Temporary Traffic Control Layout Selection by Maintenance Activity
(Supplemental Guidebooks)

LOW VOLUME URBAN RESIDENTIAL STREET - JANUARY 2016

The intent of this document is to help local agencies identify the appropriate work zone layout based on the maintenance activity that will be performed. This document is intended to be used as supplemental guidance to the Temporary Traffic Control Zone Layouts Field Manual (dated January 2014). The information presented here does not replace or override anything within the field manual. Agencies must follow the standards and guidance contained in the Minnesota Manual on Uniform Traffic Control Devices (MN MUTCD), including the Field Manual.

http://www.dot.state.mn.us/research/TS/2016/2016RIC09B.pdf
Criteria to use this document:

- Urban Residential Street
- Low Volume (<400 ADT)
- Mobile, Short Duration or Short Term work only
- Attended work zones
- 30 mph or less

This guidance was developed to aid in selecting appropriate temporary traffic controls for maintenance work on streets commonly referred to as residential streets. While the Minnesota Manual on Uniform Traffic Control Devices (MN MUTCD) and Minnesota Statutes do not specifically define these streets, these guidelines were developed for streets with a speed limit of 30 mph or less, that have a traffic volume less than 400 ADT, and have few if any businesses or commercial development. Many of these residential streets have limited pavement width and consideration should be given to working with local law enforcement to restrict parking on the streets where work is being planned. This will facilitate being able to provide safe passage of vehicles while providing work space exclusively for workers, equipment and materials. The MN MUTCD contains requirements to provide a minimum of 10 foot wide lanes for the passage of vehicles.

How to use this document:

1. Identify your maintenance activity and work duration
2. Use the matrix on page 3 to select a layout to consider
3. Find the box that corresponds with the suggested layout on the following pages.
4. Read the “Notes from field manual” section and the questions under the section “Is this the appropriate layout?”
5. If the layout is not appropriate, use the guidance provided to identify a better layout.
6. Once the appropriate layout is identified, use the Field Manual for guidance on how to setup the work zone in the field, and the “Minimum Required Devices” section as guidance on the minimum devices needed when using the layout.
### Layout Selection Matrix by Maintenance Activity:

<table>
<thead>
<tr>
<th>MAINTENANCE ACTIVITY</th>
<th>WORK DURATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MOBILE</td>
</tr>
<tr>
<td></td>
<td>15 Minutes or less</td>
</tr>
<tr>
<td><strong>On road</strong></td>
<td></td>
</tr>
<tr>
<td>Asphalt pavement patching</td>
<td>5</td>
</tr>
<tr>
<td>Concrete pavement patching</td>
<td>-</td>
</tr>
<tr>
<td>Pothole patching</td>
<td>5</td>
</tr>
<tr>
<td>Crack Filling</td>
<td>-</td>
</tr>
<tr>
<td>Crack sealing - Route and seal</td>
<td>-</td>
</tr>
<tr>
<td>Surface treatment</td>
<td>-</td>
</tr>
<tr>
<td>Sweeping - Residential</td>
<td>5</td>
</tr>
<tr>
<td>Road closure (e.g. water main break)</td>
<td>81</td>
</tr>
<tr>
<td>Utility maintenance (partial road closure)</td>
<td>-</td>
</tr>
<tr>
<td><strong>Roadside</strong></td>
<td></td>
</tr>
<tr>
<td>Mowing</td>
<td>71</td>
</tr>
<tr>
<td>Tree/Brush removal</td>
<td>5, 71</td>
</tr>
<tr>
<td>Debris removal - routine (e.g. litter pickup)</td>
<td>2</td>
</tr>
<tr>
<td>Debris removal - Large item (e.g. couch, roadkill)</td>
<td>5</td>
</tr>
<tr>
<td>Utility repair - roadway</td>
<td>2, 3, 21</td>
</tr>
<tr>
<td>Sign repair</td>
<td>2, 3, 5</td>
</tr>
<tr>
<td>Snow cleanup</td>
<td>2, 3, 5</td>
</tr>
<tr>
<td>Utility repair - intersection</td>
<td>-</td>
</tr>
</tbody>
</table>
Duration of Work Definitions

