



MICHIGAN DOT PERMANENT SIGNING
STANDARDS, DESIGN, FABRICATION &
INSTALLATION

MICHIGAN HIGHWAY MAINTENANCE
CONFERENCE

MAY 2ND, 2018
BELLAIRE, MICHIGAN

WHY DO WE REPLACE SIGNS?

- MDOT Info Flyer “Why Traffic Signs are Replaced”



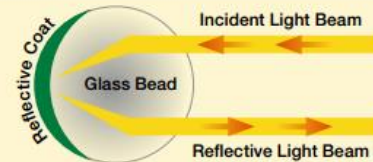


MDOT's TRAFFIC SIGNING PROGRAM:
**WHY TRAFFIC SIGNS
 ARE REPLACED**

“ While only one-quarter of all travel occurs at night, about half of all traffic fatalities occur after dark. ”

Many clues are available to drivers during the day to make driving a relatively easy task. At night, however, few clues remain, making the task more difficult. In addition, signs near the end of their service life that are visible during daylight hours may be hard to see at night.

National traffic sign retroreflectivity standards have been established to address this disparity. MDOT routinely replaces traffic signs on highway corridors as part of a 100 percent federally funded statewide sign replacement program.



Retroreflectivity is a scientific term that describes the ability of an object to redirect light back to its source. Retroreflective traffic signs use small glass beads or microprismatic reflectors to return light from a vehicle's headlights back to the driver's eyes. The brighter the sign, the sooner a driver can see and read it. The retroreflective properties of traffic signs deteriorate over time, due to weather, exposure to the sun, damage, and other factors. Unless traffic signs are replaced on a timely basis, they become difficult to see and read at night.

It's all about SAFETY

Supports for traffic signs, frequently placed close to the roadway, can become deadly hazards when struck by a vehicle if not designed, manufactured, and constructed to break away upon impact. Even relatively small sign supports can be deadly if not designed to break away. When replacing old traffic signs, MDOT also replaces sign posts to ensure safety. Coordinating the replacement of sign posts with traffic sign replacement also minimizes costs.

In addition to replacing old traffic signs, MDOT updates all signs along a corridor due to changing traffic patterns and the latest federal and state standards for location and message.



Retroreflective signs are especially beneficial to older drivers. By 2030, one in five drivers will be age 65 or older. A 65-year-old needs eight times the amount of light a 25-year-old does. Bright, highly reflective traffic signs are more visible at night and can reduce nighttime crashes by helping older drivers – and motorists of all ages – to quickly read and react

SIGN RETROREFLECTIVITY

- MUTCD Requirement
 - Nighttime Visual Inspection
 - Measured Retroreflectivity
 - Expected Sign Life
 - Blanket Replacement
 - Control Signs
- MDOT Methods & Data Collection





MICHIGAN DOT PERMANENT SIGNING STANDARDS

MDOT / REPORTS, PUBLICATIONS AND SPECS

The screenshot shows a web browser window displaying the MDOT website. The address bar shows the URL <http://www.michigan.gov/mdot/0,461>. The browser's menu bar includes File, Edit, View, Favorites, Tools, and Help. The page header features navigation links for MDOT Home, Contact, Organization, FAQ, Sitemap, and MI.gov, along with a search bar. The MDOT logo is prominently displayed on the left side of the header. Below the header, a left sidebar contains a vertical menu with the following items: Roads and Travel, Public Transportation, Rail, Bridges, Borders and Ferries, News and Information, Projects and Programs, Maps, Reports, Publications and Specs (highlighted), Publications, and Reports. The main content area is titled "MDOT / REPORTS, PUBLICATIONS AND SPECS" and is divided into three columns. The first column, under the heading "Publications", includes links for "Order Publications From MDOT", "View a list of publications offered for purchase by MDOT.", and "Ordering Instructions". The second column, under "Plans & Specifications", lists "Traffic Standards and Typicals", "Previously Approved Special Provisions", and "Supplemental Specs/Special Provisions", with a note that the SS/SP packet generator is used by MDOT Design Consultants only for proposal submissions. The third column, under "Manuals & Guides", lists "Manuals, Guides, Advisories & Memos". A "Quick Links" section on the right side of the page provides direct access to Title VI Nondiscrimination, Tribal Governments, Twitter Facebook YouTube, Mi Drive, and State Map. At the bottom of the browser window, a status bar shows the URL <https://mdotcf.state.mi.us/public/tands/plans.cfm>.

MDOT TRAFFIC & SAFETY STANDARDS

https://mdotcf.state.mi.us/pi MDOT - Traffic & Safety Di...

File Edit View Favorites Tools Help

Facebook - Log In or Sign ... Suggested Sites El Nacional - Home El Universal - Porque deci... USA TODAY Lake Trust Credit Union

MDOT Department of Transportation Michigan.gov

Michigan.gov Home T & S Home MDOT Sitemap Contact T & S T & S FAQs

• [Intro Page](#)

Categories ([Expand All](#))

- Delineators ▾
- Geometrics ▾
- MMUTCD ▾
- Miscellaneous ▾
- Pavement Markings ▾
- Pedestrian/Bicyclist ▾
- Roadsoft Data ▾
- Safety Programs ▾
- School ▾
- Traffic
- Regulations/Speed/Stopping/Parking ▾
 - Traffic Signals ▾
 - Traffic Signing ▾
 - Traffic and Safety Notes ▾
- Work Zones ▾

Keyword Search

Select a Keyword ▾

...type keyword(s)...

And/Or

Limit results to after ...

01/01/1990

Use Calendar

Search Reset Help

Michigan Department of Transportation Standards and Special Details

General

Standards, Special Details, Special Provisions, and Typical Plans of various Traffic and Safety items represent the current practices and policies of the Michigan Department of Transportation (MDOT) on the State Trunkline Highway System. The drawings are produced for statewide use by the Department, counties, cities, and consultants and are used in conjunction with the Standard Specifications for Construction and other applicable specifications, policies and manuals.

Disclaimer

The information provided is a product of the Michigan Department of Transportation (MDOT) and is intended for your use and is not to be sold or otherwise distributed for profit. There are no expressed or implied warranties concerning the accuracy, completeness, reliability or usability of this information. The MDOT assumes no responsibility for any incorrect results or damage resulting from the use of this information. All users shall expressly hold MDOT harmless from any liability or loss due to a virus or any other computer or software generated problem associated with these files. The information presented in these documents has been prepared in accordance with recognized engineering principles and is for general use. It should not be used for specific application without competent professional examination and verification of its suitability and applicability by a licensed professional engineer.

Viewing Information

Standards, Special Details, and Special Provisions are available in portable document format (pdf). You will need Adobe Acrobat Reader software to read or print the Typical Plans. This software is free and may be downloaded from the [Adobe Web site](#).

Maintaining Traffic Typicals are also available in MicroStation (dgn) format and are provided as a guidance template to be applied to a specific project for development.

