Temporary Traffic Control Set-Up

Objectives:

• Define Basic Components of Road Construction Temporary Traffic Control Systems
• Explain Several Common Work Zone Traffic Control Set-Ups
• Review Technical Standards Used to Design Temporary Traffic Control

Who Am I?

• Christina Merriott
  • Bachelor of Science – Construction Engineering & Management – Purdue University
  • CHST (Construction Health & Safety Technician)
  • 20 Years Heavy Highway Experience
    • Authorized ATSSA Flagger Instructor
    • ATSSA Certified Traffic Control Supervisor
  • 8.5 Months Experience – Consulting
  • Married – Thomas – 14.5 Years
  • Two Cats – Parker (Calico) & Hardison (Grey Tabby)
Why Should You Care about TTC?

• Transportation related fatalities are most cause of workers deaths
• The person who crashes his or her vehicle while traveling through the work zone is often the one killed.
• 3 people killed in work zones every day
• 40,000 crashes in work zones every year

Work Zone Crashes

• Most common crash: Rear-End Collisions
• Three major reasons for work zone crashes are
  • following too closely
  • Speeding
  • inattentive driving.
• Distractions!!!!
  Phone – Radio – Passengers – GPS
  Confusing TTC – Road Rage

Road Construction Awareness Corp

<table>
<thead>
<tr>
<th>Jason Soots 2006</th>
<th>Brad Arthur 2012</th>
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<td>Chris Hutt 2006</td>
<td>Chad Fleager 2012</td>
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<tr>
<td>Jeremy Bagwell 2011</td>
<td>David Anderson 2012</td>
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<tr>
<td>Ryan Zimmerman 2011</td>
<td>Steven Overbay 2012</td>
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<td>Tony Northcut 2011</td>
<td>Coty DeMoss 2014</td>
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<td>Juan Hernandez Rosas 2011</td>
<td>Kenneth Duerson, Jr 2014</td>
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<tr>
<td>Gregory Lawdermilt 2011</td>
<td>William Isaac Simpson 2014</td>
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Motorists and Work Zone Safety

• Pay attention to the reduced speed limit
• Driving 65 MPH and 45 MPH through a two-mile work zone is only a minute
• Most Dangerous points for Traffic
  • Areas where traffic is entering
  • Drivers are jockeying for position

  *We will revisit this in a few slides*

Technical Standards

• Federal MUTCD
• Indiana State MUTCD
• 29 CFR 1926 – refers to MUTCD for traffic control

MUTCD = Manual on Uniform Traffic Control Devices
• Requirements/Guidance
• Shall / Should / May
• Tables & Calculations

MUTCD (2003 Edition) Adoption

[Map showing MUTCD adoption levels]
Need for Traffic Control

The needs and control for all road users (motorists, bicyclists, and pedestrians within the highway, or on private roads open to public travel, including those persons with disabilities in accordance with ADA 1990) through TTC zones shall be an essential part of highway construction, utility work, maintenance operations, and the management of traffic incidents.

~ 2011 IMUTCD – Part 6 – Section 6A.01 - General

2011 IMUTCD – Part 6 – Section 6A.01 – General (cont.)

• When normal function of roadway is suspended, provide continuity of movement and access to property and utilities.
• Primary Function: provide reasonably safe and effective movement of road users through TTC zones while protecting road users, worker, responders, and equipment

2011 IMUTCD – Part 6 – Section 6A.01 – General (cont.)

• Standard: TTC plans and devices shall be the responsibility of the authority of a public body or official having jurisdiction for guiding road users.

Reference Material: 23 CFR 630 Subpart J
• Rule on Work Zone Safety & Mobility
• Implementing the Rule on Work Zone Safety and Mobility
  https://ops.fhwa.dot.gov/wz/resources/final_rule/guidance.htm
2011 IMUTCD – Chapter 6B
Section 6B.01

Construction, maintenance, utility, and incident zones can all benefit from TTC to compensate for the unexpected or unusual situations faced by road users.
When planning for TTC in these zones, it can be assumed that it is appropriate for road users to exercise caution.
Even though road users are assumed to be using caution, special care is still needed in applying TTC techniques.

7 Principles of Traffic Control Guidance (MUTCD)

From: 2011 IMUTCD – Chapter 6B - Section 6B.01
Fundamental Principles of Temporary Traffic Control

1. General Plans or Guidelines should be developed to provide safety for motorists, bicyclists, pedestrians, workers, enforcement/emergency officials, and equipment.
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<th>7 Principles of Traffic Control Guidance (MUTCD)</th>
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<td>2. Road user movement should be inhibited as little as practical.</td>
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<td>3. Motorists, bicyclists, and pedestrians should be guided in a clear and positive manner while approaching and traversing TTC zones and incident sites.</td>
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<td>4. Provide acceptable levels of operations, routine day and night inspections of TTC elements should be performed.</td>
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<td>5. Attention should be given to the maintenance of roadside safety during the lift of the TTC zone.</td>
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<td>6. Each person whose actions effect TTC zone safety should receive training appropriate to the job decisions each individual is required to make. Only those individuals who are trained in proper TTC practices and have a basic understanding of the principles should supervise the selection, placement, and maintenance of TTC devices used.</td>
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<td>7. Good public relations should be maintained.</td>
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Focus: Construction Element

INDOT Specification Requirement:
• Certified Traffic Control Supervisor on-site for projects that involve Temporary Traffic Control
• Flagging operations require either a Certified Traffic Control Supervisor or a Certified Flagger on-site at all times during flagging operations.
• Flagger Training is required for those who will control traffic in a flagging operation.