Since most low volume roads with less than 400 ADT are two-lane two-way streets, the first and most important decision for temporary traffic control is to ensure you select a layout with the proper duration of work. The MN MUTCD defines Duration as follows:

**Duration** - the length of time any work operation occupies a specific location or causes a traffic obstruction without changing the location. This time is measured from the first disruption to traffic until the total clearing of the area. The following durations are defined in overlapping intervals since Temporary Traffic Control (TTC) layouts for longer durations may always be used for shorter durations, especially when roadway attributes such as traffic volume and speed, and the work space location may warrant higher levels of traffic control.

- **Mobile** - when an operation is continuously moving or stopped in one location for periods of 15 minutes or less. The traffic control devices are typically vehicle-mounted. The work area should change by at least the decision sight distance for it to be considered a change in location.

- **Short Duration** - when an operation stays in one location during daylight conditions from 15 minutes to one hour, such that minimal TTC devices are deployed.

- **Short Term** - when an operation stays in one location during daylight conditions from 15 minutes to twelve hours, such that advance signing and channelizing devices are required.

- **Intermediate Term/Night** - when an operation stays in one location during daylight conditions from 15 minutes to no more than 3 days, or stays in one location during hours of darkness. Advance signing and larger channelizing devices (Type B) are required.

- **Long Term** - when an operation stays in one location for more than 3 days. A project specific Traffic Control Plan is typically required.

Required Devices

Although cones are the typical channelizer for short term operations, they cannot be used in unattended work zones (Section 6F-64 of MN MUTCD). If leaving a lane closure or marking work when the workers are not present a higher level channelizer, such as a drum or barricade must be used.
## LAYOUT 80
### ROAD CLOSURE

#### SHORT OR INTERMEDIATE TERM  
DAMGTH OR NIGHTTIME HOURS
STREETS

### Maintenance Activities:
- Road closure

### General Information:
Layout 80 is for a total closure that lasts less than 3 days

### Notes from Field Manual:
1. The Road Authority will determine if a detour is required and specify the detour route.
2. Road Closure Notice sign should be installed seven days in advance of the closure.
3. Install at the last driveway or intersection beyond which there is no public access.

### Is this the appropriate layout?
Will the closure be less than 3 days?
Can you meet all requirements of Layout 80?
If the answer is NO, a special temporary traffic control plan must be considered.

### Minimum Required Devices for 30 MPH:

<table>
<thead>
<tr>
<th>Description</th>
<th>Qty</th>
<th>Device</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROAD CLOSED TO THRU TRAFFIC or ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY signs</td>
<td>1</td>
<td>ROAD CLOSED TO THRU TRAFFIC or ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY</td>
</tr>
<tr>
<td>ROAD CLOSED AHEAD XXX FEET sign</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ROAD CLOSED AHEAD sign</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Type III Barricade</td>
<td>3*</td>
<td></td>
</tr>
</tbody>
</table>

*with enough to completely close the road at point of closure.

## Pedestrian Access

If an existing pedestrian route is impacted by a short-term or short-duration work zone that is attended with project personnel, establishing an alternate pedestrian route may not be necessary if the work can be stopped and pedestrians can navigate the work zone safely. Pedestrians may be delayed for a short period of time for project personnel to move equipment and material to facilitate passage. Work zone personnel may also provide assistance to the pedestrian as necessary.

If alternative pedestrian layouts are needed, Layouts 84 a&b and 85 a&b of the Field Manual should be considered.
Since most of the speed limits on urban residential streets are 30 mph and the corresponding decision sight distance is 550 feet to meet this definition, the work space has to move at least 2200 feet per hour, or approximately 1/2 mile per hour.