Several of our customers have not been able to download our standards and details files from the web and have received an error saying "This is not a valid link". If you have a "saved" URL that contains "TandS", change to "tands" (Details_Web is ok in the URL). Make sure to clear your browser cache and delete any incorrect URLs from your Favorites.

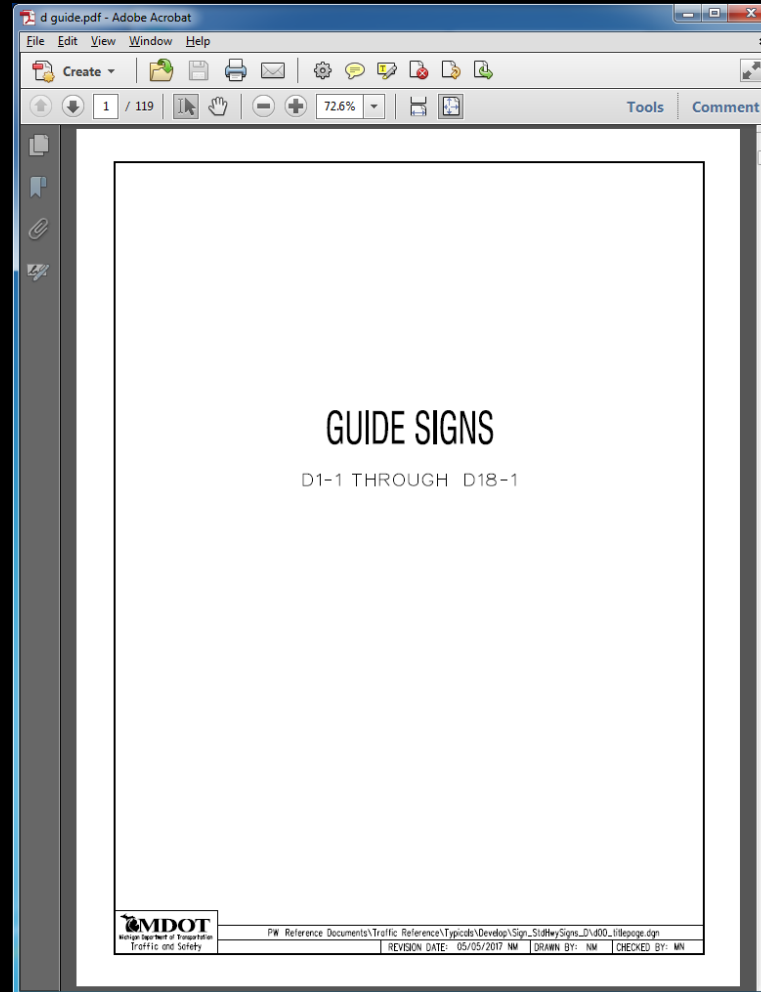
STANDARD HIGHWAY SIGNS

The screenshot shows the MDOT Department of Transportation website. The main content area displays a list of Standard Highway Signs. The table has three columns: PLAN, TITLE, and DATE. The table is sorted by DATE in descending order. Each row includes a checkbox for downloading the file and a link to the file. The left sidebar contains a navigation menu with categories like Delineators, Geometrics, and Traffic Signaling. A keyword search box is also present.

Individual Files may be opened by clicking the on the links in the Title column for each Plan. You may also use the checkboxes to check the files you want to download and click the Download Checked Files button.

PLAN	TITLE	DATE
0-CHANGES_SHS	Change List for Standard Highway Signs <input type="checkbox"/> pdf file - 8/25/2017 (868.2 KB)	8/25/2017
00-SHS - NOTE1	NOTE - These are adopted Federal SHS details and include MI specific details, Clearview Fonts are indicated where appropriate - Local Agency details are non-clearview for non-state trunkline use only	
001-Preface	Preface to Sign Manual and Cover Page <input type="checkbox"/> English pdf - 5/20/2014 (20.6 KB)	5/20/2014
SHS-CHANGED	Detailed Change List of SHS details that were ADDED, DELETED, or MODIFIED <input type="checkbox"/> MDOT_detailed_changes.xlsx - 1/23/2018 (81.4 KB)	1/23/2018
SHS-E01-REG	"R" Regulatory Signs <input type="checkbox"/> regulatory.pdf - 2/22/2018 (14.6 MB)	2/22/2018
SHS-E02-WARN	"W" Warning Signs and misc construction signs - "G" "E" "M" <input type="checkbox"/> warning.pdf - 1/23/2018 (7.3 MB)	1/23/2018
SHS-E03-ROUTE	"M" Route Markers & Route Marker Auxiliaries_Clearview Font <input type="checkbox"/> English.pdf - 3/29/2017 (3.2 MB)	3/29/2017
SHS-E03-ROUTE-SH	"M" Route Markers & Route Marker Auxiliaries_Standard Highway Font <input type="checkbox"/> route_marker.pdf - 1/23/2018 (3.9 MB)	1/23/2018
SHS-E04-EM_CD	Emergency Management and Civil Defense Signs <input type="checkbox"/> English.pdf - 11/21/2006 (282.5 KB)	11/21/2006
SHS-E05-SCHOOL	School Signs <input type="checkbox"/> English.pdf - 4/17/2012 (668.6 KB)	4/17/2012

D SERIES GUIDE SIGNS



D1-1 & D1-2 SIGNS

d guide.pdf - Adobe Acrobat

File Edit View Window Help

Create [Icons]

2 / 119 72.6% Tools Comment

D1-1
DESTINATION (1 LINE)

SIGN	DIMENSIONS (INCHES)								ARROW SIZE
	A	B	C	D	E	F	G	H	
35 MPH OR LESS VAR.	12	.75	3.0	5	4	3.5	1.025	5/8	
40 MPH OR MORE VAR.	18	.75	7.0	7	6	5.5	1.025	7/8	

D1-2 (1,1)
DESTINATION (2 LINES)

SIGN	DIMENSIONS (INCHES)								ARROW SIZE
	A	B	C	D	E	F	G	H	
35 MPH OR LESS VAR.	30	.75	3.0	5	4	3	1.025	5/8	
40 MPH OR MORE VAR.	36	.75	7.0	7	6	5.5	1.025	7/8	

COLORS
LEGEND AND BORDER - WHITE (REFL.)
BACKGROUND - GREEN (REFL.)
CENTRALLY LOCATE ALL LEGENDS AND ARROWS

MDOT
Michigan Department of Transportation
Traffic and Safety

PK Reference Documents\Traffic Reference\Typical\Develop\Sign_Sidway\Signs_D1a01_01_02.dgn
REVISION DATE: 05/05/2017 MM DRAWN BY: NM CHECKED BY: MN

MEMORIAL HIGHWAY SIGNING

- Michigan Memorial Highway Act (Act 142 of 2001)
 - Section 250.1002
- Paid for by Requestor
 - Unless sign job present
- D7-3 (in SHS)
 - Freeway
 - Non-Freeway
- Sign **MUST** Match what Law Says!

