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City of Medicine Hat

Temporary Traffic Control Manual

2008

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1.0 Introduction

1.1 Purpose

The purpose of this manual is to outline basic principles and minimum standards and specifications for temporary traffic control that are designed for:

- The safety of employees at the worksite.
- The safety of motorists and pedestrians within the traffic control zone.
- The protection of equipment used at the worksite.
- Minimize traffic disruption around the worksite.

1.2 Scope

This manual is intended as a practical working reference to be used by private contractors, consultants, utility companies, and City personnel. Uniform standards and procedures are set out in this manual and shall be adhered to when working on, or adjacent to, roadways under the jurisdiction of The City of Medicine Hat.

All Agencies and Contractors shall observe and maintain these standards and procedures to ensure:

- Uniform standards for design and quality of traffic control devices within The City of Medicine Hat.
- Standardized procedure and placement of traffic control devices to minimize confusion for all users.
- The promotion of uniform design and standards throughout Canada.

This manual shall be used in conjunction with the Occupational Health and Safety Act, Traffic Safety Act, the Alberta Building Code, Safety Codes Act and Associated Regulations, and all applicable bylaws and related contract documents.

In cases where this manual does not provide minimum standards and specifications for a specific site condition, it is to be used in conjunction with the Transportation Association of Canada, Manual of Uniform Traffic Control Devices for Canada.

1.3 Authority

All work performed on City owned Right of Way shall conform to the policies, standards and procedures set out by The City of Medicine Hat, including this Temporary Traffic Control Manual and the Alberta Occupational Health and Safety Act.

The City Municipal Works Department is the final authority on temporary traffic control standards and sets the extent of traffic disruption allowed on all City owned Right of Way. As such, the City Municipal Works Department, 188 Kipling Street SE, Medicine Hat, AB T1A 1Y3, Ph: (403) 529-8177, Fax: (403) 502-8040 must be notified before commencing work on, or adjacent to, all City owned Right of Way.

1.4 Approval Process

1. Create a temporary traffic control drawing specific to your proposed work.

2. Submit the following to the Municipal Works Department:

    a. Temporary Traffic Control Drawing

    b. Temporary Traffic Control Request Form

3. Once approved, contact the affected parties noted in the temporary traffic control request form prior to start date to inform them of the disruption.

4. Contact Municipal Works if there are changes in the proposed work or timeline.

2.0 Before You Work on City Rights of Way

2.1 Worksite Assessment and Checklist

2.1.1 Before the Job

1. Has the Municipal Works Department approved your work order and temporary traffic control request as outlined in 1.4 Approval Process?
2. Do you need assistance from the Municipal Works Department or contracted service for temporary traffic control?
3. Do you have the necessary permits?
4. Do you require a temporary parking accommodation plan?
5. Have you contacted Medicine Hat Transit if you are working on a bus route?
6. Have you given adequate advanced notice of the work that you plan to do to the affected businesses, utilities and residents (by means of a letter drop)? Has this letter been approved by the Municipal Works Department?
7. Are the proper temporary traffic control devices available at the worksite to accommodate traffic?
8. Are the pedestrians and motorists properly separated and protected from each other and the worksite?
9. It is the Contractor's or constructing City Department's responsibility to confirm the location of all existing utilities prior to performing any excavation work associated with working in a City road Right of Way. Has this been addressed?

2.1.2 During the Job

1. Is there enough equipment available to secure the worksite overnight if necessary? Remember – you will need reflective signs, markers, flashers, and sandbags for your set-up. You may also need bridging materials, snow fencing and barricades for the work site. Are there any signs that need to be covered or removed during periods of inactivity (i.e. speed reduction signs)?
2. Are all traffic control devices still in their proper places and alignment and standing upright? Do you need to secure signs and traffic control devices with anchors or sandbags? Are the signs clean and legible (day and night)?
3. If a traffic control person is being used, are proper procedures being followed? Has the traffic control person(s) acquired a flagperson(s) training certificate or similar training?
4. Does the traffic set-up continue to meet the needs of your job? If not, adjust the set-up accordingly and inform the Municipal Works Department.
5. Is the work zone being monitored as specified?
6. Do you have an approved contingency plan in place to accommodate peak hour traffic if there is the possibility that the work may run into the peak hour?
7. Have arrangements been made for paving materials to bring the Right of Way back into service? (Required immediately after project completion.)

2.1.3 After the Job

1. Have you obtained approval from the Municipal Works Department to reopen the roadway?

2. Have you cleaned up the worksite and rehabilitated the Rights of Way in a condition equal to or better than it was prior to the start of the work?

3. Have arrangements been made to restore or rehabilitate the Right of Way? (Required immediately after project completion to the satisfaction of the Municipal Works Department.)

4. Have you removed all temporary traffic control devices?

2.2 Required Permits/Authorization

All work on City owned Right of Way requires authorization and in certain situations may require a permit(s). For information on required authorization and permits, contact the Municipal Works Department, 188 Kipling Street SE, Medicine Hat, AB T1A 1Y3, Ph: (403) 529-8177, Fax: (403) 502-8040. Please refer to Section 1.0, Item 1.4 for details on the approval process.

2.3 Alberta Temporary Traffic Control Accreditation

It is recommended that all persons designing temporary traffic controls (TTC's) should be accredited by an appropriate agency. Accreditation will assist all parties involved in understanding and implementing temporary traffic control practices and procedures for construction worksites in the province of Alberta. For information regarding the Alberta Temporary Traffic Control Course, please contact the Alberta Construction Safety Association at 1-800-661-6090 or http://www.acsa-safety.org.

2.4 Traffic Control Person (Flagperson) Accreditation

Any individual who will be acting as a traffic control person must be properly trained in flagging. The Alberta Construction Safety Association offers a course with the objective to standardize traffic control training for the construction industry in Alberta. For additional information regarding this course, please contact the Alberta Construction Safety Association at 1-800-661-6090 or http://www.acsa-safety.org. Local courses are also available. Please contact the City's Municipal Works Department for more information (403) 529-8177.

2.5 Alberta Temporary Traffic Control – Field Application Accreditation

It is recommended that all persons involved in the implementation of TTC plans should be accredited by an appropriate agency. Again, the Alberta Construction Safety Association (ACSA) offers a course for those who are actively involved with the field implementation of temporary traffic control plans. Please contact ACSA at 1-800-661-2272 (head office – Edmonton) or at 1-800-661-6090 (Calgary Office).

2.6 Apparel

It is recommended that all persons involved shall wear high-visibility apparel in accordance with Canadian Standards Association, CSA Standard, Z96-02, titled High Visibility Safety Apparel.

To contact CSA visit www.csa.ca.

3.0 Performance Guidelines

3.1 Pedestrian Safety

Although the contents of this manual deal mostly with the motoring public, it must be recognized that providing for the safety of pedestrians is equally important. The following standards shall be maintained to ensure pedestrian safety:

1. Pedestrian and vehicular traffic must be physically separated.

2. Pedestrian traffic must be physically separated from workers and equipment in the work area. Accommodations must be made for a safe passage through or around the work area.

   For example, crosswalks and sidewalks may be closed to prevent pedestrian traffic through or around the work area, provided alternate means of detouring pedestrian traffic is available.

   In cases where it is not possible to detour pedestrian traffic, pedestrians will have to be protected as they pass through the work area. This may require the use of barricades to separate the worksite from the pedestrian walkway. It may be necessary to use bridges (complete with handrails) and sheltered walkways. In all cases, measures taken to protect the pedestrians must be to the satisfaction of the Municipal Works Department.

Specifications used for bridges and hoarding must be reviewed by the Municipal Works Department prior to commencing any work.

3.2 Standards of Performance & Responsibility

With the exception of emergency related work, all work on City owned Right of Way shall:

1. Be approved by the Municipal Works Department. They will set the extent of traffic disruption allowed. They will determine the degree of temporary traffic control necessary for the work proposed.

2. Be pre-authorized and reported to the Municipal Works Department four working days in advance of the expected start date. Municipal Works Department is located at 188 Kipling Street SE, Medicine Hat.

In the case of emergency related work, contact the Municipal Works Department before work is started. Phone (403) 529-8177(office hours) or 911 (after office hours). Always use qualified traffic control persons or City Police to supplement an incomplete setup under these circumstances.

In all cases:

1. All necessary traffic control devices must be in place before work commences. These devices shall be maintained by the company or department performing the work for the duration of work/temporary traffic control while any obstruction to traffic exists. These devices shall remain in place for the duration of work.

2. Minimum lane width shall be 3.0 metres per lane. This width shall be adjusted upward under circumstances such as curves, heavy vehicle traffic, truck routes or bus routes.

3. All temporary traffic control setups shall be to the satisfaction of the Municipal Works Department. The setup shall be maintained satisfactory at all times until normal conditions are restored.

4. Street closures and/or detours may be preferable rather than using complicated traffic setups or traffic control persons. Approval shall be obtained from the Municipal Works Department four working days in advance of the expected start date.

5. It is the responsibility of the Contractor, Utility Company or Business unit to notify affected residents/businesses of road closures, parking restrictions and other work that impacts normal traffic flow. The recommended method to notify the public of parking restrictions is by advanced signage.

6. Requests for parking control signs or parking meters to be hooded and "No Parking" zones to be established require four working days advance notice. The requesting party or Municipal Works Department (under contract) shall place "No Parking" signs 12 to 24 hours prior to commencing work. In either case, the requesting party is responsible for sign maintenance. Parking control personnel will check the "No Parking" zone 12 hours in advance of the prescheduled work to ensure sufficient signage. This zone will only be enforced provided there is sufficient signage and adequate advanced notice.

7. Medicine Hat Transit must be notified of work affecting a bus route or bus stops. For a simple traffic diversion, Medicine Hat Transit requires one full working day advanced notice. For a traffic detour, notify Medicine Hat Transit two full working days in advance. Traffic Assessment can assist in work affecting transit routes/stops. Avoid delaying transit operations whenever possible. If a problem arises, a transit operator can radio for a supervisor to meet at the work site.

   In case of emergency work affecting Medicine Hat Transit:

   Contact the Municipal Works Department during office hours, (8 A.M. - 4:00 P.M.) Monday to Friday, at (403) 529-8177. After office hours, or weekends and holidays contact the Transit Radio Control Office (403) 952-9155.

8. Notify the Environmental Utilities Dept. regarding Waste and Recycling Services (403) 529-8176 and emergency dispatch at (403) 529-8285 a minimum of 24 hours in advance of laneway or street closures affecting garbage pickup for longer than one day.

9. Rush hour traffic in the City of Medicine Hat is typically from 06:30 to 09:00 hours and from 15:30 to 18:00 hours, Monday to Friday. During these times, construction work is not allowed on arterials except in cases of emergency or with prior approval of the Municipal Works Department. Please see Road Classification map for details (Appendix B).

10. When traffic lanes within the worksite are required to be open to travel (e.g. during rush hours or at the end of a shift), trenches and small excavation sites may be bridged with steel plates. This should be used only if backfilling all or part of a trench is not practical. Bridging must meet City of Medicine Hat approval.

11. Contractors or other agencies shall ensure that sub-contractors and other agencies working for them adhere to the same City of Medicine Hat procedures and standards. Municipal Works may inspect any worksite at any time and recommendations made by the Municipal Works Department shall be implemented.

12. The restoration of road surfaces, sidewalks, and boulevards must be to the satisfaction of the Municipal Works Department.

13. Occasionally, an emergency vehicle (e.g., police cruiser, ambulance, fire truck) will approach the traffic control zone with sirens and lights flashing. Worksite employees are responsible to see that traffic is stopped by accepted traffic control methods so the emergency vehicle may safely drive through the traffic control zone.

14. Municipal Works Department shall be notified if a permanent traffic sign has to be removed. This should be reported at the same time as approval for traffic setup is sought. The Municipal Works Department shall request the placing of a portable sign to replace the permanent sign at the applicant's expense. The permanent sign must be replaced in accordance with Municipal Works Standards.

15. Any disruption that may affect signal timing or signal operations shall be coordinated with Municipal Works Department and City Electrical Department. In the event of a signal related emergency, contact the Communications' personnel on call at (403) 529-8285.

3.3 Securing the Worksite

Securing the worksite is necessary to protect the public from potential hazardous conditions within the work zone. It is necessary to secure the worksite during any periods of inactivity and during the period when work is taking place. Some examples of inactivity are shutdowns due to weather conditions, end of shift, weekends, holidays and lunch/coffee breaks. The necessary steps to secure the worksite are outlined below:

3.3.1 During Periods of Activity

1. Ensure that all temporary traffic control devices are legible and properly positioned.

2. All devices must be retro-reflective.

3. Remove or securely cover any signs that are not required or are conflicting. (For example, cover the gazetted speed if the setup requires a speed reduction.)

4. Place barricades around all stock-piled material, spoil piles and equipment that are stored on the road or the shoulder.

5. All temporary traffic control devices shall be properly secured.

6. Inspect the worksite as required and keep record of inspection.

7. Once secured, drive the worksite to ensure that the setup provides the motorists with adequate advanced warning and provides positive guidance through the worksite. This should be done during the day and night for overnight setups. Adverse conditions may require adjustment of the traffic control devices and any changes made shall be recorded. Ensure that safe pedestrian movement is maintained and pedestrian and vehicle movements are separated.

3.3.2 During Periods of Inactivity

1. Where possible remove all equipment and materials from the roadway.

2. Establish a barrier around open excavations using physical barriers, such as concrete safety shaped barriers, suitable fencing, etc. The location and the nature of the excavation will dictate the method used to provide the necessary safety required.

3. Place barricades around all stock-piled material, spoil piles and equipment that are stored on the road or the shoulder.

4. Retro-reflective chevrons or flashers shall be used to delineate the tapers. Flashers shall be used to separate the travel lane(s) and the worksite. They shall also be used to identify material and equipment storage on the road or the shoulder. Roads, Field Operations do not supply

flashers with their temporary traffic control setups, therefore, it is the responsibility of the contractor, utility company or the City department to supply and maintain these.

5. All traffic control devices shall be secured during periods of inactivity.

6. Arrange to have roads within the traffic control zone sanded during periods of icy conditions.

7. Remove or cover any signage that is not required.

8. Inspect the worksite as required and keep record of inspection.

Once secured, drive the worksite to ensure that the setup provides the motorists with adequate advanced warning and provides positive guidance through the worksite. This should be done during the day and night for overnight setups. Adverse conditions may require adjustment of the traffic control devices and any changes made shall be recorded. Ensure that safe pedestrian movement is maintained and pedestrian and vehicle movements are separated.

3.4 Bridging

When steel plate bridging is required on city streets, the following standards shall be maintained:

- Contact the Municipal Works Department to determine the necessary set up required (for example, plating may require a speed reduction)
- Bump signs shall be provided for each traffic direction
- All bridge edges must be smoothed out or feathered using hot or cold mix asphalt
- All bridge plates must be adequately pinned to the road surface to prevent bridge movement
- Temporary hazard markers shall be used to mark the location of bridging plates
- Insulate the plates to prevent banging - especially in the vicinity of residential communities
- Define/highlight the edges of the plating with high visibility material, such as, fluorescent orange paint.

3.5 Installation and Maintenance

3.5.1 Installation

All devices shall be placed in a manner so as not to interfere with existing traffic control devices. It is important to survey the site before preparing a temporary traffic control plan. This will ensure that any conflicting signs be covered or removed. For example, if a speed reduction is required, the gazetted signs shall be covered or removed. Adjust traffic signals. Work in the proximity of a signalized intersection may require signal timing revision based on the circumstances. Revise road marking where required and remove redundant road marking or addition of new marking.

Refer to Section 5 for typical temporary traffic control applications.

3.6 Temporary Work Zone Component Areas

A typical temporary traffic control setup can be divided into four areas:

1. Advanced Warning Area: This area is used to inform the road users of the upcoming work zone and what action to take.

2. Transition Area: This area is used to move the road users out of the normal path.

3. Activity Area: This area is where the work takes place and contains the buffer space and the traffic space.

4. Termination Area: This area is used to allow the road users to return to their normal path.

Please refer to Figure 3.6.1 - Components of a Temporary Traffic Control Zone which details the above areas.

Basic TTC Tapers and Tangent Criteria:

Type of Taper	**Taper Length (L) (metres)**
Merging taper – 2 lanes to 1 (lane closure)	L minimum
Shifting taper	L/2 minimum
Shoulder Taper	L/3 minimum
One Lane – two way traffic taper	30 m maximum
Downstream taper	30 m minimum
Tangents Between Tapers	**Tangent Length (L) (metres)**
Merge followed by merge	2L (desirable) L (minimum)
Merge followed by shift	L/2

Please refer to the following diagrams which detail the various tapers and their uses.

3.7 Duration of Work

- Long duration operations are stationary and take longer than 24 hours.

- Examples of long duration operations are: Manhole replacement, utility replacement, bridge rehabilitation, roadway upgrading (e.g. interchange construction), large paving operations, and sidewalk/boulevard replacement.

3.8 Mobile

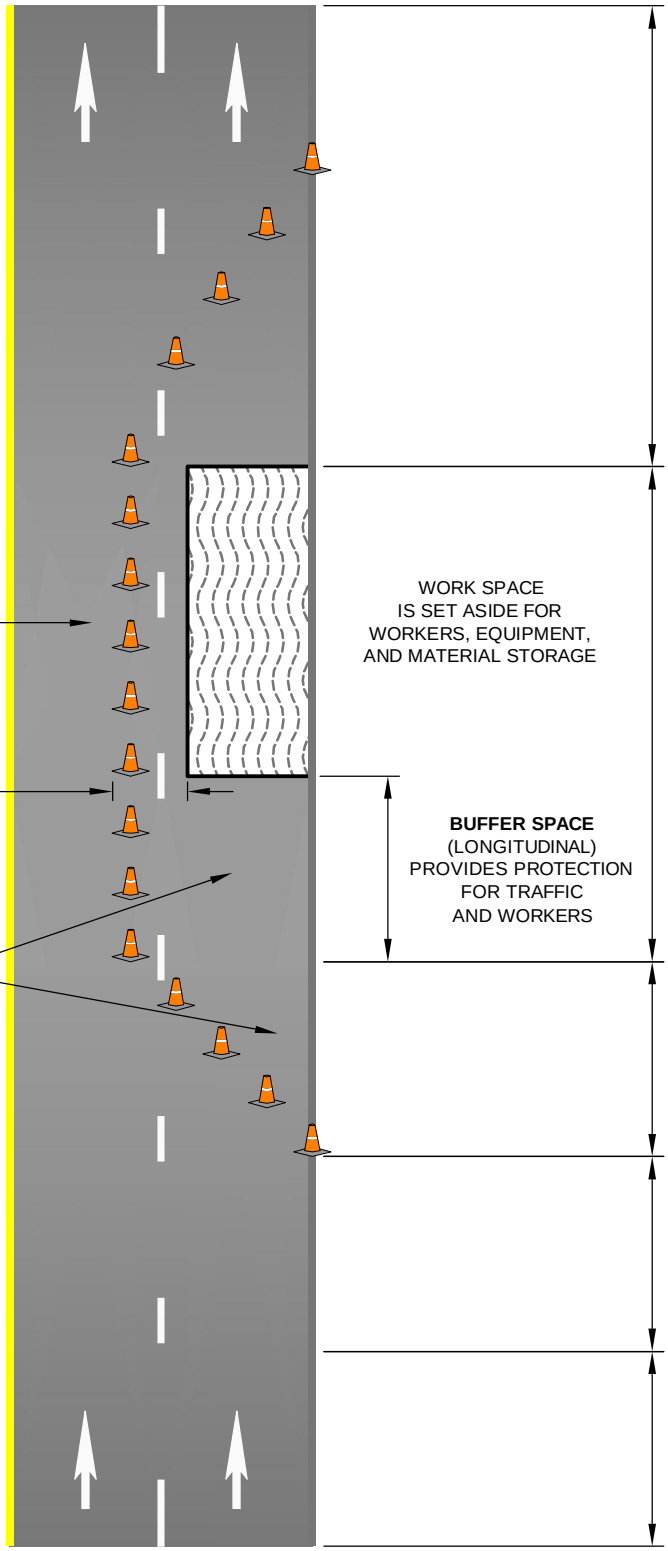
- Mobile operations are those that are typically performed on the move at low speed and may require periodic stopping for only a few minutes.

- Examples of mobile operations are: Street sweeping, longitudinal pavement marking, watering of trees and hydro-seeding.

3.9 Very Short Duration

- Very short duration operations are those that can be completed in 30 minutes or less and may be stationary or mobile with frequent short stops.

- Examples of very short duration operations are: Minor utility & roadwork, crack sealing, bus shelter washing, catchbasin cleanout, pothole patching/repair, symbol and transverse road marking, minor sign maintenance, signal light replacement and emergency response (e.g. spills and vehicular accidents).



TERMINATION AREA
LETS TRAFFIC RESUME NORMAL DRIVING

TRAFFIC SPACE ALLOWS TRAFFIC TO PASS THROUGH THE ACTIVITY AREA

WORK SPACE IS SET ASIDE FOR WORKERS, EQUIPMENT, AND MATERIAL STORAGE

ACTIVITY AREA
IS WHERE WORK TAKES PLACE

BUFFER ZONE (LATERAL)

BUFFER SPACE
(LONGITUDINAL)
PROVIDES PROTECTION FOR TRAFFIC AND WORKERS

NOTE:
- NO VEHICLE PARKING PERMITTED
- NO EQUIPMENT OR MATERIAL STORAGE PERMITTED

TRANSITION AREA
MOVES TRAFFIC OUT OF THE NORMAL PATH

APPROACH AREA
INFORMS DRIVERS WHAT ACTION TO TAKE

ADVANCE WARNING AREA
INFORMS DRIVERS TO EXPECT WORK AHEAD

SPACING REQUIREMENTS:

V(km/h)	A(m)	L(m)	B(m)	D(m)
50	50	30	35	8
60	50	40	45	12
70	75	60	50	15
80	100	80	60	15
90	100	105	65	18
100	125	125	70	18
110	125	145	75	20

WHERE:
- **V** = POSTED SPEED LIMIT
- **A** = SPACING BETWEEN SIGNS
- **L** = LENGTH OF TAPER
- **B** = LENGTH OF LONGITUDINAL BUFFER SPACE
- **D** = SPACING BETWEEN DILINEATION DEVICES

No.	YY MM DD DATE	REVISION DESCRIPTION	BY

DATE: 07/08/24
SCALE: NTS
DRAWN: JDH
APPROVED:

Medicine Hat
The Gas City
MUNICIPAL WORKS

TEMPORARY TRAFFIC CONTROL
COMPONENT AREAS OF A TEMPORARY WORK ZONE

FIG. No. 3.6.1 Rev. 0

3.10 Short Duration

- Short duration operations are stationary and range between 30 minutes and 24 hours.

- Examples of short duration operations are: Maintenance, sidewalk/boulevard repair, utility work, asphalt patching, emergency water-main repairs and emergency response (e.g. spills and vehicular accidents).

3.11 Long duration

- Long duration operations are stationary and take longer than 24 hours.

- Examples of long duration operations are: Manhole replacement, utility replacement, bridge rehabilitation, roadway upgrading (e.g. interchange construction), large paving operations, and sidewalk/boulevard replacement.

4.0 Guidelines for Traffic Control Devices

4.1 Signs and Specifications

Below is a listing of common temporary traffic control signs. The sizes identified are recommended under normal conditions. Sign sizes are dictated by roadway classification or by the Municipal Works Department. Sign size, colour and shape shall be in accordance to the most current version of the Manual of Uniform Traffic Control Devices for Canada (MUTCD).

All signs, unless otherwise specified, must be retro-reflective. Retro-reflective sheeting that is classified as Engineering Grade. Reflectivity Level 2 is the minimum intensity used in temporary traffic control signage. High intensity material (Reflectivity Level 1) is recommended and is the City standard.

4.2 Legend

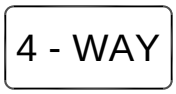
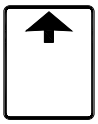
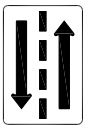
Sign name (MUTCD code)

- Sign description
- Sign size
- Colour information

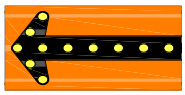
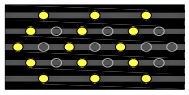
4.3 Regulatory Signs

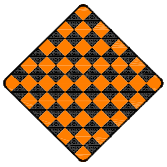
Regulatory signs are used to identify a traffic regulation that is applicable at a given time or place on a road, and identify the legal requirements. The following codes are used to categorize the various regulatory signs as below:

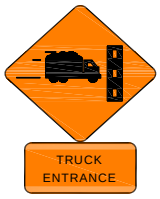
RA: Right of way control signs
RB: Road use control signs
RC: Miscellaneous regulatory signs

Regulatory Signs	
	**Stop Sign (RA-1)** • This sign indicates to drivers that they must come to a complete stop and must not proceed until it is safe to do so • 750 mm x 750 mm • White text and border on red background.
	**Multi-way Stop Tab (RA-1T4)** • This sign indicates there are more than two approaches controlled by stop signs • 450 mm x 225 mm • Black text and border on white background.
	**Yield Sign (RA-2)** • This sign indicates that drivers must yield the Right of Way and stop if necessary, and must not proceed until it is safe to do so • 750 mm sides • Red symbol and border on white background.
	**Maximum Speed Sign (RB-1)** • This sign indicates the maximum legal speed • 600 mm x 750 mm • Black text and border on white background.
	**Maximum Speed Ahead Sign (RB-5)** • This sign provides advanced warning of a speed reduction • 600 mm x 750 mm • Black text and border on white background.
	**Right/Left Turn Prohibited Sign (RB-11 Right or Left)** • This sign indicates that a right or left turn is prohibited • 600 mm x 600 mm • Black arrow and border, with red circle and bar on white background.
	**Entry Prohibited Sign (RB-23)** • This sign indicates that access to vehicular traffic is not permitted • 600 mm x 600 mm • Black arrow and border with red circle and bar on white background.
	**Two-Way Traffic Sign (RB-24)** • This sign indicates that the section of road is a two-way road • 600 mm x 750 mm • Black symbol and border on white background.
	**Right (Left) Turn Only Lane Sign (RB-41R and RB41L modified)** • Used on approach to an intersection, this sign indicates to drivers that they must turn from the designated lane at the intersection • 600 mm x 600 mm • White arrow and border on black background.

Regulatory Signs (continued)	
	**Parking Control Sign (RB-51)** • This sign indicates that parking is prohibited at all times on all days and on both sides of the sign. Various prohibitions to times, duration and coverage area can be specified • 300 mm x 300 mm • Black text and arrows with red circle and bar, and black border on white background.
	**Stopping Prohibited Sign (RB-55)** • This sign indicates that stopping is prohibited at all times on all days and on both sides of the sign. Various prohibitions to times, duration and coverage area can be specified • 300 mm x 300 mm • Black symbol and arrows with red circle and bar, and black border on white background.
	**Double Fine Area Sign (Begins/Ends)** • This sign advises motorists that speed fines double in the work area • 600 mm x 600 mm • Black text and border on a white background.
Temporary Traffic Control Signs	
Temporary Condition Signs Temporary condition signs are used for temporary traffic control and have an orange background with black symbol or text.	
	**Sidewalk Closed Sign** • This sign indicates that the sidewalk is closed • 450 mm x 600 mm • Black text, symbol and border on an orange background.
	**Construction Ahead Sign (TC-1)** • This sign indicates advanced warning of a major work zone and are generally used for long-term construction projects. • 750 mm x 750 mm • Black text, symbol and border on an orange background.
	**Road Work Sign (TC-2)** • This sign indicates that activities such as minor maintenance or utility operations are in progress on or adjacent to the road. • 750 mm x 750 mm • Black symbol and border on an orange background.
	**End Construction Sign** • This sign indicates the end of the work zone • 600 mm x 1200 mm • Black text and border on an orange background.

