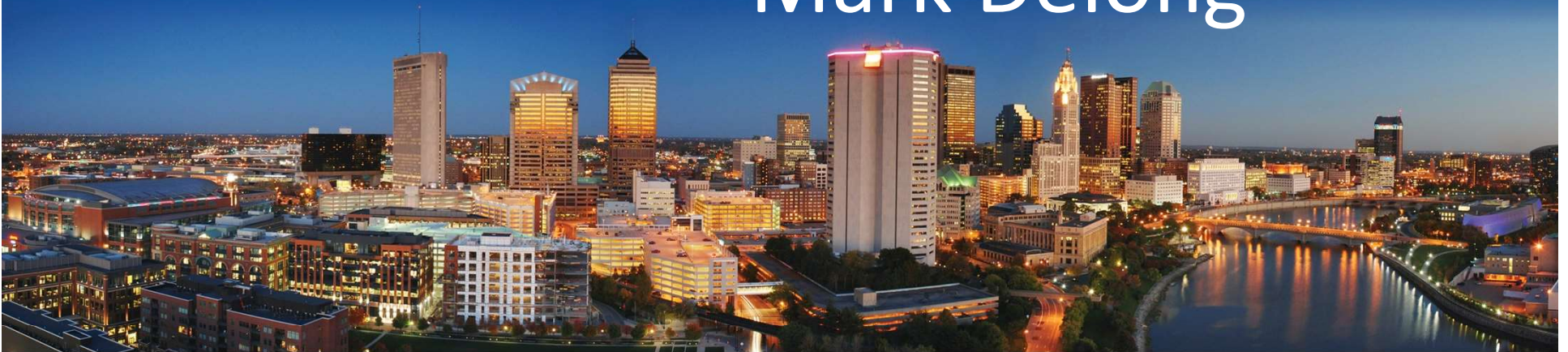


# Maintenance of Traffic Update 2020

Scott Porter, P.E.  
Mark Delong



THE CITY OF  
**COLUMBUS**  
ANDREW J. GINTHER, MAYOR

DEPARTMENT OF  
PUBLIC SERVICE

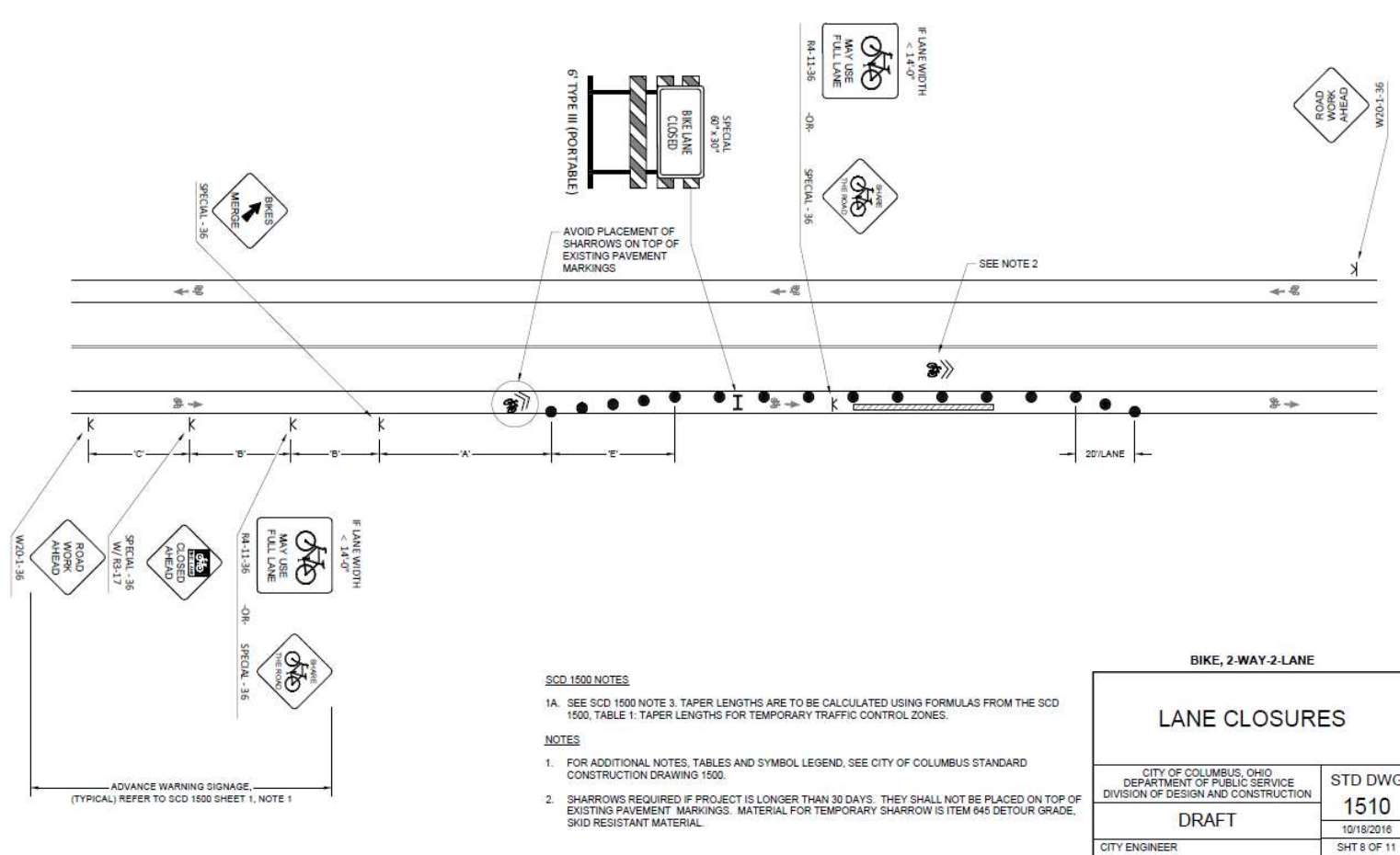
# Standard Drawings Updates

THE CITY OF  
**COLUMBUS**  
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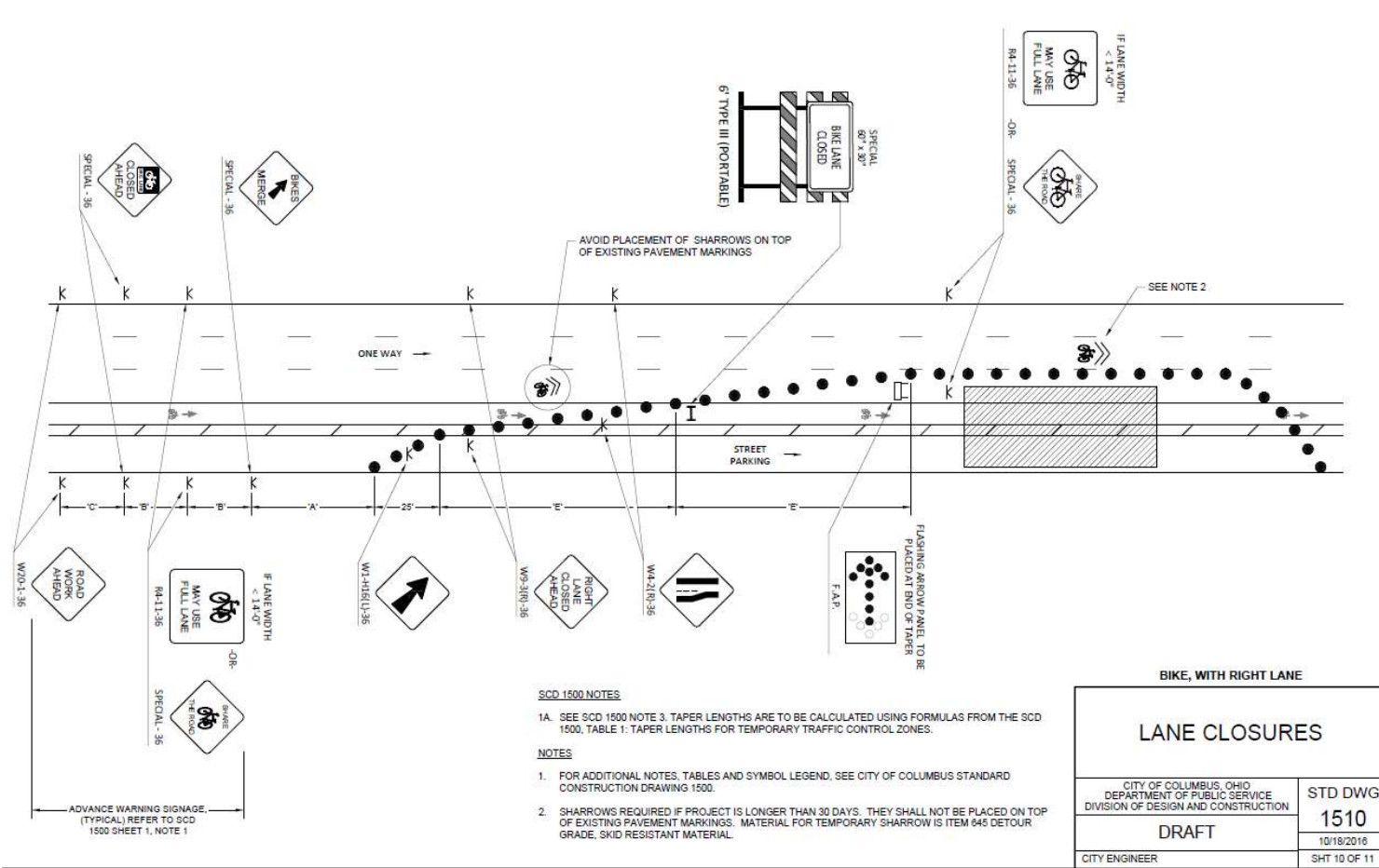
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DEPARTMENT OF  
PUBLIC SERVICE

# Standard Drawings Updates



# Standard Drawings Updates



# MOT Sample Plan Update

THE CITY OF  
**COLUMBUS**  
ANDREW J. GINTHER, MAYOR

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DEPARTMENT OF  
PUBLIC SERVICE



## Sample Plan Update – MOT Notes

- Use most up to date notes
  - Obtained from Mark Delong – [MADElong@Columbus.gov](mailto:MADElong@Columbus.gov)
- Only use notes appropriate for your project
  - Don't just copy and paste all notes
  - Projects in multiple jurisdictions should clearly identify where/when notes and specifications apply
    - Check to make sure no conflicts exist