Will your work move more than 550 feet every 15 minutes, or approximately 1/2 mile per hour?

If not, do not use a mobile layout and consider a stationary (short duration or short term) layout.

**Mobile Layouts**

**LAYOUT 28**  
**CLOSURE IN CENTER OF INTERSECTION**

<table>
<thead>
<tr>
<th>SHORT OR INTERMEDIATE TERM</th>
<th>DAYLIGHT OR NIGHTTIME HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ONLY FOR SPEED LIMITS</td>
<td>USE FOR ROADS LESS THAN</td>
</tr>
<tr>
<td>40 MPH OR LESS</td>
<td>400 ADT ONLY</td>
</tr>
</tbody>
</table>

**Maintenance Activities:**
- Utility repair - intersection

**General Information:**
Layout 28 is intended for use where work is in the center of the intersection and there is adequate space for traffic to drive around the closed area. Layout 28 is not restricted to short term (daylight hours and 12 hours or less) but can be used for 3 days or less (Intermediate term).

**Notes from Field Manual:**
1. The minimum paved lane width from channelizing devices to the edge of the pavement or to the outside edge of the shoulder shall be 10 feet.

**Is this the appropriate layout?**
- Can traffic drive around the closed area?
- Has parking been restricted to allow for a minimum 10 foot lane for safe passage of vehicles?
- Can you meet all requirements of Layout 28?
- If the answer to any of these is no, layout 29 must be considered.

**Minimum Required Devices for 30 MPH:**

<table>
<thead>
<tr>
<th>Description</th>
<th>Qty</th>
<th>Device</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROAD WORK AHEAD sign</td>
<td>4</td>
<td>ROAD WORK AHEAD</td>
</tr>
<tr>
<td>18” cones for daytime low speed</td>
<td></td>
<td>VARIIES</td>
</tr>
<tr>
<td>28” cones or other channelizing device</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**LAYOUT 13**
LANE CLOSURE, TWO FLAGGER – TWO-LANE TWO-WAY ROAD

<table>
<thead>
<tr>
<th>SHORT OR INTERMEDIATE TERM</th>
<th>DAYLIGHT OR NIGHTTIME HOURS</th>
<th>ALL STREETS</th>
</tr>
</thead>
</table>

Maintenance Activities:
- Crack filling
- Crack sealing - route and seal
- Surface treatment

General Information:
Layout 13 is not restricted to short term (daylight hours and 12 hours or less) but can be used for 3 days or less (Intermediate term). This layout contains some guidance on the application of Decision Sight Distance for flagger location and requires the use of two flaggers.

Notes from Field Manual:
1. The approach sight distance to the flagger shall be at least the Decision Sight Distance (D).
2. The ONE LANE ROAD AHEAD sign may be omitted when the posted speed limit is 40 mph or less.
3. The two-way taper should be 50 feet and using five equally spaced channelizing devices.

Is this the appropriate layout?
Has parking been restricted to allow for a minimum 10 foot lane for safe passage of vehicles?
Can you meet all requirements of Layout 13?
If the answer to any of these is no, another layout must be considered.

**Minimum Required Devices for 30 MPH:**

<table>
<thead>
<tr>
<th>Description</th>
<th>Qty</th>
<th>Device</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROAD WORK AHEAD sign</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>FLAGGER AHEAD sign</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Flagger and STOP SLOW paddle</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>18” cones for daytime low speed</td>
<td>15*</td>
<td></td>
</tr>
<tr>
<td>28” cones or other channelizing device</td>
<td>15*</td>
<td></td>
</tr>
</tbody>
</table>

*with an additional device for every 50 feet of work space.

