION AREA** - Where changes to traffic paths or number of lanes is made

**Shoulder Taper**

**ADVANCE WARNING AREA** - Location for Advance Warning signage used to alert drivers of impending work zone and any changes in roadway environment



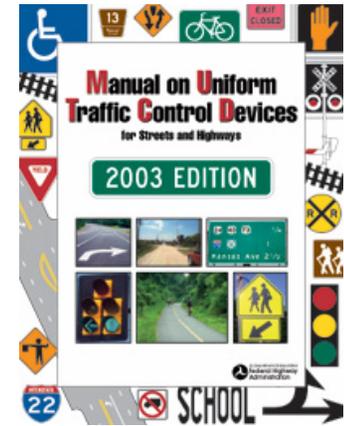
# STANDARDS

aug 2007

# TCP STANDARDS

## ➤ **Manual on Uniform Traffic Control Devices (MUTCD)**

- **Current Edition - 2003**
- **Adopted by ODOT**
- **Part VI – Temporary Traffic Control**
- **[mutcd.fhwa.dot.gov/kno\\_2003.htm](http://mutcd.fhwa.dot.gov/kno_2003.htm)**



## ➤ **AASHTO Roadside Design Guide (2002)**

- **“Clearzone” and Barrier Placement Guidance**

# TCP STANDARDS

## ➤ ODOT Highway Construction Standards

- **Standard Specifications**

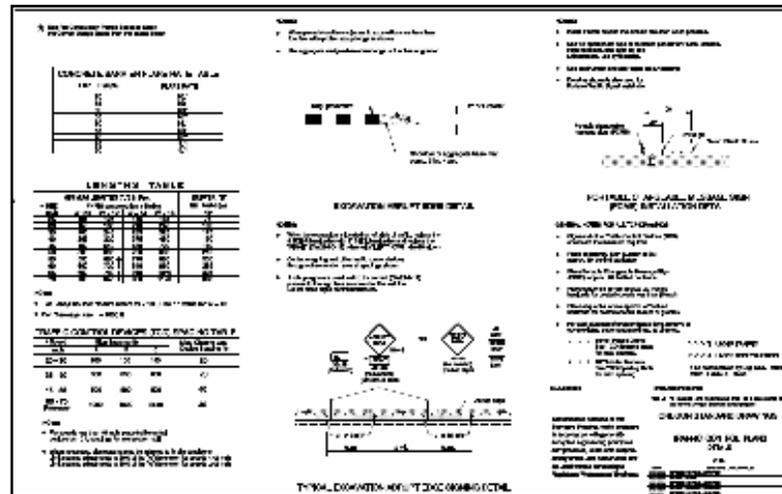
- **Sections 00220 and 00225**
- [www.oregon.gov/ODOT/HWY/SPECS/index.shtml](http://www.oregon.gov/ODOT/HWY/SPECS/index.shtml)

