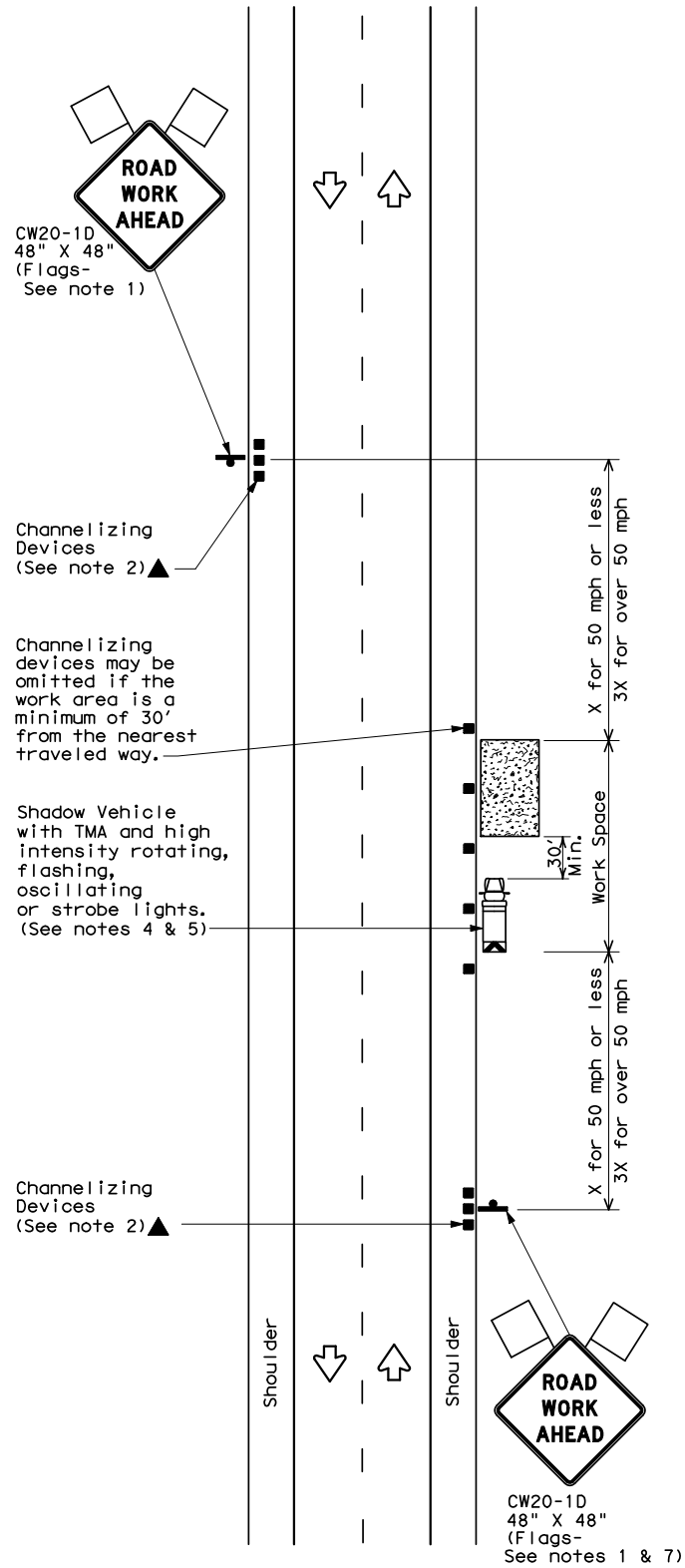


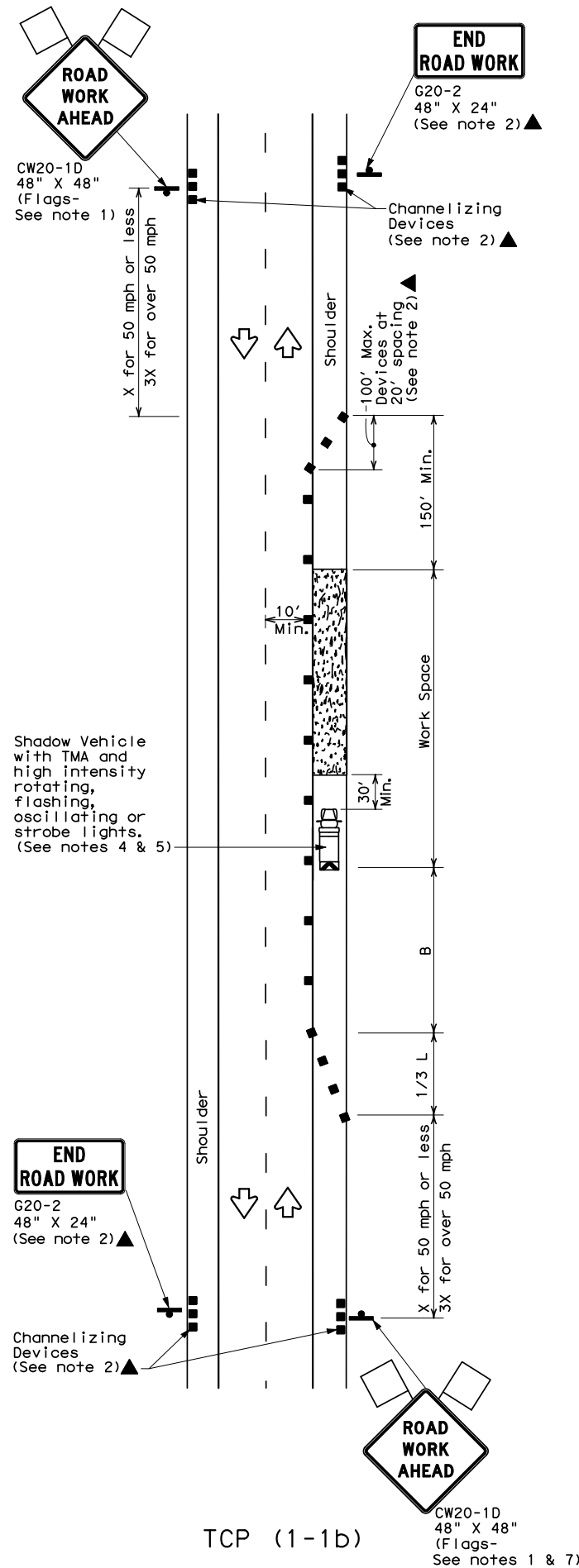
DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE: FILE:



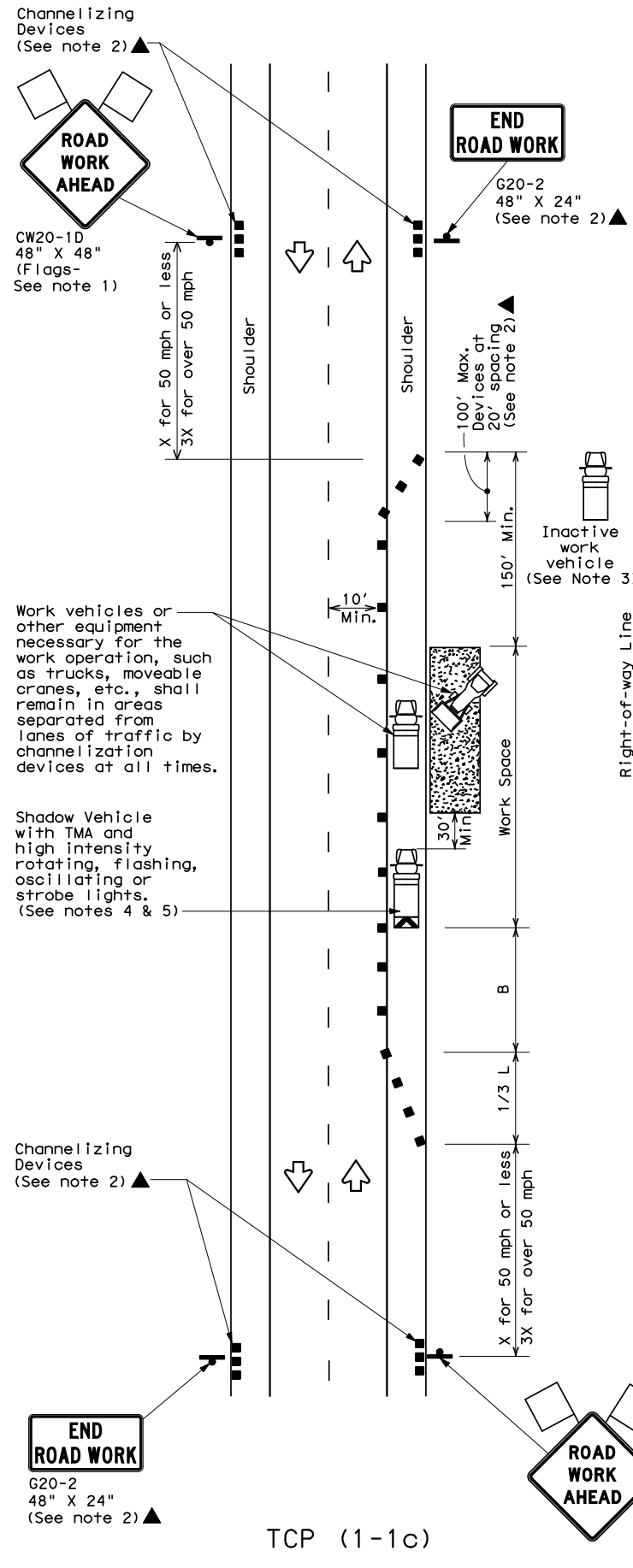
TCP (1-1a)

**WORK SPACE NEAR SHOULDER**  
Conventional Roads



TCP (1-1b)

**WORK SPACE ON SHOULDER**  
Conventional Roads



TCP (1-1c)

