

SECTION 900

TRAFFIC CONTROL

STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION
CITY OF MANITOWOC, WISCONSIN

SECTION 900

TRAFFIC CONTROL

<u>Section Number</u>	<u>Title</u>
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903	TRAFFIC RESTRICTIONS
904	TYPICAL TRAFFIC CONTROL REQUIREMENTS

DATE OF ISSUE October 3, 2005

CITY ENGINEER'S
APPROVAL _____

Valerie Thelton, P.E.

SECTION 900 - TRAFFIC CONTROL

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901 - GENERAL

901.1 Scope of Work

The work under this section shall consist of furnishing, transporting, placing, maintaining, and removing traffic control devices.

901.2 Purpose of Traffic Control Devices

The purpose of the required traffic control devices is to provide for the safe and orderly movement of traffic (motorized, non motorized, and pedestrian) through and around the construction work area while protecting workers and equipment.

901.3 Standards

All traffic control devices shall conform to the Manual On Uniform Traffic Control Devices (MUTCD), latest edition, as developed and published by the Federal Highway Administration.

This section describes the general requirements of the City relative to traffic control devices for ordinary construction projects in the City. The intent of these specifications is to conform with current State and Federal standards. Should there be a conflict between these standards and any State or Federal standard the State or Federal standard shall apply.

901.4 Application of Requirements

The requirements of this section shall apply to all contractors, public utilities, and other persons doing work in public ways, public easements or within private developments where the public safety may be affected by the work. Such companies, or persons will be referred to here after as "the Contractor".

These are general minimum requirements for typical situations and shall be supplemented by such other protective fences or barricades, lights, flag persons, signs, and other measures as may be necessary to afford proper and sufficient protection at construction projects. Nothing in this standard specification or any special provisions, plans or any other public document is intended to reduce or remove any liability for site safety from the Contractor.

901.5 Responsibility for Traffic Control Devices

The Contractor shall provide and maintain all traffic control devices required until the project area is fully restored and all construction equipment and materials are removed. This shall not, however, relieve subcontractors of their responsibility to protect their work area.

901.6 Erection and Maintenance of Traffic Control Devices

All pertinent traffic control devices shall be in place prior to the start of any construction or maintenance operations, and shall be removed or relocated when the work is finished or work conditions change.

The Contractor shall patrol the work site on a daily basis to ensure that all traffic control devices are properly located, visible, operating, and still needed. The Contractor shall maintain a daily log of traffic control inspections and will have the log available for inspection immediately upon request. Such log shall be submitted at the end of the project to be filed in the City's project files.

Maintenance of traffic control devices shall be a top priority of the Contractor. Should any traffic control devices be found to be damaged, lost, or otherwise not properly functioning, it shall immediately be repaired or replaced by the Contractor. All flashers shall be in working order at the end of each working day.

The Contractor shall have, on site, an adequate number of traffic control devices to provide necessary protection and to replace damaged or lost units.

Should the Contractor not provide and maintain the traffic control devices, the Engineer may direct the Contractor to stop work until proper traffic control is in place and functioning or will at the City's discretion supply necessary traffic control devices and shall withhold from the Contractors next payment an amount equal to double the City's ordinary rental rate plus any labor costs involved (including overtime).

901.7 Traffic Control Between Work Phasing

Traffic control shall be maintained throughout the duration of the project. While work may be suspended for some period of time, the safety of the public shall be an ongoing concern of the Contractor.

If the project site is accessible to the public, whether intended or not, adequate traffic control devices shall be in place to alert motorists of unusual conditions (e.g. high manholes, soft subgrade, water, etc.). If work is not progressing for a period of time, the Contractor shall continue to maintain adequate traffic control measures until the project is complete and open to the public. Traffic control devices may include one or more of the following measures, in addition to others, as required to protect the public and the work.

1. Close the project area to all public access by use of Type III barricades at all points of access. This may be used for private developments or on street extensions where access is not required.
2. Close the end of the roadway with a Type III barricade. This is to be used temporarily for the end of a street where the street extension is planned in a future project. This barricade shall be removed only after the City sing crew have placed a permanent red diamond in its place.
3. Road construction signs shall be placed at all entrances to the project site when traffic cannot be fully restricted. These signs shall be supplemented by more restrictive traffic control devices as needed to alert the motorists to unusual conditions (e.g. high manholes, low pavement, etc.).
4. Advance warning signs shall be placed on all streets approaching the project site to alert motorists of the construction activity ahead.
5. A Type III barricade at all entrances to the project site to give additional notice of the construction area.
6. Type I or II barricades or other approved devices shall be placed at all locations with unusual conditions (e.g. high manholes, trenches, etc.) if the

project site is not closed to all traffic.

7. Flashing warning lights shall be required on all barricades placed within the right-of-way, if they will be in place during the hours of darkness.

901.8 Basis of Payment

The cost of traffic control devices shall be included in the contract unit price for the work causing its need, unless specifically stated otherwise in the bidding documents, and shall include all labor, equipment, materials, supervision, tools, supplies, and incidentals required to furnish, transport, place, maintain, and remove the traffic control devices required for the project. This shall include all fuel, power, and other incidentals required to operate and maintain the traffic control devices, as well as adequate signage to delineate any designated detour route.

901.9 Traffic Control Plan

The Contractor shall prepare and present a traffic control plan prior to the start of construction unless the Contract Documents contain a traffic control plan. Modifications to the traffic control plan will be allowed but are subject to review and approval by the Engineer.

The Contractor shall remain responsible for proper traffic control whether or not a traffic control plan is approved by the Engineer. The Contractor shall provide adequate traffic control should elements of the project change the requirements for traffic control.

The supply of a traffic control plan by the City does not alter the Contractor's responsibility for traffic control. If the Contractor recognizes deficiencies or has concerns related to such a plan, they shall immediately notify the Engineer. In the interim, the Contractor shall take immediate steps in the field to protect public safety.

