CITY OF FARGO SPECIFICATIONS
TRAFFIC CONTROL

PART 1
DESCRIPTION OF WORK

The work to be done under this section of the Specifications and the accompanying plans consists of all labor, material, accessories, and equipment necessary to furnish, install and maintain the specified traffic control devices at the designated locations.

PART 2
MATERIALS

All devices and methods of traffic control shall conform to the latest edition of the Manual of Uniform Traffic Control Devices, published by FHWA.

MUTCD: http://mutcd.fhwa.dot.gov/htm/2009/html_index.htm
MUTCD, Traffic Control section: http://mutcd.fhwa.dot.gov/htm/2009/part6/part6_toc.htm
MUTCD Pedestrian Traffic Control Guidelines: http://mutcd.fhwa.dot.gov/htm/2009/part6/part6d.htm
ADA Standards for Accessible Design: http://www.ada.gov/

PART 3
CONSTRUCTION

3.1. GENERAL

The Contractor is responsible for signing, barricades and traffic control devices to protect the traveling public and direct them around the construction site. Traffic control devices shall be installed at the inception of the construction process. These devices shall be maintained for the duration of the project. They shall remain in place only as long as they are needed and shall be immediately removed thereafter. The Contractor shall provide any additional personnel as needed to direct the traveling public around the work zone. A work zone consists of an area with construction, maintenance, or utility work activities. The work zone extends from the first sign to the last device on any roadway segment.

3.2. PEDESTRIAN AND BICYCLE SAFETY

The Contractor shall not create a hazardous condition or block the movement of pedestrian or bicycle traffic without an appropriate ADA compliant alternate route and closure established. The Contractor shall provide for pedestrian and bicycle traffic by phasing construction operations and/or by providing alternative pedestrian and bicyclist access through or adjacent to construction areas. Proper advance notice signage with reasonable detours shall be installed and maintained through all phases of construction. Access to pedestrian and bicycle devices at traffic signals shall be maintained at all times. At no time shall pedestrians be diverted into a portion of the street used for vehicular traffic or on to private property unless proper barriers, delineations, and adequate signage is in place.

The costs associated with pedestrian access shall be included in the traffic control bid item.

MUTCD Pedestrian Traffic Control Guidelines: http://mutcd.fhwa.dot.gov/htm/2009/part6/part6d.htm
ADA Standards for Accessible Design: http://www.ada.gov/

3.3. LOCAL TRAFFIC CONTROL

The Contractor is responsible for signing and barricading entrance points to the construction site to restrict access to the general public and maintain their safety. This category of traffic control is generally used for sites with limited outside traffic and limited exposure to the traveling public.

3.4. TRAFFIC CONTROL - MINOR

3.4.1. SHORT TERM STATIONARY AND MOBILE OPERATIONS

This classification is characterized by short term installations that are not used or left in place at night.

The Contractor shall provide flaggers and have them stationed near the work zone to assist the general public and construction vehicles in and around the work zone. All flagging activities and equipment shall conform to the standards set forth in the latest edition of the Manual of Uniform Traffic Control Devices, published by FHWA. The cost of flaggers shall be included in the contract unit price for Traffic Control.

3.5. TRAFFIC CONTROL – TYPE 1

This level of traffic control requires that the Contractor provide a watch person to monitor and document the site on a daily basis.

The Contractor shall provide flaggers in controlled access areas of the work zone that has work occurring in the normal traveled lane. All flagging activities and equipment shall conform to the standards set forth in the latest edition of the Manual of Uniform Traffic Control Devices, published by FHWA. The cost of flaggers shall be included in the contract unit price for Traffic Control.

If the Contractor does not make a reasonable effort to correct any deficiency in a timely manner, work on the entire project will be shut down for a minimum of 24 hours until the problem is corrected. In addition, the Contractor shall provide a plan to the Engineer as to how future problems will be avoided prior to resuming construction activities.

3.5.1. Watch Persons

Watch persons shall be provided to patrol the project to assure that the traffic control devices are properly placed in accordance with the traffic control plans and standards. The project shall be patrolled daily at least once during daylight before 10:00 A.M. and at least once after the Contractor has shut down for the day or after 6:00 P.M. on weekends and days when no work is in progress.

The Contractor shall provide written documentation to the Engineer of the watch person's hours and activities. (See attached "Traffic Control Devices Daily Checklist" form.)

The Contractor shall immediately assist the watch person, whenever needed, to correct conditions that cause erratic traffic movement, unexpected braking, etc., and erect, repair, replace, or relocate the required traffic control devices. Emergency assistance shall be provided to motorists, when needed, due to roadway conditions. Upon written request to the Engineer, suspension of watch person service may be permitted during periods of authorized suspension or after substantial completion of work, provided the job site is in safe condition.

3.5.1.A. Qualifications

The watch person shall:

1) Be familiar with the requirements of the City of Fargo traffic control plans and Specifications for the particular job in which he/she is assigned.

2) Have completed a NDDOT-approved Traffic Control Technician Course.

3) The watch person must submit their name and phone number to the project Engineer prior to the start of the project. The watch person will be required to submit the "Traffic Control Devices Daily Checklist" forms to the project Engineer on a weekly basis.

3.6. TRAFFIC CONTROL – TYPE 2

This level of traffic control requires that the Contractor provide a traffic control supervisor in addition to a watch person to monitor and document the site. Flagging and watch person requirements shall be per Traffic Control – Type 1 above.

Proposed signing shall be submitted to the Engineer for approval prior to the closing of a particular street.

The Contractor will be subject to an hourly charge for failure to maintain the traffic control devices and enclosure as set forth in these Specifications. If the Contractor does not correct any deficiencies within one (1) hour of being notified, the Contractor will be assessed an initial $900 fee and an additional $100.00 per hour for each hour or any portion thereof which the Engineer determines that the Contractor has not complied. However, no charge will be made if the deficiency is corrected within (1) hour of notification.

3.6.1. Traffic Control Supervisor

The Contractor shall designate a qualified traffic control supervisor. This supervisor shall be in addition to the watch person specified in section (2) below. If this traffic control supervisor becomes unavailable on the project, the Contractor shall designate a qualified replacement supervisor.

3.6.1.A. Qualifications

The traffic control supervisor shall:

1) Be familiar with the requirements of the City of Fargo traffic control plans and Specifications.

2) Have completed a NDDOT-approved Traffic Control Supervisor Course and furnish proof thereof at the preconstruction meeting.

3) Have a total of at least 12 months field experience with traffic control plans, layouts and maintenance.

4) Be competent to supervise personnel in traffic control operations.

3.6.1.B. Duties

The traffic control supervisor shall:

1) Provide traffic control as required by plans, Specifications, MUTCD, or as directed by the Engineer.

2) Supervise the installation, operations, inspection, maintenance, and removal of the traffic control system.

3) Correct traffic control conditions that cause erratic vehicle movements, unexpected braking, etc.

4) Propose changes to improve traffic flow through the work zone.

5) Be accessible to the job site within one hour of notification and be "on call" on a 24-hour basis.

6) Provide the Engineer with documentation of all traffic control activities required on item (2) above.

7) Function as watch person in his/her absence.

3.6.2. Watch Persons

Watch persons shall be provided to patrol the project to assure that the traffic control devices are properly placed in accordance with the traffic control plans and standards. The project shall be patrolled daily at least once during daylight before 10 A.M. and at least once during darkness, minimum 30 minutes after sunset, including weekends and days when no work is in progress.

The traffic control Contractor shall provide written documentation to the Engineer on a weekly basis of the watch person's hours and activities. (See attached "Traffic Control Devices Daily Checklist" form.) Progressive estimates will not be processed unless the documentation is submitted and up to date.

The Contractor shall immediately assist the watch person, whenever needed, to correct conditions that cause erratic traffic movement, unexpected braking, etc., and erect, repair, replace, or relocate the required traffic control devices. Emergency assistance shall be provided to motorists, when needed, due to roadway conditions. Upon written request to the Engineer, suspension of watch person service may be permitted during periods of authorized suspension or after substantial completion of the work, provided the job site is in safe condition.

3.6.2.A. Qualifications

The watch person shall:

1) Be familiar with the requirements of the City of Fargo traffic control plans and specification for the particular job in which he/she is assigned.

2) Have completed a NDDOT-approved Traffic Control Technician Course.

3) The watch person must submit their name and phone number to the project Engineer prior to the start of the project. The watch person will be required to submit the "Traffic Control Devices Daily Checklist" forms to the Project Engineer on a weekly basis.

The Contractor shall designate the construction foreman or alternate contact person who will be responsible for the construction activities, which include the activities of all the subcontractors.

The City will inform the contact person anytime a deficiency is noticed in the traffic control. The contact person shall be required to make sure the necessary corrective actions are put in place, which includes the deficiencies caused by the subcontractors.

The City will notify the prime Contractor when the charges begin. The prime Contractor shall be responsible for notifying the City when appropriate corrective actions have been carried out, in order to suspend the accumulation of any further fees.

The Contractor shall note a traffic control Contractor will be required to perform the duties of traffic control supervisor and watch person. The prime Contractor will NOT be allowed to perform these duties.

PART 4
PAYMENT

4.1. LOCAL TRAFFIC CONTROL

Incidental to contract.

4.2. TRAFFIC CONTROL - MINOR

This bid item shall be a lump sum bid item and shall include all signing for traffic and pedestrian control (including detour routes), barricades, channelizing devices, temporary striping, changeable message boards, etc.

4.3. TRAFFIC CONTROL – TYPE 1

This bid item shall be a lump sum bid item and shall include all signing for traffic and pedestrian control (including detour routes), barricades, channelizing devices, temporary striping, changeable message boards, etc.

4.4. TRAFFIC CONTROL – TYPE 2

This bid item shall be a lump sum bid item and shall include all signing for traffic and pedestrian control (including detour routes), barricades, channelizing devices, temporary striping, changeable message boards, etc.

Typical Application Legend

Table 1

⊛	Channelizing Device – Barrel
○	Channelizing Device – Tube
	Direction of temporary traffic detour
	Direction of traffic
	Flagger
	Longitudinal channelizing device
⊢	sign (shown facing left)
⊕	Surveyor
	Type 3 barricade
	Work space

Table 2

Road Type	Distance Between Signs**		
	A	B	C
Urban (low speed)*	100 feet	100 feet	100 feet
Urban (high speed)*	350 feet	350 feet	350 feet
Rural	500 feet	500 feet	500 feet
Expressway / Freeway	1,000 feet	1,500 feet	2,640 feet

* Speed category to be determined by highway agency
** The column headings A, B, and C are the dimensions shown in Figures 6H-1 through 6H-46. The A dimension is the distance from the transition or point of restriction to the first sign. The B dimension is the distance between the first and second signs. The C dimension is the distance between the second and third signs. (The 'first sign' is the sign in a three-sign series that is closest to the TTC zone. The 'third sign' is the sign that is furthest upstream from the TTC zone.)

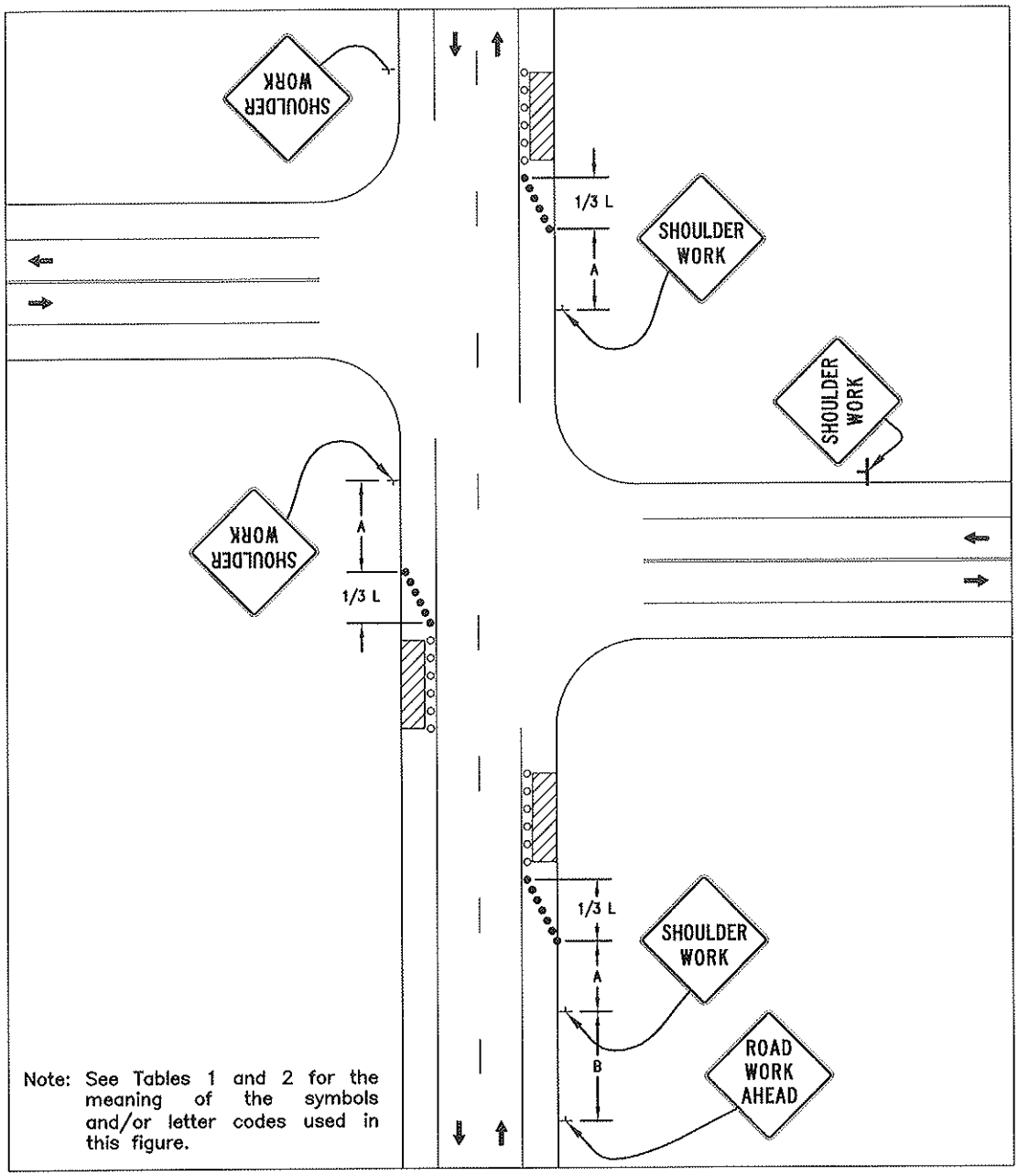
Table 3

Speed (S)	Taper Length (L) in feet
40 mph or less	$L = \frac{WS^2}{60}$
45 mph or more	$L = WS$

Where: L = taper length in feet
W = width of offset in feet
S = posted speed limit, or off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph

SECTION NO. 4100	DRAWING NO. 5.1
REV,D.	
Traffic Control Typical Applications – Legend –	
CITY OF FARGO ENGINEERING DEPARTMENT	
APPROVED JAA	DATE 1/2/2013

TA–3 Work on the Shoulders



Note: See Tables 1 and 2 for the meaning of the symbols and/or letter codes used in this figure.

