

CHAPTER 5 – Work Operations



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(This Section is based on Location, Duration, Consideration for Vehicle Speed, and Volume of Traffic)

5.1 General Rules (All Operations)

Vehicle Warning Lights

Unless otherwise noted, work vehicles must always use warning lights with at least 50% being amber in color attached to the vehicle as high as possible and in a manner such that they are not obscured by equipment or supplies. Vehicle hazard signals or lights may be used to supplement this requirement. This requirement applies to all work vehicles and equipment NOT inside lane closures or behind barriers. This requirement does NOT apply to dump trucks but, is encouraged. (Effective Date 7-1-2012)

Advance Warning Signs

When required to install portable “Shoulder Work” sign on shoulder in advance of work, the following signs are also acceptable to use in lieu of the “Shoulder Work” sign.

- “Utility Work Ahead”
- “Road Work Ahead”
- “Worker Symbol”

Barrier / Steel Plate Installation

When installing water filled, portable concrete barrier or steel plates, a Qualified Work Zone Supervisor must approve use and placement location.

Pavement edge Drop-offs

- When work is performed along the edge of pavement the maximum allowable vertical drop off at the edge of pavement on roads with a **40mph posted speed limit or less** is **3 inches** at the end of the work day.
- When work is performed along the edge of pavement the maximum allowable vertical drop off at the edge of pavement on roads with a **45mph posted speed limit or more** is **2 inches** at the end of the work day.
- Vertical drop offs at the edge of pavement greater than those stated above require temporary treatment such as a 6 to 1 temporary slope of compacted stone or asphalt placed at the top of the existing pavement or the area may be completely back filled with temporary material.
- In all pavement edge drop-off conditions use signs and traffic control devices to delineate the area to traffic.

Differences in Pavement Elevations between Open Lanes

- The maximum vertical difference in elevation between open lanes of traffic is **2 inches** with a **posted speed limit of 30mph or more**. If this condition exists on any section of roadway; close one of the lanes to traffic; pave the section to the same elevation; or taper the pavement at a 6 to 1 slope between the lanes prior to reopening.
- Use “Uneven Lanes” signs (W8-11) if lanes are open with a vertical difference between them of less than 2 inches or the lanes are open with a 6 to 1 slope between the lanes.

Shoulder / Lane Closures

- When operations requires the use of cones, drums, or skinny drums to either close the shoulder or lane closest to the work area, refer to the NCDOT Roadway Standard Drawings for correct placement.

Channelization Device Spacing

- Unless otherwise noted, herein the spacing between cones, tubular markers, drums, and skinny drums should not exceed a distance in feet equal to 1.0 times the posted speed limit in mph when used for taper channelization, and a distance in feet equal to 2.0 times the posted speed limit in mph when used for tangent channelization.

Mobility and Safety (All Operations)

- At all times, motorists, bicyclists, and pedestrians should be guided in a clear and positive manner while approaching and traversing the TTC zone(s).

5.2 Work Duration Definitions

- A. **Long-term stationary** is work that occupies a location more than 3 days.
- B. **Intermediate-term stationary** is work that occupies a location more than one daylight period up to 3 days, or nighttime work lasting more than 1 hour.
- C. **Short-term stationary** is daytime work that occupies a location for more than 1 hour within a single daylight period.
- D. **Short duration** is work that occupies a location up to 30 minutes.
- E. **Mobile** is work that moves intermittently or continuously with stoppage not exceeding 5 minutes.

5.2.1 A - Long Term Stationary

Definition: – Work that occupies a location more than 3 days

All Roadways

- **Work, personnel or equipment are within 5' of an open travel lane**
 - **Close the nearest open travel lane** using Roadway Standard Drawing No. 1101.02 unless the work area is protected by barrier or guardrail.
 - Protect any excavation or pit left open overnight with portable barrier or steel plates. NOTE: A Qualified Work Zone Supervisor must approve barrier or steel plate's use and placement location.
- **Work, personnel or equipment are within 15' of an open travel lane**
 - **Close the nearest open shoulder** per NCDOT Roadway Standard Drawing No. 1101.04 unless the work area is protected by barrier or guardrail or a lane closure is installed.
 - Protect any excavation or pit left open overnight with portable barrier or steel plates. NOTE: A Qualified Work Zone Supervisor must approve barrier or steel plate's use and placement location.

5.2.2 B - Intermediate Term Stationary

Definition: – Work that occupies a location more than 1 daylight period up to 3 days, or nighttime work lasting more than 1 hour

Roadways without Curb & Gutter

a) 2 Lane, 2 Way

i) Work Involving Open Cuts

- **Work, personnel or equipment are within 5' of an open travel lane**
 - **Close the nearest open travel lane** using Roadway Standard Drawing No. 1101.02 unless the work area is protected by barrier or guardrail.
 - Protect any excavation or pit left open overnight with portable barrier or steel plates. NOTE: A Qualified Work Zone Supervisor must approve barrier or steel plate's use and placement location.
- **Work, personnel or equipment are within 15' of an open travel lane**
 - **Close the nearest open shoulder** per NCDOT Roadway Standard Drawing No. 1101.04 unless the work area is protected by barrier or guardrail or a lane closure is installed.
 - Protect any excavation or pit left open overnight with portable barrier or steel plates. NOTE: A Qualified Work Zone Supervisor must approve barrier or steel plate's use and placement location.

ii) Work Not Involving Open Cuts

- **Work, personnel or equipment are within 5' of an open travel lane**
 - **Close the nearest open travel lane** using Roadway Standard Drawing N. 1101.02 unless the work area is protected by barrier or guardrail.
- **Work, personnel or equipment are within 15' of an open travel lane**
 - **Close the nearest open shoulder** per NCDOT Roadway Standard Drawing No. 1101.04 unless the work area is protected by barrier or guardrail or a lane closure is installed.

b) 4 Lane Divided

i) Work Involving Open Cuts

- **Work, personnel or equipment are within 10' of an open travel lane**
 - **Close the nearest open travel lane** using Roadway Standard Drawing N. 1101.02 unless the work area is protected by barrier or guardrail.
 - Protect any excavation or pit left open overnight with portable barrier or steel plates. NOTE: A Qualified Work Zone Supervisor must approve barrier or steel plate's use and placement location.
- **Work, personnel or equipment are more than 10' from edge of an open travel lane**
 - **Close the nearest open shoulder** per NCDOT Roadway Standard Drawing No. 1101.04 unless the work area is protected by barrier or guardrail or a lane closure is installed.
 - Protect any excavation or pit left open overnight with portable barrier or steel plates. NOTE: A Qualified Work Zone Supervisor must approve barrier or steel plate's use and placement location.

ii) Work Not Involving Open Cuts

- **Work, personnel or equipment are 10' or closer to the edge of an open travel lane**
 - **Close the nearest open travel lane** using Roadway Standard Drawing N. 1101.02 unless the work area is protected by barrier or guardrail.
- **Work, personnel or equipment are more than 10' from edge of an open travel lane**
 - **Close the nearest open shoulder** per NCDOT Roadway Standard Drawing No. 1101.04 unless the work area is protected by barrier or guardrail or a lane closure is installed.

All Roadways with Curb & Gutter

a) Work With or Without Open Cuts

- **Work, personnel, equipment or materials are within 2' of an open travel lane**
 - **Close the nearest open travel lane** using Roadway Standard Drawing No. 1101.02 unless the work area is protected by barrier or guardrail.
 - Protect any excavation or pit left open overnight with portable barrier or steel plates. NOTE: A Qualified Work Zone Supervisor must approve barrier or steel plate's use and placement location.
 - If applicable reasonable accommodations for pedestrians should be made as provided in the MUTCD. (See Qualified Work Zone Supervisor for guidance)
- **Work, personnel or equipment are more than 2' of an open travel lane**
 - Install portable "Shoulder Work" sign on shoulder in advance of work. "Utility Work Ahead", "Road Work Ahead", or Worker symbol signs may be used in lieu of "Shoulder Work" sign as a minimum.
 - Cones or skinny drums may be used to delineate the work area.
 - Protect any excavation or pit left open overnight with portable barrier or steel plates. NOTE: A Qualified Work Zone Supervisor must approve barrier or steel plate's use and placement location.
 - If applicable reasonable accommodations for pedestrians should be made as provided in the MUTCD. (See Qualified Work Zone Supervisor for guidance)

5.2.3 C - Short Term Stationary

Definition: – Daytime work that occupies a location more than 1 hour within a single daylight period

Roadways without Curb & Gutter

a) 2 Lane, 2 Way with a posted speed of 55 mph or less and with minor encroachment in the travel lane.

- The travel lane adjacent to the work area may be narrowed to 10 feet as measured from the lane line to the face of the channelizing devices.
NOTE: Unless the lane encroachment permits a remaining lane width of 10 feet minimum, the lane should be closed.
- All lanes should be a minimum of 10 feet in width as measured to the near face of the channelizing devices.
- The treatment should be used on a road where the posted speed limit is 55 mph or less. For higher-speed traffic conditions, a lane closure should be utilized.
- Use “Lane Narrow” signs or optional flagger with a slow paddle.
- A truck-mounted attenuator may be used.
- Work vehicles must use warnings lights.
- Vehicle-mounted signs shall be mounted in a manner such that they are not obscured by equipment or supplies. Sign Legends on vehicle-mounted signs shall be covered or turned from the driver’s view when work is not in progress.

b) 4- Lane Divided, Undivided Multi-Lane or One Way Multilane

i) Work With or Without Open Cuts

- **Work, personnel or equipment are within 5’ of an open travel lane**
 - **Close the nearest open travel lane** using Roadway Standard Drawing No. 1101.02 unless the work area is protected by barrier or guardrail.
- **Work, personnel or equipment are within 15’ of an open travel lane**
 - **Close the nearest open shoulder** per NCDOT Roadway Standard Drawing No. 1101.04 unless the work area is protected by barrier or guardrail or a lane closure is installed.

Roadways with Curb & Gutter

i) Work With or Without Open Cuts

- **Work, personnel or equipment are within 2' of an open travel lane**
 - **Close the nearest open travel lane** using Roadway Standard Drawing No. 1101.02 unless the work area is protected by barrier or guardrail.
 - If applicable reasonable accommodations for pedestrians should be made as provided in the MUTCD. (See Qualified Work Zone Supervisor for guidance)
- **Work, personnel or equipment are more than 2' of an open travel lane**
 - Install portable “Shoulder Work” sign on shoulder in advance of work. “Utility Work Ahead”, “Road Work Ahead”, or Worker symbol signs may be used in lieu of “Shoulder Work” sign as a minimum.
 - Cones or skinny drums may be used to delineate the work area.
 - If applicable reasonable accommodations for pedestrians should be made as provided in the MUTCD. (See Qualified Work Zone Supervisor for guidance)

5.2.4 D - Short Duration

Definition: – Work that occupies a location up to 30 minutes

All Roadways without Curb & Gutter

- **Work, personnel or equipment are encroaching in open travel lane**
 - When posted speeds are 55mph or less and volumes are low, work in the travel way under this definition may be accomplished with warning lights and advance warning Temporary Traffic Control signs mounted on the shoulder. An additional Temporary Traffic Control sign attached to the rear of work vehicle is recommended
- **Work, personnel or equipment are within 15' of an open travel lane**
 - Install portable “Shoulder Work” sign on shoulder in advance of work. “Utility Work Ahead”, “Road Work Ahead”, or Worker symbol signs may be used in lieu of “Shoulder Work” sign.
 - Place signs on both shoulders if work is in the median as well. “Right” & “Left” may be used with the “Shoulder Work” signs.
- **Work, personnel or equipment are more than 15' of an open travel lane**
 - Recommend Temporary Traffic Control sign attached to rear of work vehicle for work activities similar to and including litter pick-up. (“Litter Pick-up”)

All Roadways with Curb & Gutter

- **Work, personnel or equipment are encroaching in open travel lane**
 - When posted speeds are 55mph or less and volumes are low, work in the travel way under this definition may be accomplished with warning lights and advance warning Temporary Traffic Control signs mounted on the shoulder. An additional Temporary Traffic Control sign attached to the rear of work vehicle is recommended
- **Work, personnel or equipment are within 2' of an open travel lane**
 - Install portable “Shoulder Work” sign on shoulder in advance of work. “Utility Work Ahead”, “Road Work Ahead”, or Worker symbol signs may be used in lieu of “Shoulder Work” sign.
 - If applicable reasonable accommodations for pedestrians should be made as provided in the MUTCD. (See Qualified Work Zone Supervisor for guidance)
- **Work, personnel or equipment are more than 2' of an open travel lane**
 - If applicable reasonable accommodations for pedestrians should be made as provided in the MUTCD. (See Qualified Work Zone Supervisor for guidance)

5.2.5 E - Mobile

Definition: – Work that moves intermittently or continuously with stoppage not exceeding 5 minutes.

Guidance:

- When posted speeds are 55mph or less and volumes are low, work in the travel way under this definition may be accomplished with warning lights and advance warning Temporary Traffic Control signs mounted on the shoulder. An additional Temporary Traffic Control sign attached to the rear of work vehicle is recommended.
- Flaggers with appropriate “Stop/Slow” paddles and signing may be used with work such as this as long as they walk or are carried from place to place in the work zone inside a work vehicle.
- Get approval from your Qualified Work Zone Supervisor before using any of the special detail drawings available for this type of work. (See pages 80-101)
- **Driving construction equipment such as motor graders and back hoes along a highway is considered a mobile operation work zone and needs advance warning.** This can be provided by utilizing proper vehicle warning lights on the equipment and/or a shadow vehicle following at the proper distance.
- See pages 68 and 69 for guidelines involving Pavement edge Drop-offs and/or Differences in Pavement Elevations between open lanes of traffic.

Operations under this category include:

- Spraying Operations
- Mowing Operations
- Shoulder Sweeping Operations




5.3 Construction & Maintenance Activities

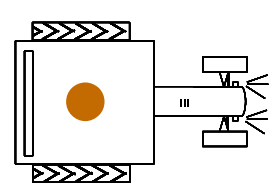


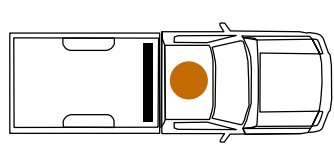
Notes for Mowing Operations on Multilane Divided Facilities (55 MPH and Below)

- (1) Use warning lights with at least 50% being amber in color attached to vehicles as high as possible and in a manner such that they are not obscured by equipment or supplies. Vehicle hazard signals or lights may only be used to supplement this requirement.
- (2) The total distance between the first advance warning TMCMS and moving vehicle should not exceed 1/2 mile.
- (3) Use a warning light on top of cab and two outside blinking amber lights visible from both directions on all mowers.
- (4) Use "Caution Mower" sign on rear of each mower.
- (5) Mowing operations are restricted to daylight hours.
- (6) Truck mounted changeable message sign
 - Min. Size Min. Letter Height
 - 73" x 43" 18"

LEGEND

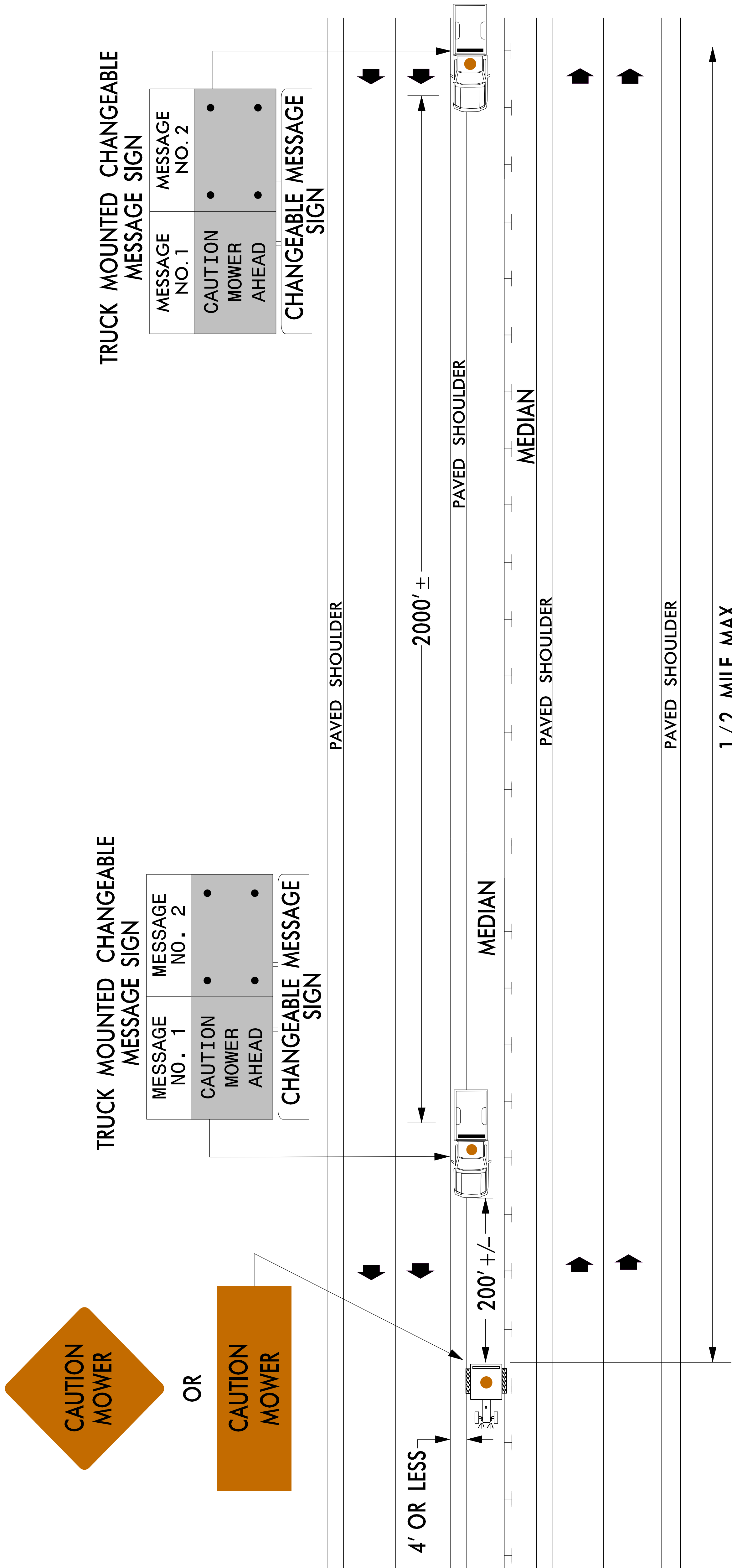
DIRECTION OF TRAFFIC FLOW

MOWING VEHICLE WITH WARNING LIGHTS

PICK-UP TRUCK WITH TMCMS AND VEHICLE WARNING LIGHTS (SEE RSD NO. 1165.01) AND NOTE 1

Mowing Operation


Multilane Divided Facilities
Location: Median With Tire of Mowing Vehicle
Four Feet or Less From Edgeline
Volume: Any Volume
Speed: 55 MPH and Below

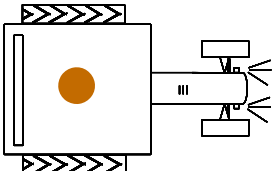


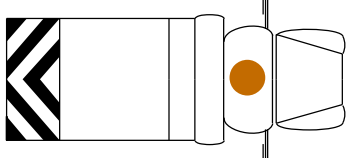
Notes for Mowing Operations on Multilane Divided Facilities (60 MPH & Above)

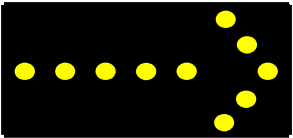
- (1) Use warning lights with at least 50% being amber in color attached to vehicles as high as possible and in a manner such that they are not obscured by equipment or supplies. Vehicle hazard signals or lights may only be used to supplement this requirement.
- (2) The total distance between the first advance warning TMCMS and moving vehicle should not exceed 1/2 mile.
- (3) Use a warning light on top of cab and two outside blinking amber lights visible from both directions on all mowers.
- (4) Use "Caution Mower" sign on rear of each mower.
- (5) Mowing operations are restricted to daylight hours.
- (6) Flashing arrow board
 - Board Type Min. Size
 - C 96" x 48"
- (7) Truck mounted changeable message sign
 - Min. Size Min. Letter Height
 - 73" x 43" 18"

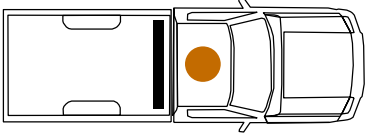
LEGEND

DIRECTION OF TRAFFIC FLOW

MOWING VEHICLE WITH WARNING LIGHTS

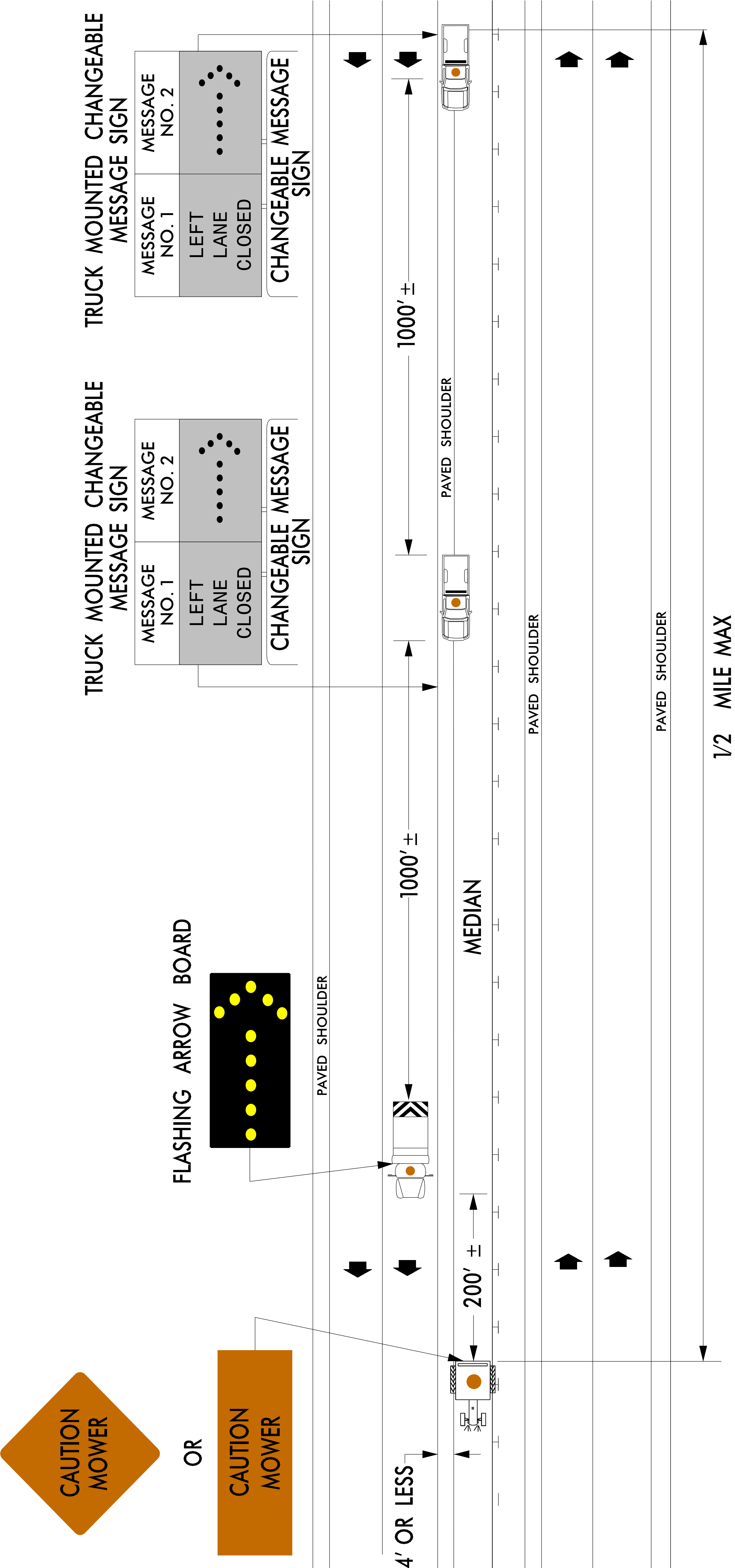
PROTECTION VEHICLE WITH TRUCK MOUNTED ATTENUATOR (TMA) AND VEHICLE WARNING LIGHTS (SEE RSD NO. 1165.01) AND NOTE 1

FLASHING ARROW BOARD APPROPRIATE DIRECTION INDICATED

PICK-UP TRUCK WITH TMCMS AND VEHICLE WARNING LIGHTS (SEE RSD NO. 1165.01) AND NOTE 1

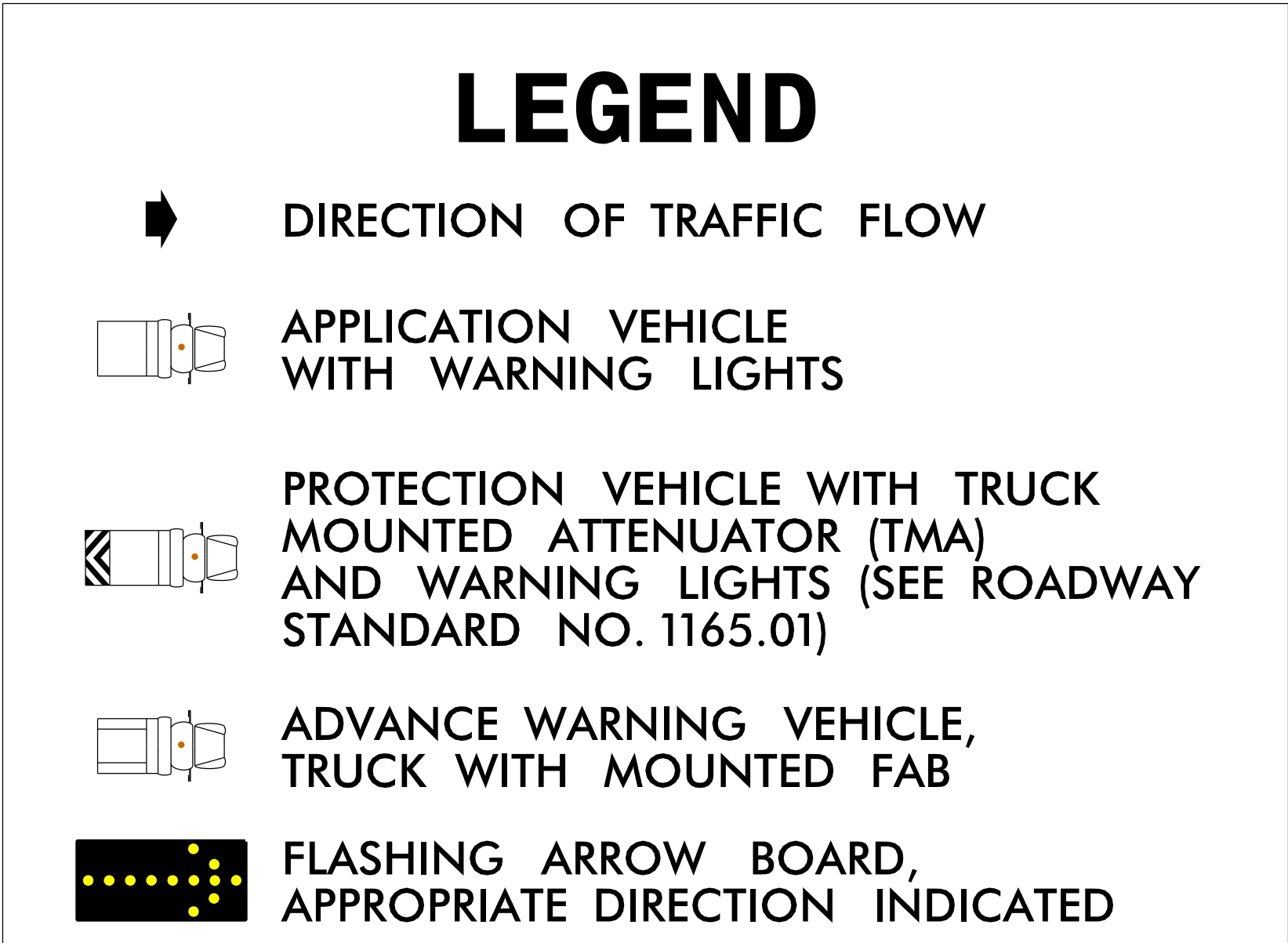
Mowing Operation

Multilane Divided Facilities
Location: Median With Tire of Mowing Vehicle
Four Feet or Less From Edgeline
Volume: Any Volume
Speed: 60 MPH & Above



**Notes for Moving Operation Caravan Spraying 60 MPH & Above
Multilane Divided Roadways in Median and on Right Side w/ paved
Shoulders less than 10’ Wide**

- (1) The following options may be used as the first advance warning the motorists see:
- A. Truck mounted advance warning signs
 - B. Truck mounted changeable message sign (CMS)
 - C. Stationary changeable message sign (CMS)
(must use ‘next 5 miles’ and make circle to pick up signs)
- (2) Total distance between first and last vehicle in caravan should be approximately one (1) mile in length.
- (3) If using stationary CMS, the total distance between the CMS and application vehicle should not exceed 5 miles and the message should read ‘machinery in road next 5 miles’.
- (4) Signs on vehicles should be mounted a minimum of one (1) foot from the ground and should not block the motorist’s sight of the flashing arrow board and/or warning lights.
- (5) Sign W20 – 5L should be placed on back of protection vehicle and sign W20 – 5 LD on back of advanced warning vehicle in multilane divided traffic so vehicles approaching from rear are notified of operation.
- (6) Radio communication between vehicles is recommended.
- (7) Use warning lights with at least 50% being amber in color attached to the vehicles as high as possible and in a manner such that they are not obscured by equipment or supplies. Vehicle hazard signals or lights may be used to supplement this requirement. This requirement applies to all work vehicles and equipment not inside a lane closure or behind a barrier. This requirement does not apply to dump trucks, but is encouraged.
- (8) Use of truck mounted CMS’s are optional with advanced warning vehicles.
- (9) Use a type “C” flashing arrow board.
- | | |
|------------|-----------|
| Board Type | Min. Size |
| C | 96”x48” |
- (10) May use a type “B” flashing arrow board on 1st advance warning vehicle.
- | | |
|------------|-----------|
| Board Type | Min. Size |
| B | 60”x30” |
- (11) If 43” x73” CMS is used, letter height must be 18”.



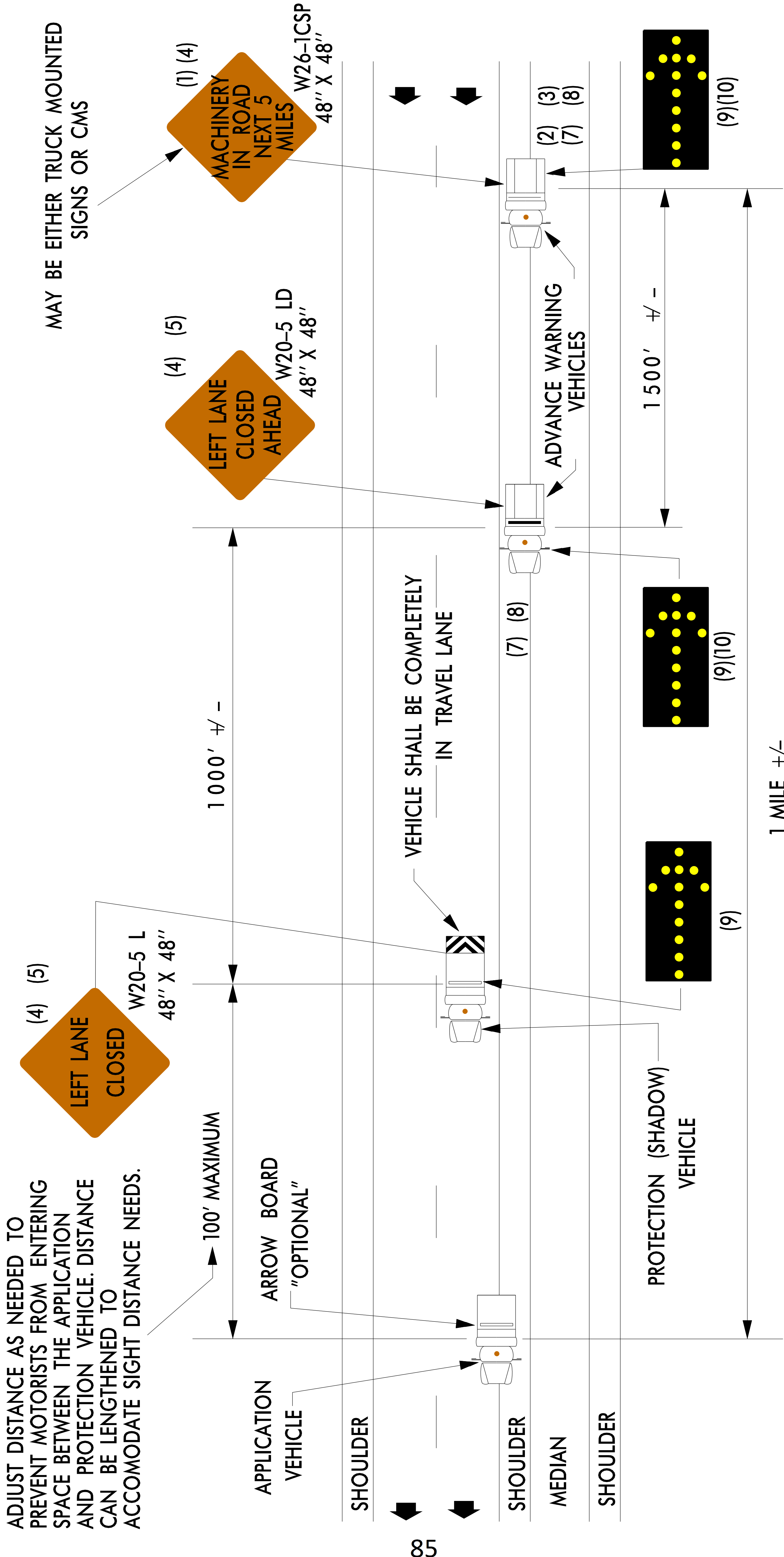
Moving Operation Caravan

(Operations Traveling 3 mph or Faster)

Spraying 60 mph & Above Multilane Divided Roadways

in Median and on Right Side

w/ Paved Shoulders less than 10' wide




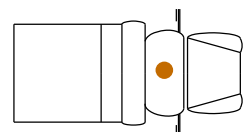
**Notes for Moving Operation Caravan Spraying 60 MPH & Above
Multilane Divided Roadways in Median and on Right Side w/ paved
Shoulders 10’ or Wider**

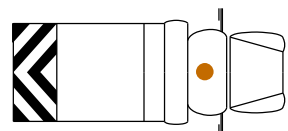
- (1) The following options may be used as the first advance warning the motorists see:
 - A. Truck mounted advance warning sign
 - B. Truck mounted changeable message sign (CMS)
 - C. Stationary changeable message sign (CMS)
(must use ‘next 5 miles’ and make circle to pick up CMS)
- (2) Total distance between first and last vehicle in caravan should be approximately one (1) mile in length.
- (3) If using stationary CMS, the total distance between the CMS and application vehicle should not exceed 5 miles and the message should read ‘Shoulder Closed’.
- (4) Signs on vehicles should be mounted a minimum of one (1) foot from the ground and should not block the motorist’s sight of the flashing arrow board and/or warning lights.
- (5) Sign W21 – 5BSP should be placed on back of advance warning vehicle in multilane divided traffic so vehicles approaching from rear are notified of operation.
- (6) Radio communication between vehicles is recommended.
- (7) Use warning lights with at least 50% being amber in color attached to the vehicle as high as possible and in a manner such that they are not obscured by equipment or supplies. Vehicle hazard signals or lights may be used to supplement this requirement. This requirement applies to all work vehicles and equipment not inside a lane closure or behind a barrier. This requirement does not apply to dump trucks, but is encouraged.
- (8) Use of CMS’s are optional with advanced warning vehicles.
- (9) Use a type “C” flashing arrow board.