**Tuskegee Airmen
Memorial Highway**

**Brian Derks
Memorial Highway**

D7-3 MEMORIAL HIGHWAY SIGN

The image shows a technical drawing of a rectangular sign with rounded corners. The sign contains the text "Veterans Memorial Highway". Dimensions are indicated by letters A through J. Dimension A is the total width, B is the total height, C is the width of the rounded corners, D is the width of the straight section, E is the height of the straight section, F is the height of the rounded corners, G is the width of the sign face, H is the height of the sign face, I is the height of the sign face, and J is the width of the sign face. The drawing is titled "D7-3 MEMORIAL HIGHWAY".

D7-3
MEMORIAL HIGHWAY

SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
NON-FREEWAY	24	5	5	5	4	.75	1.625	4	
FREEWAY	36	8	7	8	6	1.5	6	6	

COLORS
LEGEND AND BORDER - WHITE (REFL.)
BACKGROUND - BROWN (REFL.)
CENTRALLY LOCATE ALL LEGENDS

AMDOT
New Mexico Department of Transportation
Traffic and Safety

PW Reference Documents\Traffic Reference\Typicals\Develop\Sign_Side\HySigns_D1\07_03.dgn
REVISION DATE: 05/05/2017 NM DRAWN BY: NM CHECKED BY: MN

COMMUNITY WAYFINDING SIGNING

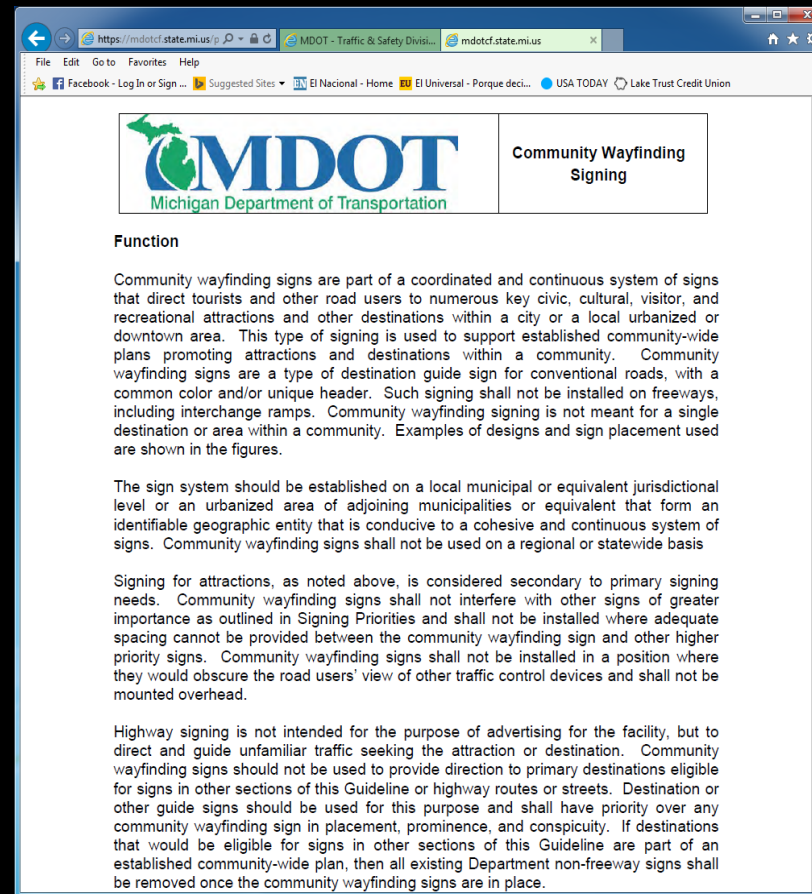
Individual Files may be opened by clicking the on the links in the Title column for each Plan. You may also use the checkboxes to check the files you want to download and click the Download Checked Files button.

Download Checked Files Check All

Traffic Signing - Correspondence/Guidelines (Click Column Header to change sort order)

PLAN	TITLE	DATE
0-CHANGES Sign Guidelines	Change List for MDOT Traffic and Safety, Traffic Signing, Correspondence/Guidelines <input type="checkbox"/> pdf file - 11/7/2016 (51.7 KB)	
0_V8_Signs_Readme	CAD Instructions-Procedures for Signing Consultants <input type="checkbox"/> Signs.pdf - 5/14/2009 (398.5 KB)	
Annual Signing Meeting	2013 Presentations <input type="checkbox"/> zip file - 6/18/2013 (7.0 MB)	
Community Wayfinding Signing	Community Wayfinding Signing <input type="checkbox"/> Community_Wayfinding_Signing - 7/25/2014 (163.6 KB)	
Logo	Michigan Specific Service (Logo) Signing Program <input type="checkbox"/> 2010 Logo Brochure.pdf - 5/8/2014 (675.4 KB)	
MDOT Interim Guidance - Clearview Termination	Interim Guidance Termination of Interim Approval of Clearview <input type="checkbox"/> MDOT Interim Guidance - Clearview Termination - 5/5/2016 (140.0 KB)	
SIGNCAD Templates	SignCAD Clearview Font Templates for Guide Signs <input type="checkbox"/> English.sgn - 4/30/2012 (1.3 MB)	
SignCAD SHS Templates	SHS Templates <input type="checkbox"/> English.zip - 4/3/2013 (2.1 MB)	
SignCAD Templates-SH	SignCAD Templates-Standard Highway Font <input type="checkbox"/> a_signs.zip - 1/23/2018 (523.7 KB) <input type="checkbox"/> l_signs.zip - 1/23/2018 (176.0 KB) <input type="checkbox"/> d_signs.zip - 1/23/2018 (962.5 KB) <input type="checkbox"/> m_signs - 1/23/2018 (1.1 MB) <input type="checkbox"/> mdot_supplied.zip - 1/23/2018 (4.1 MB)	
Signing Trunkline Guide	Guidelines for Signing on State Trunkline Highways <input type="checkbox"/> pdf - 1/21/2014 (636.1 KB)	
Slogan Sign Options	Slogan/Distinctive Boundary Signs Options for Local Units of Government <input type="checkbox"/> Slogan_Sign_Options - 7/25/2014 (59.5 KB)	
TODS	Tourist Oriented Directional Sign Program (TODS)	

COMMUNITY WAYFINDING SIGNING



The screenshot shows a web browser window with the address bar displaying "https://mdotcf.state.mi.us/p...". The page features the MDOT logo (Michigan Department of Transportation) and the title "Community Wayfinding Signing". The main content area is titled "Function" and contains several paragraphs of text explaining the purpose and guidelines for community wayfinding signs.