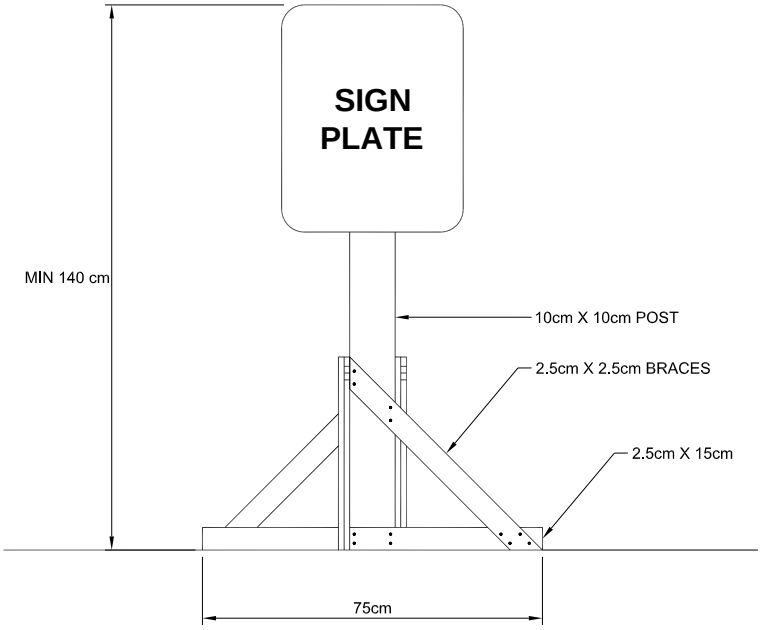
Temporary Traffic Control Signs (continued)	
	**Temporary Lane Closed Ahead Sign (TC-5) Right or Left** • This sign indicates that a lane is closed ahead • 750 mm x 750 mm • Black symbol and border on an orange background.
	**Lane Closure Arrow Sign (TC-7 modified) Right or Left** • This sign indicates that traffic must proceed to the left or right of the closed lane • 450 mm x 600 mm • Black symbol and border on an orange background.
	**Flashing Arrow Board (TC-8)** • Refer to Section 4.6.6
	**Flashing Arrow Board (TC-9)** • Refer to Section 4.6.6
	**Detour Ahead Sign (TC-10)** • This sign indicates that traffic will be required to take another road to bypass the construction activity • 750 mm x 750 mm • Black text, symbol and border on an orange background.
	**Detour Direction Markers (TC-11)** • These signs indicate the alternate route to take as a result of a total road closure. • 600 mm x 600 mm • Black text, symbol and border on an orange background.
	**Through Traffic Prohibited Sign** • This sign indicates a worksite ahead, but allows for local traffic up to the worksite • 600 mm x 600 mm • Black text and border on an orange background
	**Road Closed Sign** • This sign indicates that access is prohibited to all traffic • 450 mm x 900 mm • Black text and border on an orange background.
	**Local Traffic Only Sign** • This sign indicates that local traffic is permitted • 450 mm x 900 mm • Black text and border on an orange background.

Temporary Traffic Control Signs (continued)	
	**Road Diversion Sign (TC13R and TC13L)** • This sign indicates a deviation on detour from the existing road. Detour length to be in mm. 200 mm length for sign to apply. • 750 mm x 750 mm • Black symbol and border on an orange background.
	**Road Realignment Sign (TC-15)** • This sign indicates the road is realigned from normal • 750 mm x 750 mm • Black symbol and border on an orange background.
	**Lane Realignment Sign (TC-16)** • This sign indicates the realignment of two or more lanes from normal • 750 mm x 750 mm • Black symbol and border on an orange background.
	**Traffic Control Person Ahead Sign (TC-21)** • This sign indicates that traffic is controlled by a traffic control person • 750 mm x 750 mm • Black symbol and border on an orange background.
	**Be Prepared To Stop Sign** • This sign indicates that the motorist may be required to stop • 750 mm x 750 mm • Black text and border on an orange background.
	**Two-way Traffic Ahead Sign (TC-24)** • This sign indicates the approaching section of road is a two-way road • 750 mm x 750 mm • Black symbol and border on an orange background.
	**Checkerboard Sign (TC-30R)** • This sign indicates the termination of a road • 750 mm x 750 mm • Black symbol and border on an orange background.
	**Chevron Alignment Sign (TC-31)** • This sign indicates a change in the horizontal alignment of the road • 450 mm x 600 mm • Black symbol and border on an orange background.

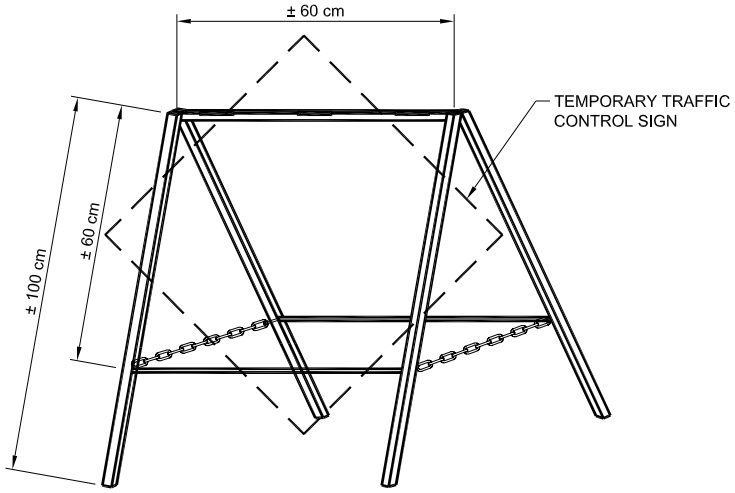
Temporary Traffic Control Signs (continued)	
	**Road Narrows Sign (TC-34)** • This sign indicates the narrowing of the road • 750 mm x 750 mm • Black symbol and border on an orange background.
	**Grooved Pavement Sign (TC-47)** • This sign indicates that the road surface requires attention by motorcycle or bicycle operators • 750 mm x 750 mm • Black symbol and border on an orange background.
	**Pavement Drop-Off Sign (TC-49)** • This sign indicates that the approaching section of road where either or both the adjacent lane or shoulder are lower or higher than the driving lane • 750 mm x 750 mm • Black symbol and border on an orange background.
	**Bump Sign (TC-51)** • This sign warns of approaching bump in the road • 750 mm x 750 mm • Black symbol and border on an orange background.
	**Pavement Ends Sign (TC-50)** • This sign indicates that the hard surface road is about to end • 750 mm x 750 mm • Black symbol and border on an orange background.
	**Low Clearance Ahead Sign (TC-52)** • This sign indicates the maximum overhead clearance at bridges and other structures • 750 mm x 750 mm • Black dimension, arrows and border on an orange background.
	**Truck Entrance Sign (TC-54)** • This sign indicates trucks entering the roadway • 750 mm x 750 mm • Black symbol and border on an orange background.

The following drawings show examples of typical portable sign stands.

Figure 4.2.1 - Typical Portable Sign Stands



WOOD SIGN STAND



STEEL SIGN STAND

4.4 Control of Traffic Using a Traffic Control Person

Traffic control persons are required:

1. When two-way traffic has to be guided through a single lane
2. When materials or equipment are being moved across a traveled lane
3. To assist motorists through complex traffic control set-ups
4. When required by Traffic Assessment.

Traffic control persons are responsible for the safety of motorists, pedestrians, their fellow workers and equipment used on the worksite. Therefore, selecting a traffic control person must be based on the individual's experience, alertness and decisiveness. Traffic control persons shall be familiar with flagging standards and procedures as set out by the Alberta Construction Safety Association (ACSA). For more information on courses offered on flagging operations, please contact the ACSA at (1-800-661-6090) or http://www.acsa-safety.org.

A traffic control person is required to use a "Stop/Slow" paddle during the day. The paddle shall be reflectorized for night use. At night, a red lantern or flashlight must be used in addition to the paddle. A traffic control person must wear an approved hard hat, reflective safety vest and safety shoes as identified by the Occupational Health and Safety Act.

Illumination should be provided for traffic control persons required to be working in areas where normal street lighting is not available during hours of darkness. Always use a "Traffic Control Person Ahead" sign (TC-21) and a "Be Prepared to Stop" sign in advance to alert motorists of a flagging operation. Traffic control persons shall stop traffic from the side of the traffic land and shall never turn their back to traffic. Traffic control persons shall never leave their post until relieved by another traffic control person in full safety apparel.

Each traffic control person shall keep in visual contact with any other traffic control persons on the job. If visual contact cannot be maintained there must be radio contact or a third traffic control person to relay signs. For example, a third traffic control person can relay signals from a position on the middle of a curve, or atop a hill (where visibility is obstructed by horizontal or vertical curves).

Where possible, traffic control persons shall co-ordinate direction of traffic flow with existing traffic signals. If co-ordination cannot be managed, contact the Municipal Works Department a minimum of two working days prior to the flagging operation to have the signals changed to an all-red flash mode.

When more than one traffic control person is required at an intersection, traffic shall be moved through the intersection one direction at a time. Use a predetermined clockwise or counter-clockwise rotation to accomplish this.

Certain situations may require the use of the Medicine Hat Police Service (MHPS). Contact the Municipal Works Department to discuss the need for police involvement. To arrange for pay duty officers, please contact the MHPS at (403) 529-8400.

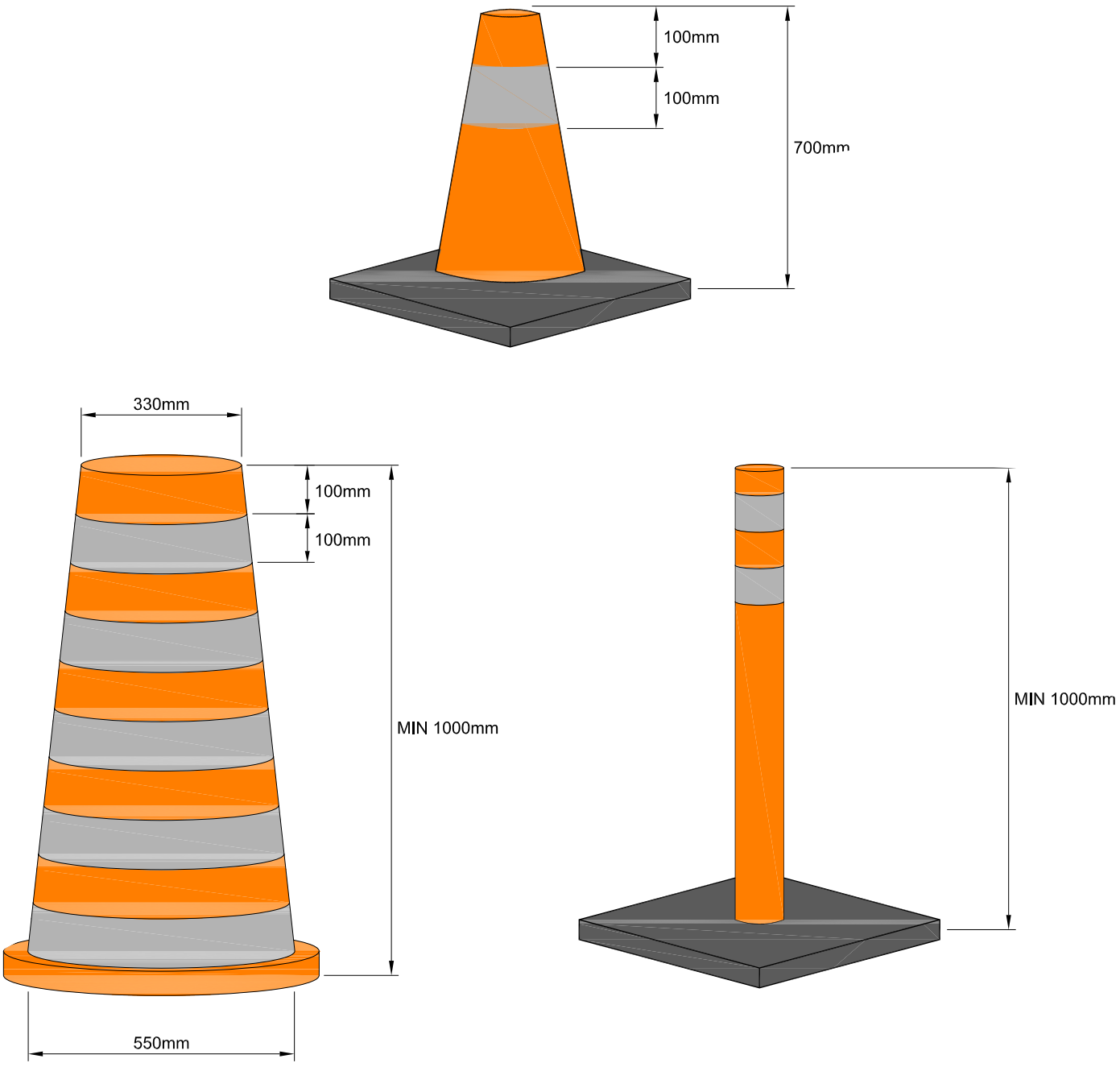
4.5 Delineation (Channelization) Devices

Delineation devices are used to form curves, lines or boundaries that guide road users to the intended path. The appropriate advanced warning signs shall be used with all delineation devices.

Delineation devices include cones, glow posts delineator, construction markers, drums, tubular devices and chevron alignment sign. Delineation devices do not include barricades, concrete barriers or signs other than chevron alignment signs.

Traffic cones shall be fluorescent orange and made of rubber or similar flexible material. The minimum height required for cones is 450 mm on roadways with a speed limit of 50 km/h or less and 700 mm for speeds up to 60 km/h. For use on roadways where the speed is 70 km/h or greater, drums shall be used. Tubular markers may be used for tangent sections on roadways (70 km/h or greater) provided recommended spacing is adopted (refer to typical setups for required spacing). Refer to Transportation Association of Canada – Manual of Uniform Traffic Control Devices latest edition for other relevant information.

Figure 4.5.1 – Delineation Devices



Construction markers may be used for delineation devices, however, it is not recommended. Drums for high volume/high speed roadways or cones for lower speed roadways are the preferred methods as indicated above. Drums shall be constructed of a material that does not create a hazard to vehicles on impact and should be manufactured so as not to roll.

Chevron alignment signs may be used to provide additional guidance on the outside of curves or sharp turns.

Amber flashers/warning lights shall be used to identify obstructions at night. There are three main types of lights for the purpose of temporary traffic control.

Type A: Low intensity flashing lights for night time use

Type B: High intensity flashers are effective day and night.

Type C: Steady burn low-wattage lights are used at night for delineation.

Additional consideration should be given for night time work. Night time work can expedite the work, reducing the disruption of traffic. If floodlights are used for night time work, care should be taken so as to impair the vision of approaching motorists.

4.6 Barricades

Proper placement of barricades is necessary to ensure public safety, as barricades may be a potential hazard. The following provides some examples of acceptable and non-acceptable use of barricades:

4.6.1 Acceptable use of Barricades

- Barricades shall face oncoming vehicular traffic
- Barricades are used to outline hazardous work areas and to prevent vehicles and pedestrians from entering the work area
- Barricades are used to warn of an activity area and to obstruct entry into an activity area
- Temporary signage may be placed on barricades only if necessary to accommodate a modified ‘lane closure arrow’, ‘road closed’ and ‘no through traffic’ signs
- Barricades shall be used to close a road.

4.6.2 Non-acceptable use of Barricades:

- Barricades shall not be used as a delineation device
- Barricades shall not be placed parallel to the flow of traffic. (For example, they are not to be used to mark the boundary between a travel lane and the work area or separate adjacent lanes of traffic.)
- Barricades shall not be placed in oncoming traffic without necessary advanced warning devices and signs.
- Barricades shall not be used instead of signposts.
- Barricades shall not be used for the placement of regulatory signs.
- Barricades shall not be located within the buffer area.

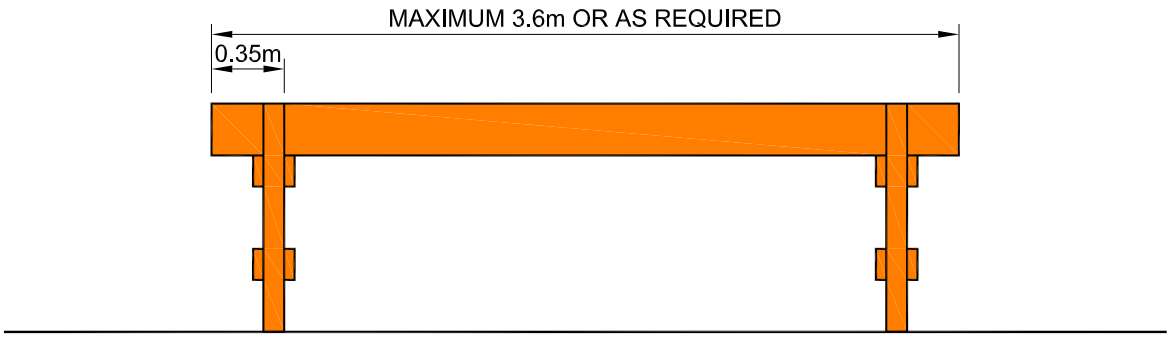
4.6.3 Light Barricades (as shown):

- A light barricade is a portable device that typically has one rail
- Light barricades may be used for road, street, lane or shoulder closures of short duration
- Light barricades should be stabilized using sandbags placed on the lower section of the frame. Under no circumstances shall they be placed over the rail of the barricade.

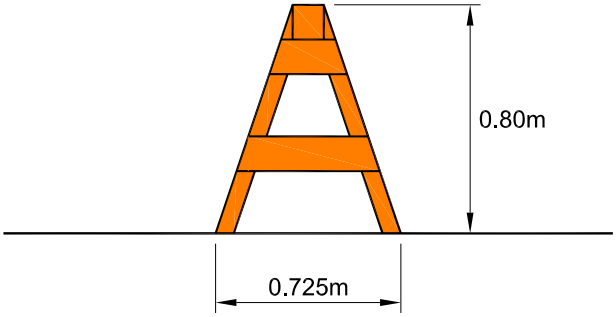
4.6.4 Heavy Barricades (as shown):

- A heavy barricade typically has three rails and is more permanent in nature as compared to a light barricade.
- Heavy barricades shall be used for road, street, lane or shoulder closures of long duration.
- Heavy barricades may be used for road closures of short duration.

Figure 4.6.4.1 – Typical Light Barricades (Temporary)

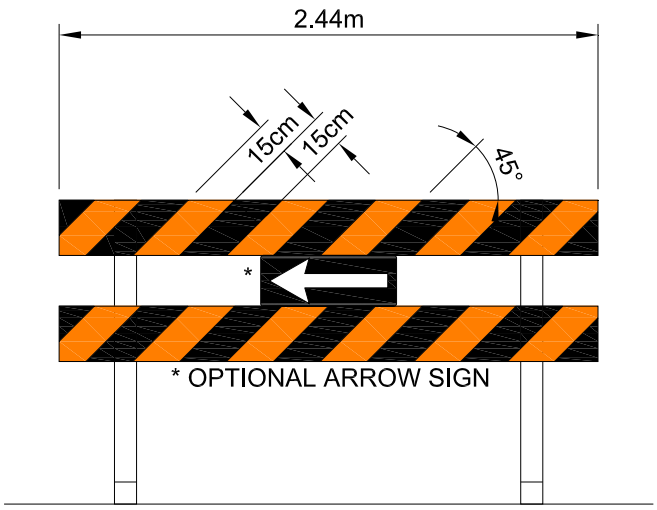


ELEVATION VIEW



END VIEW

Figure 4.6.4.2 – Typical Barricades (Permanent)

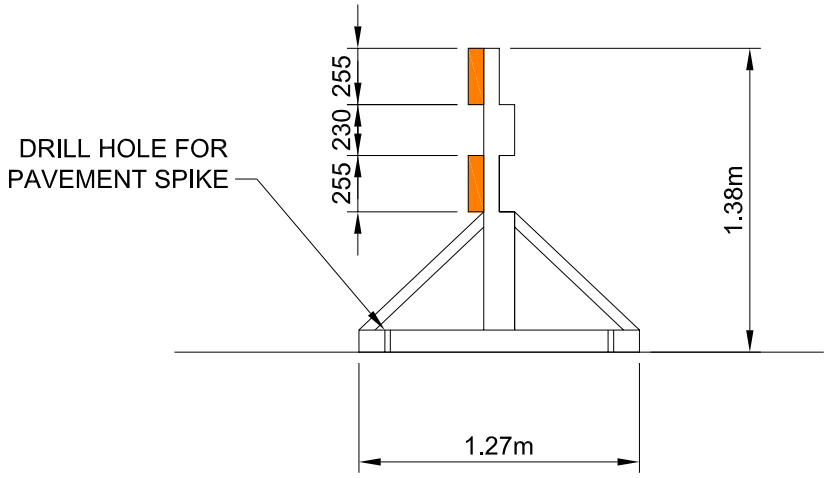


NOTE:

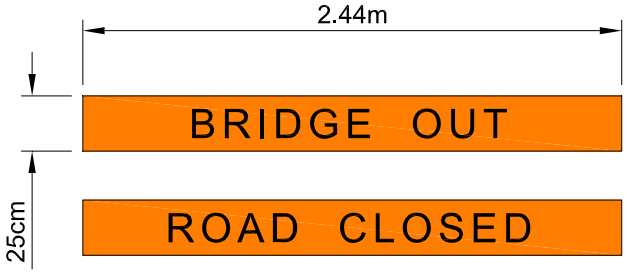
CHEVRON BOARDS AND ARROW SIGN TO BE REVERSED TO GUIDE TRAFFIC TO THE RIGHT.

ELEVATION VIEW

(CONFIGURATION SHOWN TO DIRECT TRAFFIC TO THE LEFT OF BARRICADE)



END VIEW



NOTE:

BRIDGE OUT AND ROAD CLOSED BOARDS MAY BE USED TO REPLACE ONE CHEVRON BOARD WHERE APPROPRIATE.

4.6.5 Traffic Barriers

Longitudinal traffic barriers are used in work zones to:

- Limit the possibility of traffic entering the work area
- Protect the workers
- Separate traffic
- Protect the construction site
- Separate pedestrians from vehicular traffic.

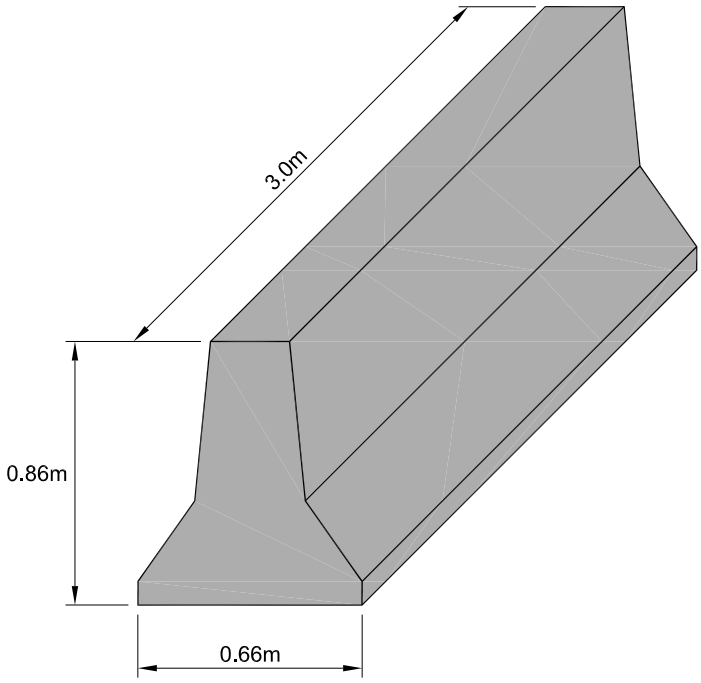
The use, placement and maintenance of longitudinal barriers should be based on acceptable engineering practices. Traffic barriers should:

- Be placed continuously without gaps between sections
- Have acceptable flare rates on the leading edge, or have appropriate end treatments for example, impact attenuators
- Be equipped with glare screens where necessary
- Be placed 0.6 m from the edge of the driving lane
- Be used during periods of inactivity where excavations compromise safety

For information on temporary concrete barriers and acceptable barriers, refer to the following website: http://safety.fhwa.dot.gov/fourthlevel/pro_res_road_nchrp350.htm.

For acceptable application and installation requirements, please refer to Chapter 9 of the “Roadside Design Guide, American Association of State Highway and Transportation Officials, 2002”.

Figure 4.6.5.1. Types of Barriers



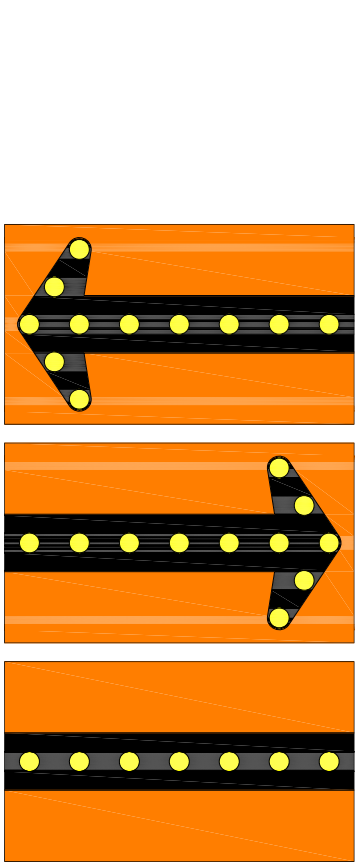
STANDARD CONCRETE BARRIER

4.6.6 Flashing Arrow Boards (TC-8, TC-9)

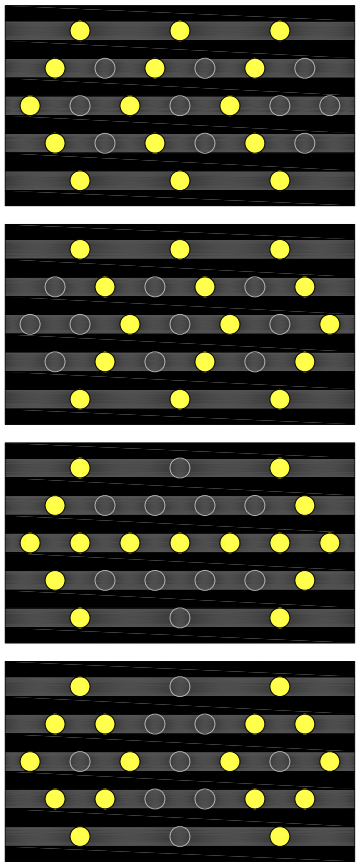
Arrow boards are a safe and effective method of traffic control if they are not used outside their limitations. They are not to take the place of advance warning signs or delineation devices. When combined with the use of advanced warning signs and delineation devices, arrow boards are very effective. They are especially useful in situations that require higher than normal visibility. Examples where arrow boards should be used are on overnight setups, high-speed high volume roadways (70 km/h and greater) and in poor weather conditions. Arrow Boards should be a minimum size of 1500 mm x 750 mm. It is important to note that arrow boards used for night time applications should be less bright than during daytime operations so as not to impair the vision of approaching motorists (50% of daytime light output).

4.6.7 Variable Message Boards

Variable message boards are used to relay information to motorists for upcoming or existing road construction. Typically these are used where road construction is expected to cause delays on high volume roadways. For example, they are used to advise motorists to expect delays or use alternative routes where possible. Variable message boards are more effective than static signs in capturing the attention of the road users. Variable message boards should be programmed so the motorists are able to read the message twice given the posted speed.



TC-8



TC-9

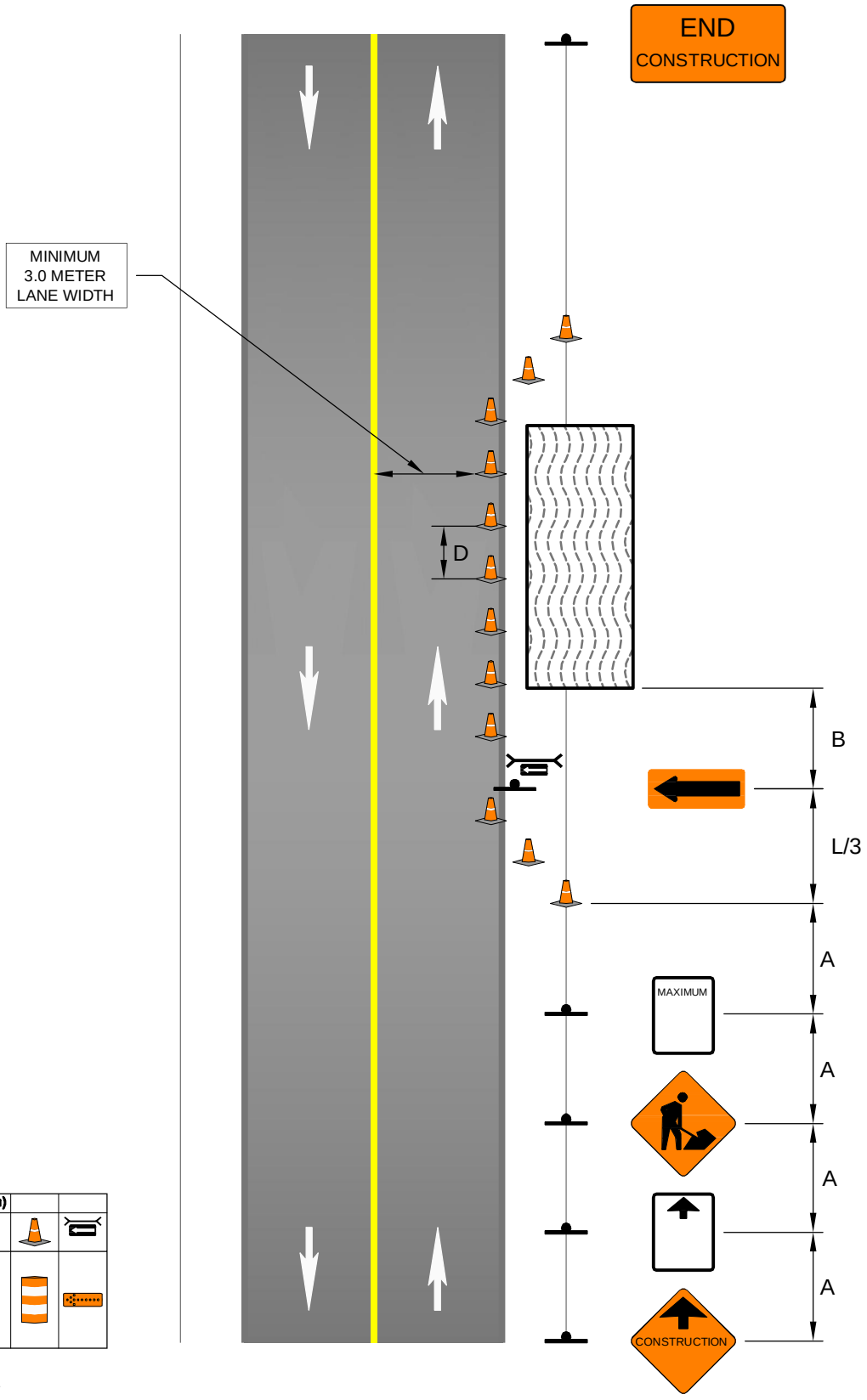
5.0 Temporary Traffic Control (Typical Applications)

This chapter deals with how signs and devices are used for temporary conditions. The examples provided here are labelled as typical applications, since they cannot cover all site specific conditions. These typical applications provide the user with the minimum requirements for temporary traffic control.