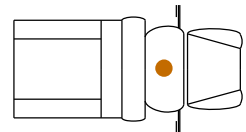
Board Type	Min. Size
C	96”x48”
- (10) If 43” x73” CMS is used, letter height must be 18”.


LEGEND

DIRECTION OF TRAFFIC FLOW

APPLICATION VEHICLE WITH WARNING LIGHTS

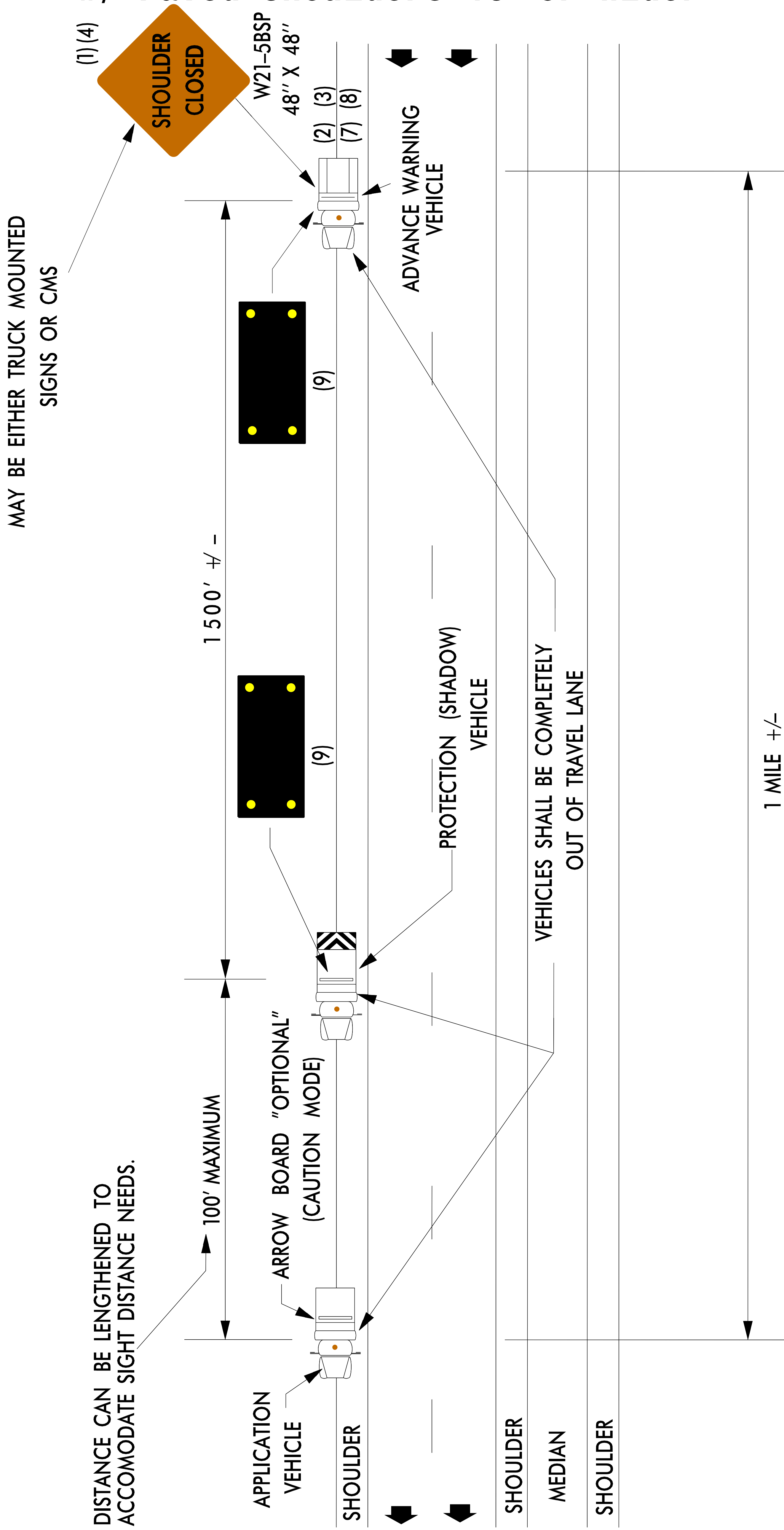
PROTECTION VEHICLE WITH TRUCK MOUNTED IMPACT ATTENUATOR (TMA) AND WARNING LIGHTS (SEE ROADWAY STANDARD NO. 1165.01)

ADVANCE WARNING VEHICLE, TRUCK WITH MOUNTED FAB

FLASHING ARROW BOARD, TYPE "C" "CAUTION MODE"

Moving Operation Caravan

(Operations Traveling 3 mph or Faster)
Spraying 60 mph & Above Multilane Divided Roadways
in Median and on Right Side
w/ Paved Shoulders 10' or Wider




Notes on Moving Operation Caravan for Spraying on Multilane Divided Roadways (In Median and on Right Side w/Paved Shoulders Less Than 10’ Wide)

- (1) The following options may be used as the first advance warning the motorists see:
 - a. Truck mounted advance warning signs
 - b. Moving changeable message sign (CMS)
- (2) Total distance between first and last vehicle in caravan should be approximately one mile in length.
- (3) Signs on vehicles should be mounted a minimum of one foot from the ground and should not block the motorist’s sight of the flashing arrow board and/or warning light.
- (4) Sign W20-5L should be placed on back of protection vehicle and sign W26-1CSP on back of advance warning vehicle in multilane divided traffic so vehicles approaching from rear are notified of operation.
- (5) Radio communication between vehicles is recommended.
- (6) Use warning lights with at least 50% being amber in color attached to the vehicle as high as possible and in a manner such that they are not obscured by equipment or supplies. Vehicle hazard signals or lights may be used to supplement this requirement. This requirement applies to all work vehicles and equipment not inside a lane closure or behind a barrier. This requirement does not apply to dump trucks, but is encouraged.
- (7) Use of CMS’s are optional with advanced warning vehicles.
- (8) Use a type “C” flashing arrow board.

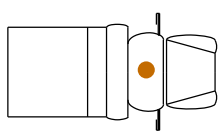
Board Type	Min. Size
C	96” x 48”
- (9) May use a type “B” flashing arrow board on 1st advance warning vehicle.

Board Type	Min. Size
B	60” x 30”
- (10)If 43” x 73” CMS is used, letter height must be 18”.

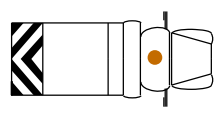
LEGEND



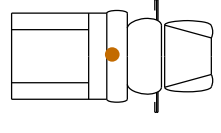
DIRECTION OF TRAFFIC FLOW



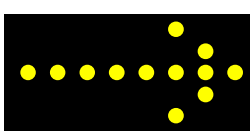
APPLICATION VEHICLE WITH WARNING LIGHTS



PROTECTION VEHICLE WITH TRUCK MOUNTED ATTENUATOR (TMA) AND WARNING LIGHTS (SEE ROADWAY STANDARD NO. 1165.01



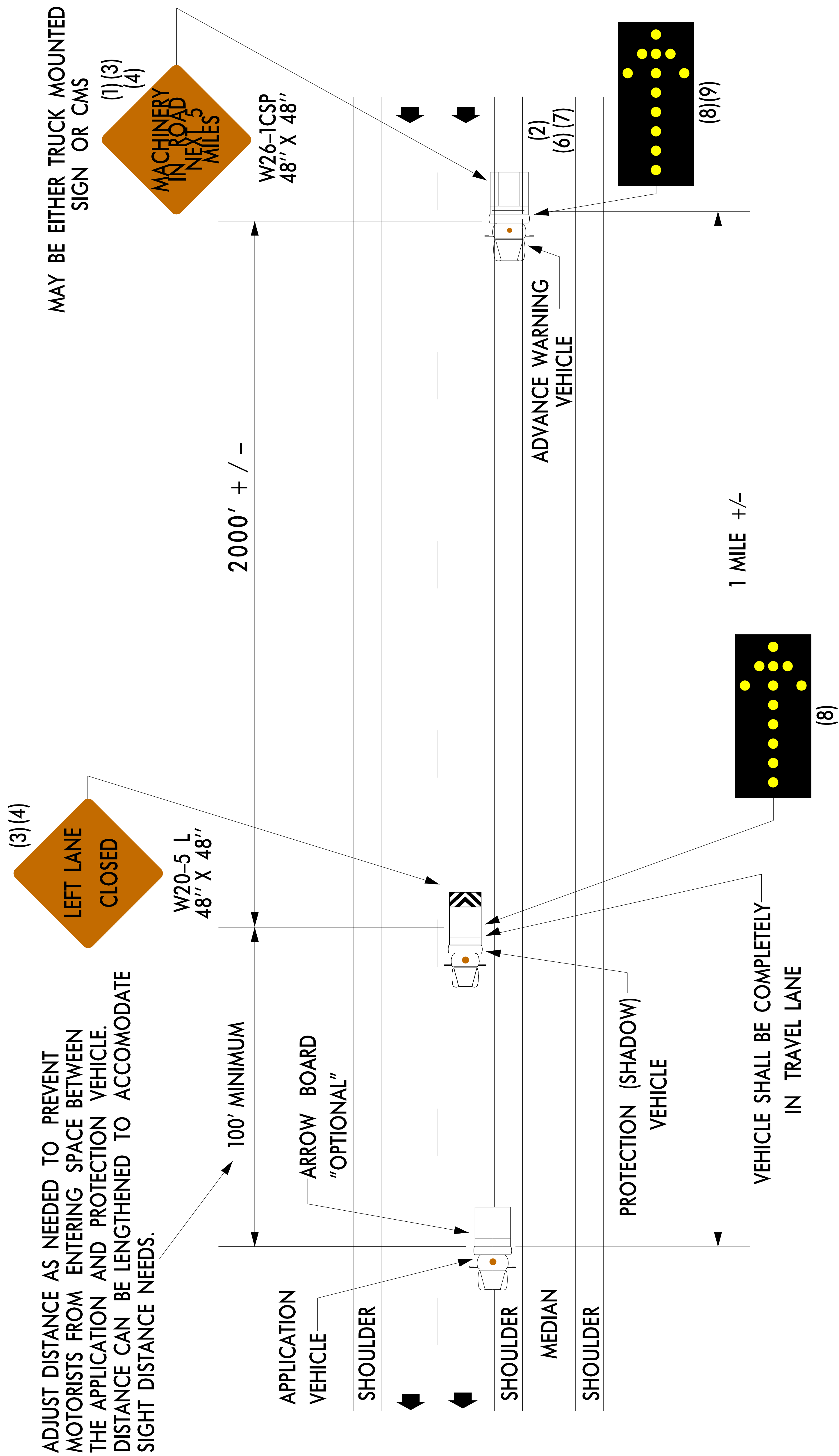
ADVANCE WARNING VEHICLE i.e., PICKUP TRUCK WITH MOUNTED SIGN



FLASHING ARROW BOARD, TYPE "B" "CAUTION MODE"

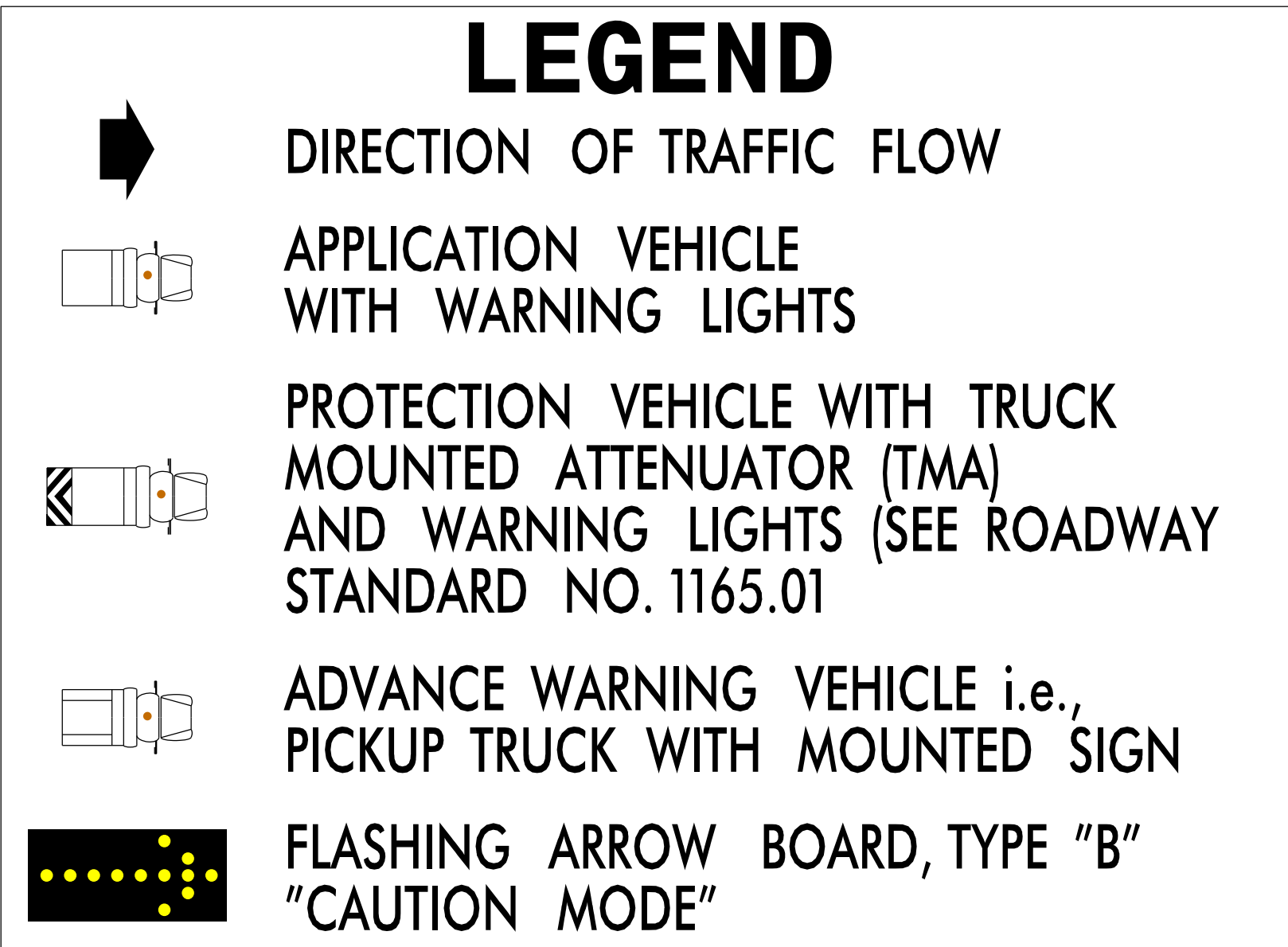
Moving Operation Caravan

(Operations Traveling 3 mph or Faster)
Spraying other Multilane Divided Roadways
in Median and on Right Side
w/ Paved Shoulders Less Than 10' Wide



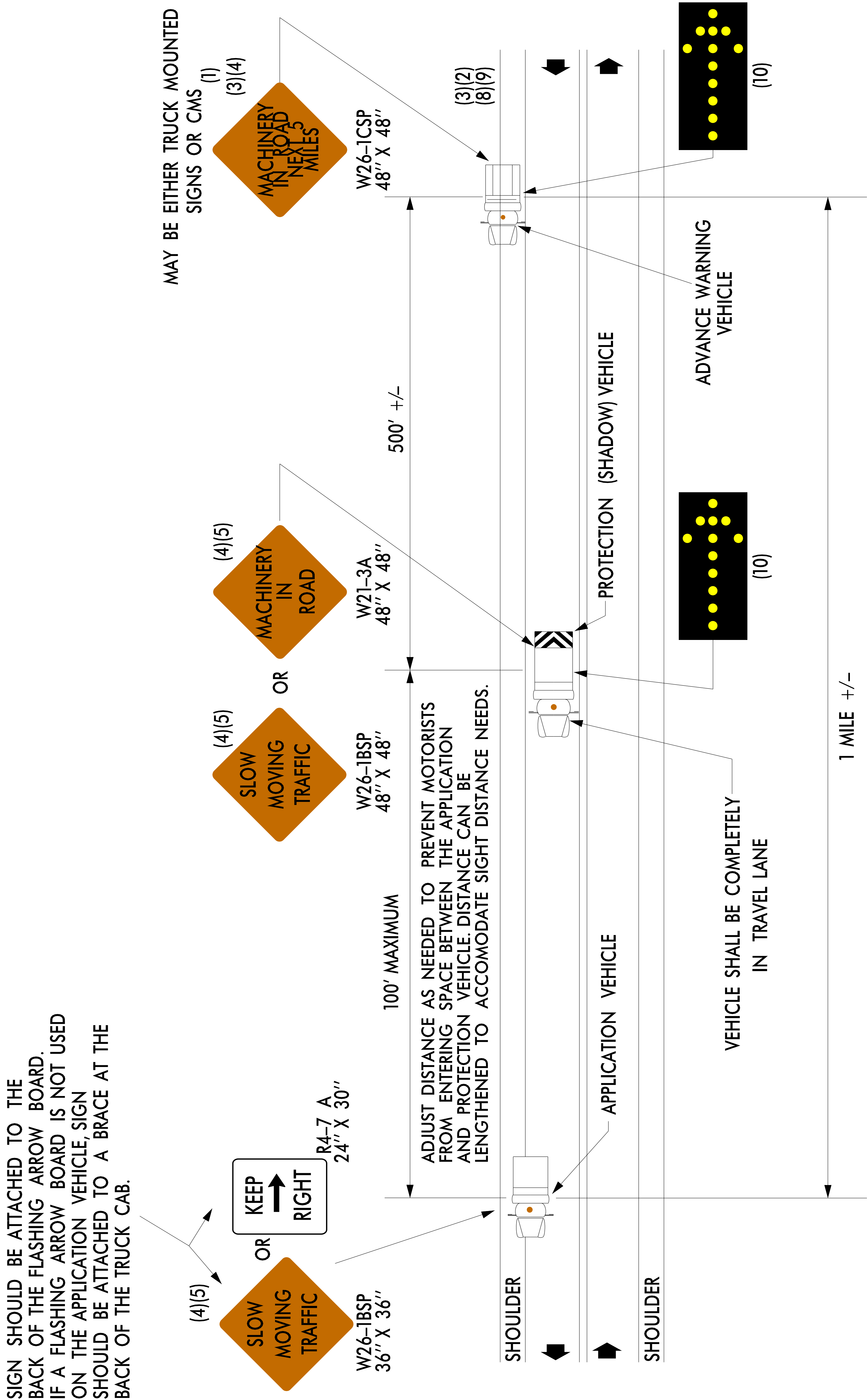
Notes on Moving Operation Caravan for Spraying on Two-Lane Two Way Roadways (with ADT Greater Than 5000)

- (1) The following options may be used as the first advance warning the motorists see:
- a. Truck mounted advance warning signs
 - b. Moving changeable message sign (CMS)
 - c. Ground mounted advance warning signs (W26-1CSP)
 - d. Stationary changeable message sign (CMS) (must use ‘Next 5 Miles’ and make circle to pick up CMS)
- (2) Total distance between first and last vehicle in caravan should be approximately one mile in length.
- (3) If using ground mounted advance warning signs or stationary CMS, the total distance between the first advance warning sign or CMS and application vehicle should not exceed 5 miles and sign W26-1CSP should read ‘Machinery In Road Next 5 Miles’.
- (4) Signs on vehicles should be mounted a minimum of one foot from the ground and should not block the motorist’s sight of the flashing arrow board and/or warning lights.
- (5) Sign W26-1BSP or R4-7A should be placed on front of the application vehicle and sign W26-1BSP or W21-3A on back of the protection vehicle in two-lane, two-way traffic so vehicle approaching from the front and rear are notified of operation.
- (6) If a lead vehicle is added to operation, it should have the same advance warning signs as the application vehicle shown on page 86.
- (7) Radio communication between vehicles is recommended.
- (8) Use warning lights with at least 50% being amber in color attached to the vehicles as high as possible and in a manner such that they are not obscured by equipment or supplies. Vehicle hazard signals or lights may be used to supplement this requirement. This requirement applies to all work vehicles and equipment not inside a lane closure or behind a barrier. This requirement does not apply to dump trucks, but is encouraged.
- (9) Use of CMS’s are optional with advanced warning vehicles.
- (10) Use a type “B” flashing board.
- | | |
|------------|-----------|
| Board Type | Min. Size |
| B | 60” x 30” |
- (11) If 43” x 73” CMS is used, letter height must be 18”.



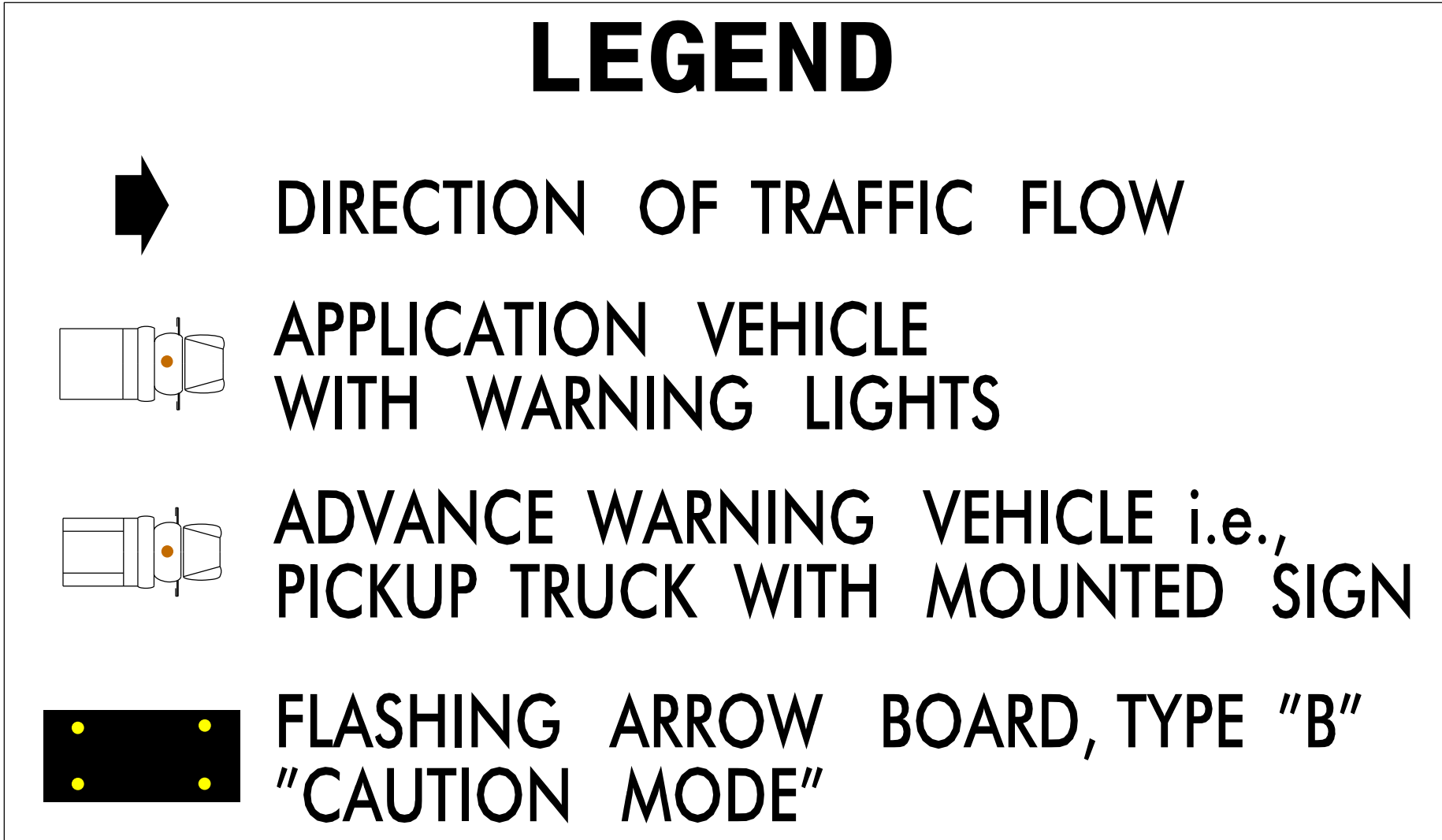
Moving Operation Caravan

(Operations Traveling 3 mph or Faster)
Spraying 2-Lane, 2-Way Roadways
with ADT greater than 5000



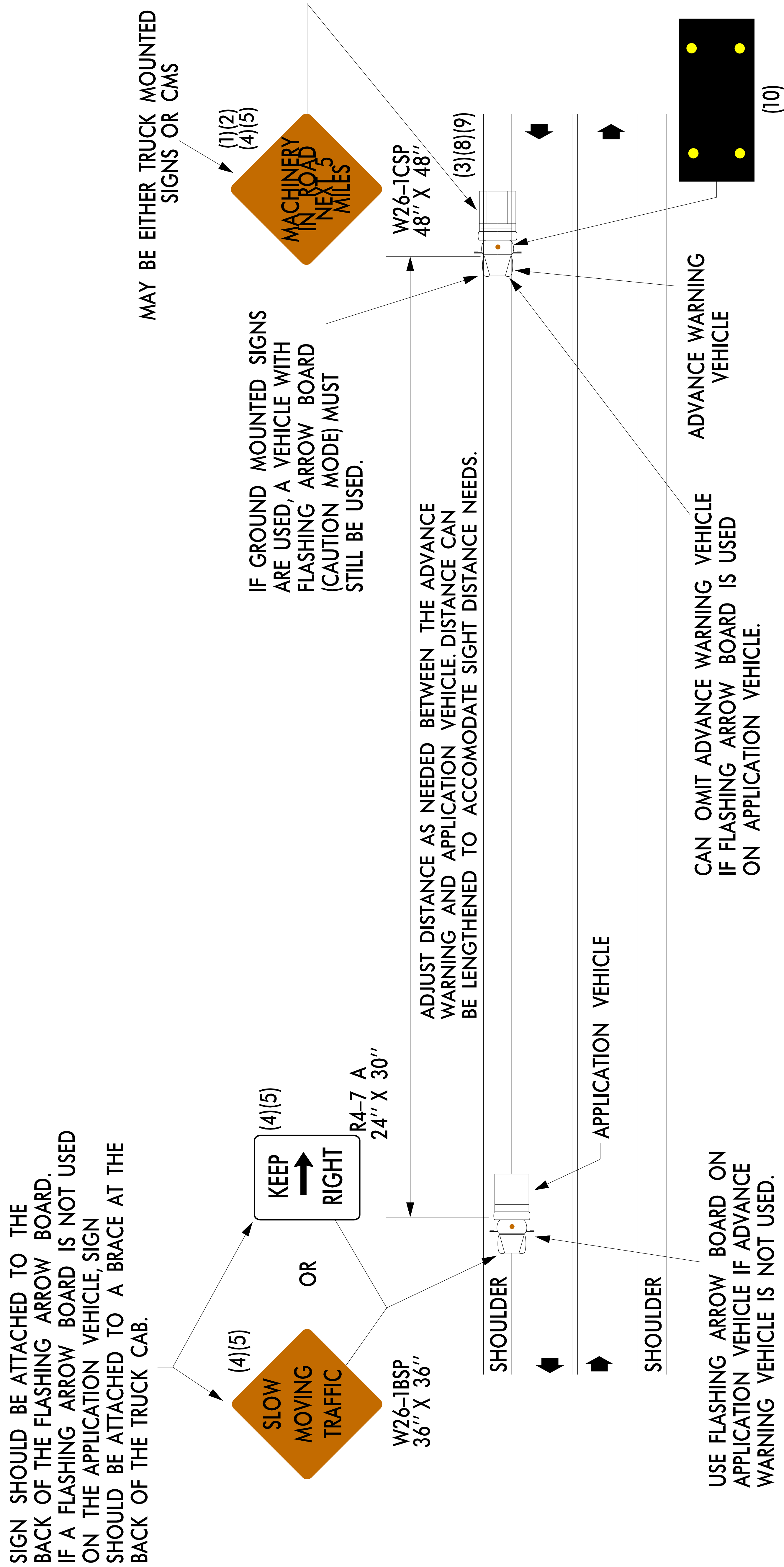
Notes on Moving Operation Caravan for Spraying on Two-Lane Two Way Roadways (with ADT Less Than or Equal to 5000)

- (1) The following options may be used as the first advance warning the motorists see:
- a. Truck mounted advance warning signs
 - b. Moving changeable message sign (CMS)
 - c. Ground mounted advance warning signs (W26-1CSP)
 - d. Ground mounted changeable message sign (CMS) (must use ‘Next 5 Miles’ and make circle to pick up CMS)
- (2) Total distance between first and last vehicle in caravan should be approximately one mile in length.
- (3) If using ground mounted advance warning signs or stationary CMS, the total distance between the first advance warning sign or CMS and application vehicle should not exceed 5 miles and sign W21-3A should read ‘Machinery In Road Next 5 Miles’.
- (4) Signs on vehicles should be mounted a minimum of one foot from the ground and should not block the motorist’s sight of the flashing arrow board and/or warning light.
- (5) Sign W26-1BSP or R4-7A should be placed on front of the application vehicle and sign W26-1BSP or W21-3A on back of the protection vehicle in two-lane, two-way traffic so vehicle approaching from the front and rear are notified of operation.
- (6) If a lead vehicle is added to operation, it should have the same advance warning signs as the application vehicle shown on page 88.
- (7) Radio communication between vehicles is recommended.
- (8) Use warning lights with at least 50% being amber in color attached to the vehicles as high as possible and in a manner such that they are not obscured by equipment or supplies. Vehicle hazard signals or lights may be used to supplement this requirement. This requirement applies to all work vehicles and equipment not inside a lane closure or behind a barrier. This requirement does not apply to dump trucks, but is encouraged.
- (9) Use of CMS’s are optional with advance warning vehicles.
- (10) Use a type “B” flashing arrow board.
- | | |
|------------|-----------|
| Board Type | Min. Size |
| B | 60” x 30” |
- (11) If 43” x 73” CMS is used, letter height must be 18”.