# Sample Plan Update – Sequence & Lane Closure Table

<p><b>ITEM 614 SPECIAL – WORK ZONE TRAFFIC SIGNAL</b></p> <p>Under this item of work, the Contractor shall furnish, install, relocate, modify and subsequently remove temporary signal supports, down spars, ground rods, signal cable, power cable, service cable, conduit, stems, messenger wire, signal heads, covers, covers of vehicular signal heads and a temporary controller as needed to render a fully functional temporary signalized intersection.</p> <p>As detailed within, temporary traffic signals or traffic signal modifications to accommodate individual maintenance of traffic phases shall be installed at the intersections listed below.</p> <ul style="list-style-type: none"> <li>- list intersection #1</li> <li>- list intersection #2</li> </ul> <p>All temporary traffic signal equipment shall comply with the specifications outlined for the permanent signal installation including grounding and bonding and Traffic Signal Plan, and Specification Compliance. All methods of traffic control shall be governed by the Engineer and shall be in place and operating prior to the reconstruction and removal and/or relocation of any existing signal equipment. Reference is made to the requirements of Item 614. All modifications to signage shall be done under the protection of a Law Enforcement Officer. Reference is made to Item 614 Maintaining Traffic, As Per Plan.</p> <p>Any vehicular traffic signal head that will be out of operation shall be covered in accordance with 63.2.2. Any existing vehicular or pedestrian head that is not functional shall be removed immediately or covered. Any pedestrian buttons not in use shall also be covered.</p> <p>Each temporary signal pole location shall be staked and the location approved by the City of Columbus. The Contractor may reuse existing spars and pilots or install new as required. The Contractor shall transfer existing signal stems and extend existing cable as needed. Weatherproof cable splicing is permitted. Down guys shall be specified for all temporary wood poles. On down guy pole shall be used for a signal that contains a minimum of 2 vehicular signal heads per spar. All down guys per pole shall be specified for 3 or more vehicular signal heads per spar. Down guys shall be positioned to counteract the moment created by the spar configuration. Any change to the planned pole location or spar configuration as detailed in the plan shall be approved by the City of Columbus. The Contractor shall submit a diagram to the City documenting proposed changes.</p> <p>Install the spar to provide for a 5 to 8 percent sag for wood poles. Attach the spar to the tower 2 to 2 1/2 feet from the top of the pole. The height of the spar in each direction shall be 16.5 feet above pavement surface with the remaining vehicular heads meeting the requirements of the Ohio Manual Of Uniform Traffic Control Devices.</p> <p>The Contractor shall attach existing signal heads to edge with leaves in the indicated maintenance of traffic phases. Detailed head placement has been provided for each phase of work on the maintenance of traffic plan. This item shall consist of adjusting the location of temporary traffic signal heads for each phase of construction including updating and relaying all wiring. All temporary wiring shall be a minimum of 21 feet above the roadway surface.</p> <p>Vehicular detection shall be maintained at all times and during all phases of construction using either existing loop detectors or temporary video detection.</p> <p>Locate the non-fused power supply voltage (120 volt) in a separate conduit, in addition, locate the loop detector, push button, and video detection cables in a separate conduit from all other cables.</p> <p>This item of work shall include all labor, equipment and material necessary to provide power to the traffic signal controller from the proposed or existing power sources as determined by construction sequencing.</p> <p><b>Payment</b></p> <p>The item of work shall include all labor, equipment and material necessary to furnish, install, modify, remove, store, erect, relocate, adjust and repair temporary traffic signal items as described above.</p> <p>All costs for the above work, except temporary video detection, shall be included in the price bid for Item 614 work zone traffic signal, on per pole and shall be per work intersection.</p> <p>10/23/19</p>	<p><b>DESIGNER NOTE:</b> THE NEED FOR TEMPORARY SIGNALIZATION DETAILS SHALL BE AS IDENTIFIED IN THE CITY OF COLUMBUS TRAFFIC SIGNAL DESIGN MANUAL. HTTPS://WWW.COLUMBUS.GOV/PUBLICSERVICE/DESIGN-AND-CONSTRUCTION/DOCUMENT-LIBRARY/TRAFFIC-SIGNAL-DESIGN-MANUAL. IF TEMPORARY SIGNALIZATION IS INCLUDED, APPLICABLE NOTES SHALL BE INCLUDED IN THE PLANS. OBTAIN CURRENT TEMPORARY SIGNAL NOTES FROM THE SIGNAL PLAN REVIEWERS.</p>	<p><b>DESIGNER NOTE:</b> MAINTENANCE OF TRAFFIC NOTES MAINTENANCE OF TRAFFIC NOTES FURNISHED IN THESE SAMPLE PLANS ONLY ILLUSTRATE CITY OF COLUMBUS MAINTENANCE OF TRAFFIC NOTES. ADDITIONAL NOTES MAY BE REQUIRED TO ACCOMMODATE SPECIAL REQUIREMENTS OR MAINTENANCE OF TRAFFIC SPECIFICATIONS FROM OTHER JURISDICTIONS. WHEN A PROJECTS LOCATED BOTH IN THE CITY OF COLUMBUS AND AN ADJACENT JURISDICTION, THE DESIGN CONSULTANT SHALL INCLUDE THE ADJACENT JURISDICTION SPECIFICATIONS AND CLEARLY IDENTIFY WHERE THESE SPECIFICATIONS APPLY AND ENSURE THERE ARE NO CONFLICTS IN DIRECTION.</p> <p><b>DROP-OFF POLICY</b> THE DESIGNER SHALL FOLLOW THE "DOT FAVEMENT DROP-OFF" POLICY AND SHALL INCLUDE ORD 500 MT-07-18 IN THE TITLE SHEET. ANYTIME THE ORD POLICY IS NOT APPLICABLE (I.E. FOR ROADS LESS THAN 45 MPH), ENGINEERING JUDGEMENT SHOULD GOVERN AND THE CONSULTANT SHOULD COORDINATE WITH THE CITY OF COLUMBUS PROJECT MANAGER. HTTP://WWW.DOT.STATE.OH.US/DIVISIONS/ENGINEERING/ROADWAY/DESIGN/STANDARDS/TRAFFIC/SCD_DOCUMENTS/MT_10190_2017-07-21.PDF</p> <p><b>MAINTENANCE OF PEDESTRIANS</b> PEDESTRIAN TRAFFIC SHALL BE ACCOMMODATED WITH ALL MAINTENANCE OF TRAFFIC PLANS CONSISTENT WITH THE REQUIREMENTS OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES CHAPTER 6D AND FIGURES 1A-26 AND 1A-28. HTTP://WWW.DOT.STATE.OH.US/DIVISIONS/ENGINEERING/ROADWAY/DESIGN/STANDARDS/TRAFFIC/OHIO/UTCD/PAGES/OMUTCD0212_CURRENT_DEFAULT.ASPX.</p> <p>EXISTING PEDESTRIAN FACILITIES INCLUDING CROSSLINKS SHALL BE MAINTAINED WHEN PRACTICAL. IF A TEMPORARY CROSSLINK NEEDS TO BE PROVIDED TO ACCOMMODATE PEDESTRIANS IN A MAINTENANCE OF TRAFFIC SET UP, ADVANCED AUTHORIZATION IS REQUIRED BY THE TEMPORARY TRAFFIC CONTROL COORDINATOR.</p>															
<p><b>SEQUENCE OF CONSTRUCTION</b></p> <p>Pre-Phase 1 Pre-Phase 1 shall construct the storm sewer by utilizing a detour of Street A. The Pre-Phase 1 detour shall be restricted to the times listed below.</p> <p>Phase 1 Phase 1 shall construct the full depth pavement and utilities on the west side of Street A. This work shall be completed with one lane maintained in each direction on the east side of Street A. Phase 1 shall not be constructed concurrent with Phase 2. The Traffic Signal at Street A and Street B shall be temporarily modified during this phase.</p> <p>Phase 2 Phase 2 shall construct the full depth pavement and utilities on the east side of Street A. This work shall be completed with one lane maintained in each direction on the west side of Street A. During this work, Street C shall be closed to all traffic north of Street E. The Traffic signal at Street A and Street B shall be temporarily modified during this phase.</p>	<p><b>DESIGNER NOTE:</b> A SEQUENCE OF CONSTRUCTION OUTLINE IS REQUIRED ON PLANS THAT HAVE MORE THAN TWO TOTAL PHASES INCLUDING SUB-PHASES. THE SEQUENCE OF CONSTRUCTION IS INTENDED TO IDENTIFY THE ORDER OF PROPOSED PHASES AND IDENTIFY IF PHASES ARE PERMITTED TO OVERLAP OR BE CONSTRUCTED CONCURRENTLY. THE SEQUENCE OF CONSTRUCTION IS NOT INTENDED TO IDENTIFY EVERY ELEMENT THAT IS CONSTRUCTED IN EACH PHASE OR IDENTIFY MEANS AND METHODS.</p>	<p><b>DESIGNER NOTE:</b> AN HOUR RESTRICTION TABLE SHALL BE INCLUDED FOR EACH PROJECT. THIS TABLE IS INTENDED TO IDENTIFY THE ALLOWABLE WORKING HOURS FOR EACH PHASE AND SUB-PHASE OF A PROJECT.</p>															
<table border="1"> <thead> <tr> <th colspan="3">Lane Closure Restriction</th> </tr> <tr> <th>Phase</th> <th>Roadway</th> <th>Allowable Working Hours</th> </tr> </thead> <tbody> <tr> <td>Pre-Phase 1</td> <td>Street A</td> <td>8:00 pm Fri. – 6:00 am Mon.</td> </tr> <tr> <td>PHASE 1</td> <td>Street A</td> <td>Not Restricted</td> </tr> <tr> <td>PHASE 2</td> <td>Street A</td> <td>Not Restricted</td> </tr> </tbody> </table>	Lane Closure Restriction			Phase	Roadway	Allowable Working Hours	Pre-Phase 1	Street A	8:00 pm Fri. – 6:00 am Mon.	PHASE 1	Street A	Not Restricted	PHASE 2	Street A	Not Restricted	<p><b>DESIGNER NOTE:</b> AN HOUR RESTRICTION TABLE SHALL BE INCLUDED FOR EACH PROJECT. THIS TABLE IS INTENDED TO IDENTIFY THE ALLOWABLE WORKING HOURS FOR EACH PHASE AND SUB-PHASE OF A PROJECT.</p>	<p><b>DESIGNER NOTE:</b> AN HOUR RESTRICTION TABLE SHALL BE INCLUDED FOR EACH PROJECT. THIS TABLE IS INTENDED TO IDENTIFY THE ALLOWABLE WORKING HOURS FOR EACH PHASE AND SUB-PHASE OF A PROJECT.</p>
Lane Closure Restriction																	
Phase	Roadway	Allowable Working Hours															
Pre-Phase 1	Street A	8:00 pm Fri. – 6:00 am Mon.															
PHASE 1	Street A	Not Restricted															
PHASE 2	Street A	Not Restricted															
<p>MAINTENANCE OF TRAFFIC GENERAL NOTES</p>		<p>IMPROVEMENTS OF STREET A FROM STREET B TO STREET C</p>															

XXXX - E





# Sample Plan Update – Sequence & Lane Closure Table

**SEQUENCE OF CONSTRUCTION**

**Pre-Phase 1**

Pre-Phase 1 shall construct the storm sewer by utilizing a detour of Street A. The Pre-Phase 1 detour shall be restricted to the times listed below.

**Phase 1**

Phase 1 shall construct the full depth pavement and utilities on the west side of Street A. This work shall be completed with one lane maintained in each direction on the east side of Street A. Phase 1 shall not be constructed concurrent with Phase 2. The Traffic Signal at Street A and Street B shall be temporarily modified during this phase.

**Phase 2**

Phase 2 shall construct the full depth pavement and utilities on the east side of Street A. This work shall be completed with one lane maintained in each direction on the west side of Street A. During this work, Street C shall be closed to all traffic north of Street E. The Traffic Signal at Street A and Street B shall be temporarily modified during this phase.

**DESIGNER NOTE:**

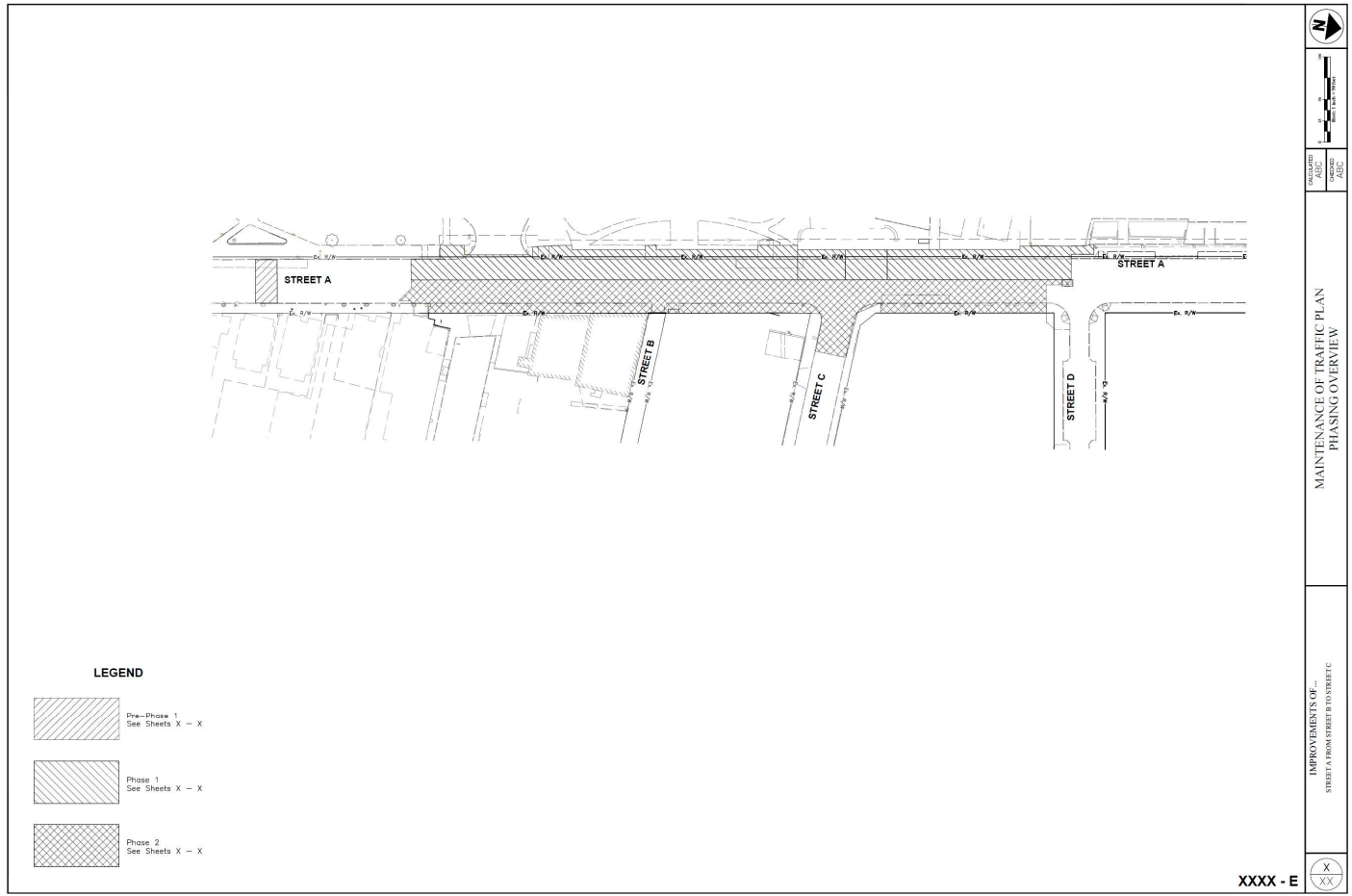
A SEQUENCE OF CONSTRUCTION OUTLINE IS REQUIRED ON PLANS THAT HAVE MORE THAN TWO TOTAL PHASES INCLUDING SUB-PHASES. THE SEQUENCE OF CONSTRUCTION IS INTENDED TO IDENTIFY THE ORDER OF PROPOSED PHASES AND IDENTIFY IF PHASES ARE PERMITTED TO OVERLAP OR BE CONSTRUCTED CONCURRENTLY. THE SEQUENCE OF CONSTRUCTION IS NOT INTENDED TO IDENTIFY EVERY ELEMENT THAT IS CONSTRUCTED IN EACH PHASE OR IDENTIFY MEANS AND METHODS.