Guidance:

1. *A SHOULDER WORK sign should be placed on the left side of the roadway for a divided or one–way street only if the left shoulder is affected.*

Option:

2. The Workers symbol signs may be used instead of SHOULDER WORK signs.
3. The SHOULDER WORK AHEAD sign on an intersecting roadway may be omitted where drivers emerging from that roadway will encounter another advance warning sign prior to this activity area.
4. For short duration operations of 60 minutes or less, all signs and channelizing devices may be eliminated if a vehicle with activated high–intensity rotating, flashing, oscillating, or strobe lights is used.
5. Vehicle hazard warning signals may be used to supplement high–intensity rotating, flashing, oscillating, or strobe lights.

Standard:

6. **Vehicle hazard warning signals shall not be used instead of the vehicle's high–intensity rotating, flashing, oscillating, or strobe lights.**
7. **When paved shoulders having a width of 8 feet or more are closed, at least one advance warning sign shall be used. In addition, channelizing devices shall be used to close the shoulder in advance to delineate the beginning of the work space and direct vehicular traffic to remain within the traveled way.**

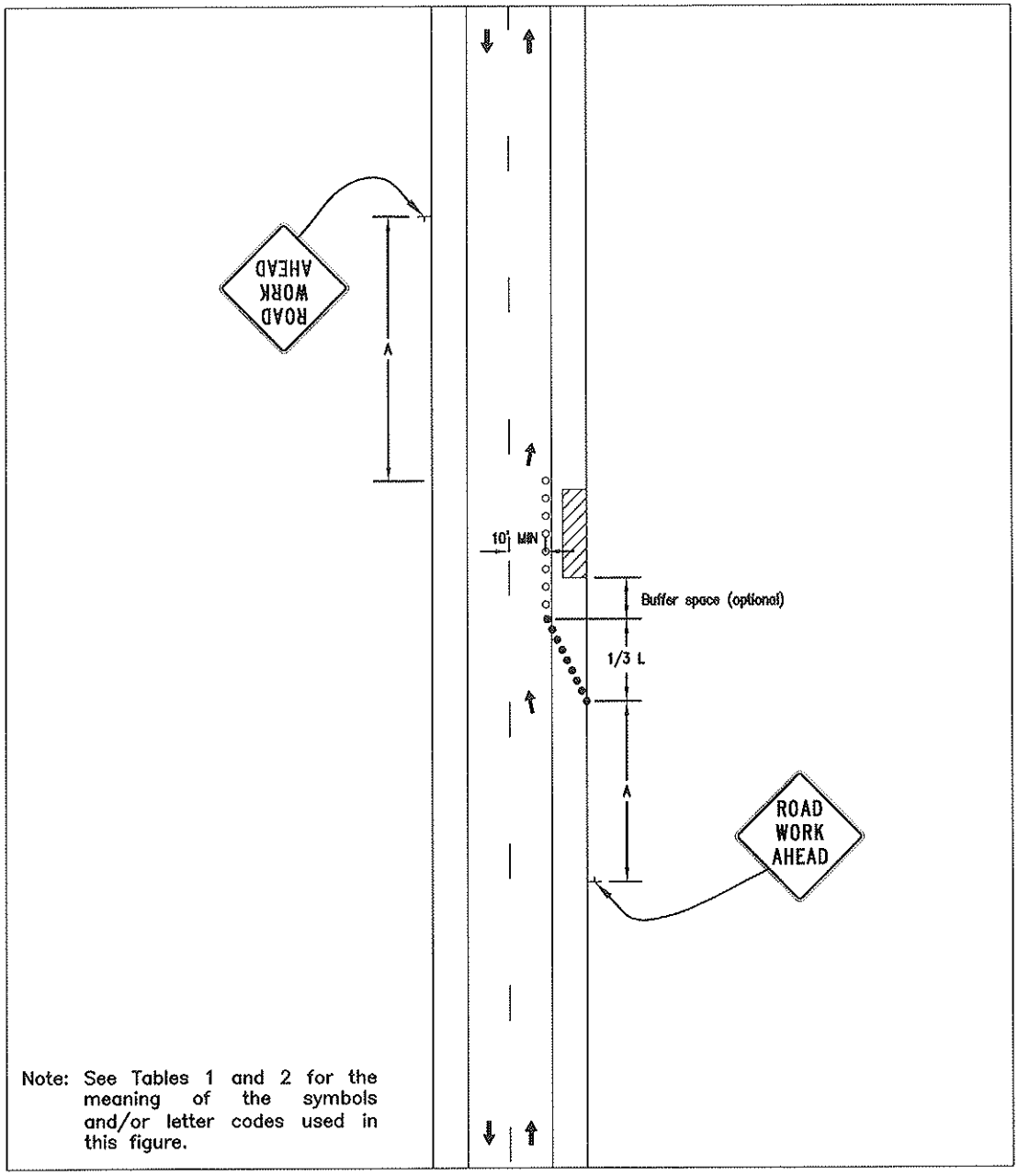
SECTION NO. 4100	DRAWING NO. 5.2
REV,D.	

Traffic Control Typical Applications
– TA–3 –

CITY OF FARGO
ENGINEERING DEPARTMENT

APPROVED JAA	DATE 1/2/2013

TA–6 Shoulder Work with Minor Encroachment



Note: See Tables 1 and 2 for the meaning of the symbols and/or letter codes used in this figure.

Guidance:

1. *All lanes should be a minimum of 10 feet in width as measured to the near face of the channelizing devices.*
2. *The treatment shown should be used on a minor road having low speeds. For higher–speed traffic conditions, a lane closure should be used.*

Option:

3. For short–term use on low–volume, low–speed roadways with vehicular traffic that does not include longer and wider heavy commercial vehicles, a minimum lane width of 9 feet may be used.
4. Where the opposite shoulder is suitable for carrying vehicular traffic and of adequate width, lanes may be shifted by use of closely–spaced channelizing devices, provided that the minimum lane width of 10 feet is maintained.
5. Additional advance warning may be appropriate, such as a ROAD NARROWS sign.
6. Temporary traffic barriers may be used along the work space.
7. The shadow vehicle may be omitted if a taper and channelizing devices are used.
8. A truck–mounted attenuator may be used on the shadow vehicle.
9. For short–duration work, the taper and channelizing devices may be
omitted if a shadow vehicle with activated high–intensity rotating,
flashing, oscillating, or strobe lights is used.
10. Vehicle hazard warning signals may be used to supplement high–intensity
rotating, flashing, oscillating, or strobe lights.

Standard:

11. 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 view when work is not in progress.
12. Shadow and work vehicles shall display high–intensity rotating, flashing, oscillating, or strobe lights.
13. Vehicle hazard warning signals shall not be used instead of the vehicle's high–intensity rotating, flashing, oscillating, or strobe lights.

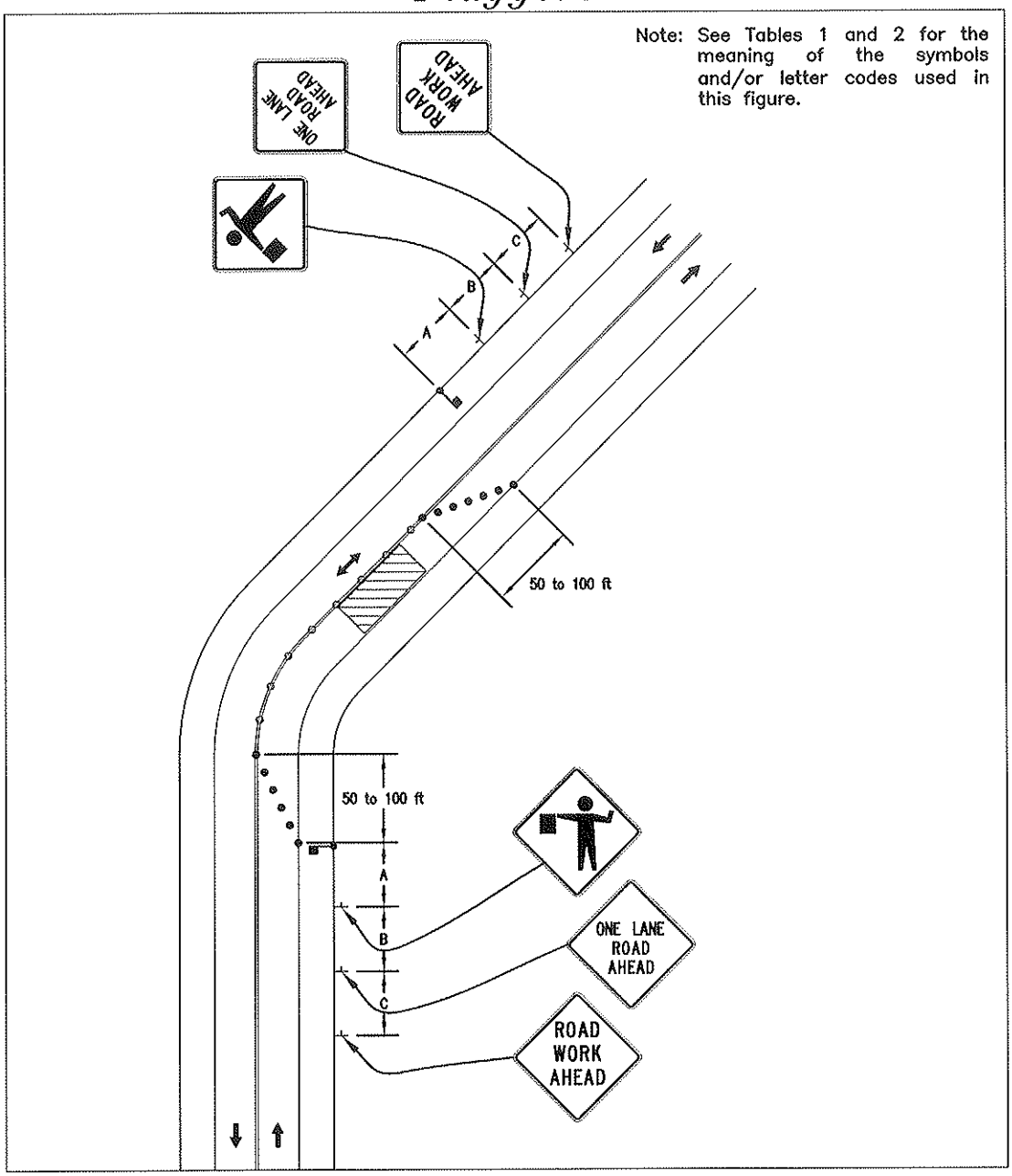
SECTION NO. 4100	DRAWING NO. 5.3
REV.D.	

Traffic Control Typical Applications – TA–6 –

CITY OF FARGO
ENGINEERING DEPARTMENT

APPROVED JAA	DATE 1/2/2013

TA–10 Lane Closure on a Two–Lane Road Using Flaggers



Option:

1. 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, positioned to be visible to road users approaching from both directions, may be used (see Chapter 6E).
2. The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short–duration operations.
3. Flashing warning lights and/or flags may be used to call attention to the advance warning signs. A BE PREPARED TO STOP sign may be added to the sign series.

Guidance:

4. *The buffer space should be extended so that the two–way traffic taper is placed before a horizontal (or crest vertical) curve to provide adequate sight distance for the flagger and a queue of stopped vehicles.*

Standard:

5. At night, flagger stations shall be illuminated, except in emergencies.

Guidance:

6. *When used, the BE PREPARED TO STOP sign should be located between the Flagger sign and the ONE LANE ROAD sign.*
7. *When a grade crossing exists within or upstream of the transition area and it is anticipated that queues resulting from the lane closure might extend through the grade crossing, the TTC zone should be extended so that the transition area precedes the grade crossing.*
8. *When a grade crossing equipped with active warning devices exists within the activity area, provisions should be made for keeping flaggers informed as to the activation status of these warning devices.*
9. *When a grade crossing exists within the activity area, drivers operating on the left–hand side of the normal center line should be provided with comparable warning devices as for drivers operating on the right–hand side of the normal center line.*
10. *Early coordination with the railroad company or light rail transit agency should occur before work starts.*

Option:

11. A flagger or a uniformed law enforcement officer may be used at the grade crossing to minimize the probability that vehicles are stopped within 15 feet of the grade crossing, measured from both sides of the outside rails.