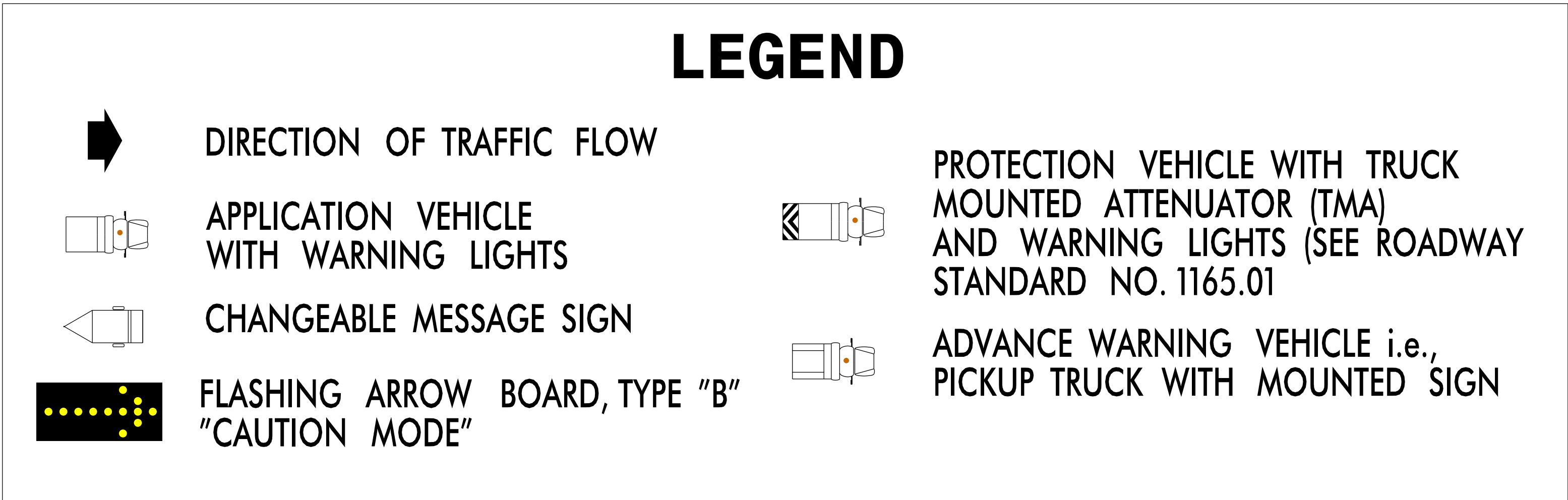
Moving Operation Caravan

(Operations Traveling 3 mph or Faster)
Spraying 2-Lane, 2-Way Roadways
with ADT less than or equal to 5000



Notes on Moving Operation Caravan for Placing Pavement Marking or Markers on Four Lanes or More of a Multi-Lane Roadway

- (1) The following options may be used as the first advance warning the motorists see:
 - a. Truck mounted advance warning signs
 - b. Truck mounted changeable message sign (CMS)
 - c. Ground mounted changeable message sign (CMS)(Must circle to pick up signs)
- (2) All advance warning signs must be 48” x 48” with fluorescent orange grade B sheeting. If space limitations on shoulder prohibit a 48” x 48” sign, a smaller sign can be used with approval from engineer.
- (3) Signs on vehicles should be mounted a minimum of one foot from the ground and should not block the motorist’s sight of the flashing arrow board and/or warning lights.
- (4) Additional vehicles should be used in work caravan to facilitate drying of pavement marking material (TMA’s are optional on these additional vehicles). However, the first vehicle motorists see in the travel lane shall have a TMA.
- (5) Adjust distances as needed to prevent motorists from entering space between the application and protection vehicle. Distance can be lengthened to accommodate sight distance needs.
- (6) Round up mileage to next whole mile. Work zone should not exceed five miles in length.
- (7) Radio communication between vehicles is required.
- (8) Use of warning lights on all vehicles is required. (See page 3 for definition)
- (9) If work is performed at night, the work area must be illuminated with machine and/or tower lights as approved by engineer.
- (10) All traffic control devices will be considered incidental to the pay items for pavement marking and markers.
- (11) Informational signs should be activity specific, i.e. “Paint Crew in Road”. Signs may be rectangular or diamond shape. Sign size should be based on the motorist ability to recognize sign when traveling five miles above posted speed limit.



**(Operations Traveling 3 mph or Faster)
Placing Pavement Marking or Markers
On Four Lanes or More of a Multi-Lane Roadway**




Notes on Shoulder Sweeping Operation for Interstate and Multilane Divided Facilities when Tire of Sweeper Vehicle & TMA are No Closer than One (1) Foot from the Edgeline (Median of Shoulder)

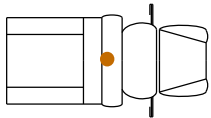
- (1) The following options may be used as the first advance warning the motorists see:
 - a. Truck mounted advance warning signs
 - b. Moving changeable message sign (CMS)
- (2) Signs on vehicles should be mounted a minimum of one (1) foot from the ground and should not block the motorist’s sight of the flashing arrow board and/or warning lights.
- (3) Ground mounted signs must be mounted a minimum of five (5) feet from the ground to the bottom of the sign.
- (4) Use warning lights on sweeper vehicle and protection vehicle.
- (5) Use “caution shoulder work” sign on rear of sweeper.
- (6) When traveling from one side of a bridge to another, both sweeper vehicle and TMA must wait for a break in traffic and move out into the travelway simultaneously to get to the other side.
- (7) Use a type “B” or “C” flashing arrow board.

Board Type	Min. Size
B	60”x30” Facilities 55 MPH and Below
C	96”x48” Facilities 60 MPH and Above
- (8) If sweeper vehicle or truck mounted attenuator (TMA) are closer than 1’ to edgeline, shoulder sweeping operation drawing number 2 of 3 must be used. Drawing 3 of 3 must be used if any part of the sweeper vehicle or TMA is in the travel lane.

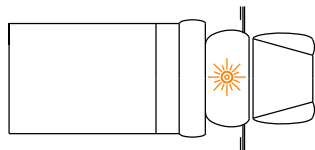
LEGEND



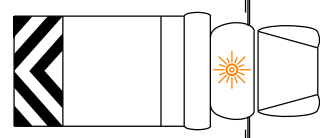
DIRECTION OF TRAFFIC FLOW




ADVANCE WARNING VEHICLE i.e.,
PICKUP TRUCK WITH MOUNTED SIGN



SWEEPING VEHICLE WITH LIGHT BAR
OR WARNING LIGHTS



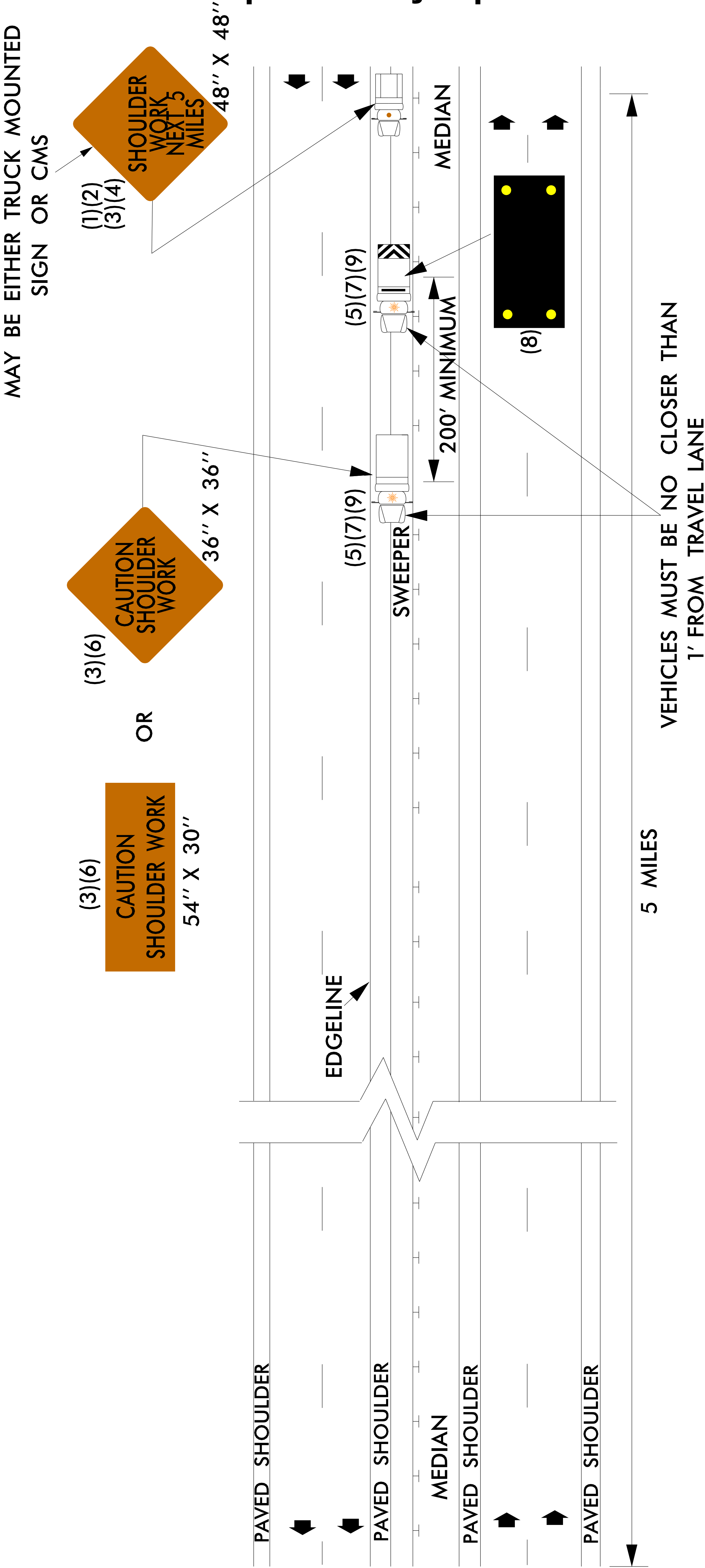
PROTECTION VEHICLE WITH TRUCK
MOUNTED ATTENUATOR (TMA)
AND LIGHT BAR OR WARNING LIGHTS
(SEE RSD NO. 1165.01)



FLASHING ARROW BOARD, TYPE “B”
“CAUTION MODE”

Shoulder Sweeping Operation

Interstate and Multilane Divided Facilities
Location: Tire of Sweeper & TMA No Closer Than 1 Foot
From Edgeline (Median or Shoulder)
Volume: Any Volume
Speed: Any Speed




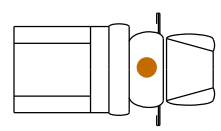
Notes on Shoulder Sweeping Operation on Interstate and Multilane Divided Facilities in Areas with Shoulder Widths That Do Not Accommodate Vehicles

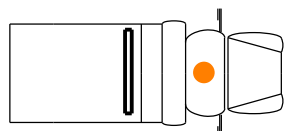
- (1) The following options may be used as the first advance warning the motorists see:
 - a. Truck mounted advance warning signs
 - b. Moving changeable message sign (CMS)
- (2) Total distance between first and last vehicle in caravan should not exceed one mile in length.
- (3) Signs on vehicles should be mounted a minimum of one (1) foot from the ground and should not block the motorist’s sight of the flashing arrow board and/or warning light.
- (4) Ground mounted signs must be mounted a minimum of five (5) feet from the ground to the bottom of the sign.
- (5) Sign W20-5L should be placed on back of protection vehicle and sign W20-LD on back of advance warning vehicle in multilane divided traffic so vehicles approaching from rear are notified of operation.
- (6) Radio communication between vehicles is recommended.
- (7) Use warning lights on the sweeper vehicle, protection vehicle and advance warning vehicles.
- (8) Use of CMS’s are optional with advance warning vehicles.
- (9) Use a type “B” or “C” flashing arrow board.

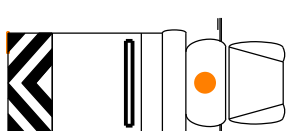
Board Type	Min. Size
B	60”x30” Facilities 55 MPH and Below
C	96”x48” Facilities 60 MPH and Above

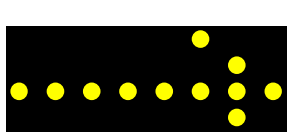
LEGEND

DIRECTION OF TRAFFIC FLOW

ADVANCE WARNING VEHICLE i.e., PICKUP TRUCK WITH MOUNTED SIGN

SWEEPING VEHICLE WITH WARNING LIGHTS

PROTECTION VEHICLE WITH TRUCK MOUNTED ATTENUATOR (TMA) AND WARNING LIGHTS (SEE RSD NO. 1165.01)

FLASHING ARROW BOARD, TYPE “B” APPROPRIATE DIRECTION INDICATED

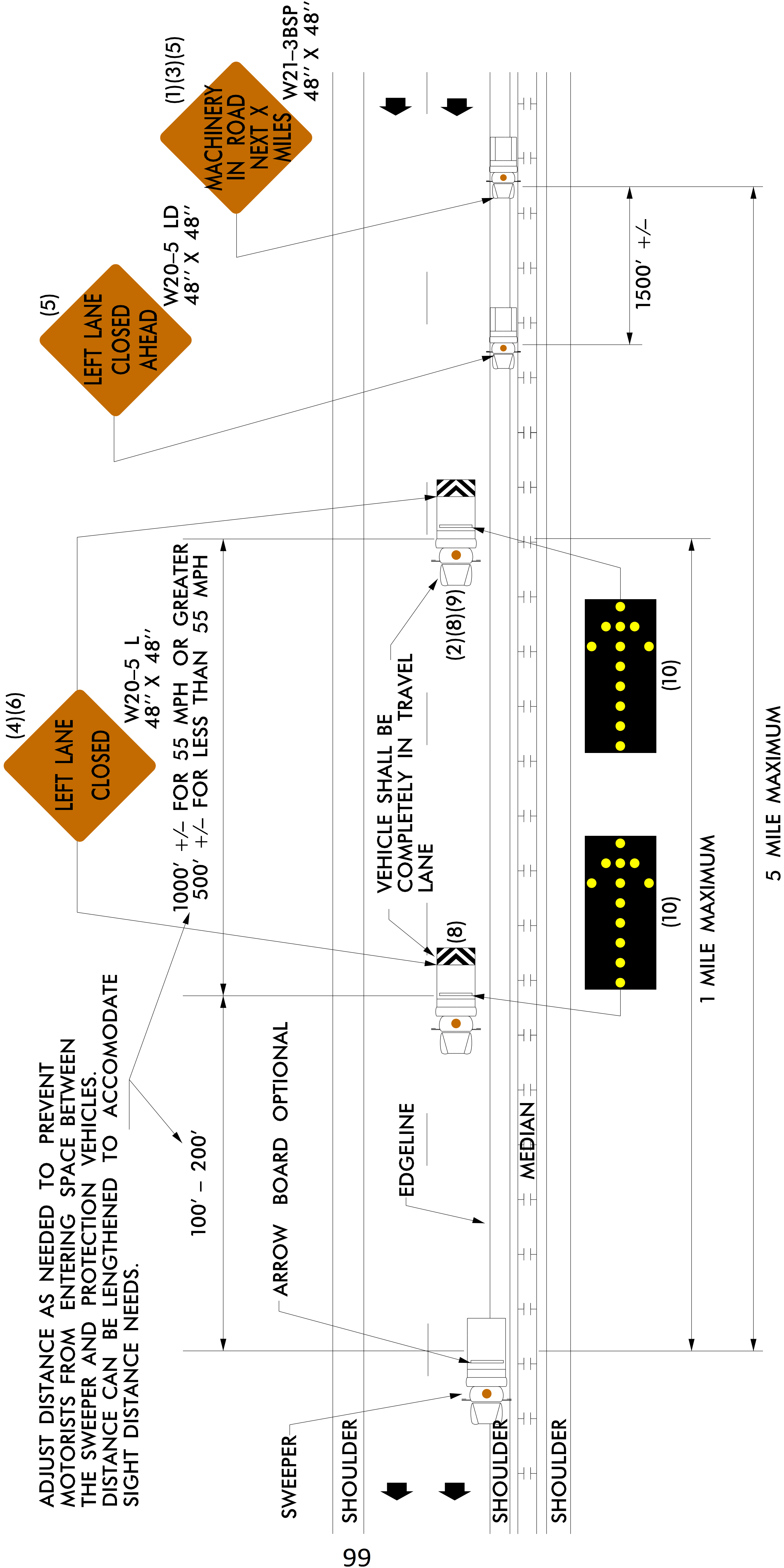
Shoulder Sweeping Operation

Interstate and Multilane Divided Facilities in Areas With Shoulder Widths That Do Not Accommodate Vehicles

Location: Sweeper Vehicle (Median or Shoulder)

Volume: Any Volume

Speed: Any Speed



Notes on Shoulder Sweeping Operation on Interstate and Multilane Divided Facilities in Areas with Limited Shoulder and Guardrail

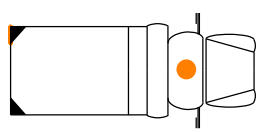
- (1) The following options may be used as the first advance warning the motorists see:
- a. Truck mounted advance warning signs
 - b. Moving changeable message sign (CMS)
 - c. Ground mounted advance warning signs (must use ‘Next 5 Miles’ and make circle to pick up sigs)
 - d. Stationary changeable message signs (CMS) (must use ‘Next 5 Miles’ and make circle to pick up CMS)
- (2) Total distance between first and last vehicle in caravan should not exceed one mile in length.
- (3) If using ground mounted advance warning signs or stationary CMS, the total distance between the first advance warning sign or CMS and sweeper vehicle should not exceed five miles and sign W21-3BSP should read ‘Machinery in Road Next 5 Miles’.
- (4) Signs on vehicles should be mounted a minimum of one foot from the ground and should not block the motorist’s sight of the flashing arrow board and/or warning light.
- (5) Ground mounted signs must be mounted a minimum of five feet from the ground to the bottom of the sign.
- (6) Sign W20-5L should be placed on back of protection vehicle and sign W20-LD on back of advance warning vehicle in multilane divided traffic so vehicles approaching from rear are notified of operation.
- (7) Radio communication between vehicles is recommended.
- (8) Use warning lights on the sweeper vehicle, protection vehicle and advance warning vehicles.
- (9) Use of CMS’s are optional with advance warning vehicles.
- (10) Use a type “C” flashing arrow board.

Board Type	Min. Size
C	96” x 48”

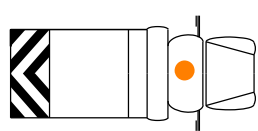
- (11) May use a type “B” flashing arrow board on 1st advance warning vehicle.

Board Type	Min. Size
B	60” x 30”

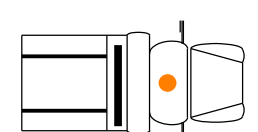
LEGEND



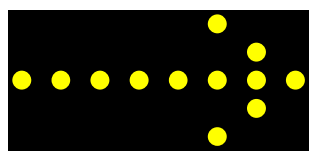
SWEEPING VEHICLE WITH WARNING LIGHTS



PROTECTION VEHICLE WITH TRUCK MOUNTED ATTENUATOR (TMA) AND WARNING LIGHTS (SEE RSD NO. 1165.01)



ADVANCE WARNING VEHICLE i.e. PICKUP TRUCK WITH MOUNTED SIGN AND WARNING LIGHTS



FLASHING ARROW BOARD, TYPE "B" APPROPRIATE DIRECTION INDICATED

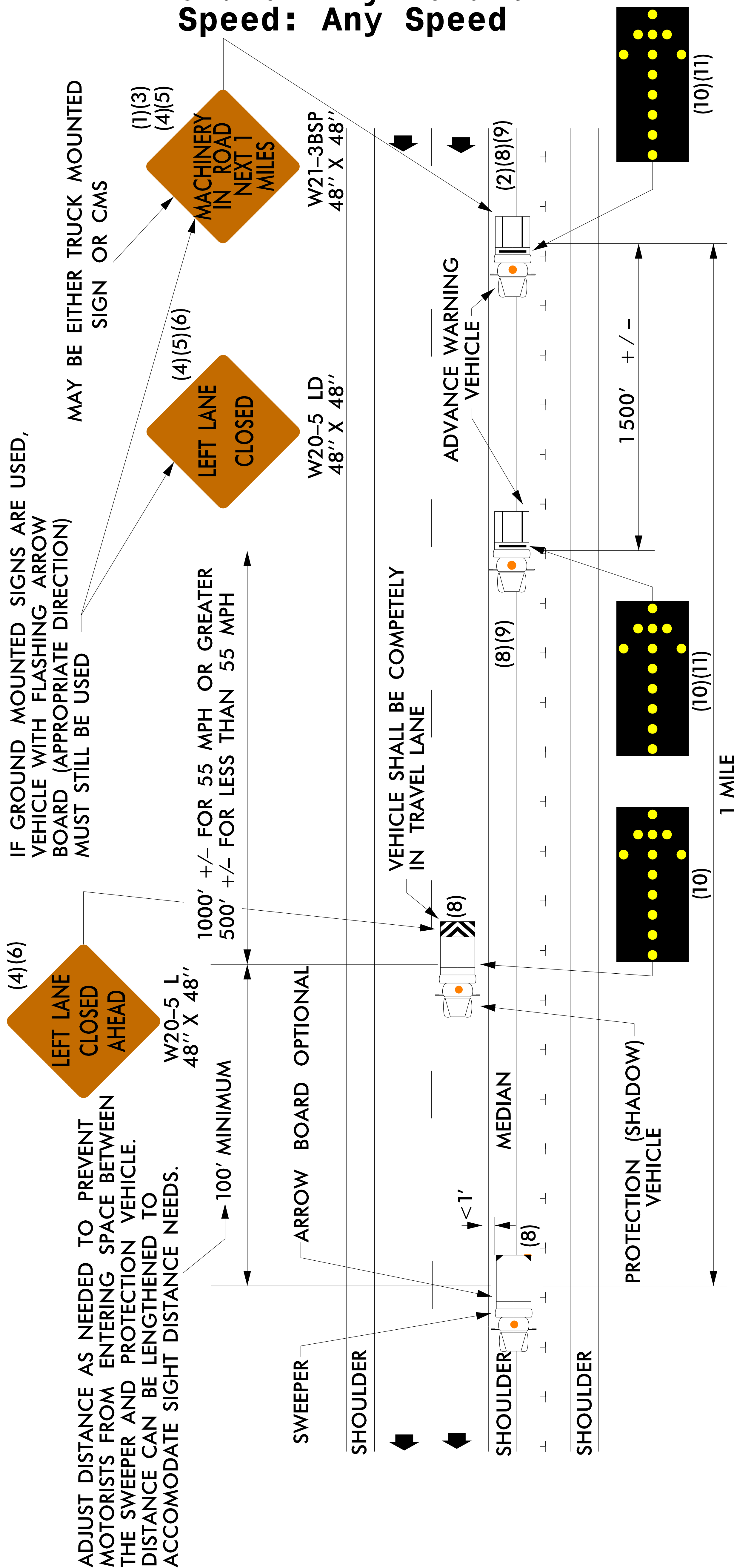
Shoulder Sweeping Operation

Interstate and Multilane Divided Facilities in Areas With Limited Shoulder and Guardrail

Location: Tire of Sweeper Vehicle Closer Than 1 Foot to Edgeline (Median or Shoulder)

Volume: Any Volume


Speed: Any Speed

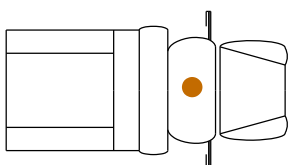


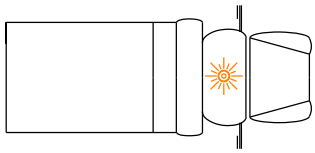
Notes on Litter Pickup Operation for Interstate and Multilane Divided Facilities when Tire of Litter Pickup Vehicle & TMA are No Closer than One (1) Foot from the Edgeline (Median of Shoulder)

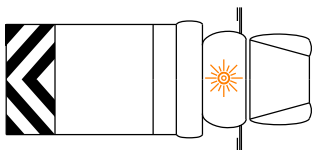
- (1) The following options may be used as the first advance warning the motorists see:
- a. Truck mounted advance warning signs
 - b. Moving changeable message sign (CMS)
- (2) Signs on vehicles should be mounted a minimum of one (1) foot from the ground and should not block the motorist’s sight of the flashing arrow board and/or warning lights.
- (3) Ground mounted signs must be mounted a minimum of five (5) feet from the ground to the bottom of the sign.
- (4) Use warning lights on all vehicles.
- (5) Use “caution shoulder work” sign on rear of sweeper.
- (6) When traveling from one side of a bridge to another, both sweeper vehicle and TMA must wait for a break in traffic and move out into the travelway simultaneously to get to the other side.
- (7) Use a type “B” or “C” flashing arrow board.
- | Board Type | Min. Size |
|------------|-------------------------------------|
| B | 60”x30” Facilities 55 MPH and Below |
| C | 96”x48” Facilities 60 MPH and Above |
- (8) If litter pickup vehicle or truck mounted attenuator (TMA) are closer than 1’ to edgeline, litter pickup operation drawing number 2 of 3 must be used. Drawing 3 of 3 must be used if any part of the litter pickup vehicle or TMA is in the travel lane.


LEGEND

DIRECTION OF TRAFFIC FLOW

ADVANCE WARNING VEHICLE i.e., PICKUP TRUCK WITH MOUNTED SIGN

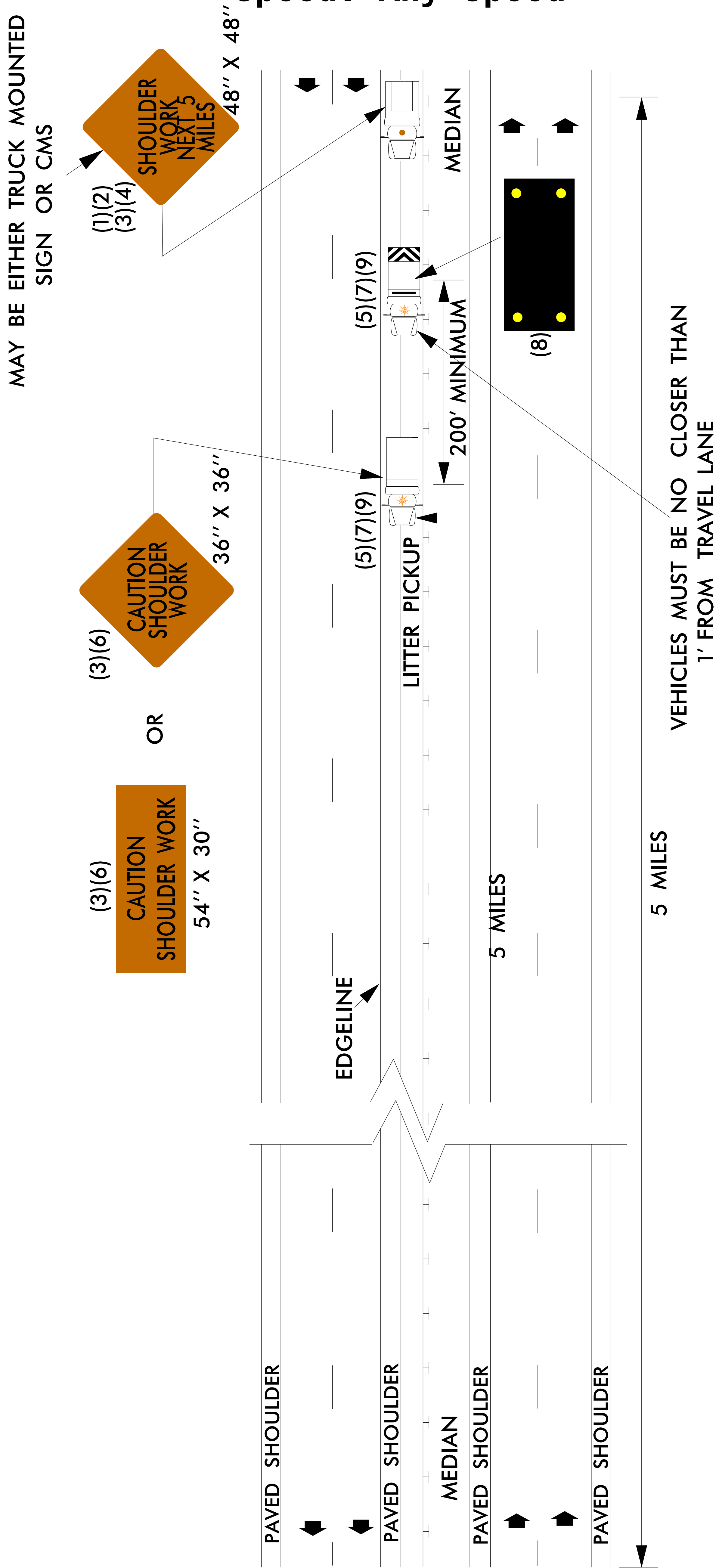
LITTER PICKUP VEHICLE WITH WARNING LIGHTS

PROTECTION VEHICLE WITH TRUCK MOUNTED ATTENUATOR (TMA) AND LIGHT BAR OR ROTATING BEACON (SEE RSD NO. 1165.01)

FLASHING ARROW BOARD, TYPE "B" "CAUTION MODE"

Litter Pickup Operation

Interstate and Multilane Divided Facilities
Location: Tire of Litter Pickup & TMA No Closer Than 1 Foot From Edgeline (Median or Shoulder)
Volume: Any Volume
Speed: Any Speed




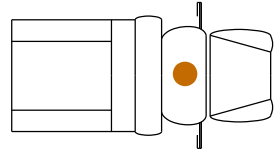
Notes on Litter Pickup Operation on Interstate and Multilane Divided Facilities in Areas with Shoulder Widths That Do Not Accommodate Vehicles

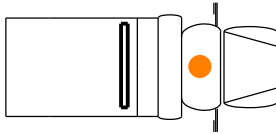
- (1) The following options may be used as the first advance warning the motorists see:
 - a. Truck mounted advance warning signs
 - b. Moving changeable message sign (CMS)
- (2) Total distance between first and last vehicle in caravan should not exceed one mile in length.
- (3) Signs on vehicles should be mounted a minimum of one (1) foot from the ground and should not block the motorist’s sight of the flashing arrow board and/or warning light.
- (4) Ground mounted signs must be mounted a minimum of five (5) feet from the ground to the bottom of the sign.
- (5) Sign W20-5L should be placed on back of protection vehicle and sign W20-LD on back of advance warning vehicle in multilane divided traffic so vehicles approaching from rear are notified of operation.
- (6) Radio communication between vehicles is recommended.
- (7) Use warning lights on all vehicles.
- (8) Use of CMS’s are optional with advance warning vehicles.
- (9) Use a type “B” or “C” flashing arrow board.

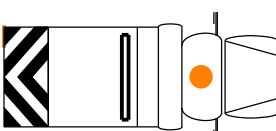
Board Type	Min. Size
B	60”x30” Facilities 55 MPH and Below
C	96”x48” Facilities 60 MPH and Above

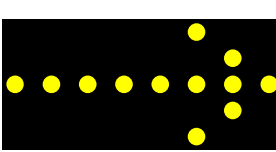
LEGEND

DIRECTION OF TRAFFIC FLOW

ADVANCE WARNING VEHICLE i.e., PICKUP TRUCK WITH MOUNTED SIGN

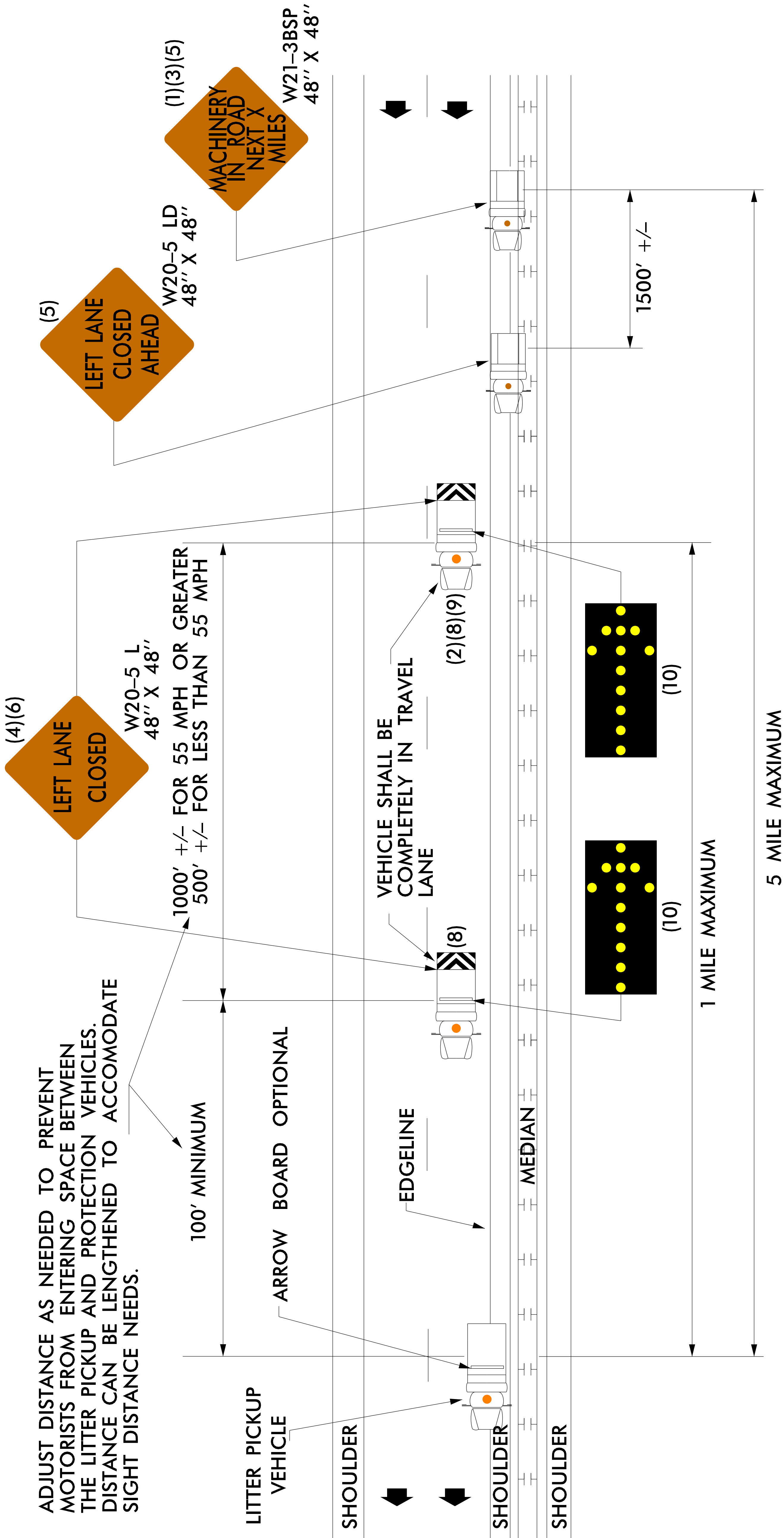
LITTER PICKUP VEHICLE WITH WARNING LIGHTS

PROTECTION VEHICLE WITH TRUCK MOUNTED ATTENUATOR (TMA) AND WARNING LIGHTS (SEE RSD NO. 1165.01)

FLASHING ARROW BOARD, TYPE "B" OR "C" APPROPRIATE DIRECTION INDICATED

Litter Pickup Operation

Interstate and Multilane Divided Facilities in Areas With Shoulder Widths That Do Not Accommodate Vehicles
Location: Litter Pickup Vehicle (Median or Shoulder)
Volume: Any Volume
Speed: Any Speed



Notes on Litter Pickup Operation on Interstate and Multilane Divided Facilities in Areas with Limited Shoulder and Guardrail

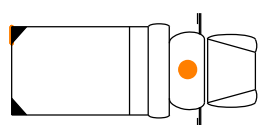
- (1) The following options may be used as the first advance warning the motorists see:
 - a. Truck mounted advance warning signs
 - b. Moving changeable message sign (CMS)
- (2) Total distance between first and last vehicle in caravan should not exceed one mile in length.
- (3) Signs on vehicles should be mounted a minimum of one (1) foot from the ground and should not block the motorist’s sight of the flashing arrow board and/or warning light.
- (4) Ground mounted signs must be mounted a minimum of five (5) feet from the ground to the bottom of the sign.
- (5) Sign W20-5L should be placed on back of protection vehicle and sign W20-LD on back of advance warning vehicle in multilane divided traffic so vehicles approaching from rear are notified of operation.
- (6) Radio communication between vehicles is recommended.
- (7) Use warning lights on all vehicles.
- (8) Use of CMS’s are optional with advance warning vehicles.
- (9) Use a type “C” flashing arrow board.