Lane Closure Restriction		
Phase	Roadway	Allowable Working Hours
Pre-Phase 1	Street A	8:00 pm Fri. – 6:00 am Mon.
PHASE 1	Street A	Not Restricted
PHASE 2	Street A	Not Restricted

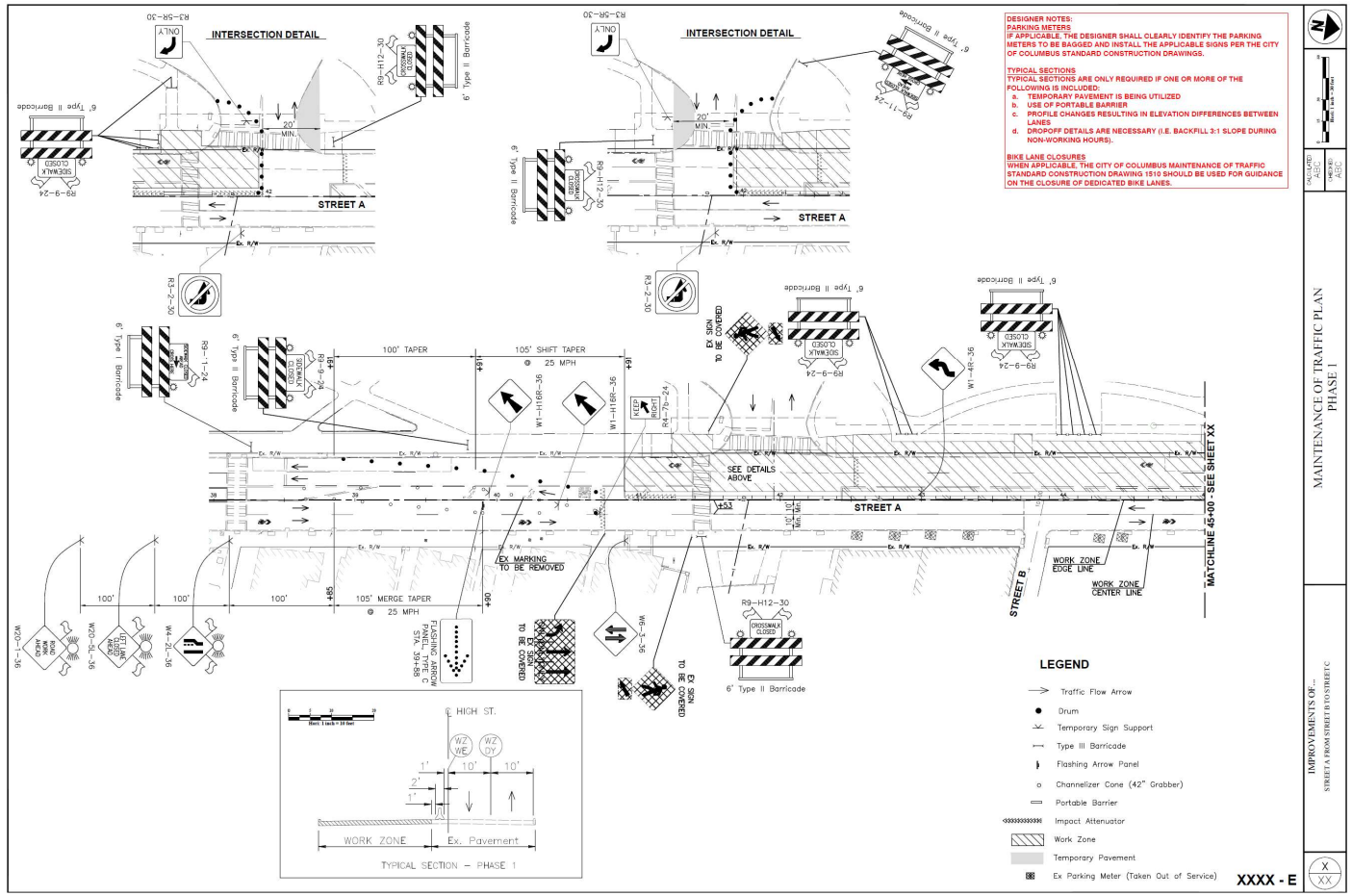
**DESIGNER NOTE:**

AN HOUR RESTRICTION TABLE SHALL BE INCLUDED FOR EACH PROJECT. THIS TABLE IS INTENDED TO IDENTIFY THE ALLOWABLE WORKING HOURS FOR EACH PHASE AND SUB-PHASE OF A PROJECT.

# Sample Plan Update - Phasing



# Sample Plan Update – Typical Plan Sheets



# Sample Plan Update - Detours

**DESIGNER NOTE:**  
SPECIAL DETOUR SIGNS (F & G) SHALL BE 48" X 48" BLACK ON ORANGE FOR 4 LINES OF TEXT. FOR FIVE LINES OF TEXT, THE SIGN SIZE SHALL BE 48" X 60".

ADVANCE WARNING SIGNS FOR CLOSURE PER ODOT SCD MI-101.60

7 DAYS PRIOR TO CLOSURE AND 7 DAYS AFTER CLOSURE

PORTABLE CHANGEABLE MESSAGE SIGN

10' Type III Barricades (Solid Across Street)

**Note:**  
During Pre-Phase 1 only, Northbound Street A may be closed between the hours of 8PM and 5AM. This phase is only for the construction of the proposed storm sewer at Station 105+50. During Daytime and Non-Working hours, Street A shall be re-opened to traffic. This detour shall not be used for widening or resurfacing.

**DETOUR MAP**  
(No Scale)

**DESIGNER NOTE:**  
INTERSECTION DETAILS ARE NOT TYPICALLY NEEDED FOR DETOUR PLANS. HOWEVER, THEY SHOULD BE PROVIDED IF LANE MODIFICATIONS ARE NEEDED. EXAMPLES OF POSSIBLE THROGERS ARE LISTED BELOW:

- PARTIAL TURN LANE CLOSURES
- FULL TURN LANE CLOSURES
- THROUGH LANE CLOSURES
- LANE SHIFTS
- BIKE LANE TERMINATION
- ETC.

**LEGEND**

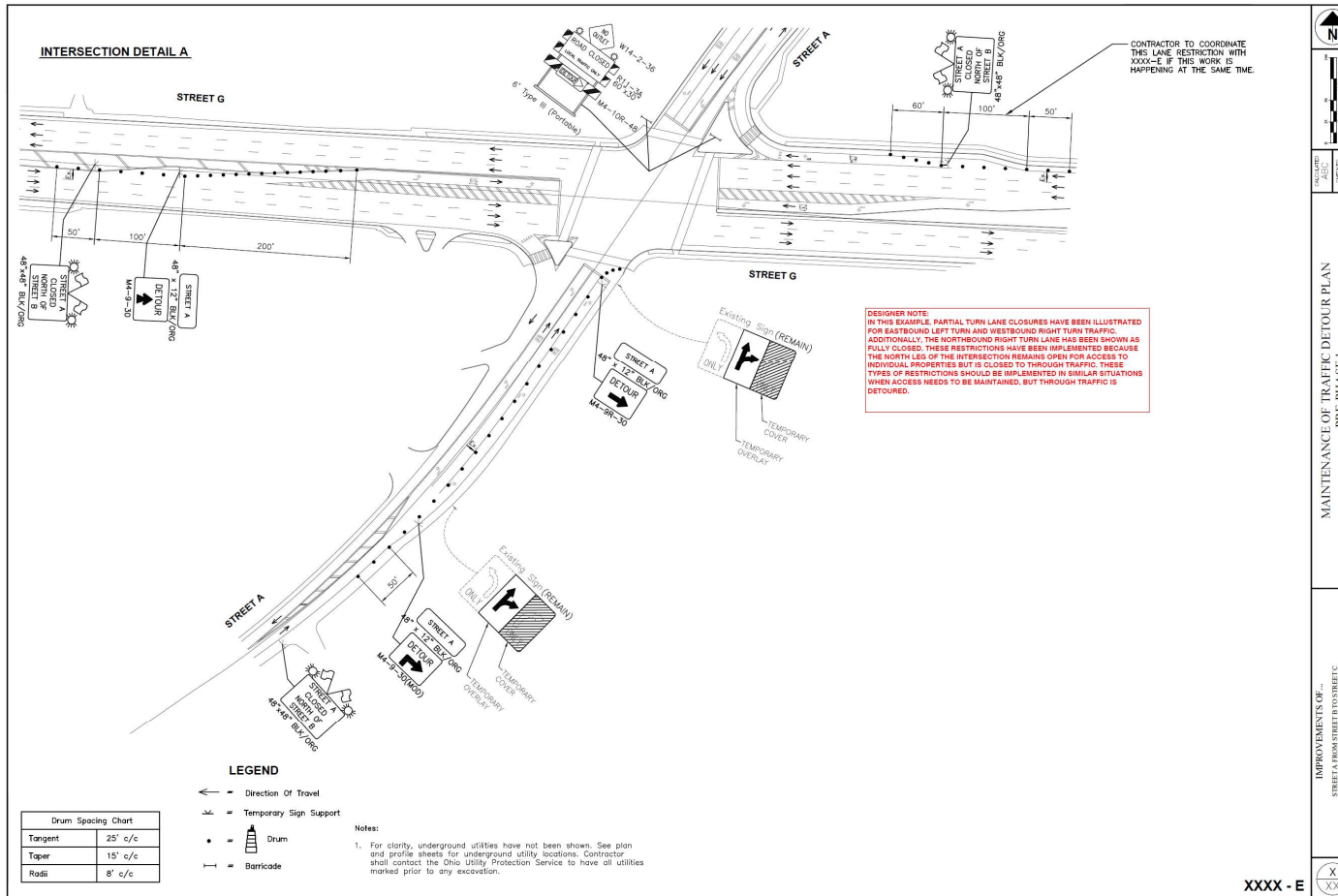
- Work Zone
- Temporary Sign Support
- Northbound Detour Route
- Southbound Detour Route
- Type III Barricade

XXXX - E

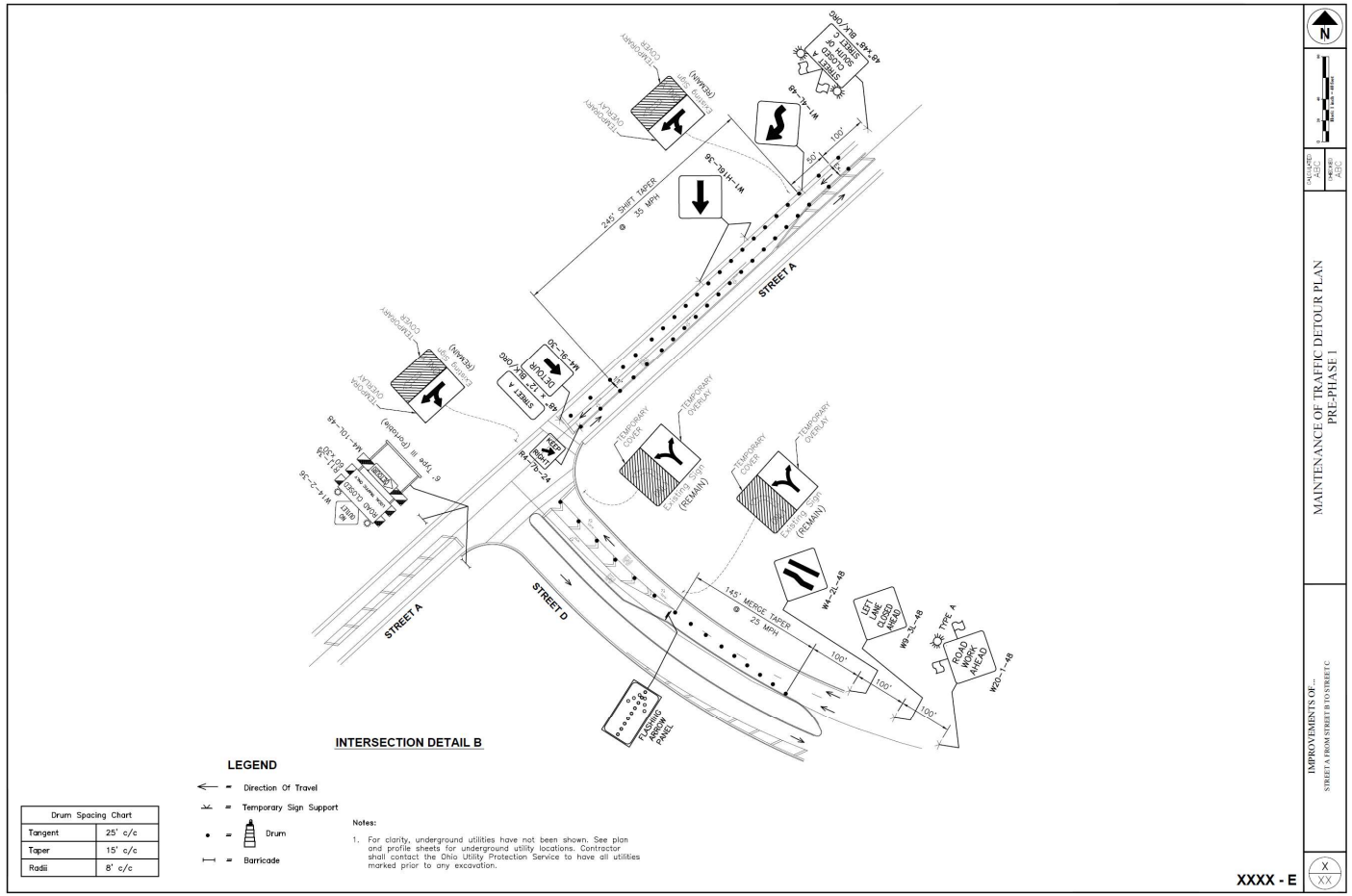
MAINTENANCE OF TRAFFIC DETOUR PLAN - PRE-PHASE 1

