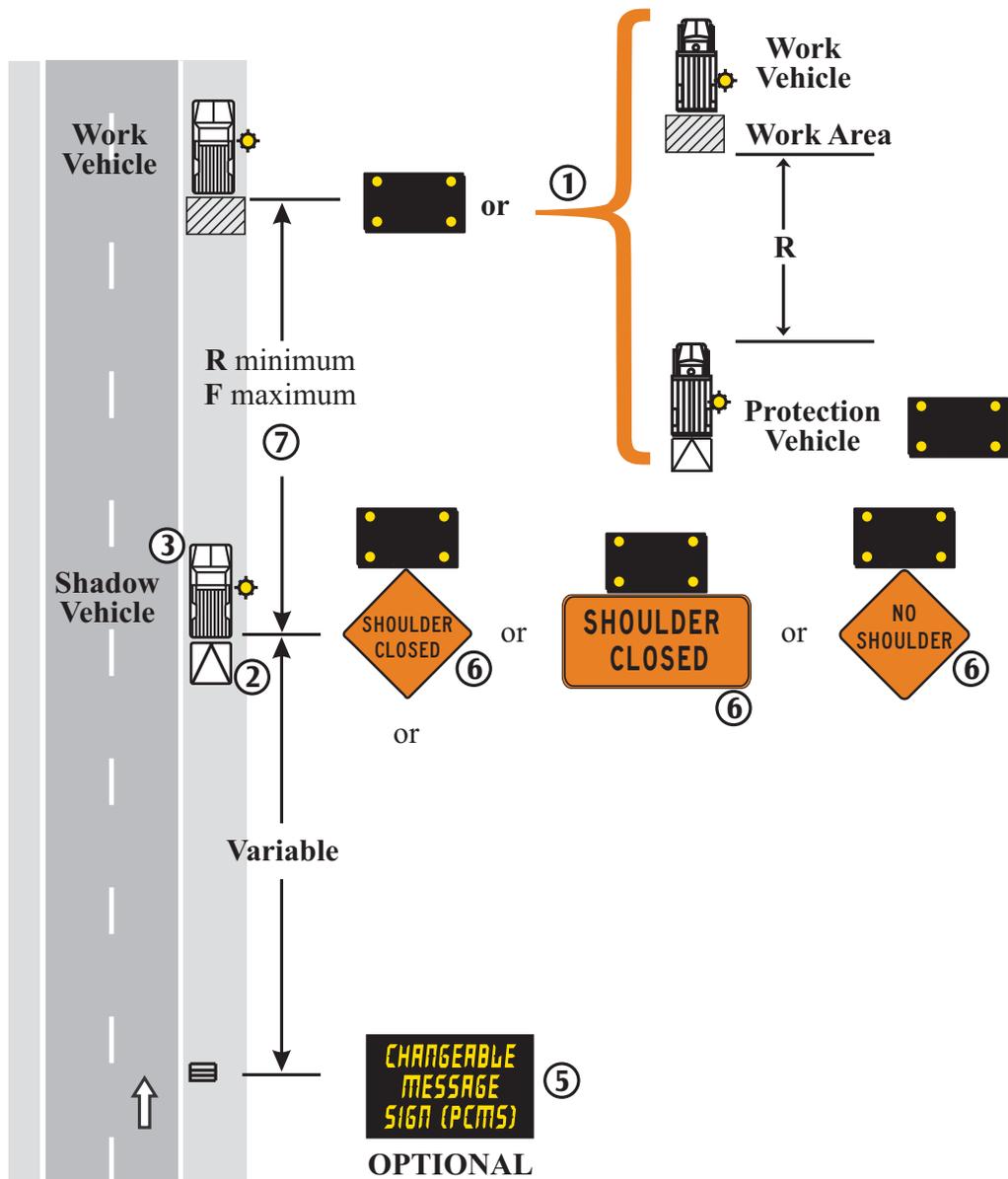


**NOTES:**

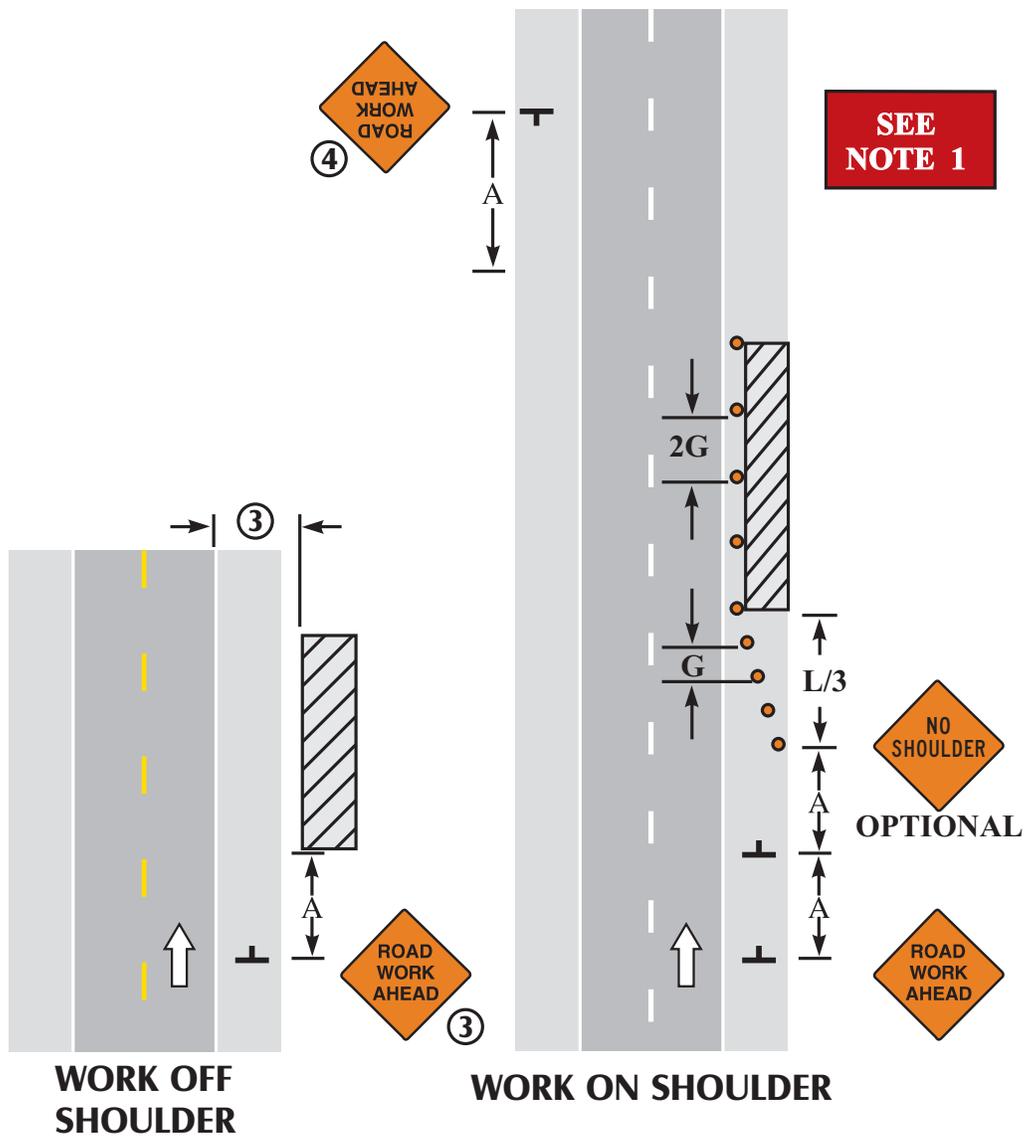
1. A work vehicle without a flashing arrow board shall be followed by a protection vehicle at a distance of **R**. The protection vehicle shall be equipped with a flashing arrow panel and should have a truck mounted attenuator.
2. Any shadow vehicle or protection vehicle operating totally or partially in a traffic lane should be equipped with a truck mounted attenuator.
3. The shadow vehicle or protection vehicle may encroach into the traffic lane when the shoulder is too narrow to drive on.
4. Any vehicle not displaying a flashing arrow board shall display high-intensity rotating, flashing, oscillating, or strobe lights.
5. The PCMS shall be used for nighttime operations.
6. When the PCMS is used, the SHOULDER CLOSED or NO SHOULDER sign becomes optional.
7. The distance between the work area and the shadow vehicle should be adjusted between **R** and **F** based on traffic volume and sight distance.



**SHOULDER CLOSURE  
MOBILE AND SHORT DURATION**

NOTES:

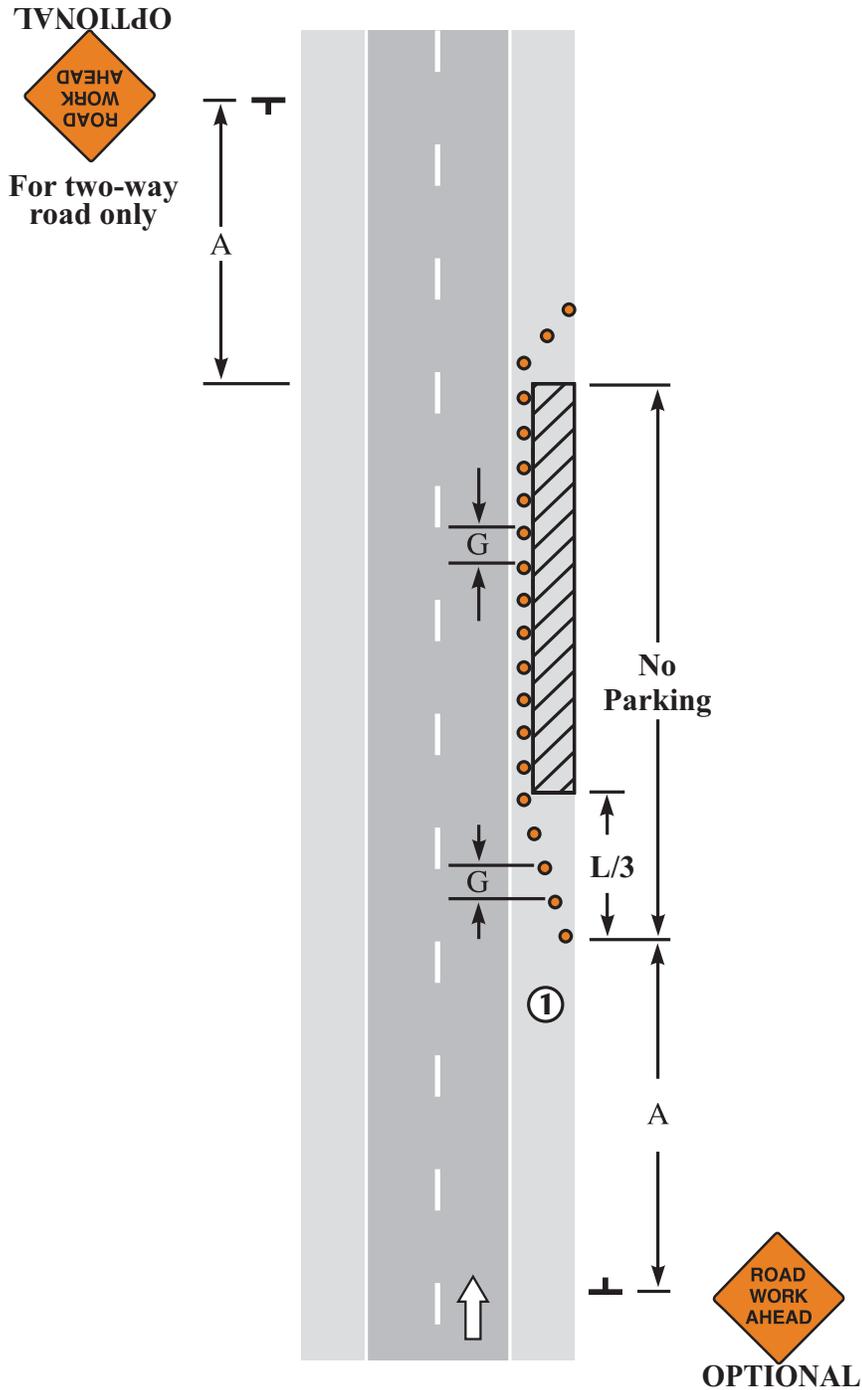
1. All signs, barricades and channelizing devices may be omitted when the work occupies an isolated shoulder location for less than one hour and it has little or no interference with traffic.
2. An operation which moves between work spaces that are less than the decision sight distance along the shoulder 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.