**WORK VEHICLES ON SHOULDER**  
Conventional Roads

| LEGEND |                                      |  |   |
|--------|--------------------------------------|--|---|
|        | Type 3 Barricade                     |  | Channelizing Devices                    |
|        | Heavy Work Vehicle                   |  | Truck Mounted Attenuator (TMA)          |
|        | Trailer Mounted Flashing Arrow Board |  | Portable Changeable Message Sign (PCMS) |
|        | Sign                                 |  | Traffic Flow                            |
|        | Flag                                 |  | Flagger                                 |

| Posted Speed * | Formula               | Minimum Desirable Taper Lengths ** |            |            | Suggested Maximum Spacing of Channelizing Devices |              | Minimum Sign Spacing "X" Distance | Suggested Longitudinal Buffer Space "B" |
|----------------|-----------------------|------------------------------------|------------|------------|---|--------------|-----------------------------------|---|
|                |                       | 10' Offset                         | 11' Offset | 12' Offset | On a Taper  | On a Tangent |                                   |   |
| 30             | $L = \frac{WS^2}{60}$ | 150'                               | 165'       | 180'       | 30'   | 60'          | 120'                              | 90'                                     |
| 35             |                       | 205'                               | 225'       | 245'       | 35'   | 70'          | 160'                              | 120'                                    |
| 40             |                       | 265'                               | 295'       | 320'       | 40'   | 80'          | 240'                              | 155'                                    |
| 45             | L = WS                | 450'                               | 495'       | 540'       | 45'   | 90'          | 320'                              | 195'                                    |
| 50             |                       | 500'                               | 550'       | 600'       | 50'   | 100'         | 400'                              | 240'                                    |
| 55             |                       | 550'                               | 605'       | 660'       | 55'   | 110'         | 500'                              | 295'                                    |
| 60             |                       | 600'                               | 660'       | 720'       | 60'   | 120'         | 600'                              | 350'                                    |
| 65             |                       | 650'                               | 715'       | 780'       | 65'   | 130'         | 700'                              | 410'                                    |
| 70             |                       | 700'                               | 770'       | 840'       | 70'   | 140'         | 800'                              | 475'                                    |
| 75             |                       | 750'                               | 825'       | 900'       | 75'   | 150'         | 900'                              | 540'                                    |

\* Conventional Roads Only  
 \*\* Taper lengths have been rounded off.  
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)

| TYPICAL USAGE |                |                       |                              |                      |
|---------------|----------------|-----------------------|------------------------------|----------------------|
| MOBILE        | SHORT DURATION | SHORT TERM STATIONARY | INTERMEDIATE TERM STATIONARY | LONG TERM STATIONARY |
|               | ✓              | ✓                     |                              |                      |

**GENERAL NOTES**

- Flags attached to signs where shown are REQUIRED.
- All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
- Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
- A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
- Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.
- See TCP(5-1) for shoulder work on divided highways, expressways and freeways.
- CW21-5 "SHOULDER WORK" signs may be used in place of CW20-1D "ROAD WORK AHEAD" signs for shoulder work on conventional roadways.

For construction or maintenance contract work, specific project requirements for shadow vehicles can be found in the project GENERAL NOTES for Item 502, Barricades, Signs and Traffic Handling.



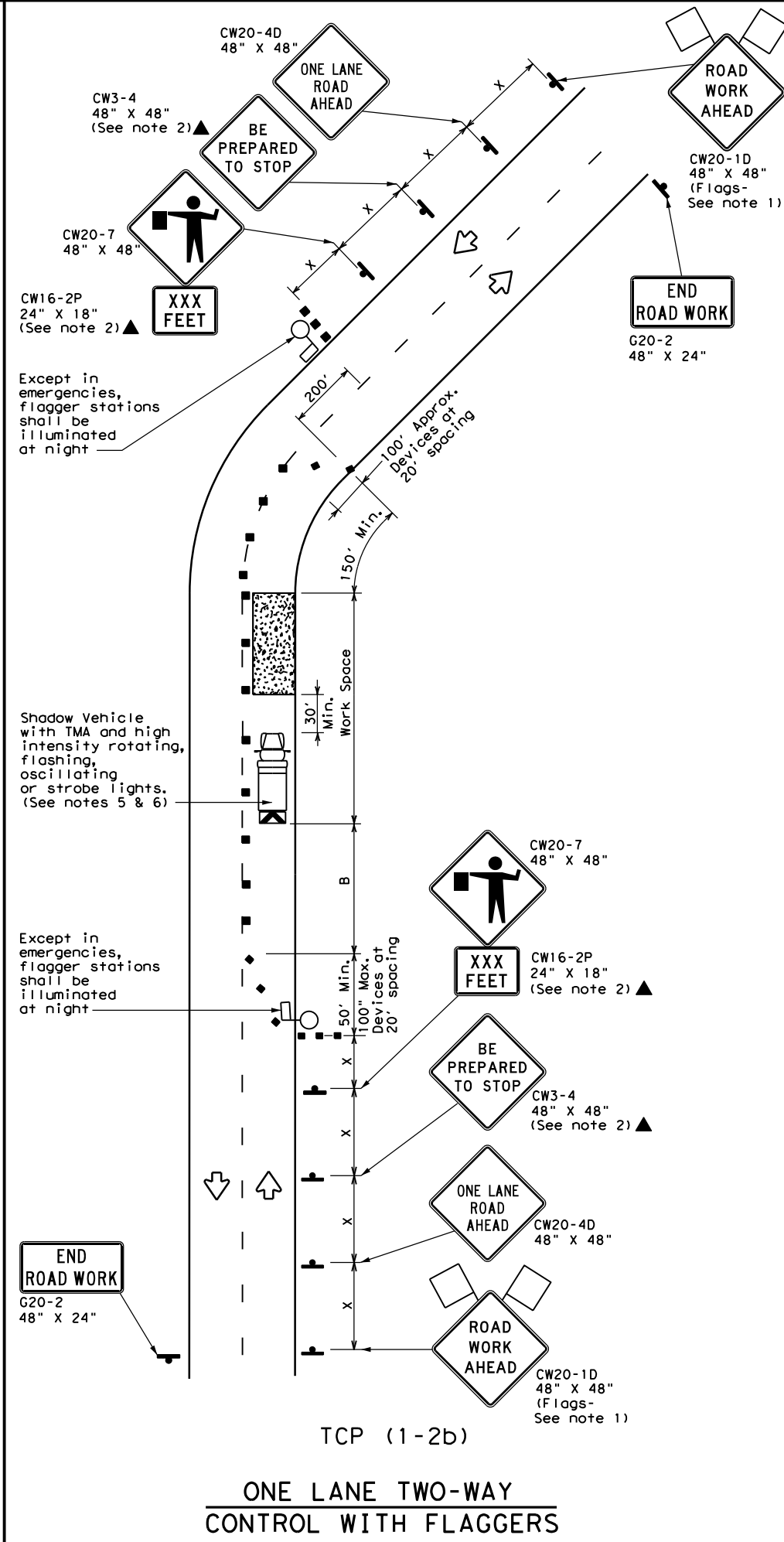
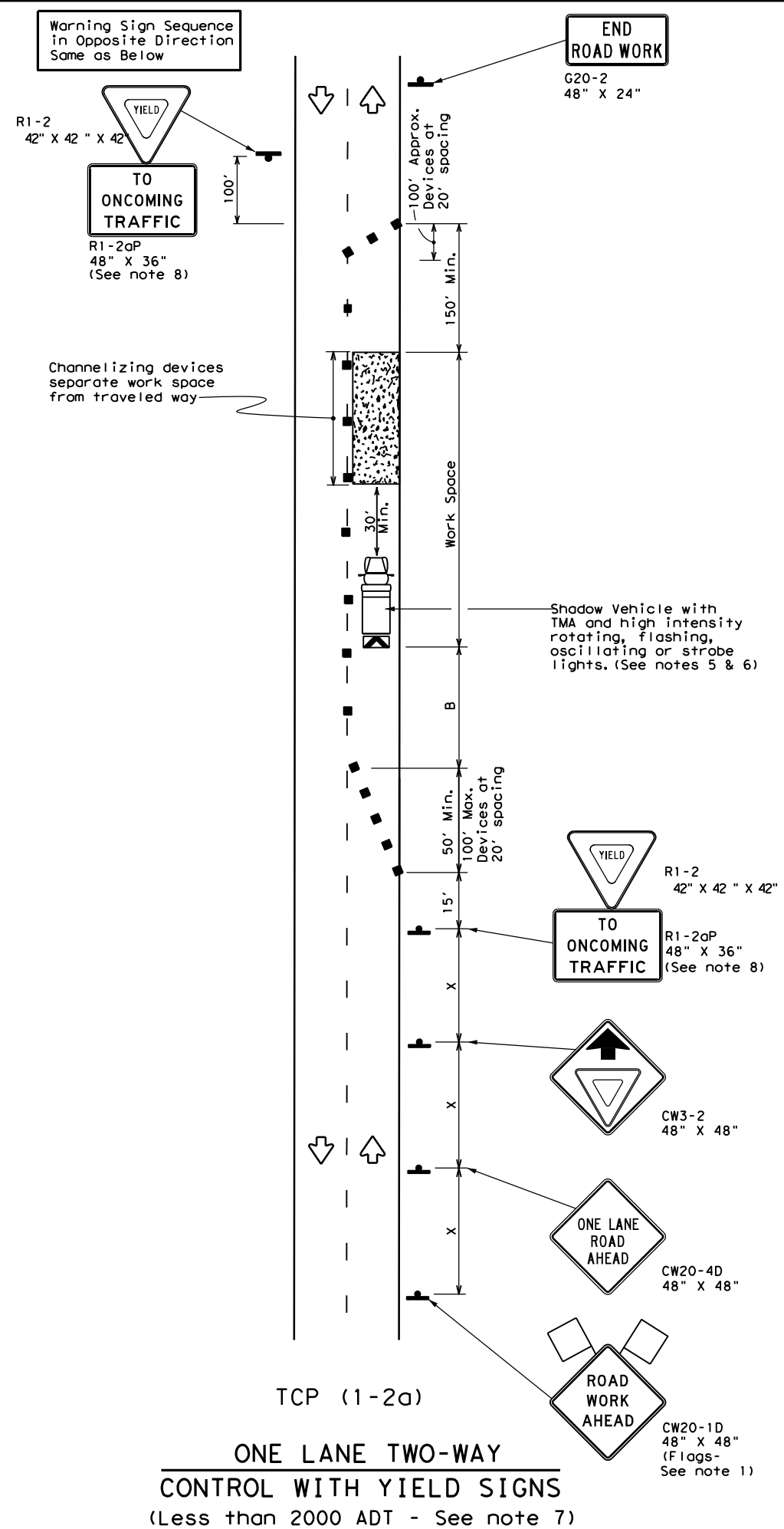
**TRAFFIC CONTROL PLAN**  
CONVENTIONAL ROAD  
SHOULDER WORK