- **Special Provisions**

- **Sections 00220 and 00225**

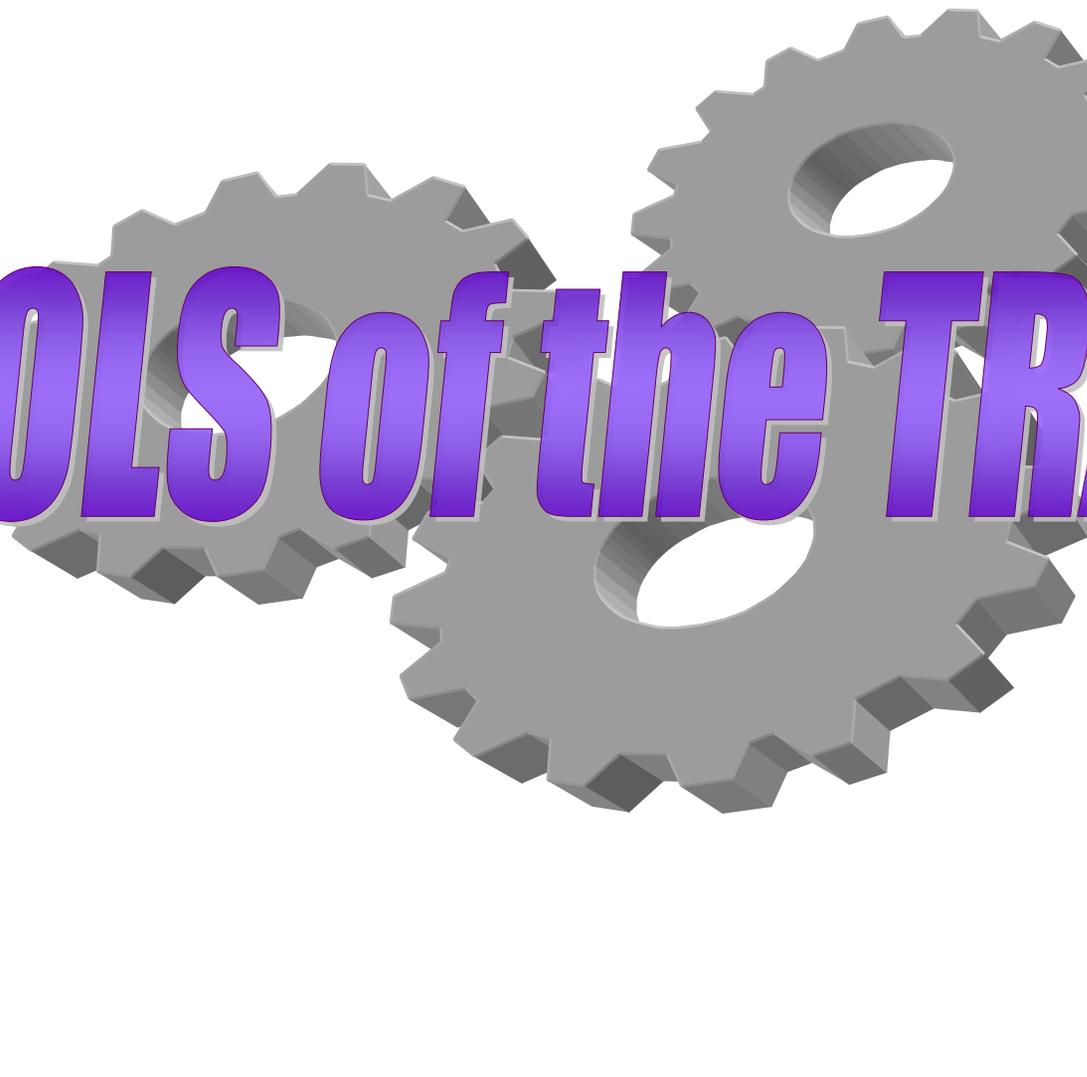
- **Standard Drawings**

- **Traffic Drawings**
- **TM700 Series**



# TCP STANDARDS

- **ODOT Traffic Control Plans website**
  - [www.oregon.gov/ODOT/HWY/TRAFFIC-ROADWAY/traffic\\_control.shtml](http://www.oregon.gov/ODOT/HWY/TRAFFIC-ROADWAY/traffic_control.shtml)
- **ODOT Traffic Control Plan Design Standards**
  - **ODOT “TCP Design Manual”**
- “Oregon Temporary Traffic Control Handbook”**
  - **For work lasting 3 Days or Less**
  - **For maintenance, utility or other permit operations, and incident response events**
  - **Not part of an ODOT Highway construction contract**
  - [www.oregon.gov/ODOT/HWY/TRAFFIC-ROADWAY/docs/pdf/OTTCH\\_06.pdf](http://www.oregon.gov/ODOT/HWY/TRAFFIC-ROADWAY/docs/pdf/OTTCH_06.pdf)



# ***TOOLS of the TRADE***

aug 2007

# ***TRAFFIC CONTROL DEVICES***

## ***TEMPORARY SIGNING***



- **Categories of Signs:**
  - A. Regulatory**
  - B. Warning**
  - C. Guide**
  - D. Other – Service, Tourist, Recreational and Cultural**

# ***TRAFFIC CONTROL DEVICES***

## ***TEMPORARY SIGNING***

- ***Important to know the difference at a glance***
- ***Message is not the only indicator for enforcement***
- ***Signs must conform with **all** applicable design criteria given in MUTCD***
  - A. Message***
  - B. Color***
  - C. Shape***
  - D. Retroreflectivity or illumination***

# ***TRAFFIC CONTROL DEVICES*** ***REGULATORY SIGNING***



# ***TRAFFIC CONTROL DEVICES*** ***REGULATORY SIGNING ?***

➤ ***How about these?***



➤ ***Now...***

***How about a tricky one?...***

***Current Standard Sign...***



# ***TRAFFIC CONTROL DEVICES*** ***REGULATORY SIGNING***

➤ **Regulatory...**



➤ **Advisory...**

***NEW Advisory...***



# TRAFFIC CONTROL DEVICES

## PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

- *PCMS messages are not intended to be “regulatory”*
- *Should never display Speed Limits or regulatory messages: “DO NOT ENTER”, “DO NOT PASS”, “NO LEFT TURN”, etc.*
- *PCMS messages should be valuable, specific & timely*
- *Which PCMS is displaying the LEAST useful message?*



# ***TRAFFIC CONTROL DEVICES***

## ***CHANNELIZATION DEVICES***



***Plastic Drums***



***Tubular Markers***



***Conical Markers***



***Barricades – Type II and III***

# TRAFFIC CONTROL DEVICES CONCRETE BARRIER & IMPACT ATTENUATORS



**Drum Array  
Attenuators**



**Truck-Mounted (TMA)**



**"Narrow-site"**



**What we hope  
we never see...**

# ***Other Considerations...***

***Not Everyone knows what's safe and what isn't...***



aug 2007

# *Work zones can be confusing & intimidating...*



***...Because we, as engineers, are responsible for what's safe, we insist on safety for EVERYONE!***



aug 2007

**THANK  
YOU!**



aug 2007