**SHOULDER CLOSURE  
WORK ON OR NEAR SHOULDER**

NOTE:

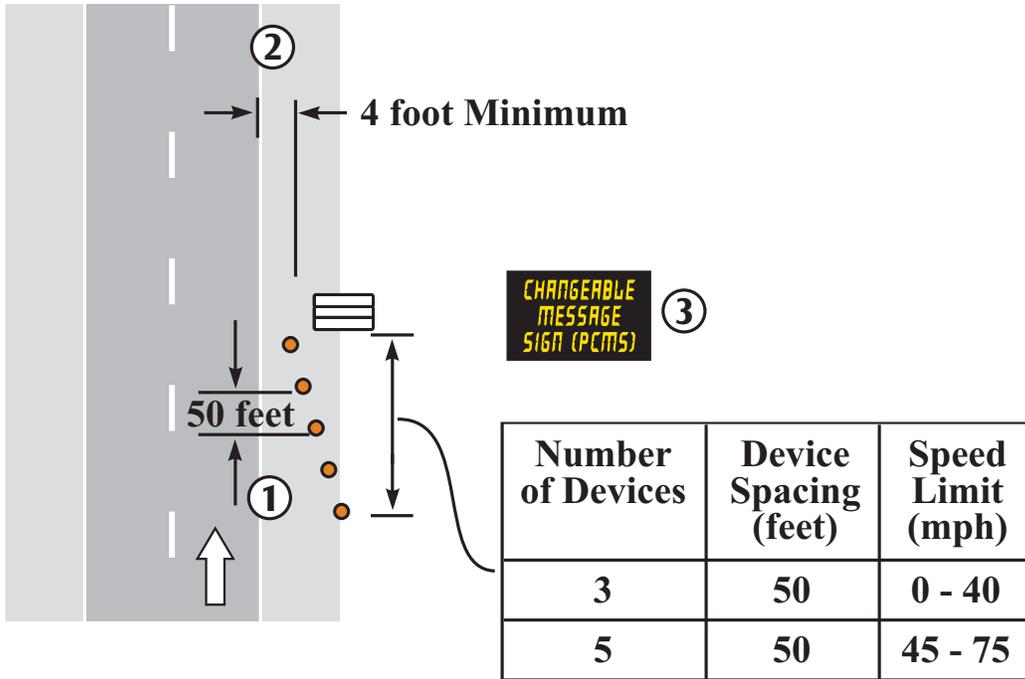
1. This layout is intended for use where a parking lane is closed. If this parking lane is normally open to vehicle travel during the time of day this closure will be in effect, the lane shall be considered a traveled lane and not a parking lane. The appropriate layout shall then be used to provide traffic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



**PARKING LANE CLOSURE**

NOTES:

1. Type B channelizing devices shall be used in the shoulder taper regardless of the location on the shoulder or the width of the shoulder.
2. Trailer mounted traffic control devices shall be placed at least 4 feet from the edge of the traveled lane. If the 4 feet clearance can not be met, then a full shoulder closure shall be provided.
3. Typical trailer mounted traffic control devices may include flashing arrow boards, automated flagging assistance devices (AFADs), portable signals, portable changeable message signs, portable dynamic speed display signs, communications equipment, or other data collection devices.

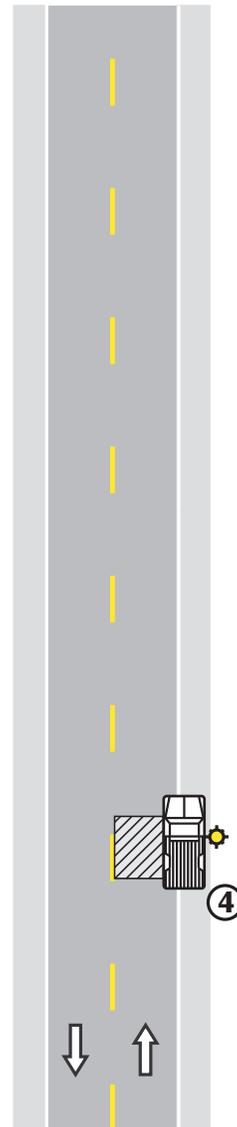


**PARTIAL SHOULDER CLOSURE  
TRAILER MOUNTED TRAFFIC CONTROL  
DEVICES ON SHOULDER**

**NOTES:**

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.

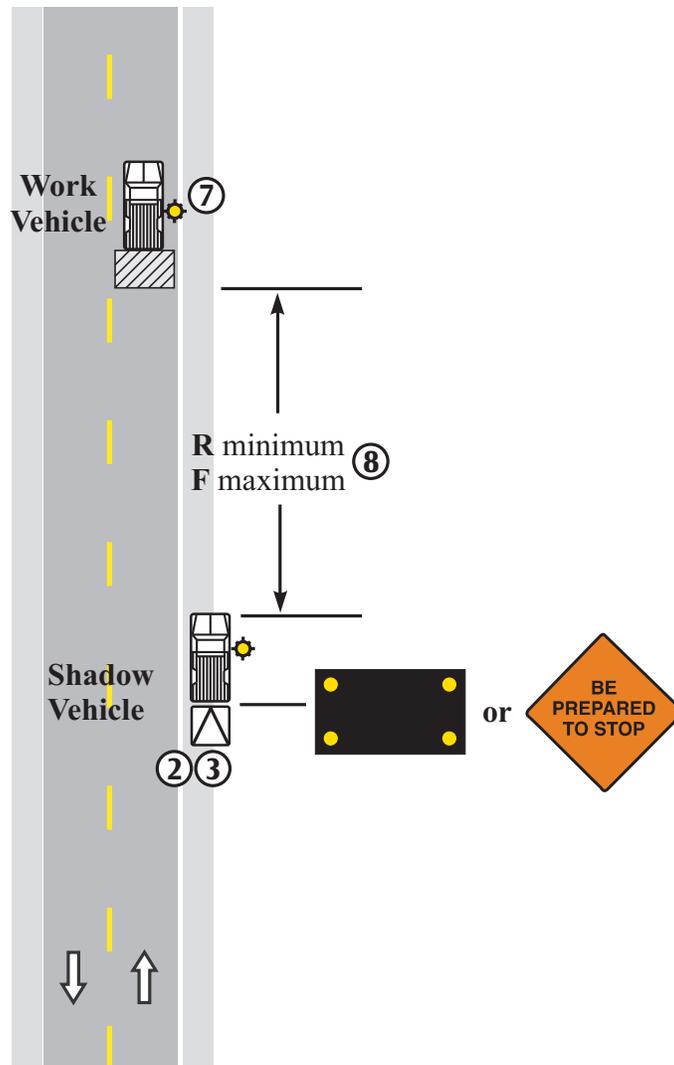
**USE FOR ROADS  
LESS THAN  
1500 ADT ONLY**



**LANE CLOSURE  
TWO-LANE TWO-WAY ROAD**

NOTES:

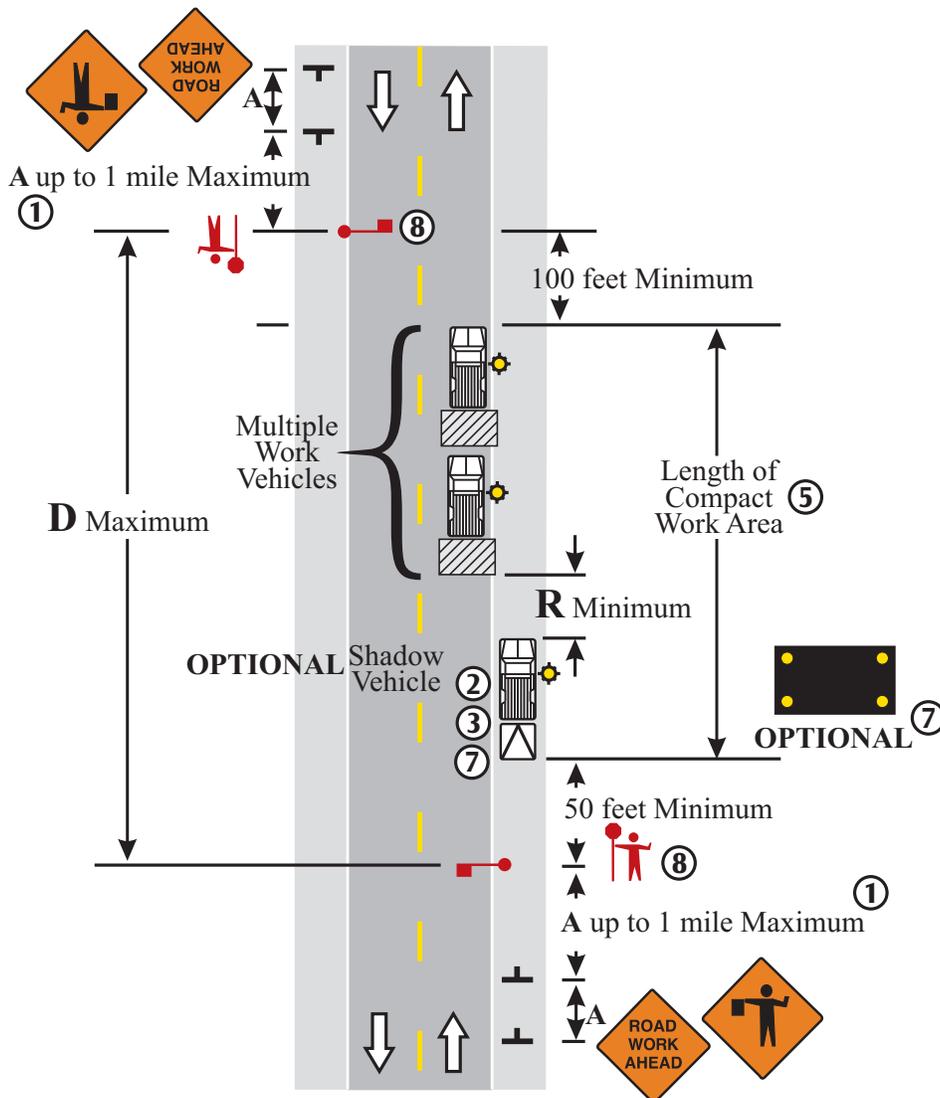
1. If the work space is not visible for at least the Decision Sight Distance, the motorists cannot see beyond the work space or traffic volumes do not allow passage, then Layout 7 shall be used.
2. Any shadow vehicle or protection vehicle operating totally or partially in a traffic lane should be equipped with a truck mounted attenuator.
3. The shadow vehicle or protection vehicle may encroach into the traffic lane when the shoulder is too narrow to drive on.
4. If the work space does not move at least the Decision Sight Distance every 15 minutes, the appropriate stationary layout shall be used.
5. This layout may be used for nighttime operations only in locations where the posted speed limit is 40 mph or less.
6. For nighttime operations, the flashing arrow board shall be used.
7. The slow moving or stopped work vehicle and shadow vehicle should keep the traffic lane as wide as possible by using the shoulder space whenever practical.
8. The distance between the work area and the shadow vehicle should be adjusted between **R** and **F** based on traffic volume and sight distance.



**LANE CLOSURE  
WITH RANDOM WORK AREAS  
TWO-LANE TWO-WAY ROAD**

**NOTES:**

1. The advance warning signs should be moved or reset after each major road intersection or after each mile whichever comes first.
2. Any shadow vehicle or protection vehicle operating totally or partially in a traffic lane should be equipped with a truck/trailer mounted attenuator.
3. The shadow vehicle or protection vehicle may encroach into the traffic lane when the shoulder is too narrow to drive on.
4. If the work area does not move at least the Decision Sight Distance (**D**) every 15 minutes, the appropriate stationary layout should be used.
5. A compact work area should be maintained with minimum space allowed between work vehicles. When the work area extends beyond 500 feet in total length, other traffic control layouts should be considered.
6. This layout may be used for nighttime operations only in locations where the posted speed limit is 40 mph or less.
7. The Shadow Vehicle with flashing arrow board shall be used during nighttime operations.
8. Flaggers shall be used when the approach sight distance is restricted, the motorists can not see beyond the work area, or traffic volumes do not allow safe passage.