**LAYOUT 5**
LANE CLOSURE – TWO LANE TWO WAY ROAD

<table>
<thead>
<tr>
<th>MOBILE</th>
<th>Daytime all speeds Nighttime 40 mph or less</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>WORK IN TRAVELED LANE RESIDENTIAL STREET</th>
<th>USE FOR ROADS LESS THAN 1500 ADT ONLY</th>
</tr>
</thead>
</table>

Maintenance Activities:
- Asphalt pavement patching
- Pothole Patching
- Sweeping - Residential
- Tree/brush removal
- Debris removal - Large item (e.g. couch, roadkill)
- Sign repair
- Snow cleanup

General Information:
Layout 5 covers most of the mobile applications for residential street where work is conducted on the traveled lanes. This layout may be used for night time operations for roadways with posted speed 40 mph or less.

Notes from Field Manual:
1. If the approach sight distance is restricted, a spotter should be used to protect the work area and to warn the driver.
2. If the visibility is poor or the operation does not move at least the Decision Sight Distance (D) every 15 minutes, the appropriate stationary layout should be used.
3. This layout may be used for nighttime operations only in locations where the posted speed limit is 40 mph or less.
4. The slow moving or stopped work vehicle should keep the traffic lane as wide as possible by using the shoulder space whenever possible.

Is this the appropriate layout?
Can you meet all requirements for Layout 5 of the Field Manual?
Has parking been restricted to allow for a minimum 10 foot lane for safe passage of vehicles?
If the answer is NO, the appropriate stationary layout must be considered.

Minimum Required Devices for 30 MPH:
There are no minimum required devices.
The STANDARD that applies is:
Mobile operations shall have appropriate devices on the equipment (that is, high-intensity rotating, flashing, oscillating, or strobe lights, signs, or special lighting), or shall use a separate vehicle with appropriate warning devices.

<table>
<thead>
<tr>
<th>Description</th>
<th>Qty</th>
<th>Device</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flashing Vehicle Light</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
**LAYOUT 71**  
**WORK OFF ROADWAY MOBILE OPERATIONS HAVING LITTLE OR NO INTERFERENCE WITH TRAFFIC**

**MOBILE** | **DAYLIGHT HOURS**  
---|---  
**LITTLE OR NO INTERFERENCE WITH TRAFFIC** | **ALL RESIDENTIAL STREETS**

**Maintenance Activities:**  
• Mowing  
• Tree/brush removal

**General Information:**  
Layout 71 is for work that is off the roadway where there is little or no interference with traffic. This layout can be used for all streets regardless of traffic volume.

**Notes from Field Manual:**  
1. The operations should be scheduled and completed during daylight work shifts and have little or no interference with traffic. The work should be suspended during periods of poor weather or visibility.
2. All vehicles shall be equipped with a flashing vehicle light visible 360-degrees around the vehicle when viewed from a distance of 60 feet.
3. The ROAD WORK AHEAD sign may be omitted when there is an adequate approach decision sight distance to the equipment along the majority of the route.
4. When advance warning signs are used, the signs should be no more than 3 miles from the work vehicle. The location of the signs should be determined by the sources of traffic, such as major cross roads.
5. On roadways where decision sight distance is restricted and the equipment must encroach into the traffic lane routinely, a shadow vehicle may be used as shown.

**Is this the appropriate layout?**  
Is your work area off the roadway with little or no interference with traffic?  
Has parking been restricted to allow for a minimum 10 foot lane for safe passage of vehicles?  
Can you meet all requirements of Layout 71?  
If the answer to any of these is NO, the appropriate stationary layout must be considered.

**Minimum Required Devices for 30 MPH:**  
All vehicles shall be equipped with a flashing vehicle light visible 360-degrees around the vehicle when viewed from a distance of 60 feet.  
A SLOW MOVING vehicle sign is required for all slow moving vehicles operating on public roadways.