Function

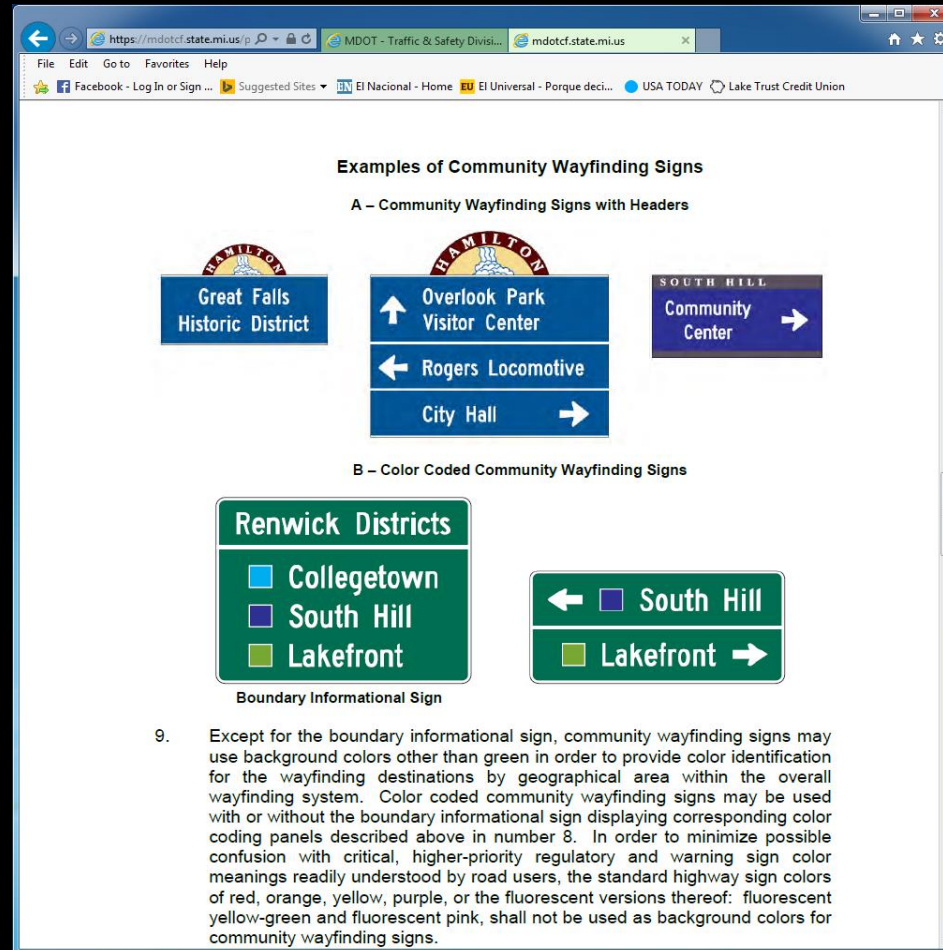
Community wayfinding signs are part of a coordinated and continuous system of signs that direct tourists and other road users to numerous key civic, cultural, visitor, and recreational attractions and other destinations within a city or a local urbanized or downtown area. This type of signing is used to support established community-wide plans promoting attractions and destinations within a community. Community wayfinding signs are a type of destination guide sign for conventional roads, with a common color and/or unique header. Such signing shall not be installed on freeways, including interchange ramps. Community wayfinding signing is not meant for a single destination or area within a community. Examples of designs and sign placement used are shown in the figures.

The sign system should be established on a local municipal or equivalent jurisdictional level or an urbanized area of adjoining municipalities or equivalent that form an identifiable geographic entity that is conducive to a cohesive and continuous system of signs. Community wayfinding signs shall not be used on a regional or statewide basis.

Signing for attractions, as noted above, is considered secondary to primary signing needs. Community wayfinding signs shall not interfere with other signs of greater importance as outlined in Signing Priorities and shall not be installed where adequate spacing cannot be provided between the community wayfinding sign and other higher priority signs. Community wayfinding signs shall not be installed in a position where they would obscure the road users' view of other traffic control devices and shall not be mounted overhead.

Highway signing is not intended for the purpose of advertising for the facility, but to direct and guide unfamiliar traffic seeking the attraction or destination. Community wayfinding signs should not be used to provide direction to primary destinations eligible for signs in other sections of this Guideline or highway routes or streets. Destination or other guide signs should be used for this purpose and shall have priority over any community wayfinding sign in placement, prominence, and conspicuity. If destinations that would be eligible for signs in other sections of this Guideline are part of an established community-wide plan, then all existing Department non-freeway signs shall be removed once the community wayfinding signs are in place.

COMMUNITY WAYFINDING SIGNING



The screenshot shows a web browser window with the URL <https://mdotcf.state.mi.us/p>. The page title is "Examples of Community Wayfinding Signs".

A – Community Wayfinding Signs with Headers

This section displays three examples of signs with headers. The first is a blue sign with the Hamilton logo and the text "Great Falls Historic District". The second is a blue sign with the Hamilton logo and three rows of text: "Overlook Park Visitor Center" with an upward arrow, "Rogers Locomotive" with a leftward arrow, and "City Hall" with a rightward arrow. The third is a purple sign with the South Hill logo and the text "Community Center" with a rightward arrow.

B – Color Coded Community Wayfinding Signs

This section displays two examples of color-coded signs. The first is a green sign with the text "Renwick Districts" and three rows of color-coded boxes: a blue box for "Collegetown", a purple box for "South Hill", and a green box for "Lakefront". The second is a green sign with two rows of color-coded boxes: a purple box for "South Hill" with a leftward arrow, and a green box for "Lakefront" with a rightward arrow.

Boundary Informational Sign

9. Except for the boundary informational sign, community wayfinding signs may use background colors other than green in order to provide color identification for the wayfinding destinations by geographical area within the overall wayfinding system. Color coded community wayfinding signs may be used with or without the boundary informational sign displaying corresponding color coding panels described above in number 8. In order to minimize possible confusion with critical, higher-priority regulatory and warning sign color meanings readily understood by road users, the standard highway sign colors of red, orange, yellow, purple, or the fluorescent versions thereof: fluorescent yellow-green and fluorescent pink, shall not be used as background colors for community wayfinding signs.



SIGNS DESIGN

Using SignCad

SIGN DESIGN USING SIGNCAD

The screenshot displays a web browser window with the URL <https://mdotcf.state.mi.us/pub>. The browser's address bar shows the page title "MDOT - Traffic & Safety Di...". The browser interface includes a menu bar (File, Edit, View, Favorites, Tools, Help) and a toolbar with navigation icons. Below the browser window, a file management interface is visible, featuring a navigation tree on the left and a main content area on the right.