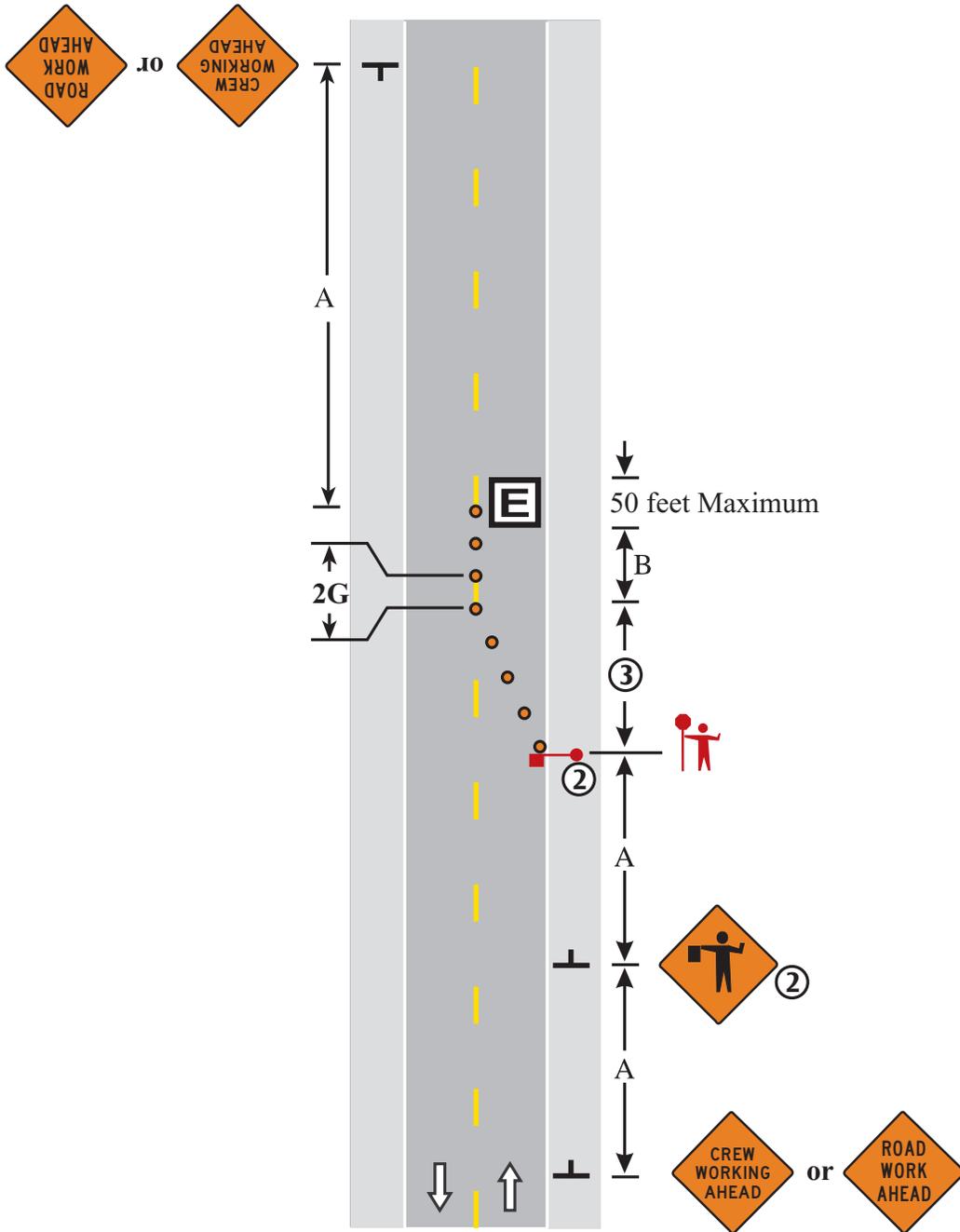


**LANE CLOSURE  
WITH A MOVING WORK AREA  
TWO-LANE TWO-WAY ROAD**

NOTES:

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.

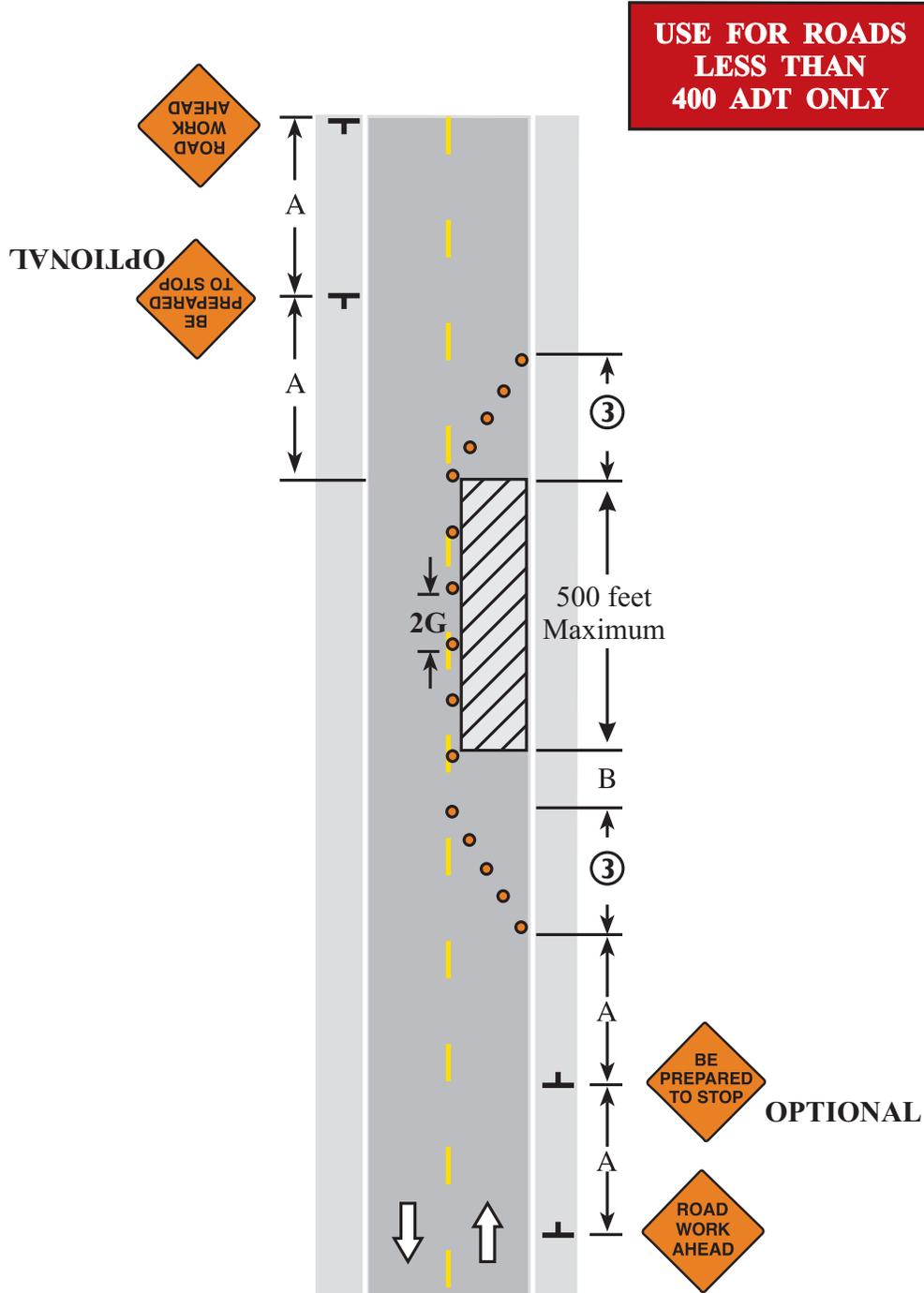
**USE FOR ROADS  
LESS THAN  
1500 ADT ONLY**



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

NOTES:

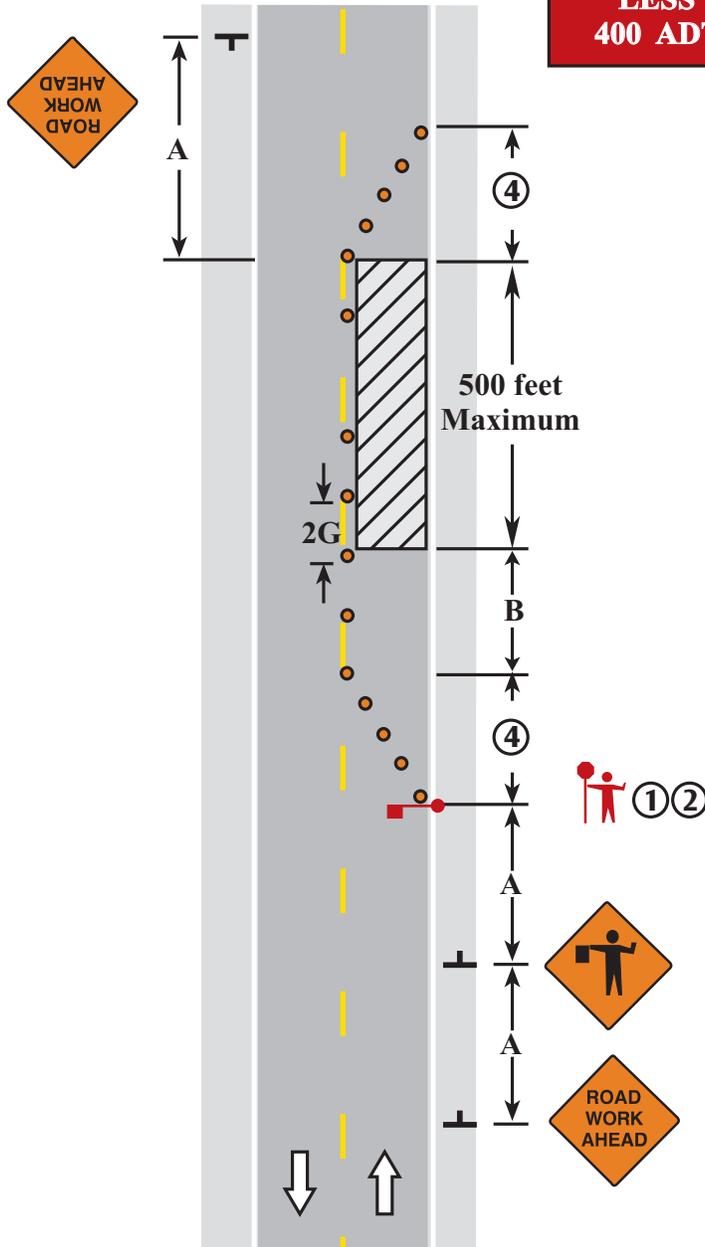
1. When traffic can not regulate itself through the length of the work space, use Layout 10.
2. STOP signs shall be installed if the work space must be left unattended at night - see Layout 20.
3. The two-way taper should be 50 feet in length using 5 equally spaced channelizing devices.



NOTES:

1. The approach sight distance to the flagger shall be at least the Decision Sight Distance.
2. If the flagger's ability to see oncoming motorists beyond the work space is less than the Decision Sight Distance (**D**), 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.

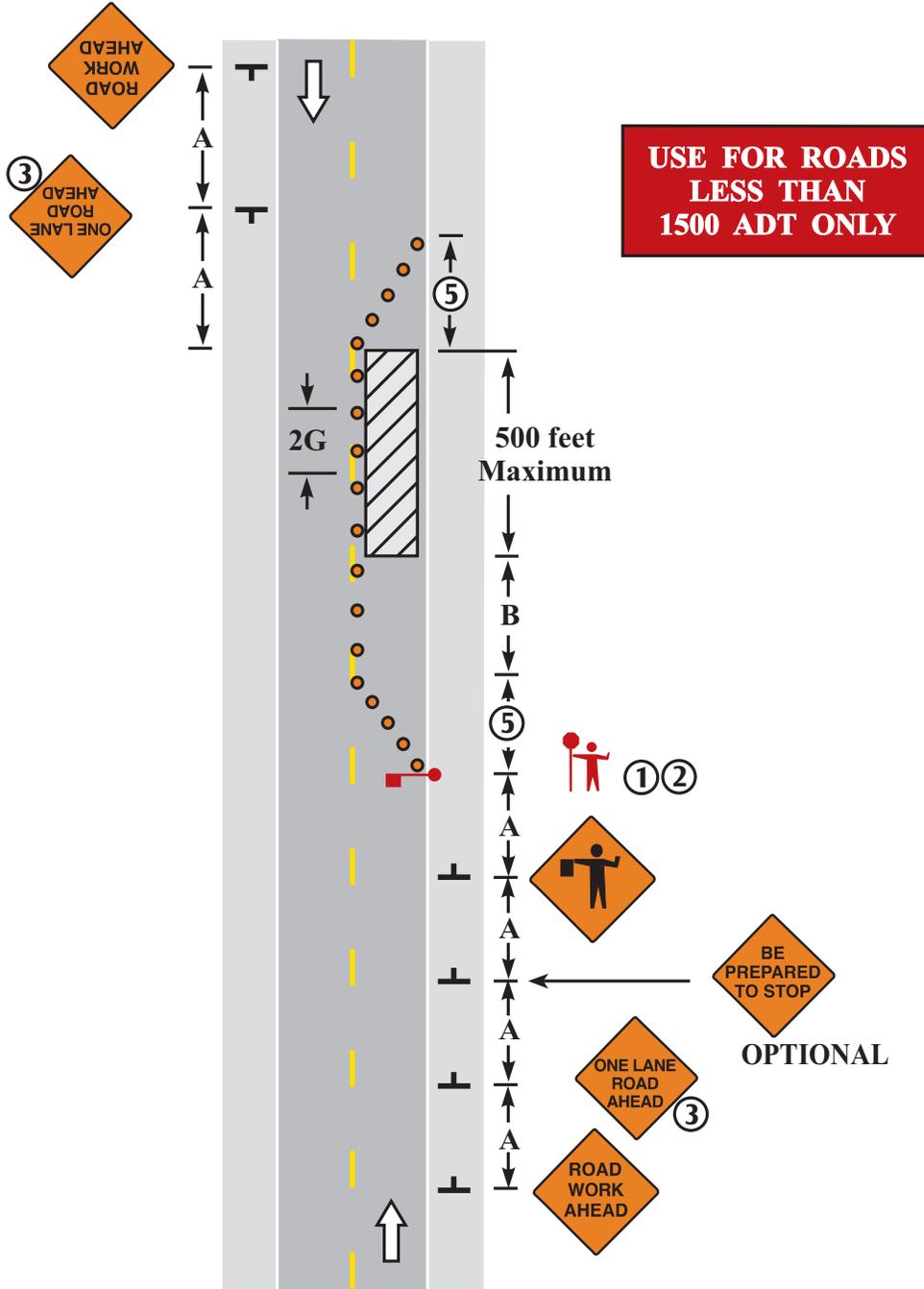
**USE FOR ROADS  
LESS THAN  
400 ADT ONLY**