902 - MATERIALS, EQUIPMENT, AND PROCEDURES

902.1

Barricades

A barricade is a portable or fixed device having from one to three rails with appropriate and reflective markings as recommended in the MUTCD and is used to control traffic by closing, restricting, or delineating all or a portion of the right-of-way.

Barricades shall be either Type I, Type II or Type III. A Type I has one rail, Type II has two rails and a Type III has three rails. (See Detail section for examples of barricades and dimensioning of materials).

Type I and II are intended for use in situations where traffic is maintained through the area being constructed and/or reconstructed.

Type III barricades shall be used when a road section is closed to traffic, and they shall be erected at the points of closure. They shall be placed to prohibit access beyond the point of closure. Should access be required for construction vehicles a gate or movable section shall be provided which shall be closed and secured at the end of each working day. As an alternative, several Type III barricades may be placed in a staggered layout to allow entrance to construction vehicles, while clearly communicating a road closure to the public. The main lane(s) shall be closed requiring construction traffic to enter on the opposing side of the street.

While Road Closed or Arrow signs may be placed on barricades, no other signs shall be permitted to be placed on barricades.

If other signs are desired to direct traffic to businesses, etc., the signs shall be secured on posts or supplemental barricades and shall be so placed as not to obscure the required signage.

902.2

Barrels

Barrels shall be specially designed plastic barrels set on end and used as an expedient method for traffic channelization. Barrels shall not be weighted with any material that would make them hazardous to motorists. Markings on barrels shall be horizontal, circumferential, orange and white reflectorized stripes, four (4") inches to eight (8") inches wide. There shall be at least two (2) orange and two (2) white stripes on the barrel. If there are non-reflective spaces between the reflectorized stripes, they shall be no more than four (4") inches wide. Barrels should never be placed in the roadway without advance warning signs.

902.3

Warning Lights

As used herein, Warning Lights are portable, lens directed, enclosed lights. The color of the light emitted shall be yellow. They may be used in either a steady-burn or flashing mode. Warning lights shall be in accordance with the current ITE Purchase Specifications for Flashing and Steady-Burn Warning Lights, with regard to color, size of lens, flash rate, and minimum on-time.

Type A Low Intensity Flashing Warning lights are most commonly mounted on

barricades, barrels, vertical panels or advance warning signs and are intended to continually warn drivers that they are approaching or proceeding within a hazardous area.

Type B High Intensity Flashing Warning lights are normally mounted on the advance warning signs or on independent supports or barricades. Extremely hazardous site conditions within the construction area may require that the lights are effective in daylight as well as dark. The lights shall be designed to operate twenty-four (24) hours per day.

Type C Steady-Burn lights are intended to be used to delineate the edge of the traveled way on detour curves, on lane changes, on lane closures and on other similar conditions.

Warning lights on barricades shall be installed to a minimum mounting height of thirty-six (36") inches as measured from the ground surface to the bottom of the lens.

Type A Low Intensity Flashing Warning Lights and Type C Steady Burn Warning Lights shall be maintained so as to be capable of being visible on a clear night from a distance of 3,000 feet. Type B High Intensity Flashing Warning Lights shall be maintained so they are visible on a sunny day when viewed without the sun directly on or behind the device from a distance of one-thousand (1000') feet.

When conditions require the maintenance of barricades within the travel way of a road open to traffic, warning lights shall be installed on barricades located in the roadway.

Warning lights will not be required on Type III barricades marking the temporary end of a street, unless it is determined by the Engineer to be necessary due to limited visibility of the barricade.

902.4 Advance Warning for Construction, Road Closures, or Lane Closures
All roadway traffic control zones must have advance warning signs. The primary devices used in this area are the diamond shaped warning signs in the black and orange series specified for construction and maintenance sites.

At a minimum, one (1) advanced warning sign shall be placed on each approach to the work site for minor streets and a series of two shall be located on collector and minor arterials. In the case of high speed (>40 mph) roadways there shall be three stages of warning. Each sign shall be located as MUTCD.

902.5 Night Signage
All traffic control signs and barricading used at the site during night periods shall be reflectorized with a material having a smooth sealed outer surface. Painted panels with or without reflective beads in their paint are not acceptable.

902.6 Flagging
A number of hand signaling (flagging) devices, such as STOP/SLOW paddles, and red flags are used in controlling traffic through work zones. The sign paddle

bearing the clear messages STOP and SLOW provide motorists with more positive guidance than flags and should be the primary hand-signaling device. Flag use should be limited to emergency situations and at spot locations, which can best be controlled by a single flagger.

Sign paddles should be at least eighteen (18") inches wide with letters at least six (6") inches high. A rigid handle should be provided. This combination sign may be fabricated from sheet metal or other light semi-rigid material. The background of the STOP face shall be red with white letters and border. The background of the SLOW shall be orange with black letters and border. When used at night the STOP face shall be reflectorized red with white reflectorized letters and border, and the SLOW face shall be reflectorized orange and black letters and border.

Flags used for signaling purposes shall be minimum of twenty-four by twenty-four (24" X 24") inches in size, made of good grade of red material securely fastened to a staff approximately three (3') feet in length. The free edge should be weighted to insure that the flag will hang vertically, even in heavy winds.

Flaggers shall be provided at worksites to stop traffic intermittently as necessitated by the work or to maintain continuous traffic past a worksite at reduced speeds to help protect the work crew. For both of these functions the flagger must, at all times, be clearly visible to approaching traffic for a distance sufficient to permit proper response by the motorist to the flagging instructions, and to permit traffic to reduce speed before entering the worksite. In positioning flaggers consideration must be given to maintaining color contrast between the work area background and the flagger's protective garments.