IMPROVEMENTS OF... STREET A FROM STREET B TO STREET C

# Sample Plan Update - Detours



# Sample Plan Update - Detours



# Traffic Signal Design Manual & Traffic Signal Sample Plan MOT Update

THE CITY OF  
**COLUMBUS**  
ANDREW J. GINTHER, MAYOR

DEPARTMENT OF  
PUBLIC SERVICE

## TSDM Update – Chapter 3 Goals

- Separate signal operation and safety requirements from design requirements
  - I.e. phasing/head placement/signs vs. specific wiring/wood pole sizing



## TSDM Update – Chapter 3 Goals

- Separate signal operation and safety requirements from design requirements
  - I.e. phasing/head placement/signs vs. specific wiring/wood pole sizing
- Remove items that are impractical to explicitly detail in plans
  - I.e. pushbutton and ped head locations, deactivated or slightly shifted detection loops/zones
    - Can be determined during construction

## TSDM Update – Chapter 3 Goals

- Separate signal operation and safety requirements from design requirements
  - I.e. phasing/head placement/signs vs. specific wiring/wood pole sizing
- Remove items that are impractical to explicitly detail in plans
  - I.e. pushbutton and ped head locations, deactivated or slightly shifted detection loops/zones
    - Can be determined during construction
- Three tier system
  - Help designers include appropriate number of hours in contracts based on anticipated signal impacts
  - Reference [temporary signal sample plan sheets](#) and new standard plan notes for additional details on each tier
    - Obtain notes from Andrew Krumel – [ADKrumel@Columbus.gov](mailto:ADKrumel@Columbus.gov) or Jared Fowler – [WJFowler@Columbus.gov](mailto:WJFowler@Columbus.gov)

# TSDM Update – Temporary Signal Summary

**Table 3.1**  
**Summary of Temporary Signal Plan Tier Requirements**

Item to be shown on plan sheet	Basic	Intermediate	Detailed
Vehicular signal heads	Yes	Yes	Yes
Pedestrian signal heads	No	No	No
Pedestrian pushbuttons	No	No	No
Existing signal poles	Yes	Yes	Yes
Temporary wood poles	N.A.	Yes	Yes
Wood pole station/offset	N.A.	No	No
Pole elevation details	N.A.	No	No
Span mounted signs	Yes	Yes	Yes
Pole mounted signs	No	No	No
Down guys	N.A.	No	No
Span diagram	No	No	No
Field wiring hook up chart	No	No	No
Timing chart	No	No	Yes
Phasing diagram	No	No	Yes
Detection chart	No	Yes	Yes
Temporary detection locations	No	Yes	Yes
Wiring diagram	No	No	No
Grounding and bonding diagram	No	No	No
Power service details	No	No	No
Interconnect details	No	No	Yes <sup>(3)</sup>
Utilities	No	Yes	Yes
Applicable temp signal plan notes	Yes	Yes	Yes

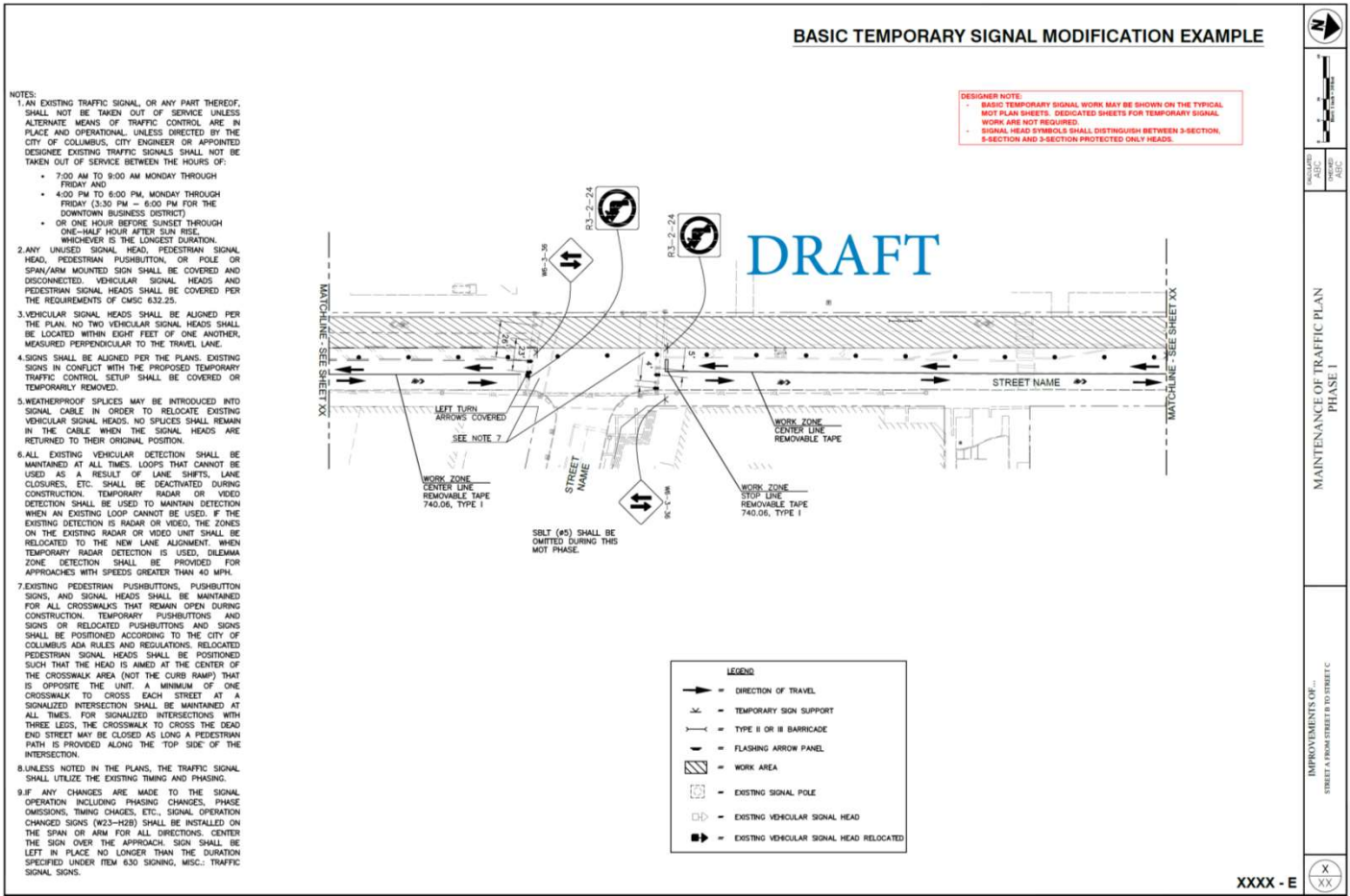
Notes:

1. Basic modifications may be shown on standard MOT plan sheets. Intermediate and Detailed modifications shall be shown on dedicated temporary signal plan sheets.
2. All items marked as "Yes" are to be included only if applicable.
3. See Section 3.8 for temporary interconnect requirements.

## TSDM Update – Temporary Signals - Basic

- Signal head shifts
- Covering signal/pedestrian heads and pushbuttons
- Use existing hardware, phasing, and timing
  - Phases may be omitted
- May be shown on standard MOT sheet
- Show:
  - Existing and relocated signal heads
  - Note for any omitted phases
  - Note for temporary detection zones
  - Note for ped heads and pushbuttons to be covered

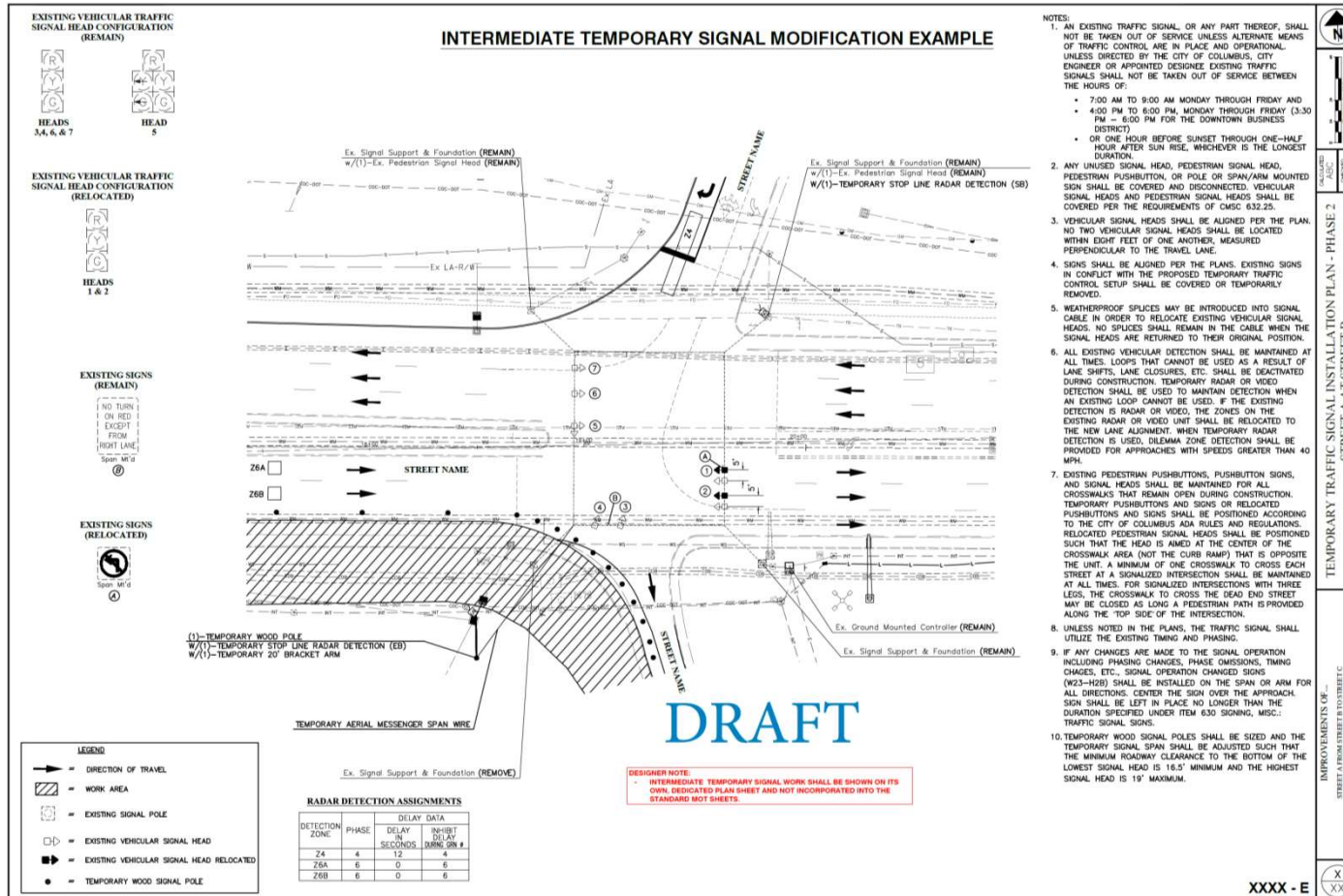
# TSDM Update – Temporary Signals - Basic



## TSDM Update – Temporary Signals - Intermediate

- One or more temporary pole
- Modification to signal span
- Use existing hardware, phasing, and timing
  - Phases may be omitted
- Must be shown on separate temporary signal sheets
- Show:
  - Requirements listed in Basic plan
  - Graphic location of temporary/relocated signal poles and span configuration
  - Location and phase of detection zones that have been added or shifted (plan view only)
  - Detection chart for added or shifted detection zones