5.1 Drawing Index

Drawing 1 – Shoulder Work – Two Way Roadway
Drawing 2 – Edge of Roadwork – Two-Way Roadway
Drawing 3 – Yield to Oncoming Traffic
Drawing 4 – Single Lane Closure – Mobile Operations
Drawing 5 – Two-Way Flagging Operations
Drawing 6 – Temporary Traffic Control Signals
Drawing 7 – Single Right Lane Closure
Drawing 8 – Left Lane Closure – Divided Multi-Lane Roadway
Drawing 9 – Right Lane Closure – Divided Multi-Lane Roadway
Drawing 10 – Single Left Lane Closure – Undivided Multi-Lane Roadway
Drawing 11 – Left Lane Closure – Long Duration – Divided Multi-Lane Roadway
Drawing 12 – Right Lane Closure – Long Duration – Divided Multi-Lane Roadway
Drawing 13 – Left Lane Closure Each Direction – Multi-Lane Roadway
Drawing 14 – Centerline Cross Over Two Way Traffic
Drawing 15 – Median Cross Over Approaching an Intersection
Drawing 16 – Sidewalk Closure
Drawing 17 – Lane Closure
Drawing 18 – Road Diversion – Both Directions
Drawing 19 – Road Bridging Temporary Cut/Fill in Roadway
Drawing 20 – Intersection Work – Local Roadway – Low Volume
Drawing 21 – Intersection Work – Example 2
Drawing 22 – Intersection Work – Example 3
Drawing 23 – Intersection Work – Example 4
Drawing 24 – Intersection Work – Example 5
Drawing 25 – Intersection Work – Example 6
Drawing 26 – Road Closure
Drawing 27 – Intersection Closure – Two Way Roads
Drawing 28 – Intersection Closure – Two Way Roads – Far Lane Closure
Drawing 29 – Left Turn Lane Closure
Drawing 30 – Right Turn Lane Closure
Drawing 31 – Adjacent Lane Closure – Left Turn Lane Open
Drawing 32 – Right Turn Lane Open – Adjacent Through Lane Closure
Drawing 33 – Pedestrian Consideration – Sidewalk Detour onto Roadway
Drawing 34 – Pedestrian Consideration – Sidewalk Detour Approaching an Intersection

Special temporary traffic control applications, not covered by the typical applications noted on the drawings listed above, require special plans to be submitted with a formal Traffic Accommodation Plan (TAP). These TAP's must be approved by the Municipal Works Department before implementation.



SPACING REQUIREMENTS:

V(km/h)	A(m)	L(m)	B(m)	D(m)
50	50	30	35	8
60	50	40	45	12
70	75	60	50	15
80	100	80	60	15
90	100	105	65	18
100	125	125	70	18
110	125	145	75	20

WHERE:

V = POSTED SPEED LIMIT
A = SPACING BETWEEN SIGNS
L = LENGTH OF TAPER
B = LENGTH OF LONGITUDINAL BUFFER SPACE
D = SPACING BETWEEN DILINEATION DEVICES

No.	YY MM DD DATE	REVISION DESCRIPTION	BY

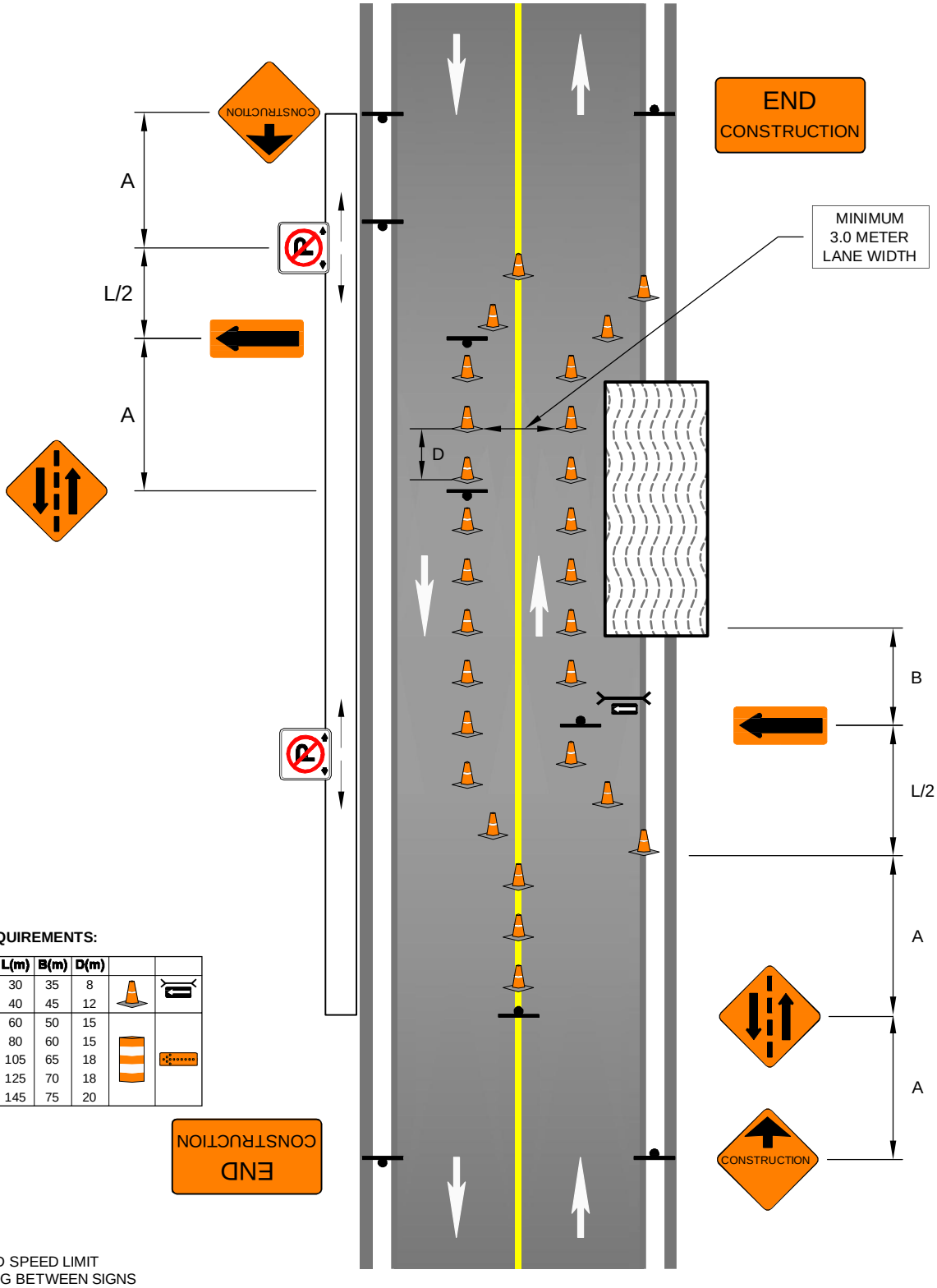
DATE: 07/08/24
SCALE: NTS
DRAWN: JDH
APPROVED:

Medicine Hat
The Gas City
MUNICIPAL WORKS

TEMPORARY TRAFFIC CONTROL

SHOULDER WORK
2-WAY ROADWAY

DWG. No. | Rev. 0



SPACING REQUIREMENTS:

V(km/h)	A(m)	L(m)	B(m)	D(m)
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60	50	40	45	12
70	75	60	50	15
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D = SPACING BETWEEN DILINEATION DEVICES

No.	YY MM DD DATE	REVISION DESCRIPTION	BY

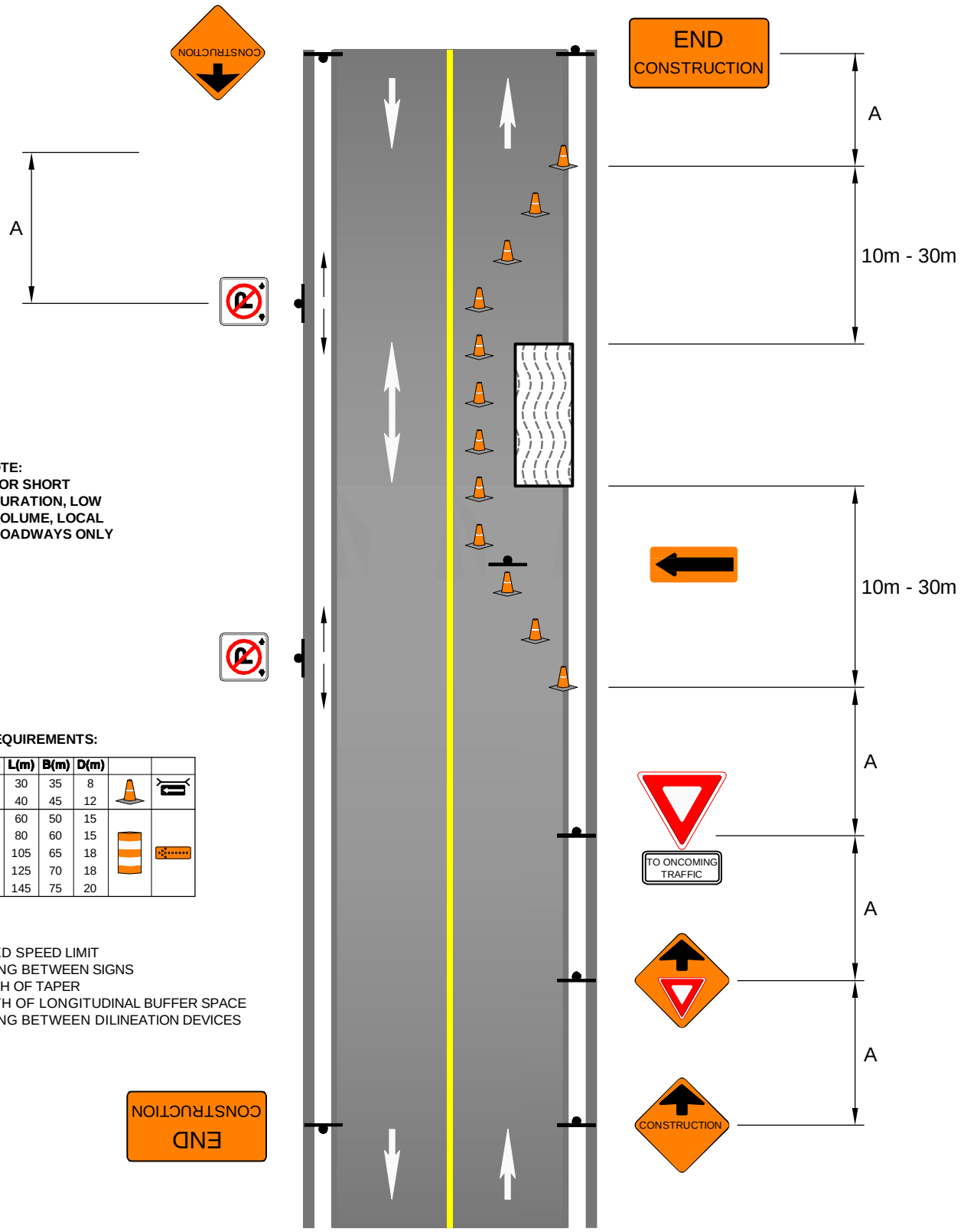
DATE: 07/08/24
SCALE: NTS
DRAWN: JDH
APPROVED:

Medicine Hat
The Gas City
MUNICIPAL WORKS

TEMPORARY TRAFFIC CONTROL

EDGE OF ROAD WORK
2-WAY ROADWAY

DWG. No. 2 Rev. 0



NOTE:
FOR SHORT DURATION, LOW VOLUME, LOCAL ROADWAYS ONLY

SPACING REQUIREMENTS:

V(km/h)	A(m)	L(m)	B(m)	D(m)
50	50	30	35	8
60	50	40	45	12
70	75	60	50	15
80	100	80	60	15
90	100	105	65	18
100	125	125	70	18
110	125	145	75	20

WHERE:
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L = LENGTH OF TAPER
B = LENGTH OF LONGITUDINAL BUFFER SPACE
D = SPACING BETWEEN DILINEATION DEVICES

No.	YY MM DD DATE	REVISION DESCRIPTION	BY

DATE: 07/08/24
SCALE: NTS
DRAWN: JDH
APPROVED:

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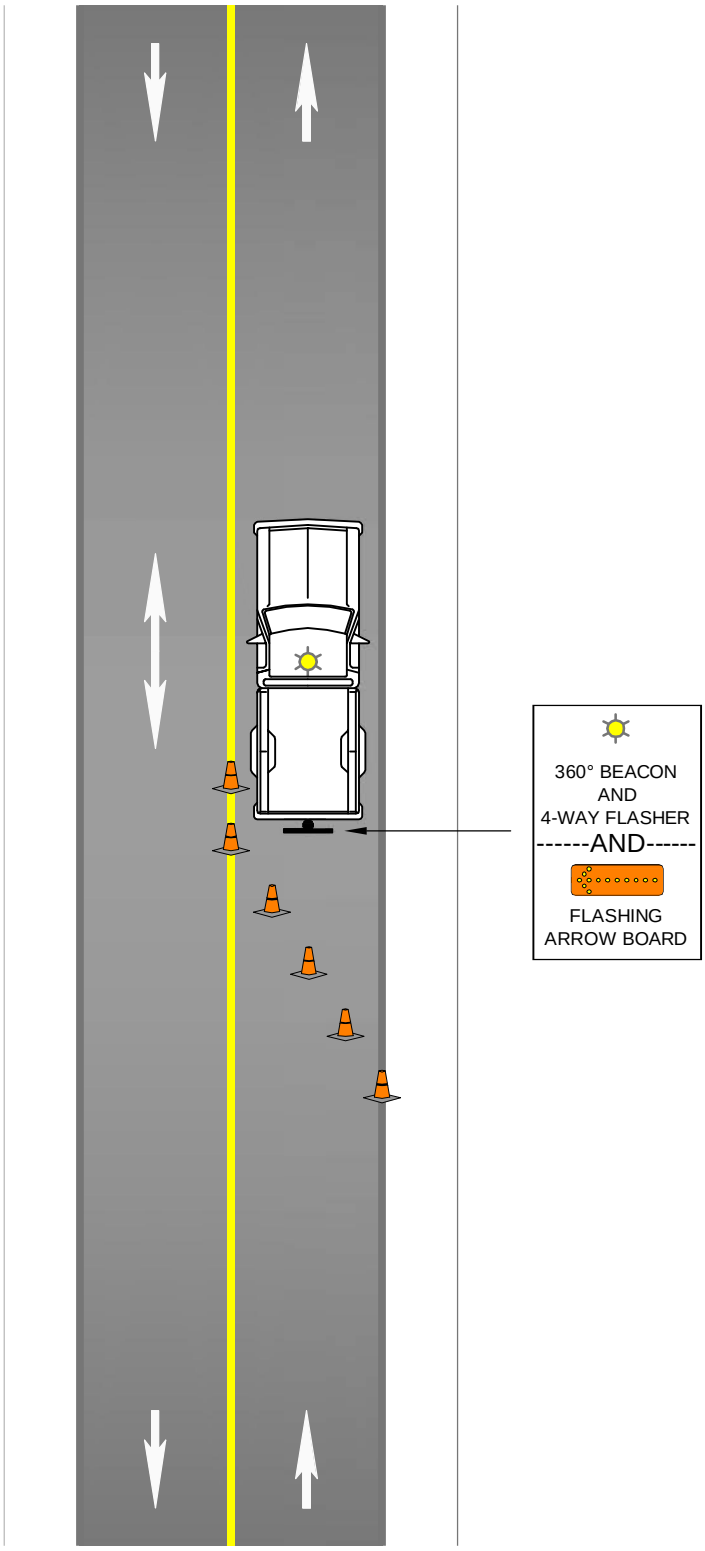
The Gas City
MUNICIPAL WORKS

TEMPORARY TRAFFIC CONTROL
YIELD TO ONCOMING TRAFFIC

DWG. No. 3 Rev. 0

NOTE:
FOR MOBILE OPERATIONS OR VERY SHORT DURATION WORK < 30 MIN



No.	YY MM DD DATE	REVISION DESCRIPTION	BY

DATE: 07/08/24
SCALE: NTS
DRAWN: JDH
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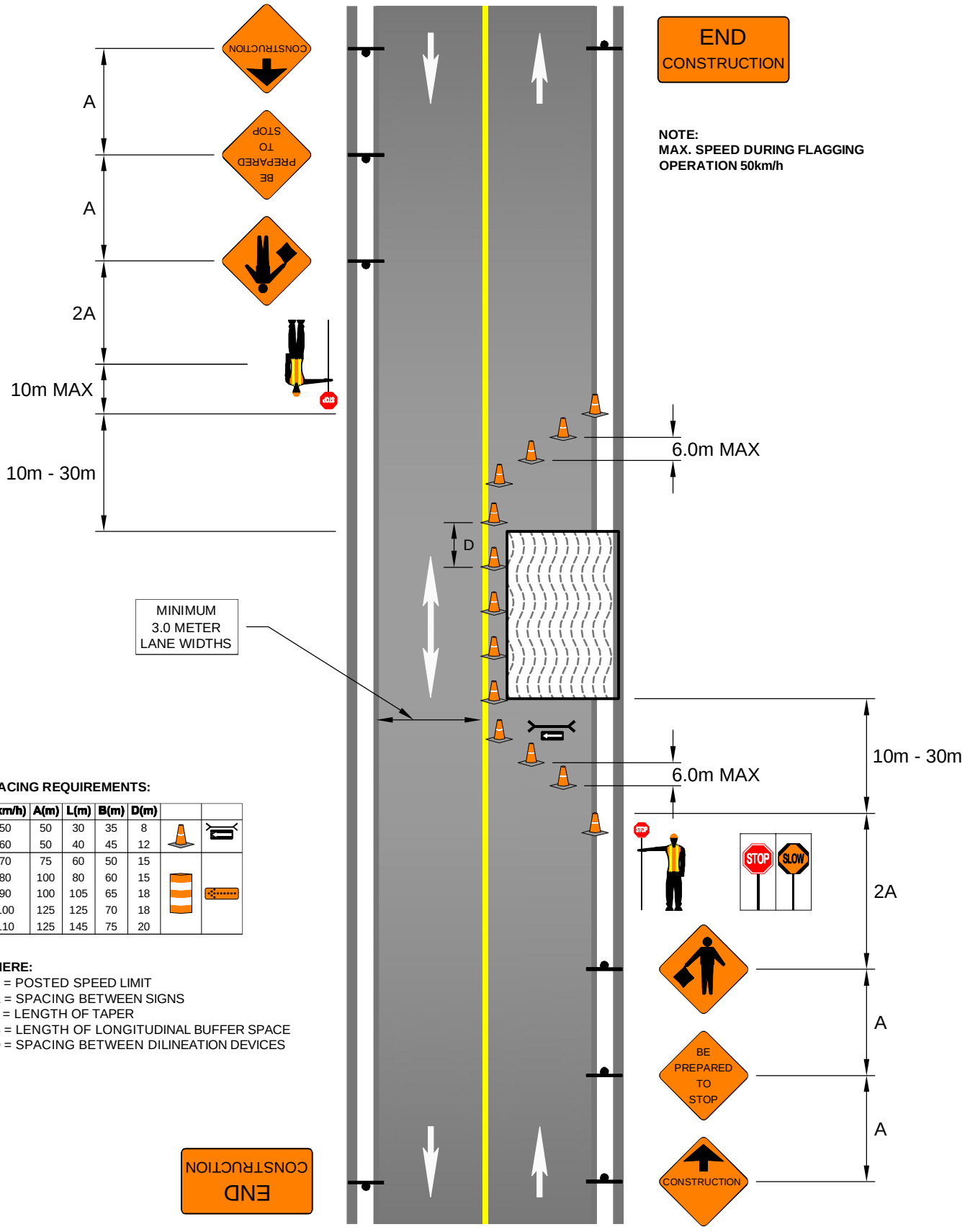
MUNICIPAL WORKS

TEMPORARY TRAFFIC CONTROL

SINGLE LANE CLOSURE
MOBILE OPERATIONS

DWG. No. 4 Rev. 0



SPACING REQUIREMENTS:

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110	125	145	75	20

WHERE:

V = POSTED SPEED LIMIT
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L = LENGTH OF TAPER
B = LENGTH OF LONGITUDINAL BUFFER SPACE
D = SPACING BETWEEN DILINEATION DEVICES

No.	YY MM DD DATE	REVISION DESCRIPTION	BY

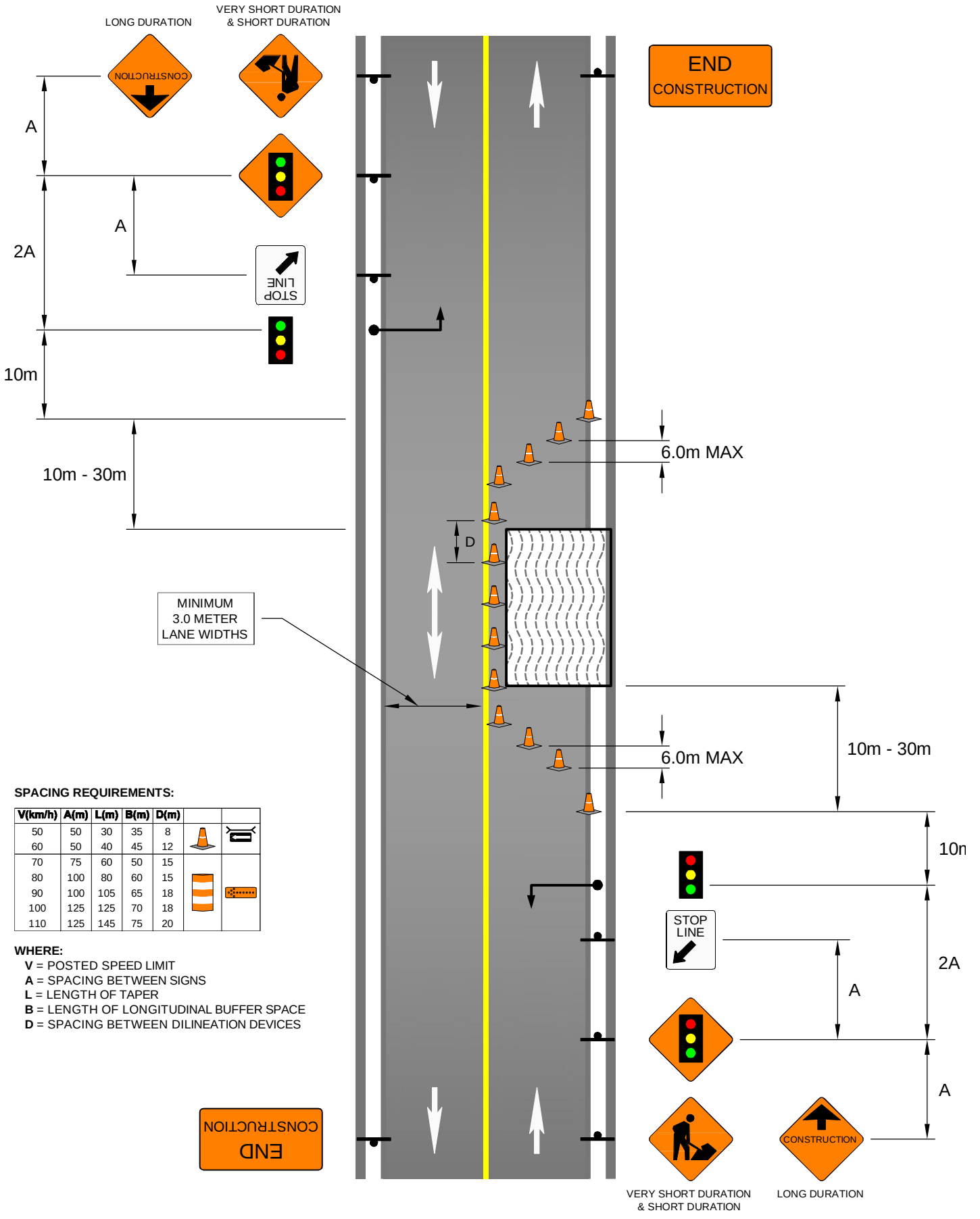
DATE: 07/08/24
SCALE: NTS
DRAWN: JDH
APPROVED:

Medicine Hat
The Gas City
MUNICIPAL WORKS

TEMPORARY TRAFFIC CONTROL

TWO-WAY FLAGGING OPERATIONS

DWG. No. 5 Rev. 0



SPACING REQUIREMENTS:

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70	75	60	50	15
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110	125	145	75	20

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D = SPACING BETWEEN DILINEATION DEVICES

No.	YY MM DD DATE	REVISION DESCRIPTION	BY

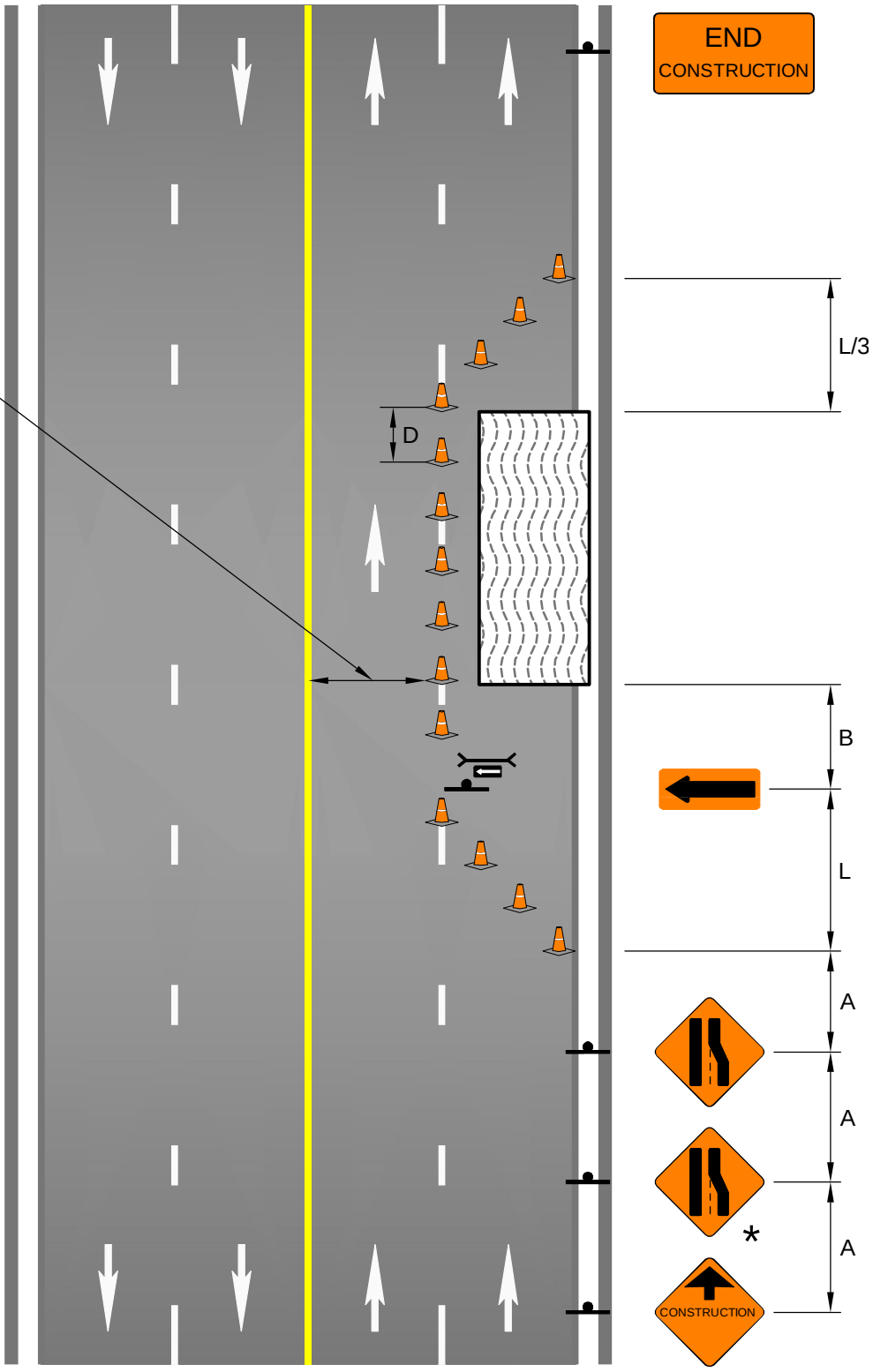
DATE: 07/08/24
SCALE: NTS
DRAWN: JDH
APPROVED:

Medicine Hat
The Gas City
MUNICIPAL WORKS

TEMPORARY TRAFFIC CONTROL

TEMPORARY TRAFFIC CONTROL SIGNALS

DWG. No. 6 Rev. 0



SPACING REQUIREMENTS:

V(km/h)	A(m)	L(m)	B(m)	D(m)
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60	50	40	45	12
70	75	60	50	15
80	100	80	60	15
90	100	105	65	18
100	125	125	70	18
110	125	145	75	20

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A = SPACING BETWEEN SIGNS
L = LENGTH OF TAPER
B = LENGTH OF LONGITUDINAL BUFFER SPACE
D = SPACING BETWEEN DILINEATION DEVICES

***SIGNS MAY BE ELIMINATED WHEN V≤60 km/h AND TC-8 (OR TC-9) IS USED.**

No.	YY MM DD DATE	REVISION DESCRIPTION	BY

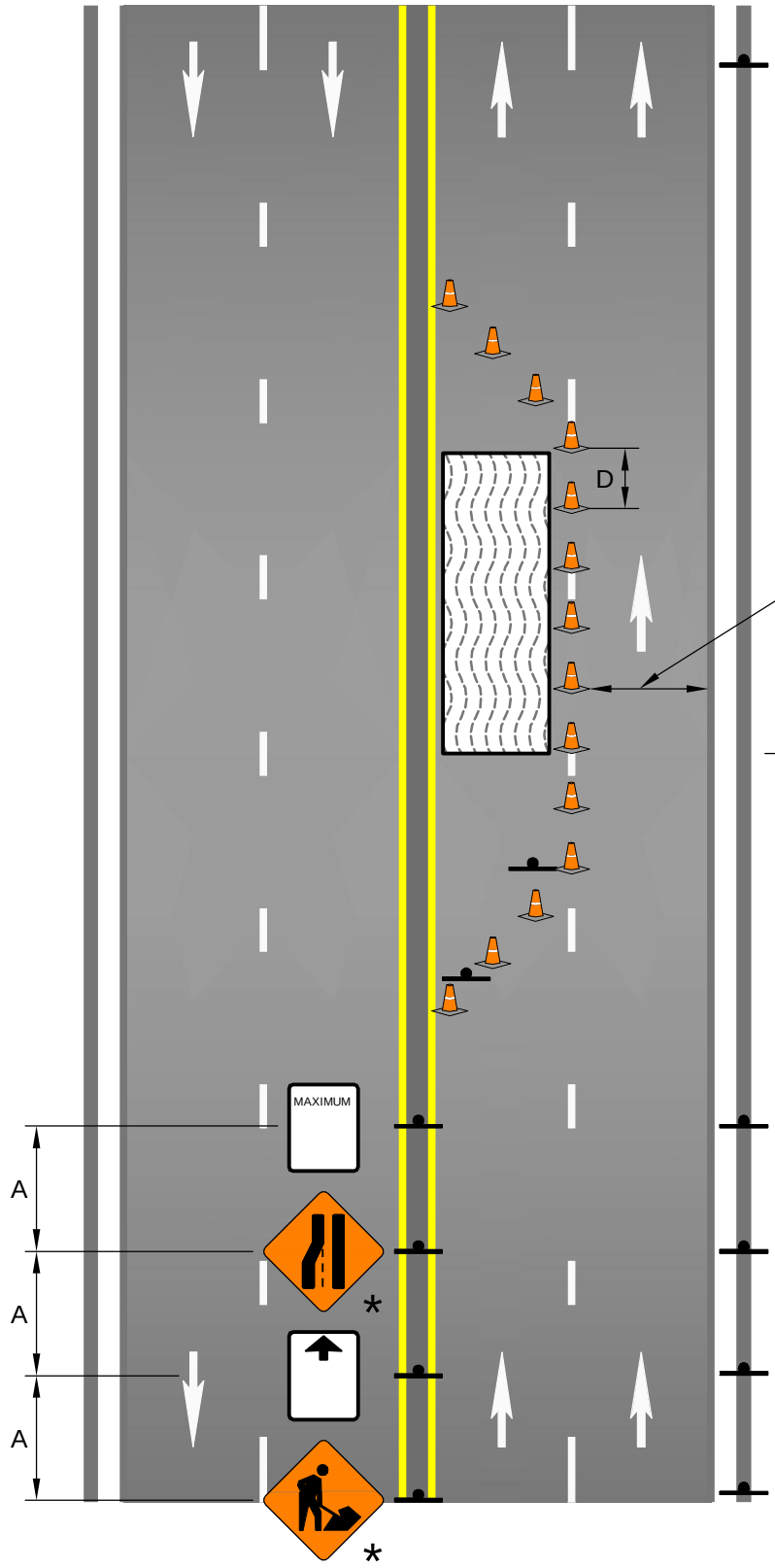
DATE: 07/08/24
SCALE: NTS
DRAWN: JDH
APPROVED:

Medicine Hat
The Gas City
MUNICIPAL WORKS

TEMPORARY TRAFFIC CONTROL

SINGLE RIGHT LANE CLOSURE

DWG. No. 7 Rev. 0



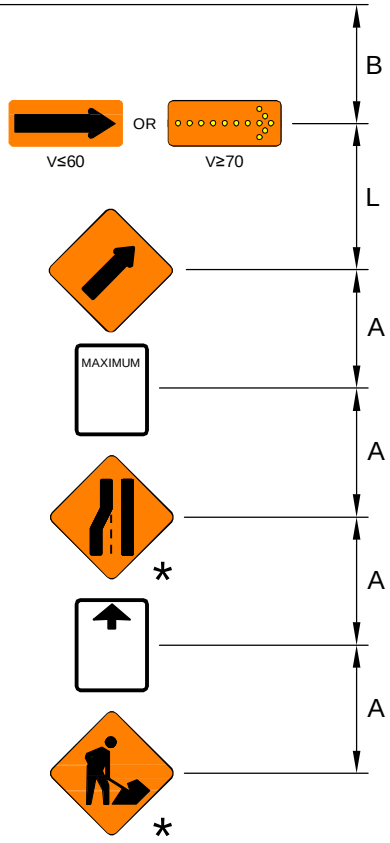
END
CONSTRUCTION

SPACING REQUIREMENTS:

V(km/h)	A(m)	L(m)	B(m)	D(m)
50	50	30	35	8
60	50	40	45	12
70	75	60	50	15
80	100	80	60	15
90	100	105	65	18
100	125	125	70	18
110	125	145	75	20

WHERE:
V = POSTED SPEED LIMIT
A = SPACING BETWEEN SIGNS
L = LENGTH OF TAPER
B = LENGTH OF LONGITUDINAL BUFFER SPACE
D = SPACING BETWEEN DILINEATION DEVICES

MINIMUM
3.0 METER
LANE WIDTH



* **SIGNS MAY BE ELIMINATED WHEN V≤60 km/h AND TC-8 (OR TC-9) IS USED.**

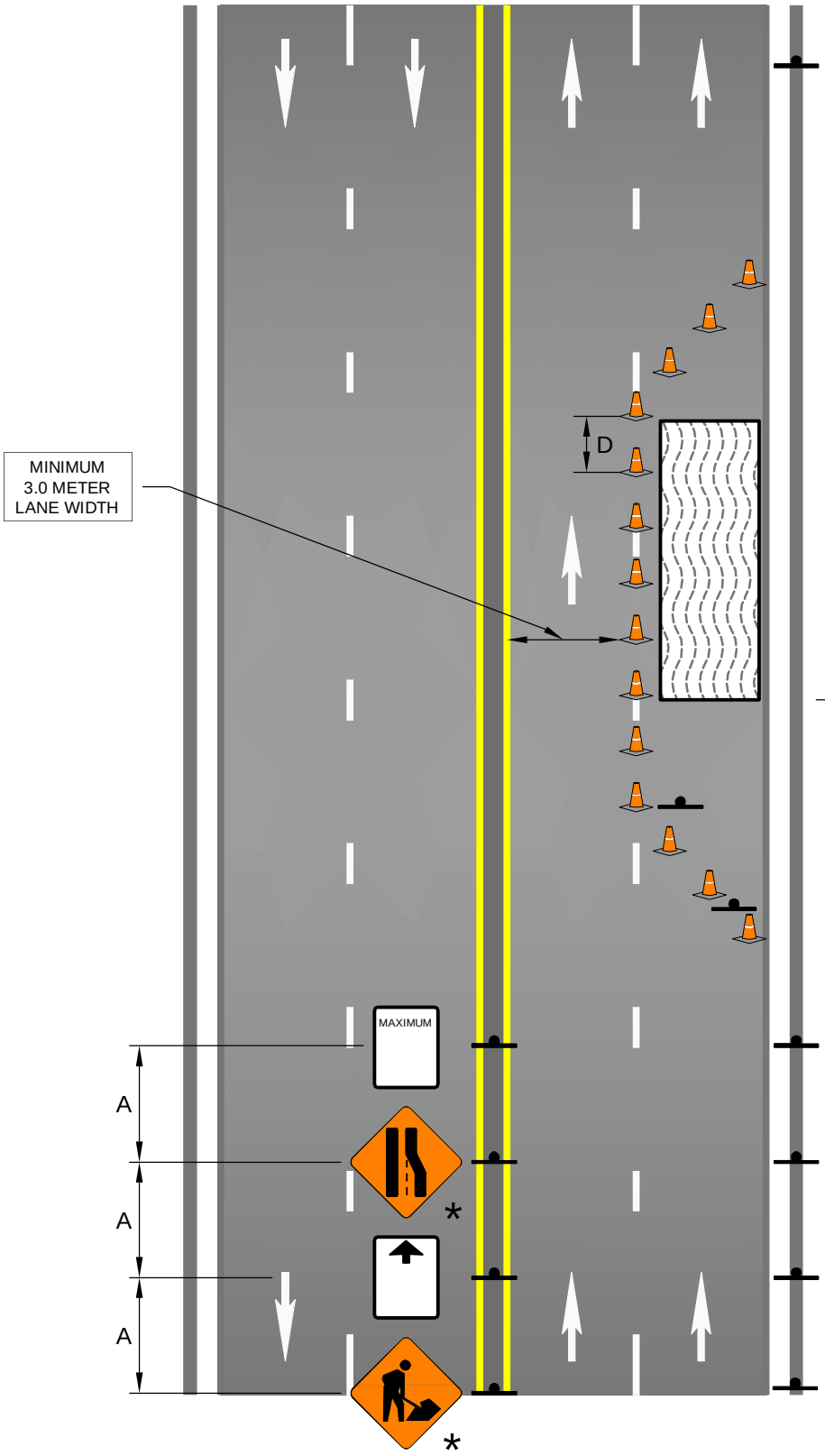
No.	YY MM DD DATE	REVISION DESCRIPTION	BY

DATE: 07/08/24
SCALE: NTS
DRAWN: JDH
APPROVED:

Medicine Hat
The Gas City
MUNICIPAL WORKS

TEMPORARY TRAFFIC CONTROL
LEFT LANE CLOSURE
DIVIDED MULTI-LANE ROADWAY

DWG. No. 8 Rev. 0

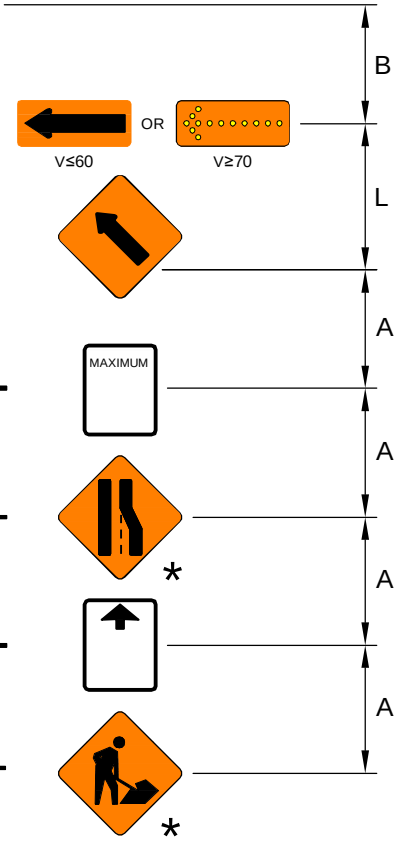


END
CONSTRUCTION

SPACING REQUIREMENTS:

V(km/h)	A(m)	L(m)	B(m)	D(m)
50	50	30	35	8
60	50	40	45	12
70	75	60	50	15
80	100	80	60	15
90	100	105	65	18
100	125	125	70	18
110	125	145	75	20

WHERE:
V = POSTED SPEED LIMIT
A = SPACING BETWEEN SIGNS
L = LENGTH OF TAPER
B = LENGTH OF LONGITUDINAL BUFFER SPACE
D = SPACING BETWEEN DILINEATION DEVICES



* **SIGNS MAY BE ELIMINATED WHEN V≤60 km/h AND TC-8 (OR TC-9) IS USED.**

No.	YY MM DD DATE	REVISION DESCRIPTION	BY

DATE: 07/08/24
SCALE: NTS
DRAWN: JDH
APPROVED:

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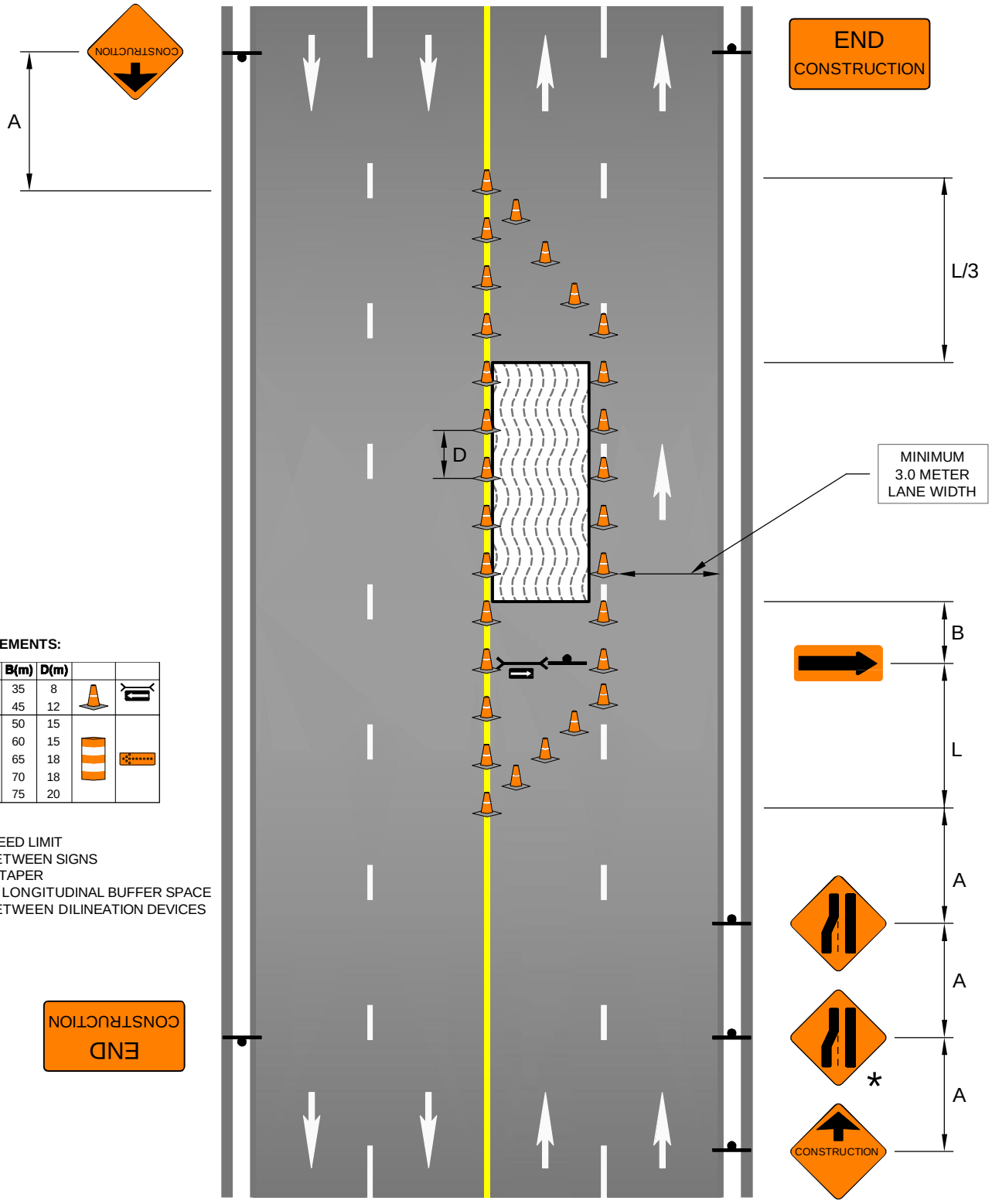
The Gas City
MUNICIPAL WORKS

TEMPORARY TRAFFIC CONTROL
RIGHT LANE CLOSURE
DIVIDED MULTI-LANE ROADWAY

DWG. No. 9 Rev. 0



SPACING REQUIREMENTS:

V(km/h)	A(m)	L(m)	B(m)	D(m)
50	50	30	35	8
60	50	40	45	12
70	75	60	50	15
80	100	80	60	15
90	100	105	65	18
100	125	125	70	18
110	125	145	75	20

WHERE:

V = POSTED SPEED LIMIT
A = SPACING BETWEEN SIGNS
L = LENGTH OF TAPER
B = LENGTH OF LONGITUDINAL BUFFER SPACE
D = SPACING BETWEEN DILINEATION DEVICES

* **SIGNS MAY BE ELIMINATED WHEN V≤60 km/h AND TC-8 (OR TC-9) IS USED.**

No.	YY MM DD DATE	REVISION DESCRIPTION	BY

DATE: 07/08/24
SCALE: NTS
DRAWN: JDH
APPROVED:

Medicine Hat
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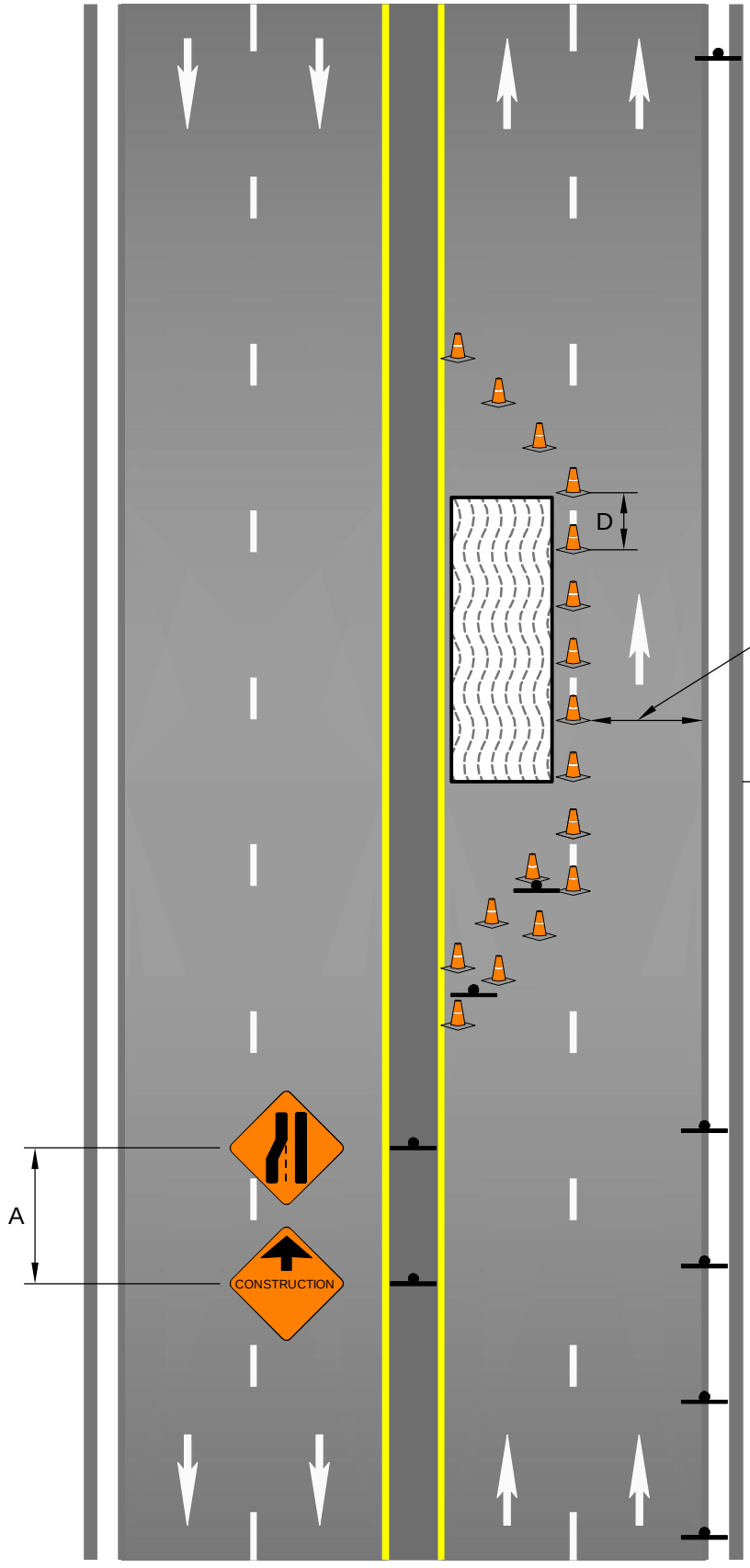
MUNICIPAL WORKS

TEMPORARY TRAFFIC CONTROL

SINGLE LEFT LANE CLOSURE
UNDIVIDED MULTI-LANE ROADWAY

DWG. No. 10 Rev. 0



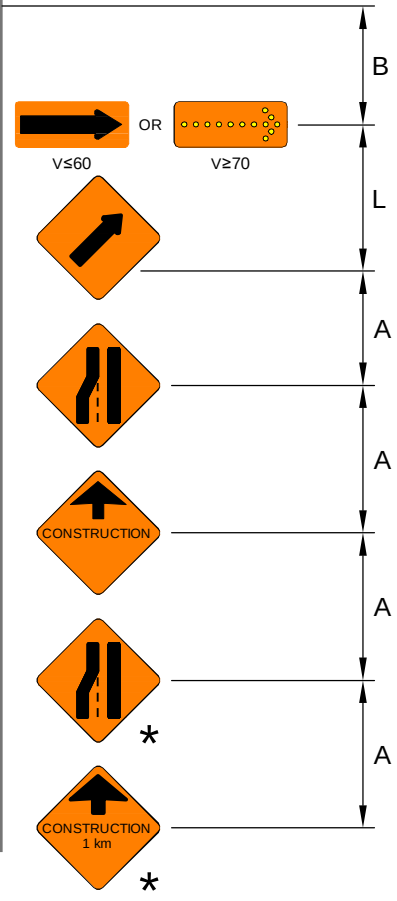
END
CONSTRUCTION

SPACING REQUIREMENTS:

V(km/h)	A(m)	L(m)	B(m)	D(m)
50	50	30	35	8
60	50	40	45	12
70	75	60	50	15
80	100	80	60	15
90	100	105	65	18
100	125	125	70	18
110	125	145	75	20

WHERE:
V = POSTED SPEED LIMIT
A = SPACING BETWEEN SIGNS
L = LENGTH OF TAPER
B = LENGTH OF LONGITUDINAL BUFFER SPACE
D = SPACING BETWEEN DILINEATION DEVICES

MINIMUM
3.0 METER
LANE WIDTH



* **SIGNS MAY BE ELIMINATED WHEN V≤60 km/h AND TC-8 (OR TC-9) IS USED.**

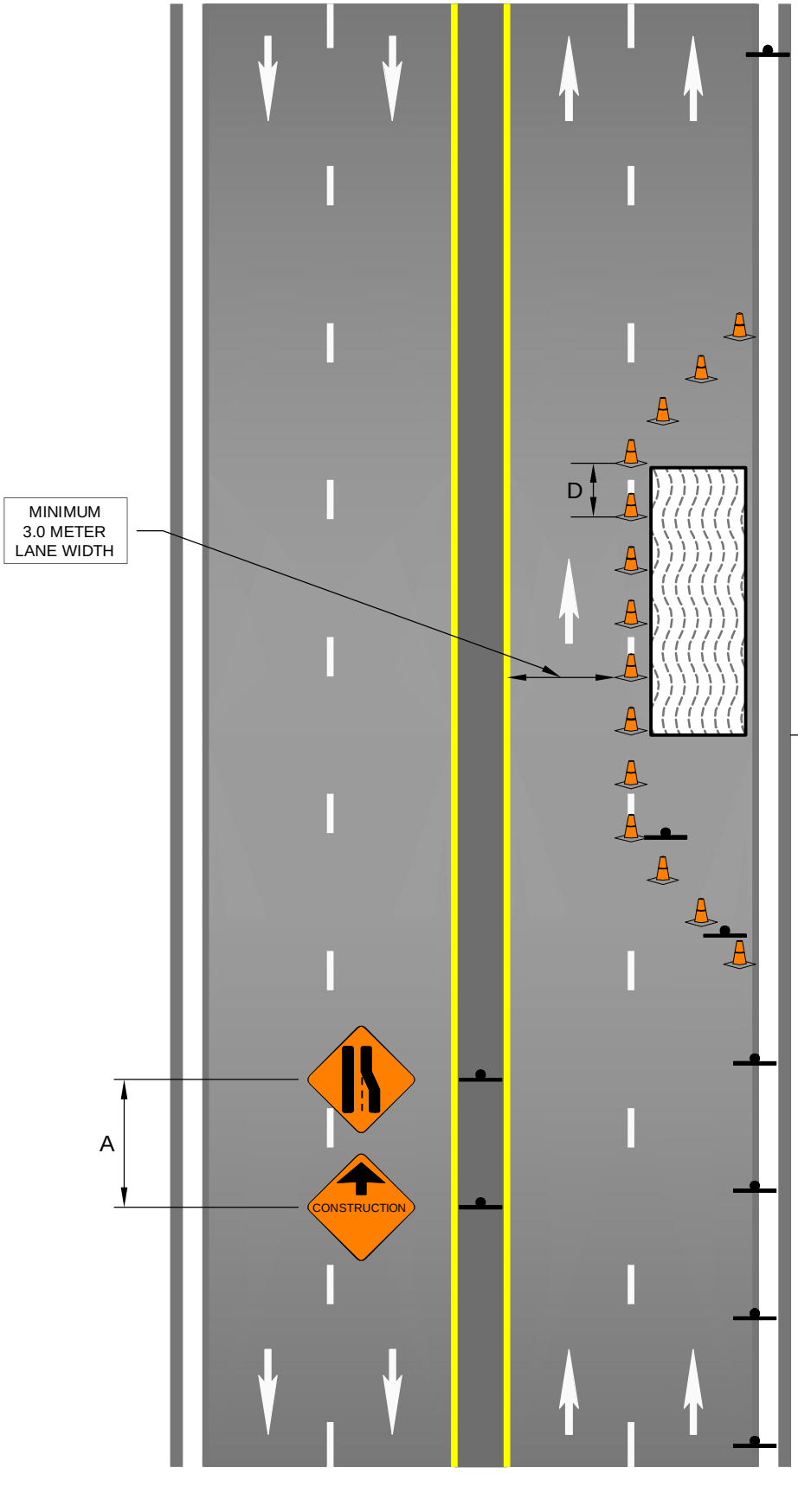
No.	YY MM DD DATE	REVISION DESCRIPTION	BY

DATE: 07/08/24
SCALE: NTS
DRAWN: JDH
APPROVED:

Medicine Hat
The Gas City
MUNICIPAL WORKS

TEMPORARY TRAFFIC CONTROL
LEFT LANE CLOSURE - LONG DURATION
DIVIDED MULTI-LANE ROADWAY

DWG. No. || Rev. 0



SPACING REQUIREMENTS:

V(km/h)	A(m)	L(m)	B(m)	D(m)
50	50	30	35	8
60	50	40	45	12
70	75	60	50	15
80	100	80	60	15
90	100	105	65	18
100	125	125	70	18
110	125	145	75	20

WHERE:

V = POSTED SPEED LIMIT
A = SPACING BETWEEN SIGNS
L = LENGTH OF TAPER
B = LENGTH OF LONGITUDINAL BUFFER SPACE
D = SPACING BETWEEN DILINEATION DEVICES

* **SIGNS MAY BE ELIMINATED WHEN V≤60 km/h AND TC-8 (OR TC-9) IS USED.**

No.	YY MM DD DATE	REVISION DESCRIPTION	BY

DATE: 07/08/24
SCALE: NTS
DRAWN: JDH
APPROVED:

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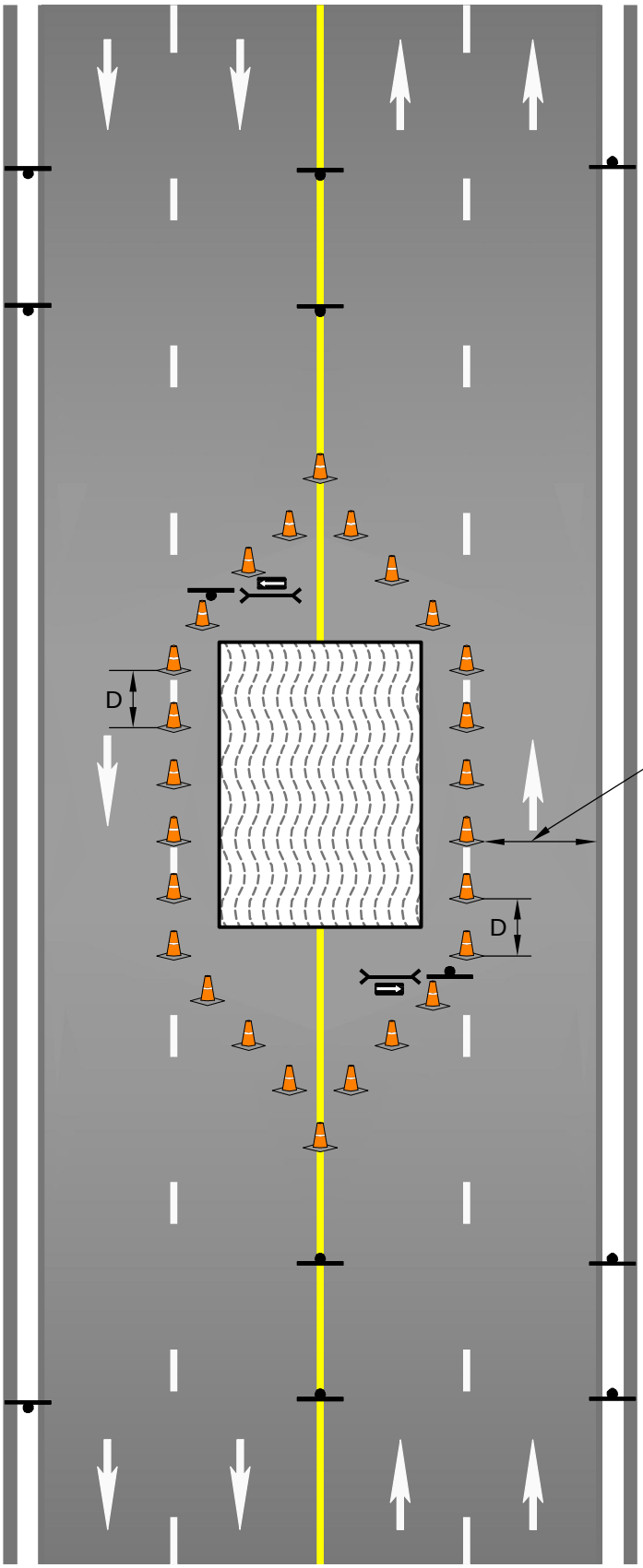
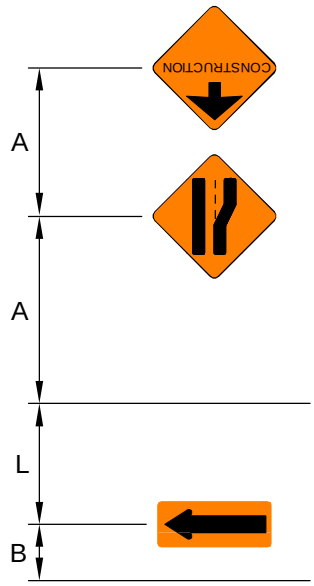
MUNICIPAL WORKS

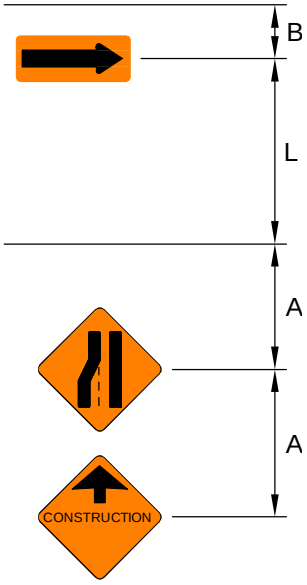
TEMPORARY TRAFFIC CONTROL

RIGHT LANE CLOSURE - LONG DURATION
DIVIDED MULTI-LANE ROADWAY

DWG. No. 12 Rev. 0







SPACING REQUIREMENTS:

V(km/h)	A(m)	L(m)	B(m)	D(m)
50	50	30	35	8
60	50	40	45	12
70	75	60	50	15
80	100	80	60	15
90	100	105	65	18
100	125	125	70	18
110	125	145	75	20

WHERE:

V = POSTED SPEED LIMIT
A = SPACING BETWEEN SIGNS
L = LENGTH OF TAPER
B = LENGTH OF LONGITUDINAL BUFFER SPACE
D = SPACING BETWEEN DILINEATION

No.	YY MM DD DATE	REVISION DESCRIPTION	BY

DATE: 07/08/24
SCALE: NTS
DRAWN: JDH
APPROVED:

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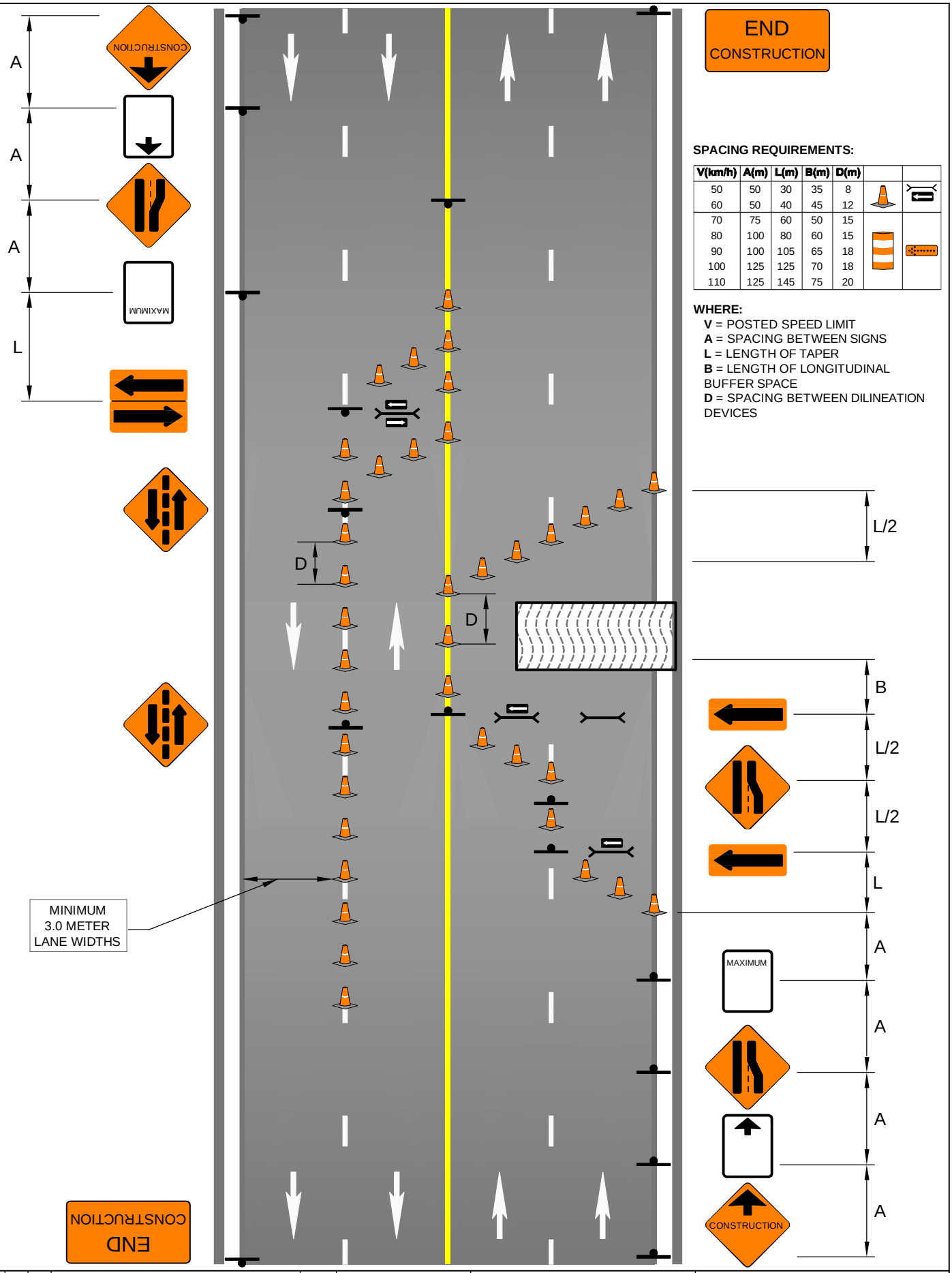
MUNICIPAL WORKS

TEMPORARY TRAFFIC CONTROL

LEFT LANE CLOSURE EACH DIRECTION
MULTI-LANE ROADWAY

DWG. No. 13 Rev. 0



No.	YY MM DD DATE	REVISION DESCRIPTION	BY

DATE: 07/08/24
SCALE: NTS
DRAWN: JDH
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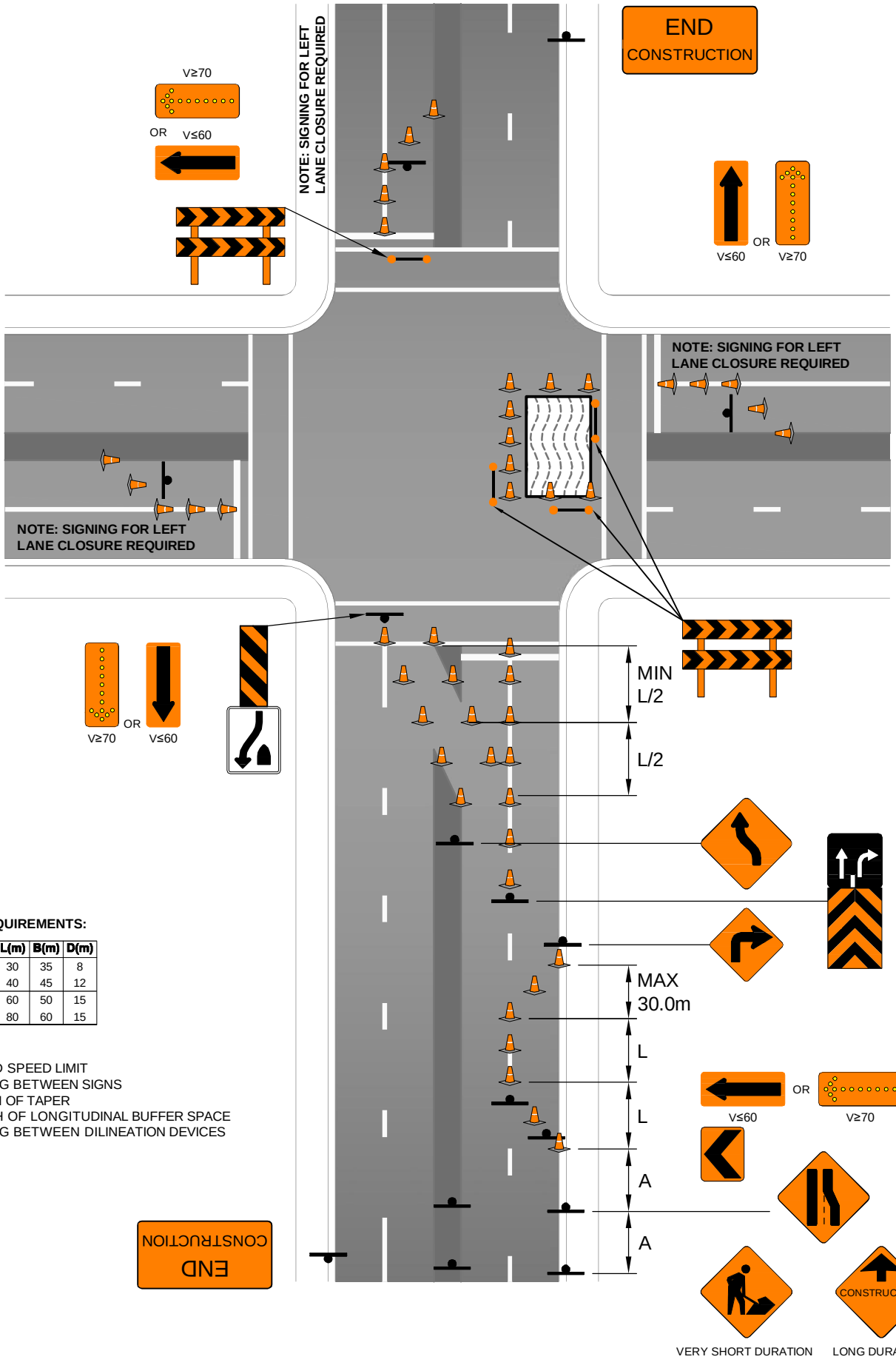
MUNICIPAL WORKS

TEMPORARY TRAFFIC CONTROL

CENTERLINE CROSSOVER
TWO-WAY TRAFFIC

DWG. No. 14 Rev. 0



SPACING REQUIREMENTS:

V(km/h)	A(m)	L(m)	B(m)	D(m)
50	50	30	35	8
60	50	40	45	12
70	75	60	50	15
80	100	80	60	15

WHERE:

V = POSTED SPEED LIMIT
A = SPACING BETWEEN SIGNS
L = LENGTH OF TAPER
B = LENGTH OF LONGITUDINAL BUFFER SPACE
D = SPACING BETWEEN DILINEATION DEVICES

No.	YY MM DD DATE	REVISION DESCRIPTION	BY

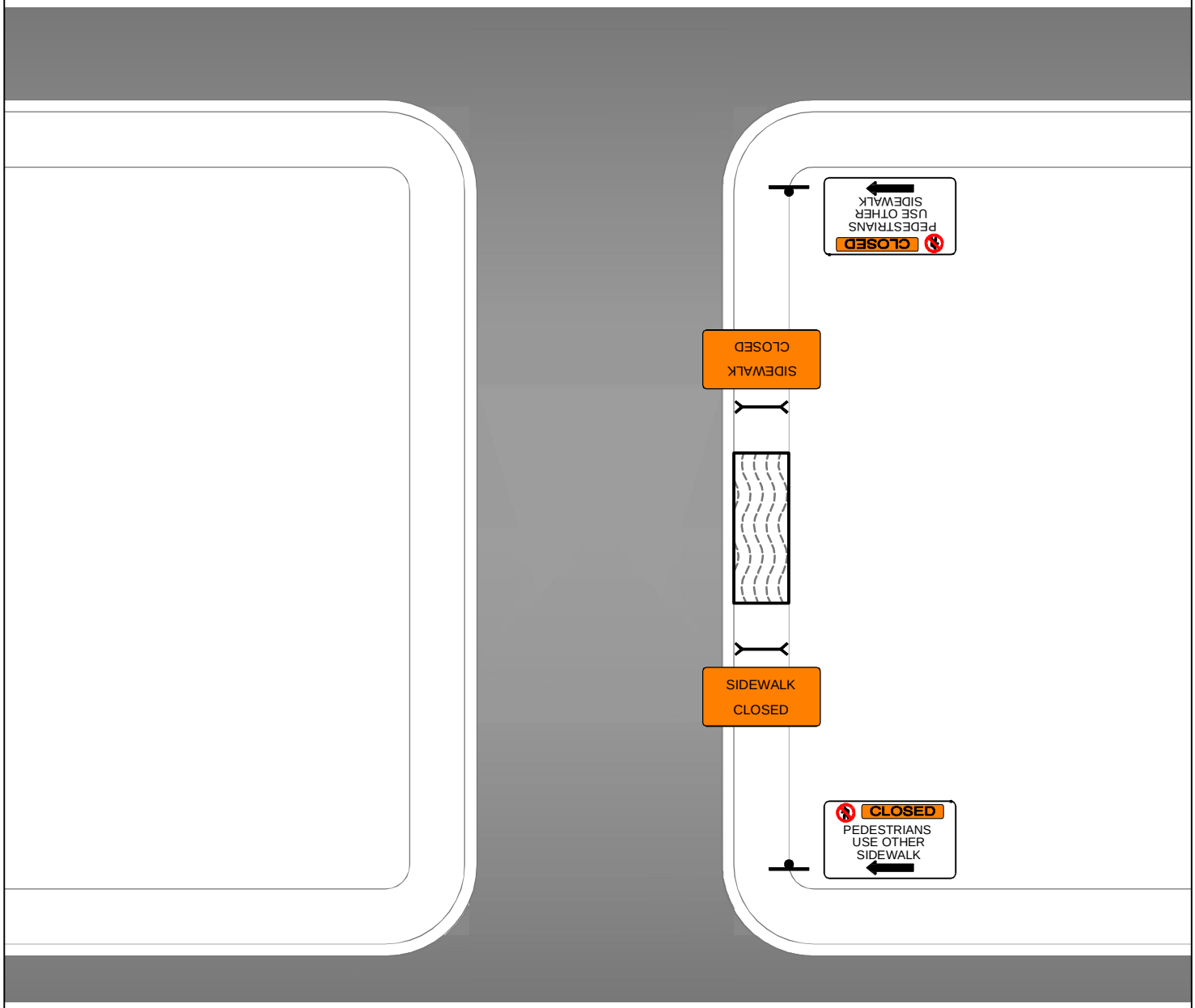
DATE: 07/08/24
SCALE: NTS
DRAWN: JDH
APPROVED:

Medicine Hat
The Gas City
MUNICIPAL WORKS

TEMPORARY TRAFFIC CONTROL

MEDIAN CROSSOVER
APPROACHING AN INTERSECTION

DWG. No. 15 Rev. 0



SPACING REQUIREMENTS:

V(km/h)	A(m)	L(m)	B(m)	D(m)		
50	50	30	35	8		
60	50	40	45	12		
70	75	60	50	15		
80	100	80	60	15		
90	100	105	65	18		
100	125	125	70	18		
110	125	145	75	20		

WHERE:

V = POSTED SPEED LIMIT
A = SPACING BETWEEN SIGNS
L = LENGTH OF TAPER
B = LENGTH OF LONGITUDINAL BUFFER SPACE

No.	YY MM DD DATE	REVISION DESCRIPTION	BY

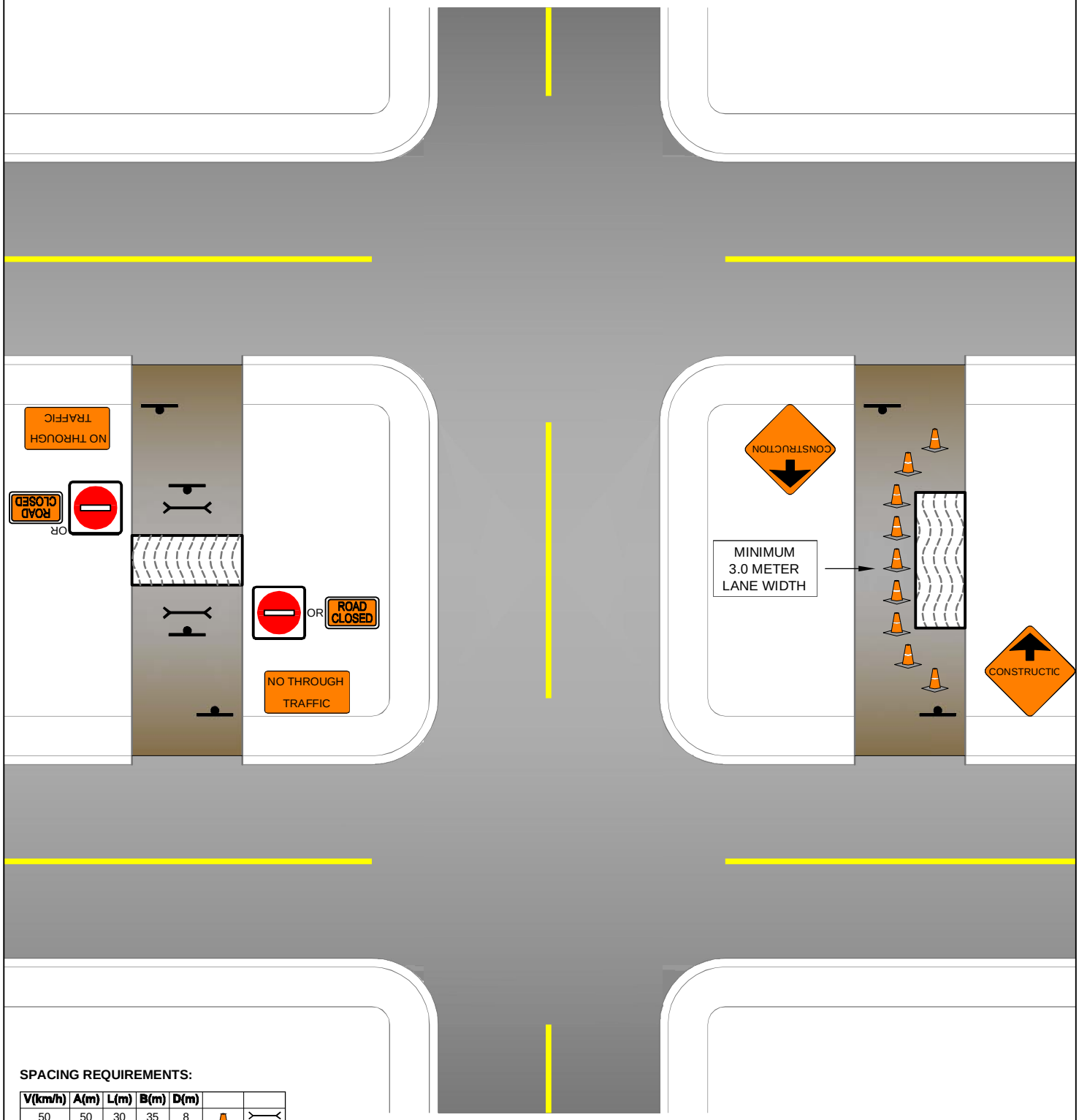
DATE: 07/08/24
SCALE: NTS
DRAWN: JDH
APPROVED:

Medicine Hat
The Gas City
MUNICIPAL WORKS

TEMPORARY TRAFFIC CONTROL

SIDEWALK CLOSURE

DWG. No. 16 Rev. 0



SPACING REQUIREMENTS:

V(km/h)	A(m)	L(m)	B(m)	D(m)
50	50	30	35	8
60	50	40	45	12
70	75	60	50	15
80	100	80	60	15
90	100	105	65	18
100	125	125	70	18
110	125	145	75	20

WHERE:

V = POSTED SPEED LIMIT
A = SPACING BETWEEN SIGNS
L = LENGTH OF TAPER
B = LENGTH OF LONGITUDINAL BUFFER SPACE
D = SPACING BETWEEN DILINEATION DEVICES

No.	YY MM DD DATE	REVISION DESCRIPTION	BY

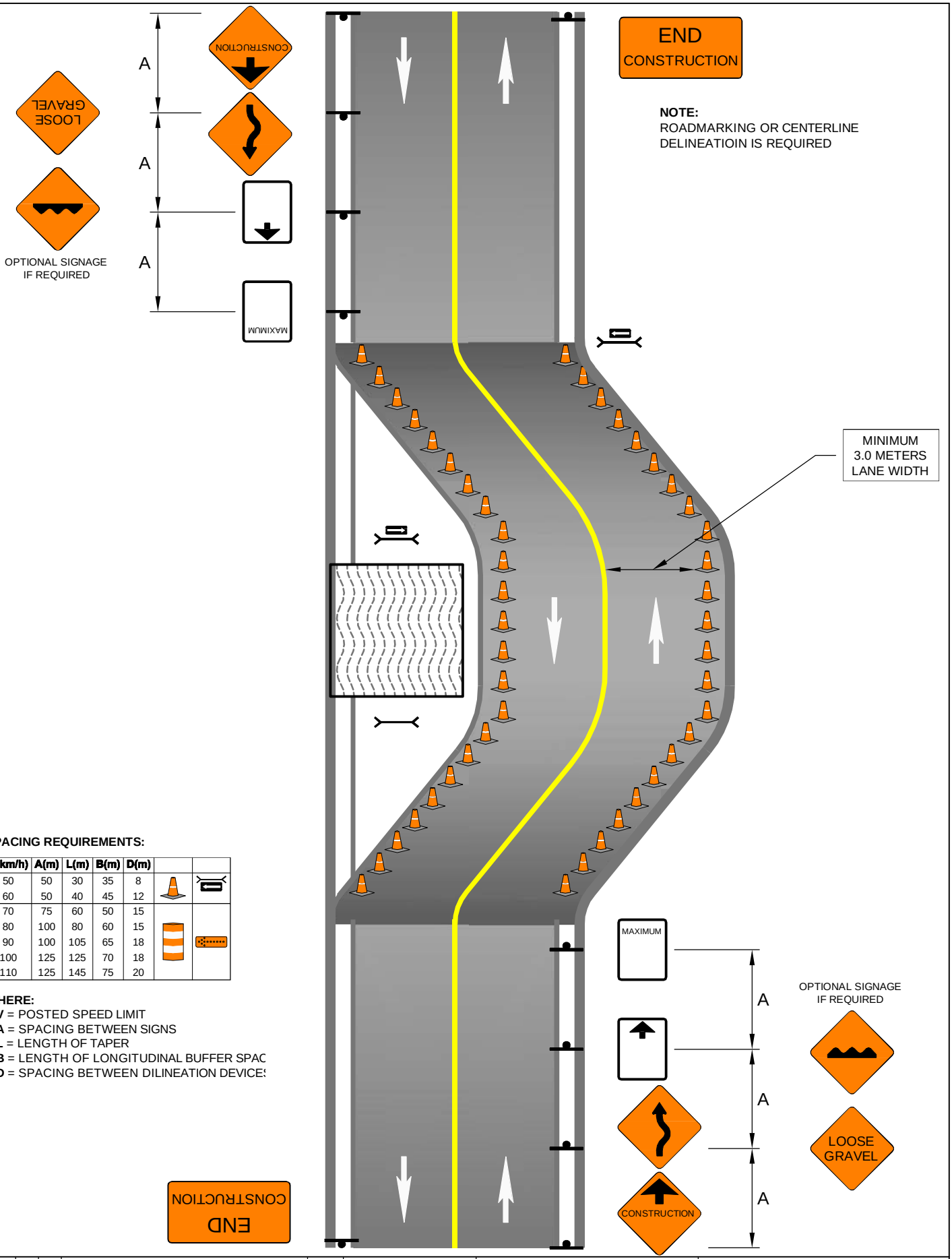
DATE: 07/08/24
SCALE: NTS
DRAWN: JDH
APPROVED:

Medicine Hat
The Gas City
MUNICIPAL WORKS

TEMPORARY TRAFFIC CONTROL

LANE CLOSURE

DWG. No. 17 Rev. 0



SPACING REQUIREMENTS:

V(km/h)	A(m)	L(m)	B(m)	D(m)
50	50	30	35	8
60	50	40	45	12
70	75	60	50	15
80	100	80	60	15
90	100	105	65	18
100	125	125	70	18
110	125	145	75	20

WHERE:

V = POSTED SPEED LIMIT
A = SPACING BETWEEN SIGNS
L = LENGTH OF TAPER
B = LENGTH OF LONGITUDINAL BUFFER SPAC
D = SPACING BETWEEN DILINEATION DEVICES