Flaggers and operators of construction machinery or trucks should be made to understand that every reasonable effort must be made to allow the driving public the right-of-way and prevent excessive delays.

Where traffic in both directions must, for a limited distance, use a single lane, provision should be made for alternate one-way movement to pass traffic through the constricted section. At a "spot" obstruction, such as an isolated pavement patch, the movement may be self-regulating but this is only acceptable on a minor street with speed limits of 25 mph. However where the one-lane section is of a length that would cause a problem for approaching motorists to determine if it is safe to proceed on the available pavement width, there should be some means of coordinating movements at each end so that vehicles are not simultaneously moving in opposite directions in the section and so that delays are not excessive at either end. Control points at each end of the route should be chosen so as to permit easy passing of opposing lines of vehicles.

Anytime that the work requires reduction of traffic to one lane for more than five (5) minutes a flag person shall be provided by the Contractor who shall be dedicated to the sole purpose of only directing traffic, until such time as traffic can be restored to two lanes. Should the area of restrictive traffic require more than one flag person the Contractor shall likewise provide an adequate number of people to safely control traffic around and through the work area.

902.7 Placement of Traffic Control Devices

All construction or maintenance warning signs are to be placed facing the approaching traffic. The signs shall be clean, legible and mounted to resist displacement. Location of signs shall be adequate to allow for a safe reduction in speed by the motorist going through the work area. All barricades shall be weighted (sandbags, etc.) to inhibit their movement by the wind or public.

902.8

Tapers

A taper is used to divert traffic from one lane to another out of its normal path or to merge into another traffic lane.

The positioning and length of the taper and the warning devices used in the taper shall be in accordance with MUTCD.

903 - TRAFFIC RESTRICTIONS

903.1

Access to Businesses

The Contractor shall maintain access to all businesses. When work must take place immediately at the point of access to a business, the Contractor shall provide temporary access to the entrance and phase his work to maintain an area of safe access.

The Contractor shall inform a business owner prior to closing or disrupting any access.

Work taking place immediately in front of a pedestrian entrance shall be expedited to minimize disruption of pedestrian access.

Where access must be temporarily eliminated and only one public access point exists, the Contractor shall schedule his work to minimize the access closure impact upon the business. The Contractor shall expedite the work required to allow at least temporary access to be restored as soon as possible.

903.2

Parcel Vehicular Access

Unless otherwise specified in the special provisions, the Contractor shall maintain ingress and egress to all parcels during construction for as long as possible. This may require phasing of the work or provisions for alternate points of access.

Whenever construction requires the temporary closing of access to a parcel, the Contractor shall notify the property owner at least 24 hours prior to the need to prohibit access. The Contractor shall allow the property owner to remove any vehicles located on the property prior to closing access. The Contractor shall then expedite the work requiring the loss of access and restore access as soon as possible. The Contractor shall further place and maintain material to allow safe ingress and egress until the access can be fully restored.

Access shall not be prohibited overnight to any occupied parcel without prior approval of the Engineer and knowledge of the property owner.

903.3

Elimination of On Street Parking

Should it be necessary to prohibit on street parking in order to complete the project, the Contractor shall advise the Engineer at least forty-eight (48) hours prior to restricting parking. The Engineer will notify the Police Department of the proposed restriction.

Elimination of parking lane use shall be limited to the immediate work area, and the Contractor shall expedite the work in that area to permit the restoration of the parking lane as soon as possible.

In business areas the Contractor shall notify all businesses, immediately effected by the restriction, of the need for the restriction as well as the duration of the restriction.

903.4

Pedestrian Access

The Contractor shall assure safe pedestrian access through and/or around the work area. When it is necessary to restrict pedestrian access to the project area, the Contractor shall provide adequate warning and traffic control.

If a walkway must be closed during construction the Contractor shall provide signage at the nearest crosswalk to direct the pedestrians out of the work area to a safe walkway. The Contractor shall direct pedestrians to cross streets at an established crosswalk.

903.5

Material and Equipment Storage

No equipment or materials shall be parked or stored within the driving lanes of any street open to traffic without the prior approval of the Engineer. Equipment and materials shall be kept as far from moving traffic as practical to reduce the impact on traffic.

When working in a business district the Contractor may temporarily utilize parking stalls with the approval of the Engineer. However, the minimizing of the impact on the abutting businesses by reducing the number of parking stalls used and by moving equipment and materials as the work progresses will be a condition of approval.

903.6

Trench Bridging

Trench bridging (steel plating) shall be provided when traffic provisions require an unobstructed flow of traffic. The bridging must be secured against displacement by using cleats, angle bolts, or other methods to prevent movement. Hand rails shall be installed on all trench bridging used for pedestrian ways, and the walking area shall have a non-slip surface.

Temporary paving materials (cold mix) shall be used to feather the edge of the plate to minimize wheel impact.

904 - TYPICAL TRAFFIC CONTROL REQUIREMENTS

The following are examples of typical traffic control requirements and are intended to guide the Contractor. They shall be considered minimum requirements and shall be increased as required by the work causing their need and by additional requirements of the Engineer or to meet the requirements of the MUTCD.

904.1 Construction Within Existing Pavement on a Traveled Roadway Open to Traffic

The Contractor shall place advance warning signs on each approach to the project.

The Contractor shall place adequate Type I and/or Type II barricades with flashers around the perimeter of any open trenches, road cuts, parked equipment, or material stockpiles within the pavement area or the sidewalk area.

904.2 Construction Within Private Developments or on a Roadway Not Open to Traffic

The Contractor shall use advance warning signs if the access road is not open to traffic or if construction equipment or other vehicles have access to the site.

The Contractor shall place adequate Type III barricades to close the access road when construction is not taking place, as well as to alert the public to the fact that access to the site is prohibited during construction.

The Contractor shall use adequate Type I and/or Type II barricades, fencing, or other means of delineating hazardous areas (e.g. open cuts, etc.) which can not be restored at the end of the work day.