Board Type	Min. Size
C	96” x 48”

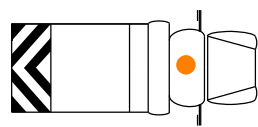
- (10)May use a type “B” flashing arrow board on 1st advance warning vehicle.

Board Type	Min. Size
B	60” x 30”

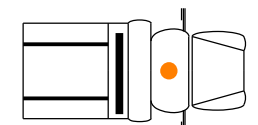
LEGEND



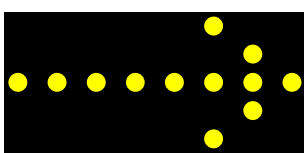
LITTER PICKUP VEHICLE WITH WARNING LIGHTS



PROTECTION VEHICLE WITH TRUCK MOUNTED ATTENUATOR (TMA) AND WARNING LIGHTS (SEE RSD NO. 1165.01)



ADVANCE WARNING VEHICLE i.e. PICKUP TRUCK WITH MOUNTED SIGN AND WARNING LIGHTS



FLASHING ARROW BOARD, TYPE "B" APPROPRIATE DIRECTION INDICATED

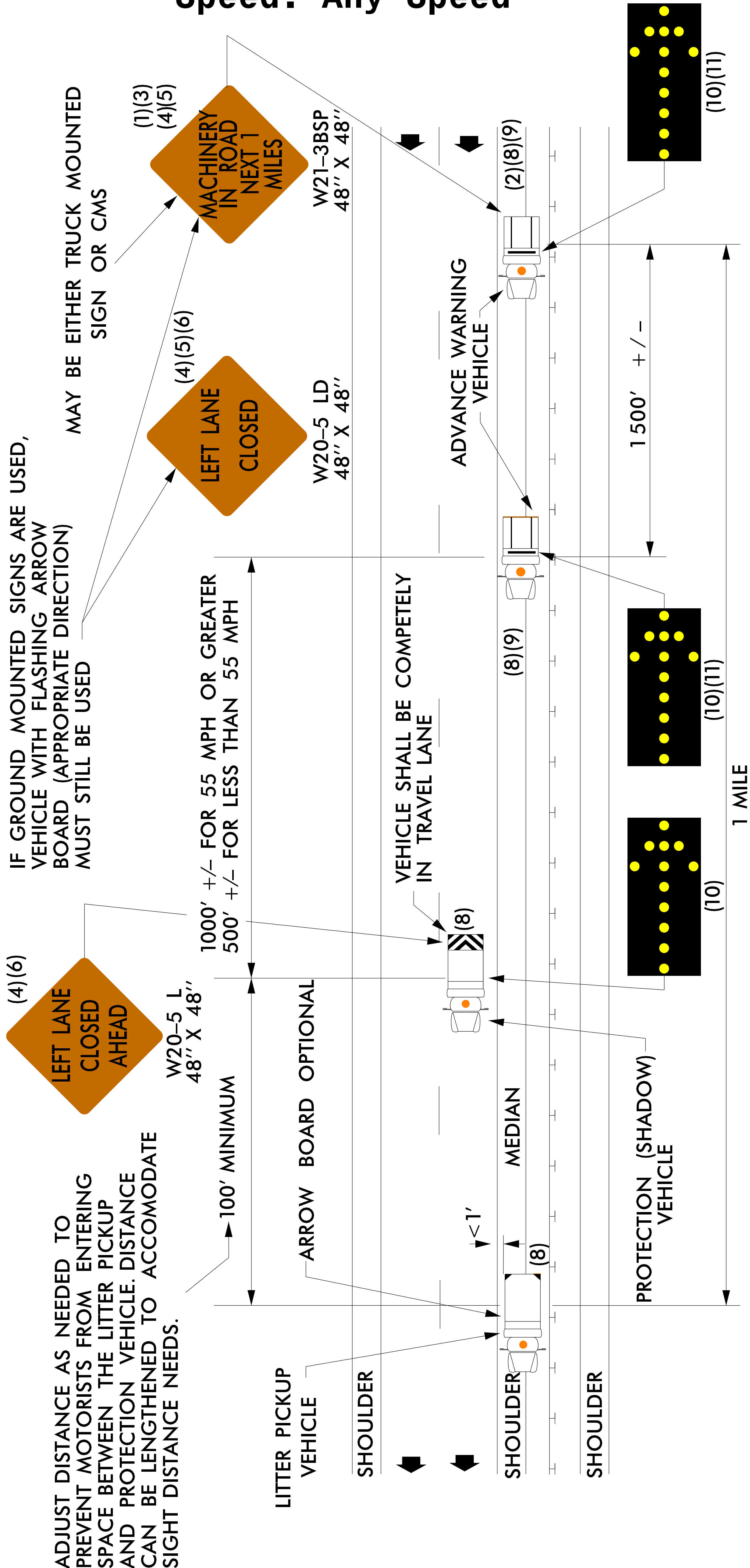
Litter Pickup Operation

Interstate and Multilane Divided Facilities in Areas With Limited Shoulder and Guardrail

Location: Tire of Litter Pickup Vehicle Closer Than 1 Foot to Edgeline (Median or Shoulder)

Volume: Any Volume

Speed: Any Speed



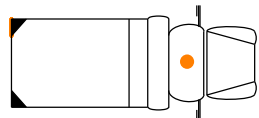
Notes on Plant Bed Fumigating Operations on Shoulder of Multilane Divided Roadways with Paved Shoulders or Curb and Gutter

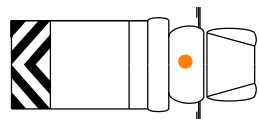
- (1) Total distance between work vehicle and protection vehicle in caravan should not exceed 1000’ in length.
- (2) Place “Slow Moving Traffic” sign (W26-01BSP) on back of protection vehicle.
- (3) Radio communication between work vehicle and protection vehicle is required.
- (4) Use warning lights on the work vehicle and the protection vehicle.
- (5) Work vehicle and protection vehicle shall pull on and off travel lanes simultaneously.
- (6) Contractor shall meet with NCDOT via daily tailgate meetings and before proceeding to each successive worksite to discuss equipment egress and ingress and parking locations.
- (7) When work or equipment is located 5’ or less from edge of travel lane contractor shall close the closest travel lane using roadway standard drawing number 1101.02.

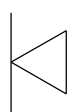
When work or equipment is located between 5’ and 15’ from edge of travel lane contractor shall install “Shoulder Closed Ahead” sign (SP-140) 1500’ in advance of worksite.

When work or equipment is located more than 15’ from edge of travel lane no ground mounted signage is necessary.

LEGEND

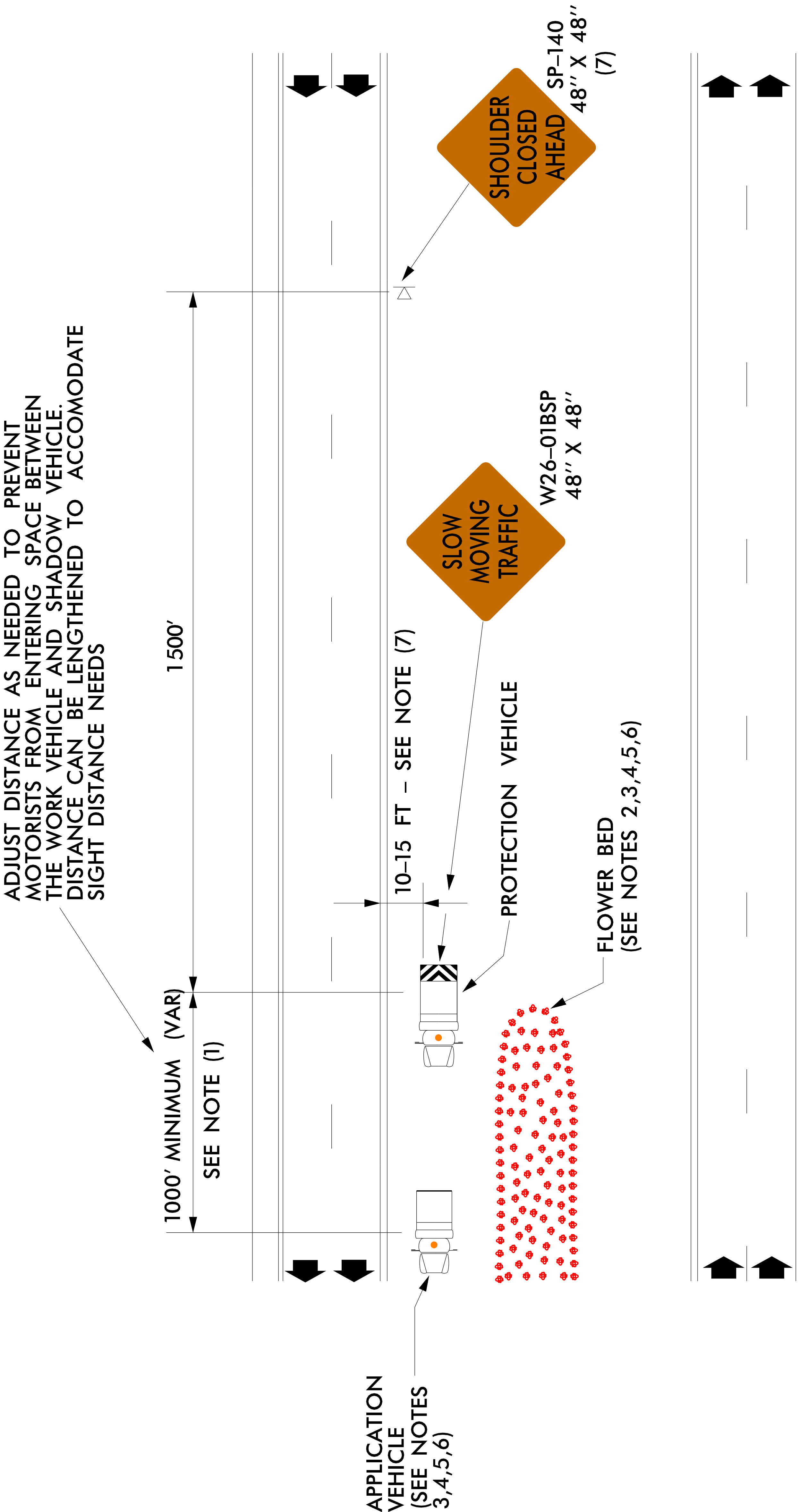
 APPLICATION VEHICLE WITH WARNING LIGHTS

 PROTECTION VEHICLE WITH TRUCK MOUNTED ATTENUATOR (TMA) AND WARNING LIGHTS (SEE RSD NO. 1165.01)

 PORTABLE SIGN

Plant Bed Fumigating Operation

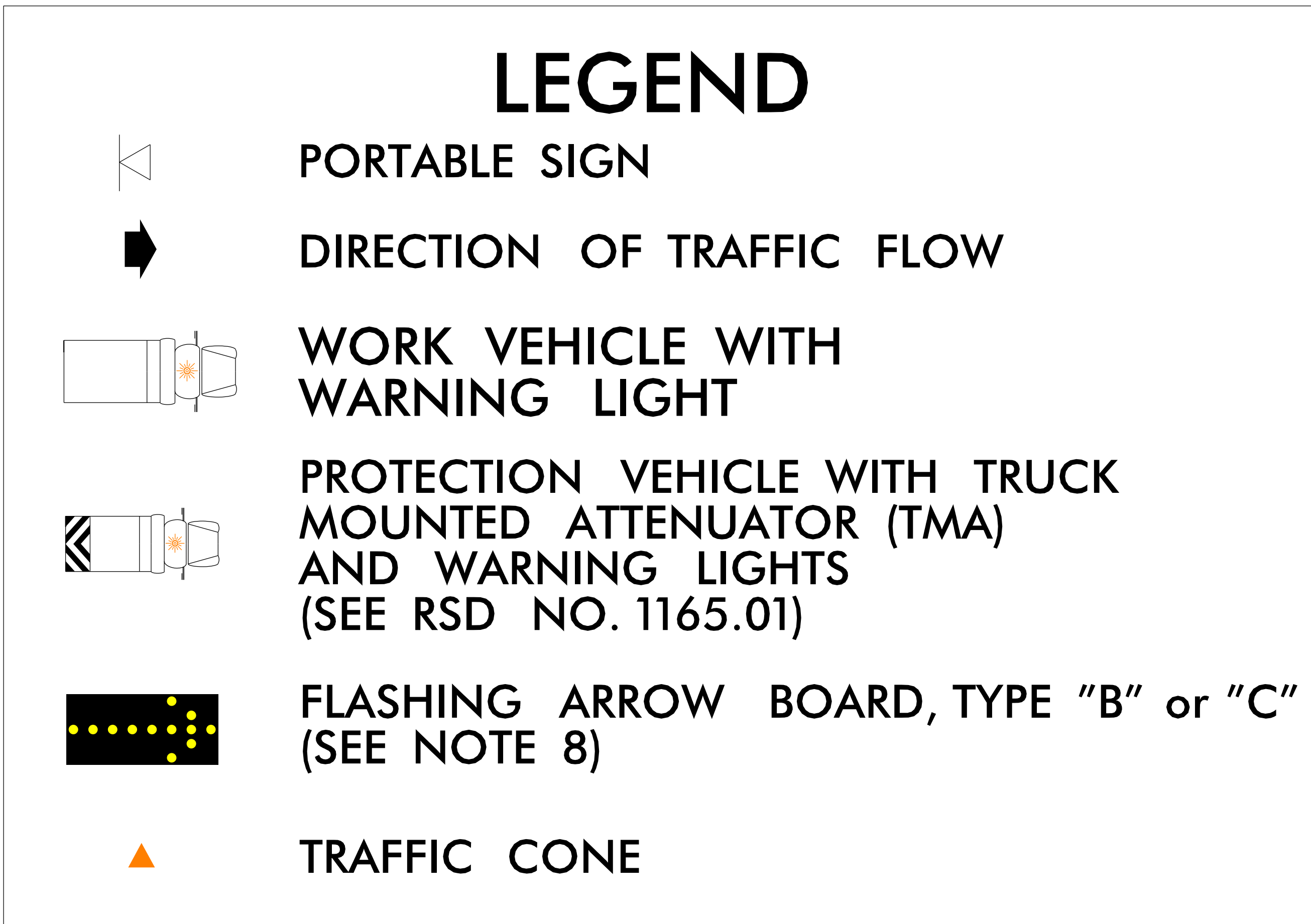
Fumigating Shoulder of Multilane Divided Roadways
With Paved Shoulders or Curb And Gutter



Notes on Permanent Pothole Patching on Interstate and Multilane Divided Facilities in Areas with Limited Shoulder and Guardrail

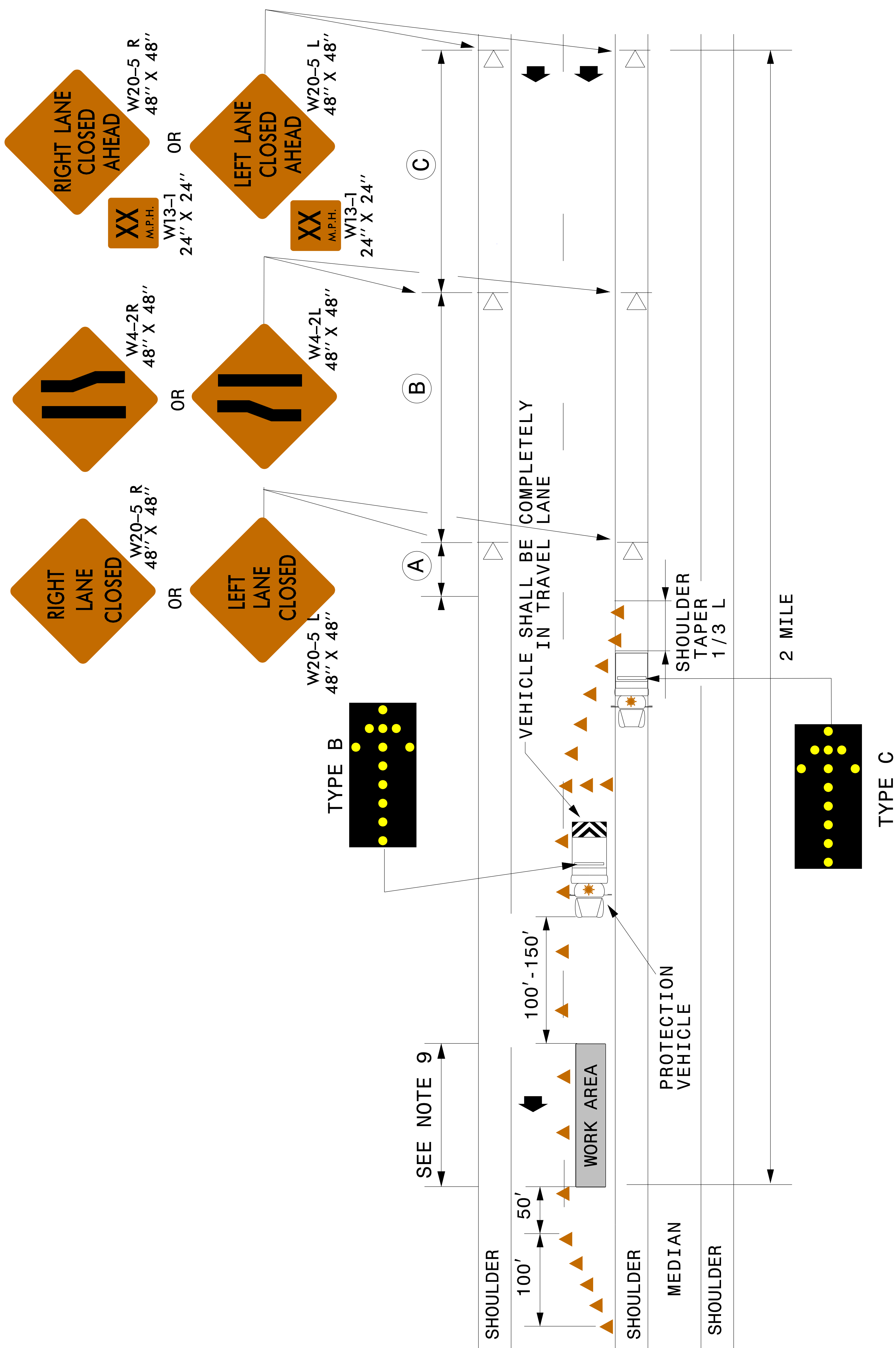
- (1) The following options may be used as advance warning:
 - a. Ground mounted advance warning signs
 - b. Stationary changeable message signs (CMS)
- (2) Total distance between first advance warning and last vehicle should not exceed two (2) miles in length.
- (3) Signs on vehicles should be mounted a minimum of one foot from the ground and should not block the motorist’s sight of the flashing arrow board.
- (4) Mounting height dimensions from roadway to sign should be a minimum of five feet for interstates, other high volume roadways, or roadways that may require a mounting height of five feet for increased visibility and a minimum of one foot for all other roadways.
- (5) Radio communication between vehicles is recommended.
- (6) Use warning lights on all vehicles.
- (7) Use of CMS’s are optional with advance warning vehicles.
- (8) Use a type “B” or “C” flashing arrow board.

Board Type	Min. Size
B	60”x30” Facilities 55 MPH and Below
C	96”x48” Facilities 60 MPH and Above
- (9) If work area is greater than 1,000; then a second protection vehicle is required to protect the work crew.



Permanent Pothole Patching Operation

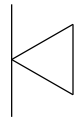
Interstate and Multilane Divided Facilities in Areas With Shoulder Widths That Do Not Accommodate Vehicles
Location: Work in Left or Right Lane
Volume: Any Volume
Speed: Any Speed




Notes on Permanent Pothole Patching on Two-Lane, Two-Way Facilities in Areas with Limited Shoulder and Guardrail

- (1) The following options may be used as advance warning:
 - a. Ground mounted advance warning signs
 - b. Stationary changeable message signs (CMS)
- (2) For low volume situations with short work zones on straight roadways where the Flagger is visible to road users approaching from both directions, a single Flagger may be used.
- (3) Use pilot cars when approved by your Work Zone Supervisor.
- (4) Ground mounted signs should be mounted a minimum of one foot from the ground and should not block the motorist’s sight.
- (5) Mounting height dimensions from roadway to sign should be a minimum of five feet for interstates, other high volume roadways, or roadways that may require a mounting height of five feet for increased visibility and a minimum of one foot for all other roadways.
- (6) Radio communication between flaggers is required.
- (7) Use a warning light or rotating beacon on all vehicles.
- (8) Use of CMS’s are optional with advance warning vehicles.
- (9) Location of Flagger Station should allow adequate room for road users to return to their normal driving path.


LEGEND



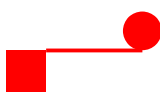
PORTABLE SIGN



DIRECTION OF TRAFFIC FLOW



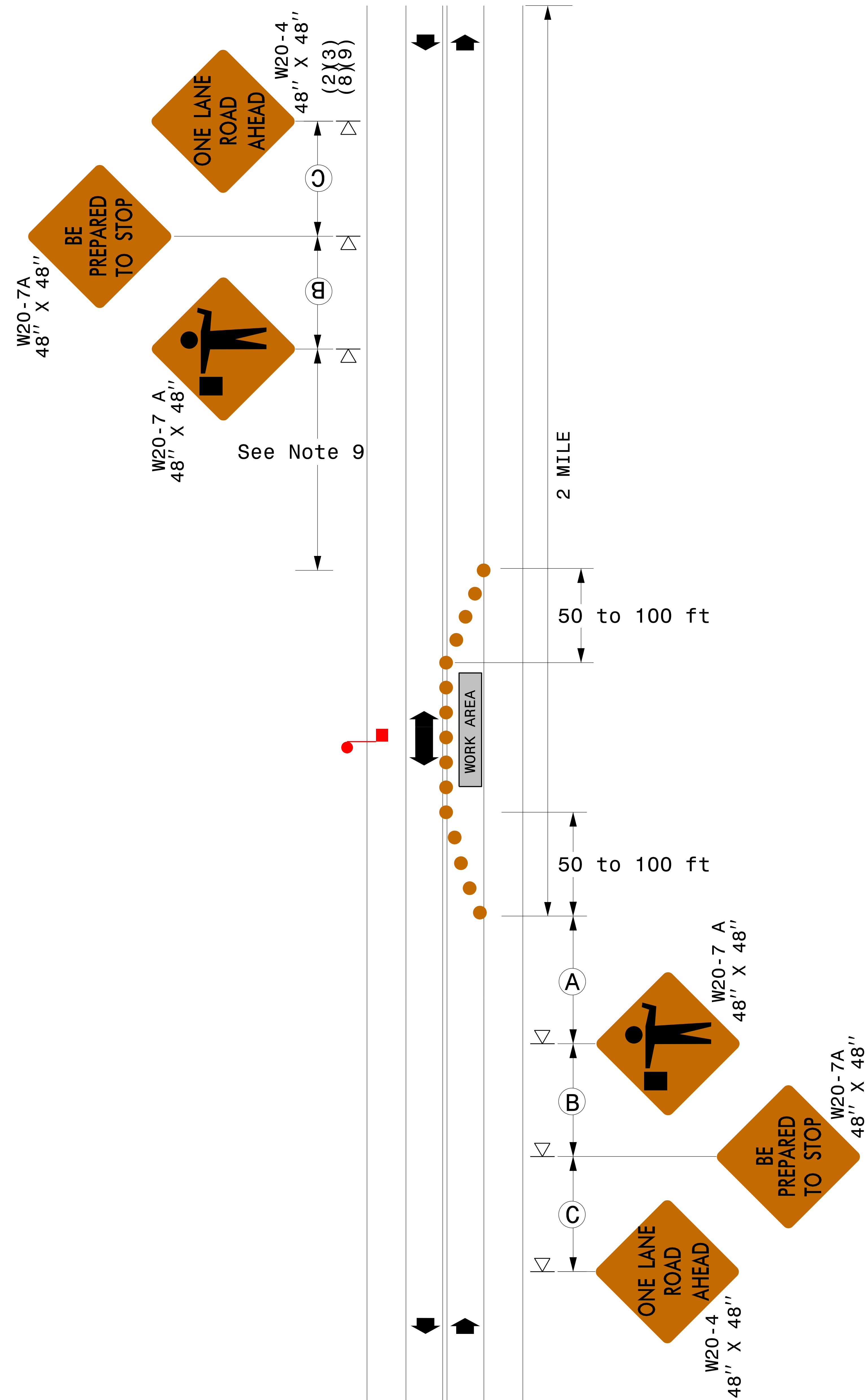
TRAFFIC CONE



FLAGGER

Permanent Pothole Patching Operation

Two-Lane, Two-Way Facilities
Location: Work in Left or Right Lane
Volume: Any Volume
Speed: Less Than or Equal to 55 MPH

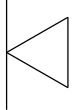



Notes on Permanent Pothole Patching on Multilane Undivided Roadways with Paved Shoulders and/or Curb & Gutter

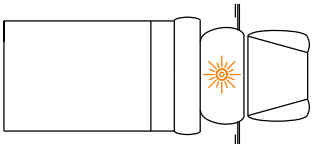
- (1) The following options may be used as advance warning:
 - a. Ground mounted advance warning signs
 - b. Stationary changeable message signs (CMS)
- (2) Total distance between first advance warning and last vehicle should not exceed two (2) miles in length.
- (3) Signs on vehicles should be mounted a minimum of one foot from the ground and should not block the motorist’s sight of the flashing arrow board.
- (4) Mounting height dimensions from roadway to sign should be a minimum of five feet for interstates, other high volume roadways, or roadways that may require a mounting height of five feet for increased visibility and a minimum of one foot for all other roadways.
- (5) Radio communication between vehicles is recommended.
- (6) Use warning lights on all vehicles.
- (7) Use of CMS’s are optional with advance warning vehicles.
- (8) Use a type “B” flashing arrow board.

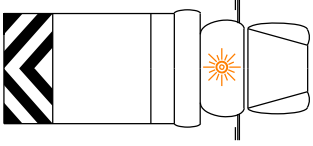
Board Type	Min. Size
B	60” x 30”

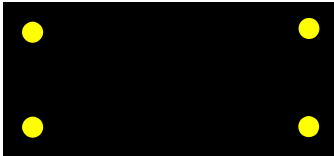
LEGEND


PORTABLE SIGN

DIRECTION OF TRAFFIC FLOW

APPLICATION VEHICLE WITH WARNING LIGHTS

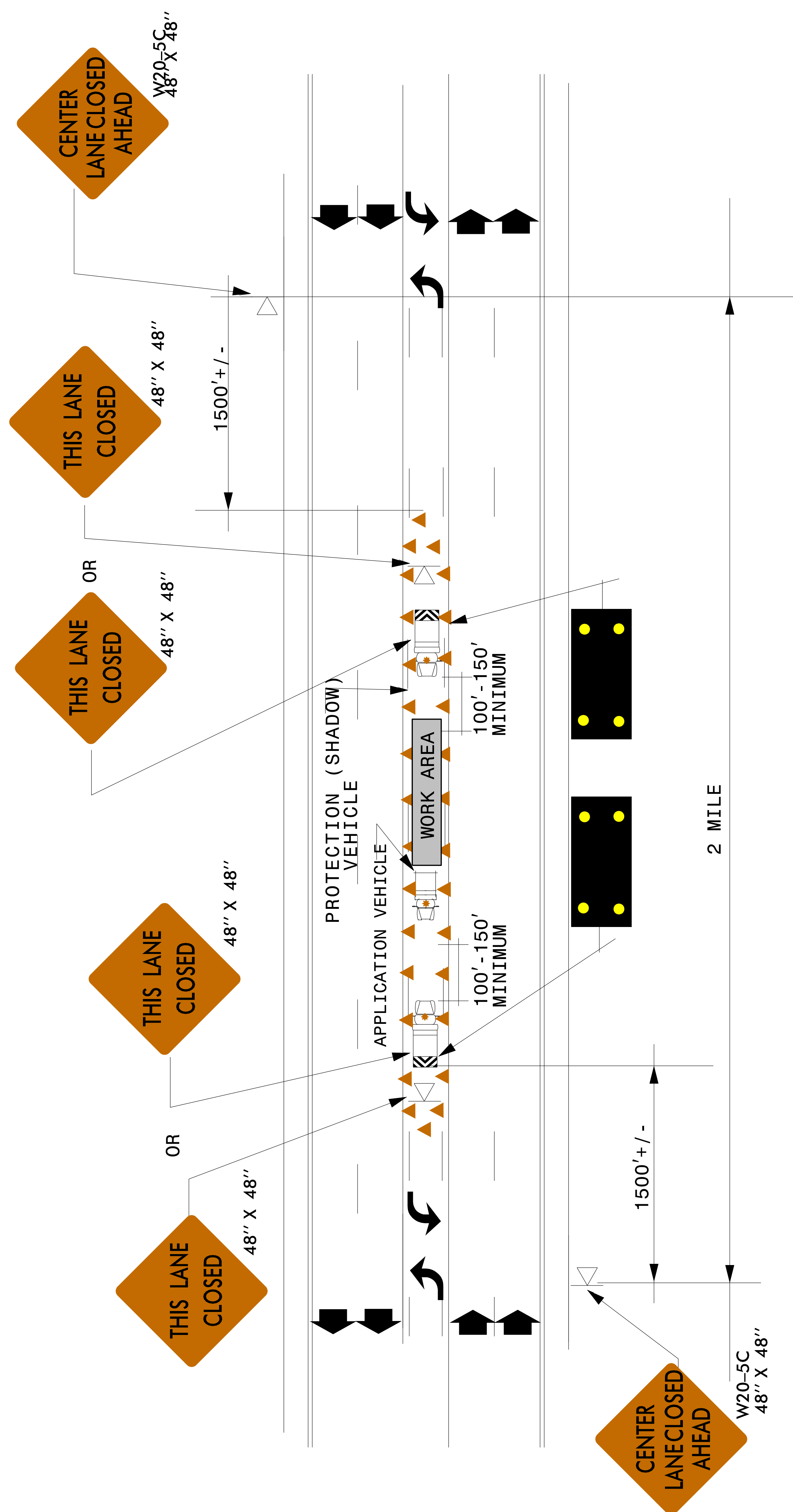
PROTECTION VEHICLE WITH TRUCK MOUNTED ATTENUATOR (TMA) AND WARNING LIGHTS (SEE RSD NO. 1165.01)

FLASHING ARROW BOARD, TYPE “B” “CAUTION MODE”

TRAFFIC CONE

Permanent Pothole Patching Operation

Multilane Undivided Roadways with Paved Shoulders
And/Or Curb & Gutter
Location: Work in Center Lane
Volume: Any Volume
Speed: Less Than and Equal to 55 MPH

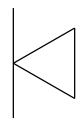


Notes on Permanent Pothole Patching on Multilane Undivided Roadways with Paved Shoulders and/or Curb & Gutter


- (1) The following options may be used as advance warning:
 - a. Ground mounted advance warning signs
 - b. Stationary changeable message signs (CMS)
- (2) Total distance between first advance warning and last vehicle should not exceed two (2) miles in length.
- (3) Signs on vehicles should be mounted a minimum of one foot from the ground and should not block the motorist’s sight of the flashing arrow board.
- (4) Mounting height dimensions from roadway to sign should be a minimum of five feet for interstates, other high volume roadways, or roadways that may require a mounting height of five feet for increased visibility and a minimum of one foot for all other roadways.
- (5) Radio communication between vehicles is recommended.
- (6) Use warning lights on all vehicles.
- (7) Use of CMS’s are optional with advance warning vehicles.
- (8) Use a type “B” or “C” flashing arrow board.