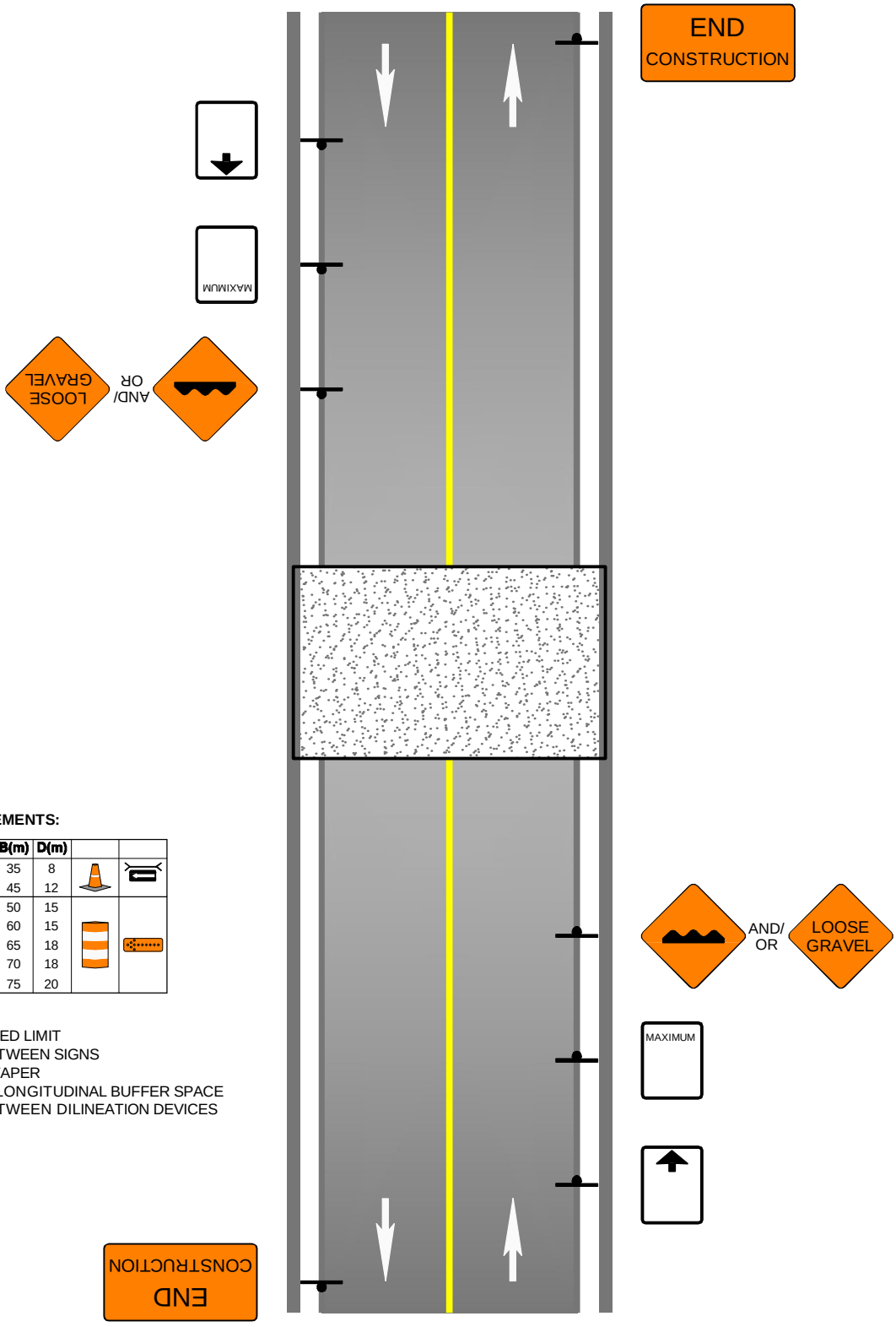
No.	YY MM DD DATE	REVISION DESCRIPTION	BY

DATE: 07/08/24
SCALE: NTS
DRAWN: JDH
APPROVED:

Medicine Hat
The Gas City
MUNICIPAL WORKS

TEMPORARY TRAFFIC CONTROL
ROAD DIVERSION
BOTH DIRECTIONS

DWG. No. 18 Rev. 0



SPACING REQUIREMENTS:

V(km/h)	A(m)	L(m)	B(m)	D(m)		
50	50	30	35	8		
60	50	40	45	12		
70	75	60	50	15		
80	100	80	60	15		
90	100	105	65	18		
100	125	125	70	18		
110	125	145	75	20		

WHERE:

V = POSTED SPEED LIMIT
A = SPACING BETWEEN SIGNS
L = LENGTH OF TAPER
B = LENGTH OF LONGITUDINAL BUFFER SPACE
D = SPACING BETWEEN DILINEATION DEVICES

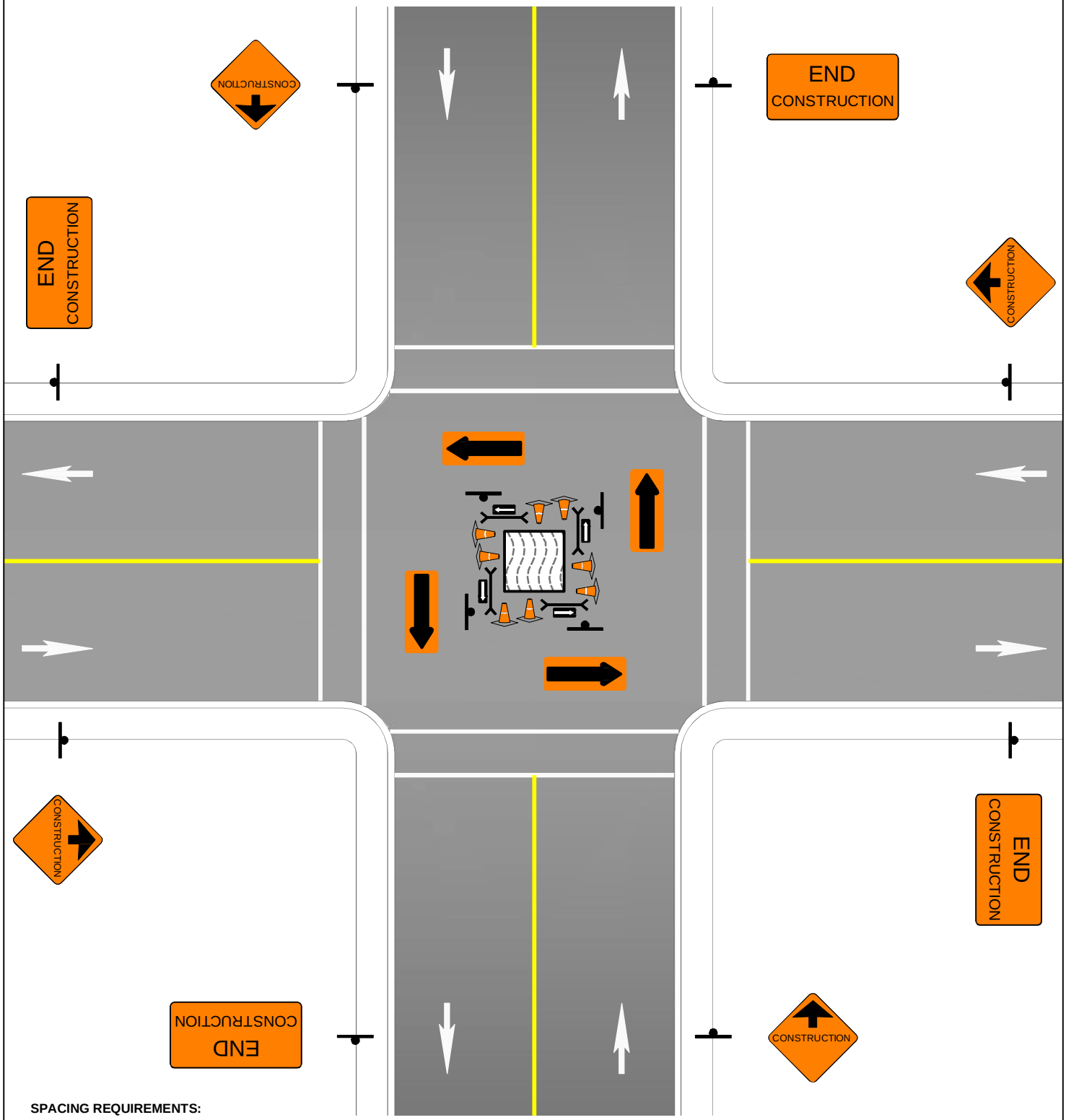
No.	YY MM DD DATE	REVISION DESCRIPTION	BY

DATE: 07/08/24
SCALE: NTS
DRAWN: JDH
APPROVED:

Medicine Hat The Gas City
MUNICIPAL WORKS

TEMPORARY TRAFFIC CONTROL
ROAD BRIDGING
TEMPORARY CUT/FILL IN ROADWAY

DWG. No. 19 Rev. 0



SPACING REQUIREMENTS:

V(km/h)	A(m)	L(m)	B(m)	D(m)
50	50	30	35	8
60	50	40	45	12
70	75	60	50	15
80	100	80	60	15
90	100	105	65	18
100	125	125	70	18
110	125	145	75	20

WHERE:

V = POSTED SPEED LIMIT
A = SPACING BETWEEN SIGNS
L = LENGTH OF TAPER
B = LENGTH OF LONGITUDINAL BUFFER SPACE
D = SPACING BETWEEN DILINEATION DEVICES

No.	YY MM DD DATE	REVISION DESCRIPTION	BY

DATE: 07/08/24
SCALE: NTS
DRAWN: JDH
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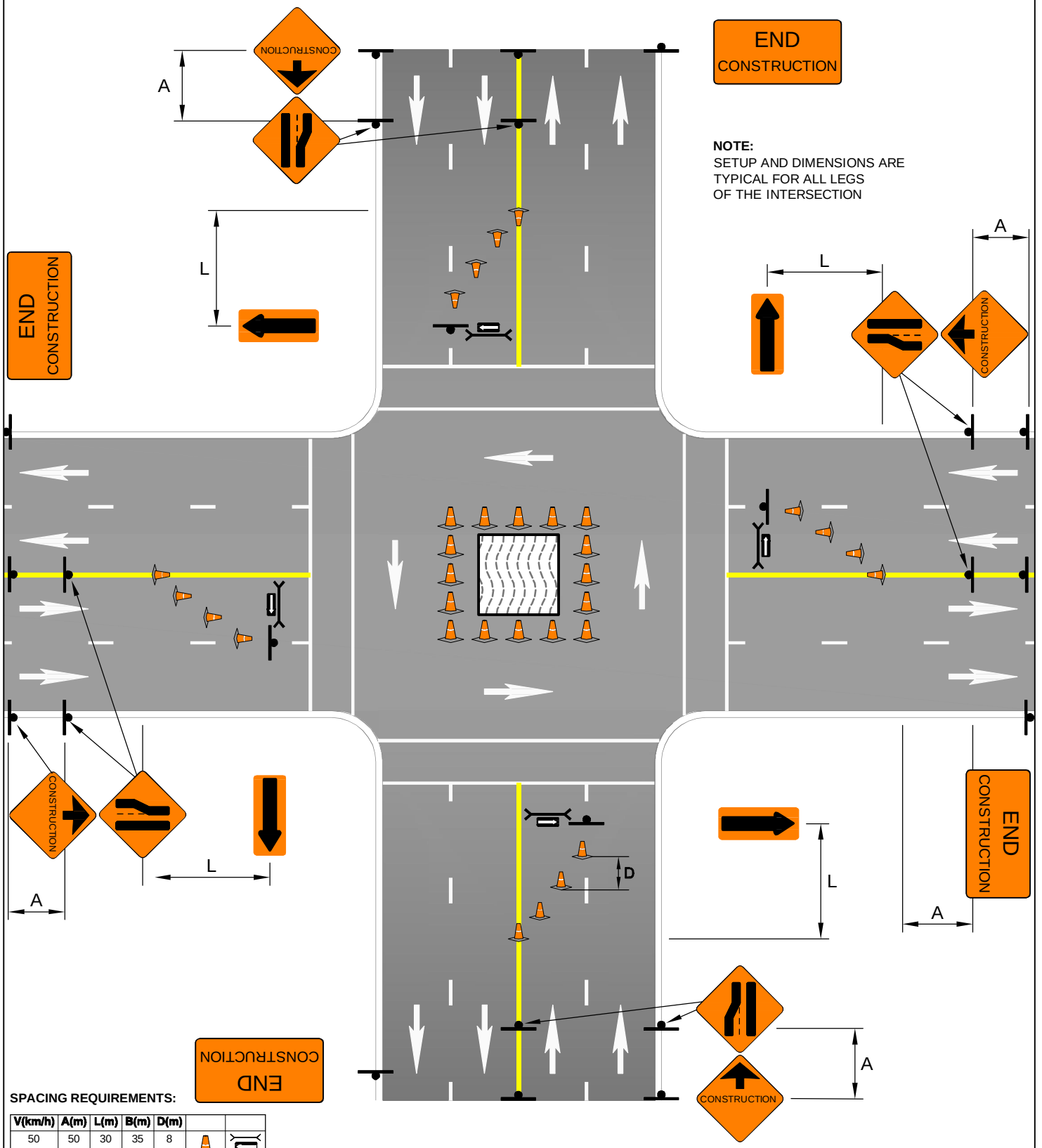
The Gas City
MUNICIPAL WORKS

TEMPORARY TRAFFIC CONTROL

INTERSECTION WORK
LOCAL ROADWAY - LOW VOLUME

DWG. No. 20 Rev. 0



SPACING REQUIREMENTS:

V(km/h)	A(m)	L(m)	B(m)	D(m)
50	50	30	35	8
60	50	40	45	12
70	75	60	50	15
80	100	80	60	15
90	100	105	65	18
100	125	125	70	18
110	125	145	75	20

WHERE:

V = POSTED SPEED LIMIT
A = SPACING BETWEEN SIGNS
L = LENGTH OF TAPER
B = LENGTH OF LONGITUDINAL BUFFER SPACE
D = SPACING BETWEEN DILINEATION DEVICES

No.	YY MM DD DATE	REVISION DESCRIPTION	BY

DATE: 07/08/24
SCALE: NTS
DRAWN: JDH
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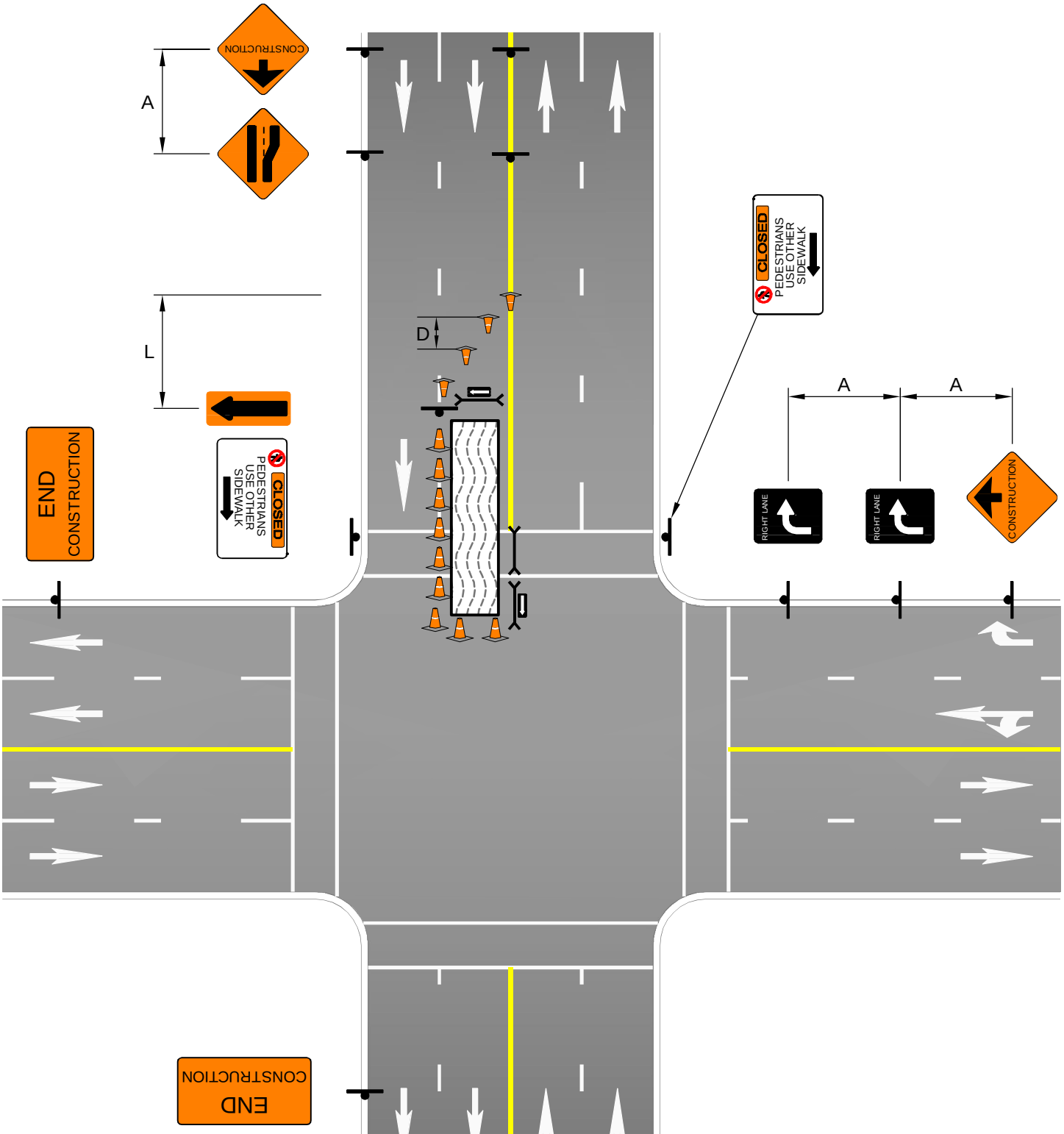
MUNICIPAL WORKS

TEMPORARY TRAFFIC CONTROL

INTERSECTION WORK
EXAMPLE 2

DWG. No. 21 Rev. 0



SPACING REQUIREMENTS:

V(km/h)	A(m)	L(m)	B(m)	D(m)
50	50	30	35	8
60	50	40	45	12
70	75	60	50	15
80	100	80	60	15
90	100	105	65	18
100	125	125	70	18
110	125	145	75	20

WHERE:

V = POSTED SPEED LIMIT
A = SPACING BETWEEN SIGNS
L = LENGTH OF TAPER
B = LENGTH OF LONGITUDINAL BUFFER SPACE
D = SPACING BETWEEN DILINEATION DEVICES

No.	YY MM DD DATE	REVISION DESCRIPTION	BY

DATE: 07/08/24
SCALE: NTS
DRAWN: JDH
APPROVED:

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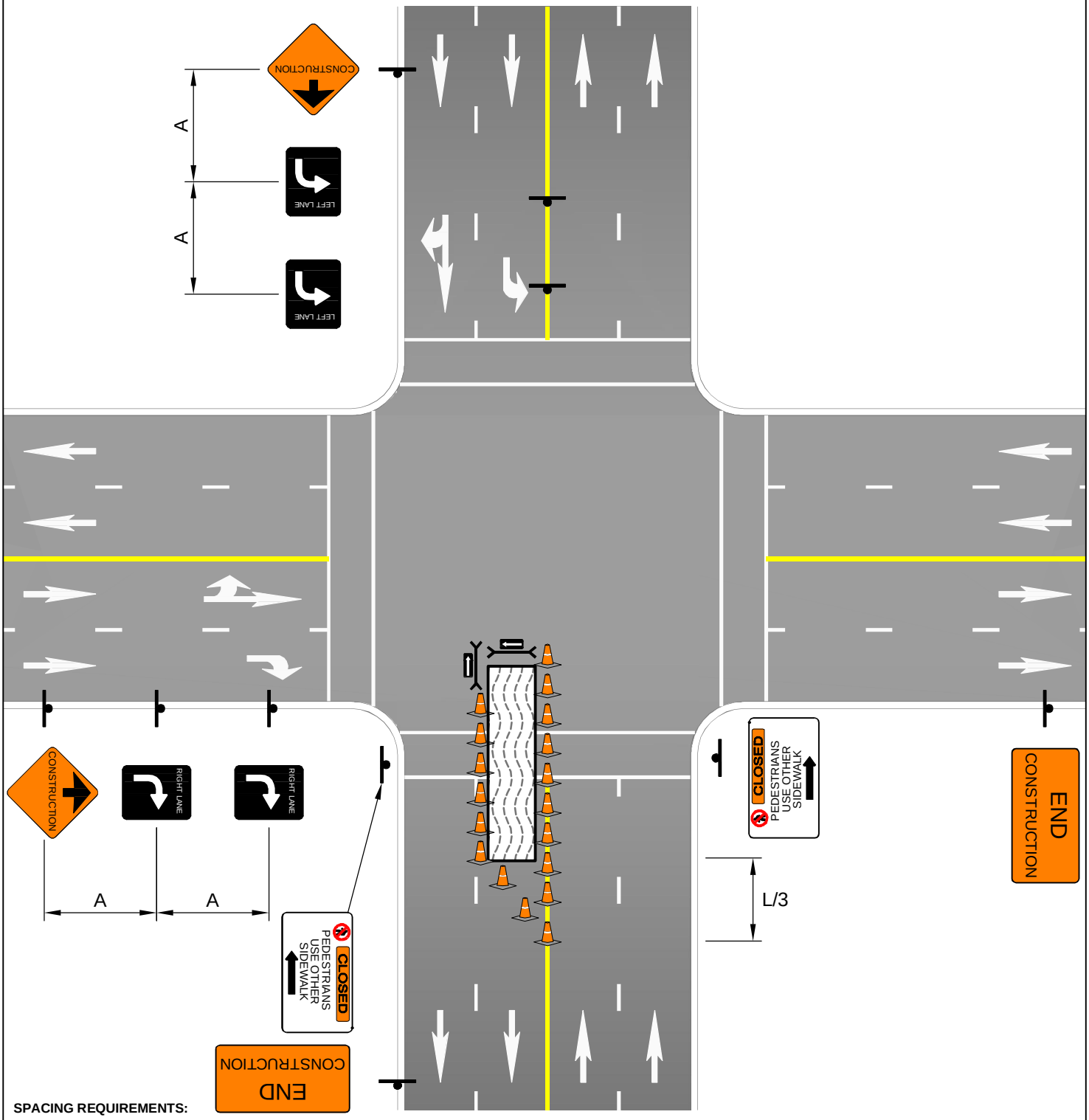
The Gas City
MUNICIPAL WORKS

TEMPORARY TRAFFIC CONTROL

INTERSECTION WORK
EXAMPLE 3

DWG. No. 22 Rev. 0



SPACING REQUIREMENTS:

V(km/h)	A(m)	L(m)	B(m)	D(m)
50	50	30	35	8
60	50	40	45	12
70	75	60	50	15
80	100	80	60	15
90	100	105	65	18
100	125	125	70	18
110	125	145	75	20

WHERE:

V = POSTED SPEED LIMIT
A = SPACING BETWEEN SIGNS
L = LENGTH OF TAPER
B = LENGTH OF LONGITUDINAL BUFFER SPACE
D = SPACING BETWEEN DILINEATION DEVICES

No.	YY MM DD DATE	REVISION DESCRIPTION	BY

DATE: 07/08/24
SCALE: NTS
DRAWN: JDH
APPROVED:

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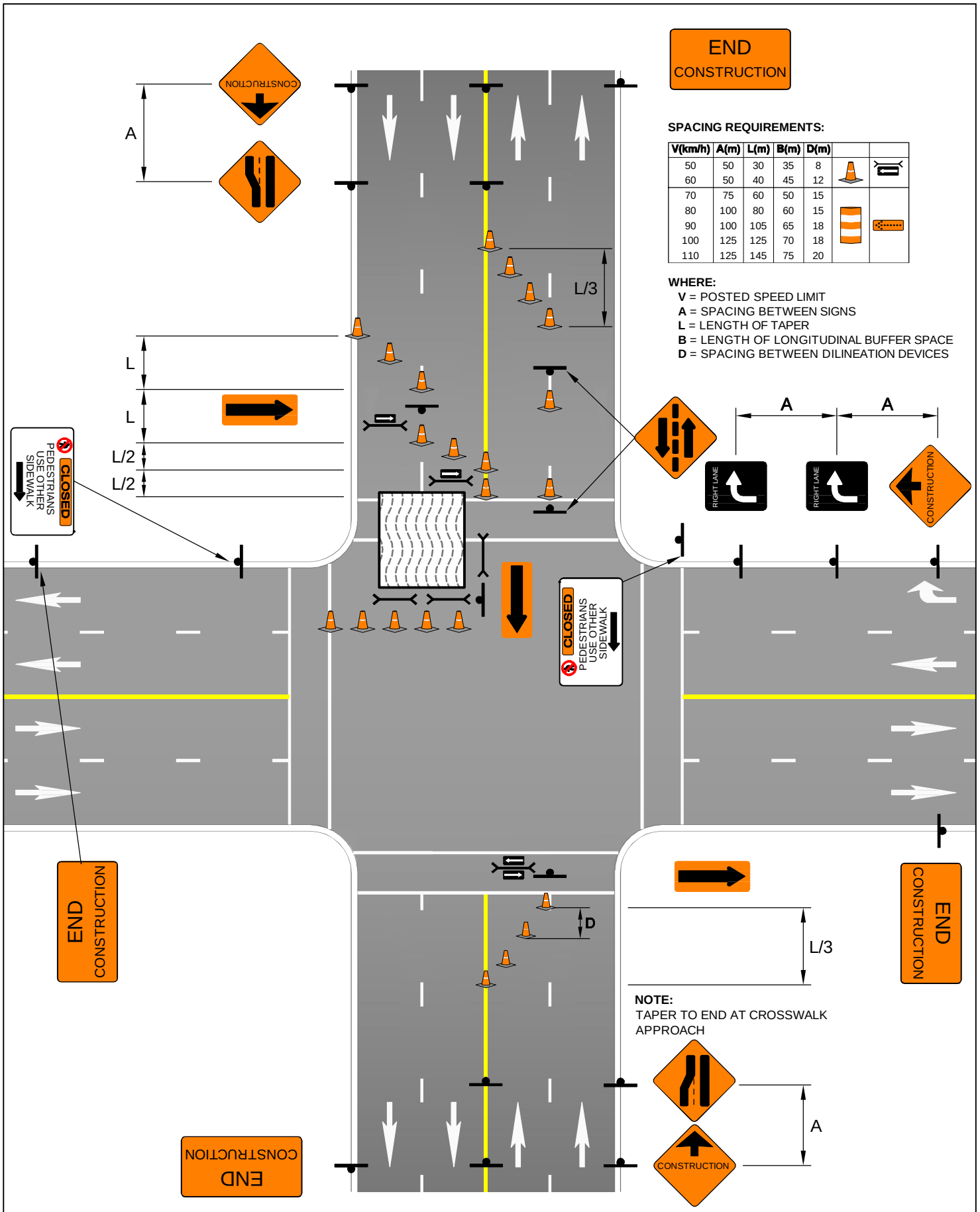
MUNICIPAL WORKS

TEMPORARY TRAFFIC CONTROL

INTERSECTION WORK
EXAMPLE 4

DWG. No. 23 Rev. 0



No.	YY MM DD DATE	REVISION DESCRIPTION	BY

DATE: 07/08/24
SCALE: NTS
DRAWN: JDH
APPROVED:

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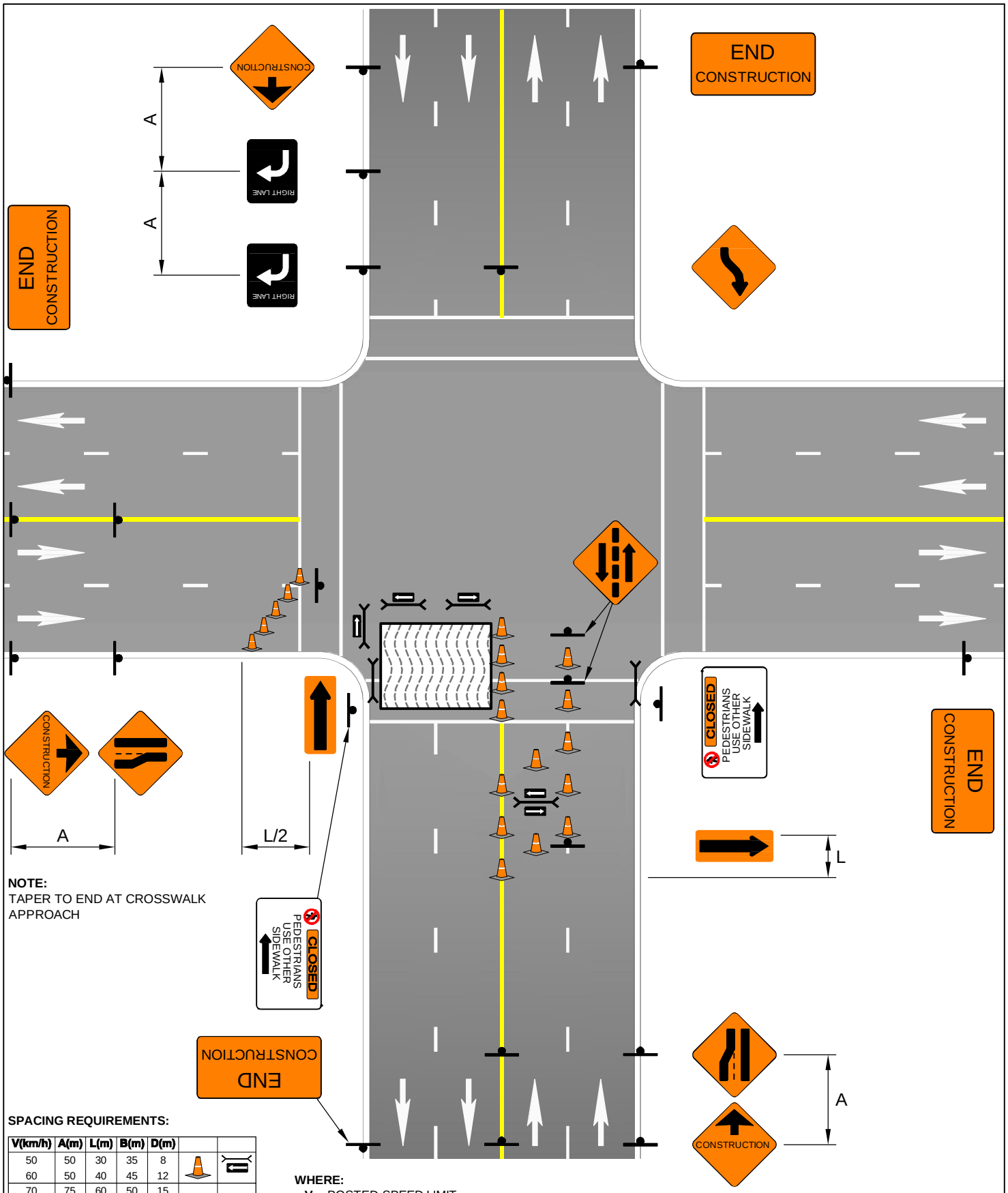
The Gas City
MUNICIPAL WORKS