904.3 Pavement Maintenance

The Contractor shall use adequate advance warning signs. Additional signs shall also be used as needed to alert the driver to the type of work or unusual condition present (e.g. fresh oil, loose stones, etc.). These shall remain in place until the material is stabilized and causes no hazard to the driver. The Contractor shall, if possible, place advance warning signs at the street intersection preceding the work site to allow the motorists to bypass the work site.

The Contractor shall place adequate Type I and/or Type II barricades to delineate areas of high manholes, low pavement etc., as well as to channelize traffic through the work area.

904.4 Remove and Replace Sidewalk or Curb & Gutter

The Contractor shall use advance warning signs.

The Contractor shall use adequate Type I, Type II, and/or other traffic control devices to protect the work area before beginning excavation. The traffic control devices shall remain in place until after the concrete is placed and fully cured and the area is restored.

The Contractor shall also place adequate Type I and/or Type II barricades with flashers around any equipment or stockpiles that may be left overnight within the work area.

The Contractor shall be required to submit traffic control plans for all projects in the City of Manitowoc regardless of whether guidance has been given in the plans and specifications. Plan sheets and specifications are instructional only and the Contractor is fully responsible for all traffic control liability on the site from the date construction commences until the date of substantial completion.

904.5 Traffic Control Signs and Street Name Signs

The Contractor shall carefully remove all signs and set them aside for the Department of Public Works to pick up. The Department of Public Works shall replace the signs after construction. The Contractor shall contact the Department of Public Works to coordinate the removal and reinstallation of signs to maintain traffic control.

- END OF SECTION 900 -

SECTION 900

TRAFFIC CONTROL

Details

STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

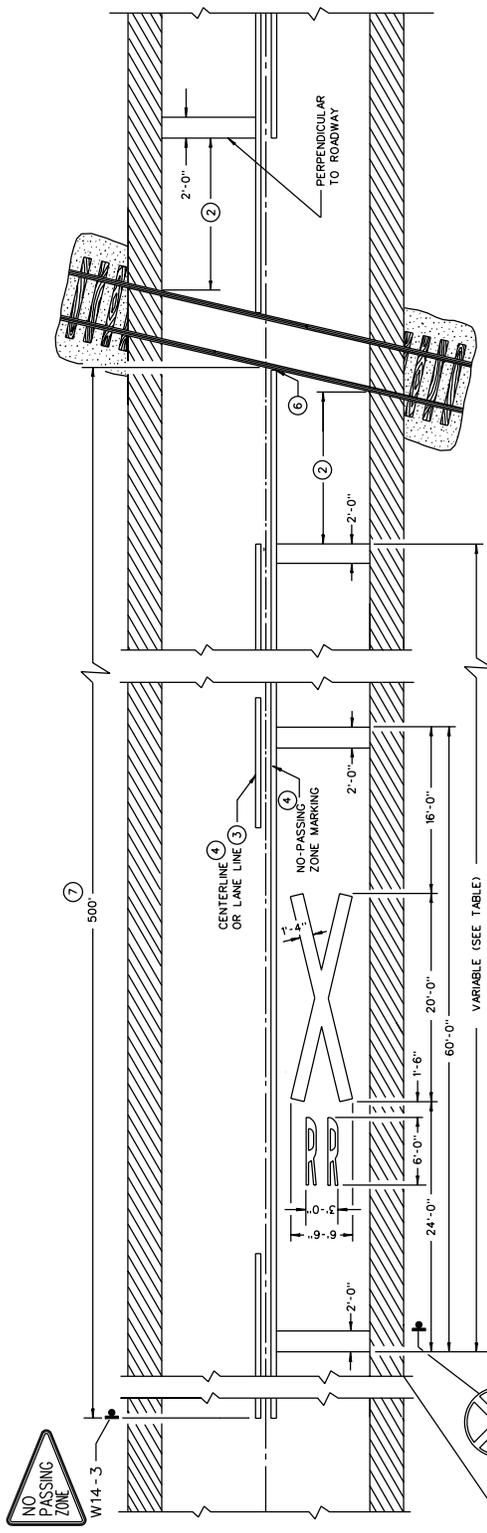
CITY OF MANITOWOC, WISCONSIN

SECTION 900

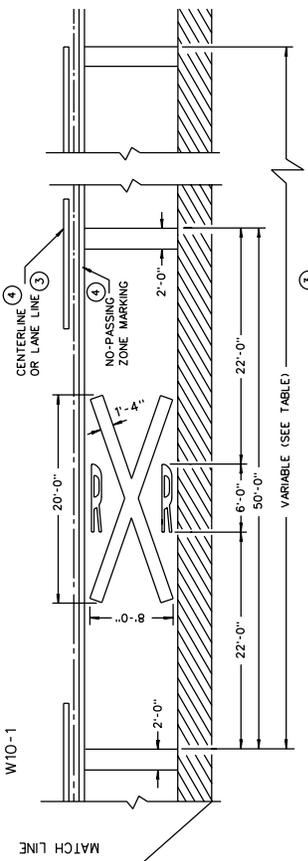
TRAFFIC CONTROL

DETAILS

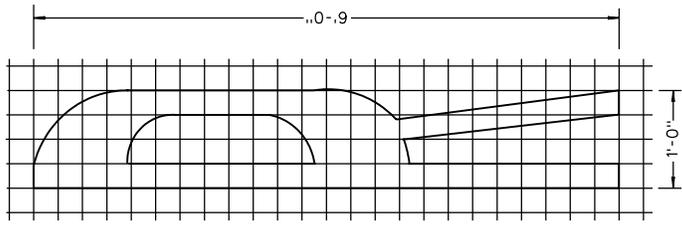
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901	Sign and Pavement Markings at Railroad Tracks
902	Pavement Marking Symbols
903	Pavement Marking (Mainline)
904	Pavement Marking (Island, Stop Line and Crosswalk)
905	Alternate Pavement Marking at Crosswalks
906	Tubular Steel Sign Posts