# TSDM Update – Temporary Signals - Intermediate

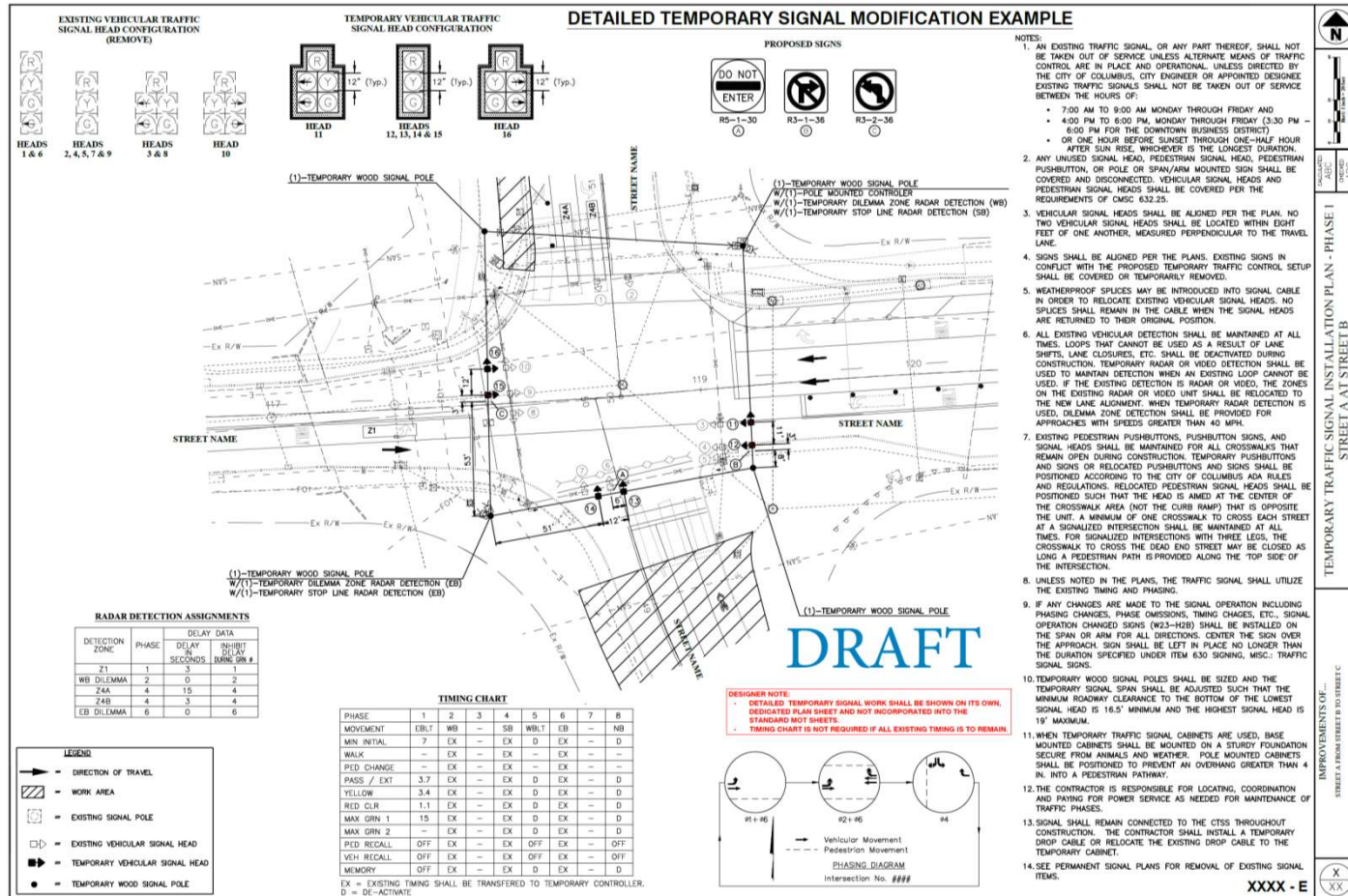


## TSDM Update – Temporary Signals - Detailed

- Temporary cabinet required
- Phasing is modified
  - More than omitting phases
- Must be shown on separate temporary signal sheets
- Show:
  - Requirements listed in Basic and Intermediate plans
  - Temporary phasing diagram and timing chart as applicable
  - Temporary detection zones phase, detector type, and unit placement
  - Note for maintaining interconnect to cabinet



# TSDM Update – Temporary Signals - Detailed



# Drop-Off Policy

THE CITY OF  
**COLUMBUS**  
ANDREW J. GINTHER, MAYOR

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DEPARTMENT OF  
PUBLIC SERVICE

# Drop-off Policy – ODOT MT-101.90

### CONDITION I

DROP-OFFS BETWEEN ADJACENT TRAVELED LANES / PAVED SHOULDER  
(Freeways, Expressways, other Roadways  $\geq 45$  mph)

These treatments are to be used for resurfacing or pavement planing, etc. where a drop-off is located between or within traveled lanes and/or shoulder.

D	Treatment
$\leq 1\frac{1}{2}'$	Erect W8-11 or W8-9 sign as appropriate.
$> 1\frac{1}{2}' - \leq 3'$	1) Optional Wedge Treatment, or, 2) Close a lane and/or shoulder per Condition II.
$> 3'$	Close a lane and/or shoulder per Condition II.

**OPTIONAL WEDGE TREATMENT**  
(MILLING OR RESURFACING)

- W8-9/W8-11 sign shall be used as appropriate.
- This treatment shall not be used where a hot longitudinal joint per CMS 446 is required.

**NOTES:**

- It is intended that this drawing be used for treatment of drop-offs that develop during construction operations and that are not otherwise provided for in the construction plans. Where the plans do not provide specific items for labor, equipment, or materials to implement the drop-off treatments specified herein, they shall be included for payment in the lump sum bid for CMS 614 - Maintaining Traffic.
- Minimum lane widths shall be 10' unless otherwise specified in the plans.
- While the need for certain advisory signing is noted herein, it is not intended that this be indicative of all signing that may be required to advise or warn motorists, and all requirements of the Ohio Manual of Uniform Traffic Control Devices (OMUTCD) must be fulfilled.
- In urban or otherwise heavily developed areas where intersections, driveways, parkways and/or bicyclists may be present in significant numbers, additional signing and protective measures other than those shown herein may be required.
- The drop-off treatment selected for use at any given location shall be as appropriate for the prevailing conditions of the site.
- Where portable barrier is specified, it shall be in accordance with SCD RM-4.1 or 4.2 and with CMS 622.
- For locations such as at ramps, lane shifts, lane closures, etc., where traffic is required to negotiate a difference in elevation between pavements, the Optional Wedge Treatment shall be provided.
- Pavement repairs for similar work:
  - Lengths greater than 60' - utilize appropriate treatment from Condition I.

### CONDITION II

DROP-OFFS BEYOND EDGE OF TRAVELED LANES / PAVED SHOULDER  
(Freeways, Expressways, other Roadways  $\geq 45$  mph and minimal driveways)

- The treatments indicated below are for use in conjunction with resurfacing, planing, or excavations located beyond the edge line of the traveled lanes.
- The treatments indicated below are applicable for pavement/shoulder drop-offs and for locations where foreslopes "A/B" are steeper than 3:1.
- Where the drop-off is located outside the clear zone, no treatment is necessary (see Table II and SCDs MT-95.30, 95.40, or 102.10).
- Where foreslopes "A/B" are 3:1 or flatter, no treatment is necessary.

D	Drop-off location "X" from traveled lane "A"	Method of Drop-off Protection to be used to separate the traffic from the drop-off					
		Drop-off location "X" from traveled lane "A" - 12'		Drop-off location "X" from traveled lane "A" - 12' - 20'		Drop-off location "X" from traveled lane "A" - 20' - 30'	
		Day/Time Only	Night	Day/Time Only	Night	Day/Time Only	Night
$\leq 3'$	OPTIONAL WEDGE TREATMENT	NONE	NONE	NONE	NONE	NONE	NONE
$> 3' - \leq 5'$	OPTIONAL WEDGE TREATMENT	DRUMS	DRUMS	NONE	NONE	NONE	NONE
$> 5' - \leq 12'$	PB	DRUMS	DRUMS	NONE	NONE	NONE	NONE
$> 12' - \leq 24'$	PB	DRUMS	PB	DRUMS	DRUMS	NONE	NONE
$> 24'$	PB	DRUMS	PB	DRUMS	PB	DRUMS	PB

**CONDITION III**

DROP-OFFS BEHIND CURB WHERE CURB IS 0' OR GREATER IN HEIGHT AND THE LEGAL SPEED IS 40 MPH OR LESS

X	D	A/B	Treatment Required	
			Day	Night
0' - 10'	$\leq 12'$	Any	None	Drums
0' - 10'	$> 12'$	Any	Drums	Drums
$> 10'$	Any	Any	None	None

b) Lengths of 60' or less - repairs shall be effected in accordance with CMS 255-08. Drums may be used as a separator adjacent to the traveled lane.

9. When drums are specified for a drop-off condition, a minimum number of 4 drums shall be used. Spacing shall be as indicated in the plans or as specified in the OMUTCD. Provisions shall be made to stabilize the drums (cones) to prevent them from blowing over.

10. When UNEVEN LANES (W8-11) signs or LOW SHOULDER (W8-9) signs are required, they shall be placed 750' in advance of the condition on all intersecting entrance ramps within the limits of the condition. When the drop-off condition extends more than 0.5 miles, additional signs should be erected at intervals of 1.0 mile or less.

11. Cones may be substituted for drums as follows:  
 a) Cones used for daytime traffic control shall have a minimum height of 26".  
 b) Cones used for nighttime traffic control shall have a minimum height of 42".  
 c) Cones used at night shall be reflectorized.  
 d) Use of cones at night shall be prohibited along tapers.  
 e) Interlocking of drums and cones within the same run of barrier protection shall not be permitted.

12. Where drums are used and their presence would reduce traveled lane widths to less than 10', drums may be placed on the opposite level from that of traffic, provided the drop-off depth does not exceed 5' and approval is granted by the Project Engineer.

13. Portable barrier shall be placed on the same level as the traffic surface and shall not encroach on widths designated as the minimum required for traffic use. Offset from the travel way to the barrier toe shall be a minimum of 2'. Offset from the back side of the barrier toe to the work area shall be a minimum of 2' unless otherwise specified in the plans due to anchoring.

THIS DRAWING REPLACES MT-101.90 DATED 07-17-2015.  
SHEET NUMBER

**MT - 101.90**

OFFICE OF ROADWAY ENGINEERING

Soleson

REVISION DATE

07-21-2011

DAVID L. HOLSTEIN

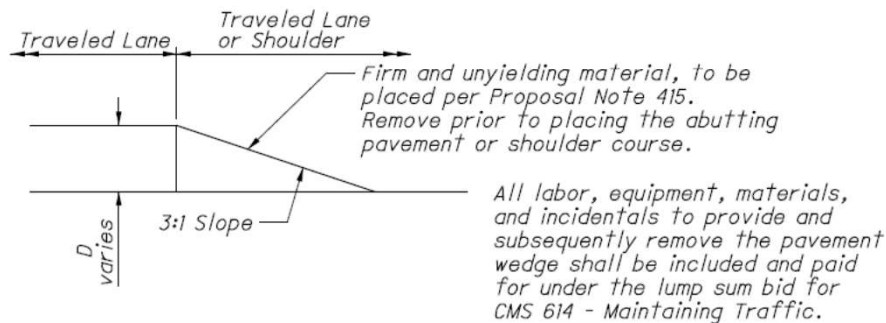
# Drop-off Policy – ODOT MT-101.90

- What about speeds under 45 mph??
  - Direction from ODOT is to use engineering judgement
  - Ask City design project engineer if unsure

## OPTIONAL WEDGE TREATMENT

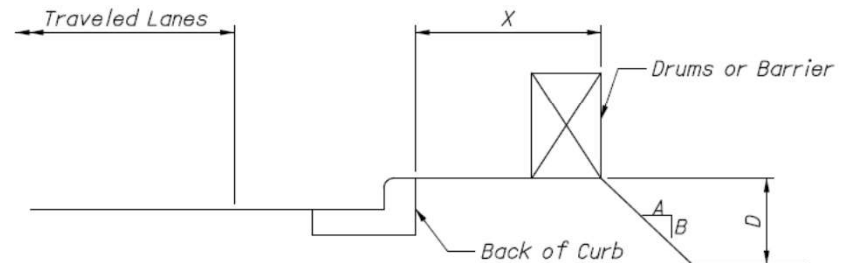
(MILLING OR RESURFACING)

1. W8-9/W8-11 sign shall be used as appropriate.
2. This treatment shall not be used where a hot longitudinal joint per CMS 446 is required.



## CONDITION III

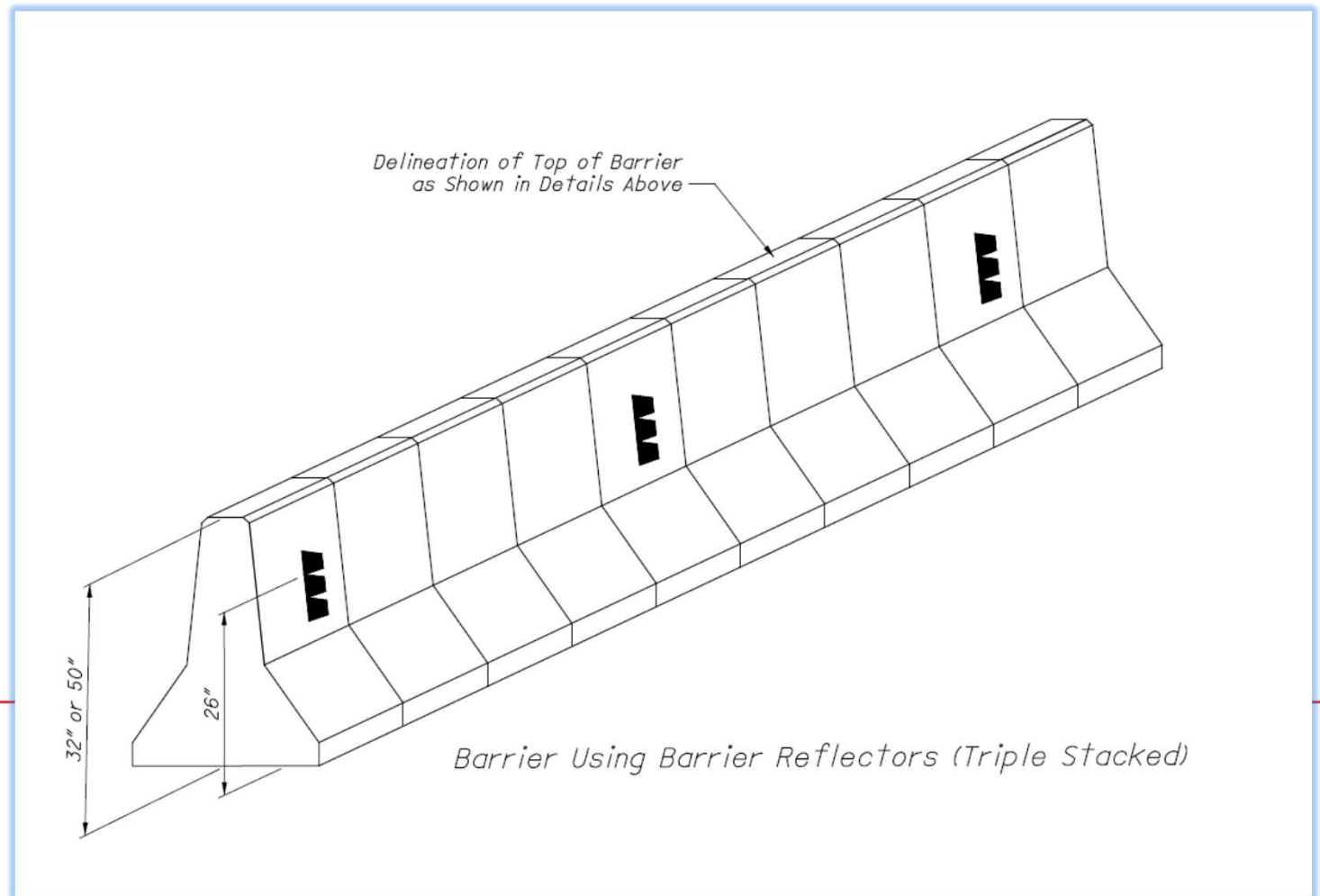
DROP-OFFS BEHIND CURB WHERE CURB IS 6" OR GREATER IN HEIGHT AND THE LEGAL SPEED IS 40 MPH OR LESS