Board Type	Min. Size
B	60”x30” Facilities 55 MPH and Below
C	96”x48” Facilities 60 MPH and Above

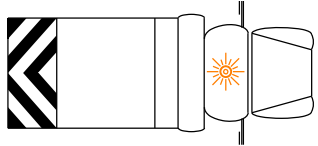
LEGEND



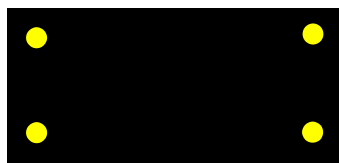
PORTABLE SIGN




DIRECTION OF TRAFFIC FLOW



PROTECTION VEHICLE WITH TRUCK MOUNTED ATTENUATOR (TMA) AND WARNING LIGHTS (SEE RSD NO. 1165.01)



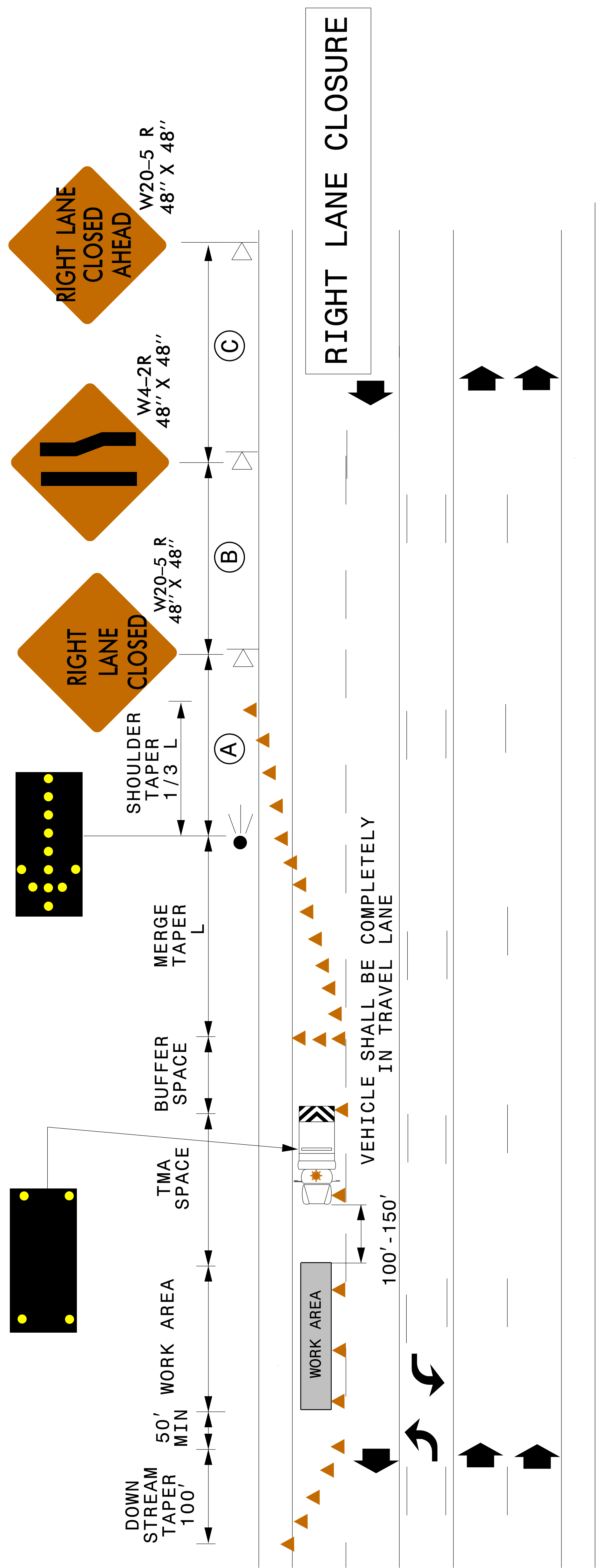
FLASHING ARROW BOARD, TYPE "B" OR "C" (SEE NOTE 8)



TRAFFIC CONE

Permanent Pothole Patching Operation

Multilane Undivided Roadways with
Paved Shoulders and/or Curb & Gutter
Location: Work in Right Lane
Volume: Any Volume
Speed: Any Speed

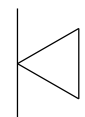


Notes on Permanent Pothole Patching on Multilane Undivided Roadways with Paved Shoulders and/or Curb & Gutter


- (1) The following options may be used as advance warning:
 - a. Ground mounted advance warning signs
 - b. Stationary changeable message signs (CMS)
- (2) Total distance between first advance warning and last vehicle should not exceed two (2) miles in length.
- (3) Signs on vehicles should be mounted a minimum of one foot from the ground and should not block the motorist’s sight of the flashing arrow board.
- (4) Mounting height dimensions from roadway to sign should be a minimum of five feet for interstates, other high volume roadways, or roadways that may require a mounting height of five feet for increased visibility and a minimum of one foot for all other roadways.
- (5) Radio communication between vehicles is recommended.
- (6) Use warning lights on all vehicles.
- (7) Use of CMS’s are optional with advance warning vehicles.
- (8) Use a type “C” flashing arrow board.

Board Type	Min. Size
C	96”x48” Facilities 60 MPH and Above

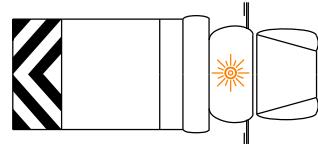
LEGEND



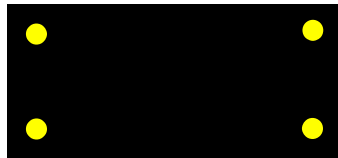
PORTABLE SIGN




DIRECTION OF TRAFFIC FLOW



PROTECTION VEHICLE WITH TRUCK MOUNTED ATTENUATOR (TMA) AND WARNING LIGHTS (SEE RSD NO. 1165.01)



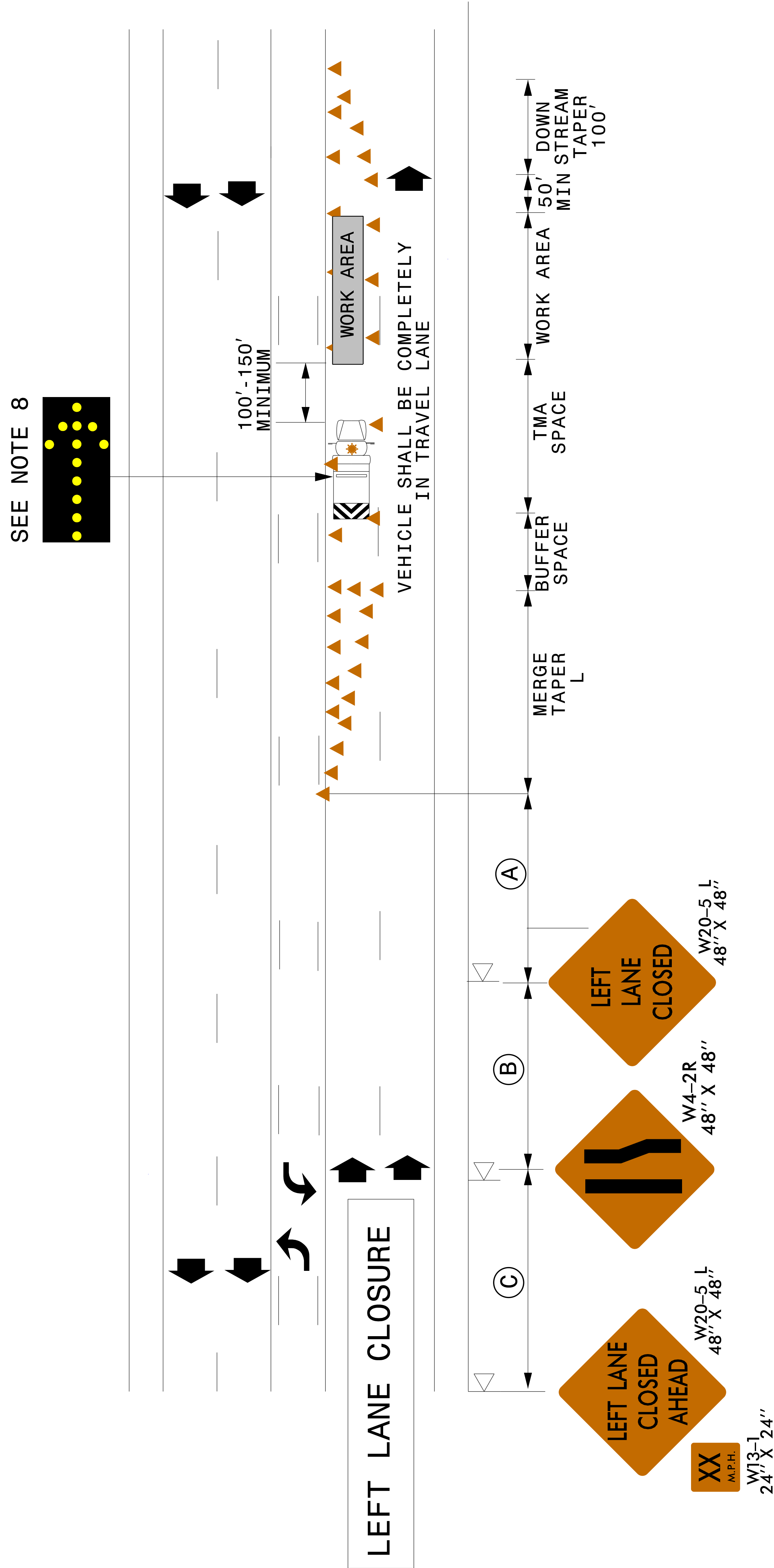
FLASHING ARROW BOARD, "C", "CAUTION MODE"



TRAFFIC CONE

Permanent Pothole Patching Operation

Multilane Undivided Roadways with
Paved Shoulders and/or Curb & Gutter
Location: Work in Left Lane
Volume: Any Volume
Speed: Any Speed



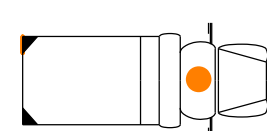
Notes on Sign Support Work on Two-Lane, Two-Way, Interstate, & Multilane Roadways with Unpaved Shoulders

- (1) All vehicles must be completely off pavement.
- (2) All vehicles must have warning lights operating at all times.
- (3) Signs on vehicles should be mounted a minimum of one foot from the ground and should not block the motorist's sight of the flashing arrow board and/or light bar.

LEGEND



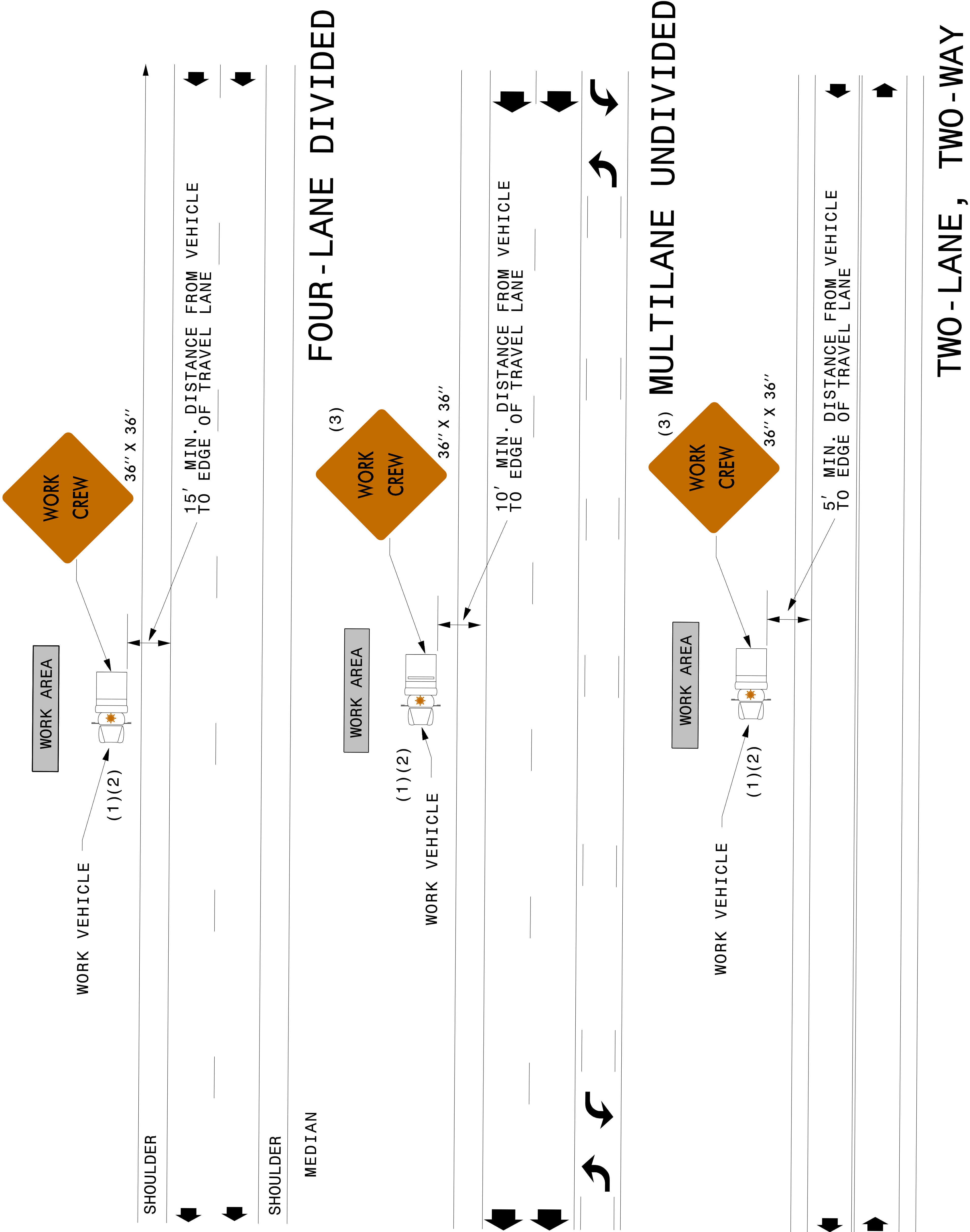
DIRECTION OF TRAFFIC FLOW



WORK VEHICLE WITH WARNING LIGHT OR ROTATING BEACON

Sign Support Work

Vehicle on Right or Left Unpaved Shoulder
Two-Lane, Two-Way, Interstate & Multilane Roadways
Volume: Any Volume
Speed: Any Speed

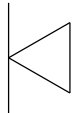


Notes on Sign Support Work on Two-Lane, Two-Way, Interstate, & Multilane Roadways with Paved Shoulders


- (1) All vehicles must be completely out of travel lane.
- (2) All vehicles must have warning lights operating at all times.
- (3) Use a type “B” or “C” flashing arrow board.

Board Type	Min. Size
B	60”x30” Facilities 55 MPH and Below
C	96”x48” Facilities 60 MPH and Above

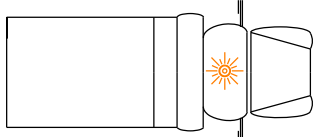
LEGEND




PORTABLE SIGN




DIRECTION OF TRAFFIC FLOW



WORK VEHICLE WITH WARNING LIGHTS



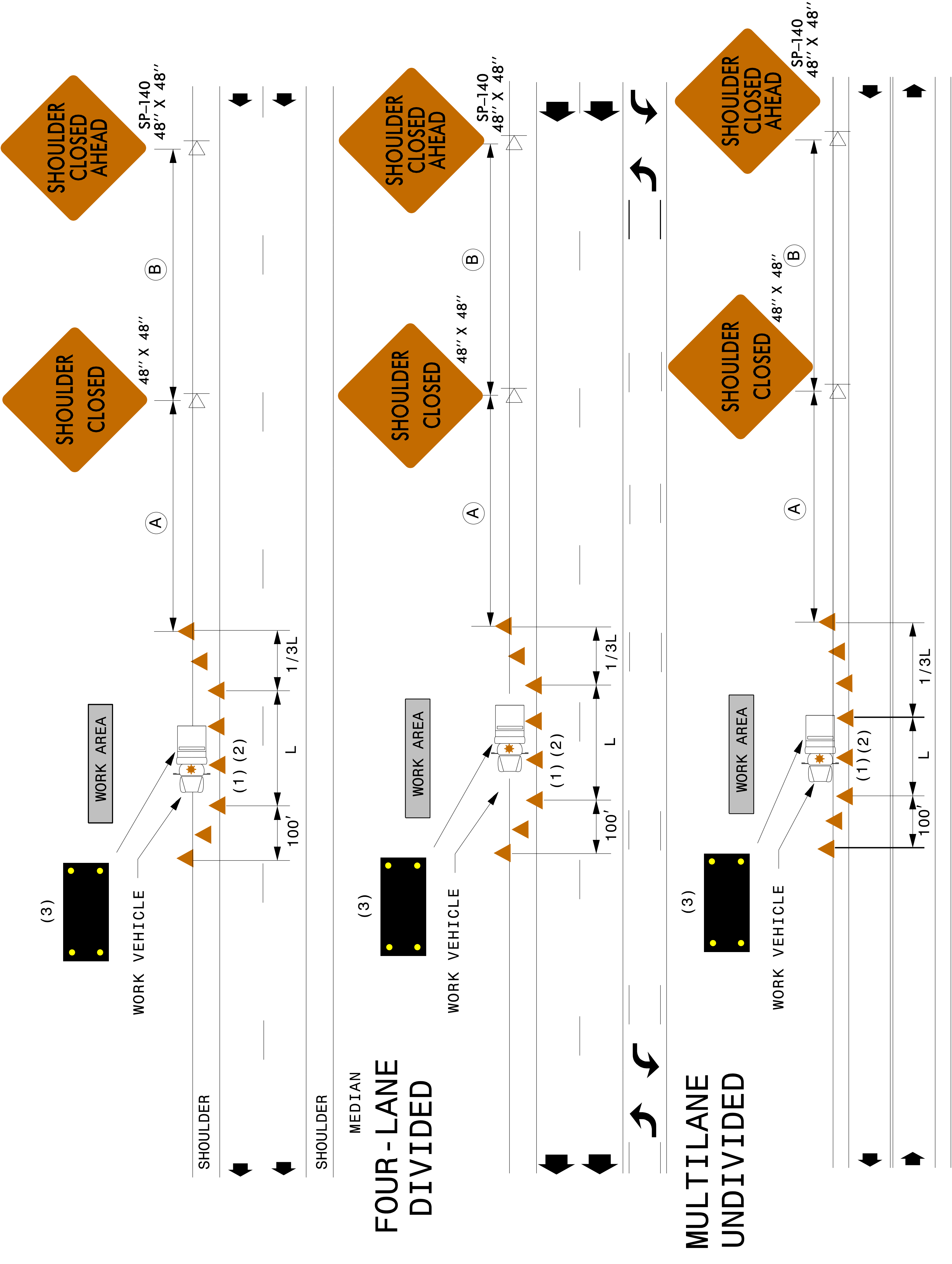
FLASHING ARROW BOARD, TYPE “B”
OR “C”, “CAUTION MODE”



TRAFFIC CONE

Sign Support Work

Vehicle on Right or Left Paved Shoulder
Two-Lane, Two-Way, Interstate & Multilane Roadways
Volume: Any Volume
Speed: Any Speed

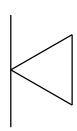


Notes on Sign Support Work on Interstate & Multilane Roadways in Right or Left Travel Lanes


- (1) TMA vehicle must be completely in travel lane.
- (2) All vehicles must have warning lights operating at all times.
- (3) Radio communication between vehicles is recommended.
- (4) Use a type "B" or "C" flashing arrow board.

Board Type	Min. Size
B	60"x30" Facilities 55 MPH and Below
C	96"x48" Facilities 60 MPH and Above
- (5) Refer to roadway standard drawing No. 1101.02 sheet 3 of 7 for spacing of drums.
- (6) If sufficient buffer space can be obtained, a truck mounted attenuator is not needed.
- (7) A truck mounted attenuator on a shadow vehicle may be used in instances when traffic volumes are high, horizontal alignments decrease sight distances, and/or buffer spaces cannot be obtained as directed by the engineer.

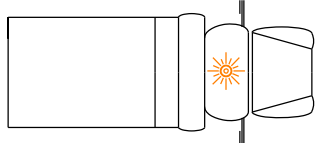
LEGEND



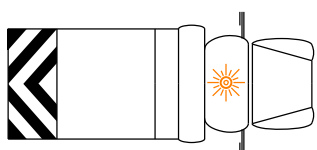
PORTABLE SIGN




DIRECTION OF TRAFFIC FLOW




WORK VEHICLE WITH WARNING LIGHT



PROTECTION VEHICLE WITH TRUCK MOUNTED ATTENUATOR (TMA) AND WARNING LIGHTS (SEE RSD NO. 1165.01)



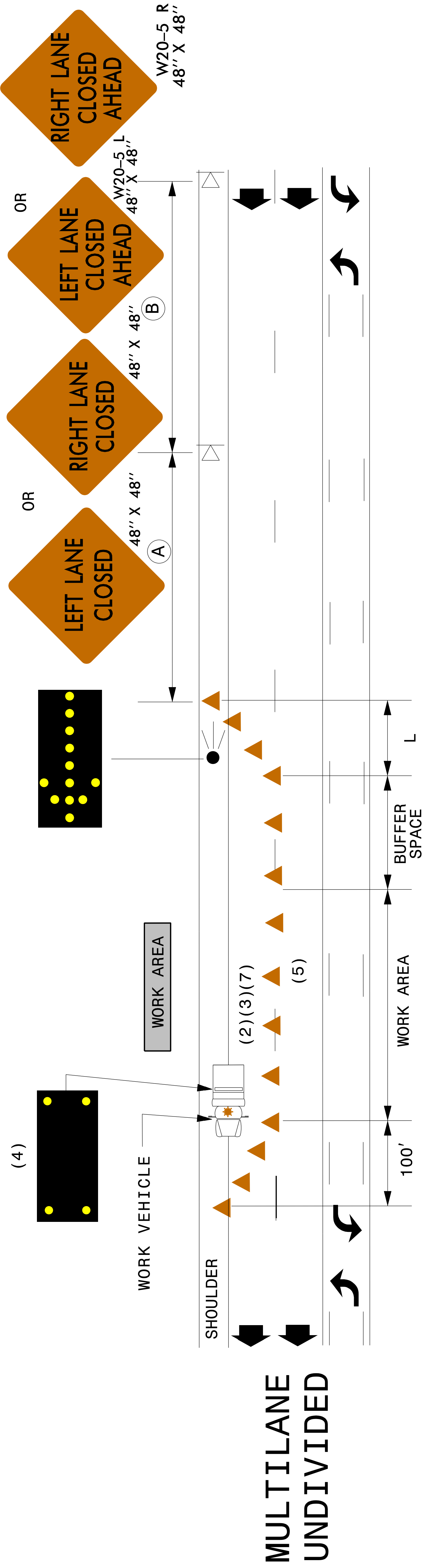
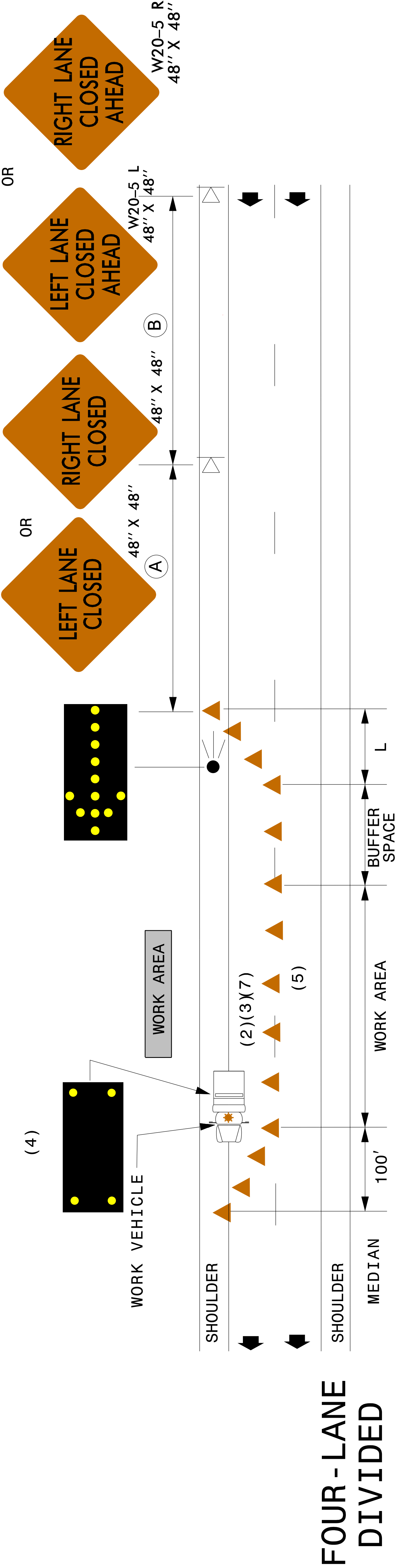
FLASHING ARROW BOARD, TYPE "B" OR "C", "CAUTION MODE"



TRAFFIC CONE

Sign Support Work

Vehicle on Right or Left Travel Lane
Interstate & Multilane Roadways
Volume: Any Volume
Speed: Any Speed



Notes on Sign Support Work on Two-Lane, Two-Way Roadways with Volumes > or = 500 Vehicles per Hour

- (1) TMA vehicle must be completely in travel lane.
- (2) All vehicles must have warning lights operating at all times.
- (3) Radio communication between vehicles is recommended.
- (4) Use a type "B" flashing arrow board.

Board Type	Min. Size
B	60" x 30"
- (5) A truck mounted attenuator on a shadow vehicle may be used in instances when traffic volumes are high, horizontal alignments decrease sight distances, and/or buffer spaces, etc. cannot be obtained as directed by the engineer.
- (6) A single flagman may be used if sight distances allow the flagger to see both approaches to direct traffic.

LEGEND

PORTABLE SIGN

DIRECTION OF TRAFFIC FLOW

WORK VEHICLE WITH WARNING LIGHTS

PROTECTION VEHICLE WITH TRUCK MOUNTED ATTENUATOR (TMA) AND WARNING LIGHTS
(SEE RSD NO. 1165.01)

FLASHING ARROW BOARD, TYPE "B"
"CAUTION MODE"

FLAGGER

TRAFFIC CONE

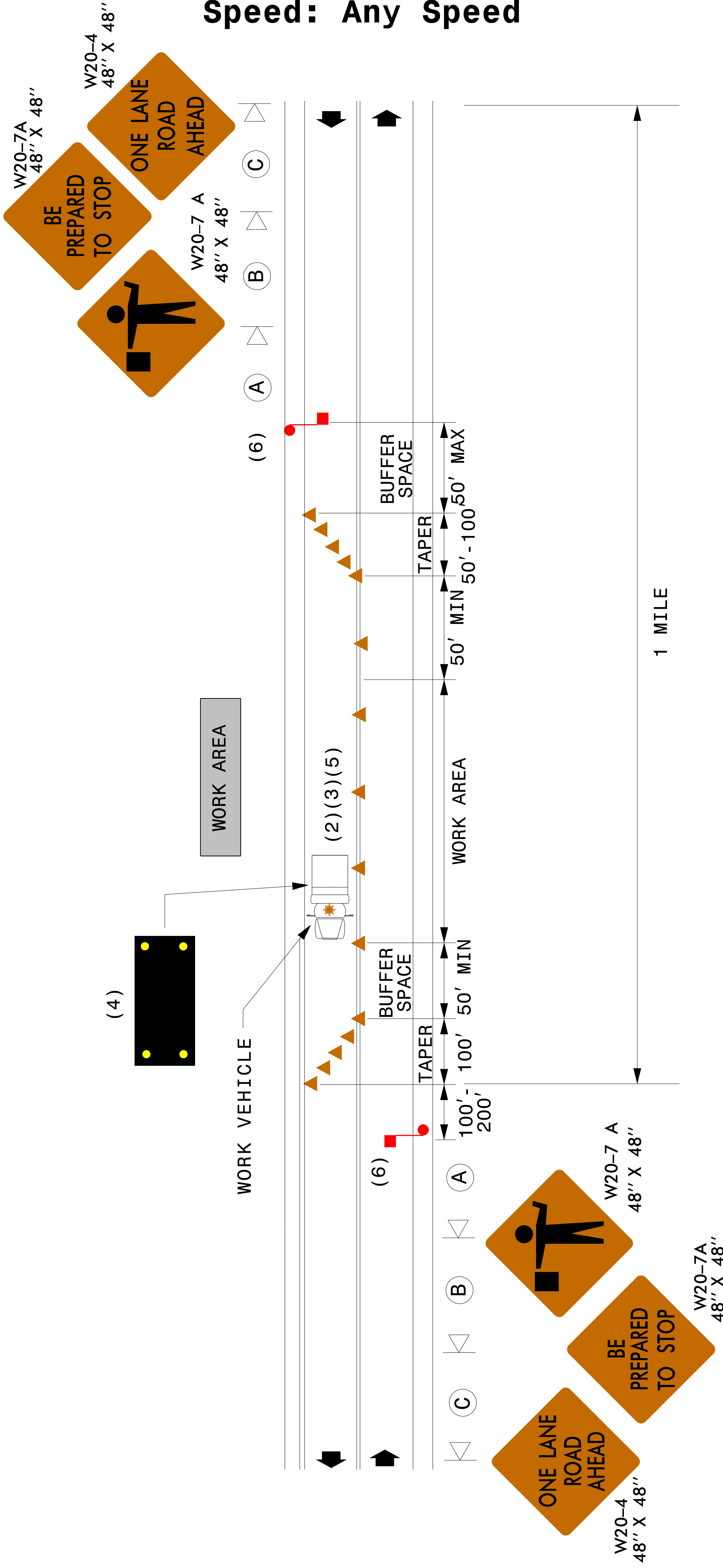
Sign Support Work

Vehicle on Two-Lane, Two-Way Roadways

Location: Vehicle in Travel Lane

Volume: > 0 or $= 500$ Veh. Per Hour

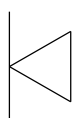
Speed: Any Speed




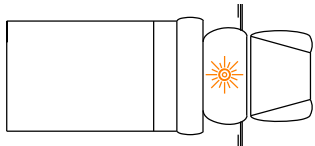
Notes on Sign Support Work on Two-Lane, Two-Way Roadways with Volumes < 500 Vehicles per Hour


- (1) All vehicles must have warning lights operating at all times.
- (2) A truck mounted attenuator on a shadow vehicle may be used in instances when traffic volumes are high, horizontal alignments decrease sight distances, and/or buffer spaces, etc. cannot be obtained as directed by the engineer.
- (3) A single flagman may be used if sight distances allow the flagger to see both approaches to direct traffic.