TCP (1-1) -12

|                       |      |           |           |           |           |
|-----------------------|------|-----------|-----------|-----------|-----------|
| © TxDOT December 1985 |      | DN: TxDOT | CK: TxDOT | DW: TxDOT | CK: TxDOT |
| REVISIONS             |      |           |           |           |           |
| 2-94                  | 2-12 | CONT      | SECT      | JOB       | HIGHWAY   |
| 8-95                  |      |           |           |           |           |
| 1-97                  |      | DIST      |           | COUNTY    | SHEET NO. |
| 4-98                  |      |           |           |           |           |

DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE:  
FILE:



| LEGEND |                                      |  |   |
|--------|--------------------------------------|--|---|
|        | Type 3 Barricade                     |  | Channelizing Devices                    |
|        | Heavy Work Vehicle                   |  | Truck Mounted Attenuator (TMA)          |
|        | Trailer Mounted Flashing Arrow Board |  | Portable Changeable Message Sign (PCMS) |
|        | Sign                                 |  | Traffic Flow                            |
|        | Flag                                 |  | Flagger                                 |

| Posted Speed *<br>X | Formula<br>L = WS <sup>2</sup> / 60 | Minimum Desirable Taper Lengths ** |            |            | Suggested Maximum Spacing of Channelizing Devices |              | Minimum Sign Spacing "X" Distance | Suggested Longitudinal Buffer Space "B" | Stopping Sight Distance |
|---------------------|-------------------------------------|------------------------------------|------------|------------|---|--------------|-----------------------------------|---|-------------------------|
|                     |                                     | 10' Offset                         | 11' Offset | 12' Offset | On a Taper  | On a Tangent |                                   |   |                         |
| 30                  | L = WS <sup>2</sup> / 60            | 150'                               | 165'       | 180'       | 30'   | 60'          | 120'                              | 90'                                     | 200'                    |
| 35                  |                                     | 205'                               | 225'       | 245'       | 35'   | 70'          | 160'                              | 120'                                    | 250'                    |
| 40                  |                                     | 265'                               | 295'       | 320'       | 40'   | 80'          | 240'                              | 155'                                    | 305'                    |
| 45                  |                                     | 450'                               | 495'       | 540'       | 45'   | 90'          | 320'                              | 195'                                    | 360'                    |
| 50                  | L = WS                              | 500'                               | 550'       | 600'       | 50'   | 100'         | 400'                              | 240'                                    | 425'                    |
| 55                  |                                     | 550'                               | 605'       | 660'       | 55'   | 110'         | 500'                              | 295'                                    | 495'                    |
| 60                  |                                     | 600'                               | 660'       | 720'       | 60'   | 120'         | 600'                              | 350'                                    | 570'                    |
| 65                  |                                     | 650'                               | 715'       | 780'       | 65'   | 130'         | 700'                              | 410'                                    | 645'                    |
| 70                  |                                     | 700'                               | 770'       | 840'       | 70'   | 140'         | 800'                              | 475'                                    | 730'                    |
| 75                  |                                     | 750'                               | 825'       | 900'       | 75'   | 150'         | 900'                              | 540'                                    | 820'                    |

\* Conventional Roads Only  
 \*\* Taper lengths have been rounded off.  
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)

| TYPICAL USAGE |                |                       |                              |                      |
|---------------|----------------|-----------------------|------------------------------|----------------------|
| MOBILE        | SHORT DURATION | SHORT TERM STATIONARY | INTERMEDIATE TERM STATIONARY | LONG TERM STATIONARY |
|               | ✓              | ✓                     |                              |                      |

GENERAL NOTES

- Flags attached to signs where shown are REQUIRED.
- All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
- The CW3-4 "BE PREPARED TO STOP" sign may be installed after the CW20-4D "ONE LANE ROAD AHEAD" sign, but proper sign spacing shall be maintained.
- Sign spacing may be increased or an additional CW20-1D "ROAD WORK AHEAD" sign may be used if advance warning ahead of the flagger or R1-2 "YIELD" sign is less than 1500 feet.
- A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
- Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.

TCP (1-2a)

- R1-2 "YIELD" sign traffic control may be used on projects with approaches that have adequate sight distance. For projects in urban areas, work spaces should be no longer than one half city block. In rural areas on roadways with less than 2000 ADT, work spaces should be no longer than 400 feet.
- R1-2 "YIELD" sign with R1-2aP "TO ONCOMING TRAFFIC" plaque shall be placed on a support at a 7 foot minimum mounting height.

TCP (1-2b)

- Flaggers should use two-way radios or other methods of communication to control traffic.
- Length of work space should be based on the ability of flaggers to communicate.
- If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain adequate stopping sight distance to the flagger and a queue of stopped vehicles (see table above).
- Channelizing devices on the center-line may be omitted when a pilot car is leading traffic and approved by the Engineer.
- Flaggers should use 24" STOP/SLOW paddles to control traffic. Flags should be limited to emergency situations.

For construction or maintenance contract work, specific project requirements for shadow vehicles can be found in the project GENERAL NOTES for Item 502, Barricades, Signs and Traffic Handling.



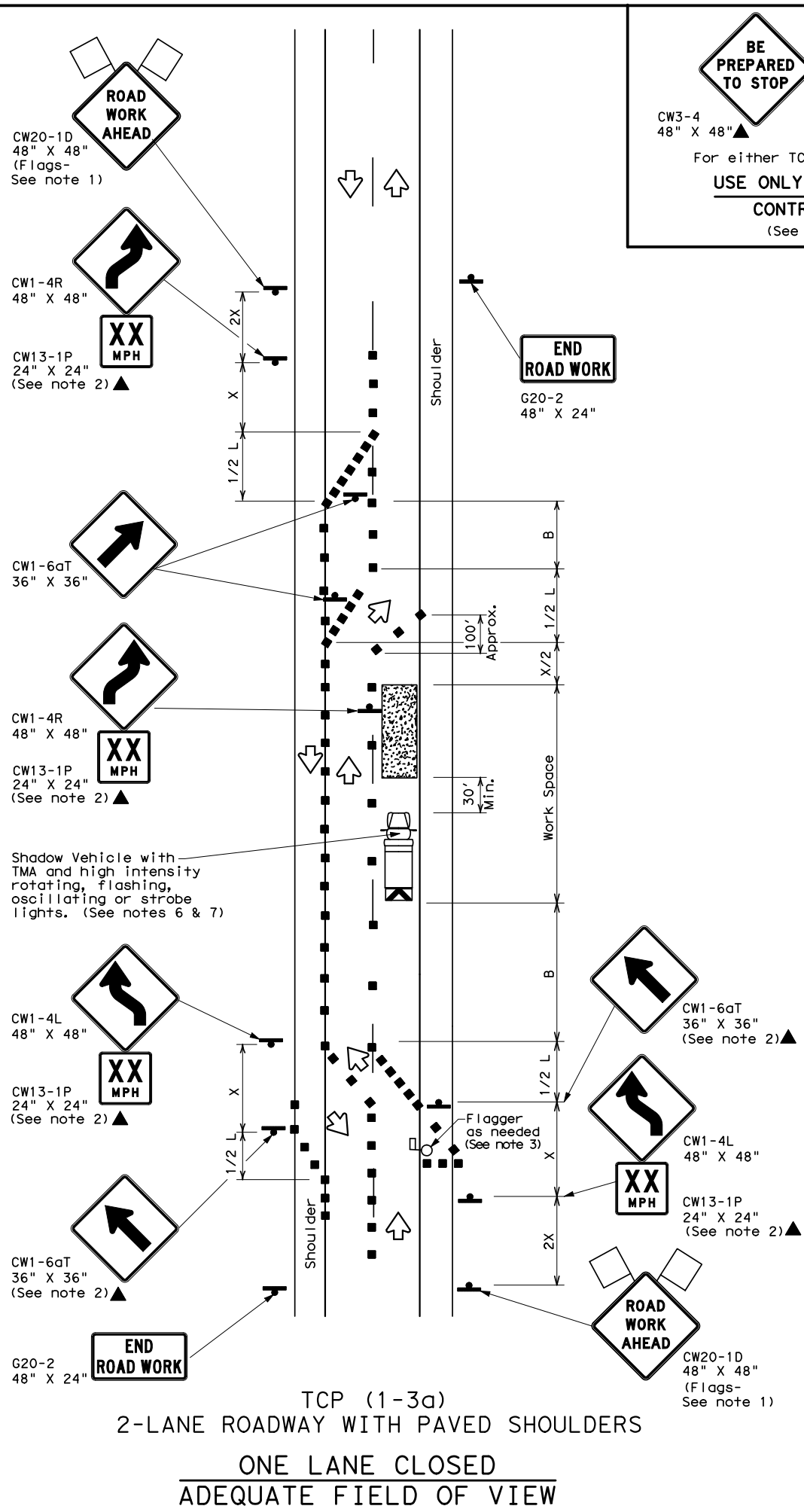
TRAFFIC CONTROL PLAN  
 ONE-LANE TWO-WAY  
 TRAFFIC CONTROL