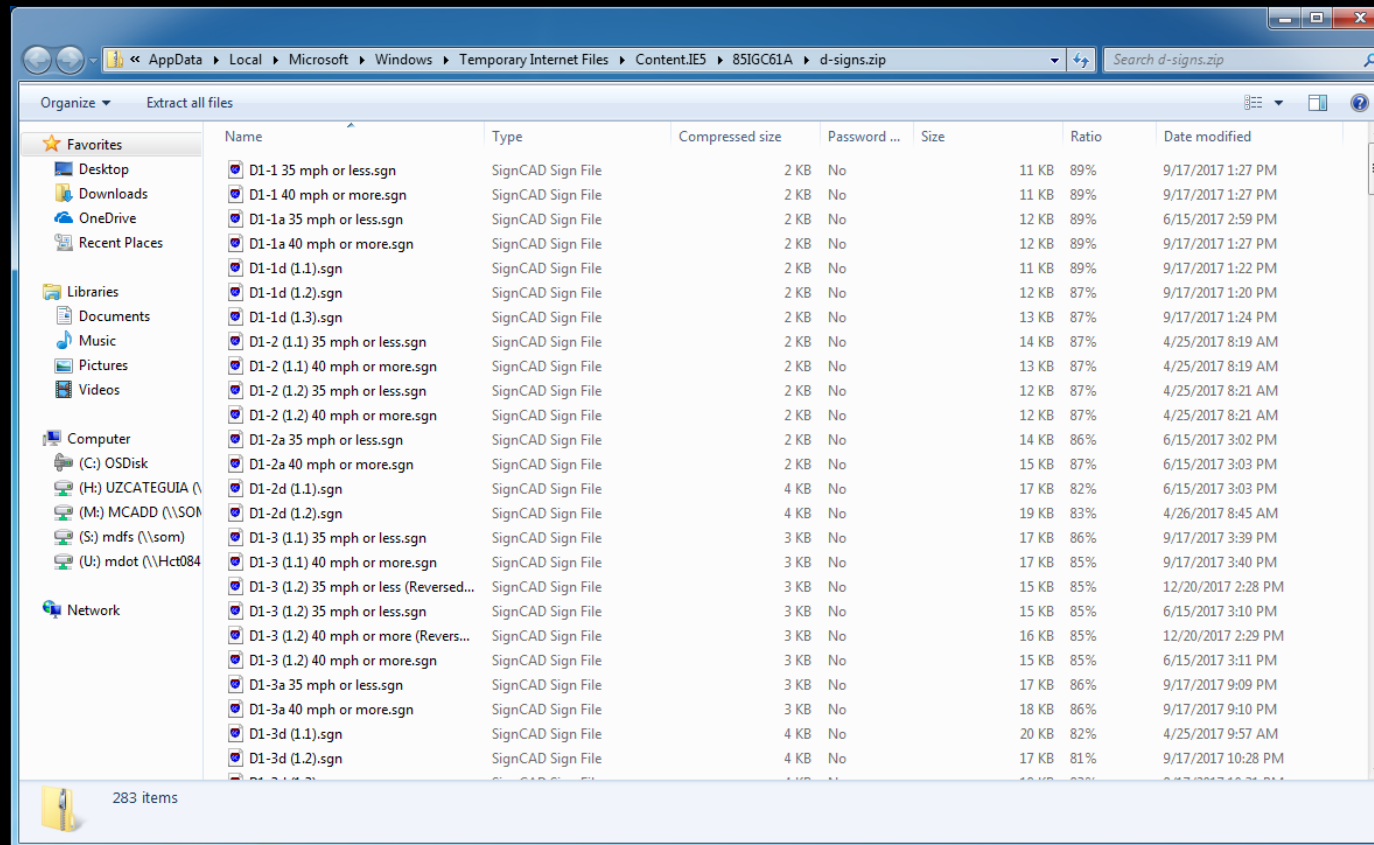
The navigation tree on the left includes the following categories:

- Delineators
- Geometrics
- MMUTCD
- Miscellaneous
- Pavement Markings
- Pedestrian/Bicyclist
- Roadsoft Data
- Safety Programs
- School
- Traffic
- Regulations/Speed/Stopping/Parking
- Traffic Signals
- Traffic Signing
 - Correspondence/Guidelines
 - Signing Special Details
 - Signing Standards
 - Special Provisions
 - Standard Highway Signs
- Traffic and Safety Notes
- Work Zones

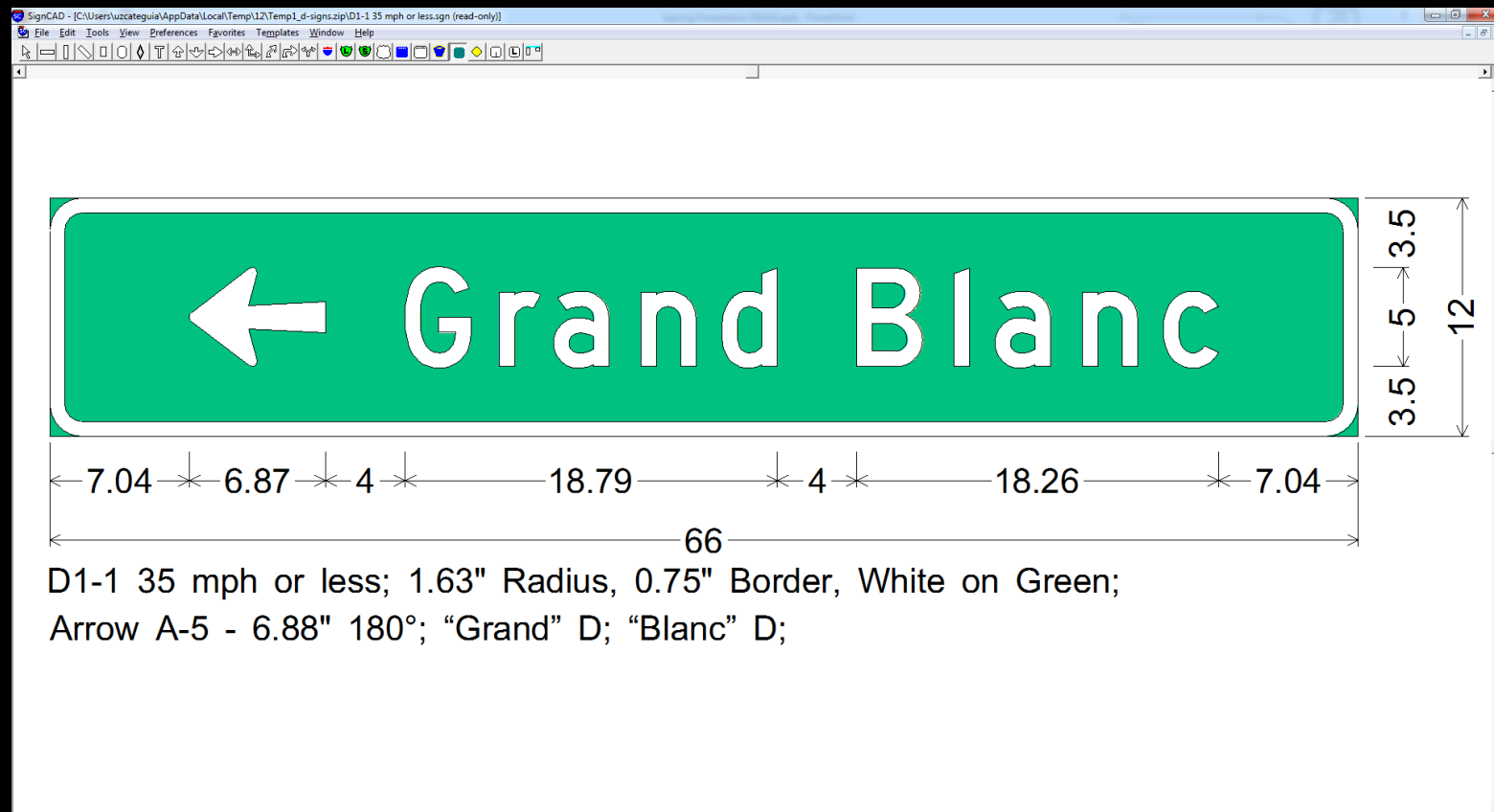
The main content area displays a table of files under the heading "Traffic Signing - Correspondence/Guidelines". The table has columns for "PLAN", "TITLE", and "DATE". The files listed are:

PLAN	TITLE	DATE
0-CHANGES Sign Guidelines	Change List for MDOT Traffic and Safety, Traffic Signing, Correspondence/Guidelines	11/7/2016 (51.7 KB)
0_V8_Signs_Readme	CAD Instructions-Procedures for Signing Consultants	5/14/2009 (398.5 KB)
Annual Signing Meeting	2013 Presentations	6/18/2013 (7.0 MB)
Community Wayfinding Signing	Community Wayfinding Signing	7/25/2014 (163.6 KB)
Logo	Michigan Specific Service (Logo) Signing Program	5/8/2014 (675.4 KB)
MDOT Interim Guidance - Clearview Termination	Interim Guidance Termination of Interim Approval of Clearview	5/5/2016 (140.0 KB)
SIGNCAD Templates	SignCAD Clearview Font Templates for Guide Signs	4/30/2012 (1.3 MB)
SignCAD SHS Templates	SHS Templates	4/3/2013 (2.1 MB)
SignCAD Templates-SH	SignCAD Templates-Standard Highway Font	1/23/2018 (523.7 KB)
	<input type="checkbox"/> e_signs.zip - 1/23/2018 (176.0 KB)	
	<input checked="" type="checkbox"/> d_signs.zip - 1/23/2018 (962.5 KB)	
	<input type="checkbox"/> m_signs - 1/23/2018 (1.1 MB)	
	<input type="checkbox"/> mdot_supplied.zip - 1/23/2018 (4.1 MB)	