<table>
<thead>
<tr>
<th>Description</th>
<th>Qty</th>
<th>Device</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flashing Vehicle Light</td>
<td>1</td>
<td>![Flash Light Icon]</td>
</tr>
<tr>
<td>SLOW MOVING sign</td>
<td>1</td>
<td>![SLOW MOVING Sign Icon]</td>
</tr>
</tbody>
</table>

---

**LAYOUT 10**  
**LANE CLOSURE, ONE FLAGGER – TWO-LANE TWO-WAY ROAD**

**SHORT OR INTERMEDIATE TERM** | **DAYLIGHT OR NIGHTTIME HOURS**  
---|---  
**500 FEET MAXIMUM WORK SPACE** | **USE FOR ROADS LESS THAN 400 ADT ONLY**

**Maintenance Activities:**  
• Crack filling  
• Crack sealing - route and seal  
• Tree/brush removal  
• Surface treatment  
• Utility maintenance

**General Information:**  
Layout 10 has a maximum work space is 500 feet and it is restricted to use on roadways with <400 ADT. Layout 10 is not restricted to short term (daylight hours and 12 hours or less) but can be used for 3 days or less (Intermediate term). This layout contains some guidance on the application of Decision Sight Distance for flagger location and whether a second flagger is required.

**Notes from Field Manual:**  
1. The approach sight distance to the flagger shall be at least the Decision Sight Distance (D).
2. If the flagger’s ability to see oncoming motorists beyond the work space is less than the Decision Sight Distance, two flaggers shall be used - See Layout 13.
3. STOP signs shall be installed if the work space must be left unattended at night - See Layout 20.
4. The two-way taper should be 50 feet in length using 5 equally spaced channelizing devices.

**Is this the appropriate layout?**  
Is the work space less than 500 feet long?  
Will traffic be able to be controlled by a single flagger?  
Has parking been restricted to allow for a minimum 10 foot lane for safe passage of vehicles?  
Can you meet all requirements of Layout 10?  
If the answer to any of these is NO, layout 13 must be considered.

**Minimum Required Devices for 30 MPH:**

<table>
<thead>
<tr>
<th>Description</th>
<th>Qty</th>
<th>Device</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROAD WORK AHEAD signs</td>
<td>2</td>
<td>![Road Work Ahead Icon]</td>
</tr>
<tr>
<td>FLAGGER AHEAD signs</td>
<td>1</td>
<td>![Flagger Ahead Icon]</td>
</tr>
<tr>
<td>Flagger and STOP SLOW paddle</td>
<td>1</td>
<td>![Flagger and SLOW Icon]</td>
</tr>
<tr>
<td>18” cones for daytime low speed</td>
<td>15</td>
<td>![18 Cones Icon]</td>
</tr>
<tr>
<td>28” cones or other channelizing device</td>
<td></td>
<td>![28 Cones Icon]</td>
</tr>
</tbody>
</table>

*Minimum number of cones for a 500 foot work space is 24.*
**LAYOUT 9**  
**LANE CLOSURE, NO FLAGGER – TWO-LANE TWO-WAY ROAD**

**SHORT TERM**  
**DAYLIGHT HOURS**  
**500 FEET MAXIMUM WORK SPACE**

**USE FOR ROADS LESS THAN 400 ADT ONLY**

**Maintenance Activities:**
- Crack sealing-route and seal
- Tree/brush removal
- Surface treatment
- Utility Maintenance

**General Information:**
Layout 9 has a maximum work space length of 500 feet and is for short term (daylight hours and 12 hours or less) application. There is not specific guidance on determining when traffic is unable to self-regulate included in this layout.

**Notes from Field Manual:**
1. When traffic cannot regulate itself through the length of the work space, use Layout 10.
2. STOP signs shall be installed if the work space must be left unattended at night - see Layout 20.
3. The two-way taper should be 50 feet in length using 5 equally spaced channelizing devices.

**Is this the appropriate layout?**
- Is the work space less than 500 feet long?
- Will traffic be able to self-regulate without the use of a flagger?
- Has parking been restricted to allow for a minimum 10 foot lane for safe passage of vehicles?
- Is the work during daylight hours?
- Can you meet all requirements of Layout 9?

If the answer to any of these is no, Layout 10 must be considered.