TCP (1-2) - 12

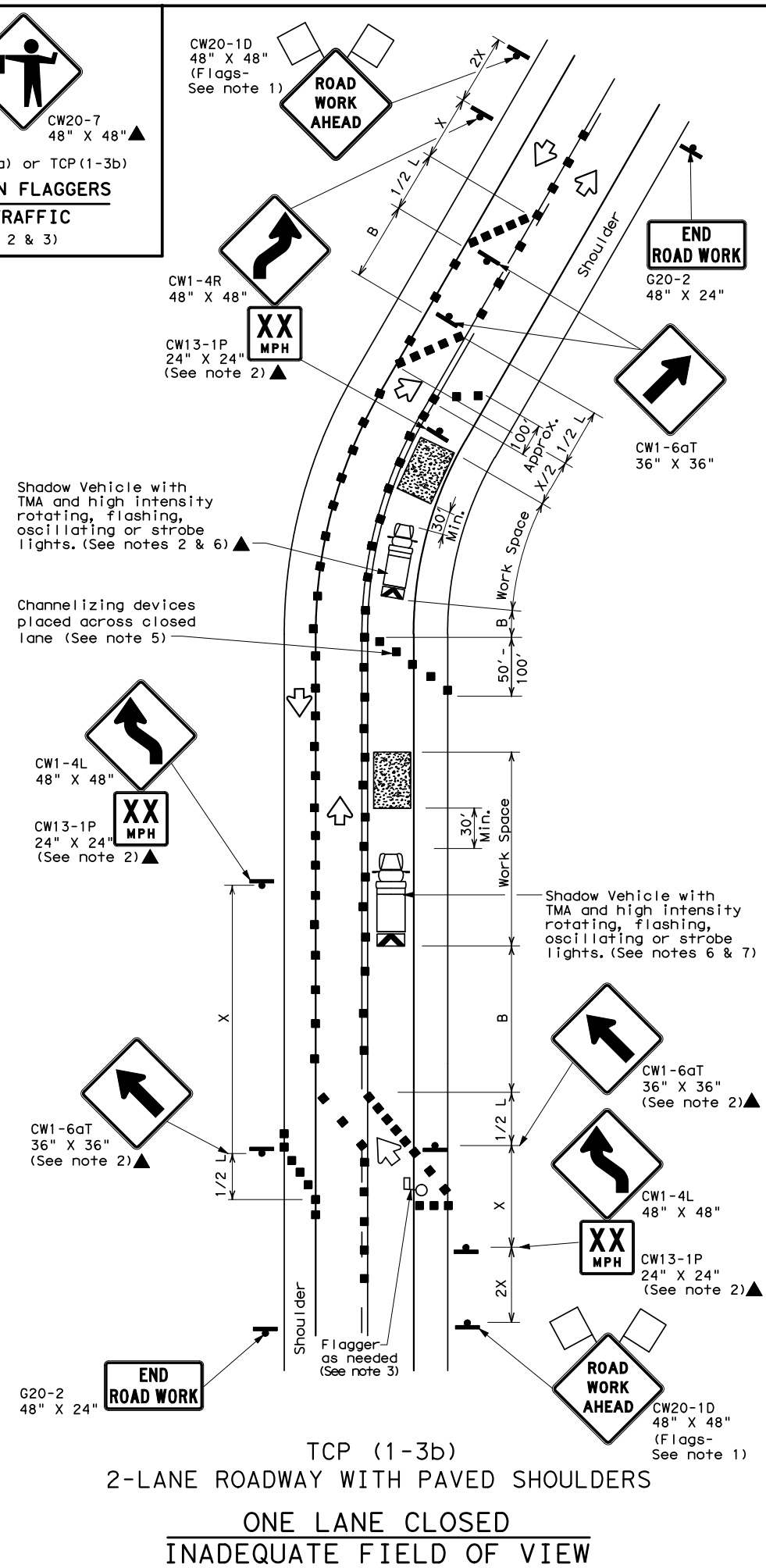
|                       |      |           |           |           |           |
|-----------------------|------|-----------|-----------|-----------|-----------|
| © TxDOT December 1985 |      | DN: TxDOT | CK: TxDOT | DW: TxDOT | CK: TxDOT |
| REVISIONS             |      | CONT      | SECT      | JOB       | HIGHWAY   |
| 4-90                  | 2-12 |           |           |           |           |
| 2-94                  |      |           |           |           |           |
| 1-97                  |      |           |           |           |           |
| 4-98                  |      |           |           |           |           |
|                       |      | DIST      | COUNTY    |           | SHEET NO. |

DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for incorrect results or damages resulting from its use.

DATE: FILE:



**BE PREPARED TO STOP**  
CW3-4 48" X 48"▲ CW20-7 48" X 48"▲  
For either TCP(1-3a) or TCP(1-3b)  
**USE ONLY WHEN FLAGGERS CONTROL TRAFFIC**  
(See Notes 2 & 3)



**LEGEND**

|  |                                      |  |   |
|--|--------------------------------------|--|---|
|  | Type 3 Barricade                     |  | Channelizing Devices                    |
|  | Heavy Work Vehicle                   |  | Truck Mounted Attenuator (TMA)          |
|  | Trailer Mounted Flashing Arrow Board |  | Portable Changeable Message Sign (PCMS) |
|  | Sign                                 |  | Traffic Flow                            |
|  | Flag                                 |  | Flagger                                 |

| Posted Speed * | Formula               | Minimum Desirable Taper Lengths ** |            |            | Suggested Maximum Spacing of Channelizing Devices |              | Minimum Sign Spacing "X" Distance | Suggested Longitudinal Buffer Space "B" |
|----------------|-----------------------|------------------------------------|------------|------------|---|--------------|-----------------------------------|---|
|                |                       | 10' Offset                         | 11' Offset | 12' Offset | On a Taper  | On a Tangent |                                   |   |
| 30             | $L = \frac{WS^2}{60}$ | 150'                               | 165'       | 180'       | 30'   | 60'          | 120'                              | 90'                                     |
| 35             |                       | 205'                               | 225'       | 245'       | 35'   | 70'          | 160'                              | 120'                                    |
| 40             |                       | 265'                               | 295'       | 320'       | 40'   | 80'          | 240'                              | 155'                                    |
| 45             | L = WS                | 450'                               | 495'       | 540'       | 45'   | 90'          | 320'                              | 195'                                    |
| 50             |                       | 500'                               | 550'       | 600'       | 50'   | 100'         | 400'                              | 240'                                    |
| 55             |                       | 550'                               | 605'       | 660'       | 55'   | 110'         | 500'                              | 295'                                    |
| 60             |                       | 600'                               | 660'       | 720'       | 60'   | 120'         | 600'                              | 350'                                    |
| 65             |                       | 650'                               | 715'       | 780'       | 65'   | 130'         | 700'                              | 410'                                    |
| 70             |                       | 700'                               | 770'       | 840'       | 70'   | 140'         | 800'                              | 475'                                    |
| 75             |                       | 750'                               | 825'       | 900'       | 75'   | 150'         | 900'                              | 540'                                    |

\* Conventional Roads Only  
\*\* Taper lengths have been rounded off.  
L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)

**TYPICAL USAGE**

| MOBILE | SHORT DURATION | SHORT TERM STATIONARY | INTERMEDIATE TERM STATIONARY | LONG TERM STATIONARY |
|--------|----------------|-----------------------|------------------------------|----------------------|
|        | ✓              | ✓                     |                              |                      |

- GENERAL NOTES**
- Flags attached to signs where shown are REQUIRED.
  - All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
  - Flagger control should NOT be used unless roadway conditions or heavy traffic volume require additional emphasis to safely control traffic. Additional flaggers may be positioned in advance of traffic queues to alert traffic to reduce speed.
  - DO NOT PASS, PASS WITH CARE and construction regulatory speed zone signs may be installed downstream of the ROAD WORK AHEAD signs.
  - When the work zone is made up of several work spaces, channelizing devices should be placed laterally across the closed lane to re-emphasize closure. Laterally placed channelizing devices should be repeated every 500 to 1000 feet in urban areas and every 1/4 to 1/2 mile in rural areas.
  - A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
  - Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.
  - Where traffic is directed over a yellow centerline, channelizing devices which separate two-way traffic should be spaced on tapers at 20', or 15' if posted speed are 35 mph or slower, and for tangent sections, at 1/2S where S is the speed in mph. This tighter device spacing is intended for the area of conflicting markings not the entire work zone.

For construction or maintenance contract work, specific project requirements for shadow vehicles can be found in the project GENERAL NOTES for Item 502, Barricades, Signs and Traffic Handling.