LEGEND

PORTABLE SIGN

DIRECTION OF TRAFFIC FLOW

WORK VEHICLE WITH WARNING LIGHTS

FLAGGER

TRAFFIC CONE

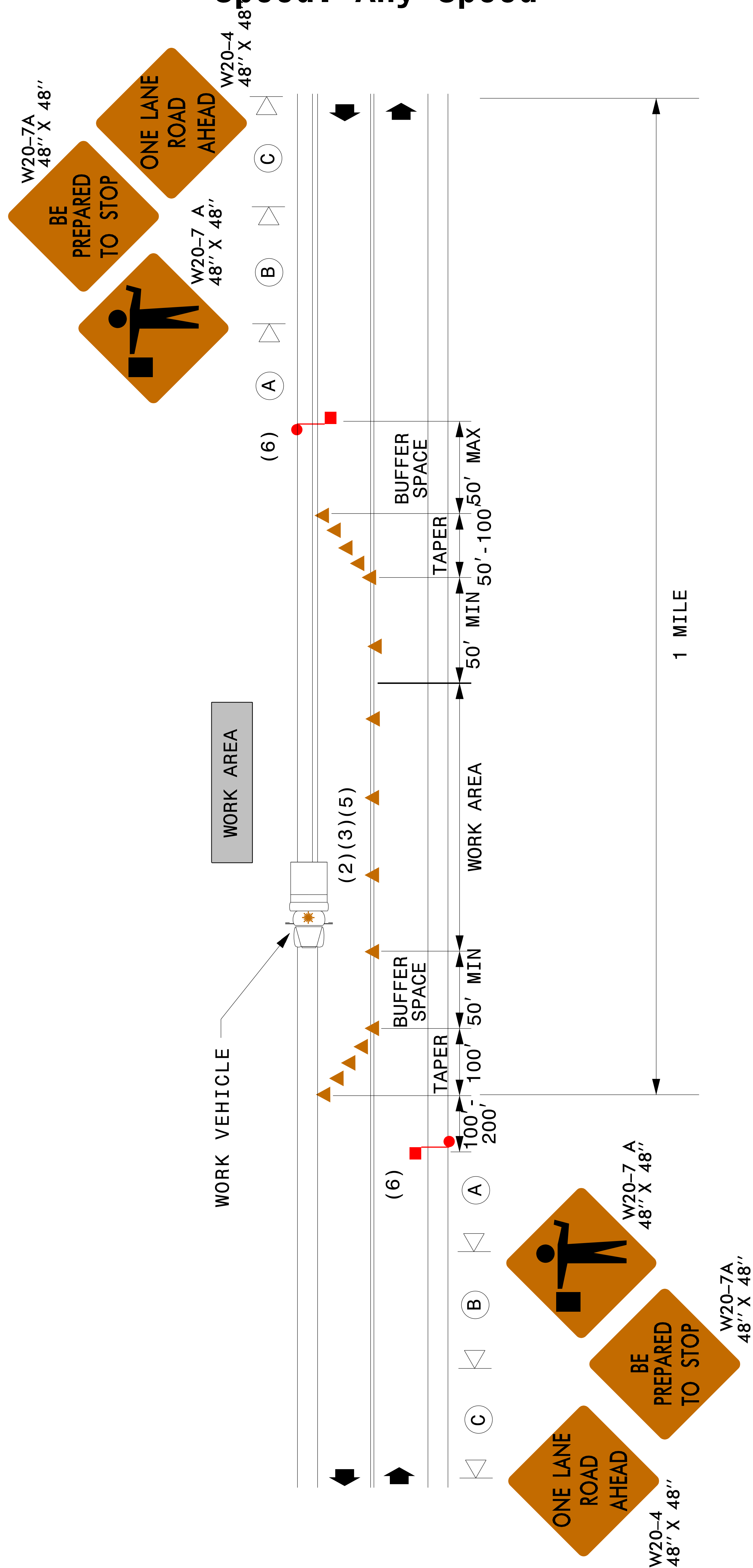
Sign Support Work

Vehicle on Two-Lane, Two-Way Roadways

Location: Vehicle in Travel Lane

Volume: < 500 Veh. Per Hour

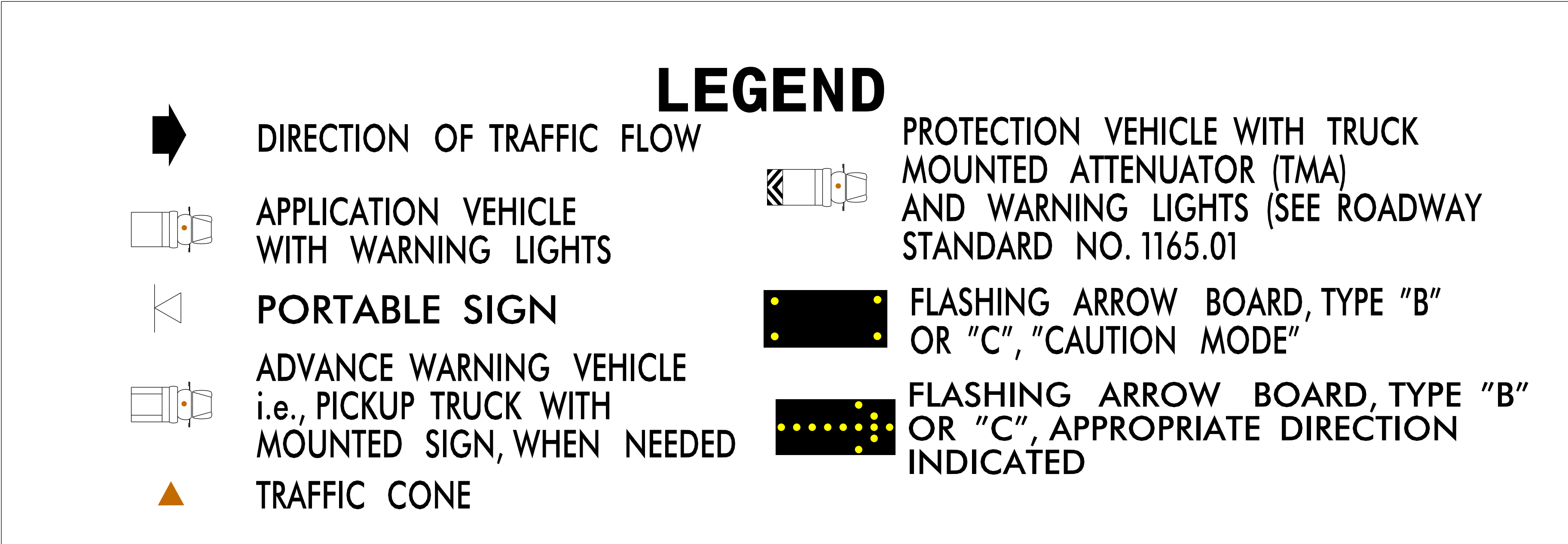
Speed: Any Speed



Notes on Shoulder/Ditch Construction Operation on Interstate & High Volume Multilane Divided Roadways

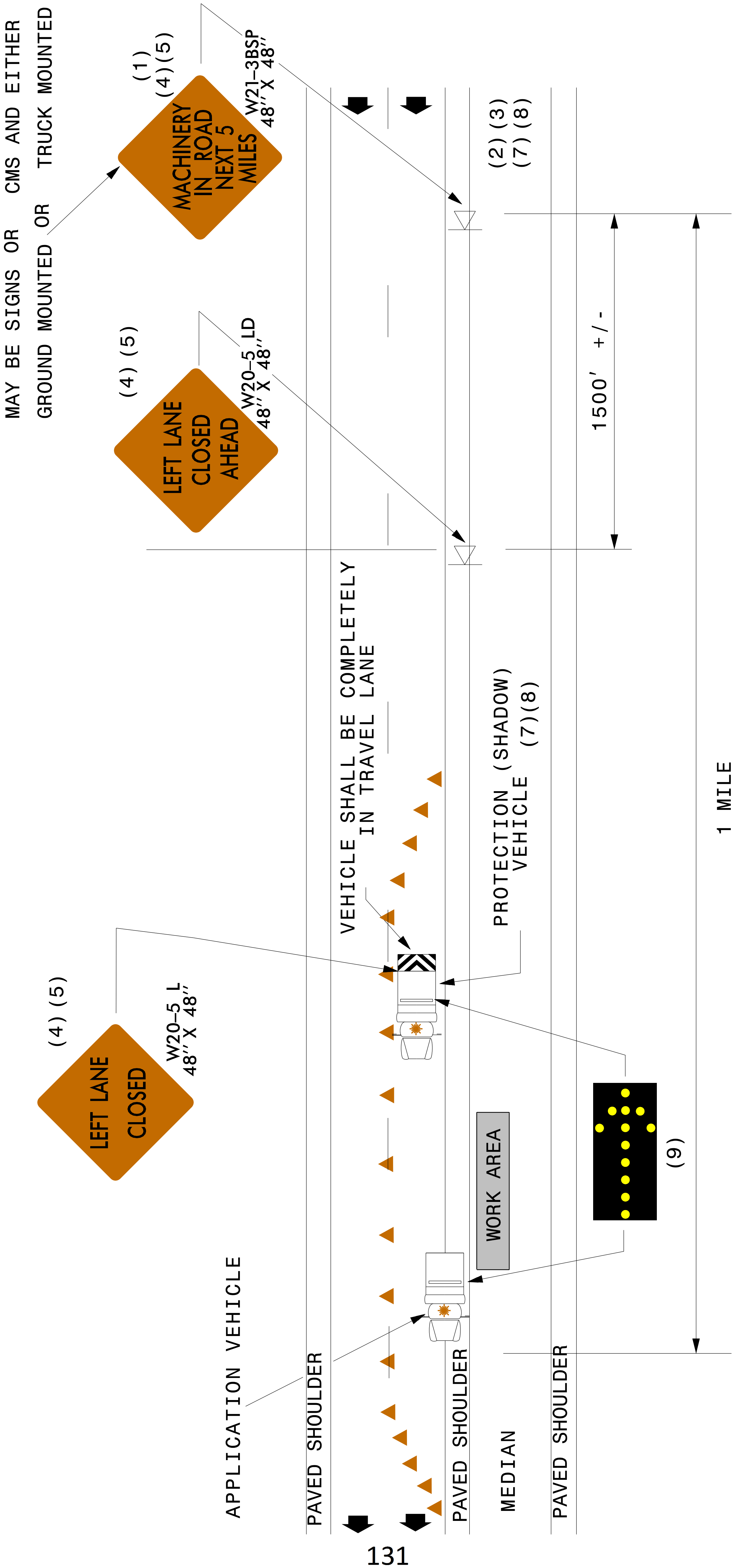
- (1) The following options may be used as the first advance warning the motorists see:
 - a. Truck mounted advance warning signs
 - b. Moving changeable message sign (CMS)
 - c. Ground mounted advance warning signs
 - (Must use 'Next 5 Miles' and make circles to pick up signs)
 - d. Stationary changeable message sign (CMS)
 - (Must use 'Next 5 Miles' and make circles to pick up CMS)
- (2) Total distance between first and last vehicle in caravan should not exceed one mile in length.
- (3) If using ground mounted advance warning signs or stationary CMS, the total distance between the first advance warning sign or CMS and application vehicle should not exceed 5 miles and sign W21-3BSP should read 'Machinery in Road Next 5 Miles'.
- (4) Signs on vehicles should be mounted a minimum of one foot from the ground and should not block the motorist's sight of the flashing arrow board and/or warning lights.
- (5) Sign W20-5L should be placed on back of protection vehicle.
- (6) Radio communication between vehicles is recommended.
- (7) Use of warning lights on the advance warning vehicle.
- (8) Use of CMS's are optional with advance warning vehicles.
- (9) Use a type "B" or "C" flashing arrow board.

Board Type	Min. Size
B	60"x30" Facilities 55 MPH and Below
C	96"x48" Facilities 60 MPH and Above



Shoulder/Ditch Construction Operation

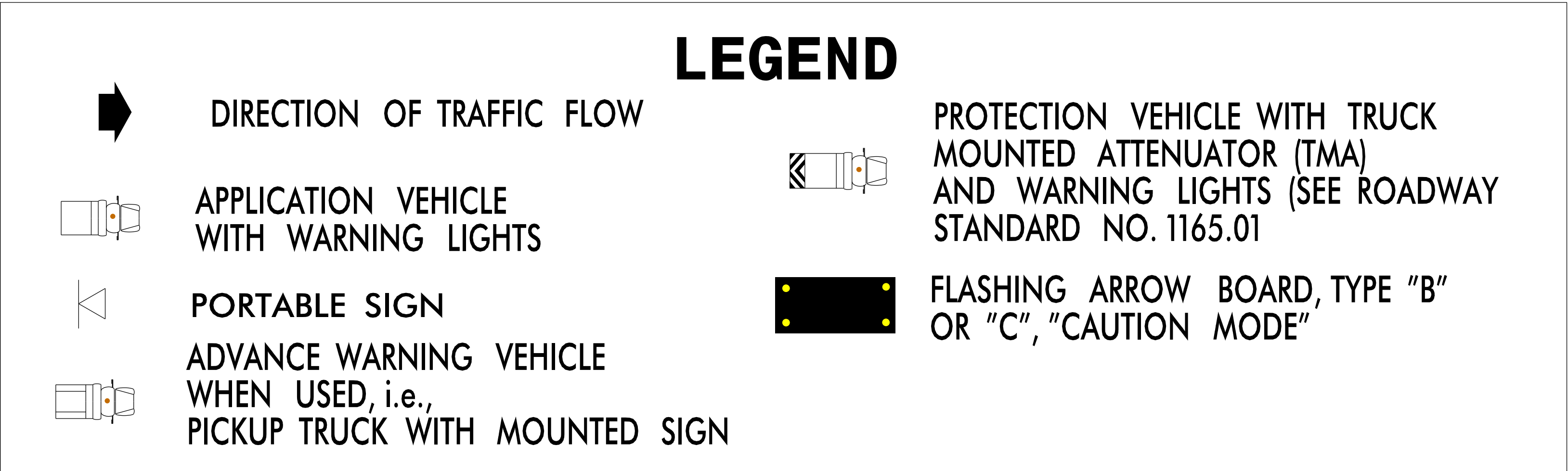
Interstate & High Volume Multilane Divided Roadways
Work on Right or Median Shoulders
Less Than 10' Wide



Notes on Shoulder/Ditch Construction Operation on Interstate & High Volume Multilane Divided Roadways

- (1) The following options may be used as the first advance warning the motorists see:
 - a. Truck mounted advance warning signs
 - b. Moving changeable message sign (CMS)
 - c. Ground mounted advance warning signs
(Must use 'Next 5 Miles' and make circles to pick up signs)
 - d. Stationary changeable message sign (CMS)
(Must use 'Next 5 Miles' and make circles to pick up CMS)
- (2) Total distance between first and last vehicle in caravan should not exceed one mile in length.
- (3) If using ground mounted advance warning signs or stationary CMS, the total distance between the first advance warning sign or CMS and application vehicle should not exceed 5 miles and sign W21-3BSP should read 'Machinery in Road Next 5 Miles'.
- (4) Signs on vehicles should be mounted a minimum of one foot from the ground and should not block the motorist's sight of the flashing arrow board and/or warning lights.
- (5) Sign W20-5L should be placed on back of protection vehicle and sign W20-LD on back of advance warning vehicle in multilane divided traffic so vehicles approaching from rear are notified of operation.
- (6) Radio communication between vehicles is recommended.
- (7) Use of warning lights on the advance warning vehicle.
- (8) Use of CMS's are optional with advance warning vehicles.
- (9) Use a type "B" or "C" flashing arrow board.

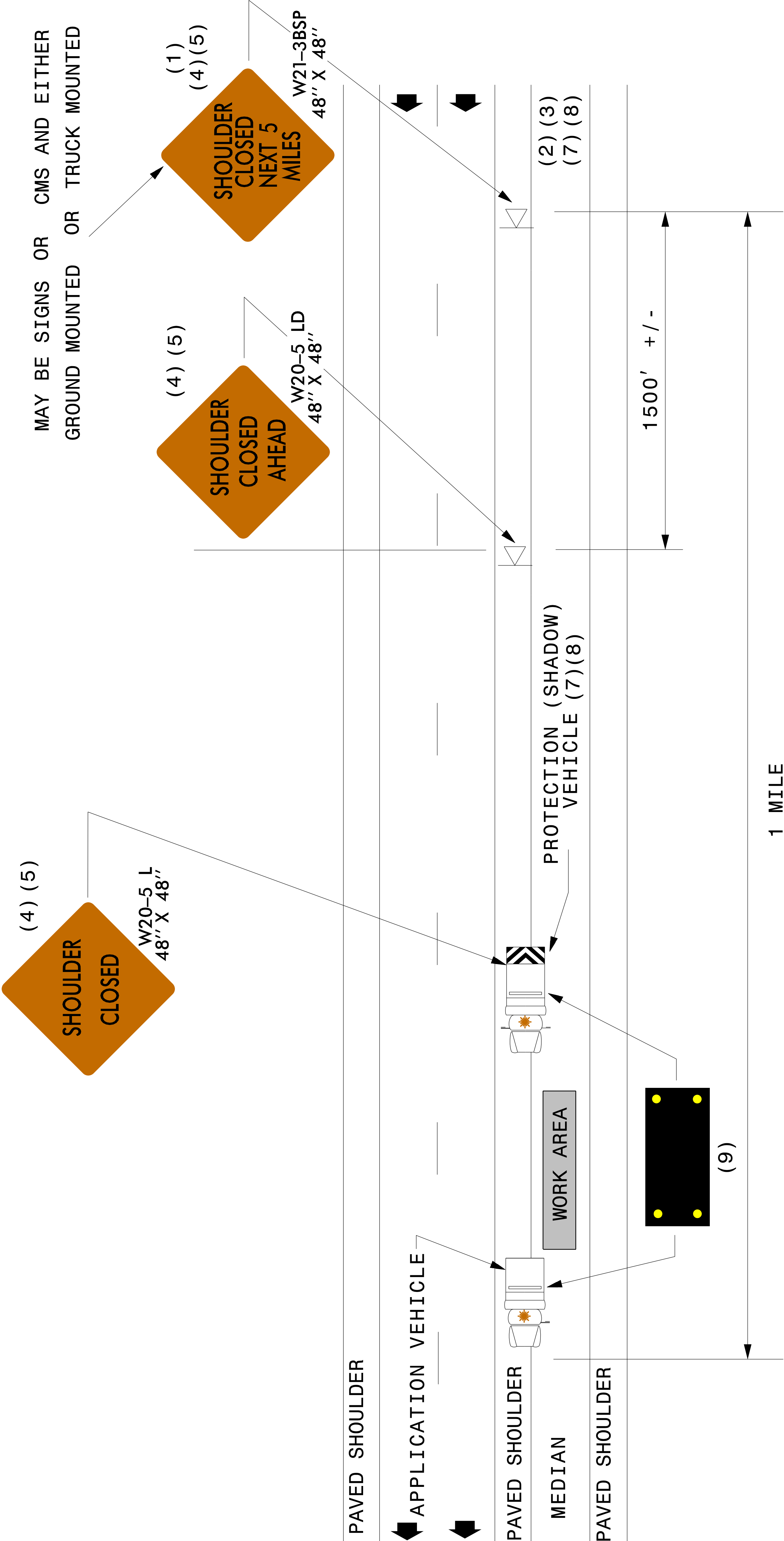
Board Type	Min. Size
B	60"x30" Facilities 55 MPH and Below
C	96"x48" Facilities 60 MPH and Above



Shoulder/Ditch Construction Operation

Interstate & High Volume Multilane Divided Roadways


Work on Right or Median Shoulders 10' or Wider



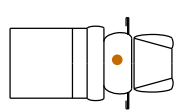
Notes on Shoulder/Ditch Construction Operation on Other High Volume Multilane Divided Roadways

- (1) The following options may be used as the first advance warning the motorists see:
 - a. Truck mounted advance warning signs
 - b. Moving changeable message sign (CMS)
- (2) Total distance between first and last vehicle in caravan should not exceed one mile in length.
- (3) Signs on vehicles should be mounted a minimum of one foot from the ground and should not block the motorist’s sight of the flashing arrow board and/or warning lights.
- (4) Sign W20-L should be placed on back of protection vehicle and sign W21-3BSP on back of advance warning vehicle in multilane divided traffic so vehicles approaching from rear are notified of operation.
- (5) Radio communication between vehicles is recommended.
- (6) Use of warning lights on the advance warning vehicles.
- (7) Use of CMS’s are optional with advance warning vehicles.
- (8) Use a type “B” flashing arrow board.

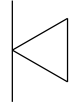
Board Type	Min. Size
B	60” x 30”



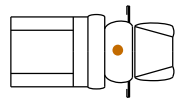
DIRECTION OF TRAFFIC FLOW



APPLICATION VEHICLE WITH WARNING LIGHTS

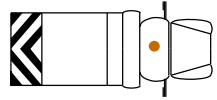


PORTABLE SIGN

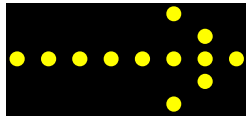


ADVANCE WARNING VEHICLE i.e., PICKUP TRUCK WITH MOUNTED SIGN


LEGEND



PROTECTION VEHICLE WITH TRUCK MOUNTED ATTENUATOR (TMA) AND WARNING LIGHTS (SEE ROADWAY STANDARD NO. 1165.01)



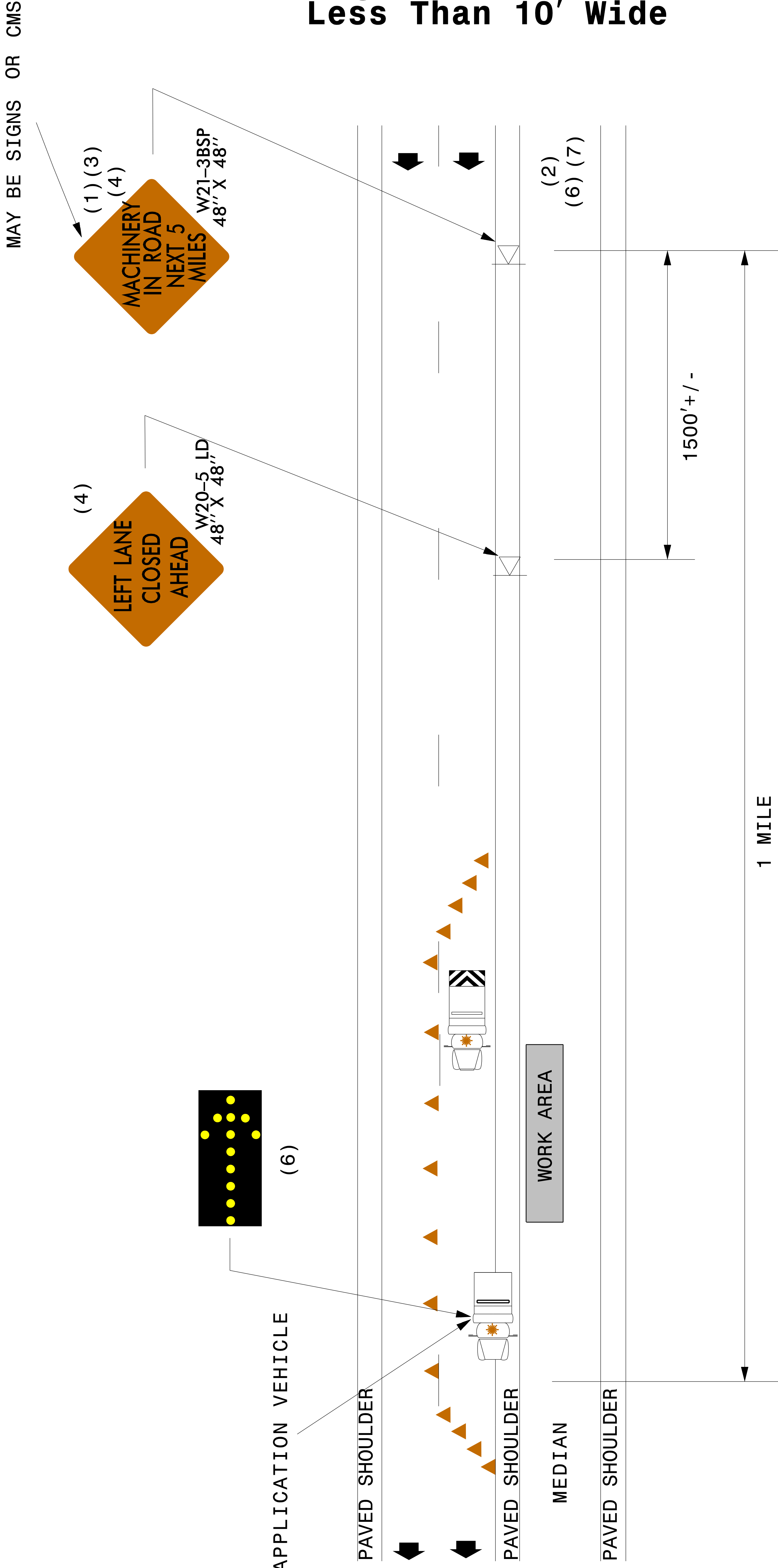
FLASHING ARROW BOARD, TYPE “B” APPROPRIATE DIRECTION INDICATED



TRAFFIC CONE

Shoulder/Ditch Construction Operation


Other Multilane Divided Roadways Work on Right or Median Shoulders Less Than 10' Wide



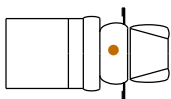
Notes on Shoulder/Ditch Construction Operation on Other High Volume Multilane Divided Roadways

- (1) The following options may be used as the first advance warning the motorists see:
 - a. Portable signs
 - b. Changeable message sign boards (CMS)
- (2) Total distance between first and last vehicle in caravan should not exceed one mile in length.
- (3) Signs on vehicles should be mounted a minimum of one foot from the ground and should not block the motorist’s sight of the flashing arrow board and/or warning lights.
- (4) Sign W20-L should be placed on back of protection vehicle and sign W21-3BSP on back of advance warning vehicle in multilane divided traffic so vehicles approaching from rear are notified of operation.
- (5) Radio communication between vehicles is recommended.
- (6) Use of warning lights on the advance warning vehicles.
- (7) Use of CMS’s are optional with advance warning vehicles.
- (8) Use a type “B” flashing arrow board.

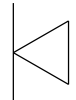
Board Type	Min. Size
B	60” x 30”




DIRECTION OF TRAFFIC FLOW



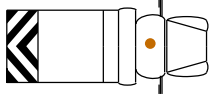
APPLICATION VEHICLE WITH WARNING LIGHTS



PORTABLE SIGN



FLASHING ARROW BOARD, "CAUTION MODE"

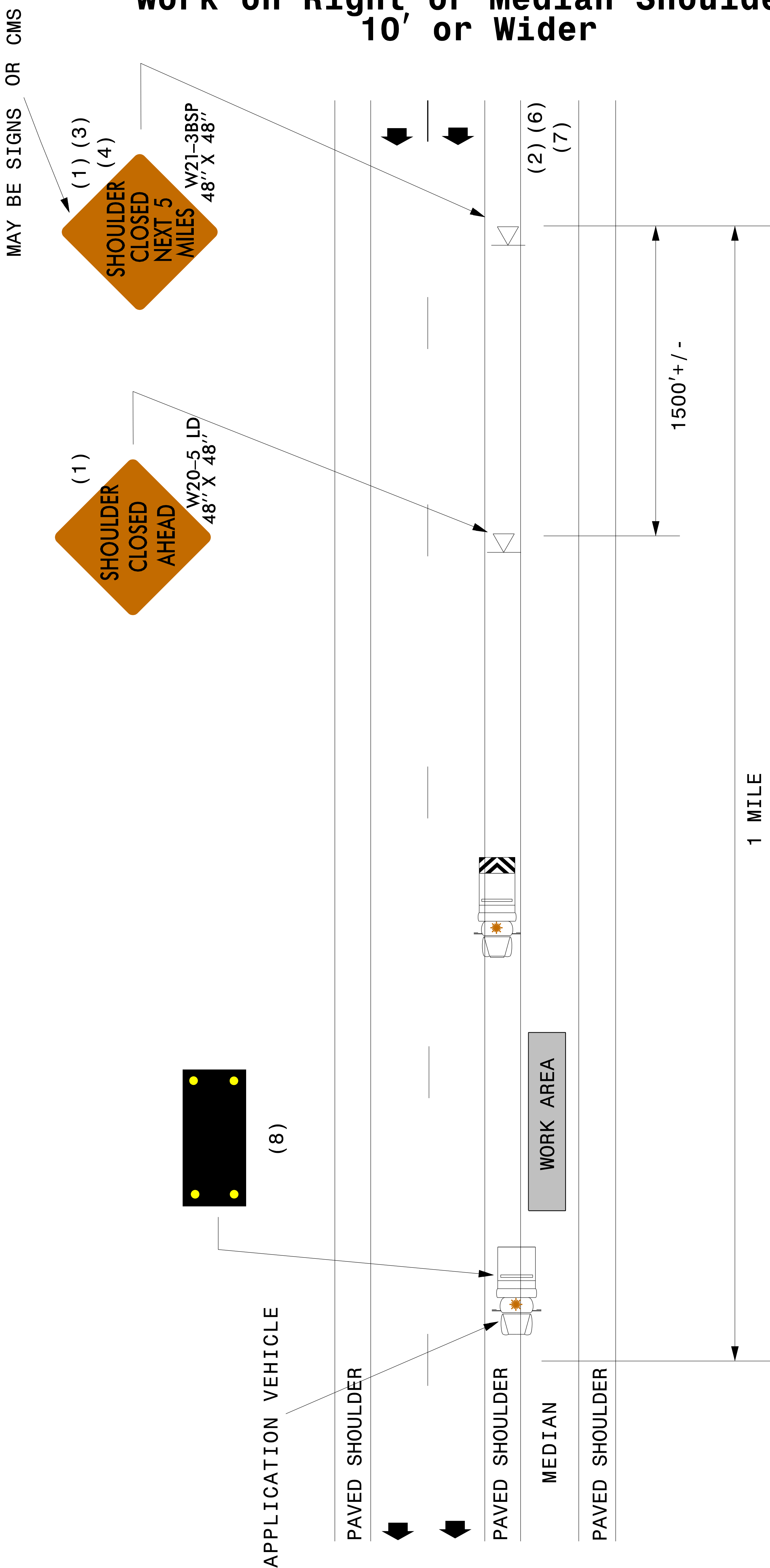


PROTECTION VEHICLE WITH TRUCK MOUNTED ATTENUATOR (TMA) AND WARNING LIGHTS (SEE ROADWAY STANDARD NO. 1165.01)

LEGEND

Shoulder/Ditch Construction Operation

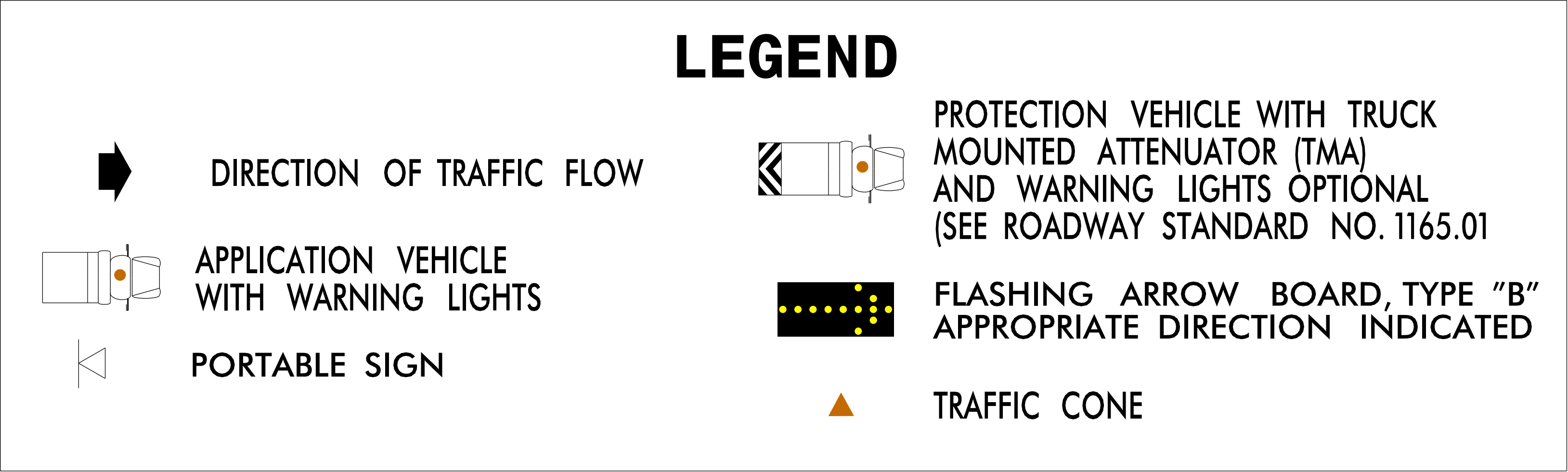
Other Multilane Divided Roadways
Work on Right, or Median Shoulders
10' or Wider



Notes on Shoulder/Ditch Construction Operation on Two-Lane, Two-Way Roadways

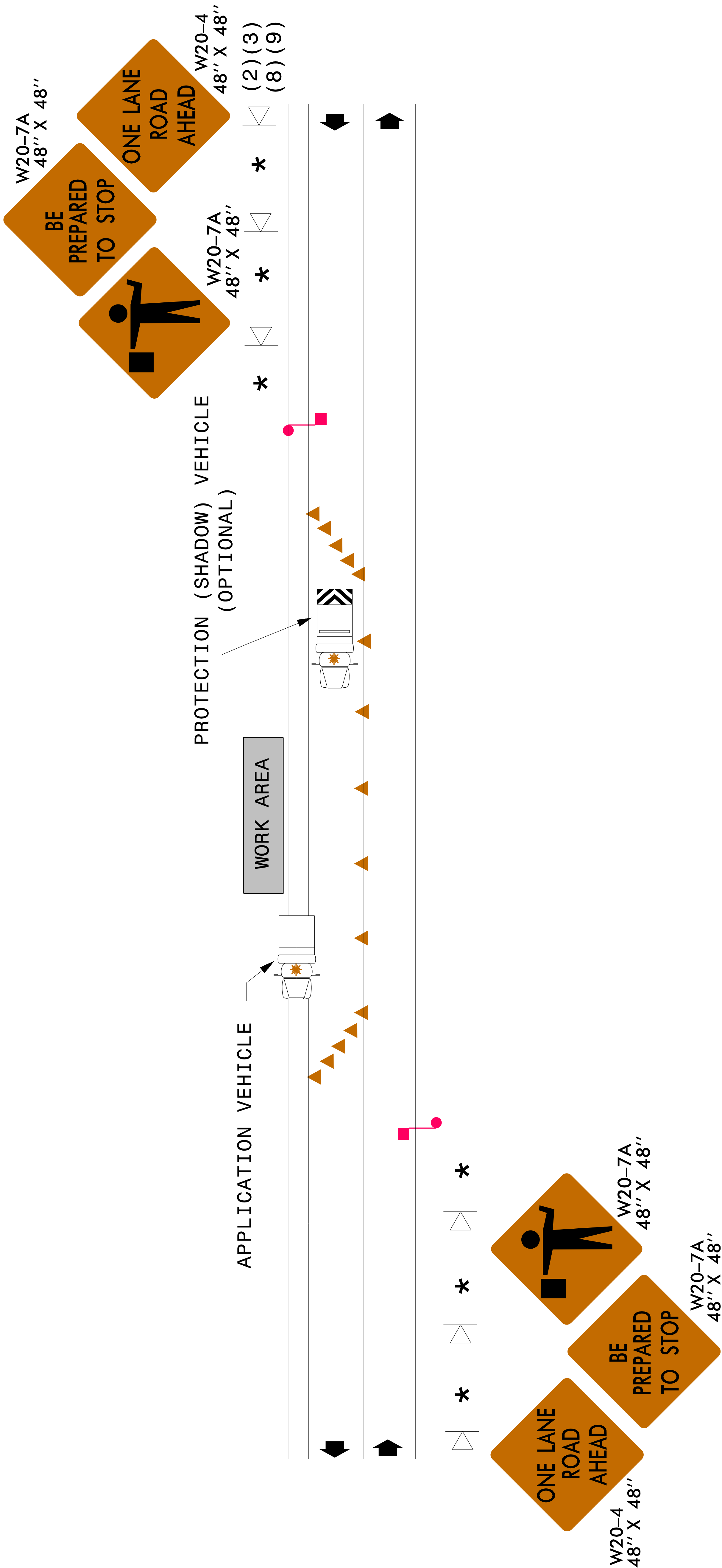
- (1) The following options may be used as the first advance warning the motorists see:
 - a. Truck mounted advance warning signs
 - b. Moving changeable message sign (CMS)
 - c. Ground mounted advance warning signs
(Must use 'Next 10 Miles' and make circles to pick up signs)
 - d. Stationary changeable message sign (CMS)
(Must use 'Next 10 Miles' and make circles to pick up CMS)
- (2) Total distance between first and last vehicle in caravan should not exceed one mile in length.
- (3) If using ground mounted advance warning signs or stationary CMS, the total distance between the first advance warning sign or CMS and application vehicle should not exceed 10 miles and sign W21-3BSP should read 'Machinery in Road Next 10 Miles'.
- (4) Signs on vehicles should be mounted a minimum of one foot from the ground and should not block the motorist's sight of the flashing arrow board and/or light bar.
- (5) Sign W26-1BSP or R4-7A should be placed on front of the application vehicle and sign W26-1BSP or W21-3A on back of the protection vehicle in two-lane, two-way traffic so vehicles approaching from the front and rear are notified of operation.
- (6) If a lead vehicle is added to the operation, it should have the same advance warning signs as the application vehicle shown below.
- (7) Radio communication between vehicles is recommended.
- (8) Use of a light bar or rotating beacon on the advance warning vehicle.
- (9) Use of CMS's are optional with advance warning vehicles.
- (10) Use a type "B" flashing arrow board.