**Minimum Required Devices for 30 MPH:**

<table>
<thead>
<tr>
<th>Description</th>
<th>Qty</th>
<th>Device</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROAD WORK AHEAD signs</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>18” cones for daytime low speed</td>
<td>15*</td>
<td></td>
</tr>
</tbody>
</table>

*Minimum number of cones for a 500 foot work space is 24.

---

**LAYOUT 81**  
**TEMPORARY ROAD CLOSURE – TWO LANE TWO WAY ROAD**

**MOBILE**  
**DAYLIGHT OR NIGHTTIME HOURS**

**TOTAL CLOSURE 15 MINUTES OR LESS**

**ALL ROADWAYS**

**Maintenance Activities:**
- Road closure

**General Information:**
Layout 81 is for a total closure that last less than 15 minutes.

**Notes from Field Manual:**
1. The traffic from both lanes should not be stopped for more than 15 minutes.
2. Conditions represented are for work during daytime hours only.
3. For night closures, the following should be used:
   a. Law enforcement officers with squad car for flaggers.
   b. A changeable message sign in each direction.
4. The BE PREPARED TO STOP sign may be omitted when the posted speed limit is 40 mph or less.

**Is this the appropriate layout?**
- Will the closure be less than 15 minutes?
- Can you meet all requirements of Layout 81?

If the answer is NO, the appropriate stationary layout must be considered.

**Minimum Required Devices for 30 MPH:**

**DAYLIGHT HOURS**

<table>
<thead>
<tr>
<th>Description</th>
<th>Qty</th>
<th>Device</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROAD WORK AHEAD signs</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>FLAGGER AHEAD signs</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Flagger and STOP/ SLOW paddle</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

**NIGHTTIME HOURS**

<table>
<thead>
<tr>
<th>Description</th>
<th>Qty</th>
<th>Device</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROAD WORK AHEAD signs</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>BE PREPARED TO STOP signs</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>FLAGGER AHEAD signs</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Law Enforcement with Squad Car</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>
Short Duration Layouts

**Short Duration** - when an operation stays in one location during daylight conditions from 15 minutes to one hour, such that minimal TTC [temporary traffic control] devices are deployed.

Will your operation stay in one location for less than one hour?

Is your operation during daylight conditions?

If the answer is NO, consider the use of the appropriate Short Term or Intermediate Term layout.

---

**LAYOUT 3**

**PARKING LANE CLOSURE**

<table>
<thead>
<tr>
<th>SHORT OR INTERMEDIATE TERM</th>
<th>DAYLIGHT OR NIGHTTIME HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>PARKING LANE</td>
<td>ALL STREETS (NO LIMIT ON ADT)</td>
</tr>
</tbody>
</table>

**Maintenance Activities:**
- Utility repair - roadway
- Sign repair
- Snow cleanup
- Debris removal-routine

**General Information:**
Layout 3 is for work on the parking lane for all types, speeds and volumes of streets and highways. Even so, the requirements and options presented in this layout make it appropriate for off roadway operations on residential streets. Layout 3 is not restricted to short term (daylight hours and 12 hours or less) but can be used for 3 days or less (intermediate term).

**Notes from Field Manual:**
1. This layout is intended for use where a parking lane is closed. If this parking lane is normally open to vehicle travel during the time of day this closure will be in effect, the lane shall be considered a traveled lane and not a parking lane. The appropriate layout shall then be used to provide traffic control for the lane closure.

**Is this the appropriate layout?**
Has parking been restricted to allow for a minimum 10 foot lane for safe passage of vehicles?
Can you meet all requirements of Layout 3?
If the answer to any of these is NO, the appropriate short term stationary layout must be considered.