PREFERRED PAVEMENT MARKING ③



ALTERNATE PAVEMENT MARKING ③



GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.
 A THREE-LANE ROADWAY SHOULD BE MARKED WITH A CENTERLINE FOR TWO-LANE APPROACH OPERATION ON THE APPROACH TO A CROSSING.
 ON MULTI-LANE ROADS THE TRANSVERSE BANDS SHOULD EXTEND ACROSS ALL APPROACH LANES, AND INDIVIDUAL R X R SYMBOLS SHOULD BE USED IN EACH APPROACH LANE. ALL MARKINGS SHALL BE PAINTED OR THERMOPLASTIC WITH THE STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS ADOPTED BY THE FEDERAL HIGHWAY ADMINISTRATION.
 CENTER OR LANE LINES AND NO-PASSING ZONE MARKINGS SHOWN ON THIS DRAWING ARE REQUIRED AND PAID FOR UNDER OTHER ITEMS IN THE CONTRACT.

- ① A PORTION OF THE PAVEMENT MARKING SYMBOL SHOULD BE DIRECTLY OPPOSITE THE ADVANCE WARNING SIGN (W10-1).
- ② MINIMUM 8' FROM ANY RAILROAD WARNING DEVICES (SIGNS, GATES, ETC.) OR 25' FROM THE NEAREST RAIL, WHICHEVER DISTANCE IS GREATER.
- ③ REFLECTIVE WHITE.
- ④ REFLECTIVE YELLOW.
- ⑤ TABLE BASED UPON 20-4 WISCONSIN SUPPLEMENT OF MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
- ⑥ FOR MULTIPLE TRACK CROSSINGS, THE BARRIER LINE SHALL EXTEND TO THE NEAR RAIL OF THE FURTHEST TRACK IN THE DIRECTION OF HIGHWAY TRAVEL.
- ⑦ MARKING LIMITS MAY BE EXTENDED AS DIRECTED BY THE ENGINEER TO MEET ADJACENT NO-PASSING ZONE MARKINGS.

⑤

Posted Speed (M.P.H.)	Variable Dimension (feet)
25	150
30	200
35	250
40	300
45	400
50	550
55	750
60	1000
65	1000

NO SCALE

SIGNING AND PAVEMENT MARKING FOR RAILROAD-HIGHWAY CROSSINGS



Rev. 4/05

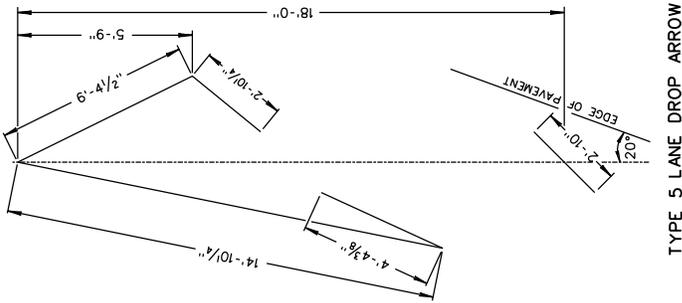
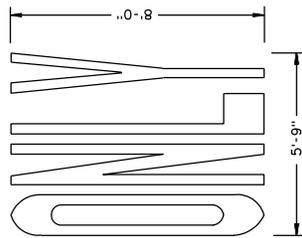
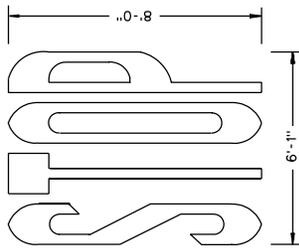
FORM NO. 901

GENERAL NOTES

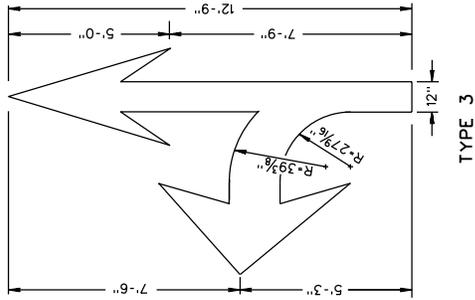
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ALL LETTERS AND SYMBOLS SHALL BE IN CONFORMANCE WITH REQUIREMENTS INCLUDED IN "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKING" BY THE FEDERAL HIGHWAY ADMINISTRATION. ALL LETTERS, ARROWS AND SYMBOLS SHALL BE WHITE AND REFLECTORIZED.

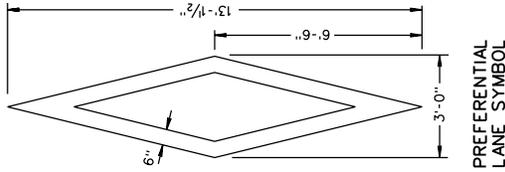
A DETAILED DRAWING OF THE HANDICAPPED PARKING SYMBOL IS ILLUSTRATED IN THE "STANDARD HIGHWAY SIGNS MANUAL" BY THE FEDERAL HIGHWAY ADMINISTRATION.