What is a Traffic Management Plan (TMP)?
• Set of coordinated strategies
• Describes how strategies will be used to manage the work zone impacts
• Expected Results?

Expected Results?
• minimize confusion and delays to motorists and pedestrians
• Reduce crashes
• Provide greater safety to all parties involved in the project
• Improve the image of DOT and Construction Industry
Basic Components TTC

- Advanced Warning Area
- Transition Area
- Activity Area
- Termination Area

- IMUTCD Figure 6C-1 (Next Slide)
- IMUTCD Chapter 6F – Temporary Traffic Control Devices
Advanced Warning Area
- Diamond, Orange Field, Black Border & Writing
- Typical Consist of 3 Signs
  - Road Construction Ahead / Road Work Ahead
  - Right Lane Closed XX ft ahead
  - Symbol for Lane Merge (aka: Dogleg)
- Minimum 1 Sign – Low Volume/Low Speed Road
  - Flagger
  - Survey Crew
- May add additional signs as needed

Transition Area
- Area Guides Motorist into Modified Travel Path
- Traffic Control Devices
  - Cones / Barrels / Sign Panels
  - Flaggers (stop/slow paddles & Flags)
  - Arrow Boards & Message Boards
  - Barrier Wall
  - Barricades
- Traffic Control Devices designed to minimize damage to anything that may strike the device.
- AASHTO – Design & Testing requirements

Activity Area
- Area where actual Construction Activity is taken place
- Separated from Open Traffic Lanes by Traffic Control Devices
- Lateral Buffer Space
  - only a few feet separates workers, equipment, and motorists
- Termination Area – traffic returns to normal
Common Work Zone

- Interstate / Multi-lane Highway
  - Lane Closure
  - Lane Shifts
  - Merging Lanes
- 2 Lane Roads
  - Flagger Scenario
  - 1 way open only
- Road Closed
  - No Access
  - Local Access Only
- Following slide examples
What Are All Those Symbols?

- Explore Sample Figures and Symbols
  - Tables 6H-3; 6C-2; 6C-3; 6C-4
- Refer back to Figure 6H-37 (Multi-Lane Closure)
- Refer back to Figure 6H-10 (Flagger Scenario)
- Refer to Figure 6C-2 (Typical Tapers and Buffer Spaces)
Advanced Warning Area

Channelizing Devices: Taper Lengths

Maximum Distance between devices in the taper should not exceed 1.0 times the speed limit in mph.

Devices: Taper Lengths
TTC Devices: Device Spacing

Cones / Tubular Markers / Vertical Panels / Drums / Barricades

• Distances in Feet
• Max. Distance between devices in the taper should not exceed 1.0 times the speed limit in mph.
• Spacing of Devices along Tangent Channelization (AKA: Lane Lines and Centerlines) should not exceed 2.0 times the speed limit in mph.

Buffer Space

Absolute Clear Zone!!

No work activity
No Parking

Area for errant vehicles to recover and get stopped.

I-65 Example

• Section is 3 Lanes + Shoulders each side
• Lane Widths = 12 Feet
• Posted Speed = 65 MPH
• Closing Right Shoulder and Right Lane

• Typical Example: Figure 6H-37
  Please ignore 4th travel lane in the figure for this exercise
I-65 Example

- Advanced Warning Signs:
  - A = _____ Feet; B = _____ Feet; C = _____ Feet
- Shoulder Taper =
- Merging Taper =
- Buffer Space =
- Spacing between devices along lane line =

*NOTE:* Speed limit may be reduced to 45 MPH through the work zone. Recalculate.

SR 32 – Rural Area

- Lane Width = 12 Feet
- Posted Speed = 55 MPH
- 2 Lane Road – 1 Lane Closed
  - AKA: Flagger Zone – Reference Figure 6H-10
SR 32 – Rural Area

• Advanced Warning Signs:
  • A = ______ Feet; B = ______ Feet; C = ______ Feet
• Flagger Taper =
  • Device Spacing =
• Buffer Space =
• Center Line Device Spacing =

Recap:

• Define Basic Components of Road Construction
  Temporary Traffic Control Systems
• Explain Several Common Work Zone Traffic Control
  Set-Ups
• Review Technical Standards Used to Design
  Temporary Traffic Control
Why We All Should Care?

Slow Down
Save A Life
We're All
In This Together

Resources

• Manual on Uniform Traffic Control Devices (MUTCD & INMUTCD)
• American Road Transportation Builders Association (ARTBA)
• American Traffic Safety Services Association (ATSSA)
• Federal Highway Administration (FWHA)
• American Association of State Highway and Transportation Officials (AASHTO)
• State Highway Department (INDOT)
• Road Construction Awareness Corporation (RCAC)

Potential Live Human Resource

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