Board Type	Min. Size
B	60" x 30"



Shoulder/Ditch Construction Operation

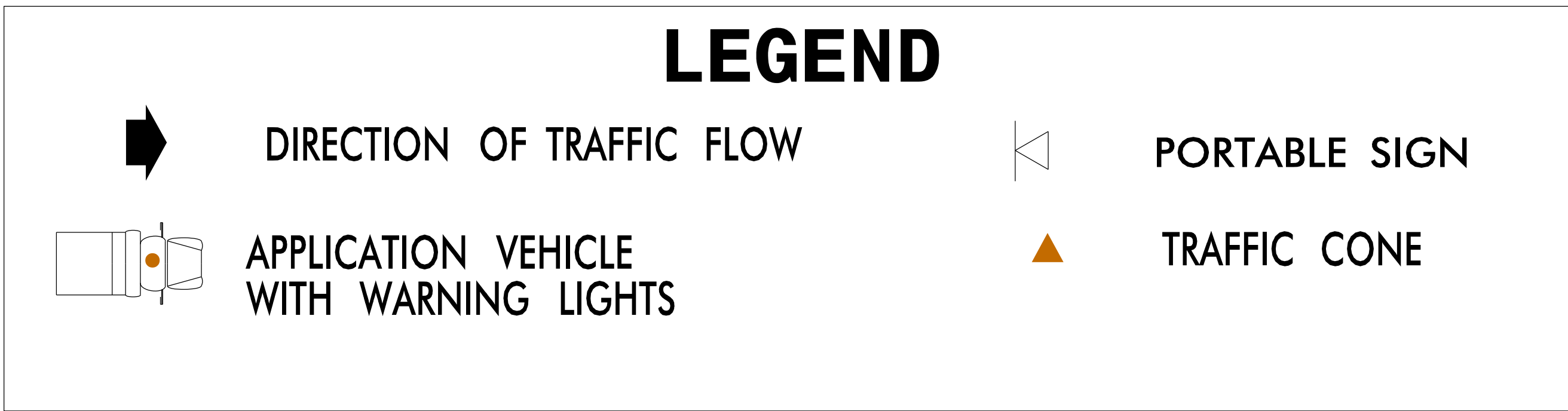
Two-Lane, Two-Way Roadways
With ADT Greater Than 5000



Notes on Shoulder/Ditch Construction Operation on Two-Lane, Two-Way Roadways

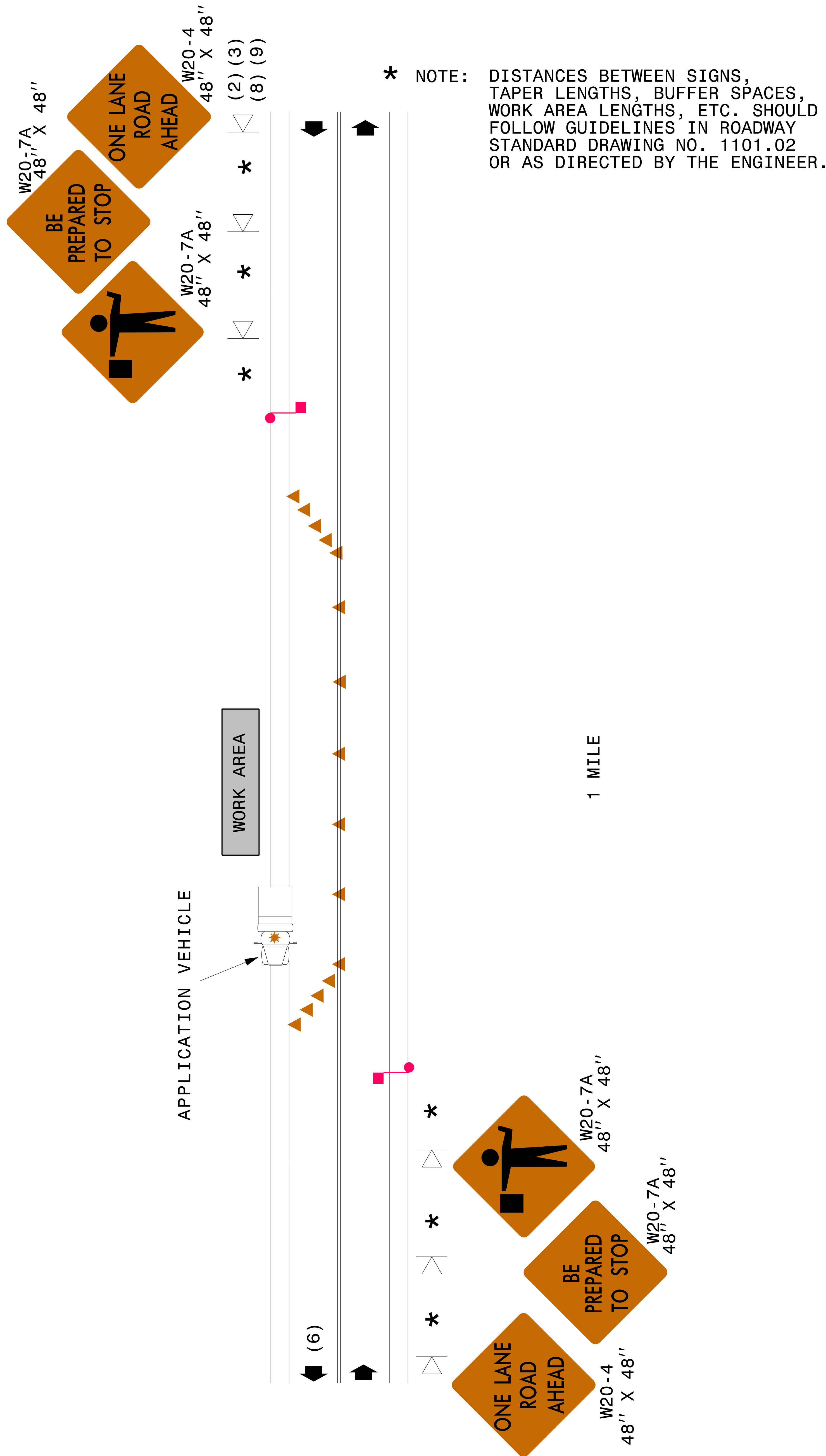
- (1) The following options may be used as the first advance warning the motorists see:
 - a. Truck mounted advance warning signs
 - b. Moving changeable message sign (CMS)
 - c. Ground mounted advance warning signs
(Must use 'Next 10 Miles' and make circles to pick up signs)
 - d. Stationary changeable message sign (CMS)
(Must use 'Next 10 Miles' and make circles to pick up CMS)
- (2) Total distance between first and last vehicle in caravan should not exceed one mile in length.
- (3) If using ground mounted advance warning signs or stationary CMS, the total distance between the first advance warning sign or CMS and application vehicle should not exceed 10 miles and sign W21-3BSP should read 'Machinery in Road Next 10 Miles'.
- (4) Signs on vehicles should be mounted a minimum of one foot from the ground and should not block the motorist's sight of the flashing arrow board and/or light bar.
- (5) Sign W26-1BSP or R4-7A should be placed on front of the application vehicle and sign W26-1BSP or W21-3A on back of the protection vehicle in two-lane, two-way traffic so vehicles approaching from the front and rear are notified of operation.
- (6) If a lead vehicle is added to the operation, it should have the same advance warning signs as the application vehicle shown below.
- (7) Radio communication between vehicles is recommended.
- (8) Use of a light bar or rotating beacon on the advance warning vehicle.
- (9) Use of CMS's are optional with advance warning vehicles.
- (10) Use a type "B" flashing arrow board.

Board Type	Min. Size
B	60" x 30"



Shoulder/Ditch Construction Operation

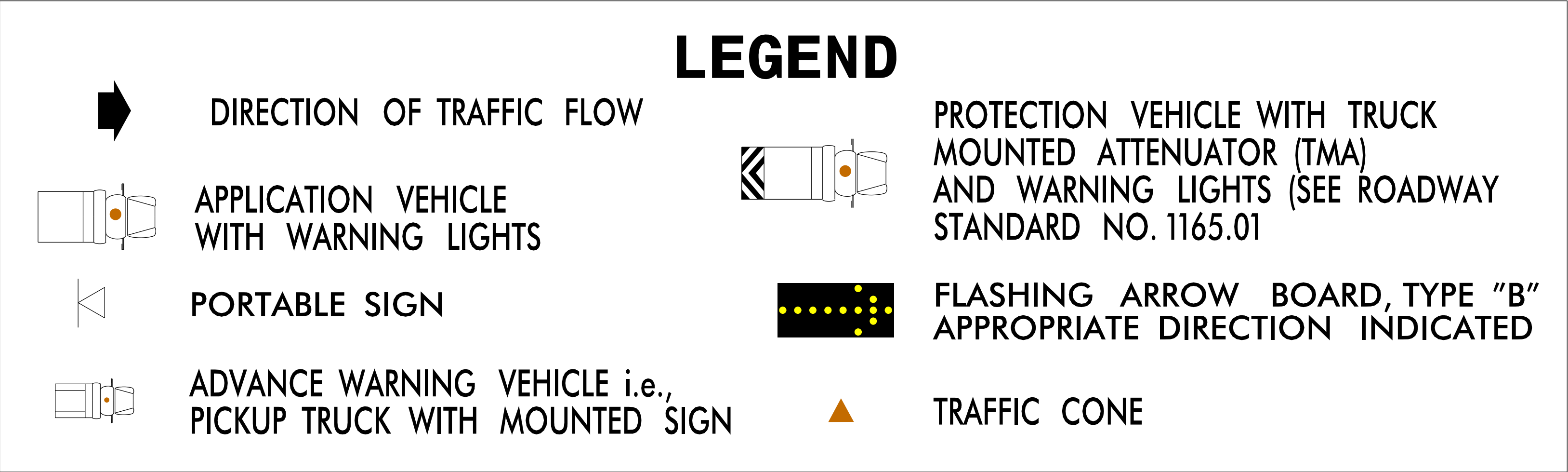
Two-Lane, Two-Way Roadways
With ADT Less Than or Equal to 5000



Notes on Shoulder/Ditch Construction Operation on Thru Lane of Multilane Undivided Roadways

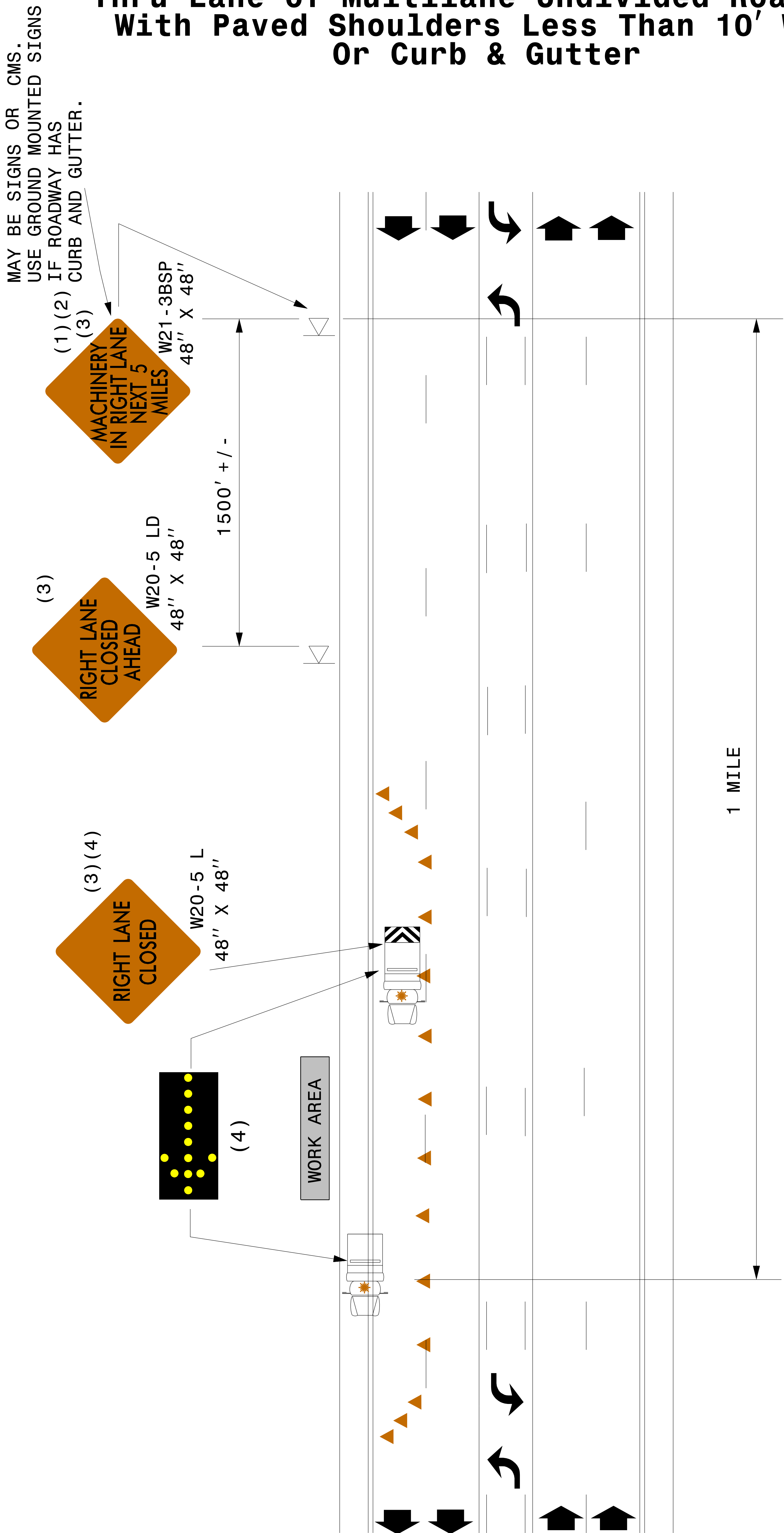
- (1) The following options may be used as the first advance warning the motorists see:
 - a. Portable warning signs
 - b. Changeable message sign (CMS)
- (2) Signs on vehicles should be mounted a minimum of one foot from the ground and should not block the motorist’s sight of the flashing arrow board and/or warning lights.
- (3) Sign W20-L should be placed on back of protection vehicle.
- (4) Use a type “B” flashing arrow board.

Board Type	Min. Size
B	60” x 30”



Shoulder/Ditch Construction Operation


Thru Lane of Multilane Undivided Roadways
With Paved Shoulders Less Than 10' Wide
Or Curb & Gutter



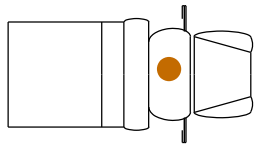
Notes on Shoulder/Ditch Construction Operation on Multilane Undivided Roadways

- (1) The following options may be used as the first advance warning the motorists see:
 - a. Portable warning signs
 - b. Changeable message sign (CMS)
- (2) Signs on vehicles should be mounted a minimum of one foot from the ground and should not block the motorist’s sight of the flashing arrow board and/or warning lights.
- (3) Sign W20-L should be placed on back of protection vehicle
- (4) Use a type “B” flashing arrow board.

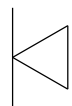
Board Type	Min. Size
B	60” x 30”



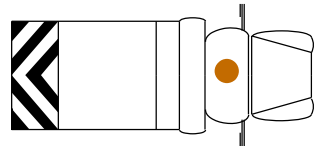
DIRECTION OF TRAFFIC FLOW




APPLICATION VEHICLE WITH WARNING LIGHTS



PORTABLE SIGN



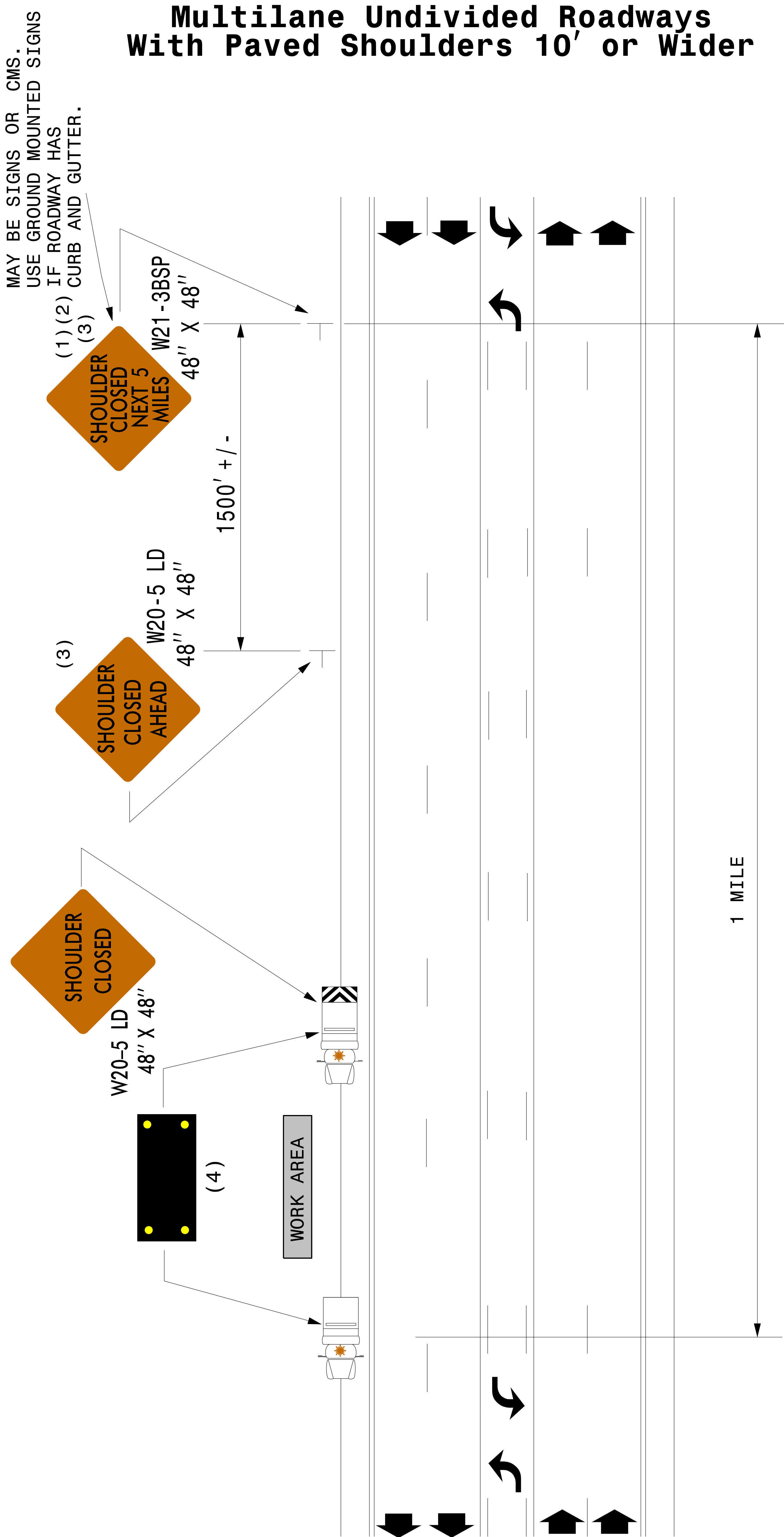
PROTECTION VEHICLE WITH TRUCK MOUNTED ATTENUATOR (TMA) AND WARNING LIGHTS (SEE ROADWAY STANDARD NO. 1165.01)



FLASHING ARROW BOARD, TYPE "B" "CAUTION MODE"

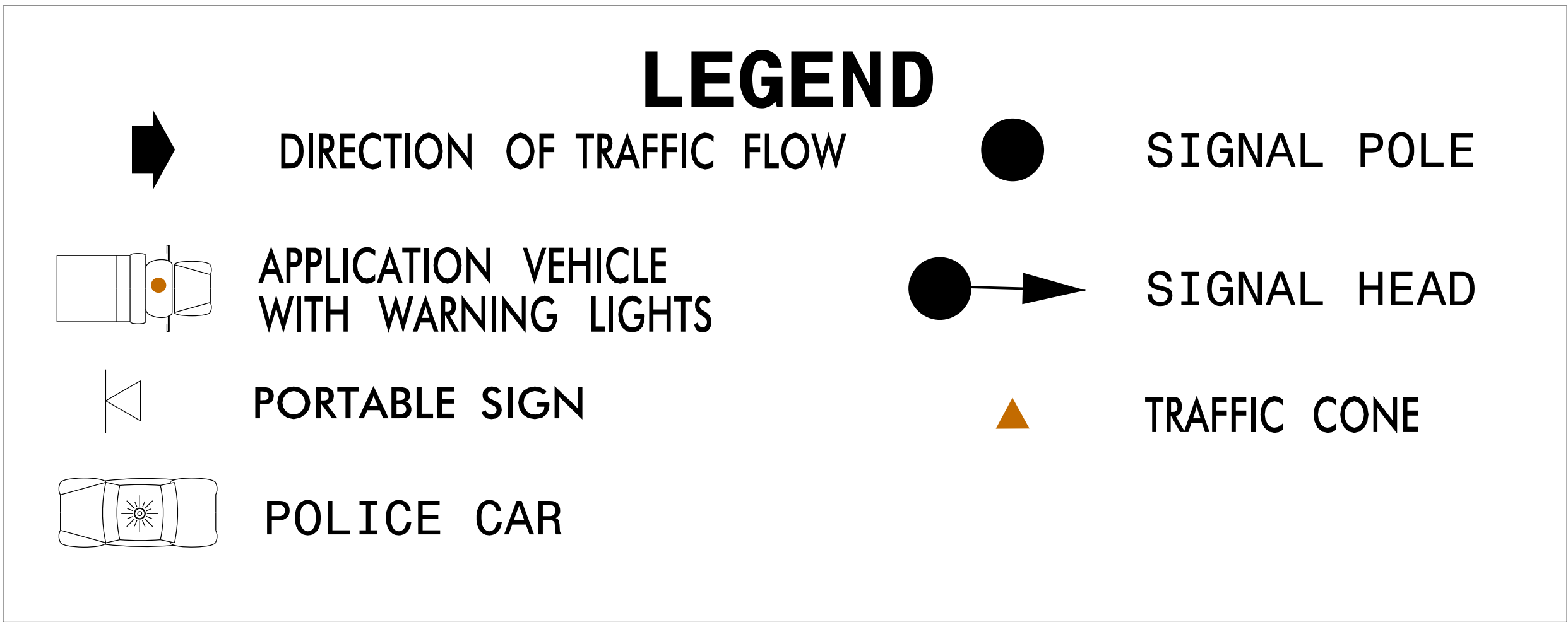
Shoulder/Ditch Construction Operation

Multilane Undivided Roadways With Paved Shoulders 10' or Wider



Notes on Signal Loop Installation/Repair on Multilane Undivided Roadways

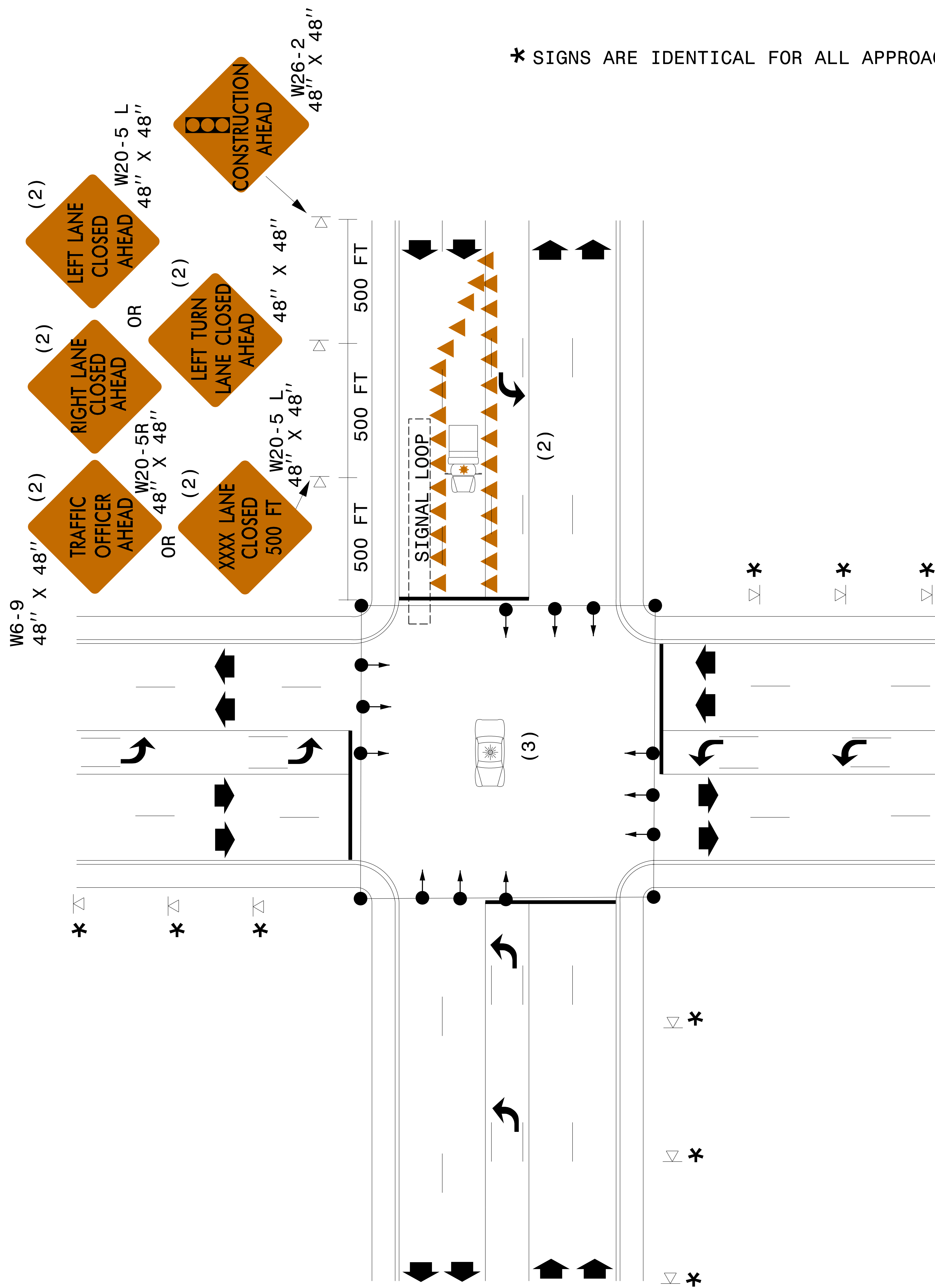
- (1) At all times, motorists, bicyclists, and pedestrians should be guided in a clear and positive manner while approaching and traversing the TTC zone(s).
- (2) Use appropriate signs for application.
- (3) When existing signal is not in operation or is in flash mode, use police officer to direct traffic.
- (4) When cutting pavement to install detection loops use flaggers to stop traffic.



Signal Loop Installation/Repair

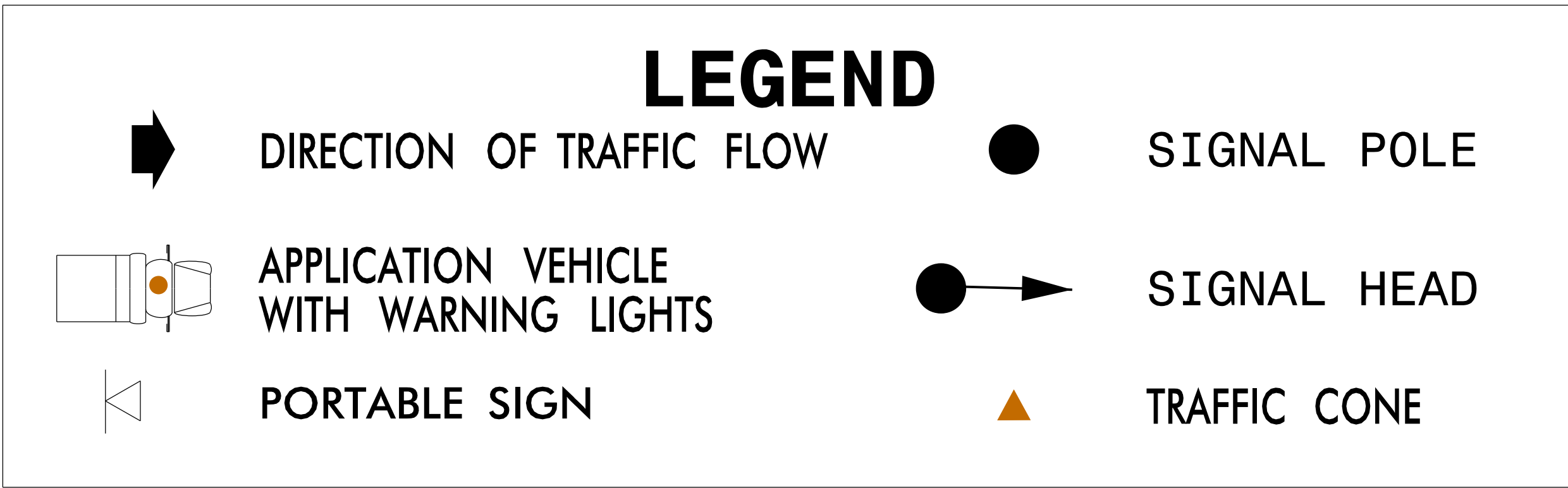
Multilane Undivided Roadways

* SIGNS ARE IDENTICAL FOR ALL APPROACHES



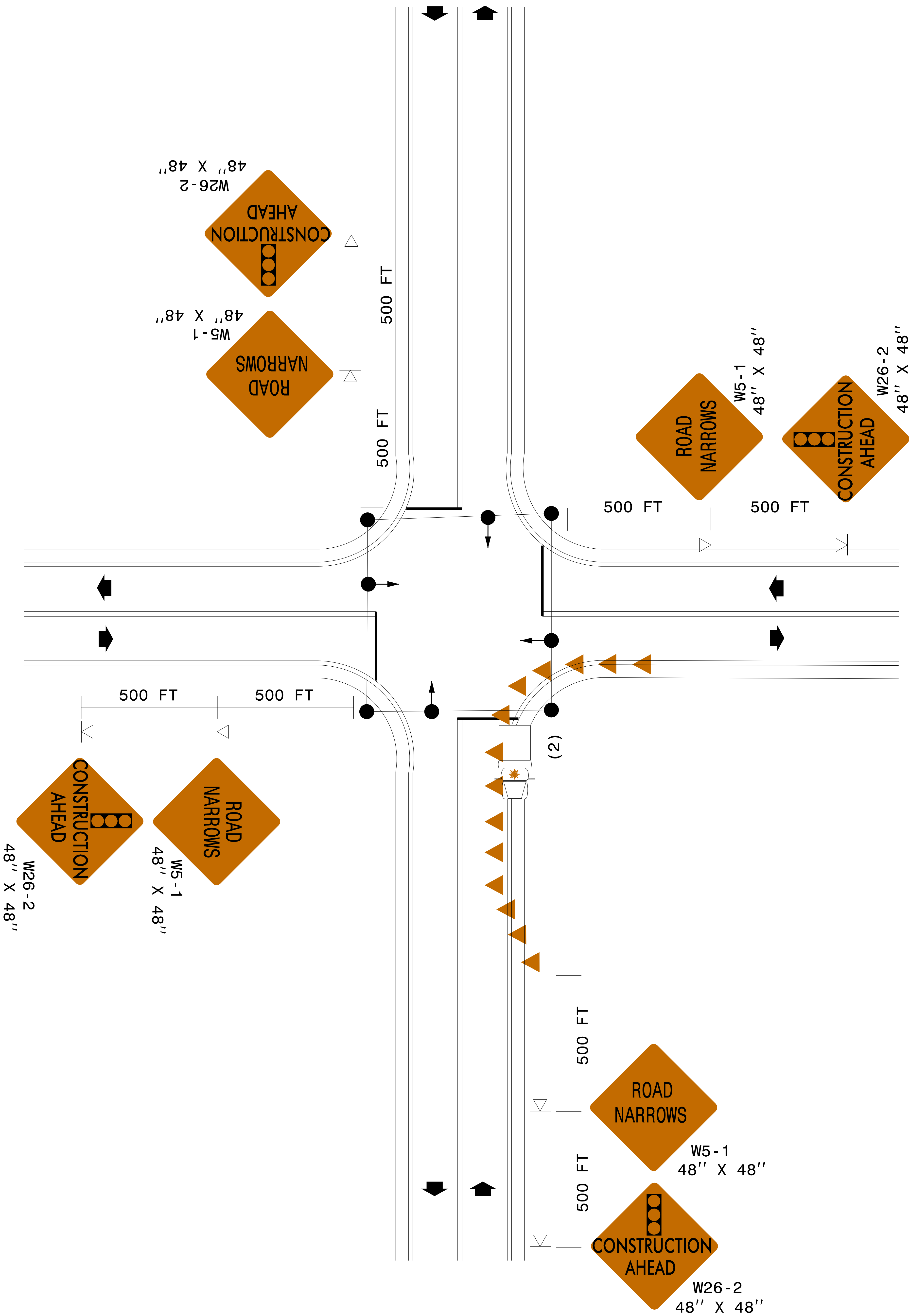
Notes on Signal Maintenance/Repair on Two-Lane, Two-Way Roadways

- (1) At all times, motorists, bicyclists, and pedestrians should be guided in a clear and positive manner while approaching and traversing the TTC zone(s).
- (2) All vehicles must have warning lights operating at all times.
- (3) If the signal is not in operation or is in Flash mode, use law enforcement to direct traffic.