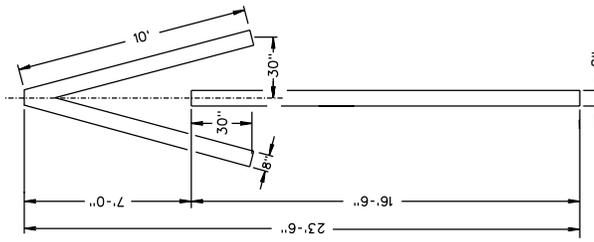
TYPE 5 LANE DROP ARROW



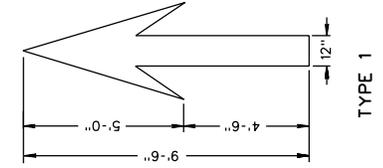
TYPE 3



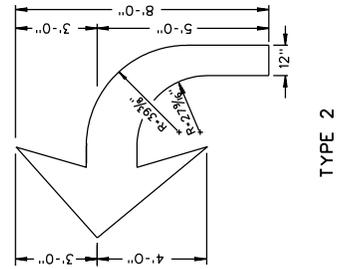
PREFERENTIAL LANE SYMBOL



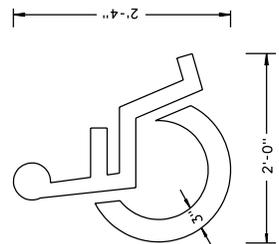
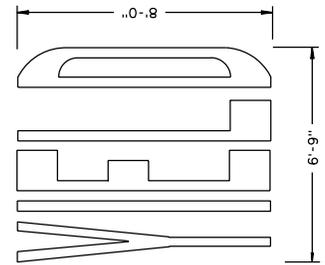
TYPE 4



TYPE 1



TYPE 2



NO SCALE

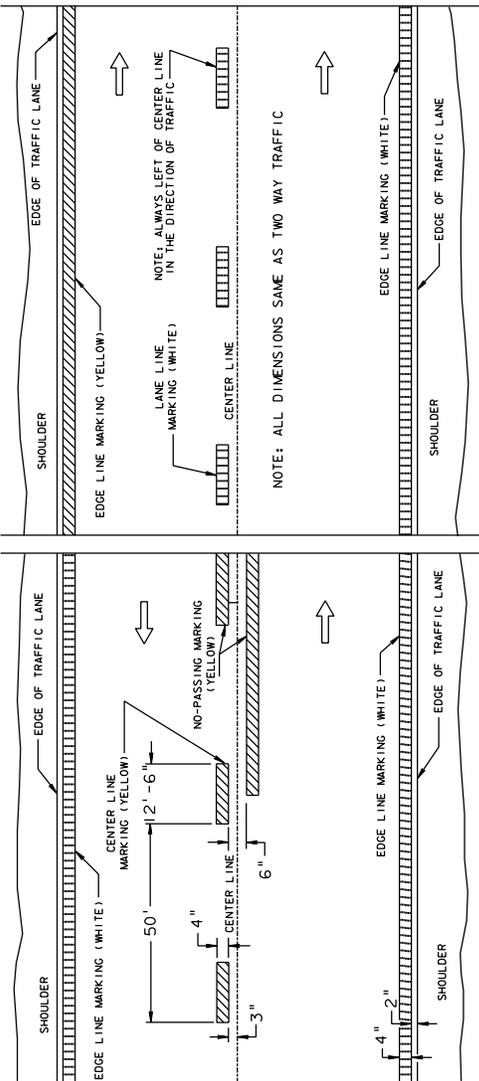
PAVEMENT MARKING SYMBOLS



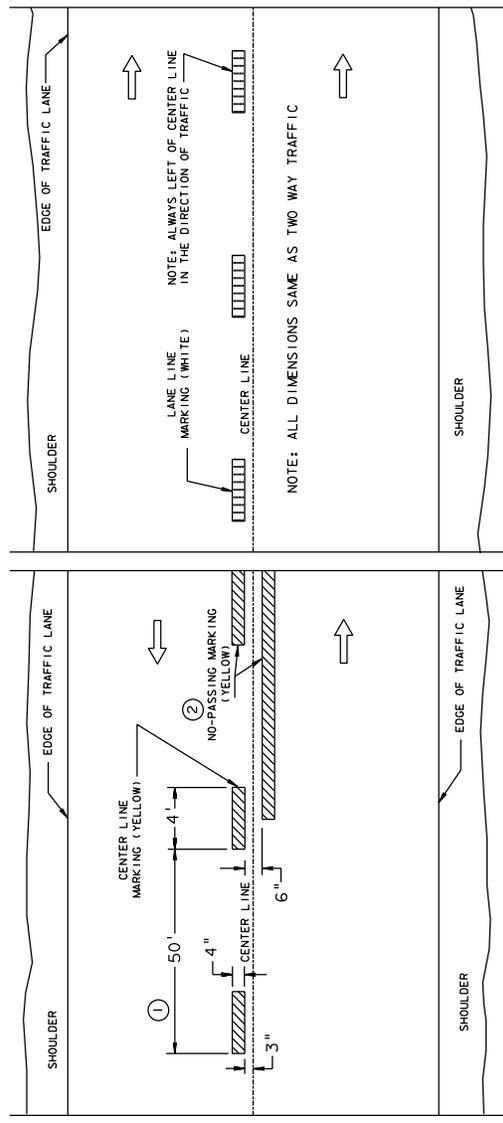
City of Manitowoc
ENGINEERING DEPARTMENT

Rev. 4/05

FORM NO.
902



TWO WAY TRAFFIC
 ONE WAY TRAFFIC
 PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC
 ONE WAY TRAFFIC
 TEMPORARY (INTERMEDIATE) PAVEMENT MARKING
 (SHOWS CYCLE FOR TEMPORARY CENTER LINE OR TEMPORARY LANE LINE MARKING)

GENERAL NOTES

DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

① HALF CYCLE LENGTHS (25' ±) WITH 2' MINIMUM STRIPE LENGTHS SHALL BE PROVIDED ON ROADWAYS (INCLUDING TEMPORARY TRAVELED WAYS) WITH REVERSE CURVATURE. STRIPE LENGTHS SHALL BE DETERMINED BY THE ENGINEER TO MARK UNUSUAL ALIGNMENT OF THE TRAVELED WAY.