TEMPORARY TRAFFIC CONTROL

INTERSECTION WORK
EXAMPLE 5

DWG. No. 24 Rev. 0



NOTE:
TAPER TO END AT CROSSWALK APPROACH

SPACING REQUIREMENTS:

V(km/h)	A(m)	L(m)	B(m)	D(m)
50	50	30	35	8
60	50	40	45	12
70	75	60	50	15
80	100	80	60	15
90	100	105	65	18
100	125	125	70	18
110	125	145	75	20

WHERE:
V = POSTED SPEED LIMIT
A = SPACING BETWEEN SIGNS
L = LENGTH OF TAPER
B = LENGTH OF LONGITUDINAL BUFFER SPACE
D = SPACING BETWEEN DILINEATION DEVICES

No.	YY MM DD DATE	REVISION DESCRIPTION	BY

DATE: 07/08/24
SCALE: NTS
DRAWN: JDH
APPROVED:

Medicine Hat
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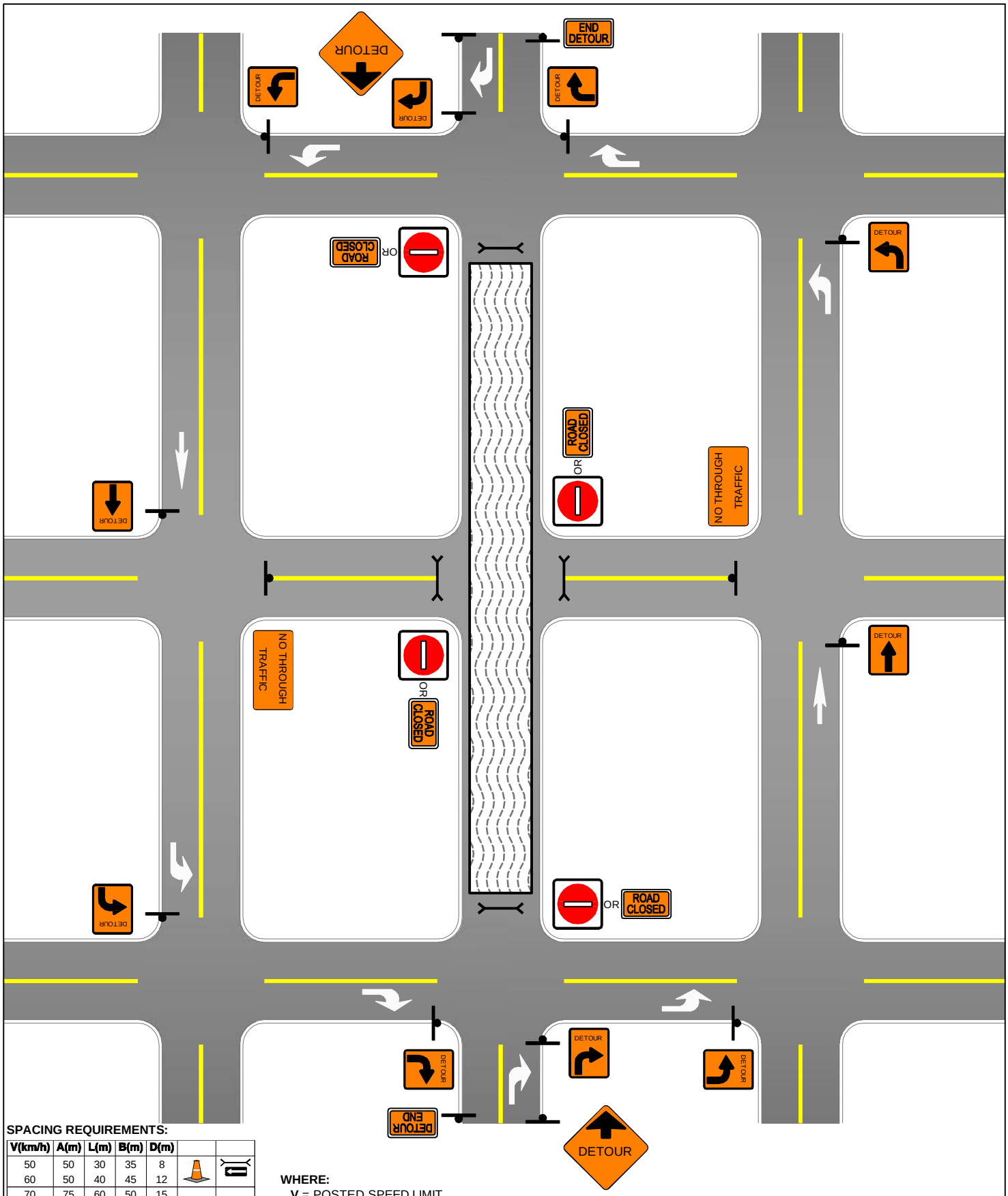
MUNICIPAL WORKS

TEMPORARY TRAFFIC CONTROL
INTERSECTION WORK
EXAMPLE 6

DWG. No. 25 Rev. 0



SPACING REQUIREMENTS:

V(km/h)	A(m)	L(m)	B(m)	D(m)
50	50	30	35	8
60	50	40	45	12
70	75	60	50	15
80	100	80	60	15
90	100	105	65	18
100	125	125	70	18
110	125	145	75	20

WHERE:

V = POSTED SPEED LIMIT
A = SPACING BETWEEN SIGNS
L = LENGTH OF TAPER
B = LENGTH OF LONGITUDINAL BUFFER SPACE
D = SPACING BETWEEN DILINEATION DEVICES

No.	YY MM DD DATE	REVISION DESCRIPTION	BY

DATE: 07/08/24
SCALE: NTS
DRAWN: JDH
APPROVED:

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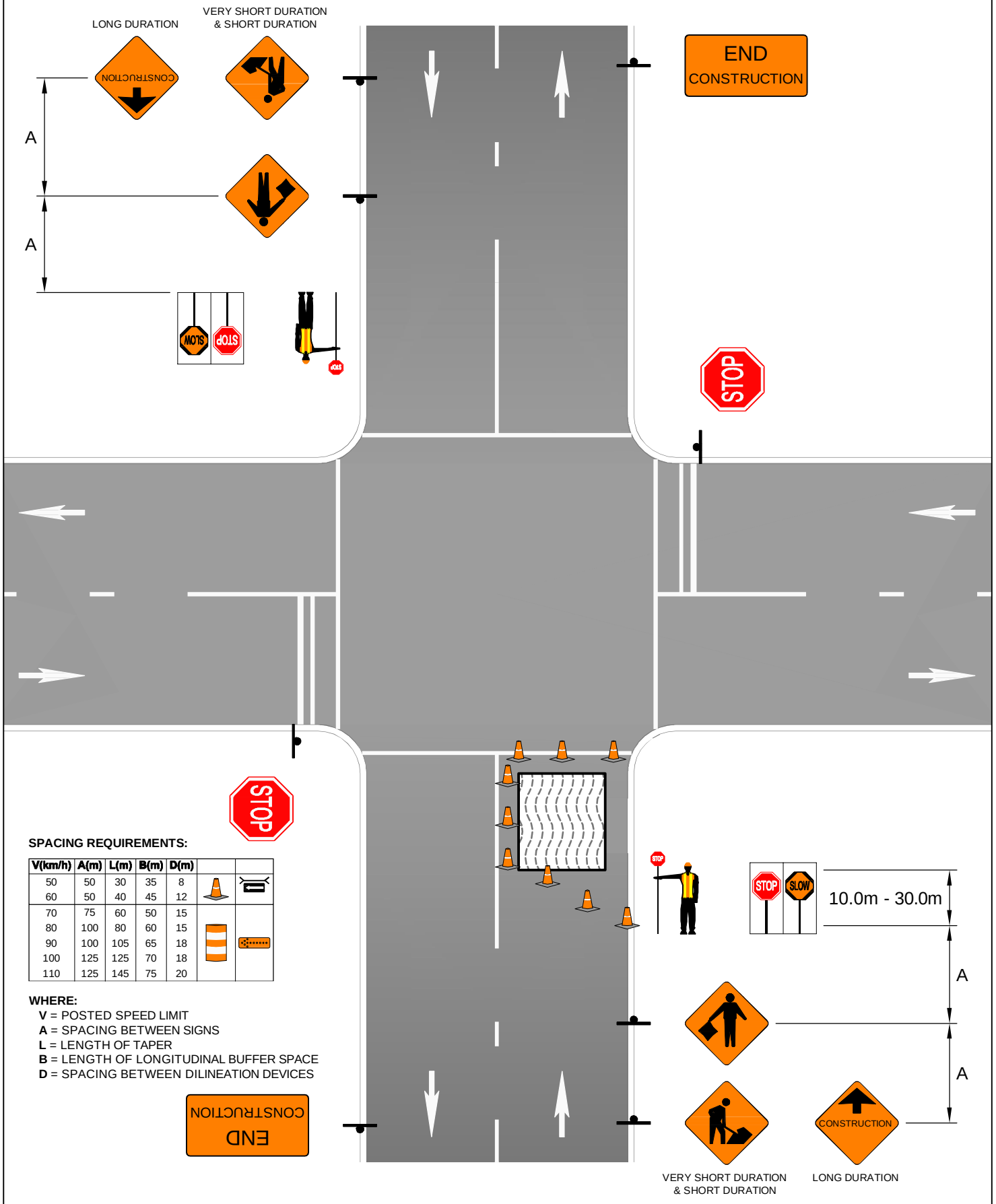
MUNICIPAL WORKS

TEMPORARY TRAFFIC CONTROL

ROAD CLOSURE

DWG. No. 26 Rev. 0



SPACING REQUIREMENTS:

V(km/h)	A(m)	L(m)	B(m)	D(m)
50	50	30	35	8
60	50	40	45	12
70	75	60	50	15
80	100	80	60	15
90	100	105	65	18
100	125	125	70	18
110	125	145	75	20

WHERE:

V = POSTED SPEED LIMIT
A = SPACING BETWEEN SIGNS
L = LENGTH OF TAPER
B = LENGTH OF LONGITUDINAL BUFFER SPACE
D = SPACING BETWEEN DILINEATION DEVICES

No.	YY MM DD DATE	REVISION DESCRIPTION	BY

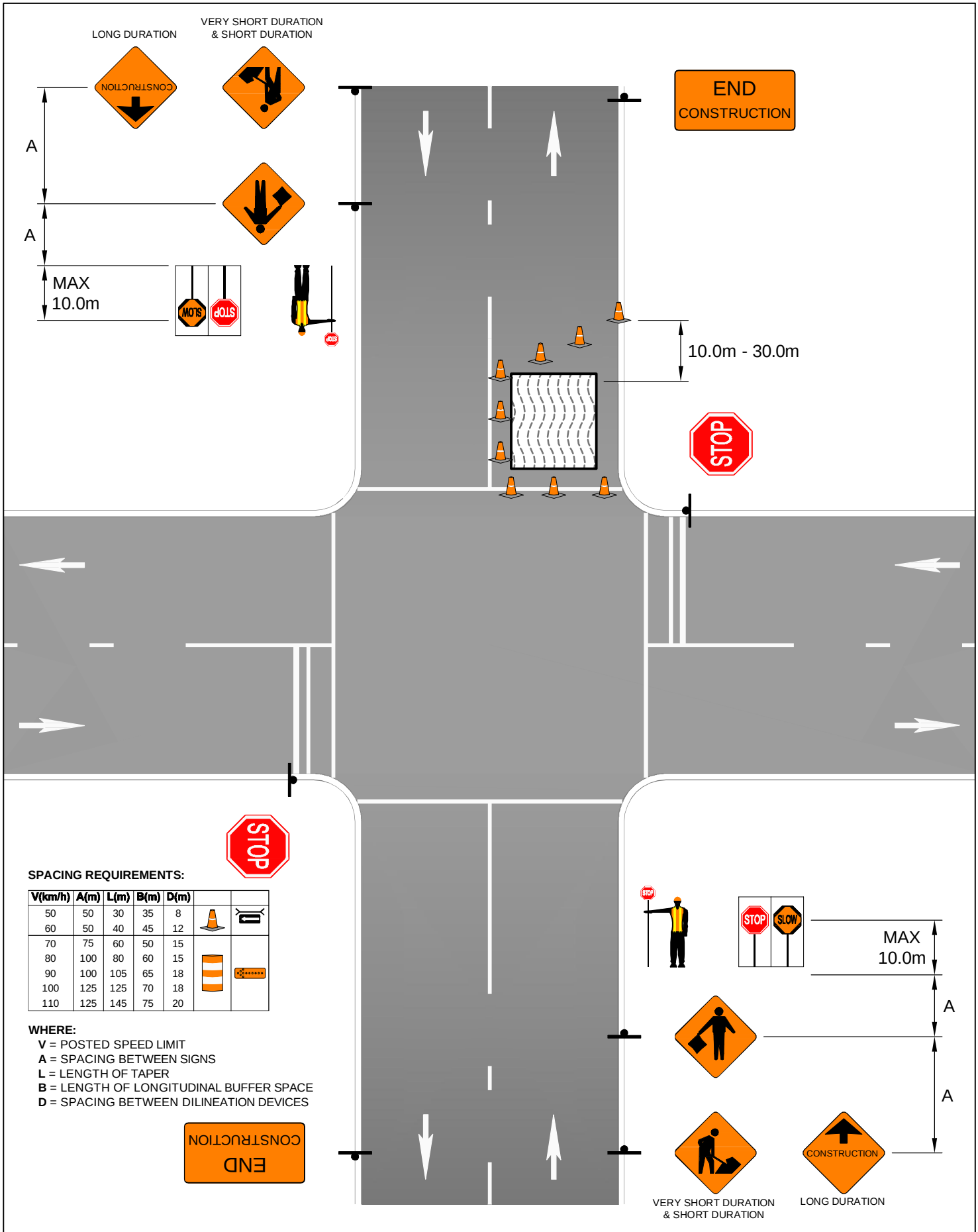
DATE: 07/08/24
SCALE: NTS
DRAWN: JDH
APPROVED:

Medicine Hat
The Gas City
MUNICIPAL WORKS

TEMPORARY TRAFFIC CONTROL

INTERSECTION CLOSURE
TWO-WAY ROADS

DWG. No. 27 Rev. 0



No.	YY MM DD DATE	REVISION DESCRIPTION	BY

DATE: 07/08/24
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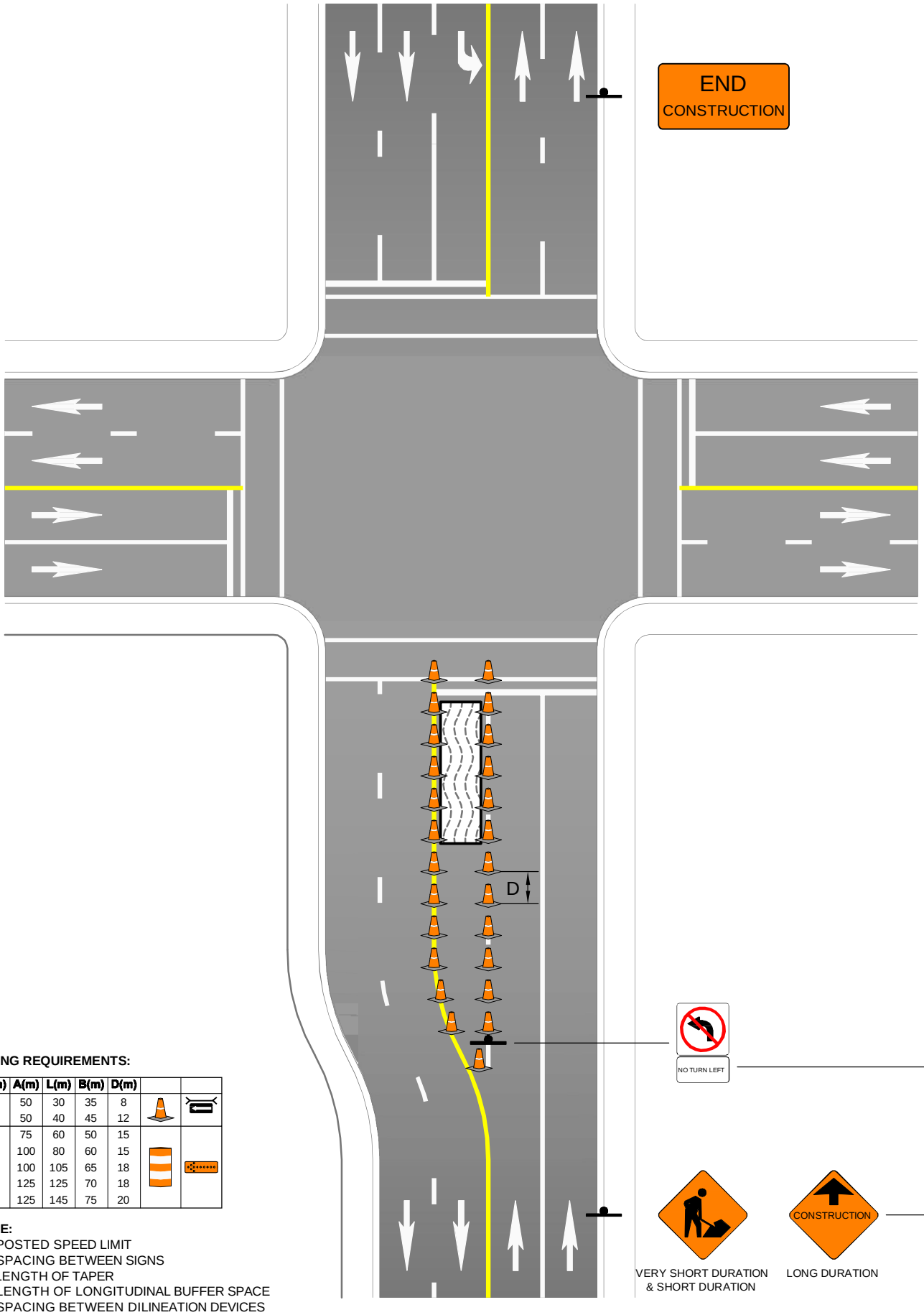
TEMPORARY TRAFFIC CONTROL
INTERSECTION CLOSURE
TWO-WAY ROADS
FAR LANE CLOSURE

DWG. No. 28 Rev. 0



SPACING REQUIREMENTS:

V(km/h)	A(m)	L(m)	B(m)	D(m)
50	50	30	35	8
60	50	40	45	12
70	75	60	50	15
80	100	80	60	15
90	100	105	65	18
100	125	125	70	18
110	125	145	75	20

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L = LENGTH OF TAPER
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D = SPACING BETWEEN DILINEATION DEVICES

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DATE: 07/08/24
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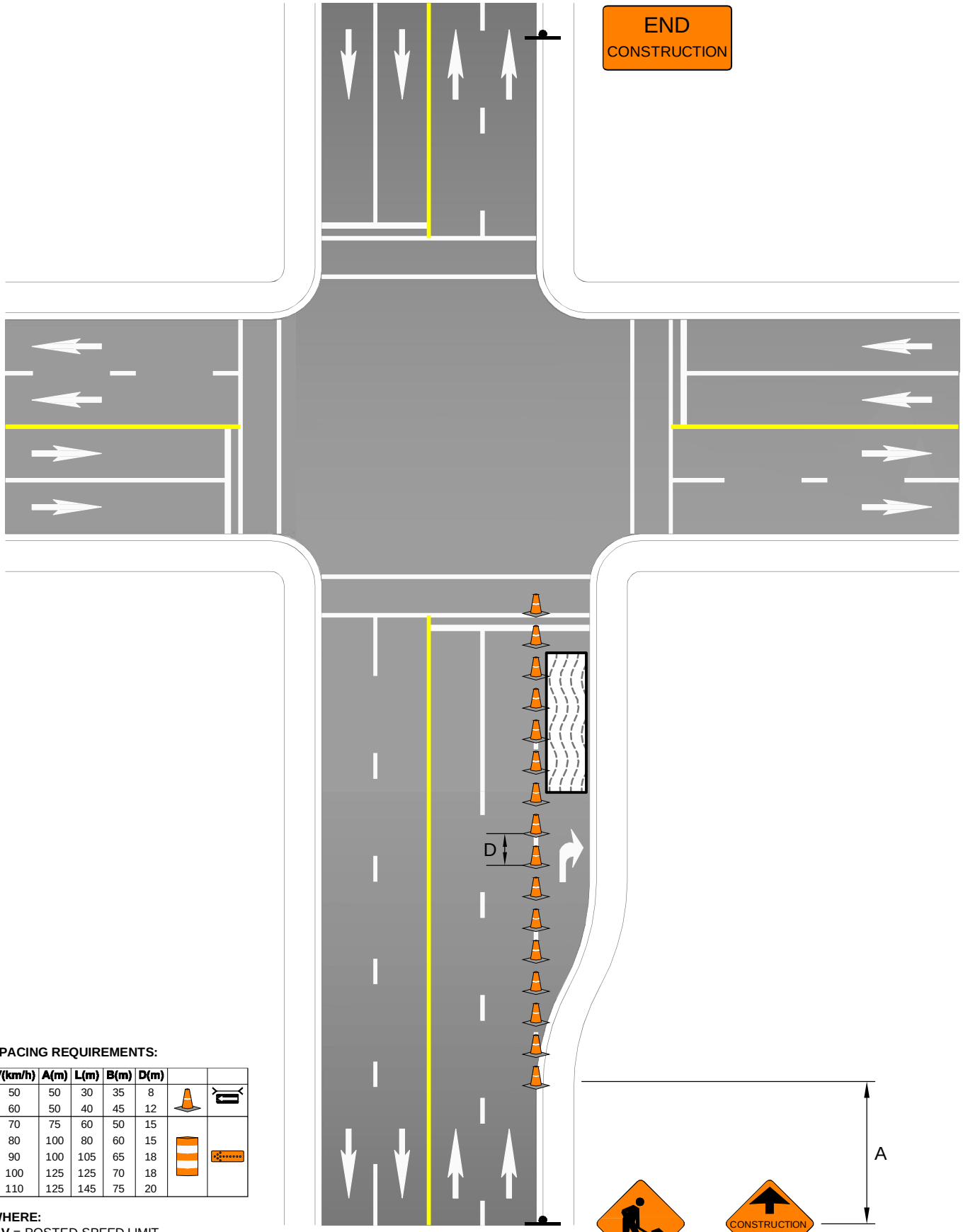
TEMPORARY TRAFFIC CONTROL

LEFT TURN LANE CLOSURE

DWG. No. 29 Rev. 0



SPACING REQUIREMENTS:

V(km/h)	A(m)	L(m)	B(m)	D(m)
50	50	30	35	8
60	50	40	45	12
70	75	60	50	15
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110	125	145	75	20

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L = LENGTH OF TAPER
B = LENGTH OF LONGITUDINAL BUFFER SPACE
D = SPACING BETWEEN DILINEATION DEVICES

VERY SHORT DURATION & SHORT DURATION

LONG DURATION

No.	YY MM DD DATE	REVISION DESCRIPTION	BY

DATE: 07/08/24
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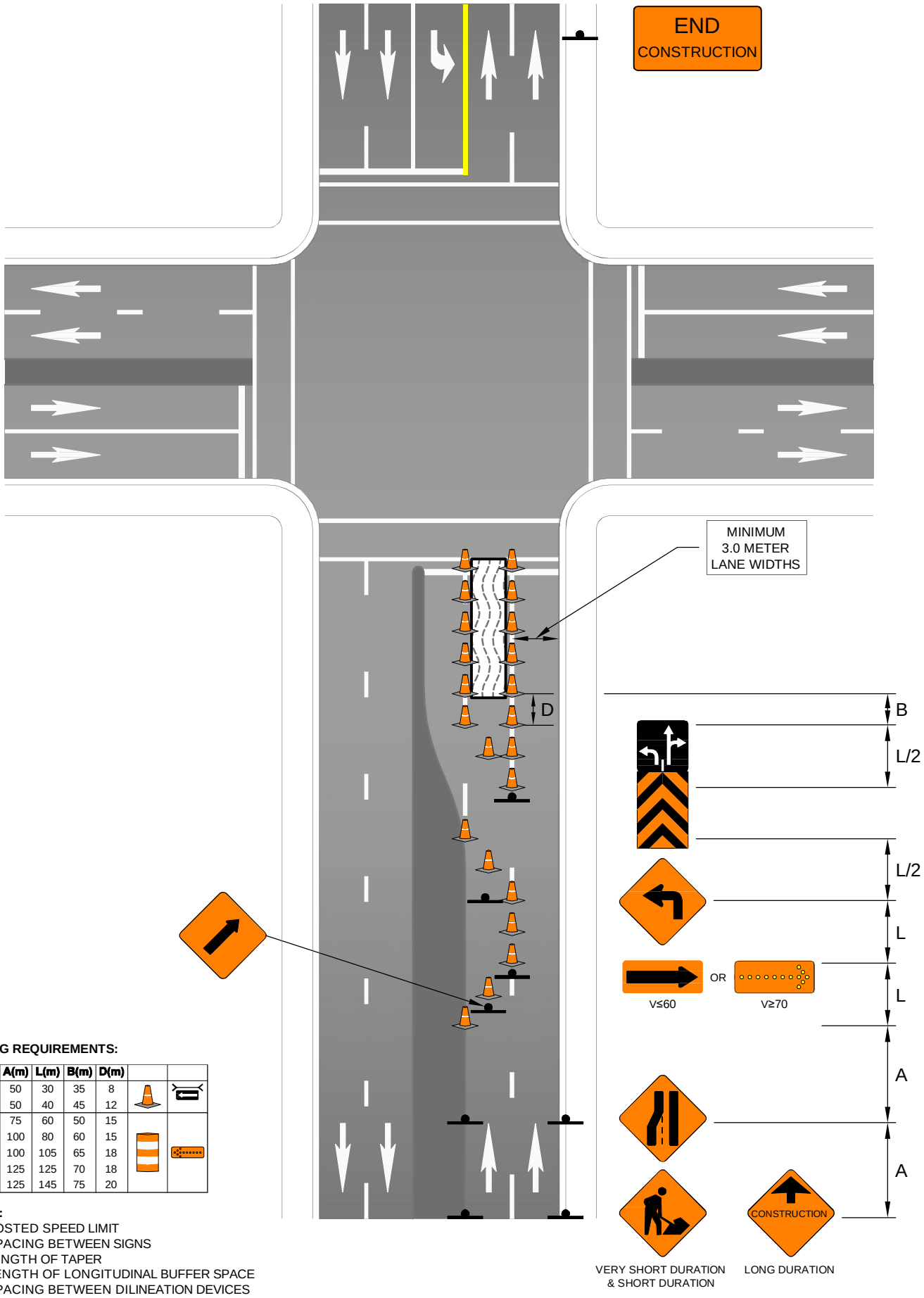
TEMPORARY TRAFFIC CONTROL

RIGHT TURN LANE CLOSURE

DWG. No. 30 Rev. 0



SPACING REQUIREMENTS:

V(km/h)	A(m)	L(m)	B(m)	D(m)
50	50	30	35	8
60	50	40	45	12
70	75	60	50	15
80	100	80	60	15
90	100	105	65	18
100	125	125	70	18
110	125	145	75	20

WHERE:

V = POSTED SPEED LIMIT
A = SPACING BETWEEN SIGNS
L = LENGTH OF TAPER
B = LENGTH OF LONGITUDINAL BUFFER SPACE
D = SPACING BETWEEN DILINEATION DEVICES