**LANE CLOSURE, ONE FLAGGER  
TWO-LANE TWO-WAY ROAD**

NOTES:

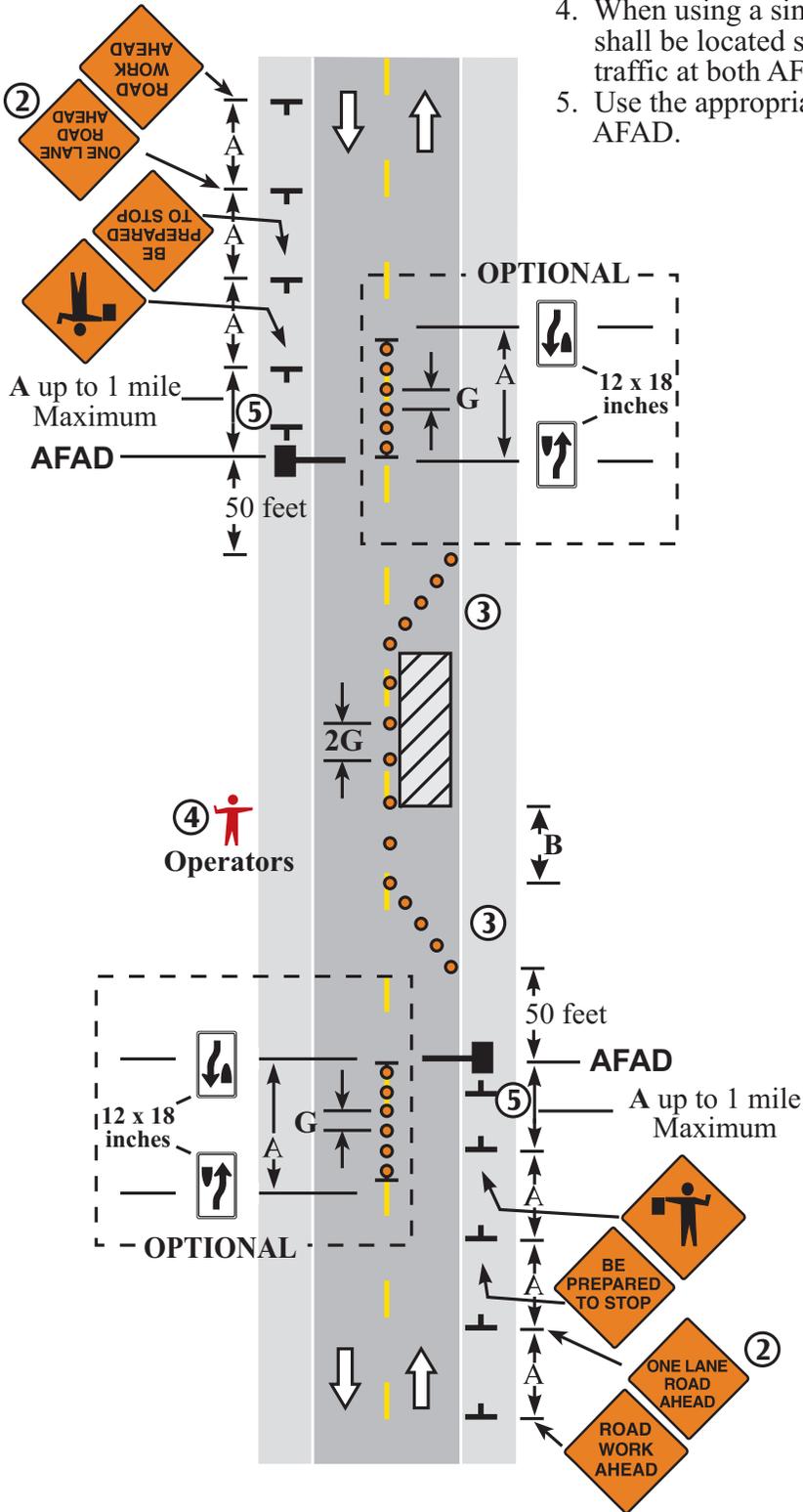
1. The approach sight distance to the flagger shall be at least the Decision Sight Distance.
2. If the flagger's ability to see oncoming motorists beyond the work space is less than the Decision Sight Distance (**D**), two flaggers shall be used - See Layout 13.
3. The ONE LANE ROAD AHEAD sign may be omitted when the posted speed limit is 40 mph or less.
4. STOP signs shall be installed if the work space must be left unattended at night, - see Layout 20.
5. The two-way taper should be 50 feet in length and using five equally spaced channelizing devices.



**LANE CLOSURE, ONE FLAGGER  
TWO-LANE TWO-WAY ROAD**

NOTES:

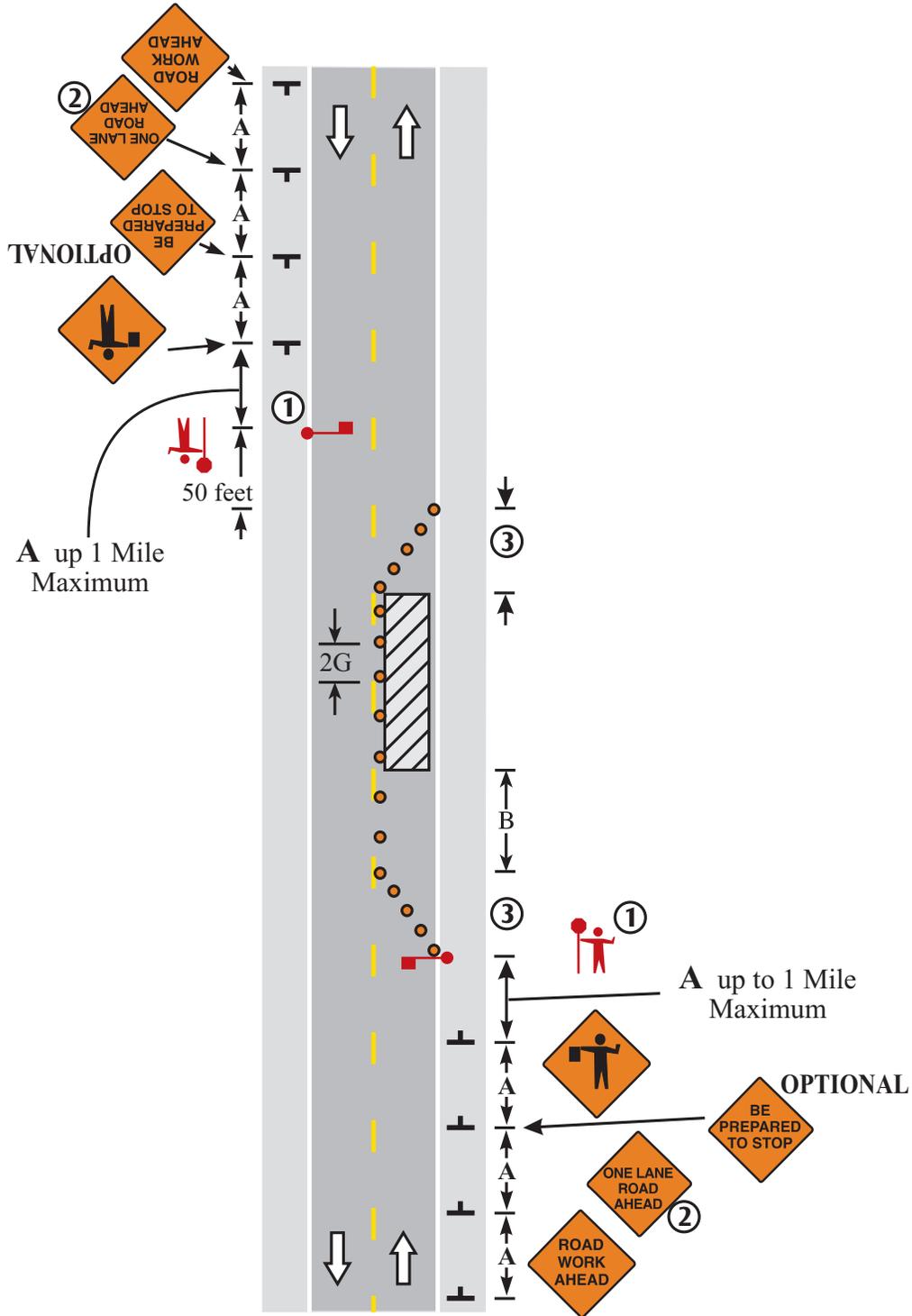
1. The approach sight distance to the Automated Flagging Assistance Device (AFAD) shall be at least the Decision Sight Distance (D).
2. The ONE LANE AHEAD sign may be omitted when the posted speed limit is 40 mph or less.
3. The two-way taper should be 50 feet in length using 5 equally spaced channelizing devices.
4. When using a single operator, they shall be located so they can see traffic at both AFAD locations.
5. Use the appropriate sign on the AFAD.



**LANE CLOSURE, AUTOMATED FLAGGERS  
TWO-LANE TWO-WAY ROAD**

NOTES:

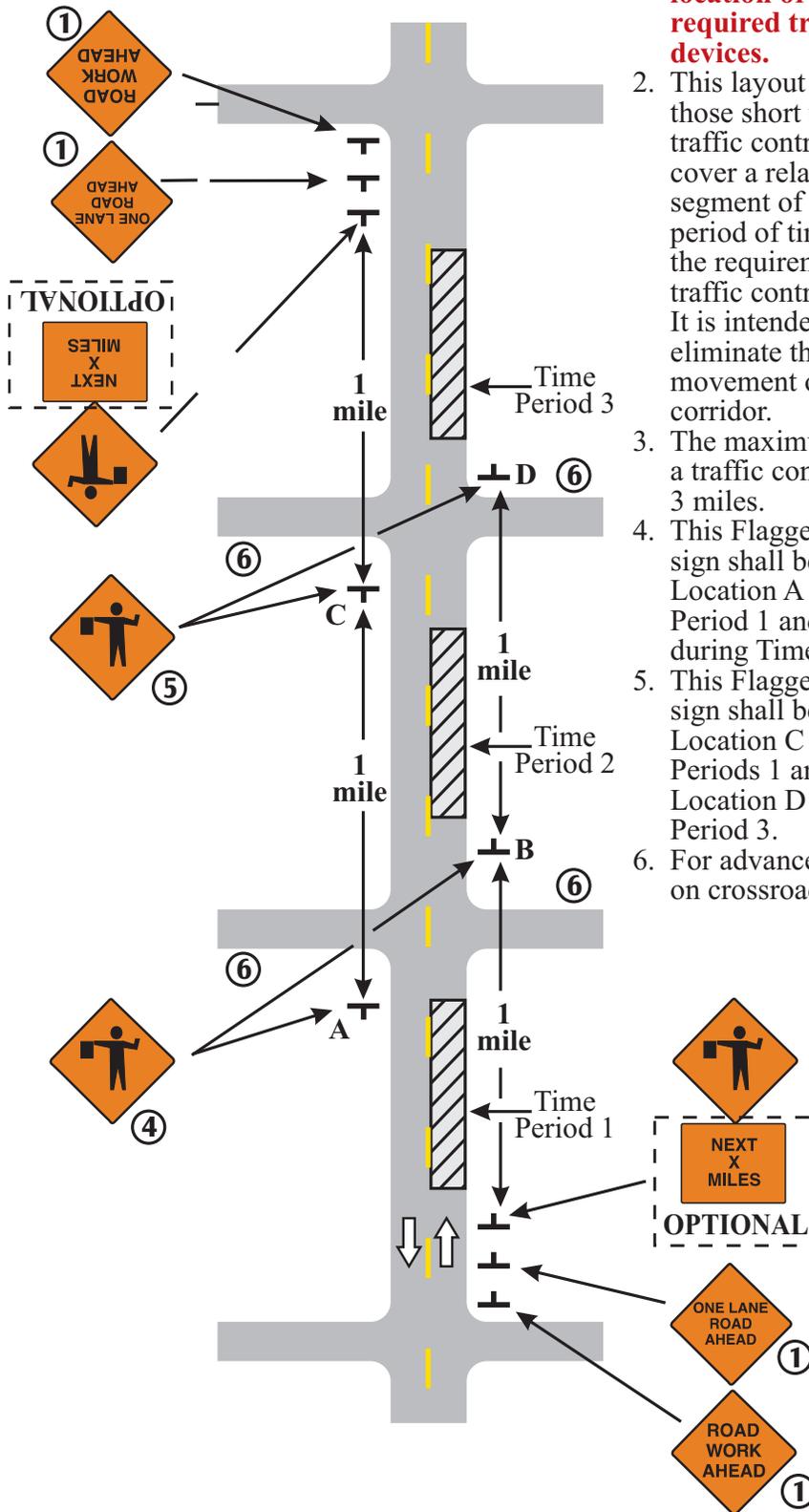
1. The approach sight distance to the flagger shall be at least the Decision Sight Distance (**D**).
2. The ONE LANE ROAD AHEAD sign may be omitted when the posted speed limit is 40 mph or less.
3. The two-way taper should be 50 feet and using five equally spaced channelizing devices.