② NO PASSING ZONE TEMPORARY PAVEMENT MARKING IS REQUIRED TO BE PLACED WHERE APPROPRIATE ALONG WITH CENTERLINE TEMPORARY PAVEMENT MARKING WHEN A SAME DAY PERMANENT PAVEMENT MARKING ITEM IS INCLUDED IN THE CONTRACT.

NOTE

ARROW SYMBOL (→) SHOWS DIRECTION OF TRAVEL.

PAVEMENT MARKING (MAINLINE)

NO SCALE



Rev. 4/05

FORM NO.
 903

PAVEMENT MARKING (ISLANDS, STOP LINE & CROSSWALK)

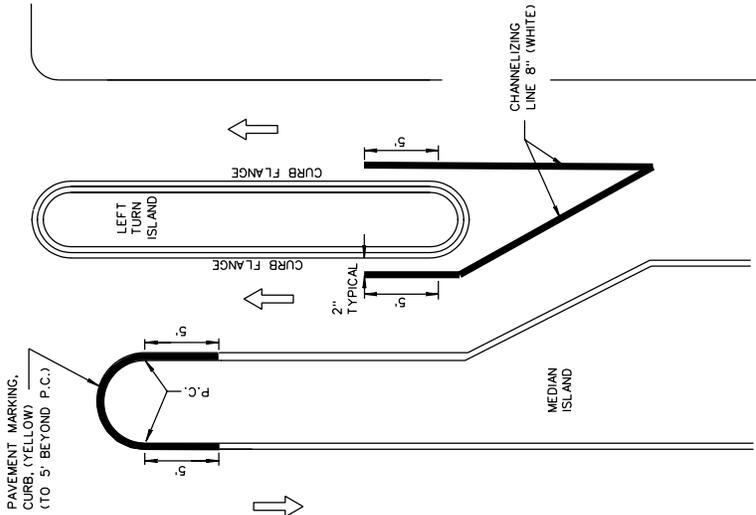


City of Manitowoc
ENGINEERING DEPARTMENT

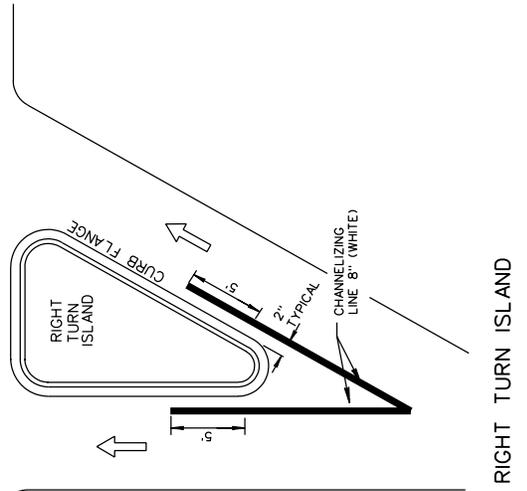
Rev. 4/05

FORM NO.
904

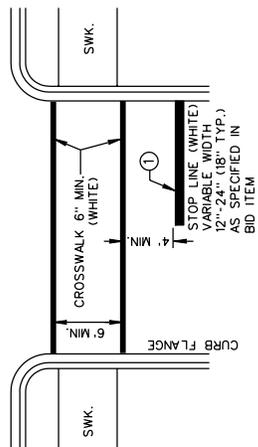
NOTE:
ARROW SYMBOL ⇨
SHOWS DIRECTION OF TRAVEL



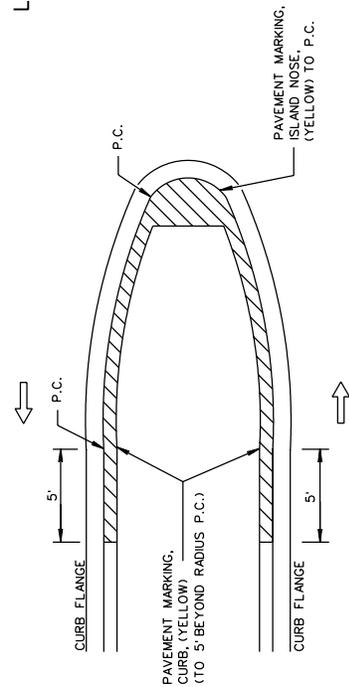
LEFT TURN & MEDIAN ISLAND



RIGHT TURN ISLAND



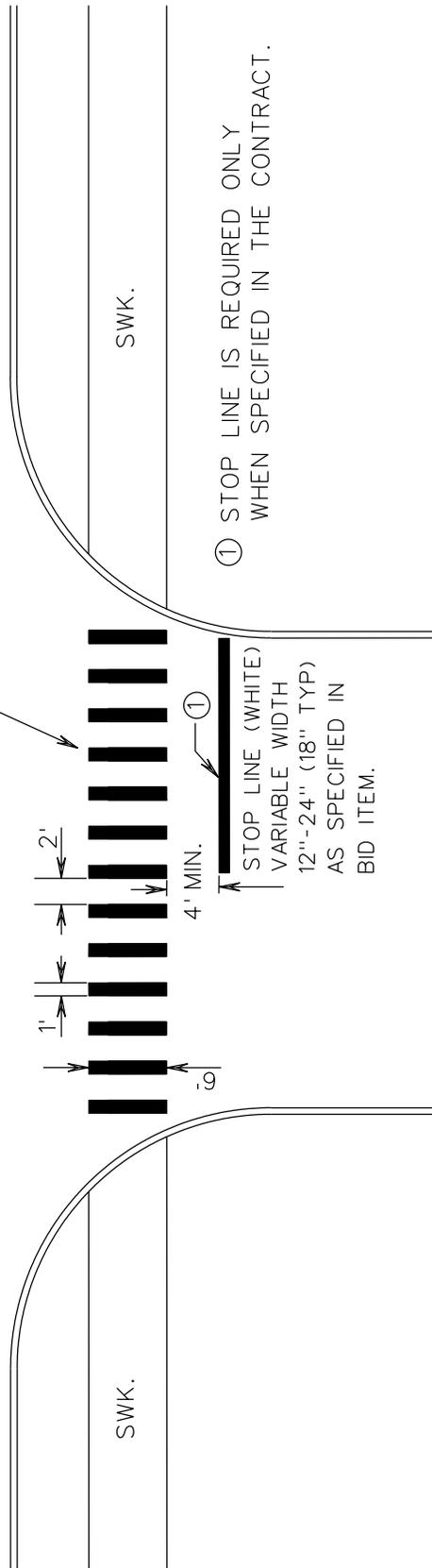
① STOP LINE IS REQUIRED ONLY WHEN SPECIFIED IN THE CONTRACT.
STOP LINE AND CROSSWALK