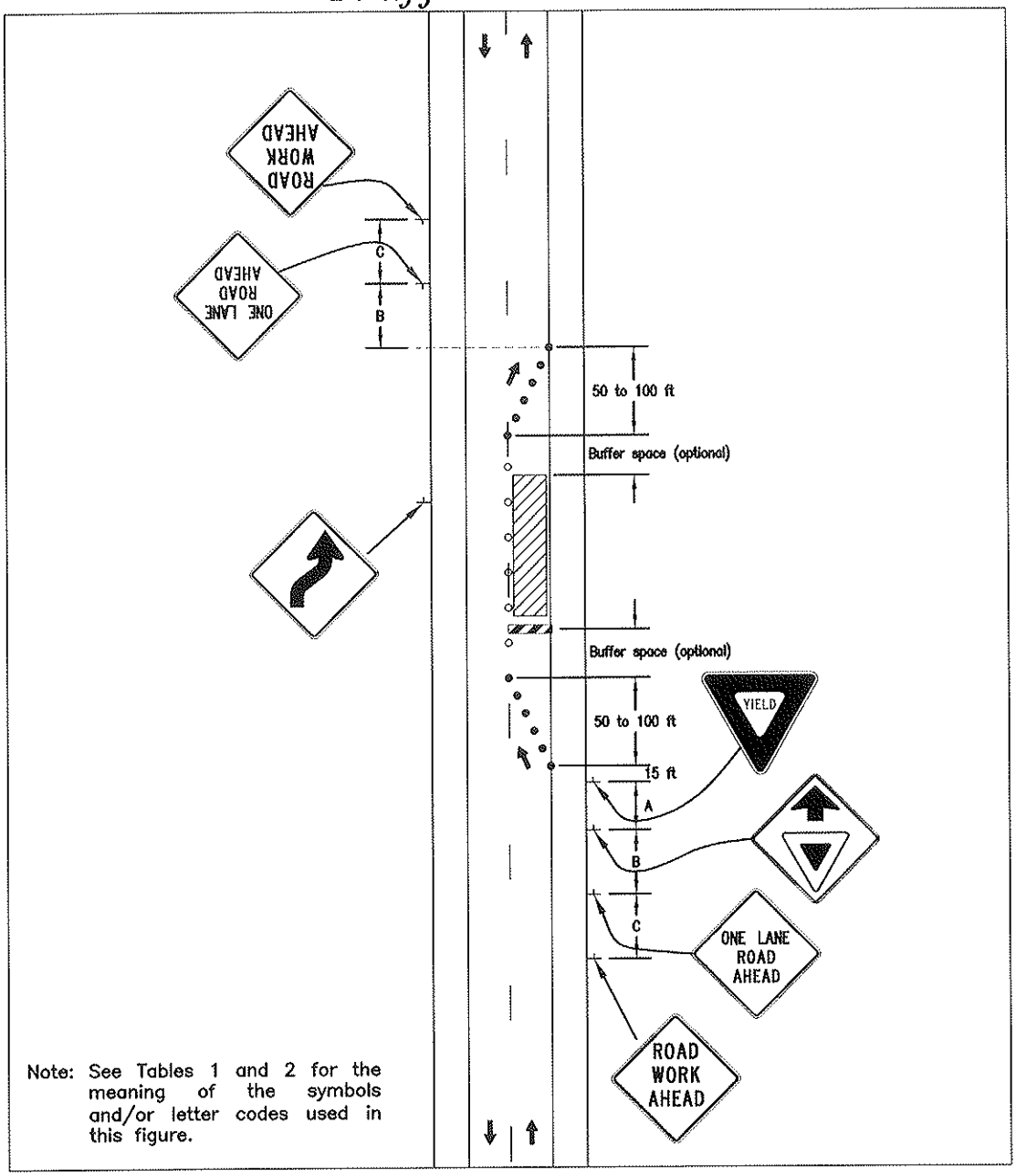
SECTION NO. 4100	DRAWING NO. 5.4
REV,D.	

Traffic Control Typical Applications – TA–10 –

CITY OF FARGO
ENGINEERING DEPARTMENT

APPROVED JAA	DATE 1/2/2013

TA–11 Lane Closure on a Two–Lane Road with Low Traffic Volumes



Note: See Tables 1 and 2 for the meaning of the symbols and/or letter codes used in this figure.

Option:

1. This TTC zone application may be used as an alternate to the TTC application shown in Figure 6H–10 (using flaggers) when the following conditions exist:
   a. Vehicular traffic volume is such that sufficient gaps exist for vehicular traffic that must yield.
   b. Road users from both directions are able to see approaching vehicular traffic through and beyond the worksite and have sufficient visibility of approaching vehicles.
2. The Type B flashing warning lights may be placed on the ROAD WORK AHEAD and the ONE LANE ROAD AHEAD signs whenever a night lane closure is necessary.

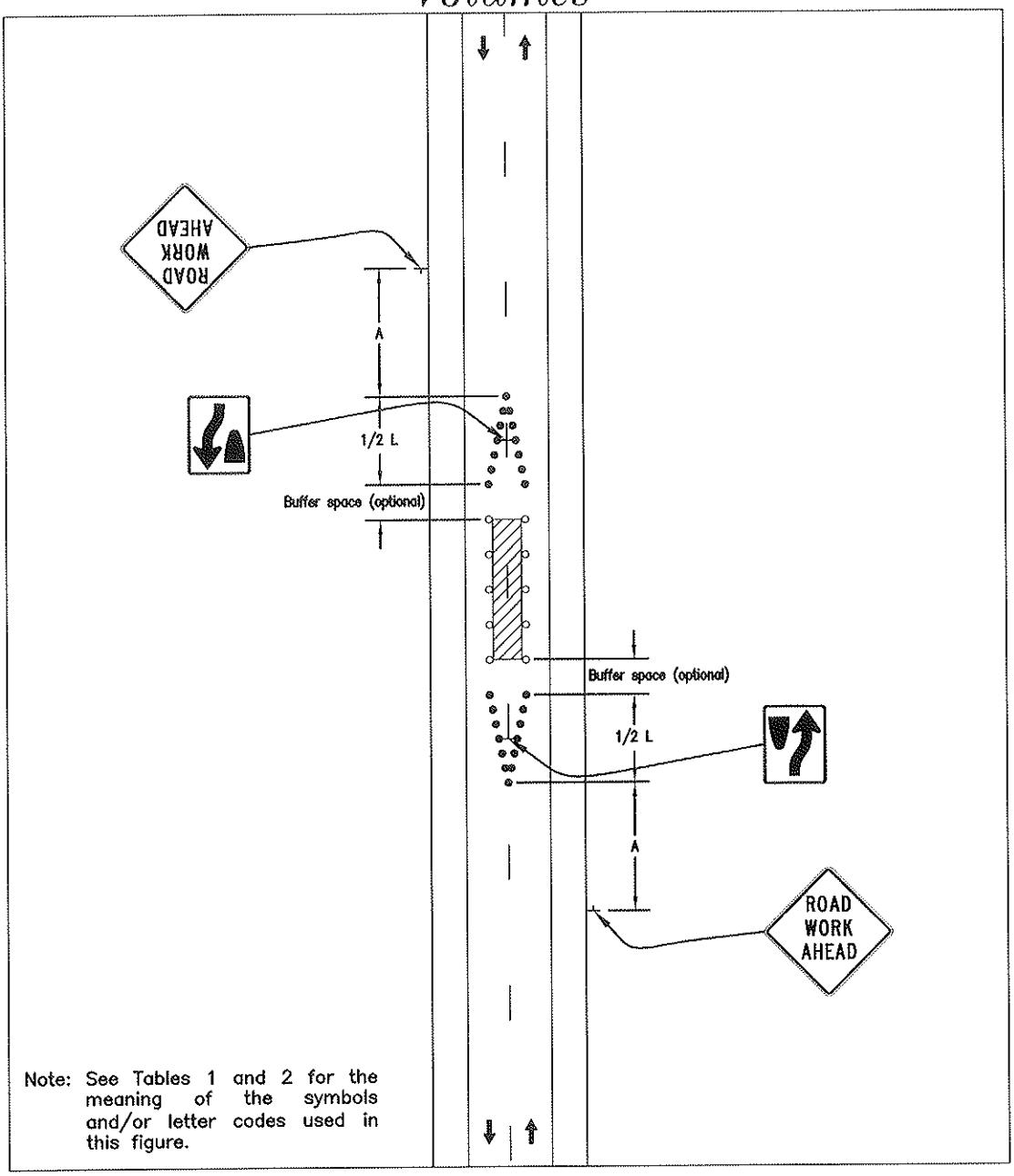
SECTION NO. 4100	DRAWING NO. 5.5
REV,D.	

Traffic Control Typical Applications
– TA–11 –

CITY OF FARGO
ENGINEERING DEPARTMENT

APPROVED JAA	DATE 1/2/2013

TA–15 Work in the Center of a Road with Low Traffic Volumes



Note: See Tables 1 and 2 for the meaning of the symbols and/or letter codes used in this figure.

Guidance:

1. *The lanes on either side of the center work space should have a minimum width of 10 feet as measured from the near edge of the channelizing devices to the edge of the pavement or the outside edge of the paved shoulder.*

Option:

2. Flashing warning lights and/or flags may be used to call attention to the advance warning signs.
3. If the closure continues overnight, warning lights may be used on the channelizing devices.
4. A lane width of 9 feet may be used for short–term stationary work on low–volume, low–speed roadways when motor vehicle traffic does not include longer and wider heavy commercial vehicles.
5. A work vehicle displaying high–intensity rotating, flashing, oscillating, or strobe lights may be used instead of the channelizing devices forming the tapers or the high–level warning devices.
6. Vehicle hazard warning signals may be used to supplement high–intensity rotating, flashing, oscillating, or strobe lights.

Standard:

7. **Vehicle hazard warning signals shall not be used instead of the vehicle's high–intensity rotating, flashing, oscillating, or strobe lights.**

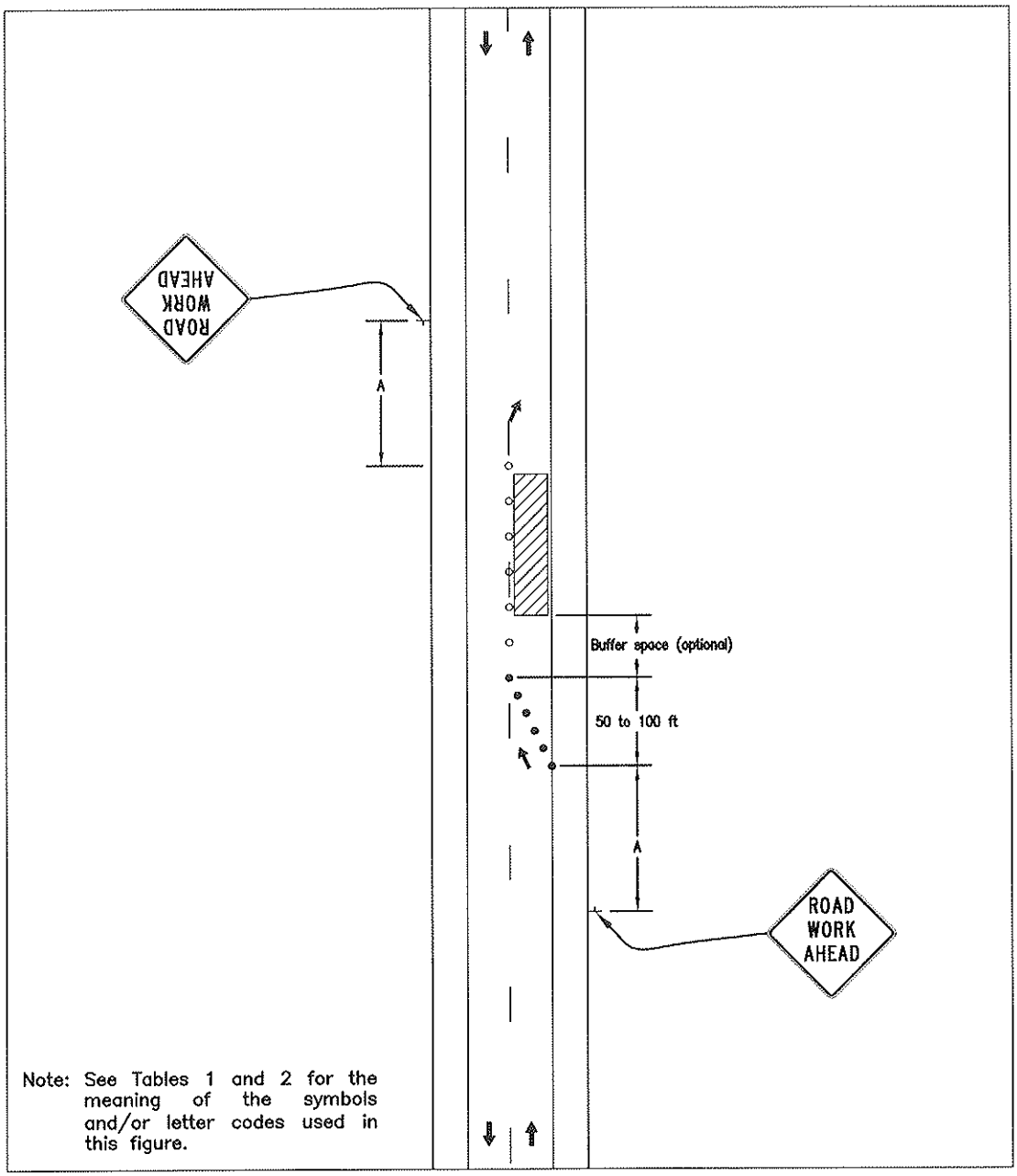
SECTION NO. 4100	DRAWING NO. 5.6
REV.D.	

Traffic Control Typical Applications – TA–15 –

CITY OF FARGO
ENGINEERING DEPARTMENT

APPROVED JAP	DATE 1/2/2013

TA–18 Lane Closure on a Minor Street



Note: See Tables 1 and 2 for the meaning of the symbols and/or letter codes used in this figure.

Standard:

1. **This TTC shall be used only for low–speed facilities having low traffic volumes.**

Option:

2. Where the work space is short, where road users can see the roadway beyond, and where volume is low, vehicular traffic may be self–regulating.

Standard:

3. **Where vehicular traffic cannot effectively self–regulate, one or two flaggers shall be used as illustrated in Figure 6H–10.**

Option:

4. Flashing warning lights and/or flags may be used to call attention to the advance warning signs.
5. A truck–mounted attenuator may be used on the work vehicle and the shadow vehicle.