No.	YY MM DD DATE	REVISION DESCRIPTION	BY

DATE: 07/08/24
SCALE: NTS
DRAWN: JDH
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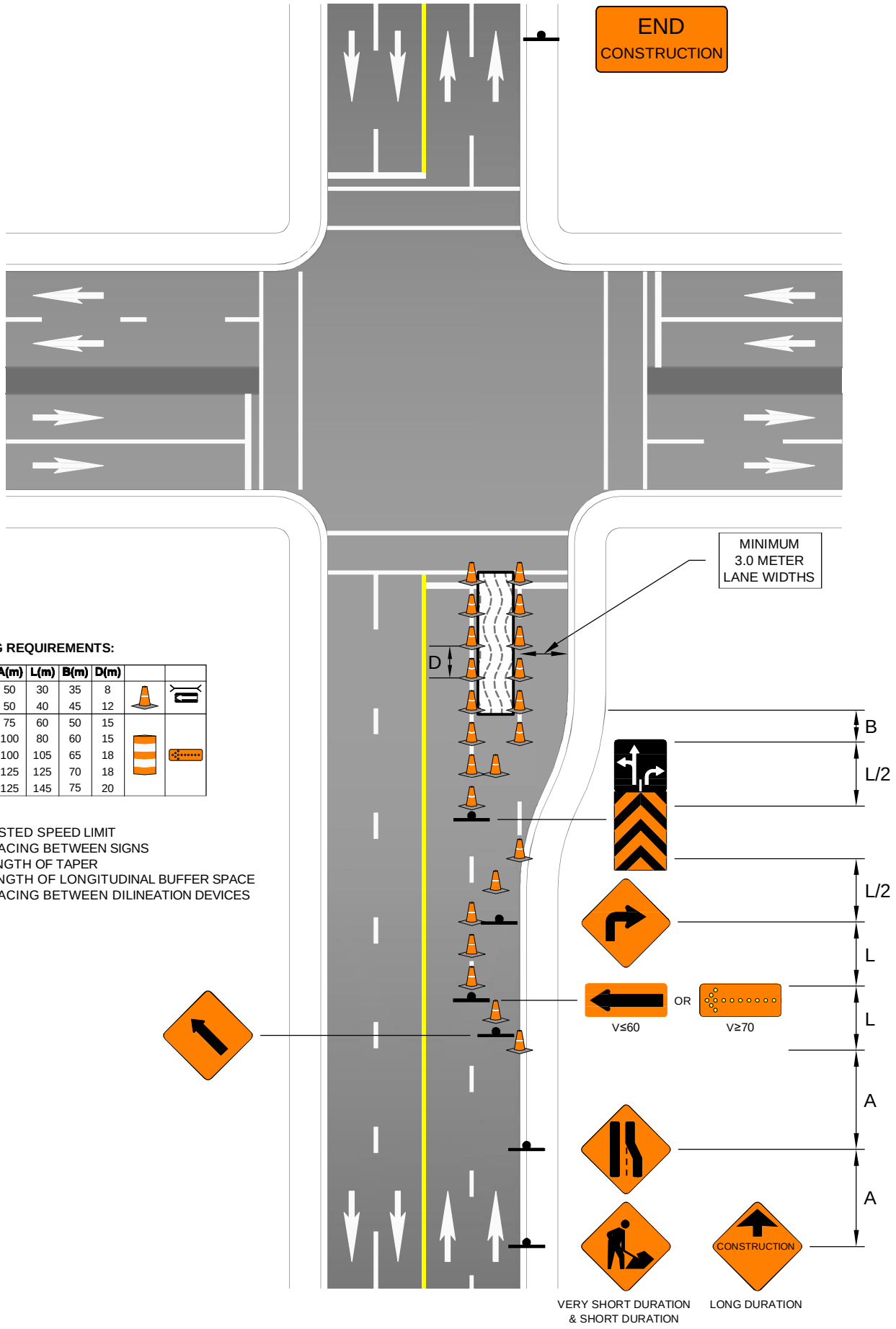
MUNICIPAL WORKS

TEMPORARY TRAFFIC CONTROL

ADJACENT LANE CLOSURE
LEFT-TURN LANE OPEN

DWG. No. 31 Rev. 0



SPACING REQUIREMENTS:

V(km/h)	A(m)	L(m)	B(m)	D(m)
50	50	30	35	8
60	50	40	45	12
70	75	60	50	15
80	100	80	60	15
90	100	105	65	18
100	125	125	70	18
110	125	145	75	20

WHERE:

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L = LENGTH OF TAPER
B = LENGTH OF LONGITUDINAL BUFFER SPACE
D = SPACING BETWEEN DILINEATION DEVICES

No.	YY MM DD DATE	REVISION DESCRIPTION	BY

DATE: 07/08/24
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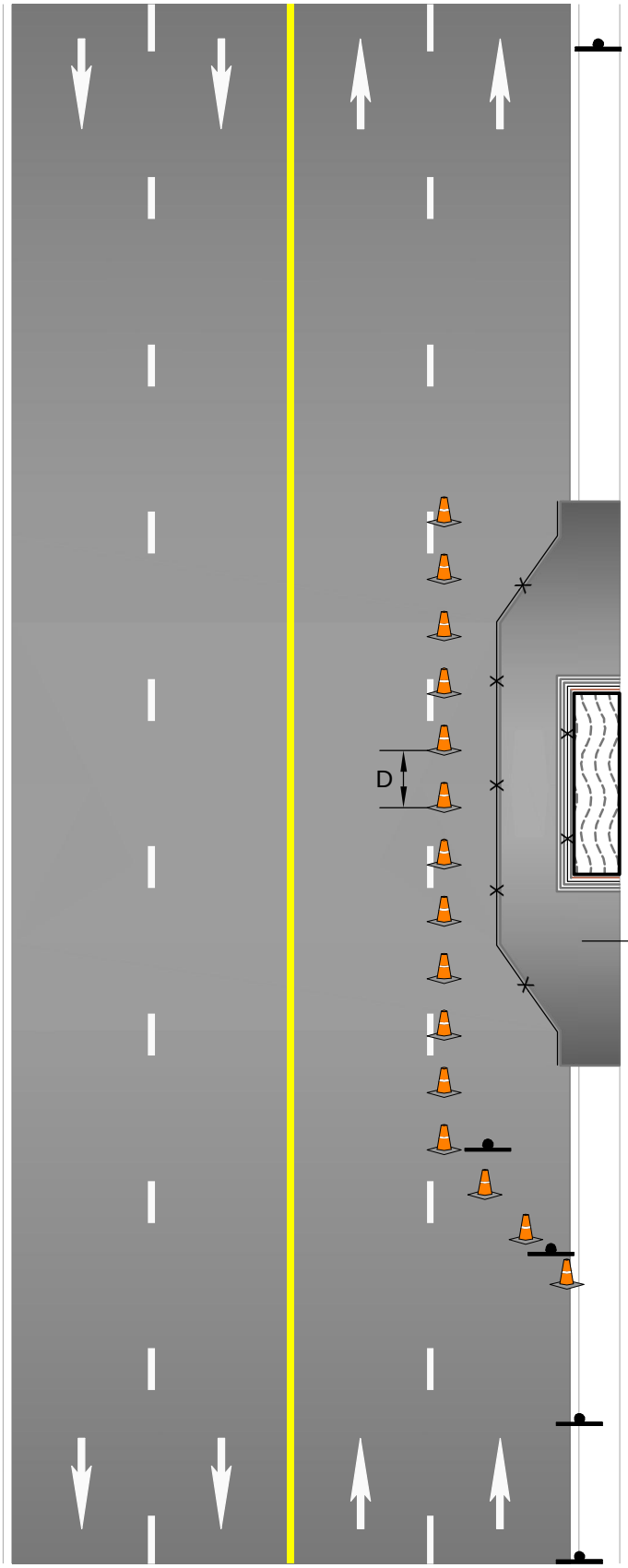
TEMPORARY TRAFFIC CONTROL

RIGHT TURN LANE OPEN
ADJACENT THROUGH LANE CLOSURE

DWG. No. 32 Rev. 0



SPACING REQUIREMENTS:

V(km/h)	A(m)	L(m)	B(m)	D(m)
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60	50	40	45	12
70	75	60	50	15
80	100	80	60	15
90	100	105	65	18
100	125	125	70	18
110	125	145	75	20

WHERE:

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A = SPACING BETWEEN SIGNS
L = LENGTH OF TAPER
B = LENGTH OF LONGITUDINAL BUFFER SPACE
D = SPACING BETWEEN DILINEATION DEVICES

NOTE:
THE MINIMUM WIDTH OF THE
TEMPORARY WALKWAY IS 1.2 METERS

No.	YY MM DD DATE	REVISION DESCRIPTION	BY

DATE: 07/08/24
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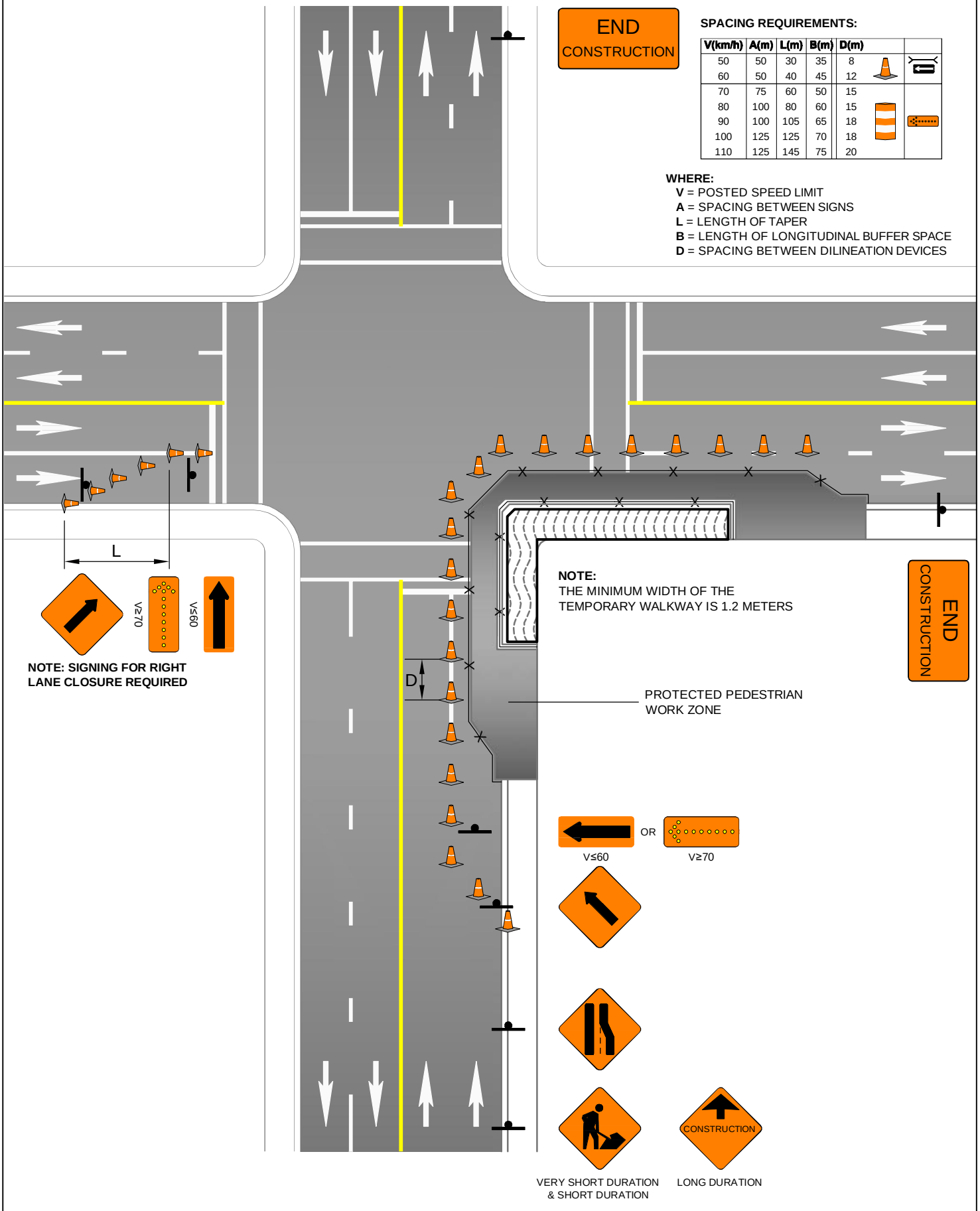
MUNICIPAL WORKS

TEMPORARY TRAFFIC CONTROL
PEDESTRIAN CONSIDERATION
SIDEWALK DETOUR ONTO ROADWAY

DWG. No. 33 Rev. 0



SPACING REQUIREMENTS:

V(km/h)	A(m)	L(m)	B(m)	D(m)
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60	50	40	45	12
70	75	60	50	15
80	100	80	60	15
90	100	105	65	18
100	125	125	70	18
110	125	145	75	20

WHERE:

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B = LENGTH OF LONGITUDINAL BUFFER SPACE
D = SPACING BETWEEN DILINEATION DEVICES

No.	YY MM DD DATE	REVISION DESCRIPTION	BY

DATE: 07/08/24
SCALE: NTS
DRAWN: JDH
APPROVED:

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The Gas City
MUNICIPAL WORKS

TEMPORARY TRAFFIC CONTROL
PEDESTRIAN CONSIDERATION
SIDEWALK DETOUR
APPROACHING AN INTERSECTION

DWG. No. 34 Rev. 0

6.0 Incident/Emergency Procedures

What to do in case of emergency?

This section is a guide for any employee's response to an emergency. Some examples of emergency situations are:

1. Collisions
2. Roadway Obstructions (debris on road)
3. Water ponding on roadway
4. Dangerous goods/hazardous materials incidents.

6.1 Collisions

In all cases:

1. Pull over to shoulder and assess the situation.
2. Notify Emergency Services @ 911. Give details of exact location, injuries (if any), and number of traffic lanes affected.
3. Protect the collision site:
    - Approach collision site with arrow board or beacon and/or four-way flashers activated.
    - Slowly come to a stop 40 m in advance of the collision site. Set emergency brake.
    - Leave the vehicle immediately, wearing all personal safety equipment.
    - Assist at collision scene as much as possible, but do not put yourself knowingly at risk in traffic.
    - If the collision involves injuries, leave the scene undisturbed.
    - If possible, move all people off the road. Do not move injured people off the road unless they are at risk from traffic or fire.
    - When emergency personnel arrive, follow their instructions.

6.2 Roadway Obstructions (e.g. debris)

In all cases:

1. Pull over onto the shoulder, nearest to the obstruction.
2. Notify Emergency Services @ 911 immediately for emergency lane closure.
3. Give details of exact location, type and size of obstruction/debris, and how many lanes are affected.
4. Do not attempt to remove obstruction/debris. Trained and qualified personnel will arrive to remove it.
5. Do not use your vehicle to close off lanes of traffic.
6. If there is obvious danger to the public, remain on site. Warn oncoming traffic in advance of the obstruction, from the shoulder of the roadway nearest to the obstruction.
7. Wear all personal safety equipment.

6.3 Water Ponding on Roadway

In all cases:

1. Pull over onto the shoulder, nearest pool.
2. Notify Emergency Services @ 911 immediately for emergency lane closure and to notify Shared Waterworks & Wastewater.
3. Give details of exact location, type and size how many lanes are affected.
4. Do not use your vehicle to close off lanes of traffic.
5. If there is obvious danger to the public, remain on site.
6. Warn traffic in advance of the pool from the shoulder nearest the pool.
7. Wear all personal safety equipment.

6.4 Potential Dangerous Good/Hazardous Materials Incidents

In all cases:

1. Approach the scene from uphill and upwind when hazardous materials are suspected.
2. Identify placards, signage or container shape, from a distance, prior to close proximity approach.
3. Avoid direct contact with the product and its vapours.
4. Once involved products are identified, notify Emergency Services immediately at 911. Give: the four-digit United Nations number of product, exact location, nature of the incident (if possible), and number of lanes affected.
5. Use your vehicle to close traffic lanes from a safe distance. The product involved and research information provided by the dispatcher or 911 operator will determine this distance.
6. Warn traffic in advance, from the shoulder nearest the site. Activate arrow board or beacon and/or four-way flashers.
7. Leave the vehicle immediately, wearing all personal safety equipment and find a safe place to wait, away from the contaminated area.
8. When emergency personnel arrive, follow their instructions.

NOTE: Certain chemicals are extremely hazardous. Always stay upwind from the incident site and never put yourself or others at risk.

Appendix A

Temporary Traffic Control

Record of Temporary Traffic Control

Temporary Traffic Control Request Form

Record of Temporary Traffic Control

PROJECT	ADDRESS	
WORK ORDER	CONTACT NAME	
PHONE	CELL	FAX
COMPANY	DATE	
COMPLETED	PAGE OF	
	INSPECTED BY	

Date yyy/mm/dd	Time 24:hr	Traffic Control Plan	Type of Set-up	As per Plan	Type of Deficiency and Location	Photo Taken	Action Taken

Typical types of Set-ups and Common Abbreviations:

RLCA:	Right Lane Closed Ahead	NPAT:	No Parking Anytime
LLCA:	Left Lane Closed Ahead	NTT:	No Through Traffic
2RLCA:	Right Lanes Close Ahead	LTO:	Local Traffic Only
2LLCA:	Left Lanes Close Ahead	RC:	Road Closed
TWTor2WT:	Two Way Traffic	RLCA BD:	Right Lane Closed Ahead Both Directions
SWC:	Sidewalk Closed	LLCA BD:	Left Lane Closed Ahead Both Directions

Temporary Traffic Control (TTC) Request Form

APPLICANT CONTACT INFORMATION:

COMPANY/DEPARTMENT: _____

CONTACT NAME: _____ PHONE NO: _____

ADDRESS: _____

PROJECT INFORMATION:

START DATE: _____ FROM: _____AM/PM TO: _____AM/PM

LOCATION: _____

DRAWING NO: _____

DEPARTMENT: _____ CREW SUPERVISOR: _____

EXCAVATION REQUIRED? ☐ YES ☐ NO REASON: _____

REQUESTS/OTHER INFORMATION: _____

_____

TTC DRAWING ATTACHED? ☐ YES ☐ NO

SUBMISSION DATE: _____ **COMPLETED BY:** _____

FOR MUNICIPAL WORKS USE: ADDITIONAL NOTIFICATIONS REQUIRED

ENVIRONMENTAL UTILITIES ☐	EMERGENCY SERVICES ☐	CITY TRANSIT ☐
CITY ELECTRIC ☐	R.C.M.P. ☐	OTHER ☐
CITY GAS ☐	ALBERTA TRANSPORTATION AND INFRASTRUCTURE ☐	_____

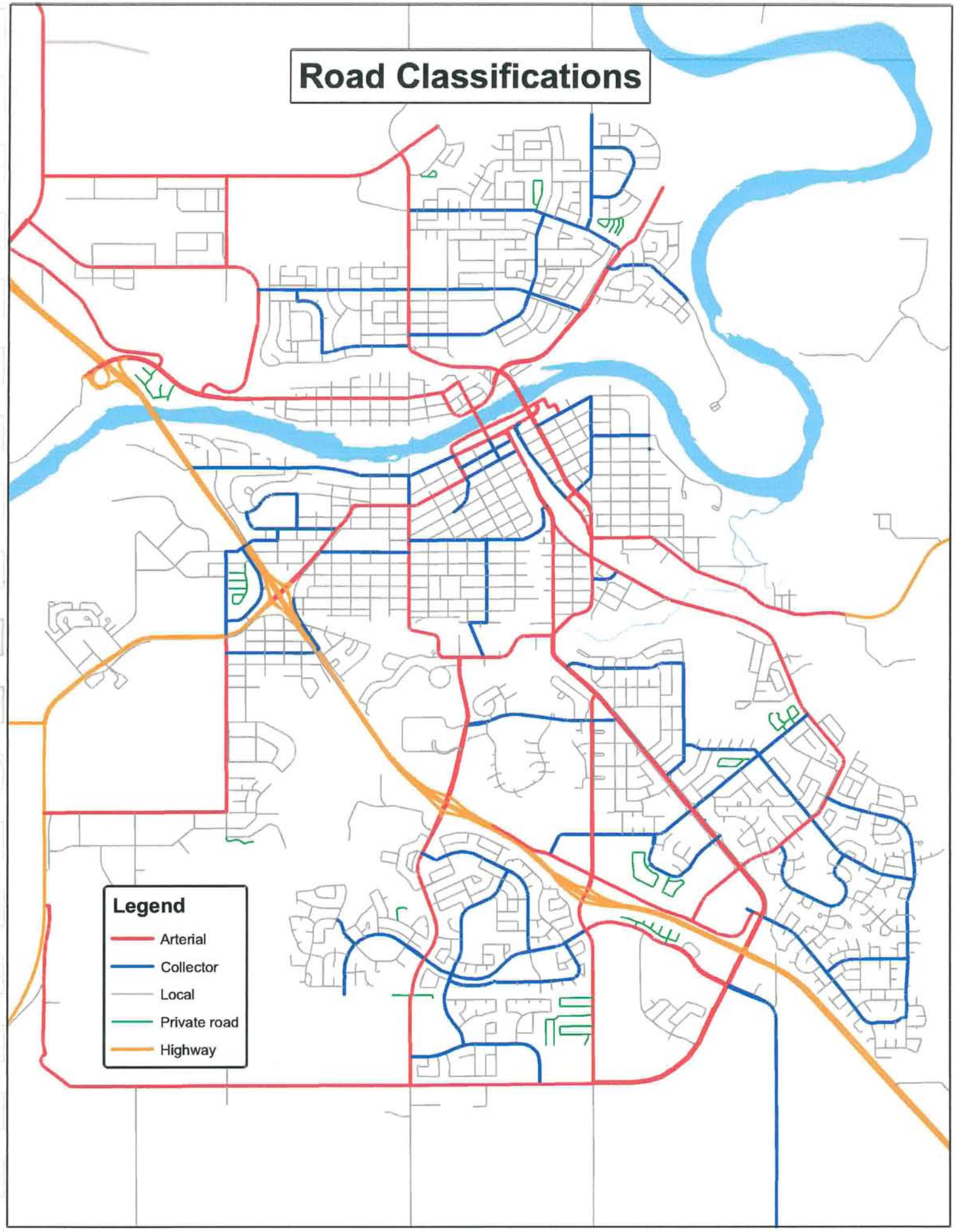
SUBMIT FORM AND TTC DRAWING TO:

MAIL:
MUNICIPAL WORKS DEPARTMENT
188 KIPLING STREET SE
MEDICINE HAT, AB T1A 1Y3
PHONE: (403) 529-8177

FAX: (403) 502-8040
E-MAIL: PLEASE CALL (403) 529-8177 FOR ADDRESS

Appendix B

Road Classification Map


Road Classifications
Legend
Arterial
Collector
Local
Private road
Highway

Glossary

GLOSSARY

Acceleration Lane:

An auxiliary lane to enable vehicle to increase speed when merging with through traffic.

Activity area:

The activity area is the section of roadway where the work activity takes place. It is comprised of the work space and the traffic space, and may contain one or more buffer spaces.

Advance Warning Area:

In the advance warning area, drivers are informed of what to expect in the downstream work zone or incident area.

Advance Warning Signs:

Signs to give motorists and pedestrians advance notice of disruptions in normal traffic flow. These signs indicate the nature of traffic disruption, and the required action on the part of motorists and pedestrians.

Agency or Contractor:

Any City department, private contractor, or public utility agency who has permission and necessary permits to undertake work on, or adjacent to, City of Medicine Hat public roadways.

Arrow Displays or Arrow Boards:

Flashing arrow displays/boards are traffic control devices, which can provide an illuminated flashing display of a left arrow, a right arrow, or combination of the left-right arrow, sequencing arrow modes, or a bar, which inform the driver to either change lanes or proceed with caution. An arrow display/board shall be used in combination with the appropriate signs, barricades or other traffic control devices.

Auxiliary Lane

A lane in addition to, and placed adjacent to, a through lane.

Average Daily Traffic (ADT):

The total volume of traffic passing a designated point, (in both directions) in one day.

Breakaway Device:

A design feature that allows a device such as a sign to yield or separate upon impact.

Bridging:

A method to enable vehicles to pass over narrow and shallow trenches by fastening sheet steel to the roadway to form a bridge. It is used at peak congestion times to accommodate traffic when backfilling is not practical.

Buffer Space:

The buffer space is the area that separates traffic flow from the work activity or a potentially hazardous area and provides recovery space for an errant vehicle. Neither work activity nor storage of equipment, vehicles, or material should occur in this space. Buffer spaces may be positioned longitudinally and laterally, with respect to the direction of traffic flow.

Buffer Vehicle:

A vehicle positioned in a stationary work zone or in a mobile work operation, to provide protection for workers against errant vehicles (also referred to as a shadow vehicle). These vehicles should be equipped with an arrow display/board, and a truck mounted attenuator.

Decision Sight Distance (DSD):

The distance for a driver to detect a layout, recognize it, and manoeuvre safely.

Delineation Devices (or Tapering Devices):

Devices used to form curves, lines, or boundaries that indicate the alignment of the roadway and outline the required vehicle path through the temporary traffic control zone. They include, but are not limited to, cones, drums, tubular markers, barricades and chevrons and shall be used in combination with, or be supplemental to, other traffic control devices.

Detour:

A detour is a temporary route where a driver or pedestrian is required to depart completely from the normal route to bypass the activity area.

Diversion:

Traffic is directed onto a temporary roadway or alignment placed in or next to the Right of Way.

Downstream:

The area past the TTC work zone in the direction of traffic flow.

Gore Area:

An area of pavement delineated by paint lines or delineation devices, between the edge line of the through road and the entry or exit ramp.

Hoarding:

A form of fencing or barrier or combination of these, designed to separate pedestrians and/or motorists from a construction site.

Intersection Sight Distance (ISD):

The line of sight between intersecting roadways.

Lateral Buffer Space:

A lateral buffer space is used to separate the traffic space from the work space, or a potentially hazardous area, such as an excavation or pavement drop-off. The width of the lateral buffer space should be determined by engineering judgement.

Longitudinal Barrier:

A barrier whose primary function is to prevent a collision and redirect an errant vehicle.

Longitudinal Buffer Space:

The longitudinal buffer space is placed in the initial portion of a closed lane in advance of the work space.

May:

A permissive condition.

Median:

A reserve, including shoulders between through lanes.

Variable message Boards (Portable Changeable Message signs):

A traffic control device with the flexibility to display a variety of messages.

Regulatory Sign:

Signs used to identify a traffic regulation that is applicable at a given time or place on a road and identify the legal requirements.

Rigid Barrier:

A form of longitudinal barrier that is intended to redirect an errant vehicle with minimum deflection. It usually consists of a continuous concrete mass, for example a concrete safety shaped barrier such as the New Jersey barrier.

Semi-Rigid Barrier:

A form of longitudinal barrier intended to redirect an errant vehicle by rail tension and bending. Examples are the blocked W-Beam or Thrie-Beam.

Stopping Distance:

The distance travelled by a vehicle from the instant the driver decides to stop, until stopped.

Stopping Sight Distance (SSD):

The distance between vehicle and object for which the driver decides to stop, at the instance the object comes in view. This includes the distance traveled during perception and reaction times plus the braking distance.

Tangent:

A straight section of roadway. In TTC setups it is the distance between the end of one taper and the beginning of the next taper.

Taper:

The gradual narrowing of a lane using channelization devices, which is intended to safely guide drivers into the adjacent lane. The following identifies various types of tapers used in temporary traffic control.

Merging Taper:

A merging taper requires the drivers to merge with an adjacent lane of traffic. The taper should be long enough to enable drivers to adjust their speeds and merge into a single lane before the end of the transition. A merging taper requires a full lane shift.

One-Lane, Two-way (Traffic) Taper;

The one-lane, two-way traffic taper is used where the portion of road is used alternately by traffic in each direction. These are typically used when traffic is controlled by traffic control persons.

Shifting Taper:

A shifting taper is used where a lateral shift (not a full lane merge/diverge) is required and includes a parallel lane shift (lane encroachment) or a shoulder shift taper (shoulder encroachment).

Shoulder Taper:

A shoulder taper can be used on roadways with improvement shoulders that may be mistaken for driving lanes.

Termination (Downstream) Taper:

The downstream taper may be useful in termination areas to provide a visual clue to the driver that access is available to the original lane path that was closed.

Temporary Traffic Control (TTC):

Provides for the movement of vehicles, bicycles and pedestrian traffic and public transit, when the normal function of a roadway is suspended.

Termination Area:

Is used for traffic to make the transition back to the normal path of the road. It extends downstream from the end of the workspace to the point where the speed is re-gazetted.

Traffic Control Person:

A trained and certified person responsible for controlling traffic.

Transition Area:

The section of roadway where road users are redirected form their normal path.

Traffic Control Devices:

Devices to direct vehicle and pedestrian movement through an area in which normal traffic flow has been disrupted. This includes all signs, delineators, barricades and arrow boards.

Traffic Control Zone:

The zone where normal traffic flow is disrupted by guiding traffic around an obstruction. This zone includes the work area and all areas affected by temporary traffic control devices.

Transition Area:

When redirection of the driver's normal path is required, traffic must be channelized from the normal path to a new path. This redirection is intended to occur at the beginning for the transition area.

Upstream:

The area before the TTC work zone warning signs:

Warning Signs:

Warning signs indicate in advance conditions on or adjacent to a road that will normally require a reduction in speed.

Worksite or Work Area:

The area around which traffic is being diverted to enable work to be done. It is usually bound, on one or more sides, by traffic control setup. It includes an area for use of equipment, stockpiling materials and the excavation or building site.

Bibliography

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The City of Medicine Hat would like to acknowledge the following resource materials used in preparing this manual.

1. Manual of Uniform Traffic Control Devices for Canada (4th. Edition), Transportation Association of Canada, 1998.

2. Temporary Traffic Control Manual, City of Calgary, 2007.

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9. Alberta Temporary Traffic Control Guidelines Training Manual, Alberta Construction Safety Association and American Traffic Safety Services Association, 2000.