MEDIAN ISLAND WITH SLOPED NOSE

NO SCALE

SPACING OF LINES SELECTED TO AVOID WHEEL PATH.



① STOP LINE IS REQUIRED ONLY WHEN SPECIFIED IN THE CONTRACT.

ALTERNATE 12 INCH CROSSWALK MARKINGS

NO SCALE

PAVEMENT MARKING ALTERNATE 12" CROSSWALK

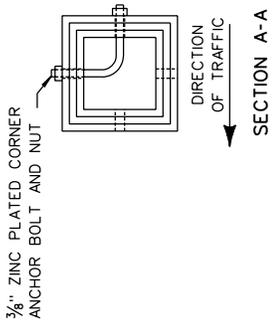
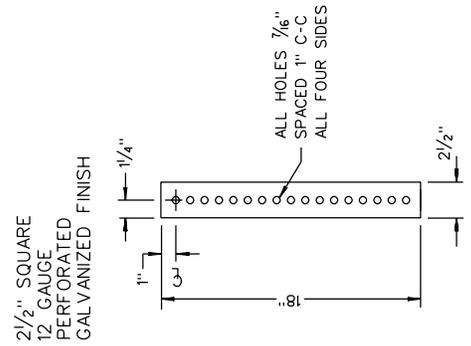
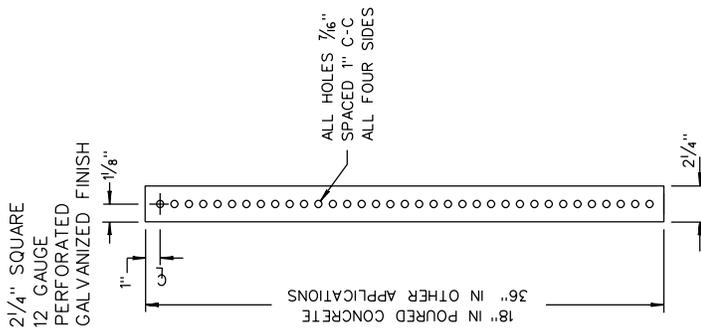


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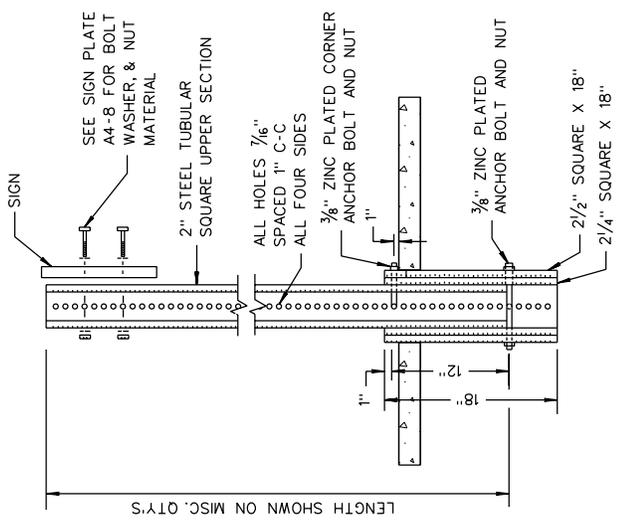
Rev. 4/05

FORM NO.
905

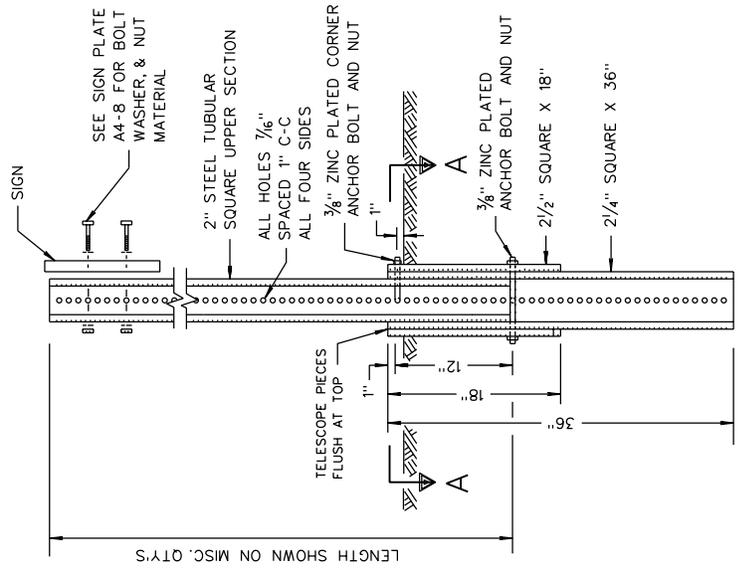
TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM



NOTE:
BOTH THE ANCHOR SECTION AND OUTER SLEEVE SHALL BE LEFT A MAXIMUM OF 2" ABOVE THE SURFACE.



DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE)



DETAIL OF TUBULAR STEEL SIGN POST
(IN OTHER INSTALLATIONS)

TUBULAR STEEL SIGN POST

NO SCALE



Rev. 4/05

FORM NO.
906