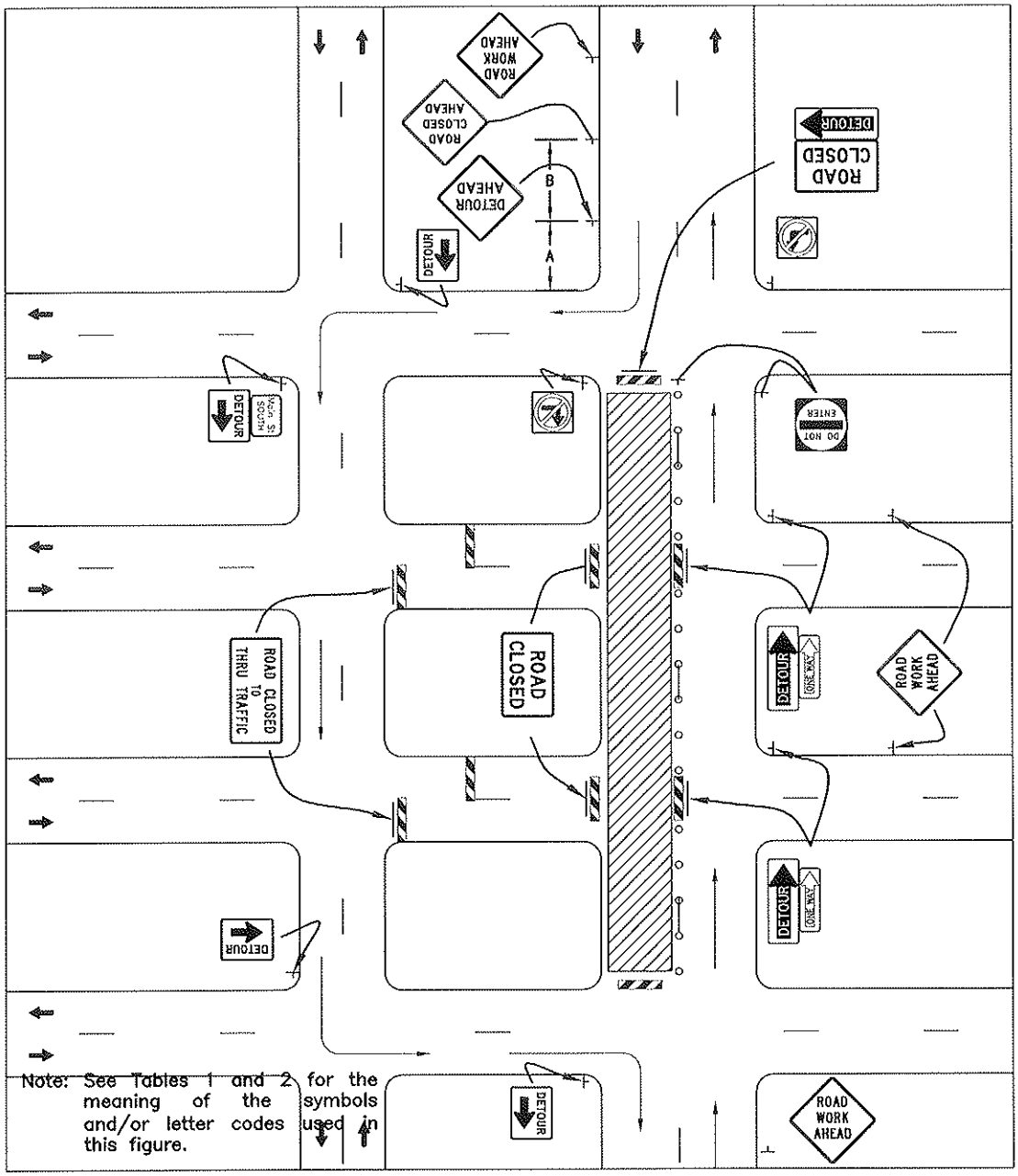
SECTION NO. 4100	DRAWING NO. 5.7
REV,D.	

Traffic Control Typical Applications – TA–18 –

CITY OF FARGO
ENGINEERING DEPARTMENT

APPROVED JAA	DATE 1/2/2013

TA–19 Detour for One Travel Direction



Note: See Tables 1 and 2 for the meaning of the symbols and/or letter codes used in this figure.

Guidance:

1. *This plan should be used for streets without posted route numbers.*
2. *On multi–lane streets, Detour signs with an Advance Turn Arrow should be used in advance of a turn.*

Option:

3. The STREET CLOSED legend may be used in place of ROAD CLOSED.
4. Additional DO NOT ENTER signs may be used at intersections with intervening streets.
5. Warning lights may be used on Type 3 Barricades.
6. Detour signs may be located on the far side of intersections.
7. A Street Name sign may be mounted with the Detour sign. The Street Name sign may be either white on green or black on orange.

Standard:

8. **When used, the Street Name sign shall be placed above the Detour sign.**

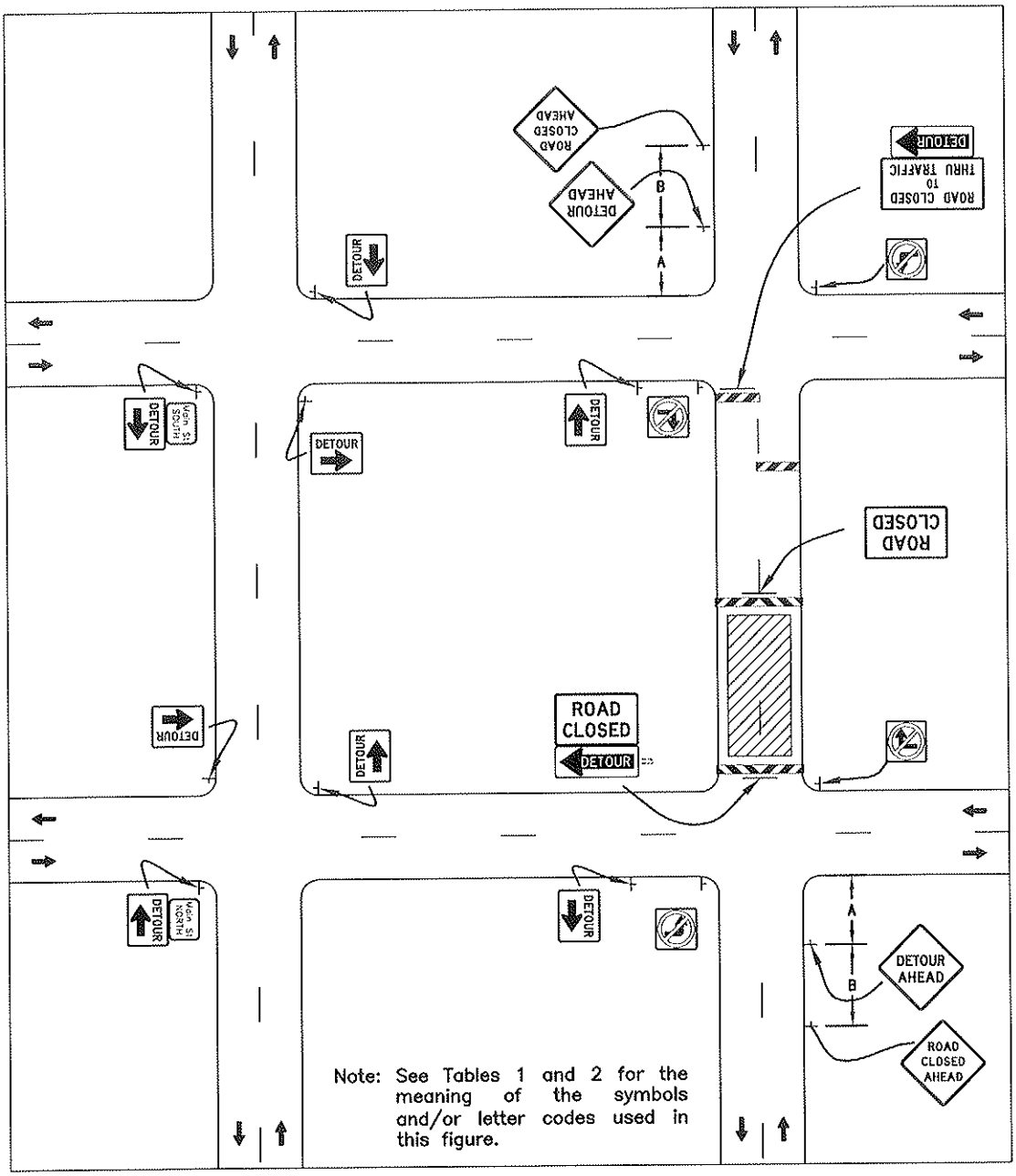
SECTION NO. 4100	DRAWING NO. 5.8
REV,D.	

Traffic Control Typical Applications
– TA–19 –

CITY OF FARGO
ENGINEERING DEPARTMENT

APPROVED JAA	DATE 1/2/2013

TA–20 Detour for a Closed Street



Guidance:

1. *This plan should be used for streets without posted route numbers.*
2. *On multi–lane streets, Detour signs with an Advance Turn Arrow should be used in advance of a turn.*

Option:

3. Flashing warning lights and/or flags may be used to call attention to the advance warning signs.
4. Flashing warning lights may be used on Type 3 Barricades.
5. Detour signs may be located on the far side of intersections. A Detour sign with an advance arrow may be used in advance of a turn.
6. A Street Name sign may be mounted with the Detour sign. The Street Name sign may be either white on green or black on orange.

Standard:

7. **When used, the Street Name sign shall be placed above the Detour sign.**

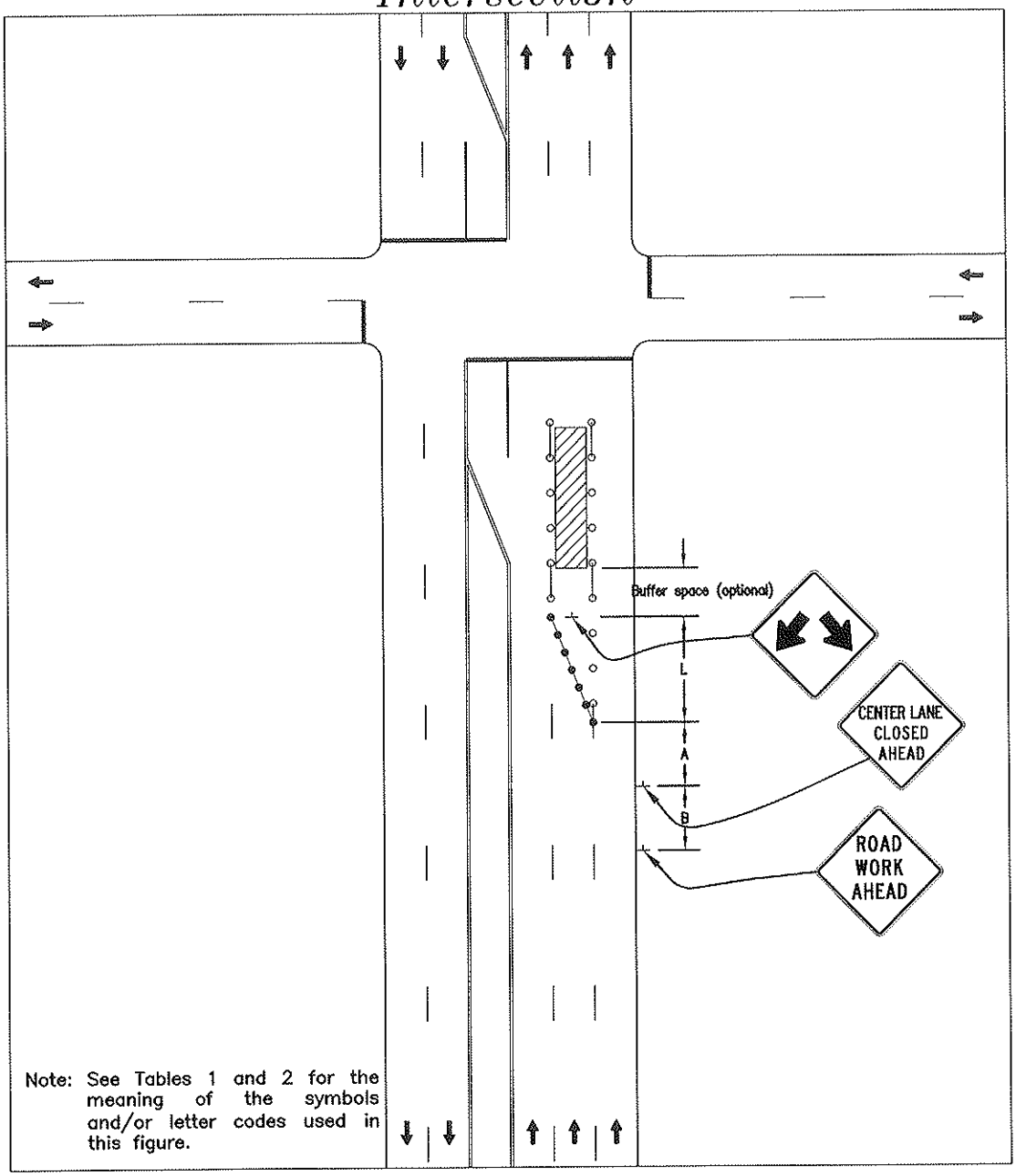
SECTION NO. 4100	DRAWING NO. 5.9
REV,D.	

Traffic Control Typical Applications
– TA–20 –

CITY OF FARGO
ENGINEERING DEPARTMENT

APPROVED JAA	DATE 1/2/2013

TA–21 Lane Closure on the Near Side of an Intersection



Note: See Tables 1 and 2 for the meaning of the symbols and/or letter codes used in this figure.

Standard:

1. **The merging taper shall direct vehicular traffic into either the right–hand or left–hand lane, but not both.**

Guidance:

2. *In this typical application, a left taper should be used so that right–turn movements will not impede through motor vehicle traffic. However, the reverse should be true for left–turn movements.*
3. *If the work space extends across a crosswalk, the crosswalk should be closed using the information and devices shown in Figure 6H–29.*

Option:

4. Flashing warning lights and/or flags may be used to call attention to the advance warning signs.
5. A shadow vehicle with a truck–mounted attenuator may be used.
6. A work vehicle with high–intensity rotating, flashing, oscillating, or strobe lights may be used with the high–level warning device.
7. Vehicle hazard warning signals may be used to supplement high–intensity rotating, flashing, oscillating, or strobe lights.