Texas Department of Transportation  
Traffic Operations Division

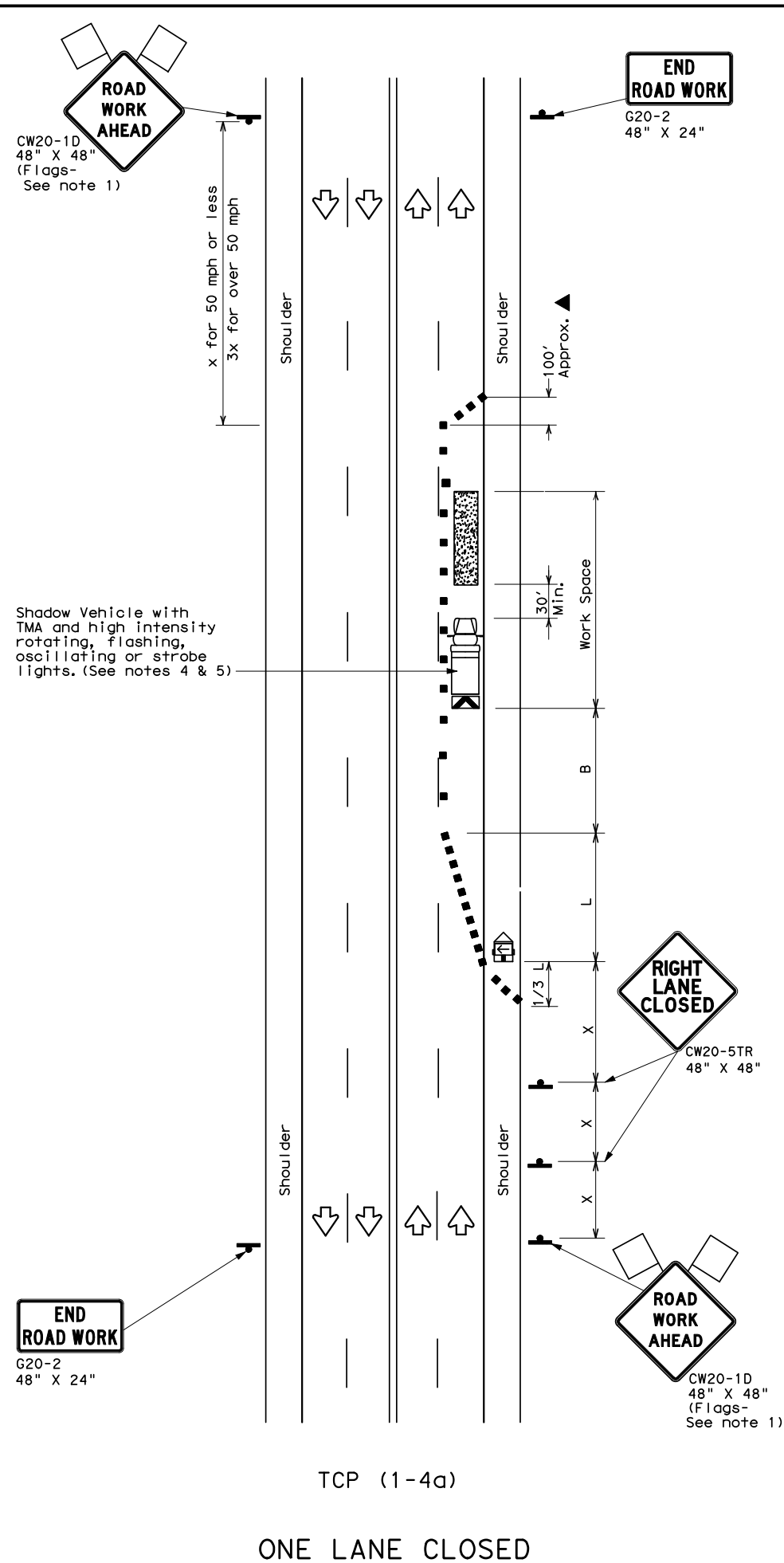
**TRAFFIC CONTROL PLAN  
TRAFFIC SHIFTS ON  
TWO LANE ROADS**

TCP (1-3) -12

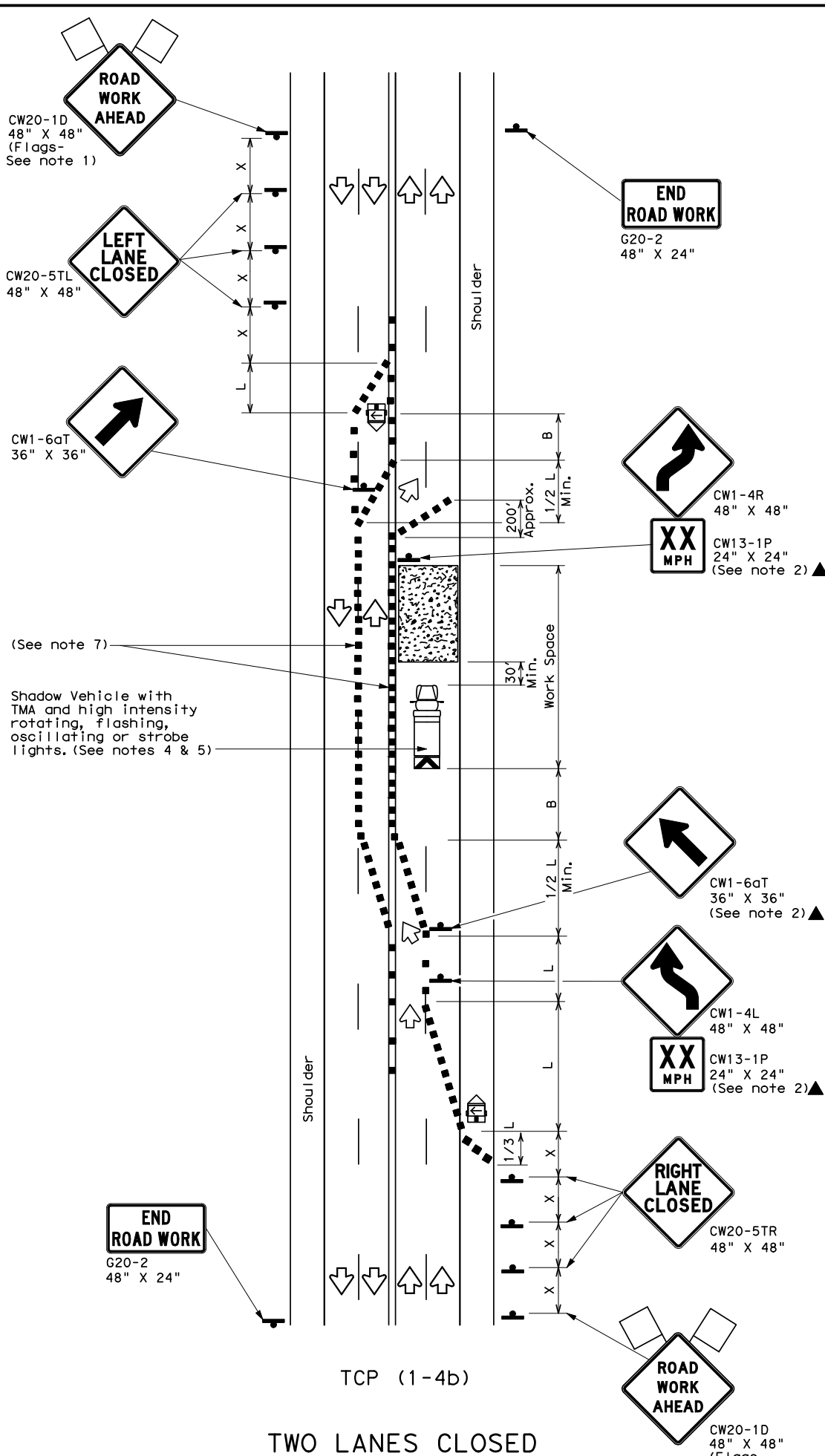
|                       |      |           |           |           |           |
|-----------------------|------|-----------|-----------|-----------|-----------|
| © TxDOT December 1985 |      | DN: TxDOT | CK: TxDOT | DW: TxDOT | CK: TxDOT |
| REVISIONS             |      | CONT      | SECT      | JOB       | HIGHWAY   |
| 2-94                  | 2-12 |           |           |           |           |
| 8-95                  |      |           |           |           |           |
| 1-97                  |      |           |           |           |           |
| 4-98                  |      |           |           |           |           |
|                       |      | DIST      | COUNTY    | SHEET NO. |           |
|                       |      |           |           | 153       |           |

DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE:  
FILE:



TCP (1-4a)  
ONE LANE CLOSED



TCP (1-4b)  
TWO LANES CLOSED

| LEGEND |                                      |  |   |
|--------|--------------------------------------|--|---|
|        | Type 3 Barricade                     |  | Channelizing Devices                    |
|        | Heavy Work Vehicle                   |  | Truck Mounted Attenuator (TMA)          |
|        | Trailer Mounted Flashing Arrow Board |  | Portable Changeable Message Sign (PCMS) |
|        | Sign                                 |  | Traffic Flow                            |
|        | Flag                                 |  | Flagger                                 |

| Posted Speed * | Formula               | Minimum Desirable Taper Lengths ** |            |            | Suggested Maximum Spacing of Channelizing Devices |              | Minimum Sign Spacing "x" Distance | Suggested Longitudinal Buffer Space "B" |
|----------------|-----------------------|------------------------------------|------------|------------|---|--------------|-----------------------------------|---|
|                |                       | 10' Offset                         | 11' Offset | 12' Offset | On a Taper  | On a Tangent |                                   |   |
| 30             | $L = \frac{WS^2}{60}$ | 150'                               | 165'       | 180'       | 30'   | 60'          | 120'                              | 90'                                     |
| 35             |                       | 205'                               | 225'       | 245'       | 35'   | 70'          | 160'                              | 120'                                    |
| 40             |                       | 265'                               | 295'       | 320'       | 40'   | 80'          | 240'                              | 155'                                    |
| 45             | $L = WS$              | 450'                               | 495'       | 540'       | 45'   | 90'          | 320'                              | 195'                                    |
| 50             |                       | 500'                               | 550'       | 600'       | 50'   | 100'         | 400'                              | 240'                                    |
| 55             |                       | 550'                               | 605'       | 660'       | 55'   | 110'         | 500'                              | 295'                                    |
| 60             |                       | 600'                               | 660'       | 720'       | 60'   | 120'         | 600'                              | 350'                                    |
| 65             |                       | 650'                               | 715'       | 780'       | 65'   | 130'         | 700'                              | 410'                                    |
| 70             |                       | 700'                               | 770'       | 840'       | 70'   | 140'         | 800'                              | 475'                                    |
| 75             |                       | 750'                               | 825'       | 900'       | 75'   | 150'         | 900'                              | 540'                                    |

\* Conventional Roads Only  
 \*\* Taper lengths have been rounded off.  
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)

| TYPICAL USAGE |                |                       |                              |                      |
|---------------|----------------|-----------------------|------------------------------|----------------------|
| MOBILE        | SHORT DURATION | SHORT TERM STATIONARY | INTERMEDIATE TERM STATIONARY | LONG TERM STATIONARY |
|               | ✓              | ✓                     |                              |                      |

- GENERAL NOTES**
- Flags attached to signs where shown are REQUIRED.
  - All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
  - The CW20-1D "ROAD WORK AHEAD" sign may be repeated if the visibility of the work zone is less than 1500 feet.
  - A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
  - Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.

