Urban Work Zone
Challenges and Solutions
Common Challenges

- Intersections
- Driveways
- Turn lanes
- On-street parking
- Signals
- Transit Stops
- Bicycles
- Sign clutter
- Pedestrians
Lane closure taper length

Figure 6H-33. Stationary Lane Closure on a Divided Highway (TA-33)

Table 6C-4. Formulas for Determining Taper Length

<table>
<thead>
<tr>
<th>Speed Limit (S)</th>
<th>Taper Length (L) in Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 mph or less</td>
<td>( L = \frac{WS^2}{60} )</td>
</tr>
<tr>
<td>45 mph or more</td>
<td>( L = WS )</td>
</tr>
</tbody>
</table>

Where: \( L \) = taper length in feet  
\( W \) = width of offset in feet  
\( S \) = posted speed limit, or off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph

Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.
Lane closure taper length

2012 OMUTCD

Section 6C.08 Tapers

“Whenever tapers are to be used in close proximity to an interchange ramp, crossroads, curves, or other influencing factors, the length of the tapers may be adjusted.”

“Longer tapers are not necessarily better than shorter tapers (particularly in urban areas with characteristics such as short block lengths or driveways)...The test concerning adequate lengths of tapers involves observation of driver performance after TTC plans are put into effect.”

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- \( S \) = posted speed limit, or off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph
Taper Length – Intersections
Taper Length - Intersections
Taper Length – On-Street Parking
Taper Length – On-Street Parking
Taper Length - Driveways
Taper Length - Driveways
Taper Length - Driveways
Taper Length - Driveways
Taper Length - Driveways
Taper length - Driveways
Taper Length - Driveways
Double-Turn lanes
Double-Turn Lanes
Closing a Lane at an Intersection

Figure 6H-25. Multiple Lane Closures at an Intersection (TA-25)

Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.

* See Note 3.
Closing a Lane at an Intersection
Closing a Lane at an Intersection

- Set arrow board on shoulder if possible, otherwise set at end of merge taper
- Set advance signs at normal spacing
Closing a Turn Lane
Closing an Interior Lane

Figure 6H-21. Lane Closure on the Near Side of an Intersection (TA-21)

Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.
Closing an Interior Lane
Closing an Interior Lane
Shift on 3 or 5 Lane Section With Center Turn Lane

Figure 6H-32. Half Road Closure on a Multi-lane, High-Speed Highway (TA-32)

Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.

* See Note 8.
Shift on a 3-lane Section

LANE CLOSURES

SCD 1500 NOTES
1. SEE SCD 1500 NOTE 3. TAPER LENGTHS ARE TO BE CALCULATED USING FORMULAS FROM THE SCD 1500, TABLE 1. TAPER LENGTHS FOR TEMPORARY TRAFFIC CONTROL ZONES.

NOTES
1. IF TANGENT DISTANCE ALONG THE TEMPORARY DIVERSION IS LESS THAN 400', A DOUBLE REVERSE CURVE SIGN (W-4-1) SHOULD BE USED IN PLACE OF INITIAL REVERSE CURVE SIGN AND THE SECOND REVERSE CURVE SIGN SHALL BE OMITTED.
2. FOR ADVANCE WARNING SIGN ON SIDE STREET APPLICATION PLACE SIGN A MAXIMUM OF 200' FROM STOP LINE OR TRAFFIC CONTROL.
Shift on a 5-lane Section

**LANE CLOSURES**

1. **NOTE**
   - If the tangent distance along the temporary diversion is less than 50 feet, a double reverse curve sign (W24-1) should be used in place of a normal reverse curve sign. The second reverse curve sign shall be omitted.

2. **NOTE**
   - For advance warning signs on side street application place sign a maximum of 203 from stop line on traffic control.

3. **NOTE**
   - Place temporary stop sign on stand and move forward.
Shift on a 5-lane Section
Shift in a 5-lane Section
Parking Lane Closure
Parking Lane Closure
Signalized Intersections

• Shifting signal heads and signs
• Hanging overhead signs
  – Turn restriction, Do Not Enter
• Covering and removing heads
  – Arrows when turns are restricted, whole head when direction of roadway is closed
  – Also includes pedestrian heads
• Mast arms vs. span wires
  – May require temporary span if mast arm isn’t long enough
• Timing and phasing changes
Signalized Intersections – Signal Heads & Overhead Signs
Signalized Intersections – Mast Arms
Signalized Intersections – Pedestrian Heads
Signalized Intersections – LEO Requirements

- Ohio Revised Code 4511.12
  - (A) No pedestrian, driver of a vehicle, or operator of a streetcar or trackless trolley shall disobey the instructions of any traffic control device placed in accordance with this chapter, unless at the time otherwise directed by a police officer.
Intersections – Turning Radii
Transit stops
Transit Stops
Concrete Barrier
Bike Lane Closure

NOTE 1: TAPER LENGTHS ARE TO BE CALCULATED USING FORMULAS FROM THE SDOD 1500, TABLE 1: TAPER LENGTHS FOR TEMPORARY TRAFFIC CONTROL ZONES.

NOTES:
1. FOR ADDITIONAL NOTES, TABLES AND SYMBOL LEGEND, SEE CITY OF COLUMBUS STANDARD CONSTRUCTION DRAWING 1500.
2. SHARRING REQUIRED IF PROJECT IS LONGER THAN 30 DAYS. THEY SHALL NOT BE PLACED ON TOP OF EXISTING PAVEMENT MARKINGS. MATERIAL FOR TEMPORARY SHARRING IS ITEM 640 DETOUR GRADE, SKID RESISTANT MATERIAL.
Bike Lane Closure

LANE CLOSURES

1. SEE SCD 1000 NOTE 3. TAPER LENGTHS ARE TO BE CALCULATED USING FORMULAS FROM THE SCD 1000, TABLE 1. TAPER LENGTHS FOR TEMPORARY TRAFFIC CONTROL ZONES.

NOTES:

1. FOR ADDITIONAL NOTES, TABLES AND SYMBOL LEGEND, SEE CITY OF COLUMBUS STANDARD CONSTRUCTION DRAWING 1000.

2. SHARRINGTON'S REQUIRED IF PROJECT IS LONGER THAN 20 DAYS. THEY SHALL NOT BE PLACED ON TOP OF EXISTING PAINTING MARKINGS. MATERIAL FOR TEMPORARY SHARRINGTON IS ITEM 514 DETOUR GRACE, DURA-RESISTANT MATERIAL.
Sign Placement

• Pole or post mount for long duration
  – Temporary stands are trip hazards
    • Set a cone or drum on the feet
  – Check for existing posts or poles nearby

• Consolidate signs

• Cover conflicting signs
Pedestrian Considerations

- Maintain access to properties
- Young, elderly, disabled
- Pedestrians take the shortest route
- Alternate routes are discouraged
- A smooth, hard surface
- Americans with Disabilities Act
- Cane Rail
- Vehicles and equipment crossing walking path
- Canopy to protect from falling debris
- Separation and protection from vehicles
Sidewalk Closure
Sidewalk Diversion

Pedestrians take the shortest route!
Smooth, Hard Surface
Meet ADA Requirements
Minimum 5’ Wide Path
Cane Rail
Cane Rail
Work Vehicles/Equipment
Work Vehicles/Equipment
Canopy
Separation from Vehicles
Barrier Across Crosswalks
Clear Signing
Clear Signing