Standard:

8. **Vehicle hazard warning signals shall not be used instead of the vehicle's high–intensity rotating, flashing, oscillating, or strobe lights.**

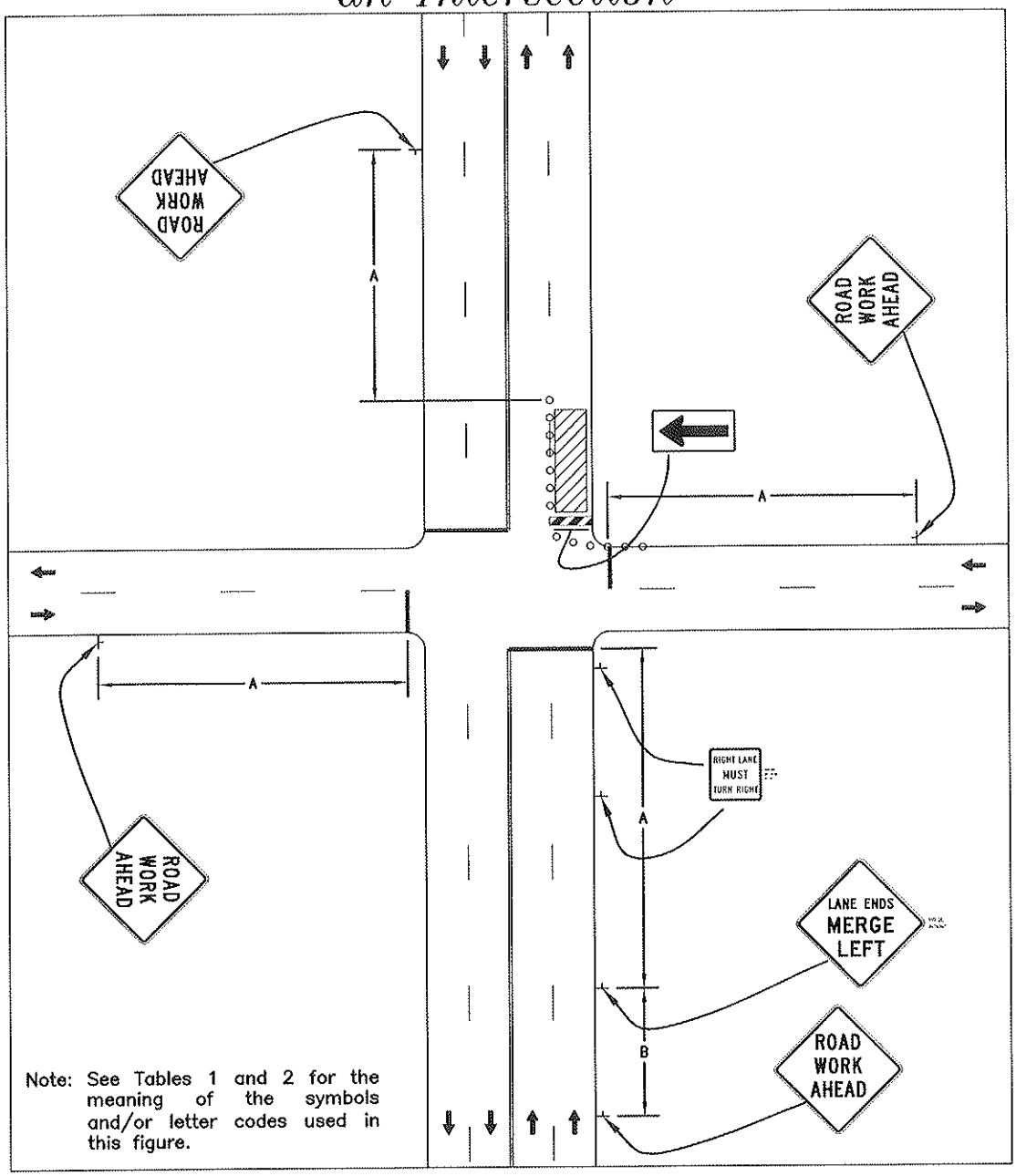
SECTION NO. 4100	DRAWING NO. 5.10
REV,D.	

Traffic Control Typical Applications
– TA–21 –

CITY OF FARGO
ENGINEERING DEPARTMENT

APPROVED JAP	DATE 1/2/2013

TA–22 Right–Hand Lane Closure on the Far Side of an Intersection



Note: See Tables 1 and 2 for the meaning of the symbols and/or letter codes used in this figure.

Guidance:

1. *If the work space extends across a crosswalk, the crosswalk should be closed using the information and devices shown in Figure 6H–29.*

Option:

2. The normal procedure is to close on the near side of the intersection any lane that is not carried through the intersection. However, when this results in the closure of a right–hand lane having significant right turning movements, then the right–hand lane may be restricted to right turns only, as shown. This procedure increases the through capacity by eliminating right turns from the open through lane.
3. For intersection approaches reduced to a single lane, left–turning movements may be prohibited to maintain capacity for through vehicular traffic.
4. Flashing warning lights and/or flags may be used to call attention to the advance warning signs.
5. Where the turning radius is large, it may be possible to create a right–turn island using channelizing devices or pavement markings.

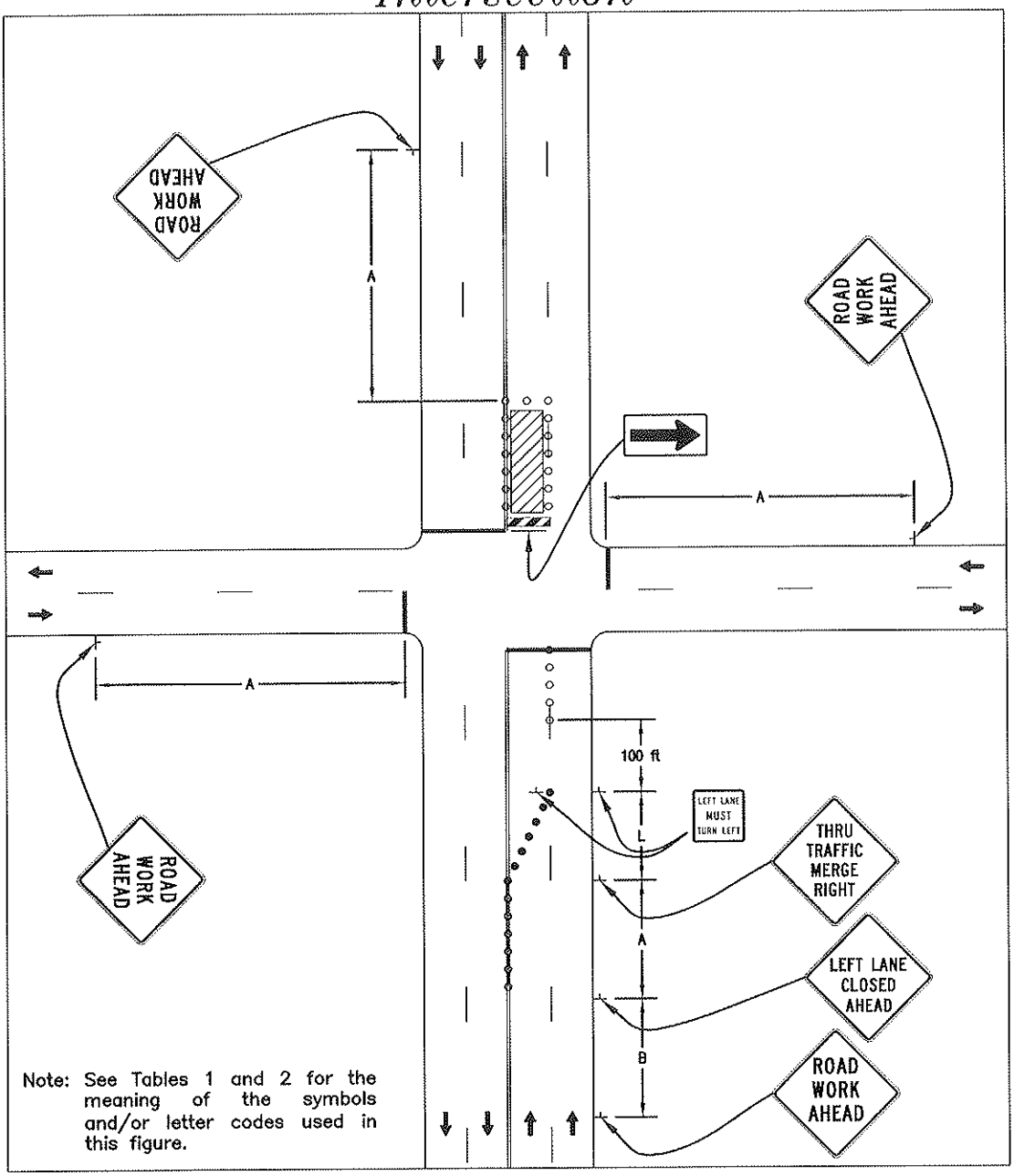
SECTION NO. 4100	DRAWING NO. 5.11
REV,D.	

Traffic Control Typical Applications – TA–22 –

CITY OF FARGO
ENGINEERING DEPARTMENT

APPROVED JAA	DATE 1/2/2013

TA–23 Left–Hand Lane Closure on the Far Side of an Intersection



Guidance:

1. *If the work space extends across a crosswalk, the crosswalk should be closed using the information and devices shown in Figure 6H–29.*

Option:

2. Flashing warning lights and/or flags may be used to call attention to the advance warning signs.
3. The normal procedure is to close on the near side of the intersection any lane that is not carried through the intersection. However, when this results in the closure of a left lane having significant left–turning movements, then the left lane may be reopened as a turn bay for left turns only, as shown.

Support:

4. By first closing off the left lane and then reopening it as a turn bay, the left–turn bay allows storage of turning vehicles so that the movement of through traffic is not impeded. A left–turn bay that is long enough to accommodate all turning vehicles during a traffic signal cycle will provide the maximum benefit for through traffic. Also, an island is created with channelizing devices that allows the LEFT LANE MUST TURN LEFT sign to be repeated on the left adjacent to the lane that it controls.

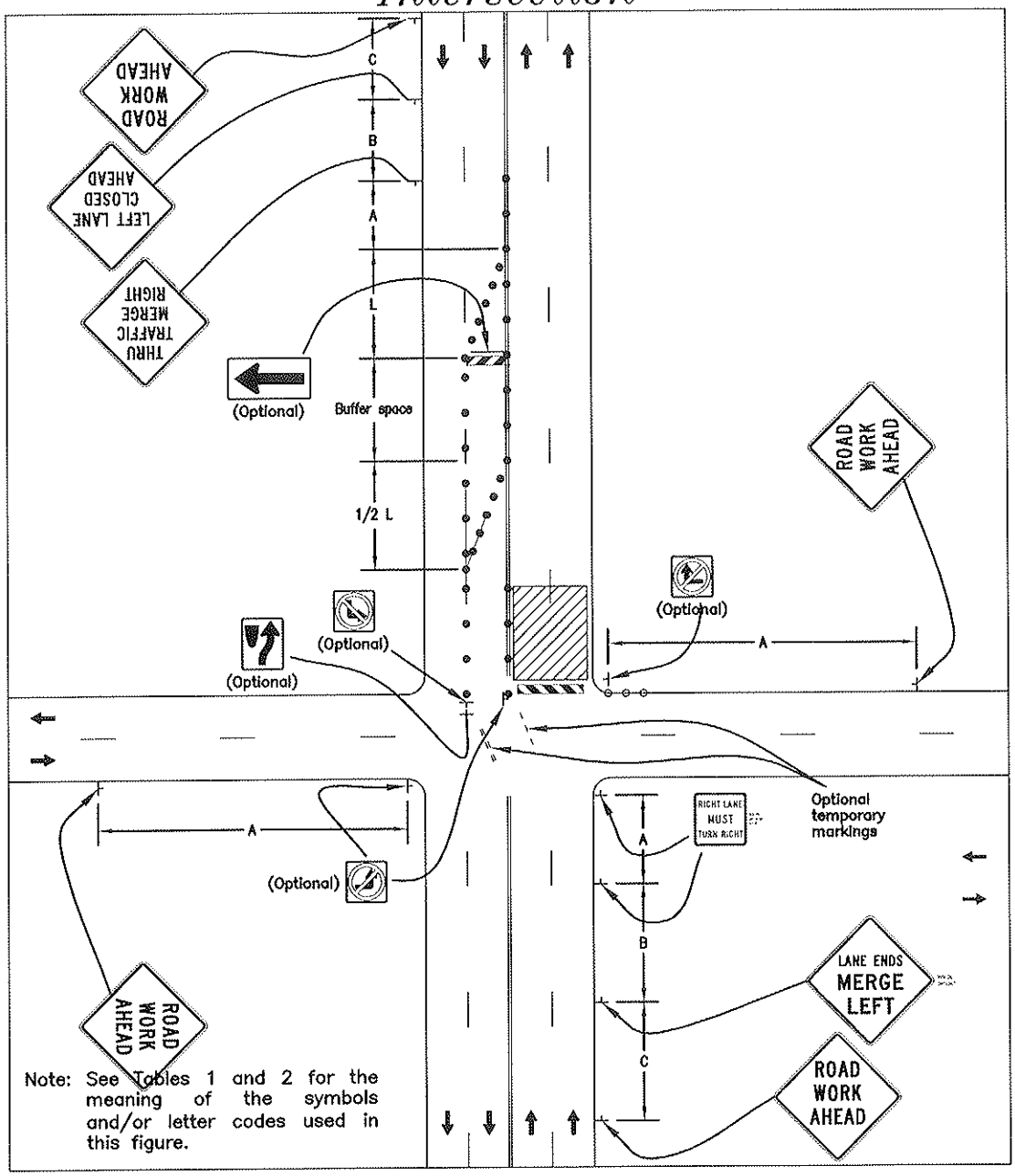
SECTION NO. 4100	DRAWING NO. 5.12
REV,D.	

Traffic Control Typical Applications – TA–23 –

CITY OF FARGO
ENGINEERING DEPARTMENT

APPROVED JAA	DATE 1/2/2013

TA–24 Half Road Closure on the Far Side of an Intersection



Note: See Tables 1 and 2 for the meaning of the symbols and/or letter codes used in this figure.