- TCP (1-4a)**
- If this TCP is used for a left lane closure, CW20-5TL "LEFT LANE CLOSED" signs shall be used and channelizing devices shall be placed on the centerline where needed to protect the work space from opposing traffic with the arrow panel placed in the closed lane near the end of the merging taper.
- TCP (1-4b)**
- Where traffic is directed over a yellow centerline, channelizing devices which separate two-way traffic should be spaced on tapers at 20' or 15' if posted speeds are 35 mph or slower, and for tangent sections, at 1/2S where S is the speed in mph. This tighter device spacing is intended for the areas of conflicting markings, not the entire work zone.

For construction or maintenance contract work, specific project requirements for shadow vehicles can be found in the project GENERAL NOTES for Item 502, Barricades, Signs and Traffic Handling.

Texas Department of Transportation  
Traffic Operations Division

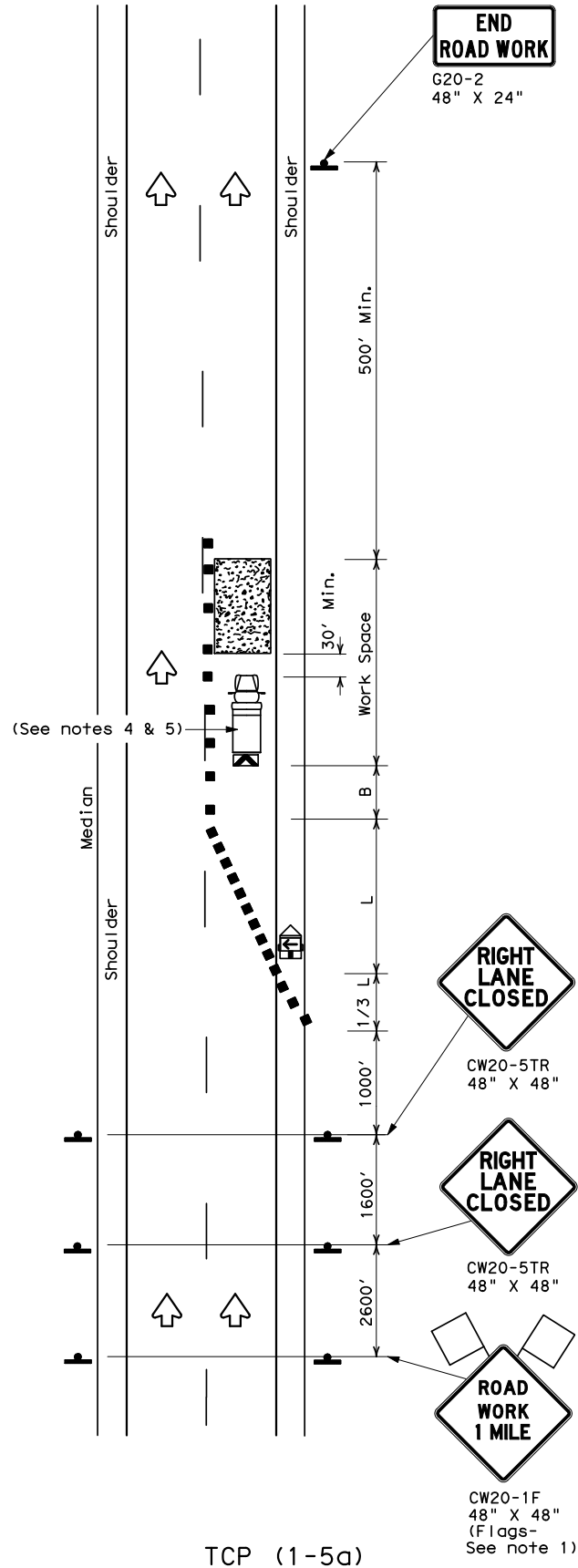
## TRAFFIC CONTROL PLAN LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS

TCP (1-4)-12

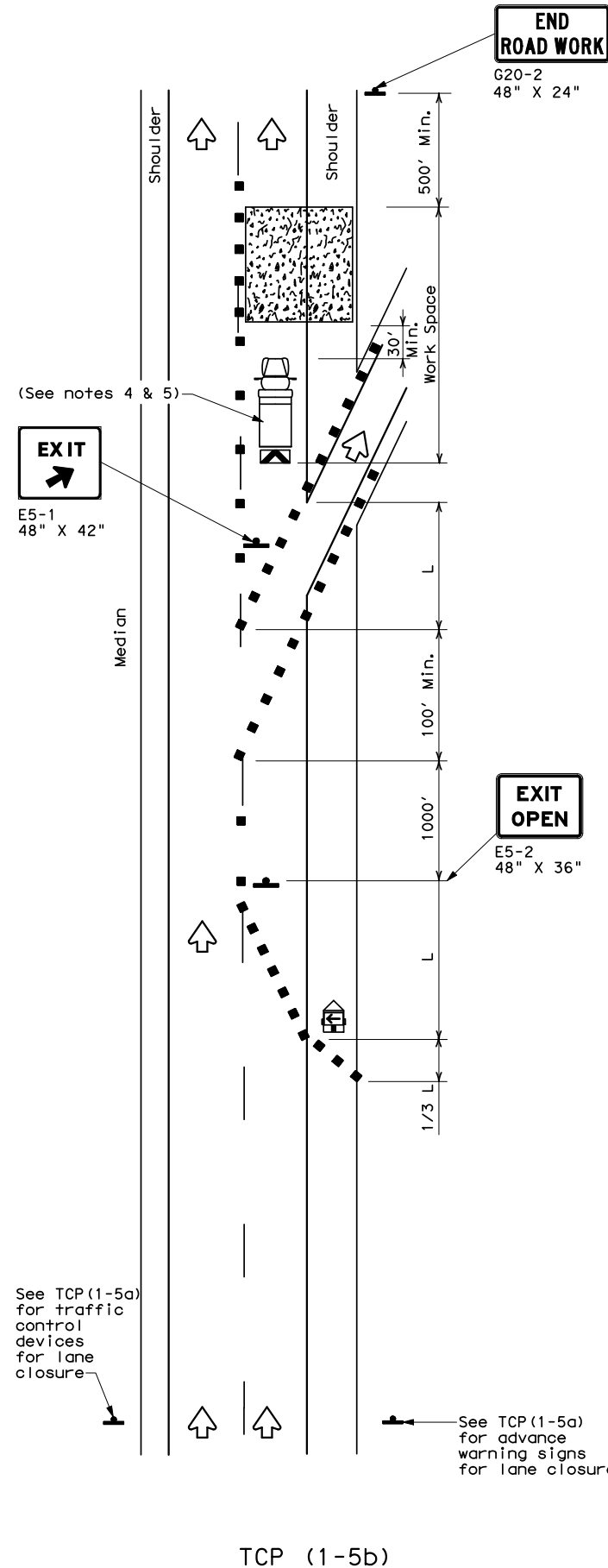
|                       |      |           |           |           |           |
|-----------------------|------|-----------|-----------|-----------|-----------|
| © TxDOT December 1985 |      | DN: TxDOT | CK: TxDOT | DW: TxDOT | CK: TxDOT |
| REVISIONS             |      | CONT      | SECT      | JOB       | HIGHWAY   |
| 2-94                  | 2-12 |           |           |           |           |
| 8-95                  |      |           |           |           |           |
| 1-97                  |      |           |           |           |           |
| 4-98                  |      |           |           |           |           |
|                       |      | DIST      | COUNTY    | SHEET NO. |           |
|                       |      |           |           | 154       |           |

DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

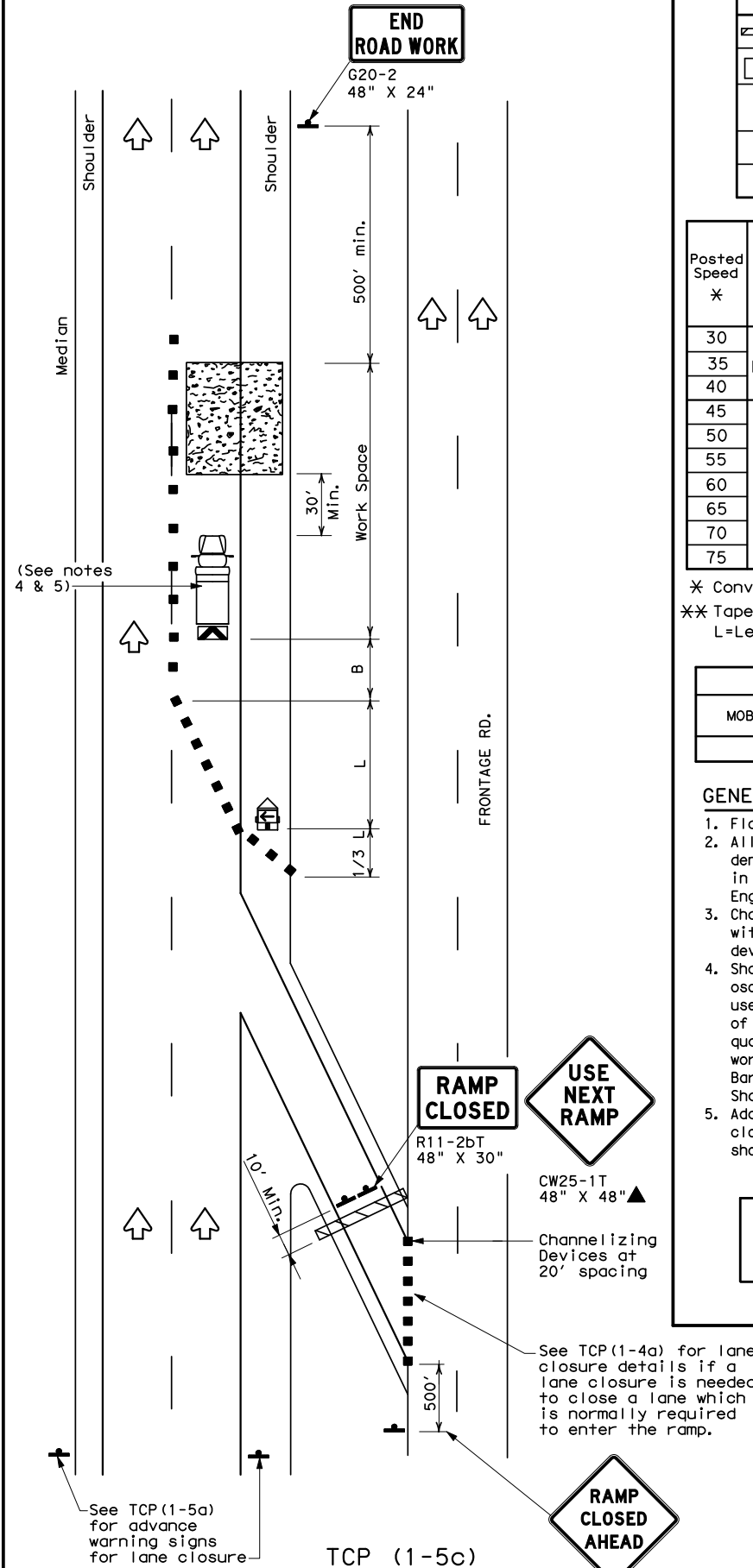
DATE:  
FILE:



TCP (1-5a)  
**ONE LANE CLOSURE**



TCP (1-5b)  
**LANE CLOSURE NEAR EXIT RAMP**



TCP (1-5c)  
**LANE CLOSURE NEAR ENTRANCE RAMP**

| LEGEND |                                      |  |   |
|--------|--------------------------------------|--|---|
|        | Type 3 Barricade                     |  | Channelizing Devices                    |
|        | Heavy Work Vehicle                   |  | Truck Mounted Attenuator (TMA)          |
|        | Trailer Mounted Flashing Arrow Board |  | Portable Changeable Message Sign (PCMS) |
|        | Sign                                 |  | Traffic Flow                            |
|        | Flag                                 |  | Flagger                                 |

| Posted Speed * | Formula               | Minimum Desirable Taper Lengths ** |            |            | Suggested Maximum Spacing of Channelizing Devices |              | Minimum Sign Spacing "X" Distance | Suggested Longitudinal Buffer Space "B" |
|----------------|-----------------------|------------------------------------|------------|------------|---|--------------|-----------------------------------|---|
|                |                       | 10' Offset                         | 11' Offset | 12' Offset | On a Taper  | On a Tangent |                                   |   |
| 30             | $L = \frac{WS^2}{60}$ | 150'                               | 165'       | 180'       | 30'   | 60'          | 120'                              | 90'                                     |
| 35             |                       | 205'                               | 225'       | 245'       | 35'   | 70'          | 160'                              | 120'                                    |
| 40             |                       | 265'                               | 295'       | 320'       | 40'   | 80'          | 240'                              | 155'                                    |
| 45             | L = WS                | 450'                               | 495'       | 540'       | 45'   | 90'          | 320'                              | 195'                                    |
| 50             |                       | 500'                               | 550'       | 600'       | 50'   | 100'         | 400'                              | 240'                                    |
| 55             |                       | 550'                               | 605'       | 660'       | 55'   | 110'         | 500'                              | 295'                                    |
| 60             |                       | 600'                               | 660'       | 720'       | 60'   | 120'         | 600'                              | 350'                                    |
| 65             |                       | 650'                               | 715'       | 780'       | 65'   | 130'         | 700'                              | 410'                                    |
| 70             |                       | 700'                               | 770'       | 840'       | 70'   | 140'         | 800'                              | 475'                                    |
| 75             |                       | 750'                               | 825'       | 900'       | 75'   | 150'         | 900'                              | 540'                                    |

\* Conventional Roads Only  
 \*\* Taper lengths have been rounded off.  
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)

| TYPICAL USAGE |                |                       |                              |                      |
|---------------|----------------|-----------------------|------------------------------|----------------------|
| MOBILE        | SHORT DURATION | SHORT TERM STATIONARY | INTERMEDIATE TERM STATIONARY | LONG TERM STATIONARY |
|               |                | ✓                     |                              |                      |

**GENERAL NOTES**

- Flags attached to signs where shown, are REQUIRED.
- All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
- Channelizing devices used to close lanes may be supplemented with the Chevron Alignment Sign placed on every other channelizing device. Chevrons may be attached to plastic drums as per BC Standards.
- Shadow Vehicle with TMA and high intensity rotating, flashing, oscillating or strobe lights. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
- Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.

For construction or maintenance contract work, specific project requirements for shadow vehicles can be found in the project GENERAL NOTES for Item 502, Barricades, Signs and Traffic Handling.

Texas Department of Transportation  
Traffic Operations Division

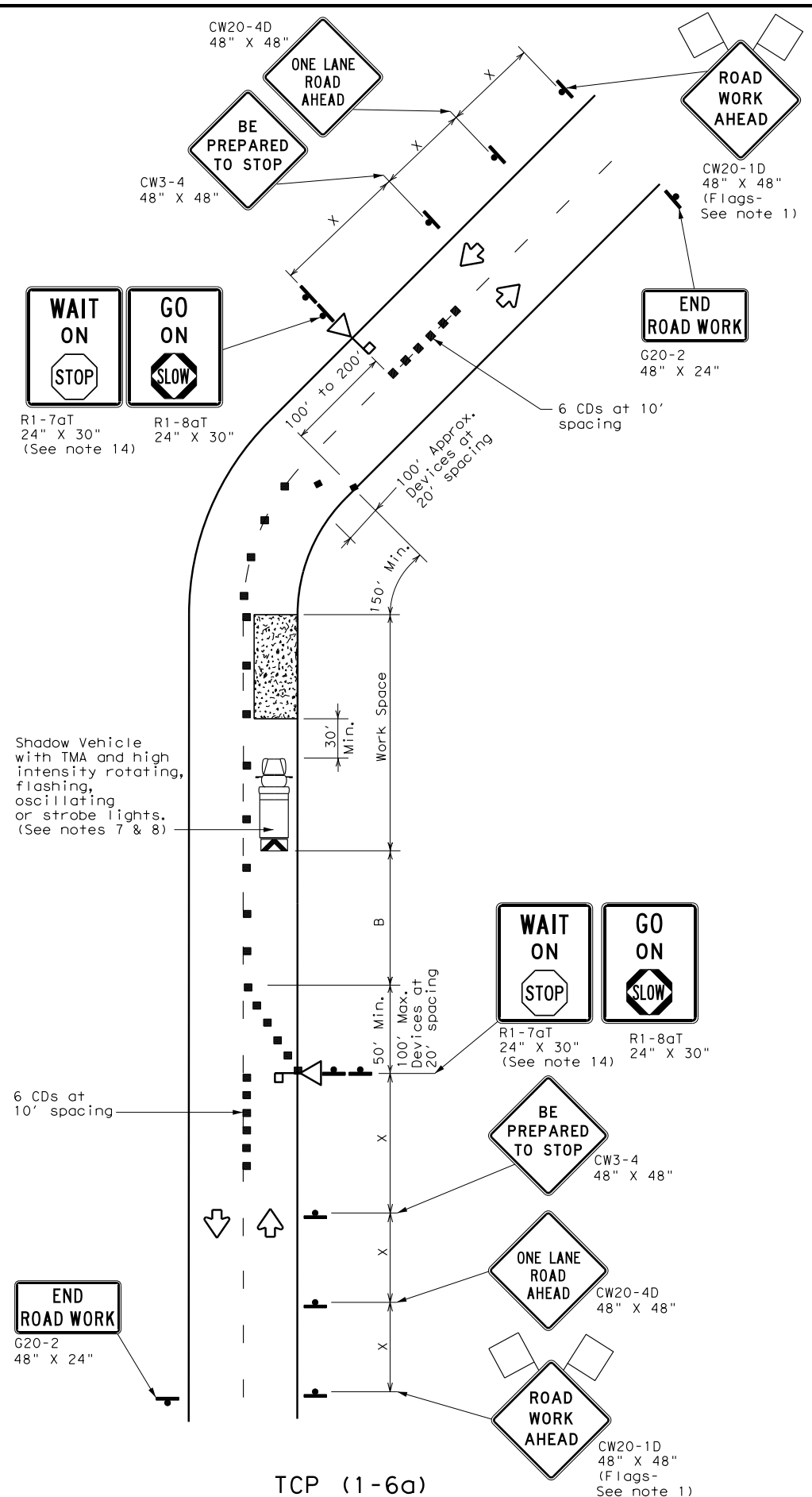
**TRAFFIC CONTROL PLAN  
LANE CLOSURES FOR  
DIVIDED HIGHWAYS**