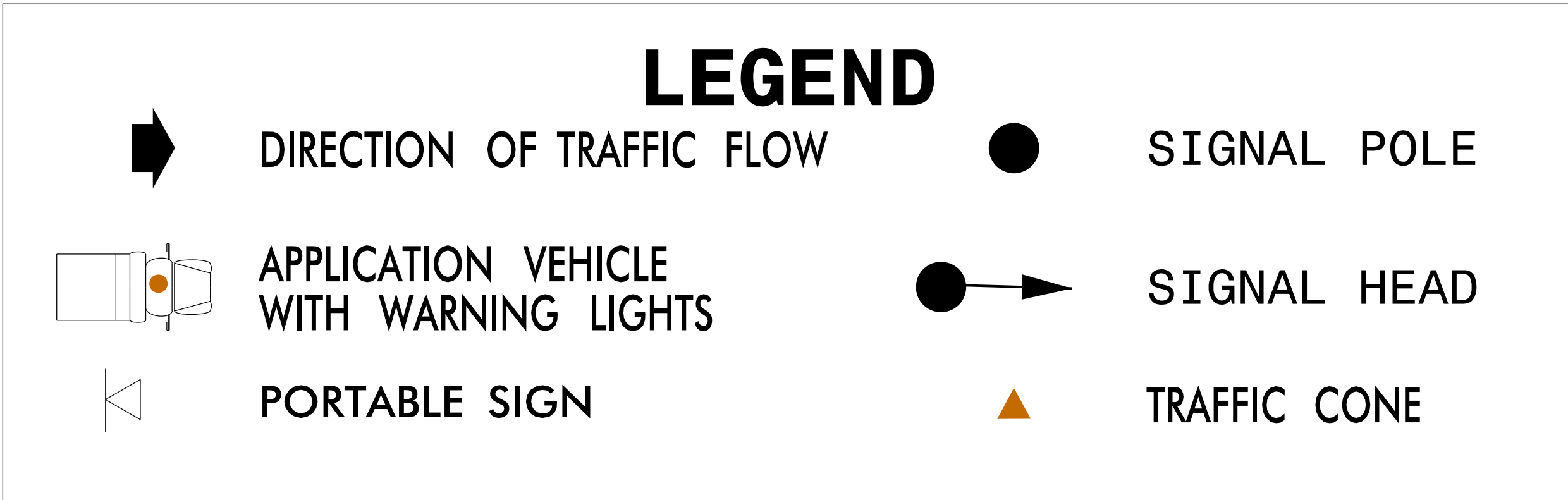
Signal Maintenance/Repair

Two-Lane, Two-Way Roadways
Speed: 45 MPH or Greater



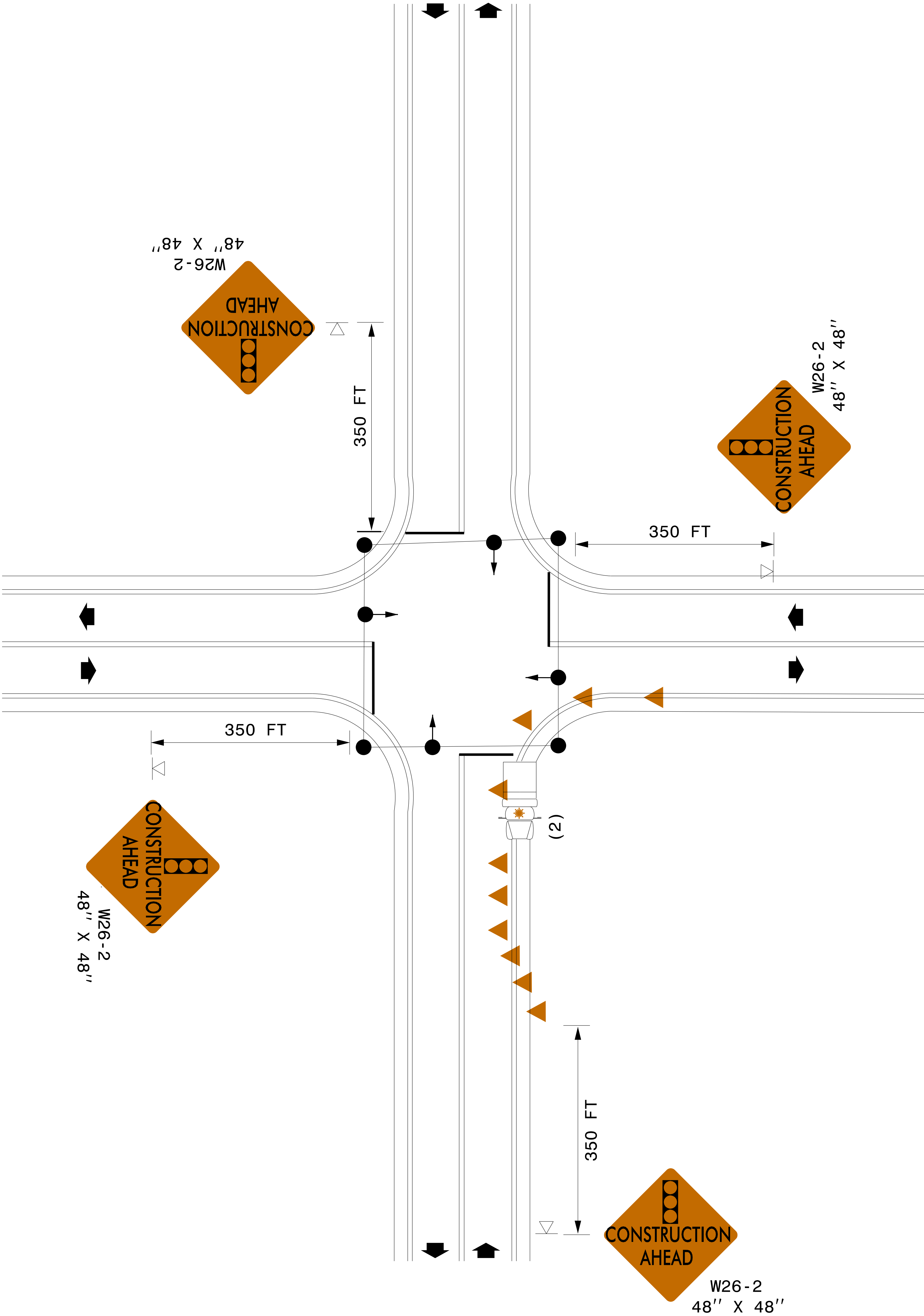
Notes on Signal Maintenance/Repair on Two-Lane, Two-Way Roadways

- (1) At all times, motorists, bicyclists, and pedestrians should be guided in a clear and positive manner while approaching and traversing the TTC zone(s).
- (2) All vehicles must have warning lights operating at all times.



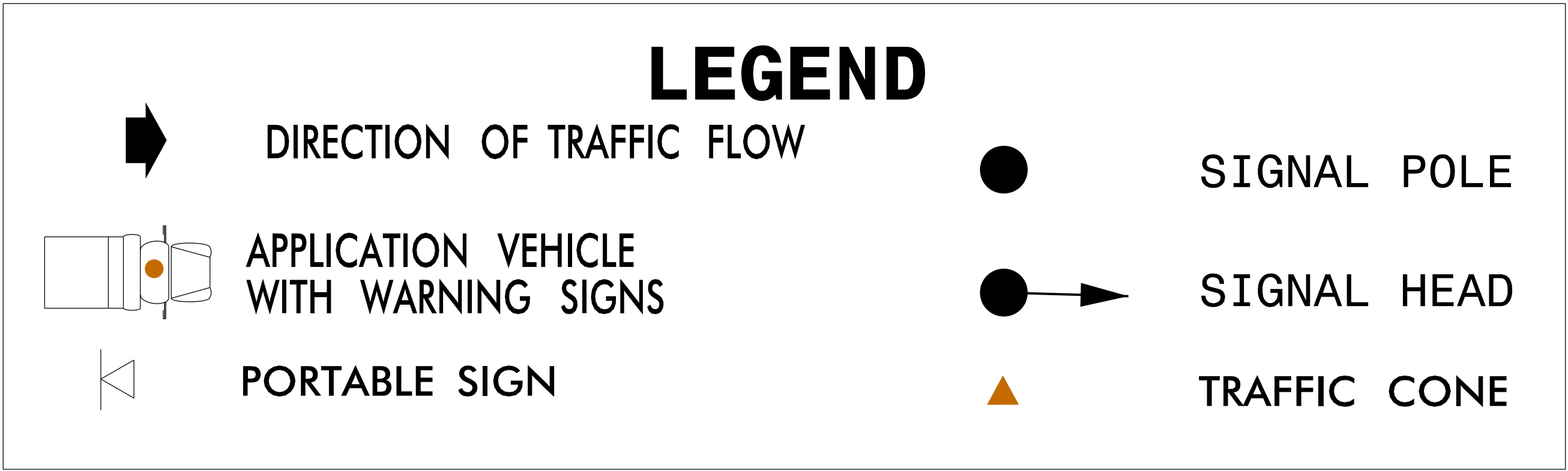
Signal Maintenance/Repair

Two-Lane, Two-Way Roadways
Speed: Less Than 45 MPH



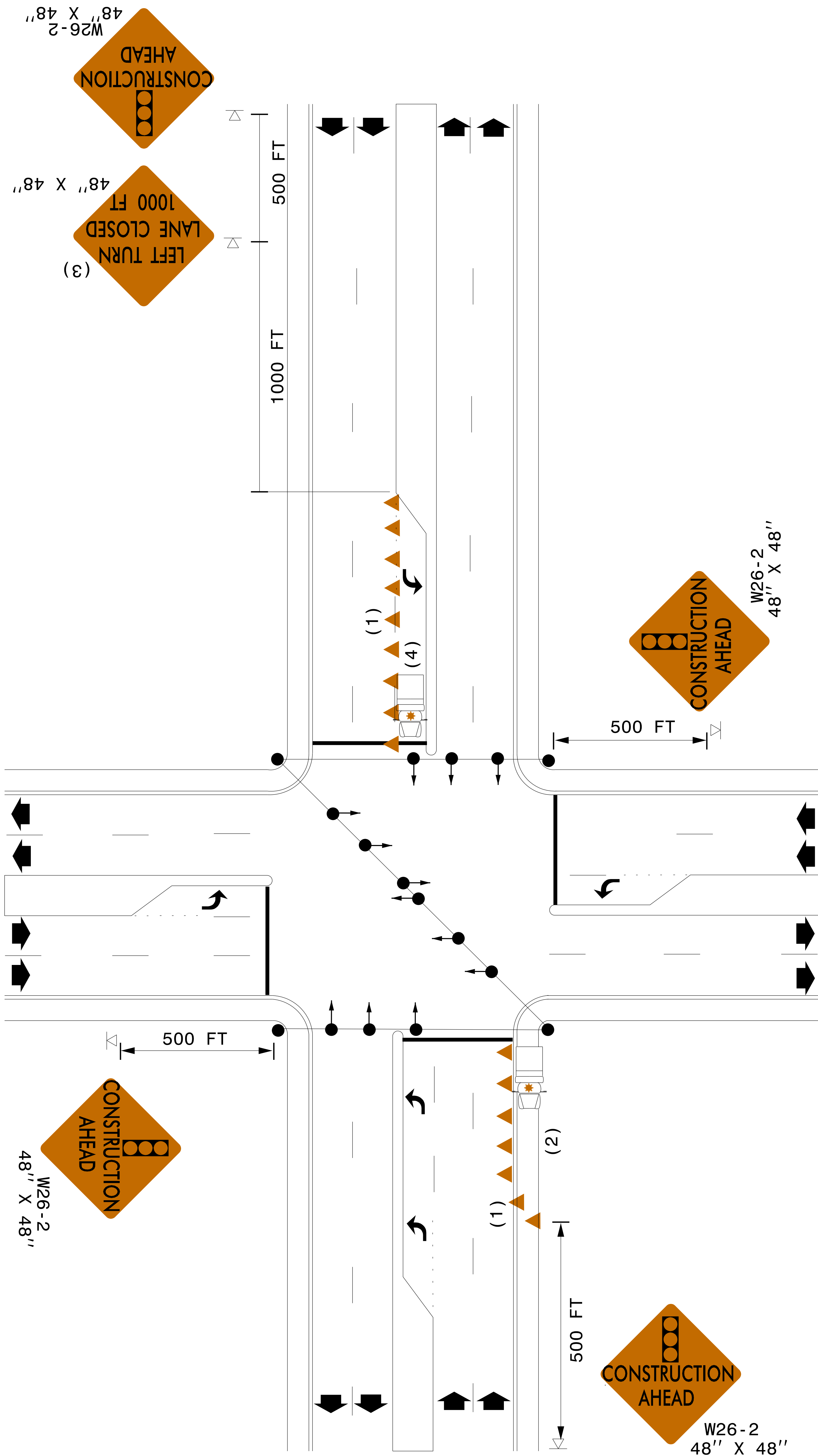
Notes on Signal Maintenance/Repair on Multilane Divided Roadways

- (1) At all times, motorists, bicyclists, and pedestrians should be guided in a clear and positive manner while approaching and traversing the TTC zone(s).
- (2) All vehicles must have warning lights operating at all times.
- (3) Use appropriate sign for application.



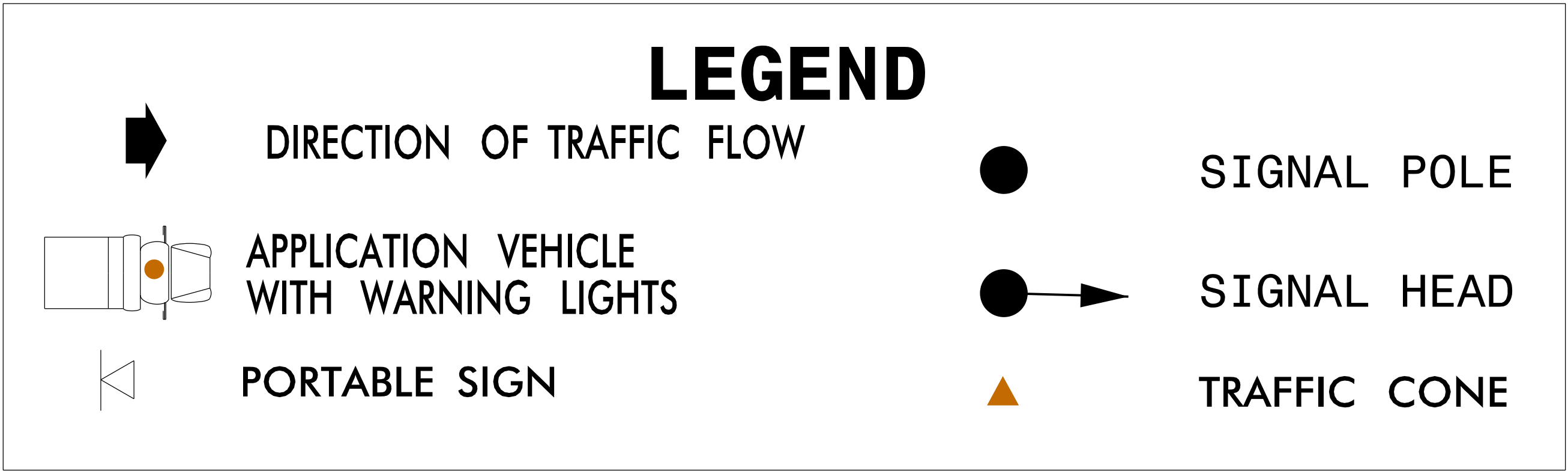
Signal Maintenance/Repair

Multilane Divided Roadways
Speed: Greater Than 45 MPH with Signal in Flashing Mode



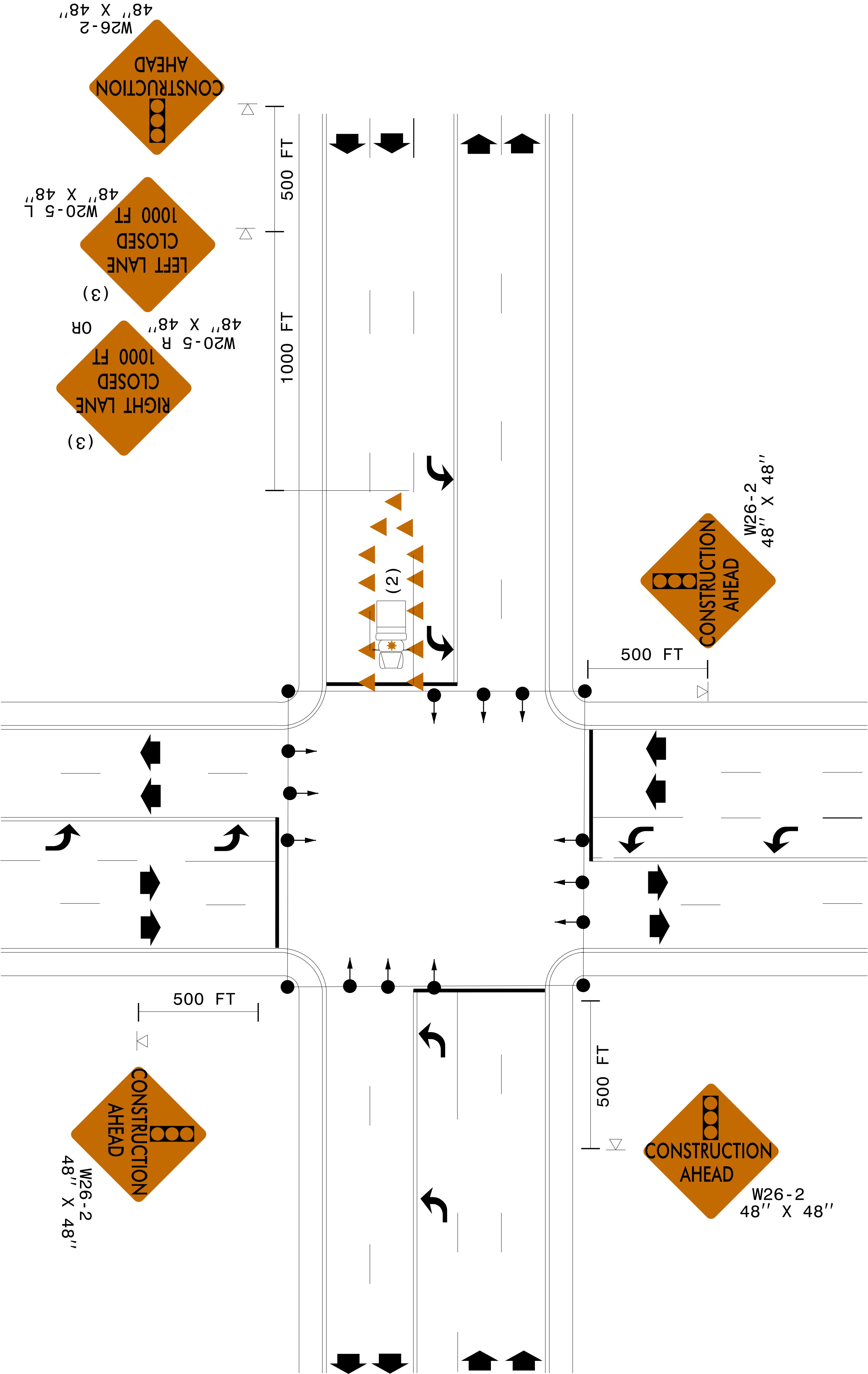
Notes on Signal Maintenance/Repair on Multilane Undivided Roadways

- (1) At all times, motorists, bicyclists, and pedestrians should be guided in a clear and positive manner while approaching and traversing the TTC zone(s).
- (2) All vehicles must have warning lights operating at all times.
- (3) Use appropriate sign for application.



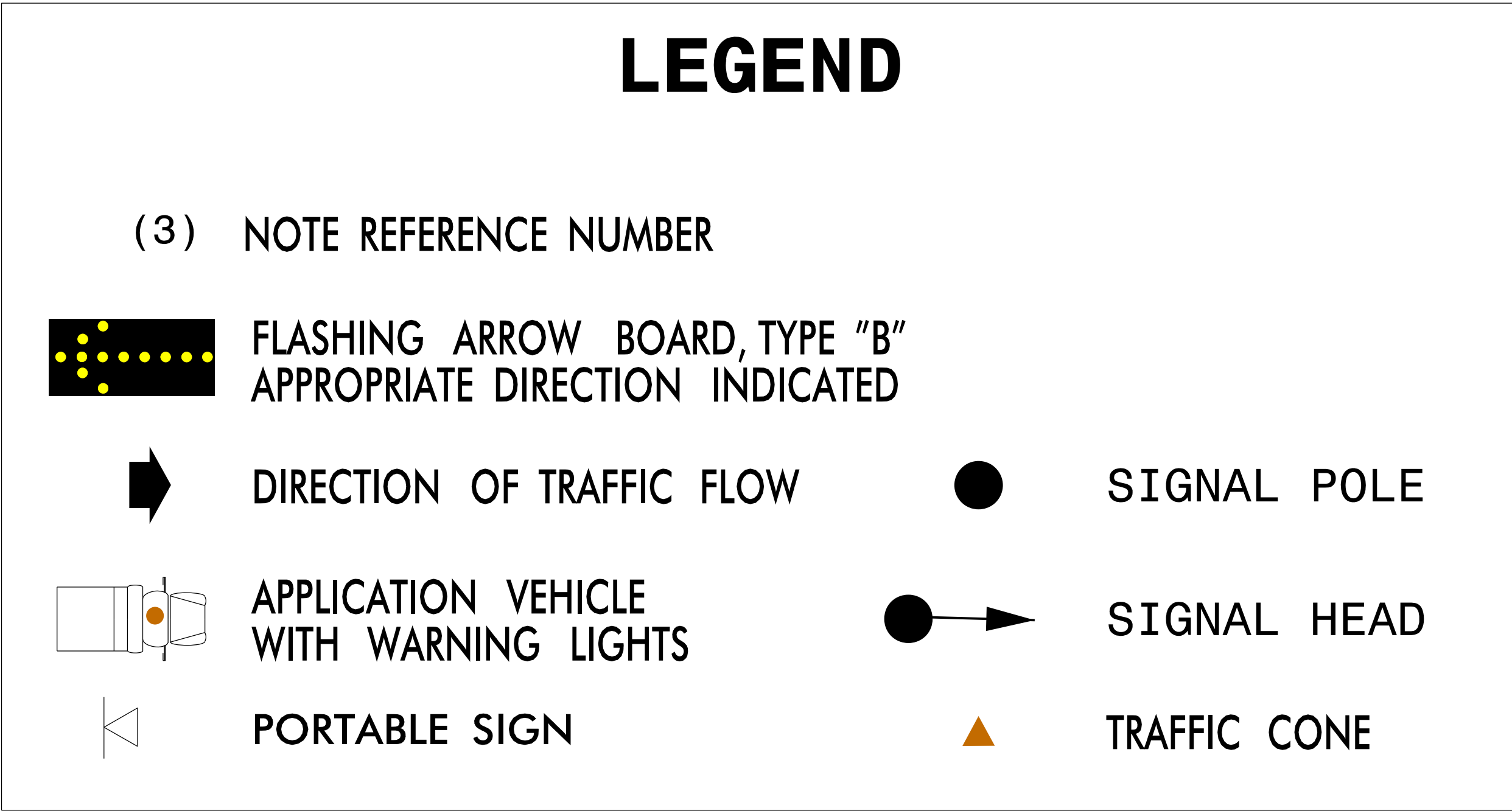
Signal Maintenance/Repair

Multilane Undivided Roadways
Speed: Greater Than 45 MPH with Signal in Flashing Mode



Notes on Metal Signal Pole Inspections

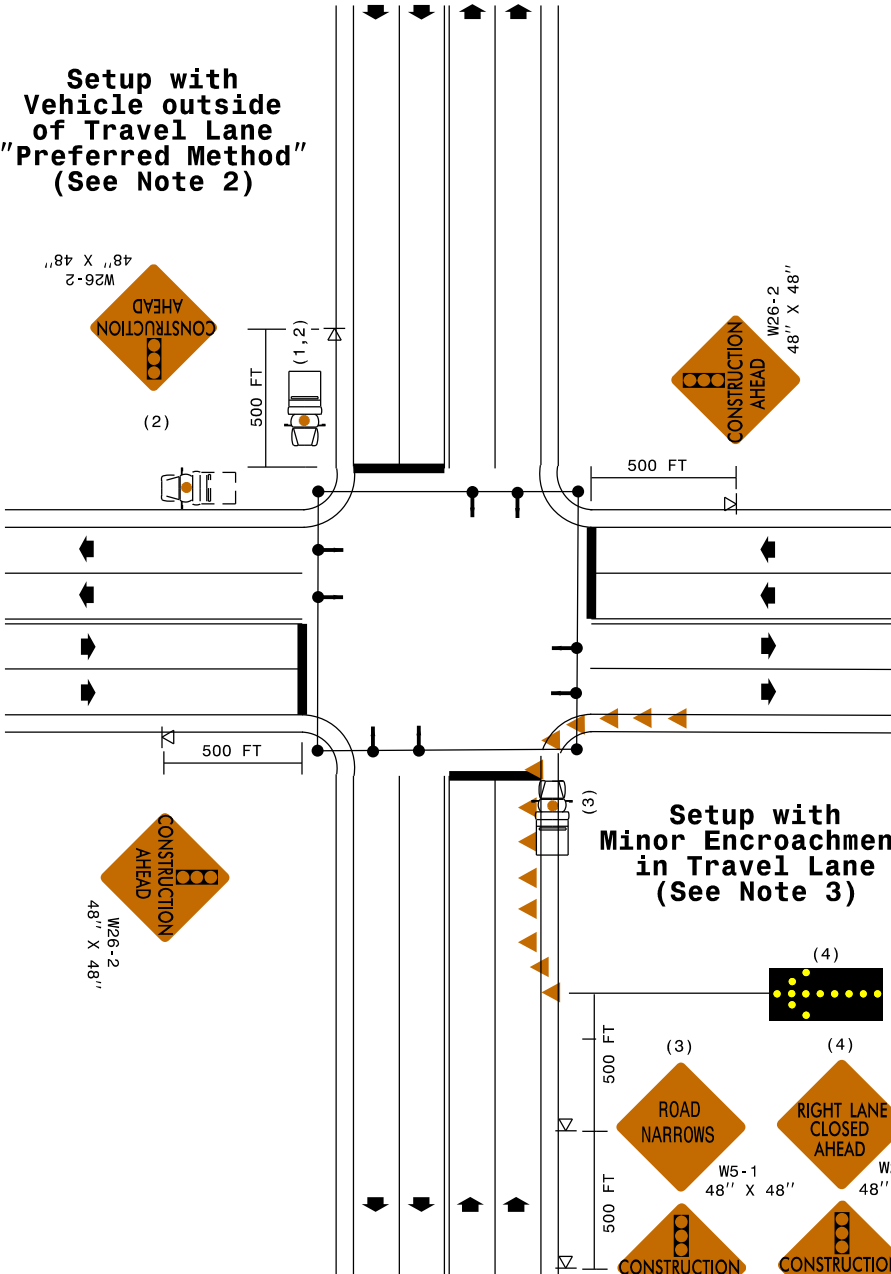
- (1) All work vehicles must have warning lights per NCDOT Specification 1101-5 operating at all times during inspections.
- (2) Work vehicles are to be parked entirely outside of existing travel lanes whenever possible. "Preferred Method"
- (3) The travel lane adjacent to the work area may be narrowed to 10 feet as measured from the lane line to the face of the channelizing devices. NOTE: If the remaining lane width of 10 feet cannot be obtained then the adjacent lane should be closed.
- (4) When lane closures are necessary place "Right Lane Closed Ahead" advance warning sign. In addition, place a Type "B" Flashing Arrow Board located at/or near the begin taper location. Type "B" Flashing Arrow Board (min. size 60" x 30") may be either trailer or truck mounted. Work vehicles equipped with Type "B" signs shall be parked within closed lane with Flashing Arrow indicating appropriate direction.
- (5) Do not sever or move pedestrian facilities for non-construction activities such as parking for vehicles and/or equipment or installed traffic control devices (ex. portable signs, changeable message signs, flashing arrow boards, etc.)
- (6) If work activities affect the movement of pedestrians, adequate pedestrian access and/or accommodations shall be provided.
 - Provide temporary facilities that are detectable and include accessibility features consistent with the features present in the existing pedestrian facility.
 - Provide channelizing devices that are detectable to pedestrians with visual disabilities.
 - If establishing or maintaining an alternate pedestrian route is not feasible during operations, an alternate means of providing for pedestrians may be used, such as assigning a dedicated traffic control employee to assist pedestrians with disabilities through the project limits.



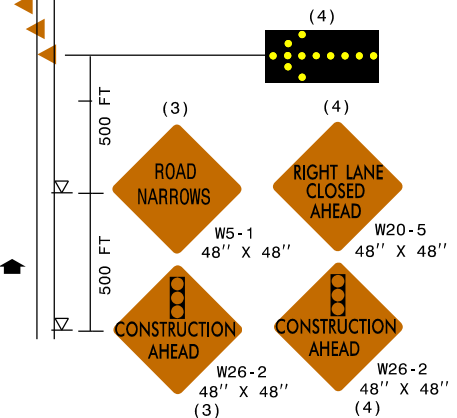
Metal Signal Pole Inspections

All Roadways
Speed: 60 MPH or Less

Setup with
Vehicle outside
of Travel Lane
"Preferred Method"
(See Note 2)

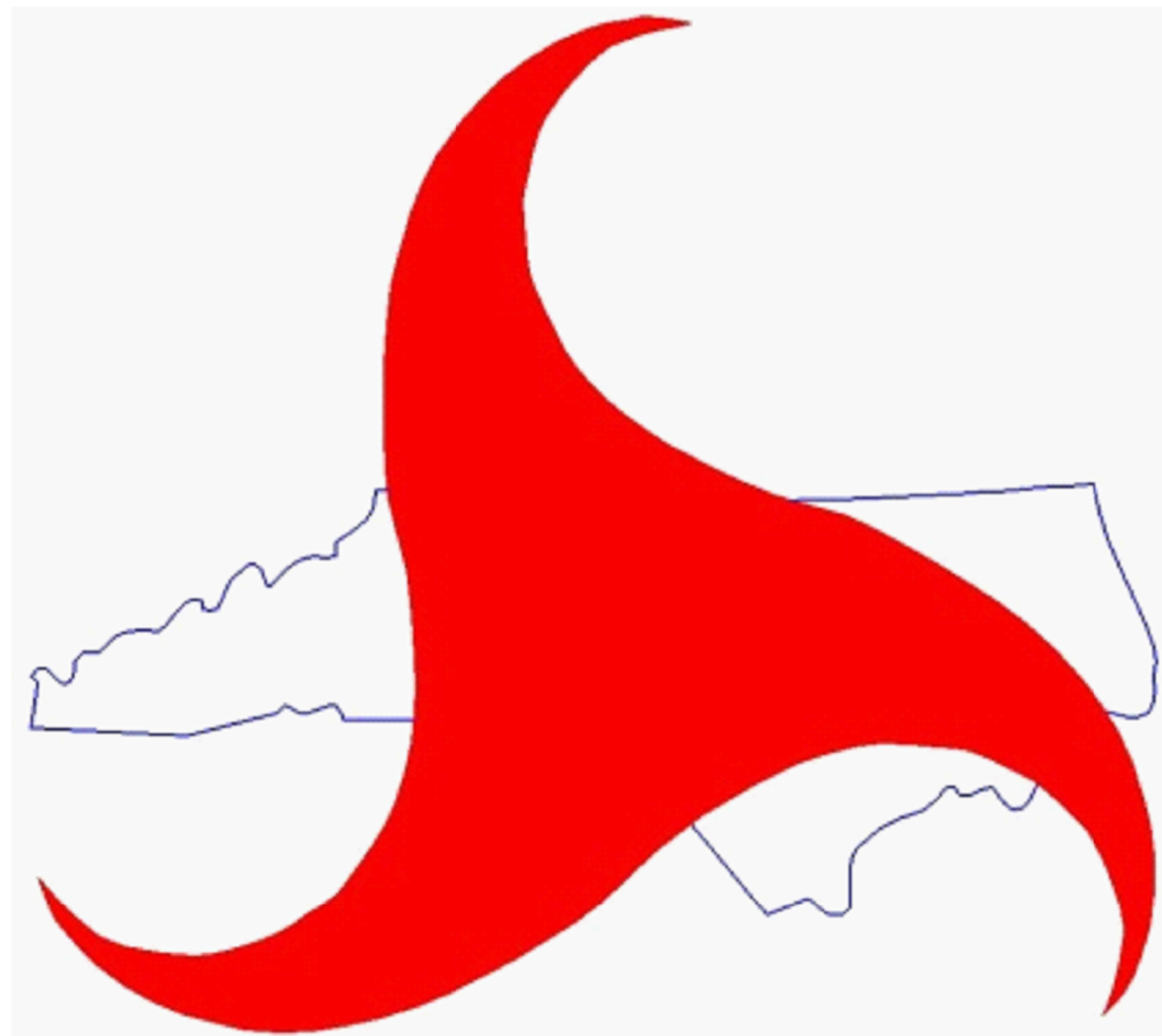


Setup with
Minor Encroachment
in Travel Lane
(See Note 3)



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

WORK ZONE TRAFFIC CONTROL SECTION



North Carolina Department of Transportation

Work Zone Traffic Control Section

1561 Mail Service Center

Raleigh, NC 27699-1561

Ph: (919) 773-2800

Fax: (919) 771-2745

www.connect.ncdot.gov/projects/wztc/Pages/default.aspx