**LANE CLOSURE, TWO FLAGGERS  
TWO-LANE TWO-WAY ROAD**

NOTES:

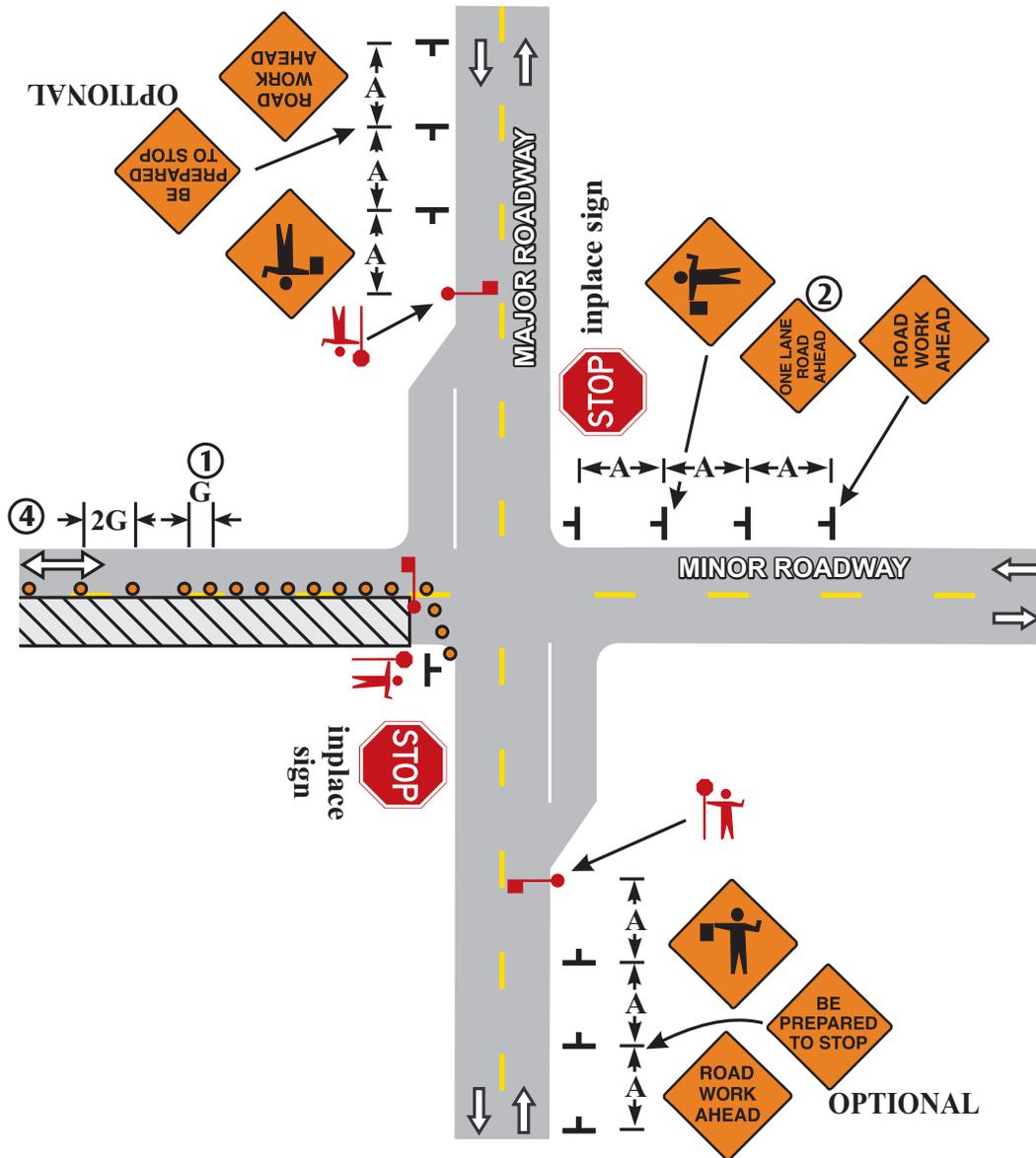
1. **This layout shall be used with the appropriate flagger layout to select the location of additional required traffic control devices.**
2. This layout may be used for those short term stationary traffic control zones that cover a relatively long segment of highway in a short period of time but do not meet the requirements for a mobile traffic control zone. It is intended to be used to eliminate the multiple movement of signs along a corridor.
3. The maximum distance for a traffic control zone is 3 miles.
4. This Flagger Ahead symbol sign shall be used at Location A during Time Period 1 and at Location B during Time Periods 2 and 3.
5. This Flagger Ahead symbol sign shall be used at Location C during Time Periods 1 and 2 and at Location D during Time Period 3.
6. For advance warning signs on crossroads, see Layout 76.



**MOVING WORK SPACES  
TRAFFIC CONTROL ZONE**

NOTES:

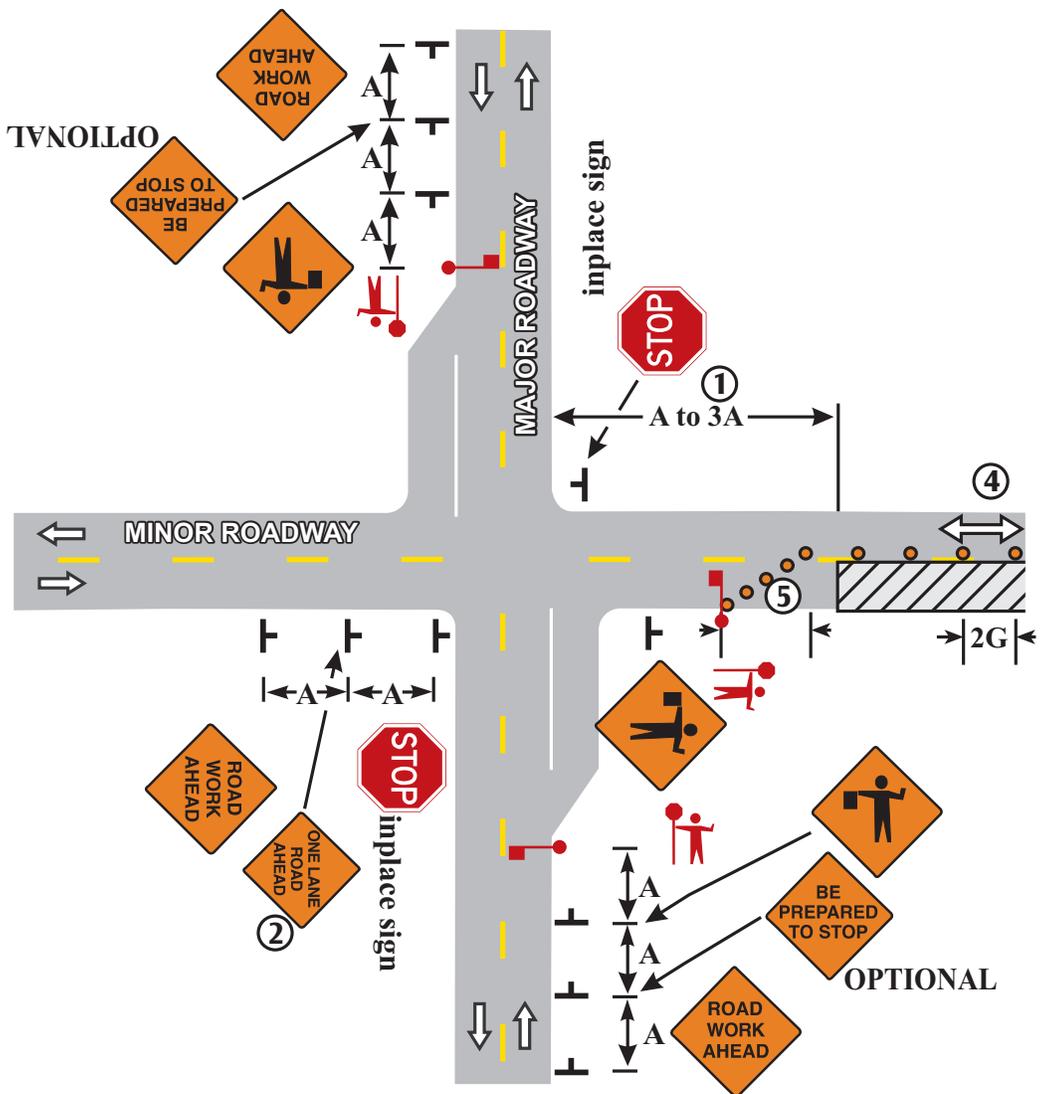
1. The spacing between devices should be reduced to **G** or less when the work space is within 300 feet of the intersection. This will help keep motorists from entering into the work space near the intersection.
2. The ONE LANE ROAD AHEAD sign may be omitted when the posted speed limit is 40 mph or less.
3. When the traffic volume of the minor road exceeds 1500 ADT or turning movements cause unsafe operations, the following steps should be considered:
  - a. Control the traffic at the intersection with a law enforcement officer;
  - b. Restrict vehicle turns from the major roadway with flagging, signing, and/or closing the turn lanes; or
  - c. Completely close a leg of the minor roadway until the work space has left the area near the intersection. (Local traffic only)
4. For other temporary traffic control devices in advance of the work space, see Layouts 10, 11, or 13.



**LANE CLOSURE ON MINOR ROAD  
BEFORE INTERSECTION OF MAJOR ROAD  
TWO-LANE TWO-WAY ROAD**

NOTES:

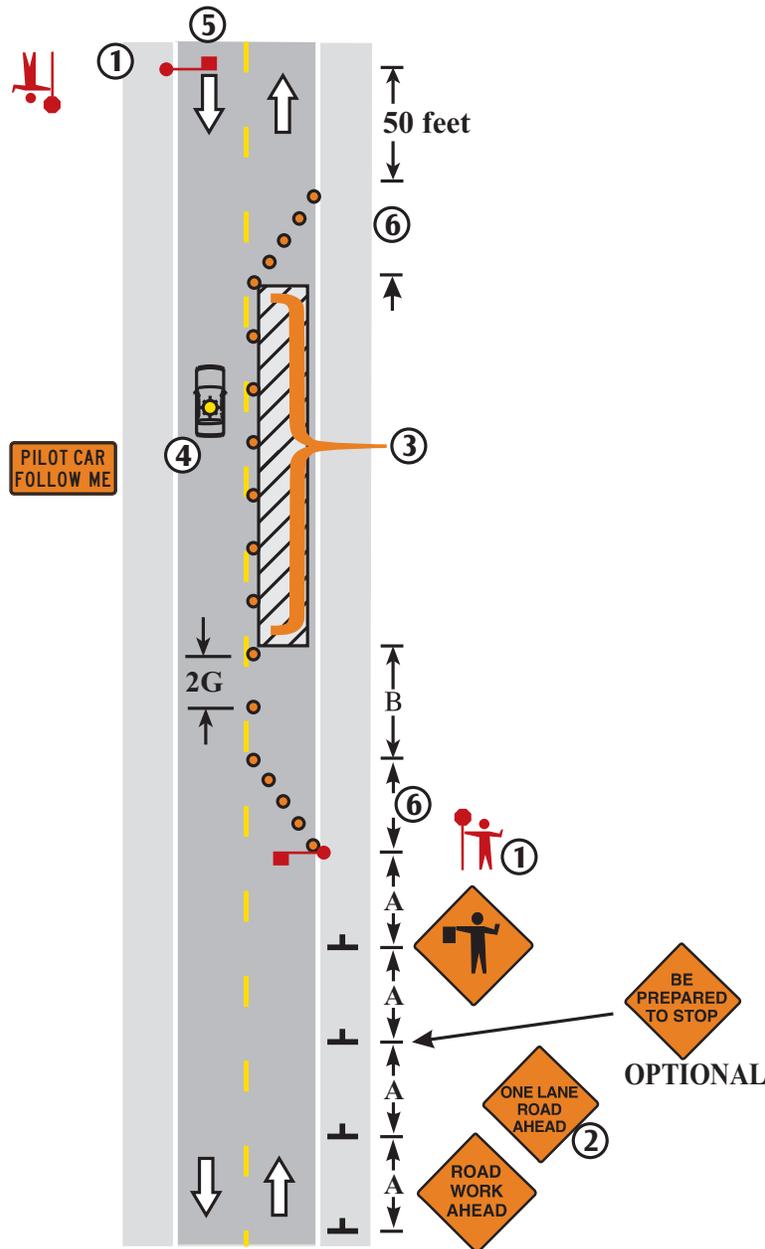
1. When the work space is located between **A** and **3A** beyond a controlled intersection, the normal sign and buffer spacing in the approach area may be reduced during daylight operations. The Flagger sign should be centered between the flagger station and the intersection.
2. The ONE LANE ROAD AHEAD sign may be omitted when the posted speed is 40 mph or less.
3. When the traffic volume of the minor road exceeds 1500 ADT or turning movements cause unsafe operations, the following steps should be considered:
  - a. Control the traffic at the intersection with a law enforcement officer;
  - b. Restrict vehicle turns from the major roadway with flagging, signing, and/or closing the turn lanes; or
  - c. Completely close a leg of the minor roadway until the work space has left the area near the intersection. (Local traffic only)
4. For other temporary traffic control devices in advance of the work space, see Layouts 10, 11, or 13.
5. The two-way taper should be 50 feet in length using five equally spaced channelizing devices.