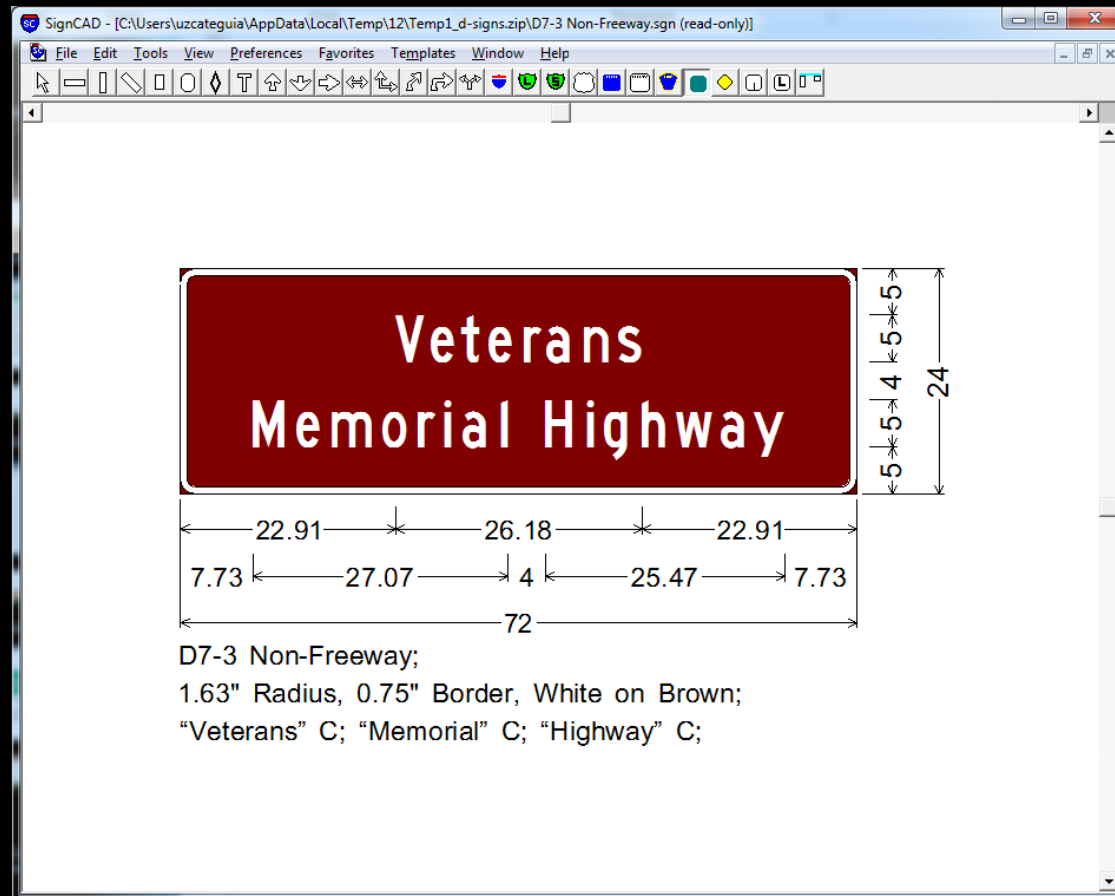
SIGN DESIGN USING SIGNCAD



SIGN DESIGN USING SIGNCAD



SIGN DESIGN USING SIGNCAD

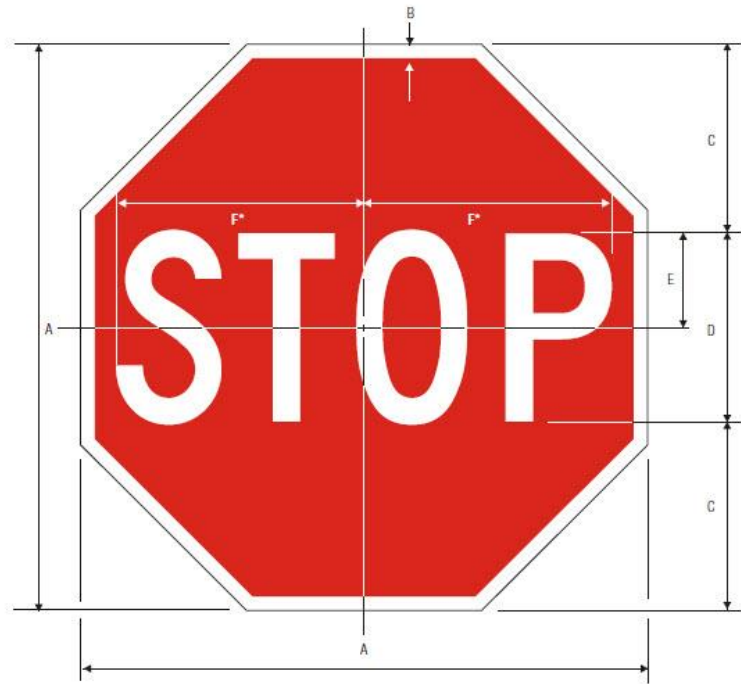




SIGNS FABRICATION

By the Michigan DOT Central Sign Shop

STANDARD HIGHWAY SIGNS



R1-1
STOP

*Reduce spacing 40%

A	B	C	D	E	F
18	.375	6	6 C	3	7.75
24	.625	8	8 C	4	10
30	.75	10	10 C	5	12.5
36	.875	12	12 C	6	15
48	1.25	16	16 C	8	20

COLORS: LEGEND — WHITE (RETROREFLECTIVE)
BACKGROUND — RED (RETROREFLECTIVE)



R3-2

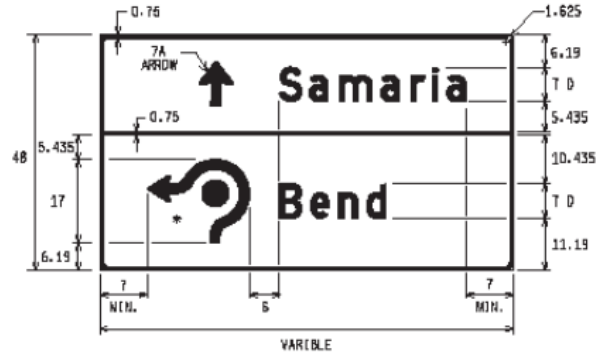
LEFT TURN PROHIBITION

*See page 6-2 for design details.

A	B	C	D	E	F	G	H	J	K	L
24	.375	.625	10.5	8.5	1.5	2.5	10.5	11.5	2	.5
30	.5	.75	13.125	10.625	1.875	3.125	13.125	14.5	2.5	.625
36	.625	.875	15.75	12.75	2.25	3.75	15.75	17.25	3	.75
48	.75	1.25	21	17	3	5	21	23	4	1

COLORS: CIRCLE & DIAGONAL — RED (RETROREFLECTIVE)
SYMBOL & BORDER — BLACK
BACKGROUND — WHITE (RETROREFLECTIVE)

STANDARD HIGHWAY SIGNS



D1-2d (1.2)
ARROW WITH DESTINATION AND ROUNDABOUT ARROW WITH DESTINATION
FOR ROUNDABOUT USE ONLY

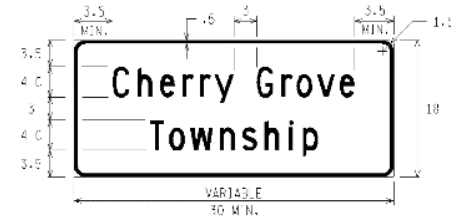
** SEE PAGE 8-84 OF APPENDIX
FOR SYMBOL DETAILS

COLORS
LEGEND AND BORDER - WHITE (REFL.)
BACKGROUND - GREEN (REFL.)
CENTER THRU ARROW OVER ROUNDABOUT ARROW
CENTRALLY LOCATE ALL LEGENDS AND ARROWS

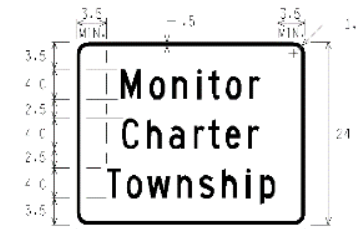


PM Reference Documents\Traffic Reference\Typicals\Develop\Sign_Signs\Signs_D1\01_D2d_12.dgn

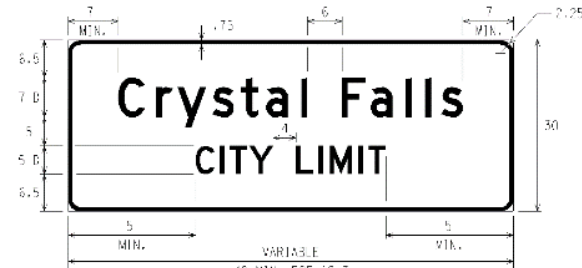
REVISION DATE: 05/05/2017 MM DRAWN BY: MM CHECKED BY: MM



12-2a
TOWNSHIP LIMIT



12-2b
CHARTER TOWNSHIP LIMIT



12-3 (CITY) 12-3a (VILLAGE)
CITY/VILLAGE LIMIT

COLORS
LEGEND AND BORDER - WHITE (REFL.)
BACKGROUND - GREEN (REFL.)
CENTRALLY LOCATE ALL LEGENDS



PM Reference Documents\Traffic Reference\Typicals\Develop\Sign_Signs\Signs_D1\02_02a_02b_03a.dgn

REVISION DATE: 05/05/2017 MM DRAWN BY: MM CHECKED BY: MM

CHART SHOWS SPECIFICATIONS



R3-2
LEFT TURN PROHIBITION

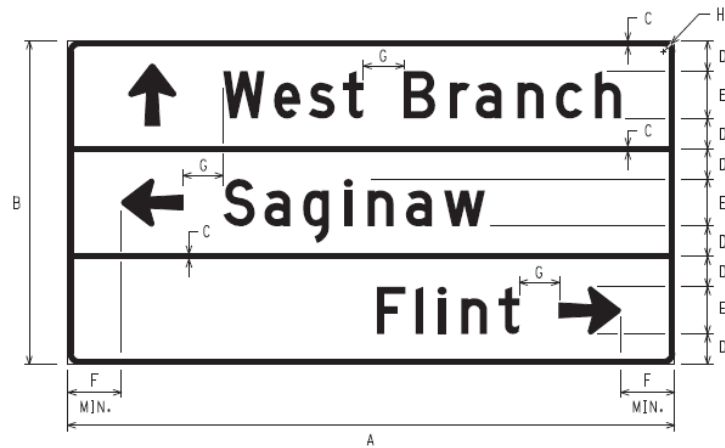
*See page 6-2 for design details.