TCP (1-5) - 12

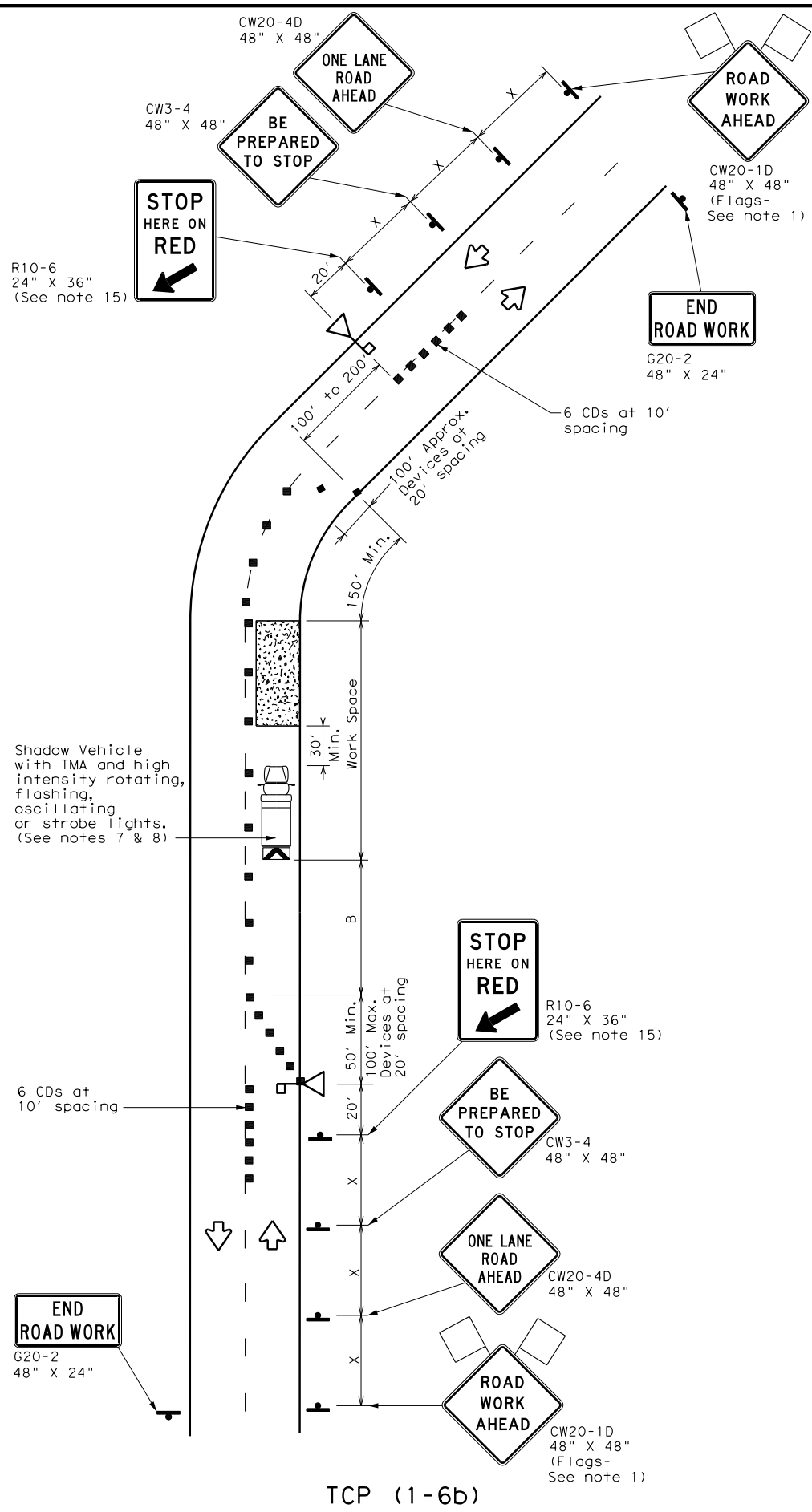
|                       |  |           |           |           |           |
|-----------------------|--|-----------|-----------|-----------|-----------|
| © TxDOT February 2012 |  | DN: TxDOT | CK: TxDOT | DW: TxDOT | CK: TxDOT |
| REVISIONS             |  | CONT      | SECT      | JOB       | HIGHWAY   |
|                       |  | DIST      | COUNTY    |           | SHEET NO. |

DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE:  
FILE:



**ONE LANE TWO-WAY CONTROL WITH STOP/SLOW AFADs**



**ONE LANE TWO-WAY CONTROL WITH RED/YELLOW LENS AFADs**

| LEGEND |  |  |   |
|--------|--|--|---|
|        | Type 3 Barricade                           |  | Channelizing Devices (CDs)              |
|        | Heavy Work Vehicle                         |  | Truck Mounted Attenuator (TMA)          |
|        | Automated Flagger Assistance Device (AFAD) |  | Portable Changeable Message Sign (PCMS) |
|        | Sign                                       |  | Traffic Flow                            |
|        | Flag                                       |  | Flagger                                 |

| Posted Speed * | Formula               | Minimum Desirable Taper Lengths ** |            |            | Suggested Maximum Spacing of Channelizing Devices |              | Minimum Sign Spacing "X" Distance | Suggested Longitudinal Buffer Space "B" | Stopping Sight Distance |
|----------------|-----------------------|------------------------------------|------------|------------|---|--------------|-----------------------------------|---|-------------------------|
|                |                       | 10' Offset                         | 11' Offset | 12' Offset | On a Taper  | On a Tangent |                                   |   |                         |
| 30             | $L = \frac{WS^2}{60}$ | 150'                               | 165'       | 180'       | 30'   | 60'          | 120'                              | 90'                                     | 200'                    |
| 35             |                       | 205'                               | 225'       | 245'       | 35'   | 70'          | 160'                              | 120'                                    | 250'                    |
| 40             |                       | 265'                               | 295'       | 320'       | 40'   | 80'          | 240'                              | 155'                                    | 305'                    |
| 45             | L = WS                | 450'                               | 495'       | 540'       | 45'   | 90'          | 320'                              | 195'                                    | 360'                    |
| 50             |                       | 500'                               | 550'       | 600'       | 50'   | 100'         | 400'                              | 240'                                    | 425'                    |
| 55             |                       | 550'                               | 605'       | 660'       | 55'   | 110'         | 500'                              | 295'                                    | 495'                    |
| 60             |                       | 600'                               | 660'       | 720'       | 60'   | 120'         | 600'                              | 350'                                    | 570'                    |
| 65             |                       | 650'                               | 715'       | 780'       | 65'   | 130'         | 700'                              | 410'                                    | 645'                    |
| 70             |                       | 700'                               | 770'       | 840'       | 70'   | 140'         | 800'                              | 475'                                    | 730'                    |
| 75             |                       | 750'                               | 825'       | 900'       | 75'   | 150'         | 900'                              | 540'                                    | 820'                    |

\* Conventional Roads Only  
 \*\* Taper lengths have been rounded off.  
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)

| TYPICAL USAGE |                |                       |                              |                      |
|---------------|----------------|-----------------------|------------------------------|----------------------|
| MOBILE        | SHORT DURATION | SHORT TERM STATIONARY | INTERMEDIATE TERM STATIONARY | LONG TERM STATIONARY |
|               | ✓              | ✓                     |                              |                      |

**GENERAL NOTES**

- Flags attached to signs where shown are REQUIRED.
- AFADs shall only be used in situations where there is one lane of approaching traffic in the direction to be controlled.
- Adequate stopping sight distance must be provided to each AFAD location for approaching traffic. (See table above).
- Each AFAD shall be operated by a qualified/certified flagger. Flaggers operating AFADs shall not leave them unattended while they are in use.
- One flagger may operate two AFADs only when the flagger has an unobstructed view of both AFADs and of the approaching traffic in both directions.
- When pilot cars are used, a flagger controlling traffic shall be located on each approach. AFADs shall not be operated by the pilot car operator.
- All AFADs shall be equipped with gate arms with an orange or fluorescent red-orange flag attached to the end of the gate arm. The flag shall be a minimum of 16" square.
- A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
- Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.
- Flaggers should use two-way radios or other methods of communication to control traffic.
- Length of work space should be based on the ability of flaggers to communicate.
- If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain stopping sight distance to the AFAD.
- Channelizing devices on the center line may be omitted when a pilot car is leading traffic and approved by the Engineer.
- The R1-7aT "WAIT ON STOP" sign and the R1-8aT "GO ON SLOW" sign shall be installed at the AFAD location on separate supports or they may be fabricated as one 48" x 30" sign. They shall not obscure the face of the STOP/SLOW AFAD.
- The R10-6 "STOP HERE ON RED" arrow sign shall be offset so as not to obscure the lenses of the AFAD.

For construction or maintenance contract work, specific project requirements for shadow vehicles can be found in the project GENERAL NOTES for Item 502, Barricades, Signs and Traffic Handling.



**TRAFFIC CONTROL PLAN  
 AUTOMATED FLAGGER ASSISTANCE DEVICES (AFADs)**

**TCP (1-6) -12**

|                       |  |           |           |           |           |
|-----------------------|--|-----------|-----------|-----------|-----------|
| © TxDOT February 2012 |  | DN: TXDOT | CK: TXDOT | DW: TXDOT | CK: TXDOT |
| REVISIONS             |  | CONT      | SECT      | JOB       | HIGHWAY   |
| DIST                  |  | COUNTY    |           | SHEET NO. |           |