X	D	A/B	Treatment Required	
			Day	Night
0' - 10'	≤ 12"	Any	None	Drums
0' - 10'	> 12"	Any	Drums	Drums
>10'	Any	Any	None	None

## Drop-Off Policy – Barrier and Impact Attenuators

- Barrier delineation – ODOT MT-101.70
  - Use increased delineation method for all barrier within 5' of edge of travel lane



## Drop-Off Policy – Barrier and Impact Attenuators

- Impact attenuator placement – ODOT MT-101.75
  - Use ODOT approved impact attenuator list
  - Water-filled attenuators preferred on low-speed/downtown roadways since they are not required to be bolted down



## Drop-Off Policy – Barrier and Impact Attenuators

- Water-filled barrier
  - Not acceptable as replacement of PCB when low deflection is required on impact (ie. drop-off protection)
  - OK for use as a channelizing device for pedestrian walkways
    - Provide “positive protection” and channelization in low speed applications



# Pedestrian MOT

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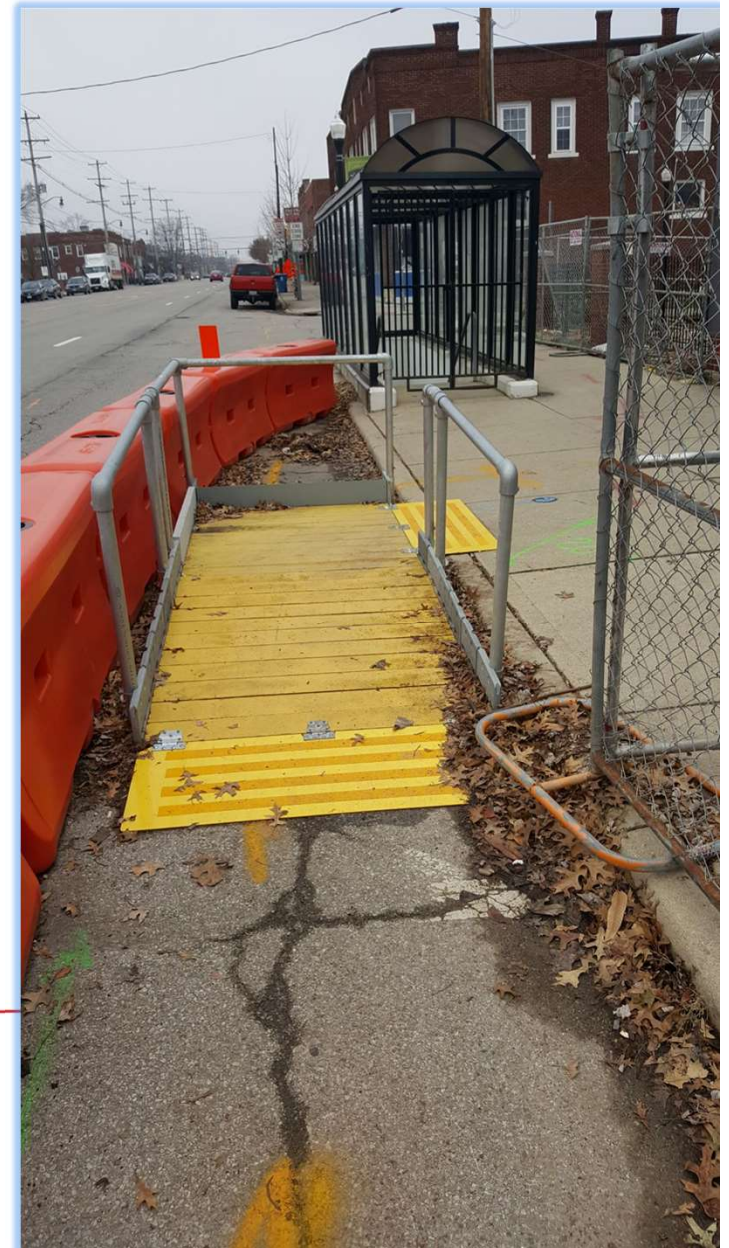
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## Pedestrian MOT – OMUTCD Chapter 6D

- Pedestrian Considerations
  - Young, elderly, disabled
    - ADA requirements included



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## Pedestrian MOT – OMUTCD Chapter 6D

- Pedestrian Considerations
  - Young, elderly, disabled
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  - Pedestrians take the shortest route
  - Alternate routes are discouraged
  - Vehicles and equipment crossing walking path



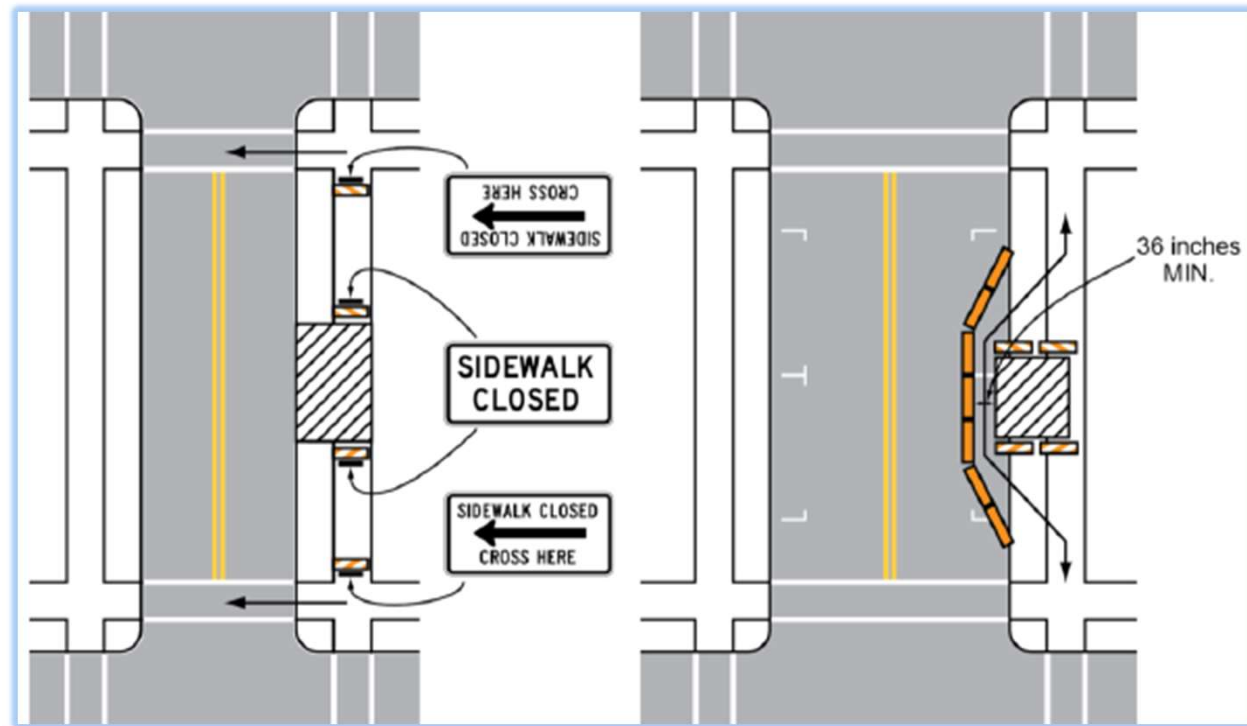
## Pedestrian MOT – OMUTCD Chapter 6D

- Pedestrian Considerations
  - Young, elderly, disabled
    - ADA requirements included
  - Pedestrians take the shortest route
  - Alternate routes are discouraged
  - Vehicles and equipment crossing walking path
  - Separation and “positive” protection from vehicles



## Pedestrian MOT – TA-28 & TA-29

- Consider work duration, pedestrian volumes, and distance/ease of detour
- Mid-block crossings highly discouraged (use diversion or beef up closure)



# Pedestrian MOT – TA-28



## Pedestrian MOT – TA-29





# Pedestrian MOT – Temporary Surface



## Pedestrian MOT – Temporary Surface



# Common Issues

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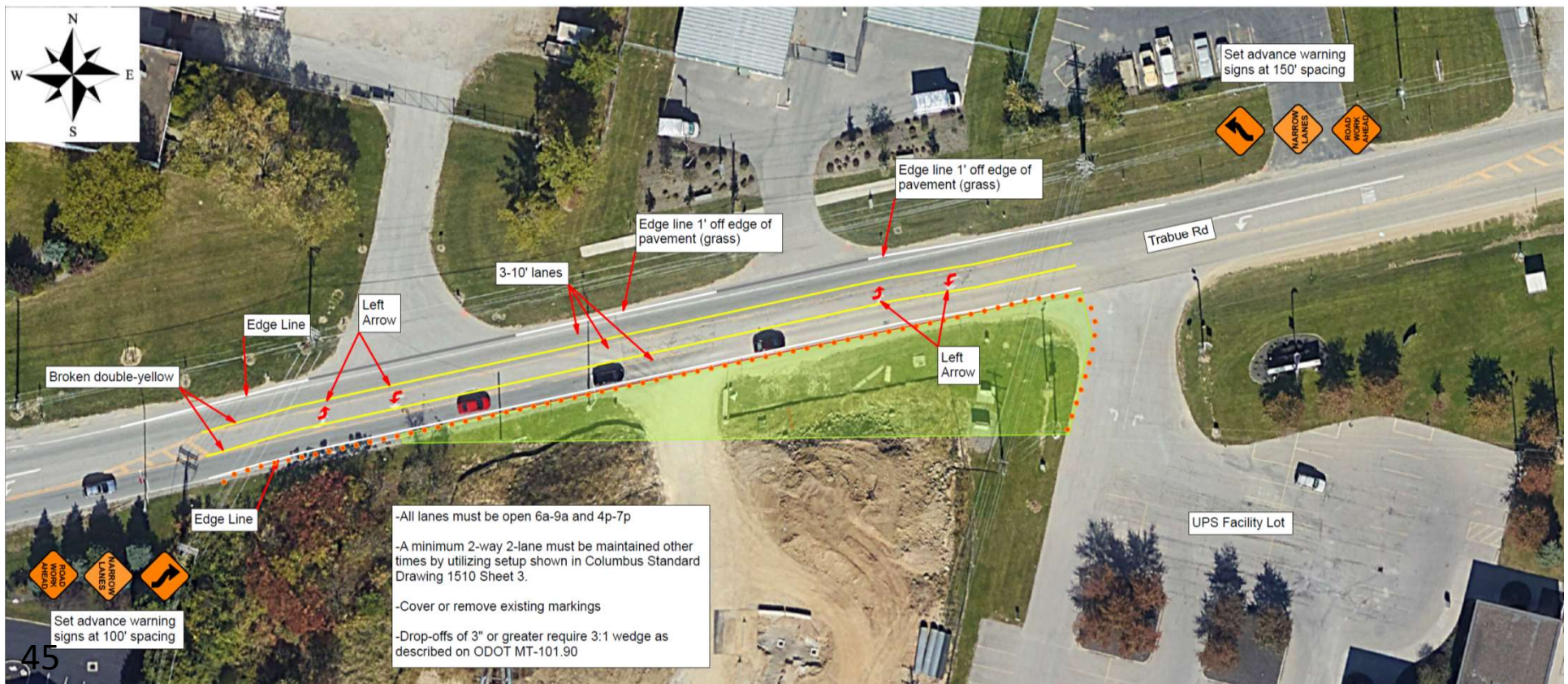
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## Common Issues – Work Hours and Traffic Volumes

- OMUTCD Part 6A.01
  - “Consideration for road user safety, work and responder safety, and the **efficiency of road user flow** is an integral element of every TTC zone..”