Guidance:

1. *If the work space extends across a crosswalk, the crosswalk should be closed using the information and devices shown in Figure 6H–29.*
2. *When turn prohibitions are implemented, two turn prohibition signs should be used, one on the near side and, space permitting, one on the far side of the intersection.*

Option:

3. A buffer space may be used between opposing directions of vehicular traffic as shown in this application.
4. The normal procedure is to close on the near side of the intersection any lane that is not carried through the intersection. However, if there is a significant right–turning movement, then the right–hand lane may be restricted to right turns only, as shown.
5. Where the turning radius is large, a right–turn island using channelizing devices or pavement markings may be used.
6. There may be insufficient space to place the back–to–back Keep Right sign and No Left Turn symbol signs at the end of the row of channelizing devices separating opposing vehicular traffic flows. In this situation, the No Left Turn symbol sign may be placed on the right and the Keep Right sign may be omitted.
7. For intersection approaches reduced to a single lane, left–turning movements may be prohibited to maintain capacity for through vehicular traffic.
8. Flashing warning lights and/or flags may be used to call attention to advance warning signs.
9. Temporary pavement markings may be used to delineate the travel path through the intersection.

Support:

10. Keeping the right–hand lane open increases the through capacity by eliminating right turns from the open through lane.
11. A temporary turn island reinforces the nature of the temporary exclusive right–turn lane and enables a second RIGHT LANE MUST TURN RIGHT sign to be placed in the island.

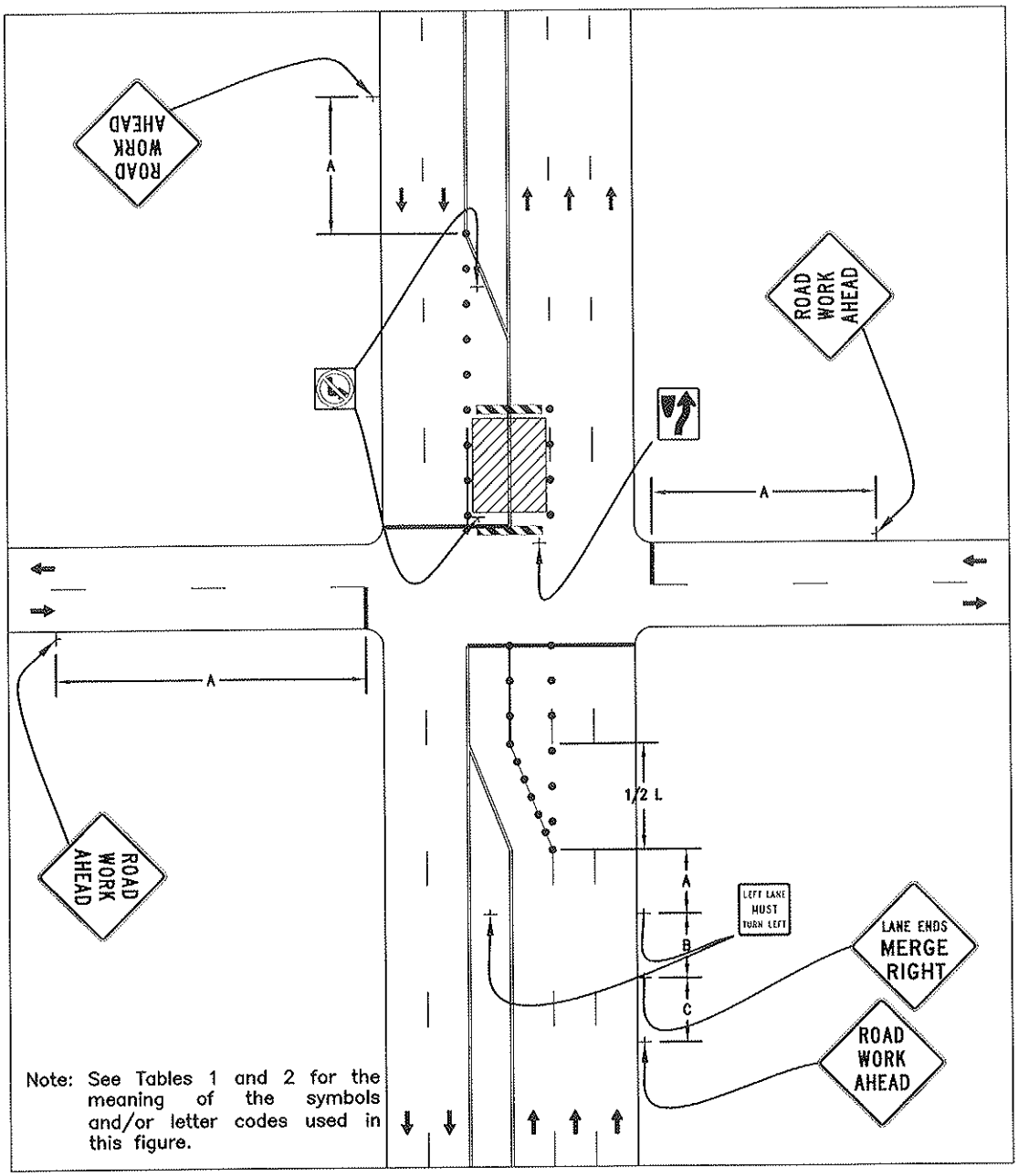
SECTION NO. 4100	DRAWING NO. 5.13
REV,D.	

Traffic Control Typical Applications
– TA–24 –

CITY OF FARGO
ENGINEERING DEPARTMENT

APPROVED JAA	DATE 1/2/2013

TA–25 Multiple Lane Closures at an Intersection



Guidance:

1. *If the work space extends across a crosswalk, the crosswalk should be closed using the information and devices shown in Figure 6H–29.*
2. *If the left through lane is closed on the near–side approach, the LEFT LANE MUST TURN LEFT sign should be placed in the median to discourage through vehicular traffic from entering the left–turn bay.*

Support:

3. The normal procedure is to close on the near side of the intersection any lane that is not carried through the intersection.

Option:

4. If the left–turning movement that normally uses the closed turn bay is small and/or the gaps in opposing vehicular traffic are frequent, left turns may be permitted on that approach.
5. Flashing warning lights and/or flags may be used to call attention to the advance warning signs.

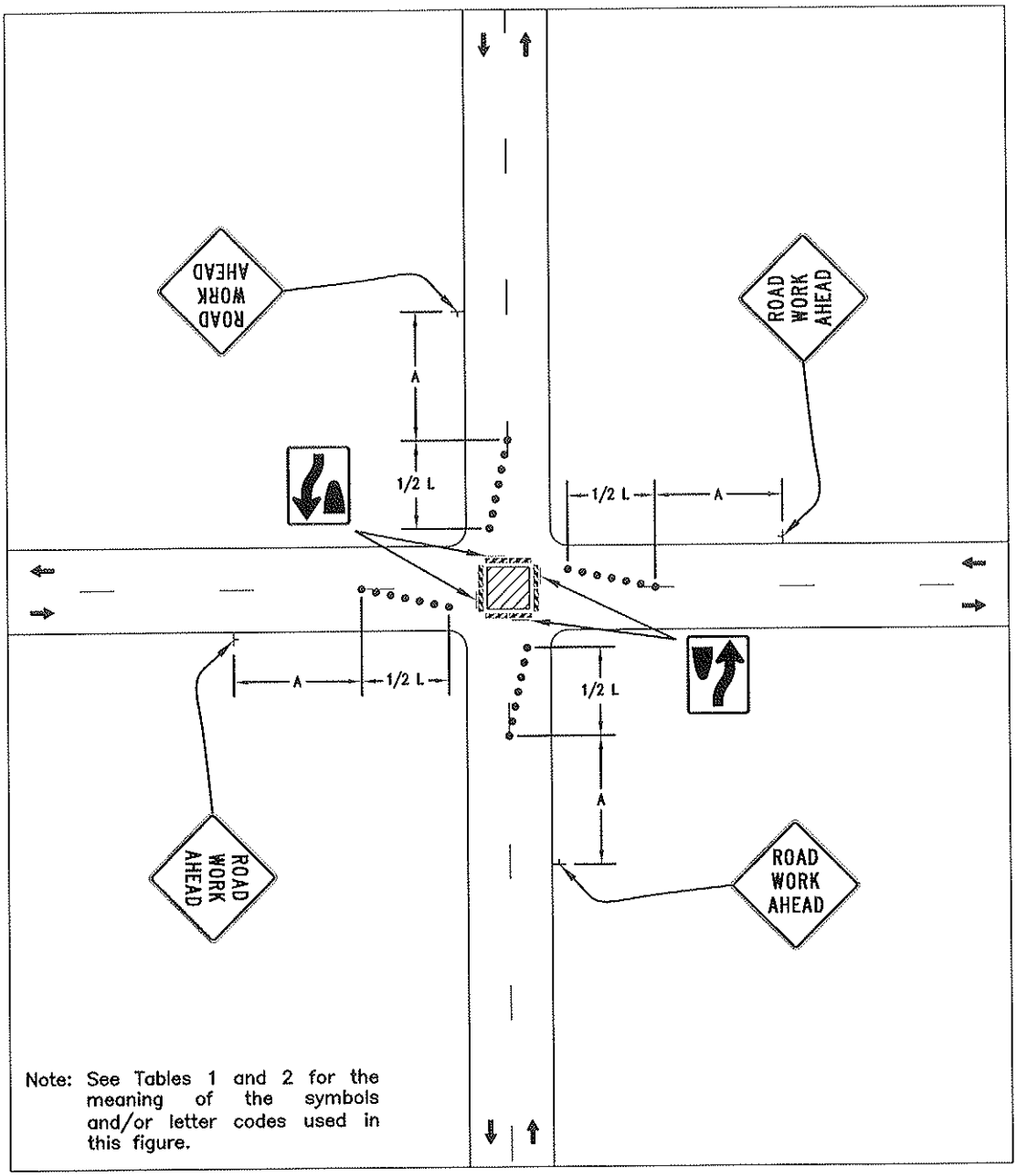
SECTION NO. 4100	DRAWING NO. 5.14
REV,D.	

Traffic Control Typical Applications
– TA–25 –

CITY OF FARGO
ENGINEERING DEPARTMENT

APPROVED JAA	DATE 11/2/2013

TA–26 Closure in the Center of an Intersection



Note: See Tables 1 and 2 for the meaning of the symbols and/or letter codes used in this figure.

Guidance:

1. *All lanes should be a minimum of 10 feet in width as measured to the near face of the channelizing devices.*

Option:

2. A high–level warning device may be placed in the work space, if there is sufficient room.
3. For short–term use on low–volume, low–speed roadways with vehicular traffic that does not include longer and wider heavy commercial vehicles, a minimum lane width of 9 feet may be used.
4. Flashing warning lights and/or flags may be used to call attention to advance warning signs.
5. Unless the streets are wide, it may be physically impossible to turn left, especially for large vehicles. Left turns may be prohibited as required by geometric conditions.
6. For short–duration work operations, the channelizing devices may be eliminated if a vehicle displaying high–intensity rotating, flashing, oscillating, or strobe lights is positioned in the work space.
7. Vehicle hazard warning signals may be used to supplement high–intensity rotating, flashing, oscillating, or strobe lights.

Standard:

8. **Vehicle hazard warning signals shall not be used instead of the vehicle's high–intensity rotating, flashing, oscillating, or strobe lights.**

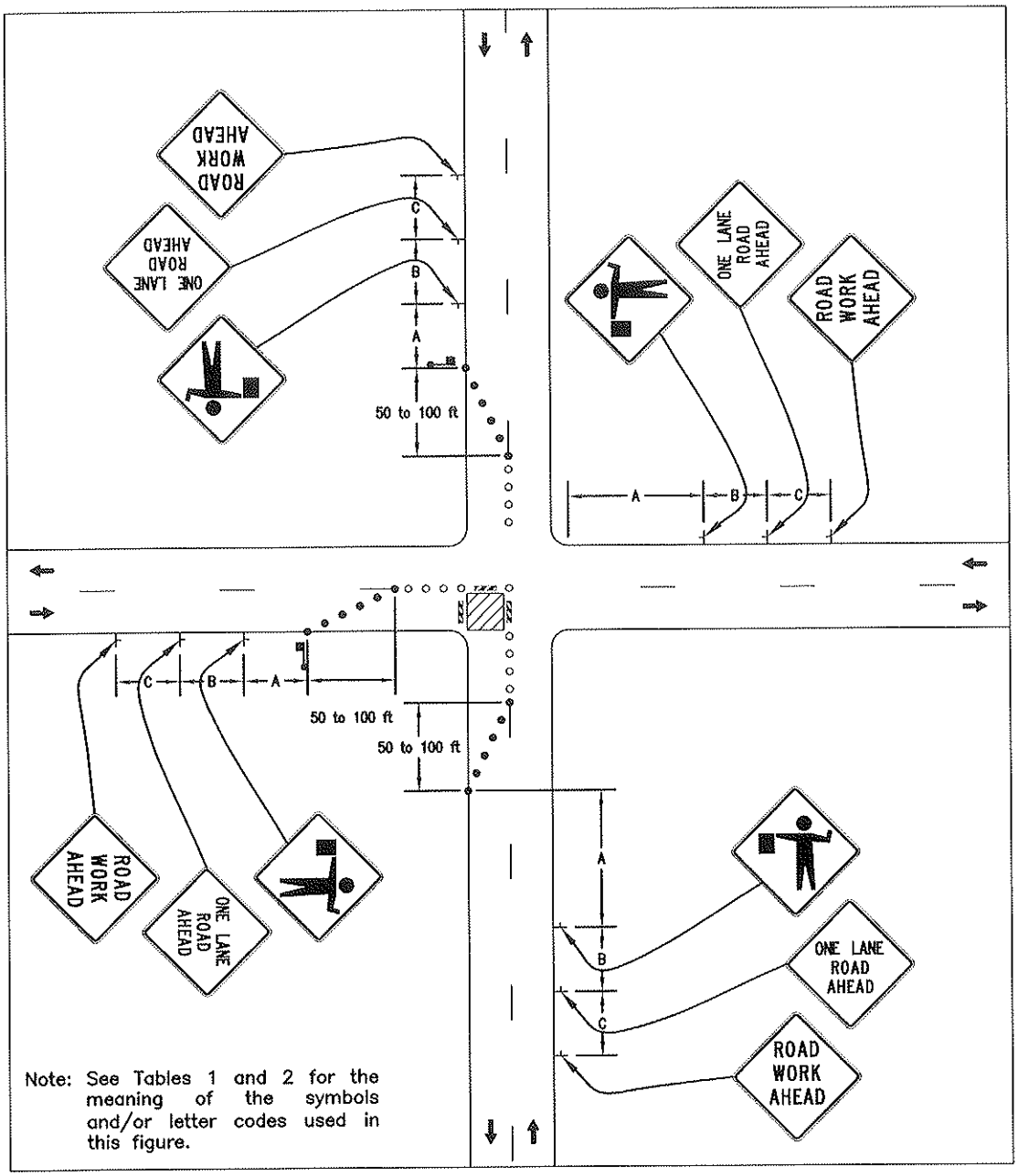
SECTION NO.	4100	DRAWING NO.	5.15
REV,D.			