**Minimum Required Devices for 30 MPH:**

<table>
<thead>
<tr>
<th>Description</th>
<th>Qty</th>
<th>Device</th>
</tr>
</thead>
<tbody>
<tr>
<td>18” cones for daytime low speed</td>
<td>4*</td>
<td></td>
</tr>
<tr>
<td>28” cones or other channelizing device</td>
<td></td>
<td>*With an additional channelizer for every 50 feet of parking lane closure.</td>
</tr>
</tbody>
</table>
**LAYOUT 2**
SHOULDER CLOSURE WORK ON OR NEAR SHOULDER

<table>
<thead>
<tr>
<th>SHORT OR INTERMEDIATE TERM</th>
<th>DAYLIGHT OR NIGHTTIME HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF TRAVELED ROADWAY</td>
<td>ALL ROADWAYS</td>
</tr>
</tbody>
</table>

### Maintenance Activities:
- Debris removal - routine (e.g., litter pickup)
- Utility repair - roadway
- Sign repair
- Snow cleanup

### General Information:
Layout 2 is for work on the shoulder or off of the traveled roadway for all types, speeds and volumes of streets and highways. Even so, the requirements and options presented in this layout make it appropriate for many shoulder and off roadway operations on low volume roadways. This layout is for use on rural designs where there is no curb and gutter, typically has ditches, and there is a shoulder present. If your work area is in an urban design with curb and gutter and parking lanes, you must consider use of Layout 3 (Intermediate Term Section). Layout 2 is not restricted to short term (daylight hours and 12 hours or less) but can be used for 3 days or less (Intermediate term).

### Notes from Field Manual:
1. All signs, barricades and channelizing devices may be omitted when the work occupies an isolated shoulder location for less than one hour and it has little or no interference with traffic.
2. An operation which moves between work spaces that are less than the decision sight distance along the shoulder should use a stationary or mobile shoulder closure.
3. The ROAD WORK AHEAD sign may be omitted for short term daylight operations if:
   a. the distance from curb face to the work space is at least 2 feet, or
   b. the distance from the edge of the roadway to the work space is at least 15 feet and a vehicle displaying a 360-degree flashing beacon is operating.
4. This ROAD WORK AHEAD sign shall be installed on 2-lane, 2-way roads if traffic control devices are installed for a work space in the opposite shoulder.

### Is this the appropriate layout?
Will the work zone be in place for one hour or less?
Has parking been restricted to allow for a minimum 10 foot lane for safe passage of vehicles?
Can you meet all requirements of Layout 2?
If the answer to any of these is NO, the appropriate short term stationary layout must be considered.

### Minimum Required Devices for 30 MPH:

<table>
<thead>
<tr>
<th>Description</th>
<th>Qty</th>
<th>Device</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROAD WORK AHEAD signs</td>
<td>1 or 2</td>
<td><img src="image" alt="Road Work Ahead" /></td>
</tr>
<tr>
<td>18” cones for daytime low speed</td>
<td>6*</td>
<td><img src="image" alt="18” Cones" /></td>
</tr>
<tr>
<td>28” cones or other channelizing device</td>
<td>10</td>
<td><img src="image" alt="28” Cones" /></td>
</tr>
</tbody>
</table>

*with an additional channelizer for every 100 feet of shoulder closure

---

**LAYOUT 8**
EQUIPMENT IN TRAFFIC LANE - TWO-LANE TWO-WAY ROAD

<table>
<thead>
<tr>
<th>SHORT DURATION</th>
<th>DAYLIGHT HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESIDENTIAL STREET 50 foot MAXIMUM WORK SPACE</td>
<td>USE FOR ROADS LESS THAN 1500 ADT ONLY</td>
</tr>
</tbody>
</table>

### Maintenance Activities:
- Asphalt pavement patching
- Pothole patching
- Crack filling
- Tree/brush removal

### General Information:
Layout 8 has a maximum work area length of 50 feet which, along with the one hour time restriction, limits the use of this layout to very specific work types. There is not specific guidance on determining when traffic is unable to self-regulate included in this layout.