**LANE CLOSURE ON MINOR ROAD  
BEYOND INTERSECTION OF MAJOR ROAD  
TWO-LANE TWO-WAY ROAD**

NOTES:

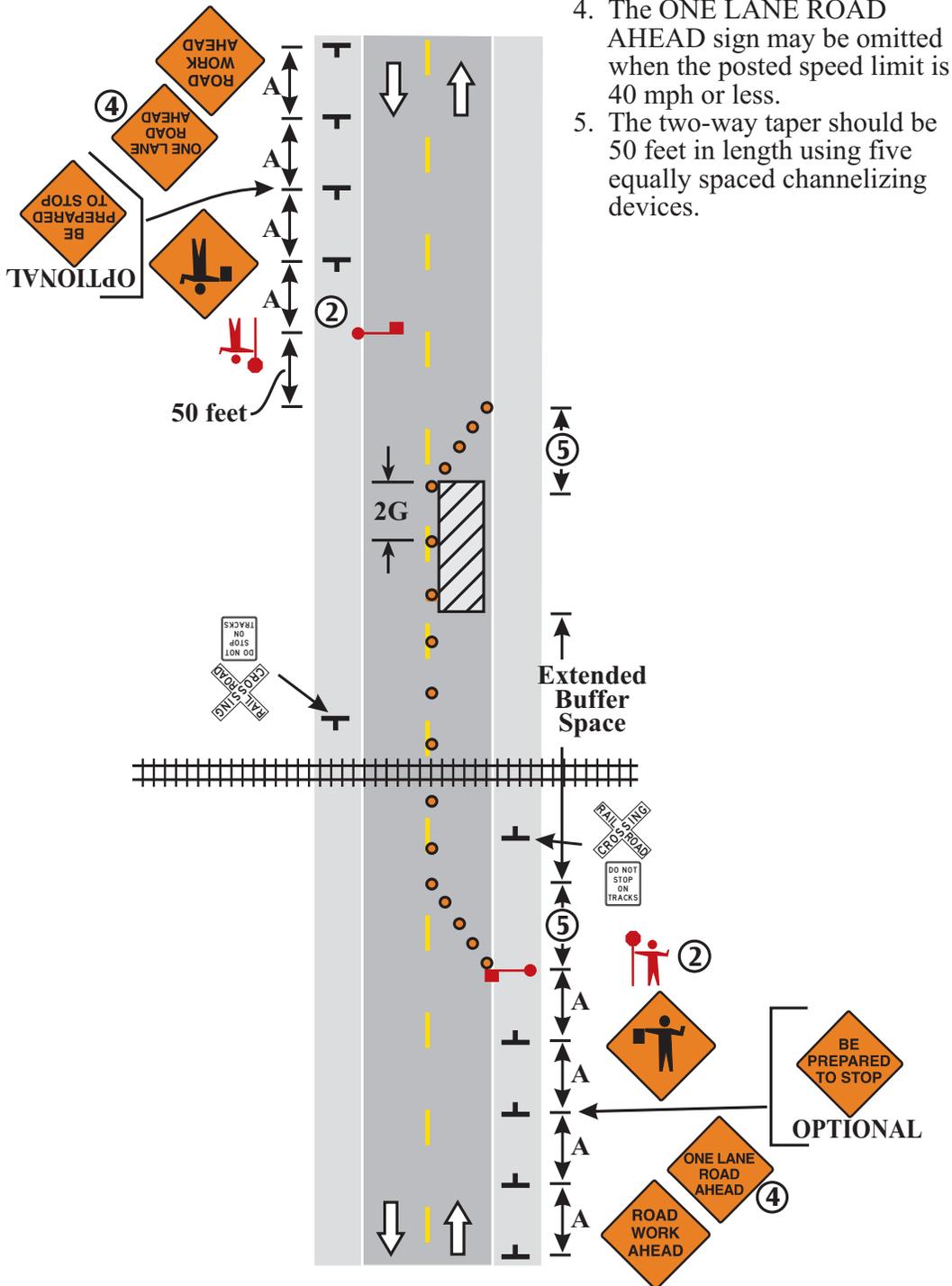
1. The approach sight distance to the flagger shall be at least the Decision Sight Distance (**D**).
2. The ONE LANE ROAD AHEAD sign may be omitted when the posted speed limit is 40 mph or less.
3. Channelizing devices along the edge of the work space may be omitted unless:
  - a. Traffic is traveling next to longitudinal drop-offs that are greater than 4 inches, or
  - b. Visibility of the open traveled lane is restricted.
4. Pilot cars should lead traffic through the work zone at a safe speed. See the *Flagger Handbook* for additional guidance.
5. Advance warning signs are the same for both directions approaching the work area.
6. The two-way taper should be 50 feet in length using five equally spaced channelizing devices.



**LANE CLOSURE, PILOT CAR METHOD  
TWO-LANE TWO-WAY ROAD**

NOTES:

1. If the backup of vehicles across active railroad tracks cannot be avoided, a law enforcement officer or a flagger shall be provided at the crossing to prevent vehicles from stopping within the railroad crossing even if automatic warning devices are in place.
2. The approach sight distance to the flagger shall be at least the Decision Sight Distance (**D**).
3. The activity area should be extended beyond the railroad crossing so that the backup of traffic created by the flagging operation will not extend across the railroad crossing.



4. The ONE LANE ROAD AHEAD sign may be omitted when the posted speed limit is 40 mph or less.
5. The two-way taper should be 50 feet in length using five equally spaced channelizing devices.

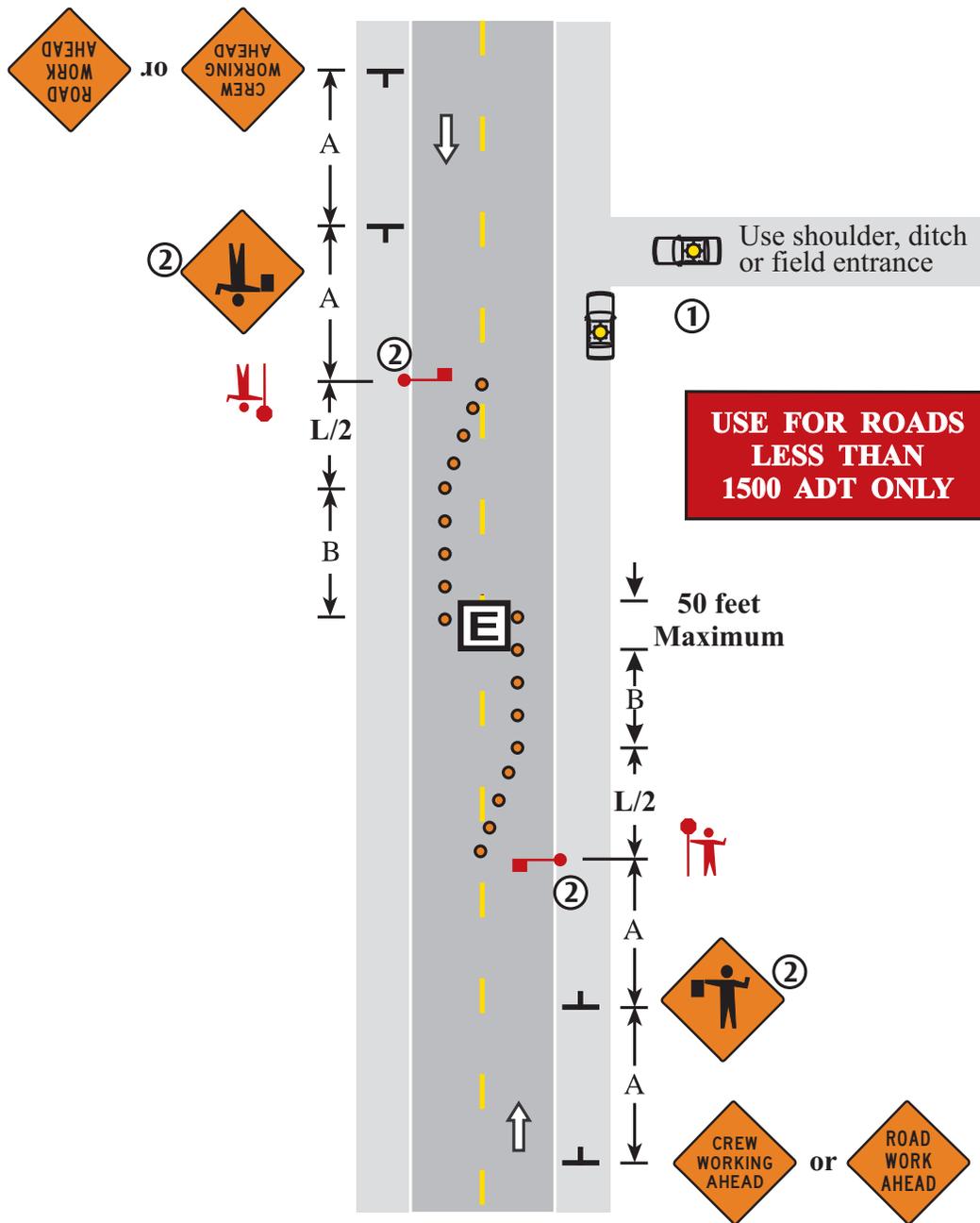
**LANE CLOSURE NEAR GRADE CROSSING  
TWO-LANE TWO-WAY ROAD**





NOTES:

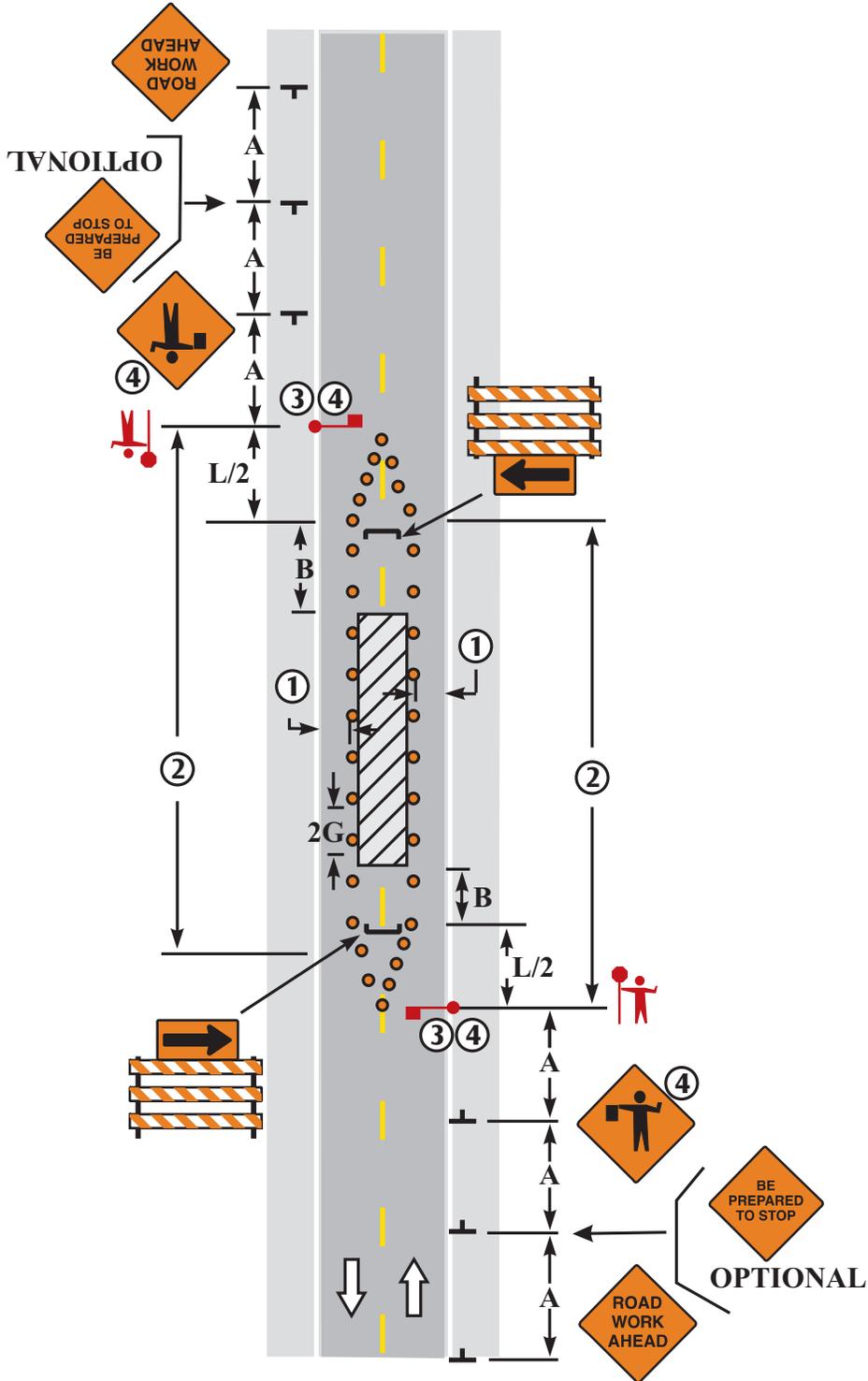
1. The work vehicle shall be parked off of the roadway.  
Do not obstruct the shoulder in the coned areas.
2. The flagger and Flagger Ahead sign may be omitted if there is at least 10 feet of roadway and shoulder available to safely pass the work equipment on the centerline of the roadway.



**EQUIPMENT ON CENTERLINE  
TWO-LANE TWO-WAY ROAD**

NOTES:

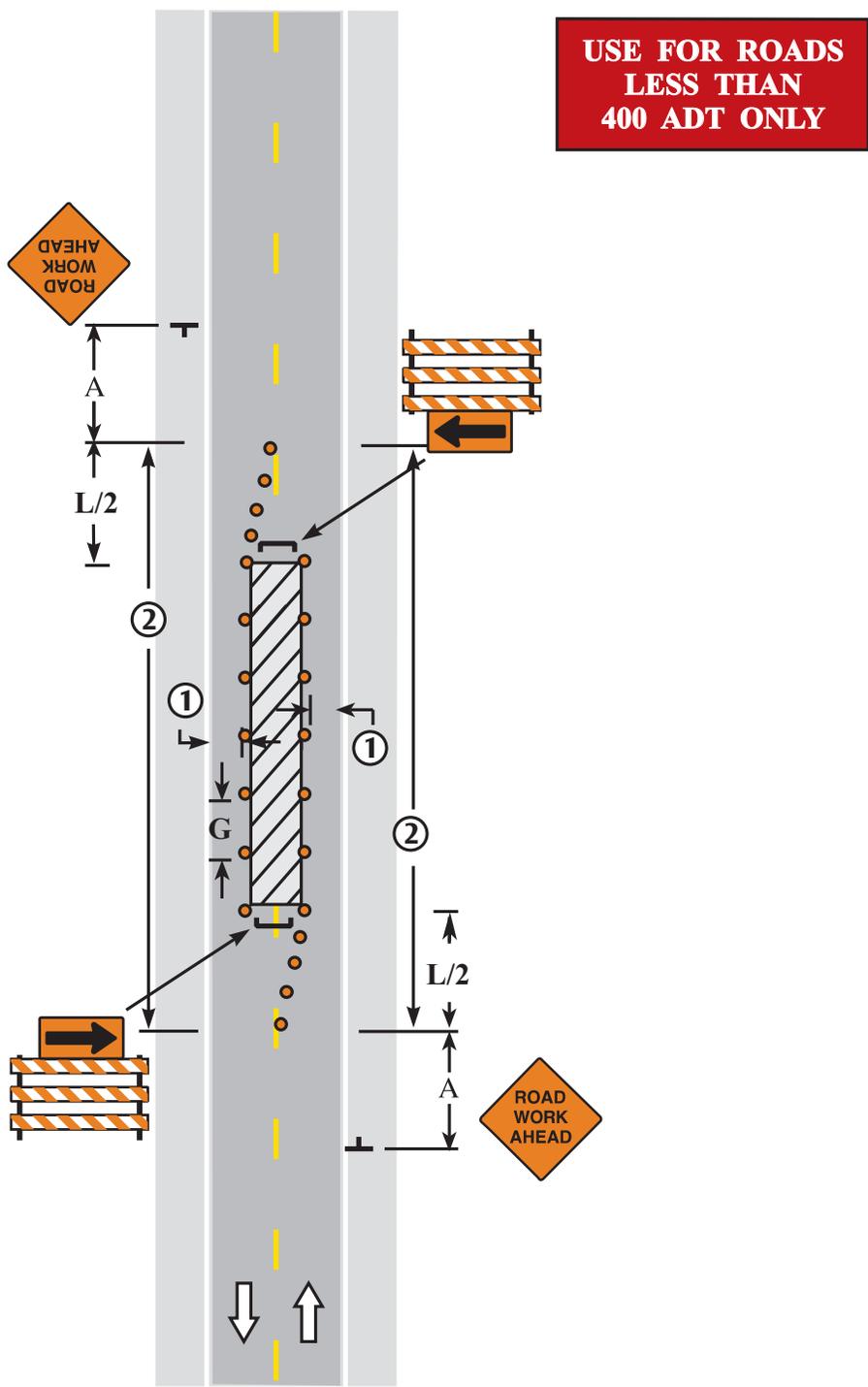
1. Minimum paved lane width from the channelizing devices to the edge of pavement or outside edge of the shoulder shall be 10 feet.
2. Parking and stopping may be prohibited along the work area and tapers.
3. The flagger shall be visible for at least the Decision Sight Distance (**D**).
4. The flaggers and Flagger Ahead signs may be omitted if the posted speed limits is 40 mph or less.



**WORK SPACE IN CENTER OF ROAD  
TWO-LANE TWO-WAY ROAD**

NOTES:

1. Minimum paved lane width from the channelizing devices to the edge of pavement or outside edge of the shoulder shall be 10 feet.
2. Parking and stopping may be prohibited along the work area and tapers.

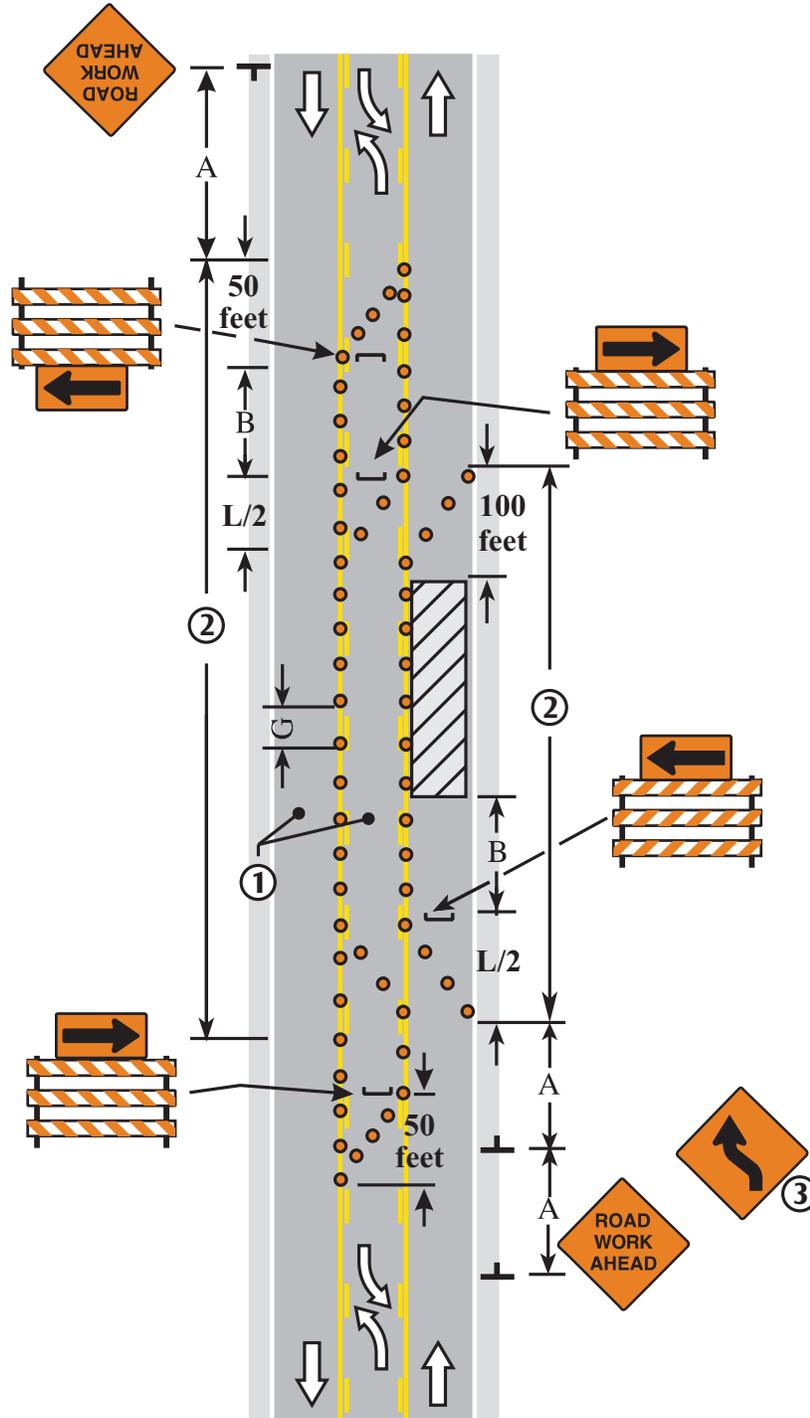


**WORK SPACE IN CENTER OF ROAD  
TWO-LANE TWO-WAY ROAD**



NOTES:

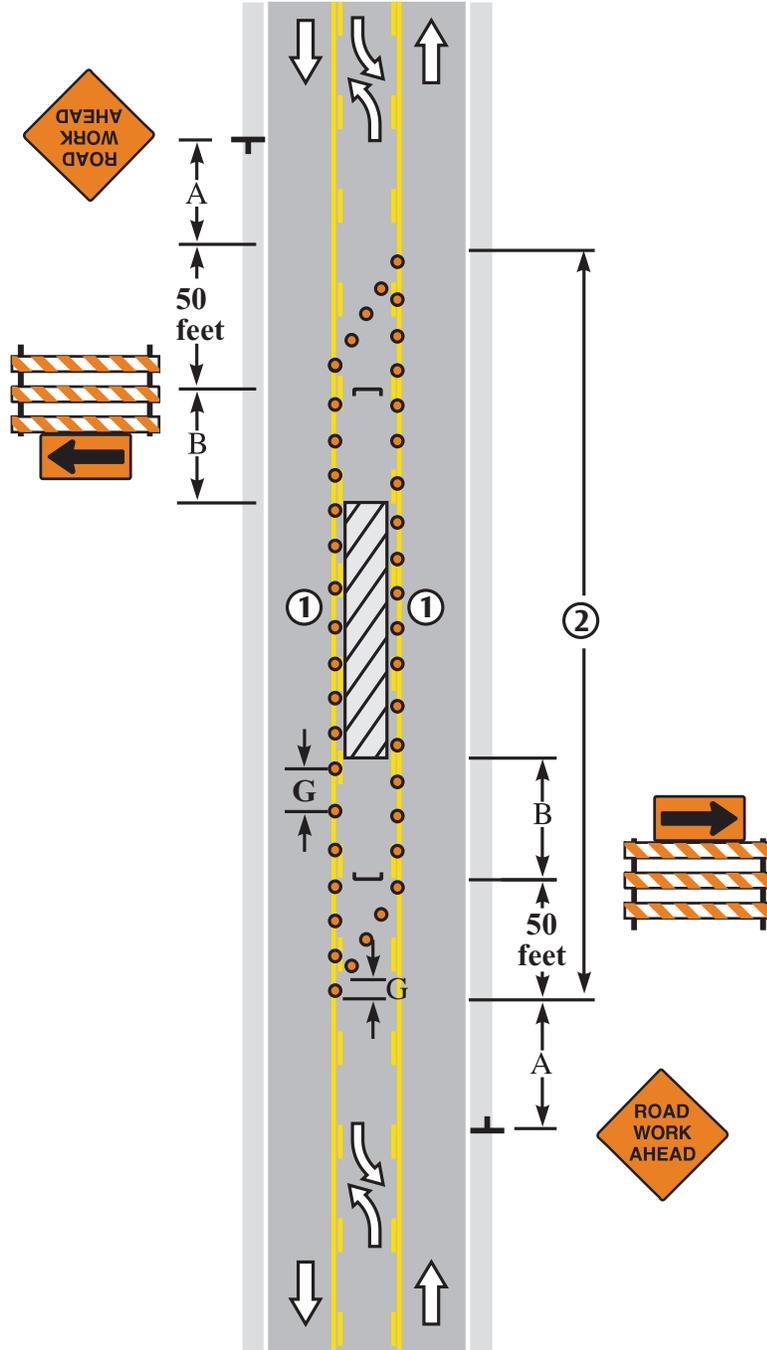
1. The minimum paved lane width from channelizing devices to edge of pavement or outside edge of paved shoulder or face of curb shall be 10 feet.
2. Parking, stopping, and left turning movements may be prohibited along the work space and taper.
3. The Lane Shift symbol sign may be omitted when the posted speed limit is 40 mph or less.