Traffic Control Typical Applications – TA–26 –

CITY OF FARGO
ENGINEERING DEPARTMENT

APPROVED JAA	DATE 1/2/2013

TA–27 Closure at the Side of an Intersection



Note: See Tables 1 and 2 for the meaning of the symbols and/or letter codes used in this figure.

Guidance:

1. *The situation depicted can be simplified by closing one or more of the intersection approaches. If this cannot be done, and/or when capacity is a problem, through vehicular traffic should be directed to other roads or streets.*
2. *Depending on road user conditions, flagger(s) or uniformed law enforcement officer(s) should be used to direct road users within the intersection.*

Standard:

3. **At night, flagger stations shall be illuminated, except in emergencies.**

Option:

1. Flashing warning lights and/or flags may be used to call attention to the advance warning signs.
2. For short–duration work operations, the channelizing devices may be eliminated if a vehicle displaying high–intensity rotating, flashing, oscillating, or strobe lights is positioned in the work space.
3. A BE PREPARED TO STOP sign may be added to the sign series.

Guidance:

4. *When used, the BE PREPARED TO STOP sign should be located before the Flagger symbol sign.*
5. *ONE LANE ROAD AHEAD signs should also be used to provide adequate advance warning.*

Support:

8. Turns can be prohibited as required by vehicular traffic conditions. Unless the streets are wide, it might be physically impossible to make certain turns, especially for large vehicles.

Option:

9. Vehicle hazard warning signals may be used to supplement high–intensity rotating, flashing, oscillating, or strobe lights.

Standard:

10. **Vehicle hazard warning signals shall not be used instead of the vehicle's high–intensity rotating, flashing, oscillating, or strobe lights.**

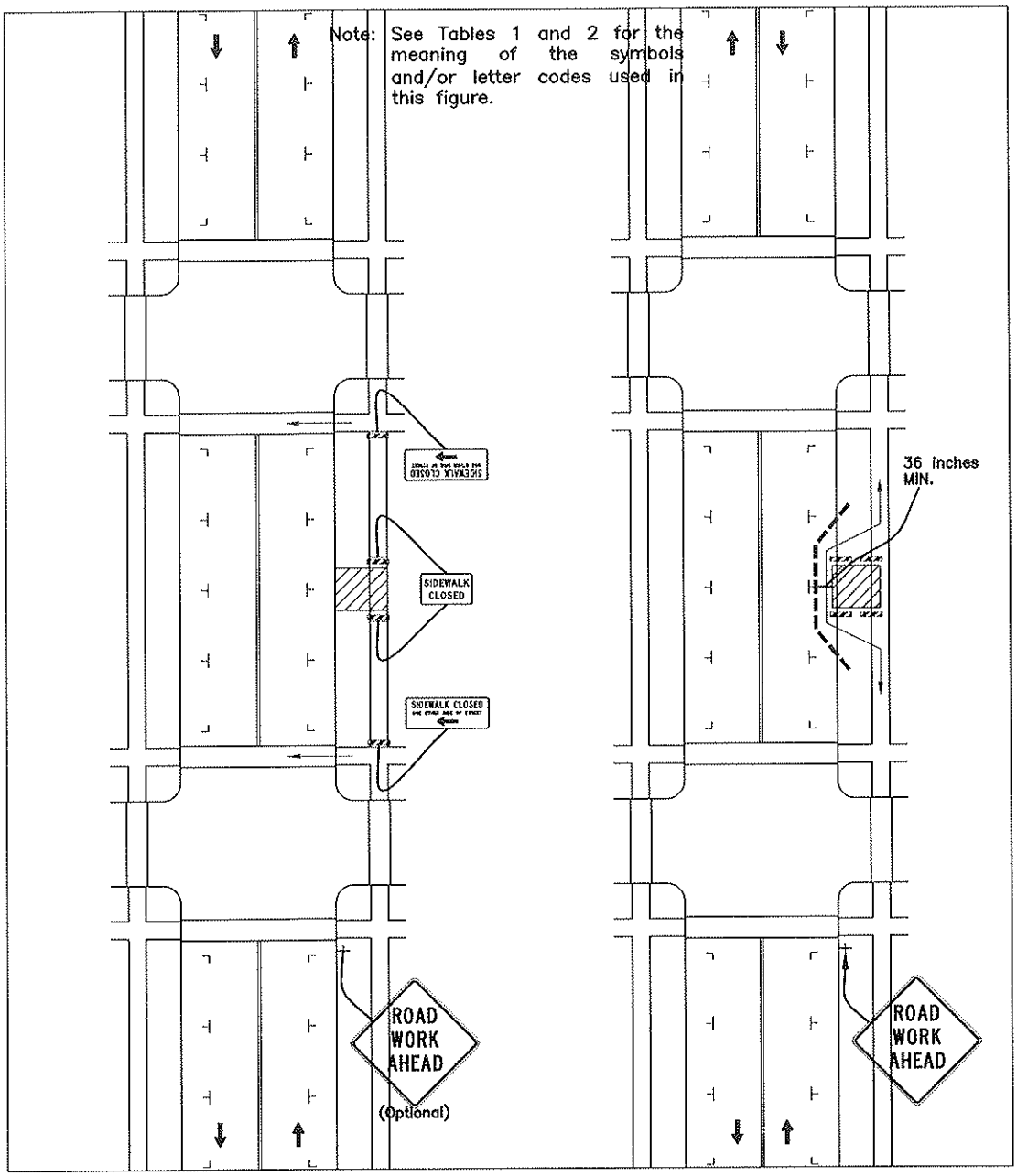
SECTION NO. 4100	DRAWING NO. 5.16
REV,D.	

Traffic Control Typical Applications
– TA–27 –

CITY OF FARGO
ENGINEERING DEPARTMENT

APPROVED JAA	DATE 1/2/2013

TA–28 Sidewalk Detour or Diversion



Standard:

1. At night, flagger stations shall be illuminated, except in emergencies.

Guidance:

2. *Where high speeds are anticipated, a temporary traffic barrier and, if necessary, a crash cushion should be used to separate the temporary sidewalks from vehicular traffic.*
3. *Audible information devices should be considered where midblock closings and changed crosswalk areas cause inadequate communication to be provided to pedestrians who have visual disabilities.*

Option:

4. Street lighting may be considered.
5. Only the TTC devices related to pedestrians are shown. Other devices, such as lane closure signing or ROAD NARROWS signs, may be used to control vehicular traffic.
6. For nighttime closures, Type A Flashing warning lights may be used on barricades that support signs and close sidewalks.
7. Type C Steady–Burn or Type D 360–degree Steady–Burn warning lights may be used on channelizing devices separating the temporary sidewalks from vehicular traffic flow.
8. Signs, such as KEEP RIGHT (LEFT), may be placed along a temporary sidewalk to guide or direct pedestrians.

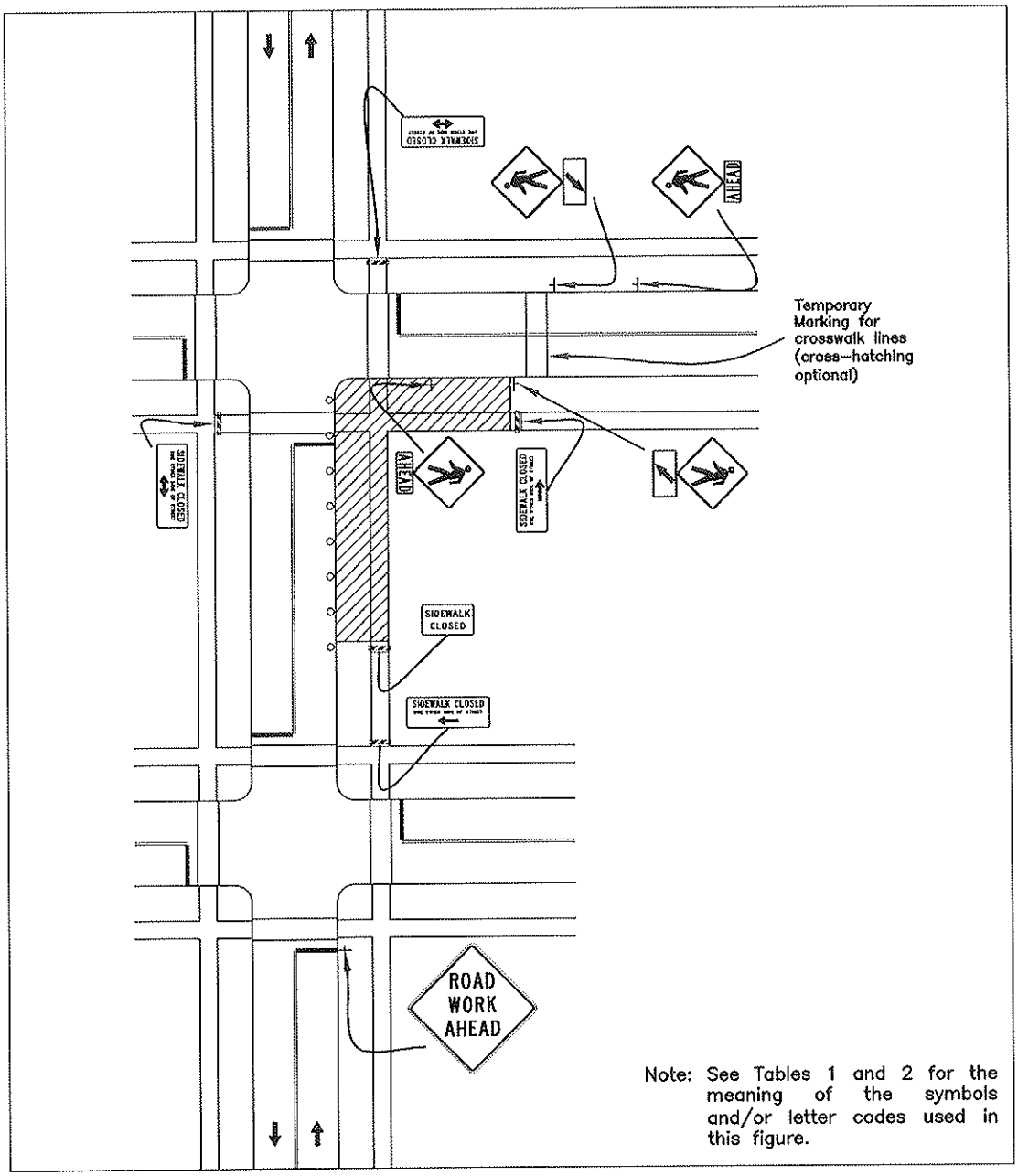
SECTION NO. 4100	DRAWING NO. 5.17
REV,D.	

Traffic Control Typical Applications – TA–28 –

CITY OF FARGO
ENGINEERING DEPARTMENT

APPROVED JAA	DATE 1/2/2013

TA–29 Crosswalk Closures and Pedestrian Detours



Note: See Tables 1 and 2 for the meaning of the symbols and/or letter codes used in this figure.

Standard:

1. **When crosswalks or other pedestrian facilities are closed or relocated, temporary facilities shall be detectable and shall include accessibility features consistent with the features present in the existing pedestrian facility.**
2. **Curb parking shall be prohibited for at least 50 feet in advance of the midblock crosswalk.**

Guidance:

1. *Audible information devices should be considered where midblock closings and changed crosswalk areas cause inadequate communication to be provided to pedestrians who have visual disabilities.*
2. *Pedestrian traffic signal displays controlling closed crosswalks should be covered or deactivated.*

Option:

3. Street lighting may be considered.
4. Only the TTC devices related to pedestrians are shown. Other devices, such as lane closure signing or ROAD NARROWS signs, may be used to control vehicular traffic.
5. For nighttime closures, Type A Flashing warning lights may be used on barricades supporting signs and closing sidewalks.
6. Type C Steady–Burn or Type D 360–degree Steady–Burn warning lights may be used on channelizing devices separating the work space from vehicular traffic.
7. In order to maintain the systematic use of the fluorescent yellow–green background for pedestrian, bicycle, and school warning signs in a jurisdiction, the fluorescent yellow–green background for pedestrian, bicycle, and school warning signs may be used in TTC zones.