### Notes from Field Manual:
1. The work vehicle shall not be parked on the shoulder opposite of the coned area.
2. The flagger and the Flagger Ahead symbol sign may be omitted when traffic volumes do not restrict traffic’s ability to regulate itself through the length of the work space.
3. The two-way taper should be 50 feet in length using 5 equally spaced channelizing devices.

### Is this the appropriate layout?
Will the work zone be in place for one hour or less?
Has parking been restricted to allow for a minimum 10 foot lane for safe passage of vehicles?
Can you meet all requirements of Layout 8?
If the answer to any of these is NO, the appropriate short term stationary layout must be considered.

### Minimum Required Devices for 30 MPH:

<table>
<thead>
<tr>
<th>Description</th>
<th>Qty</th>
<th>Device</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROAD WORK AHEAD signs</td>
<td>2</td>
<td><img src="image" alt="Road Work Ahead" /></td>
</tr>
<tr>
<td>FLAGGER AHEAD signs</td>
<td>1</td>
<td><img src="image" alt="Flagger Ahead" /></td>
</tr>
<tr>
<td>Flagger and STOP SLOW paddle</td>
<td>1</td>
<td><img src="image" alt="Flagger and STOP SLOW" /></td>
</tr>
<tr>
<td>18” cones for daytime low speed</td>
<td>10</td>
<td><img src="image" alt="18” Cones" /></td>
</tr>
<tr>
<td>28” cones or other channelizing device</td>
<td>10</td>
<td><img src="image" alt="28” Cones" /></td>
</tr>
</tbody>
</table>

*with an additional channelizer for every 100 feet of shoulder closure
**Layout 21**

**Equipment on Centerline – Two-Lane Two-Way Road**

**Short Duration**

**Daylight Hours**

**Residential Street**

50 foot Maximum Work Space

**Use for Roads Less Than 1500 ADT Only**

**maintenance Activities:**
- Utility repair - roadway

**General Information:**

Layout 21 has a maximum work area length of 50 feet which, along with the one hour time restriction, limits the use of this layout to very specific work types.

**Notes from Field Manual:**
1. The work vehicle shall be parked off of the roadway. Do not obstruct the shoulder in the coned areas.
2. The flagger and Flagger Ahead sign may be omitted if there is at least 10 feet of roadway and shoulder available to safely pass the work equipment on the centerline of the roadway.

**Is this the appropriate layout?**

Will the work zone be in place for one hour or less?

Has parking been restricted to allow for a minimum 10 foot lane for safe passage of vehicles?

Can you meet all requirements of Layout 21?

If the answer to any of these is NO, the appropriate short term stationary layout must be considered.

**Minimum Required Devices for 30 MPH:**

<table>
<thead>
<tr>
<th>Description</th>
<th>Qty</th>
<th>Device</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROAD WORK AHEAD signs</td>
<td>2</td>
<td><img src="image" alt="Road Work Ahead Sign" /></td>
</tr>
<tr>
<td>FLAGGER AHEAD signs</td>
<td>2</td>
<td><img src="image" alt="Flagger Ahead Sign" /></td>
</tr>
<tr>
<td>Flagger and STOP SLOW paddle</td>
<td>2</td>
<td><img src="image" alt="Flagger and Slow Paddle" /></td>
</tr>
<tr>
<td>18” cones for daytime low speed</td>
<td>20</td>
<td><img src="image" alt="18&quot; Cones" /></td>
</tr>
<tr>
<td>28” cones or other channelizing device</td>
<td>20</td>
<td><img src="image" alt="28&quot; Cones" /></td>
</tr>
</tbody>
</table>

**Short Term Layouts**

**Short Term** - when an operation stays in one location during daylight conditions from 15 minutes to twelve hours, such that advance signing and channelizing devices are required.

Will your operation stay in one location for less than 12 hours?

If the answer is NO, consider the use of the appropriate Intermediate Term layout.

Many of the short term layouts in the field manual are also intermediate term layouts which can remain in place for up to three days and during night time conditions. For these situations remember cones cannot be used in unattended work zones.