**LANE CLOSURE  
TWO-LANE TWO-WAY ROAD  
WITH TWO WAY LEFT TURN LANE**

NOTES:

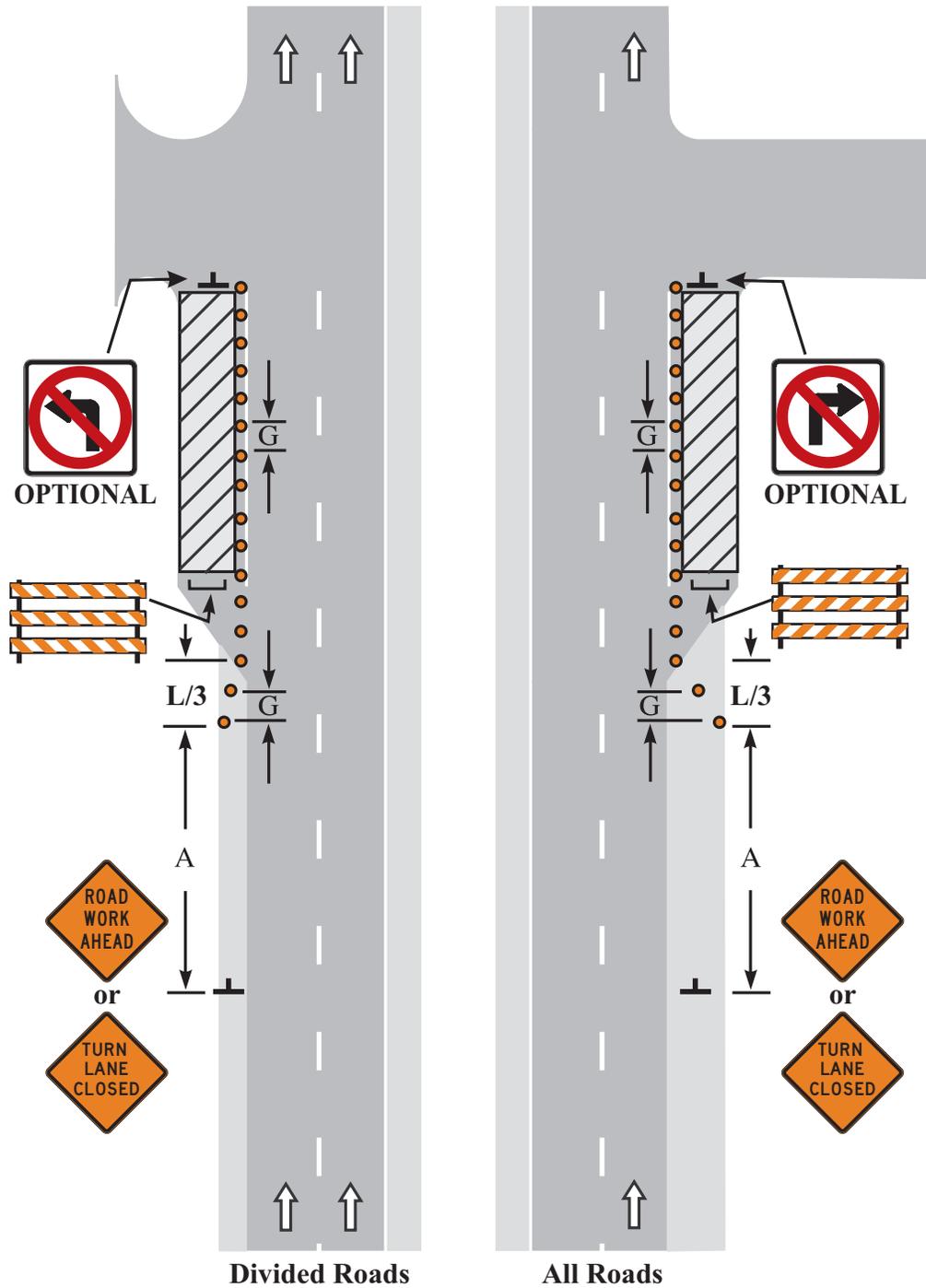
1. The minimum paved lane width from channelizing devices to edge of pavement or outside edge of paved shoulder or face of curb shall be 10 feet.
2. Parking, stopping, and left turning movements may be prohibited along the work space and taper.



**TURN LANE CLOSURE  
TWO-LANE TWO-WAY ROAD  
WITH TWO WAY LEFT TURN LANE**

NOTES:

1. Contact the appropriate road authority for signal timing modifications before beginning work at any signalized intersection.



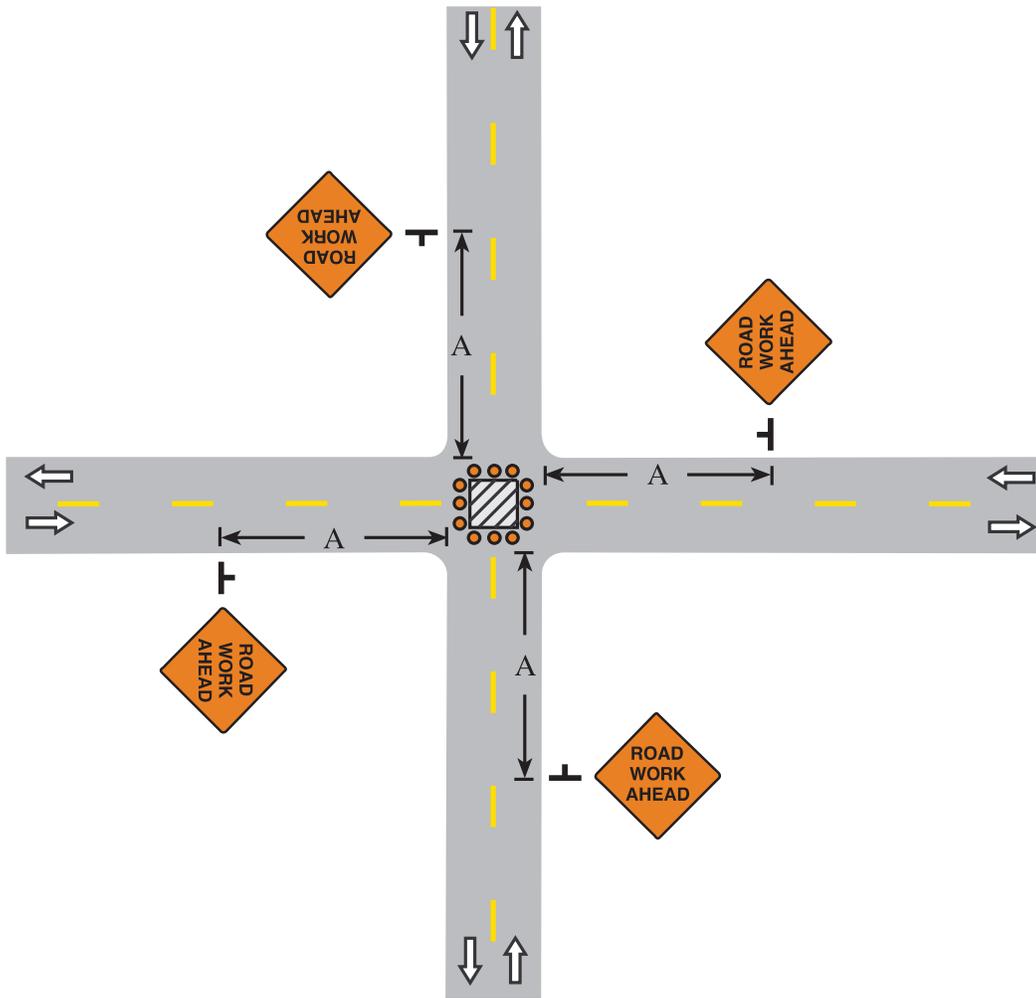
### TURN LANE CLOSURES

NOTES:

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.

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

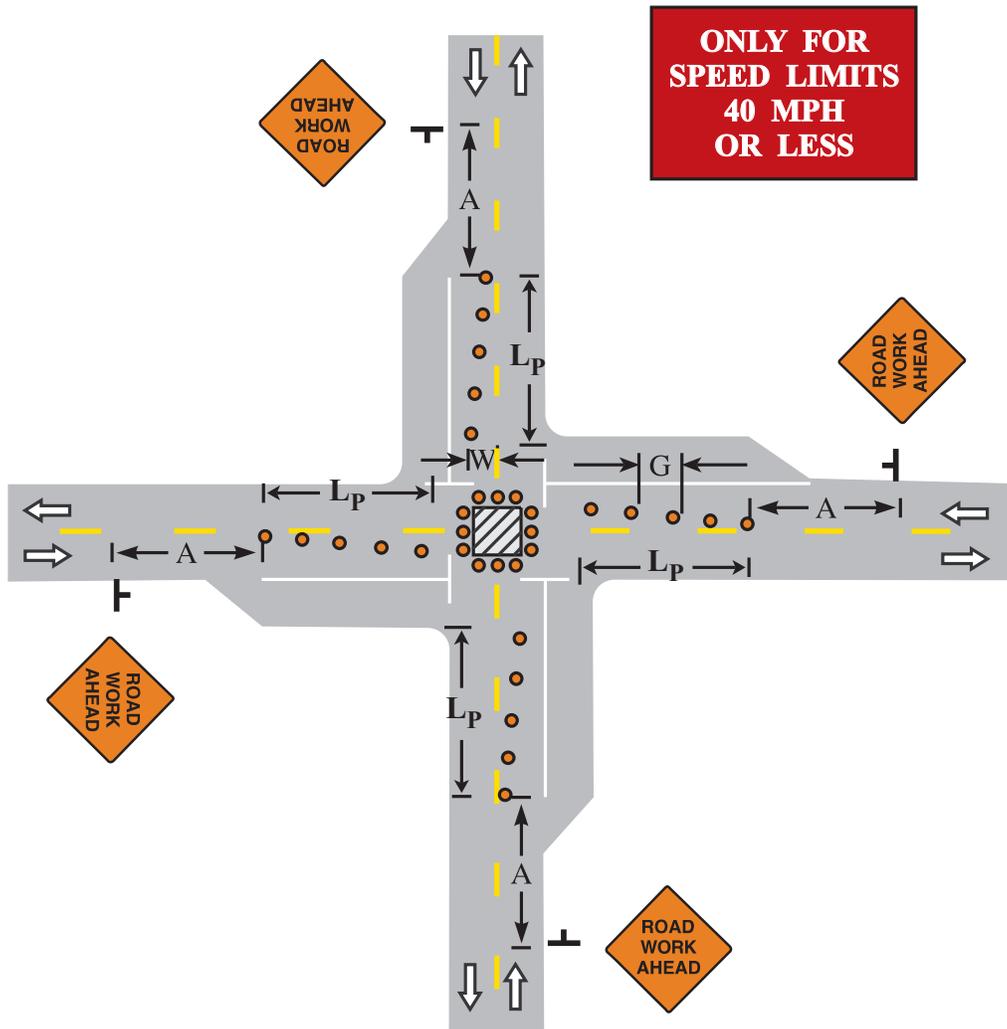
**ONLY FOR  
SPEED LIMITS  
40 MPH  
OR LESS**



**CLOSURE IN CENTER OF INTERSECTION**

NOTES:

1. Contact the appropriate road authority for signal timing modifications before beginning work at any signalized intersection.
2. 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.



Posted Speed Limit Prior to Work Starting (mph)	
0 - 30	G=25 ft
35 - 40	

Partial Lane Closure Taper Lengths based on encroachment distance into the lane (W) (Lp)					
	feet	feet	feet	feet	feet
W	2	4	6	8	10
Lp	50	75	100	125	150
	75	100	175	225	300

**CLOSURE IN CENTER OF INTERSECTION**