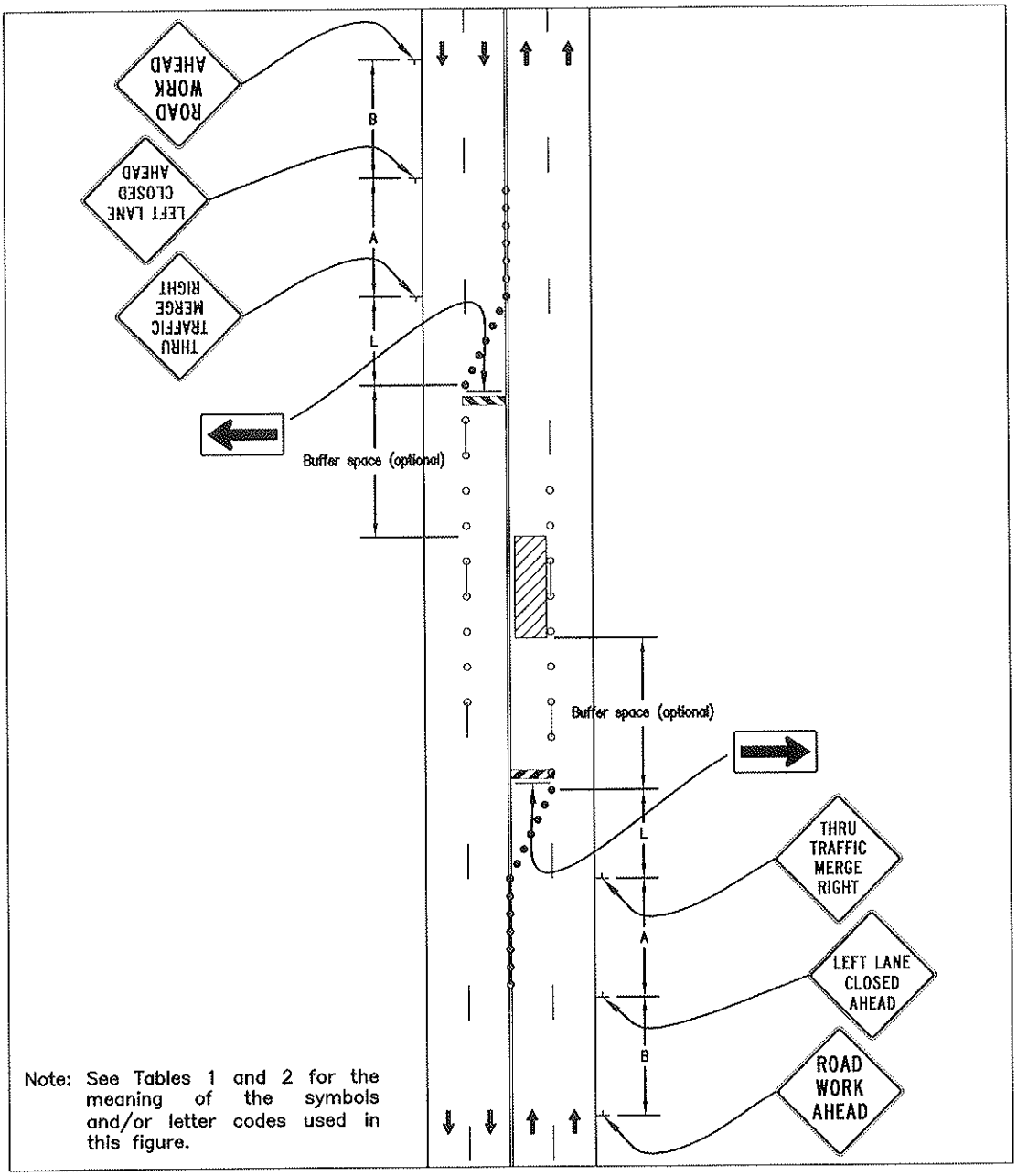
SECTION NO. 4100	DRAWING NO. 5.18
REV,D.	

Traffic Control Typical Applications – TA–29 –

CITY OF FARGO
ENGINEERING DEPARTMENT

APPROVED JAP	DATE 1/2/2013

TA–30 Interior Lane Closure on a Multi–Lane Street



Guidance:

1. *This information applies to low–speed, low–volume urban streets. Where speed or volume is higher, additional signing such as LEFT LANE CLOSED XX FT should be used between the signs shown.*

Option:

2. The closure of the adjacent interior lane in the opposing direction may not be necessary, depending upon the activity being performed and the work space needed for the operation.
3. Shadow vehicles with a truck–mounted attenuator may be used.

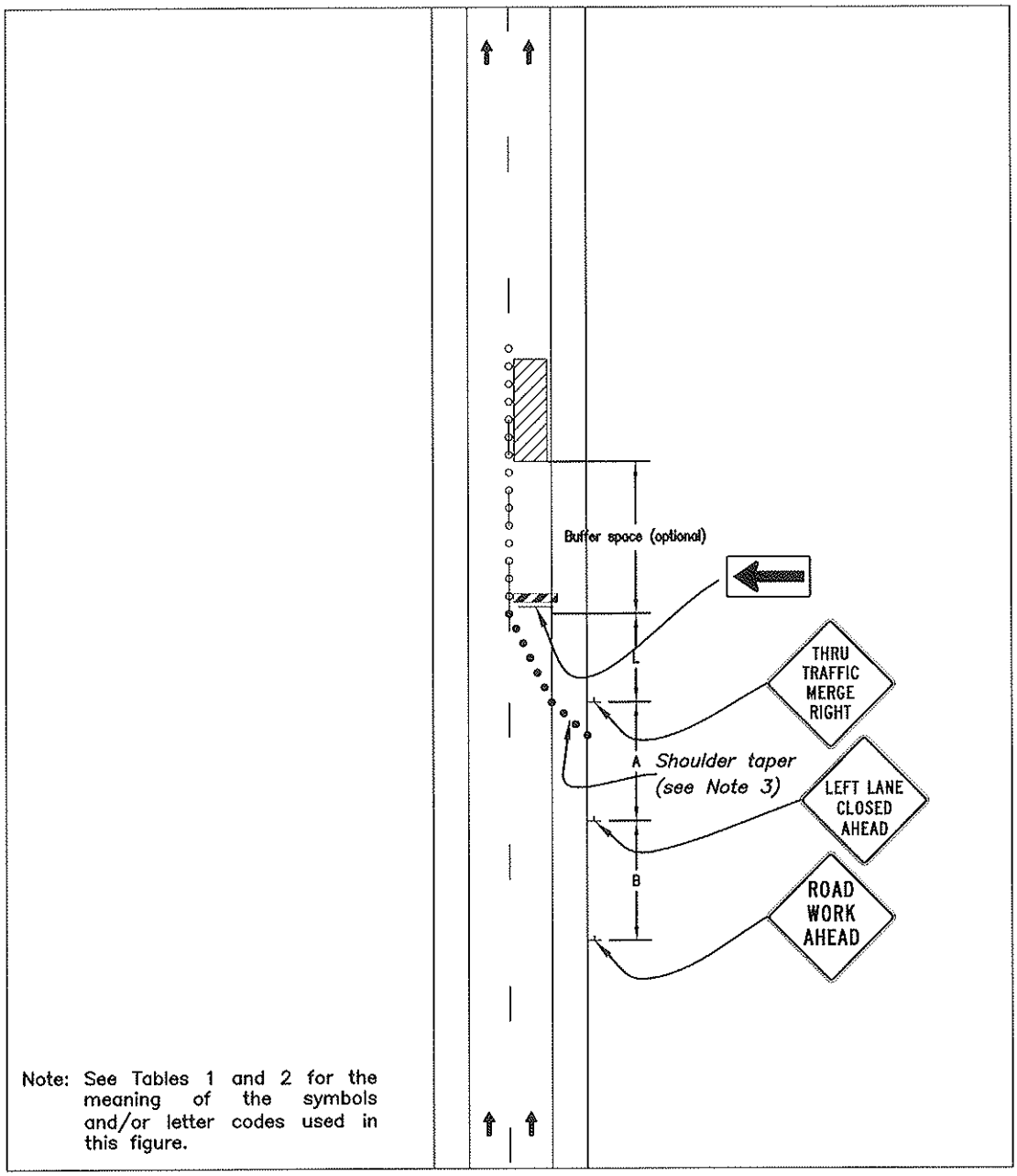
SECTION NO. 4100	DRAWING NO. 5.19
REV,D.	

Traffic Control Typical Applications
– TA–30 –

CITY OF FARGO
ENGINEERING DEPARTMENT

APPROVED JAA	DATE 1/2/2013

TA–33 Stationary Lane Closure on a Divided Highway



Note: See Tables 1 and 2 for the meaning of the symbols and/or letter codes used in this figure.

Standard:

1. **This information also shall be used when work is being performed in the lane adjacent to the median on a divided highway. In this case, the left lane closed signs and the corresponding lane ends signs shall be substituted.**
2. **When a side road intersects the highway within the ttc zone, additional ttc devices shall be placed as needed.**

Guidance:

3. *When paved shoulders having a width of 8 feet or more are closed, channelizing devices should be used to close the shoulder in advance of the merging taper to direct vehicular traffic to remain within the traveled way.*

Option:

4. A truck–mounted attenuator may be used on the work vehicle and/or shadow vehicle.

support:

5. where conditions permit, restricting all vehicles, equipment, workers, and their activities to one side of the roadway might be advantageous.

Standard:

6. **An arrow board shall be used when a freeway lane is closed. when more than one freeway lane is closed, a separate arrow board shall be used for each closed lane.**

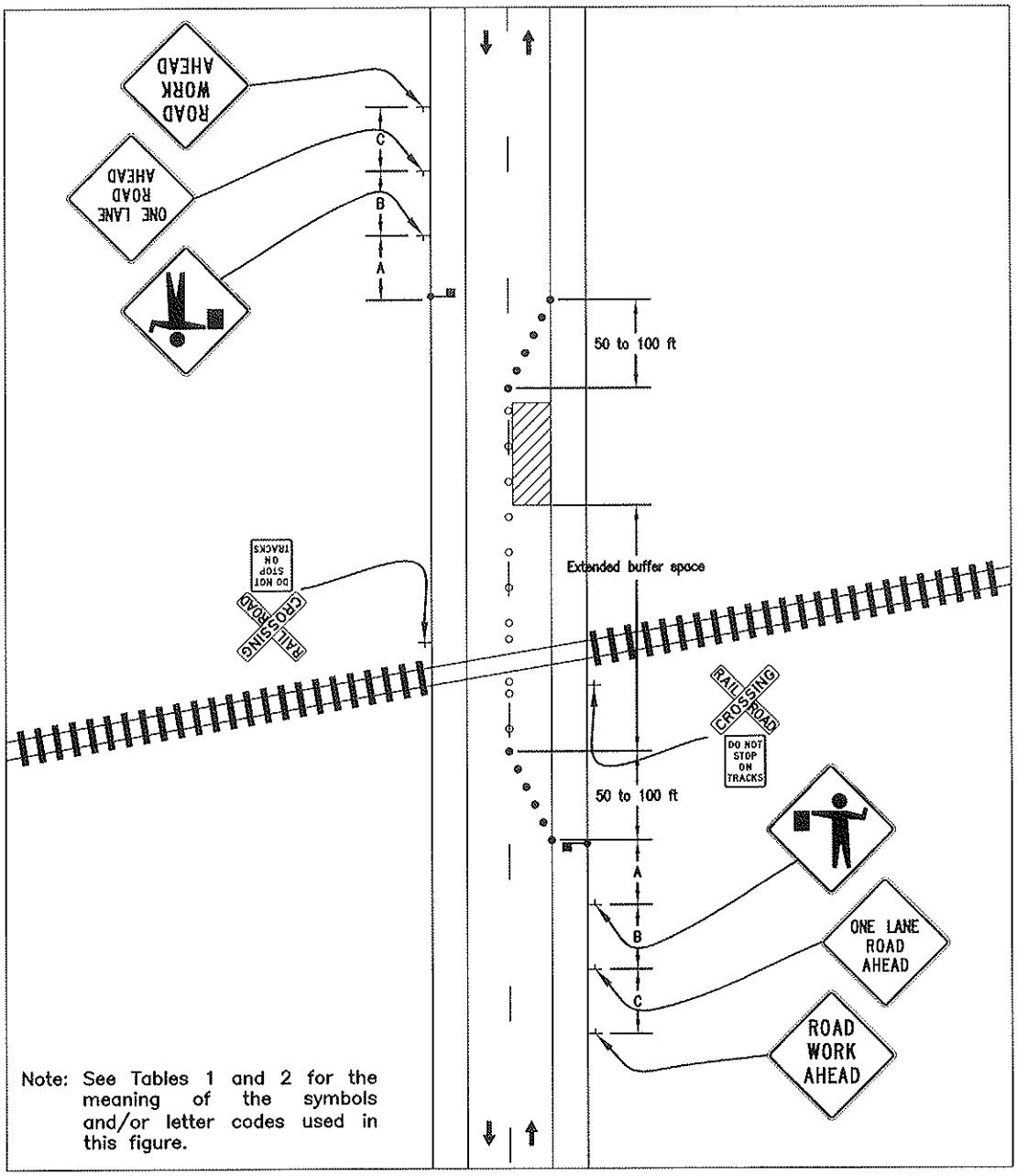
SECTION NO. 4100	DRAWING NO. 5.20
REV,D.	

Traffic Control Typical Applications – TA–33 –

CITY OF FARGO
ENGINEERING DEPARTMENT

APPROVED JAA	DATE 1/2/2013

TA–46 Work in the Vicinity of a Grade Crossing



Guidance:

1. *When grade crossings exist either within or in the vicinity of roadway work activities, extra care should be taken to minimize the probability of conditions being created, by lane restrictions, flagging, or other operations, where vehicles might be stopped within the grade crossing, considered as being 15 feet on either side of the closest and farthest rail.*

Standard:

2. **If the queuing of vehicles across active rail tracks cannot be avoided, a uniformed law enforcement officer or flagger shall be provided at the grade crossing to prevent vehicles from stopping within the grade crossing (as described in Note 1), even if automatic warning devices are in place.**

Guidance:

3. *Early coordination with the railroad company or light rail transit agency should occur before work starts.*
4. *In the example depicted, the buffer space of the activity area should be extended upstream of the grade crossing (as shown) so that a queue created by the flagging operation will not extend across the grade crossing.*
5. *The DO NOT STOP ON TRACKS sign should be used on all approaches to a grade crossing within the limits of a TTC zone.*

Option:

6. Flashing warning lights and/or flags may be used to call attention to the advance warning signs.
7. A BE PREPARED TO STOP sign may be added to the sign series.

Guidance:

8. When used, the BE PREPARED TO STOP sign should be located before the Flagger symbol sign.

Standard:

9. **At night, flagger stations shall be illuminated, except in emergencies.**

SECTION NO. 4100	DRAWING NO. 5.21
REV,D.	

Traffic Control Typical Applications – TA–46 –

CITY OF FARGO
ENGINEERING DEPARTMENT

APPROVED JAP	DATE 1/2/2013