Work Zone Safety Using the Field Manual

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What we’ll answer today

• What is the Field Manual?
• Who is involved?
• How to use to improve WZ Safety
• Where to get more training
What is the Field Manual?

MN MUTCD

- Only engineering related manual required by statute
- Traffic control requirements for all roads open to the public
- Recommendations by the Minnesota Committee on Uniform Traffic Control Devices
- Adopted by the Commissioner of Transportation
- mndot.gov/mnmutcd
- Part 6 is Temporary Traffic Control
MN MUTCD Chapter 6B
TTC Fundamental Principles

• Construction, maintenance, utility, and incident zones can all benefit from TTC
• Special plans preparation and coordination may be required
• Following the fundamental principles of Part 6 will
  • assist road users
  • help protect workers

Uniform treatment leads to uniform response.
MN MUTCD Chapter 6B

• Seven fundamental principles of TTC
  1. General plans or guidelines should be developed to provide safety for users and workers
  2. Road user movement should be inhibited as little as practical
  3. Motorists, bicyclists, and pedestrians should be guided in a clear and positive manner
  4. Routine day and night inspections of TTC elements should be performed
  5. Attention should be given to the maintenance of roadside safety
  6. Training appropriate to the job
  7. Maintain good public relations

1. Plan should be developed

A TTC plan should be prepared and understood by all responsible parties before the site is occupied.

Any changes should be reviewed and approved by agency

Consistency - reduces user confusion
• Part 6K of the MN MUTCD
• Temporary Traffic Control requirements for 3 days or less
  • Or daily lane closures
• Beyond that – Temporary Traffic Control Plan needed

Field Manual 13.0 – Previous Versions
Field Manual Rewrite

- Started April 2016
- Participants
  MnDOT CO and Districts (Traffic, Construction, Maintenance)
  Washington County
  Hennepin County
  City of Eagan
  City of Bloomington
  City of Minneapolis
  City of Rochester
  State Aid
  Northland Chapter of the American Traffic Safety Services Association
  MN LTAP CTAP

New Sections!!

- Low Volume
- Two-Way Left Turn Lane
- Standards and Specs renamed *General Provisions*
General Provisions Key Changes

Spring 2018

Individual & General Responsibilities

(Individual)

• Be trained for the work you are doing

(General)

• Protect work space
• Safely direct traffic
• Keep devices clean and in position
• Remove devices when no longer needed
• Keep road authority notified
• Keep proper records
• *Day and night inspections*

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Compliance Levels

• Shall
  • Standard
  • You are required to do (mandatory condition)

• Should
  • Guidance
  • You are advised or recommended to do, engineering judgment required to deviate

• May
  • Optional
  • You are allowed to do, sometimes used to list conditions from which a Standard or Guidance statement can be modified

New Guidance in General Provisions

Inspecting the TTC Zone
• Routine day and night inspections
New Guidance in General Provisions

Crossing Live Lanes of Traffic

- Personnel may cross live traffic lanes only if it is safe to do so utilizing a walking pace taking into consideration roadway geometry, traffic volume, and other appropriate factors.

Roadside Safety

- Provide clear zones where practical
  - See Table 6K-1, Recommended Clear Zones
- Work equipment, worker vehicles, materials, and debris stored to reduce probability of run-off-road vehicles
- Lateral offset to obstruction of 1.5 feet behind curb face used in urban areas
- When work not active, hazards or fixed objects should not be in clear zone or lateral offset to obstruction
  - If not practical, shield; if that not practical, delineate
New Guidance in General Provisions

• Marking Hazards
  - Repair damaged infrastructure as soon as possible
  - Until repair possible, mark with Type I/Type II barricade with flashing warning light or drum
  - Cones allowed for short term emergency
  - Structures above grade – make apparent

High-Vis Clothing

• ANSI/ISEA 107-2004, 107-2010, or 107-2015 Type R
  - Class 2 or 3
  - Flaggers need high-vis vest, pants, and hat at all times
  - All workers – high-vis hat should be worn if hard hat not required
Work Zone Signing

• Biggest change - Any portable sign stand or barricade placed in a pedestrian walkway that could be a hazard to a visually impaired pedestrian should have a detectable edge to guide the pedestrian around the hazard.

TTC Distance Charts

Temporary Traffic Control Distance Charts

<table>
<thead>
<tr>
<th>Posted Speed Limit Prior to Work Starting (mph)</th>
<th>Advance Warning Sign Spacing (A) feet</th>
<th>Decision Sight Distance (D) feet</th>
<th>Taper Length (12 ft lane) (L) feet</th>
<th>Shifting Taper Length (12 ft lane) (L/2) feet</th>
<th>Typical Shoulder Taper Length (12 ft lane) (L/3) feet</th>
<th>Buffer Space (B) feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-30</td>
<td>G = 25 ft.</td>
<td>100</td>
<td>550</td>
<td>200</td>
<td>100</td>
<td>75</td>
</tr>
<tr>
<td>35-40</td>
<td>G = 25 ft.</td>
<td>325</td>
<td>700</td>
<td>325</td>
<td>175</td>
<td>125</td>
</tr>
<tr>
<td>45-50</td>
<td>G = 50 ft.</td>
<td>600</td>
<td>900</td>
<td>600</td>
<td>300</td>
<td>200</td>
</tr>
<tr>
<td>55</td>
<td>G = 50 ft.</td>
<td>750</td>
<td>1200</td>
<td>700</td>
<td>350</td>
<td>250</td>
</tr>
<tr>
<td>60-65</td>
<td>G = 50 ft.</td>
<td>1000</td>
<td>1400</td>
<td>800</td>
<td>400</td>
<td>275</td>
</tr>
<tr>
<td>70-75</td>
<td>G = 50 ft.</td>
<td>1200</td>
<td>1600</td>
<td>900</td>
<td>450</td>
<td>300</td>
</tr>
</tbody>
</table>
Choosing Layouts

Primarily based on:

- Traffic Volume
- Nature of Impact
- Duration of Impact

Often have to combine layouts
### Low Volume Indexes

- Matrices based on Maintenance Activities
  - Developed in LRRB Sponsored Project
  - Urban and Rural

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### Low Volume Layouts

- Reduced number of devices allowed by MN MUTCD Parts 5 & 6
- Reviewed and approved by MCUTCD
- Particularly on roads with speeds ≤ 30 MPH
Road Closure Special Events

- Brand new layout
- Special events
  - Parade
  - Block Party
- Modified language in Part 6F allowing Type I & II Barricades to close roads

Work Vehicle Parked on Shoulder

- Brand new layout
- Layout 8 simplified
Workers Present Speed Limit

Bike Lane Closure

- Brand new layout
- MN statute only allows vehicles to cross bike lane lines to park or turn right
- Close Bike Lane when:
  - Working in bike lane or
  - See General Note 1
• Added General Note 2

When a sidewalk is closed but workers are present to halt operations and provide safe passage through the work site, the devices shown are not required. Pedestrians may be delayed for a short period of time for project personnel to move equipment and material to facilitate passage. Project personnel may also assist pedestrians in navigating the work zone.

Quality Standards

Methods to determine whether the various traffic control devices are Acceptable, Marginal, or Unacceptable.
• MN LTAP Circuit Training and Assistance Program
  • WZ Safety, Temporary Traffic Control, and Flagging Course

• MN State Aid for Local Transportation webpage
  • Link to Field Manual Resource webpage
  • Videos of the above training

• Field Manual Webpage
  • Field Manual Update presentation
Questions?

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