## Common Issues – Work Hours and Traffic Volumes

- Desire is to maintain as many lanes as possible and reasonable at all times
  - Possible: restripe to accommodate work features (ie. sawcut for widening) and close lane off-peak on long term projects and high volume roadways
  - Reasonable: close lane 24/7 to accommodate work features (ie. sawcut for curb replacement) for short-term projects and low volume roadways



## Common Issues – Work Hours and Traffic Volumes

- Talk about this early in design process
  - Consider MOT required
    - Constructability: How is this built while meeting traffic requirements
    - Consult MOT reviewer if challenges arise early in process
  - Consolidate setups to perform more work items at once
  - Avoid redesign further along in project

## Common Issues – Constructability

- What is required to build it?
  - Can equipment fit in a single lane?
    - Ie. Excavator, dump truck, loader, ability to swing bucket to load dump truck, etc.
    - Trench width/depth, can it be plated, etc.
      - Shoring/PCB may be required
    - Edge of pavement sawcut (curb/widening)



## Common Issues – Arrow Boards and Lane Closure Signing

- Arrow board is for merging two lanes together
- Use a W1-H16 for a shift

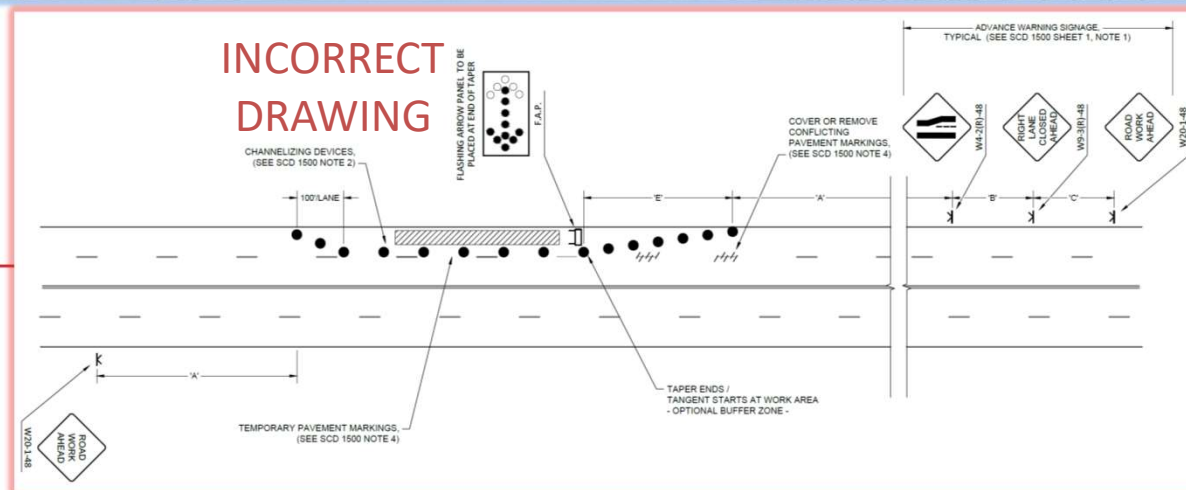






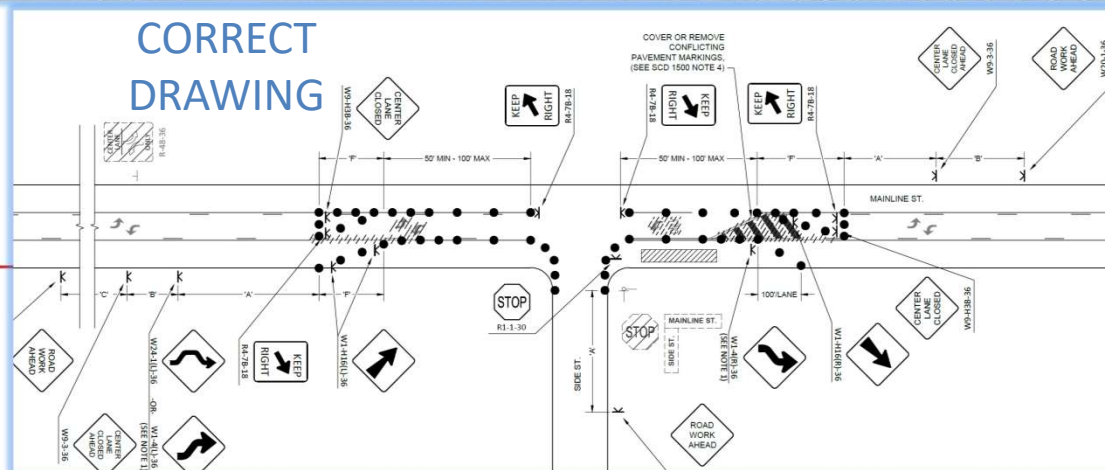
# Common Issues – Arrow Boards and Lane Closure Signing

- Referencing correct standard drawing for work being done
  - ie. 3-lane roadway requiring shift, but right-lane closure is referenced



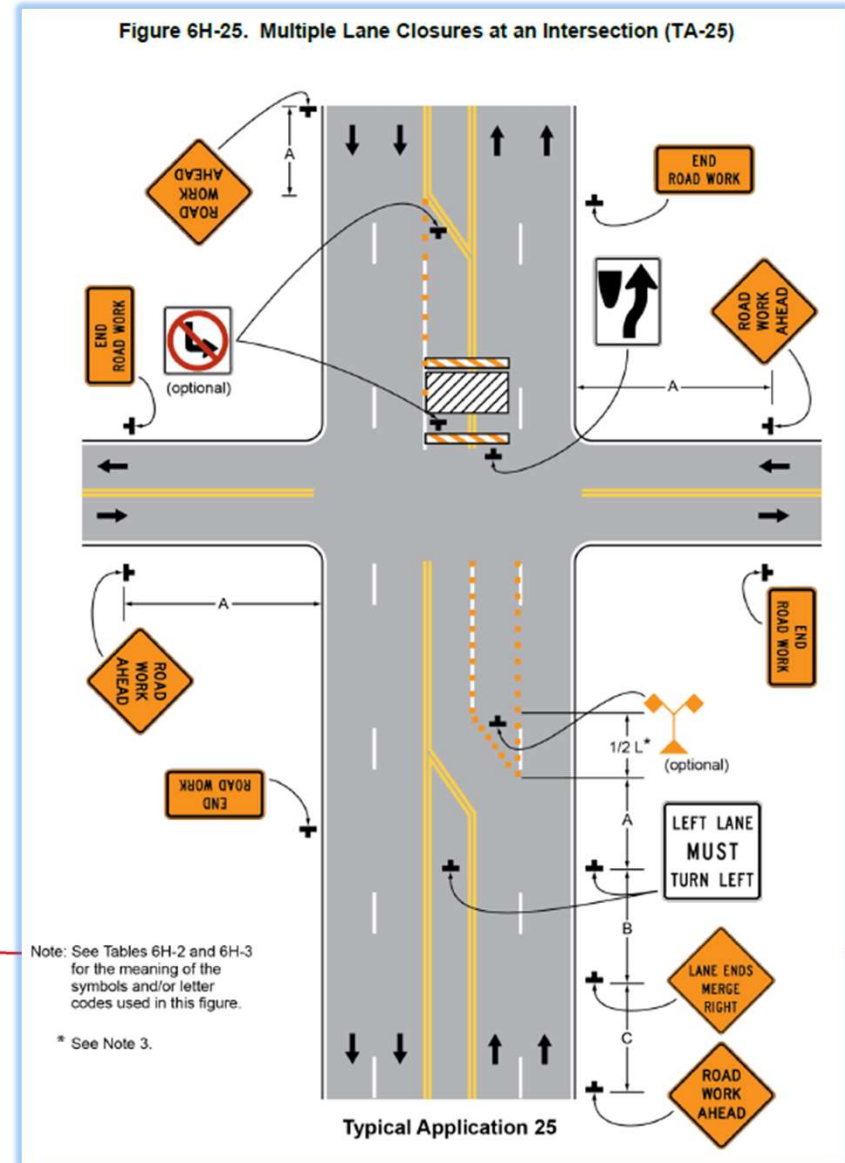
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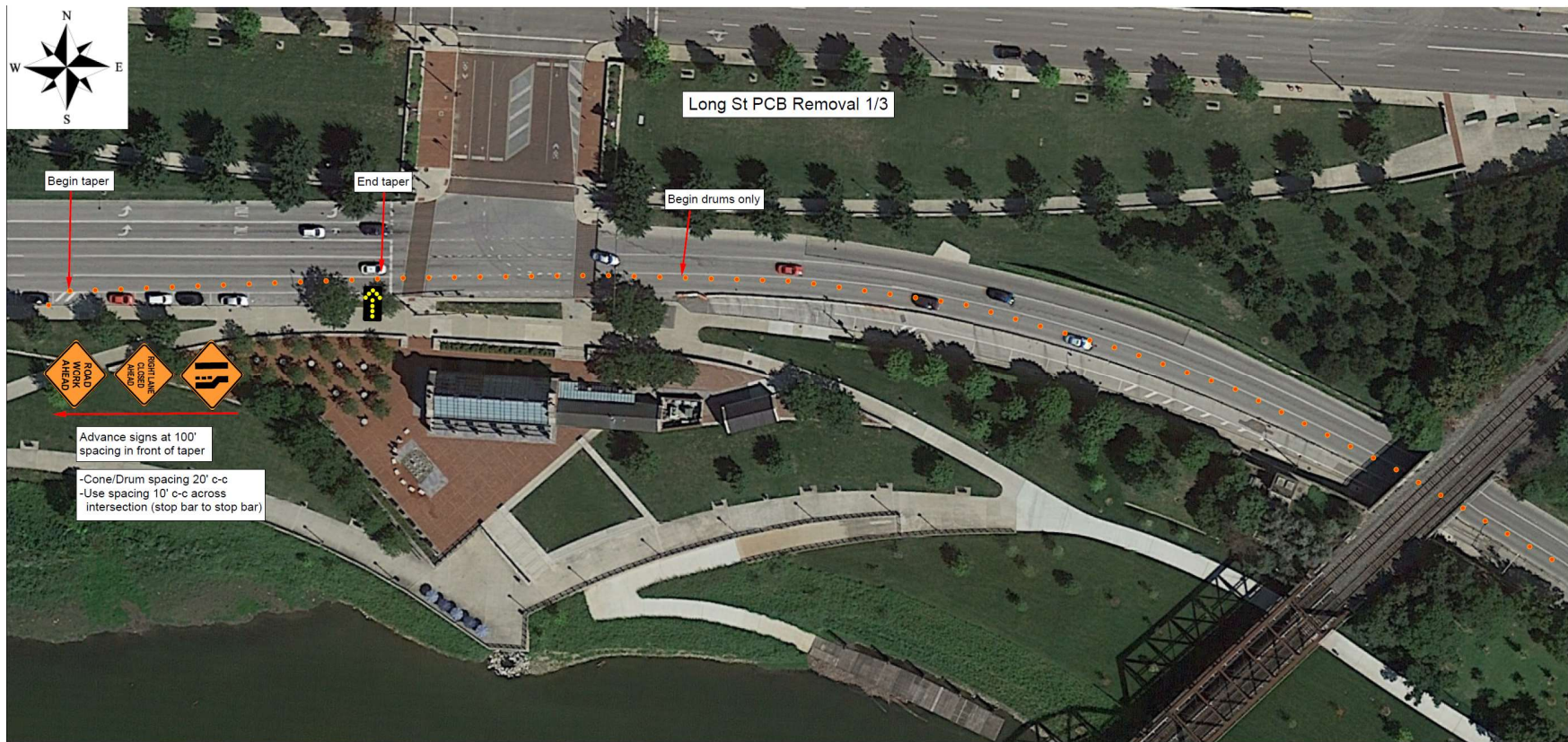
## Common Issues – Closing Through-Lane at an Intersection

- OMUTCD TA-25 can cause motorists to perform hazardous maneuvers
  - Last second merge
  - Turn across multiple lanes when “trapped”
- Should close the lane in advance and then open for turn lane
  - Fewer decisions for drivers to make

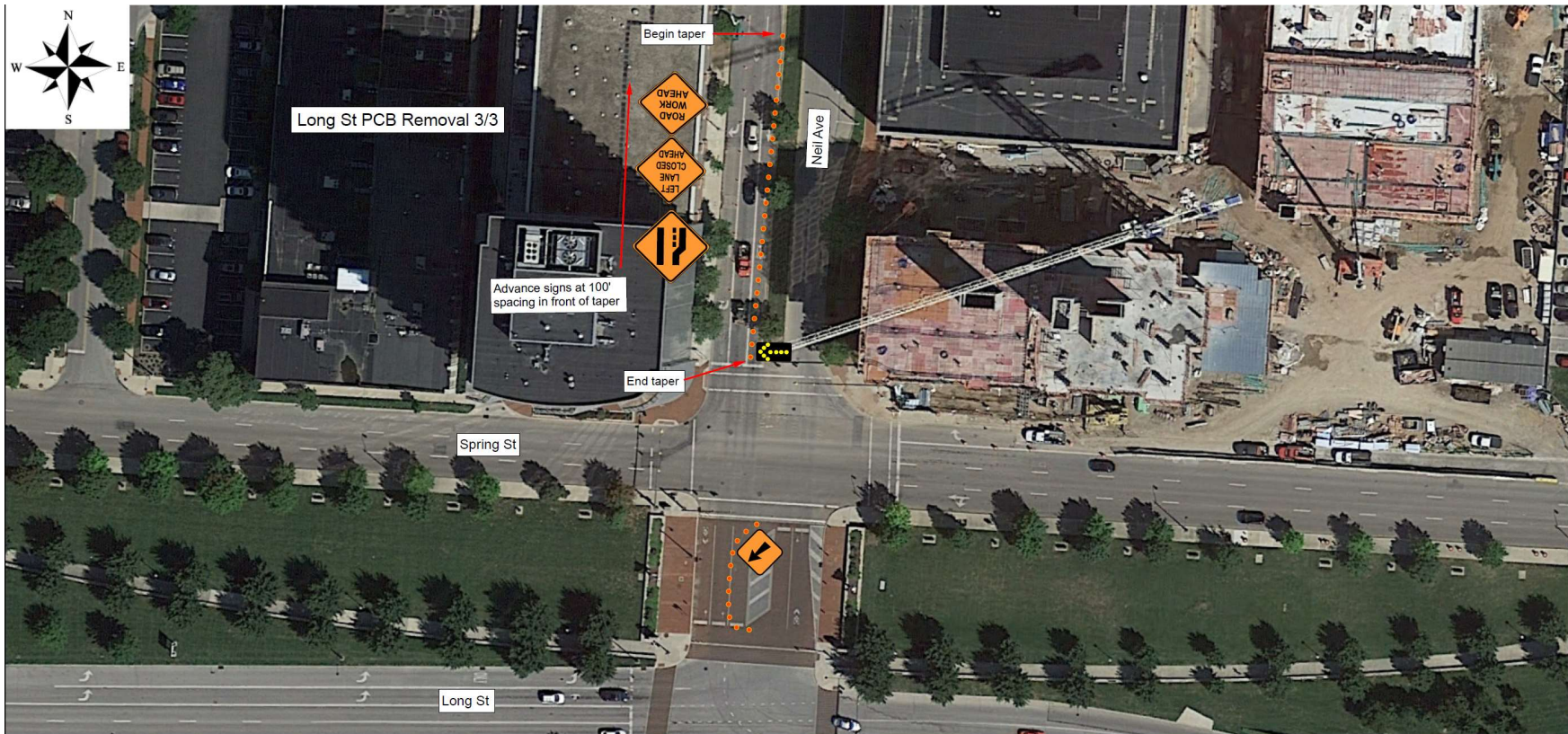




# Common Issues – Double-Turn Lanes



# Common Issues – Double-Turn Lanes



## Common Issues – Setups at Signalized Intersections

- All work at signalized intersection requires detailed MOT plan
  - MOT standard drawings do not address requirements for signalized intersections
  - Check Signal Design Manual for requirements
- Consider during scoping
  - May be discovered that temporary signal is required



## Common Issues – Overhead Signs At Signals

- Overhead and ground mounted signing for turn restrictions and Do Not Enter signs
  - No Left/Right Turn to the left/right of left/right-most signal head
  - Do Not Enter between signal heads



## Common Issues – Shifting and Bagging Signal Heads

- Shifting/bagging signal heads when required
  - Take mast arms into consideration when shifting heads left of center as a temporary span may be required
  - One-way pattern requires bagging heads in closed direction



## Common Issues – Ped Heads and Push Buttons

- Bagging pedestrian signal heads and push buttons when crosswalks are closed



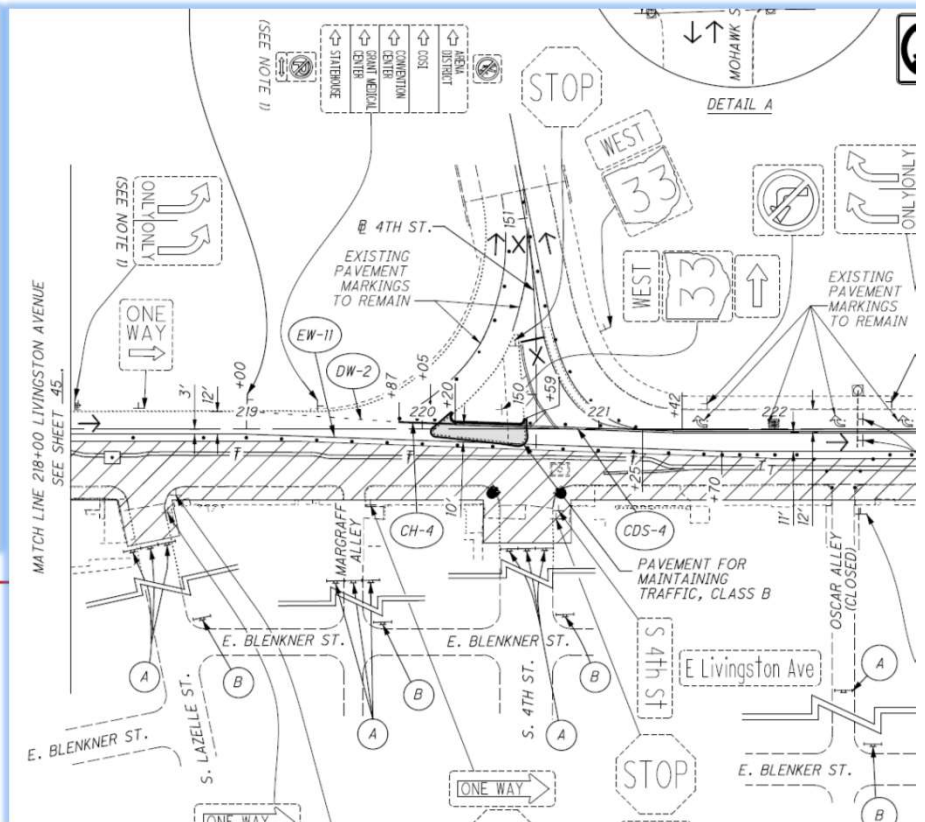
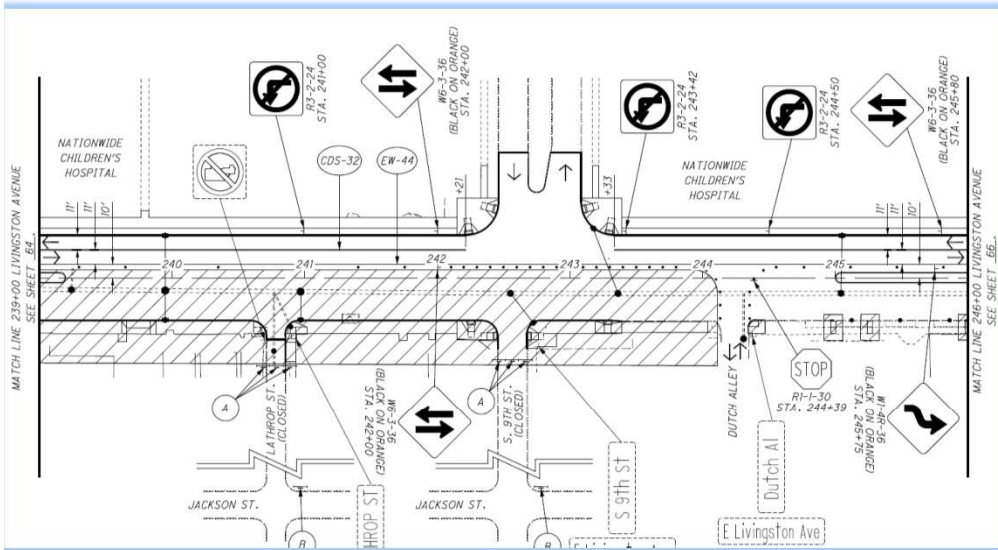
## Common Issues – Use of MOT Table for Multiple Locations

- Should be used when there are multiple streets where standard drawings are applicable
  - Email Mark Delong for template – [MADElong@Columbus.gov](mailto:MADElong@Columbus.gov)

Maintenance of Traffic Table for a Single Project with Multiple Locations														
EXISTING CONDITIONS							MAINTENANCE OF TRAFFIC CONDITIONS							
STREET NAME	WORK LIMITS	SIGNALIZED INTERSECTIONS	PAVEMENT WIDTH	LANE WIDTH(S)	PARKING	COTA ROUTE	TRAFFIC PATTERN	TRAFFIC PATTERN	TYPE CLOSURE	LEO REQUIRED	DETAIL NAME/PG. #	DETOUR PG.#	WEEKDAY WORK HOURS	WEEKEND WORK HOURS
E. BROAD ST.	3RD ST TO GRANT	3RD AT BROAD	96'	12'	YES W/ PK HR RESTRICT.	Y	2W-8L	2W-7L	RIGHT LANE	N	1510 Sht 1	N	9AM - 3:30 PM	NONE
		4TH AT BROAD												
		5TH AT BROAD												
		6TH AT BROAD												
		GRANT AT BROAD												
BRYDEN RD	18TH ST TO 19TH ST	N	40'	20'- W/PARK	Y, NON REST.	Y	2W-2L	2W-1L	NONE	N	1550 Sht 1	N	9AM-4PM	7AM-7PM SAT & SUN
MAIN ST	WELLMAN AVE TO TORREY AVE	N	48'	12'	Y, NON REST.	Y	2W-4L W/CLTL	2W-4L	Side street	N	1540 Sht 1	N	9AM-4PM	8PM FRI-5AM MON.
KINGSTON PIKE	S.R. 32( TALLMAN BLVD) TO RXR	KINGSTON AT COURT ST	36'	12'	N	N	2W-3L	2W-2L	LEFT LANE	N	1510 Sht 2	N	9AM-5PM	NONE
CLEVELAND AVE	SUMMER ST TO BROOKLYN AVE	N	20'	10'	N	N	2W-2L	CLOSED	24 HR	N	ROAD CLOSURE W/LOCAL ACCESS	Y	SUBJ. TO NOISE ORD.	SUBJ. TO NOISE ORD.
WARNER RD	ULRY AVE TO HAMILTON RD	N	23'	11.5'	N	N	2W-2L	OW-WB	SINGLE LANE BARRICADE	N	2W TO 1W DETAIL PHASE 1 AND 2	Y	SUBJ. TO NOISE ORD.	SUBJ. TO NOISE ORD.
NOE-BIXBY RD	REFUGEE TO CARBONDALE	Y	24'	112'	N	Y	2W-2L W/LEFT TURN 3-LANE SECTION	2W-2L	LANE SHIFT	N	1520 3-LANE SECTION	N	9AM-4PM	9AM-4PM

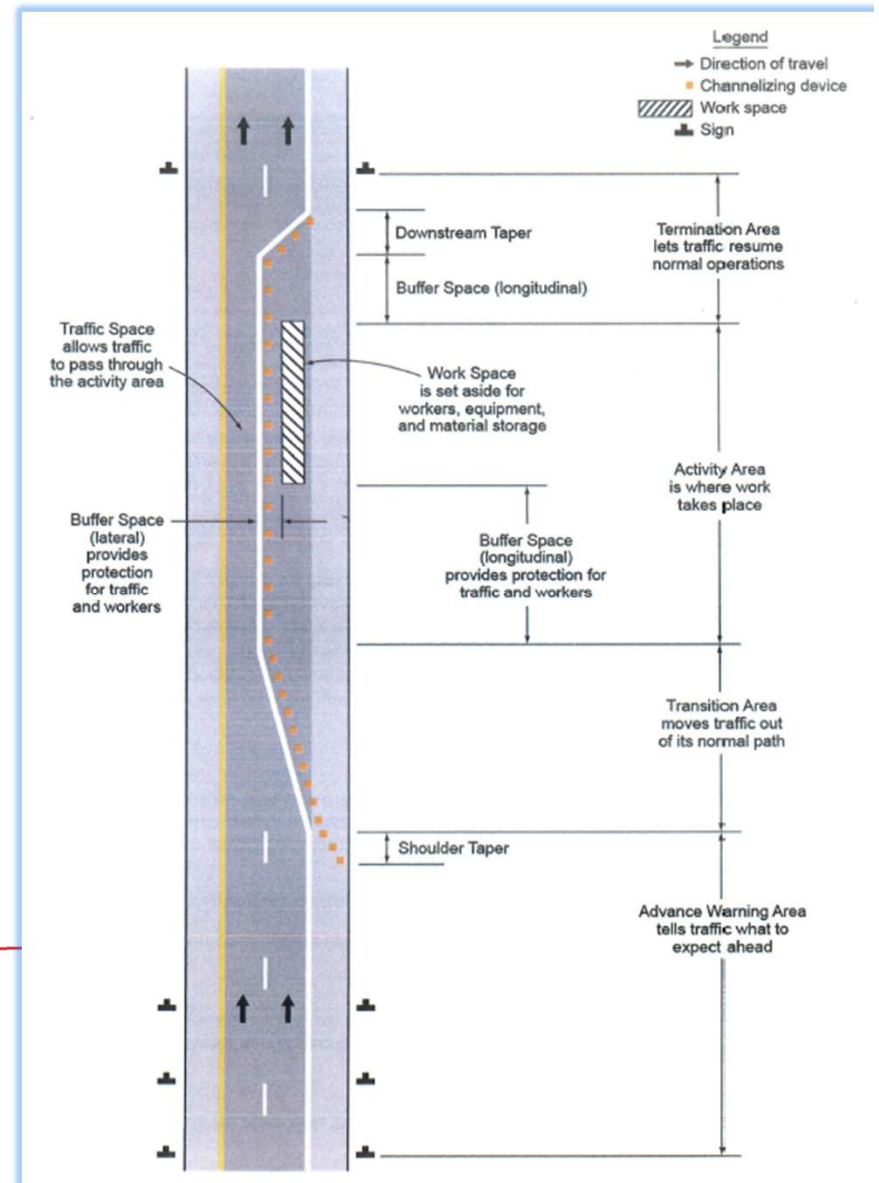
# Common Issues – Work Performed

- Show work that is being performed this phase
  - I.e. Show trench location in work zone
- Show work that has been performed in all previous phases
  - I.e. Temporary pavement must be shown until removed
  - I.e. When something is built or removed, show it as such in all future phases



## Common Issues – Temporary Markings

- Label all temporary markings
- Show existing markings and those to be removed
- Show existing conditions for length of Work Zone, not just work area
  - Limits of work zone are first sign to end of termination area



## Common Issues – Parking Meters

- Show parking meters, mobile payment zones, and kiosk locations when they are required to be taken out of service
- Note has been updated to include mobile pay and kiosks





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