A	B	C	D	E	F	G	H	J	K	L
24	.375	.625	10.5	8.5	1.5	2.5	10.5	11.5	2	.5
30	.5	.75	13.125	10.625	1.875	3.125	13.125	14.5	2.5	.625
36	.625	.875	15.75	12.75	2.25	3.75	15.75	17.25	3	.75
48	.75	1.25	21	17	3	5	21	23	4	1

COLORS: CIRCLE & DIAGONAL - RED (RETROREFLECTIVE)
 SYMBOL & BORDER - BLACK
 BACKGROUND - WHITE (RETROREFLECTIVE)

	A	B	C	D	E	F	G	H	J	K	L
C	24	.375	.625	10.5	8.5	1.5	2.5	10.5	11.5	2	.5
	30	.5	.75	13.125	10.625	1.875	3.125	13.125	14.5	2.5	.625
	36	.625	.875	15.75	12.75	2.25	3.75	15.75	17.25	3	.75
	48	.75	1.25	21	17	3	5	21	23	4	1





D1-3 (1.1)
DESTINATION (3 LINES)

SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	ARROW SIZE
35 MPH OR LESS	VAR.	36	.75	3.5	5 D	5	4	1.625	5A
40 MPH OR MORE	VAR.	48	.75	4.5	7 D	7	6	1.625	7A

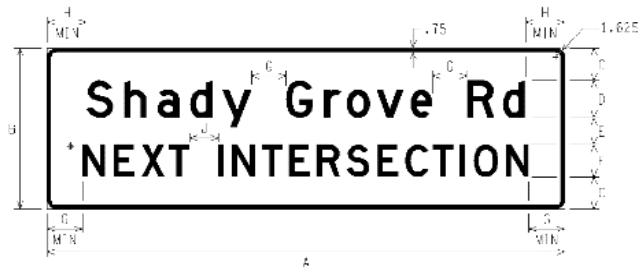
COLORS
 LEGEND AND BORDER - WHITE (REFL.)
 BACKGROUND - GREEN (REFL.)
 CENTER THRU ARROW OVER LEFT ARROW.
 CENTRALLY LOCATE ALL LEGENDS AND ARROWS

DETERMINE SPEED WHERE
SIGN IS TO BE INSTALLED

NOTE HEIGHT OF SIGN
BASED ON SPEED

NOTE ALL OTHER
DIMENSIONS ARE BASED
ON SPEED

FABRICATION

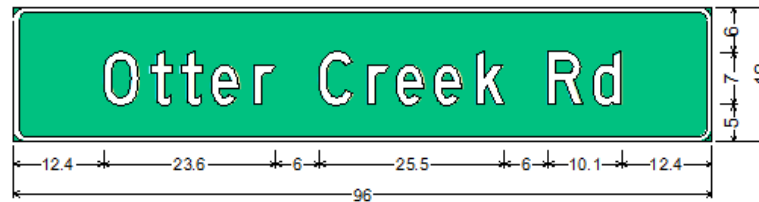


WHEN ROAD NAME USES A COMBINATION OF NUMBERS AND LETTERS
(e.g. 22ND AVE) USE 2" AS THE SPACE BETWEEN THE NUMBERS AND THE LETTER.

D3-2 (1.1)
ADVANCE STREET NAME

SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
35 MPH OR LESS	VAR.	24	5.5	5.0	4	4.0	4	5	3
40 MPH OR MORE	VAR.	30	6	7.0	5	6.0	6	7	5

COLORS
 LEGEND AND BORDER - WHITE (REFL.)
 BACKGROUND - GREEN (REFL.)
 * ALTERNATE LEGEND: " NEXT SIGNAL " OR " NEXT ROUNDABOUT "
 " 2ND INTERSECTION " OR " NEXT LEFT "



1.6" Radius, 0.8" Border, White on Green;

"Otter" D; "Creek" D; "Rd" D;

Table of widths and spaces.

12.4	o	t	t	e	r	c	r	e	e	k
4.9	1.4	3.0	1.2	3.1	1.3	3.9	1.9	2.9	6.0	4.7
6.0	R	4.7	1.5	d	3.9	12.4				

NEXT INTERSECTION

Rectangular Panel ? X

General **Size** Border Location Spacing Custom

Increment Minimum Current

Width 96 96

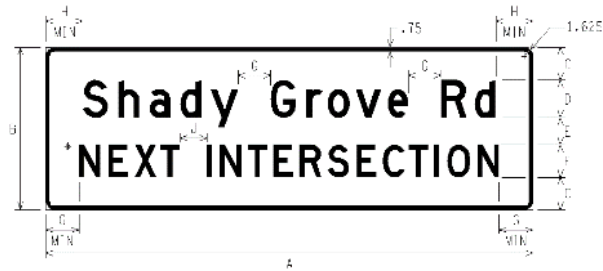
Height 18 18

Enlarge to Fit When In Multipanel:

Row height Column width

OK Cancel Help

FABRICATION

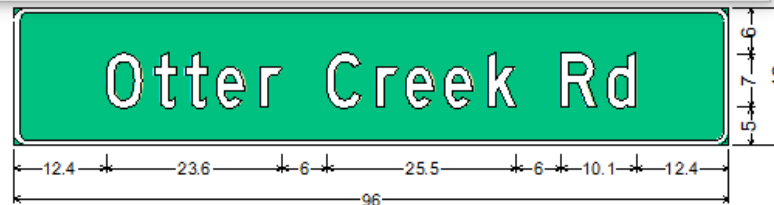
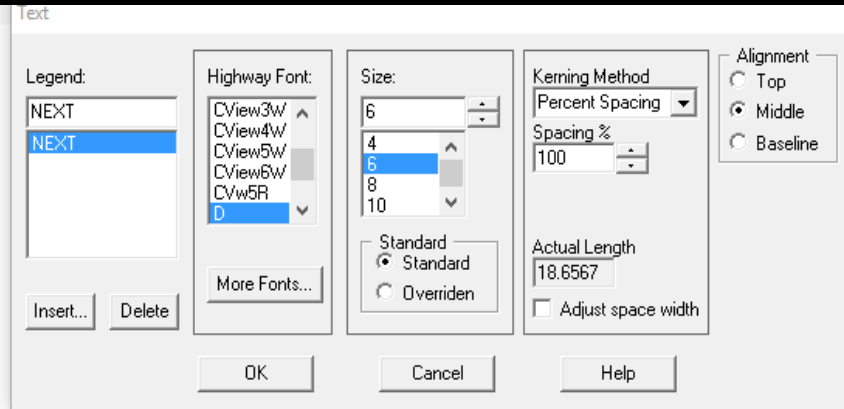


WHEN ROAD NAME USES A COMBINATION OF NUMBERS AND LETTERS
(i.e. 22ND AVE) USE 2" AS THE SPACE BETWEEN THE NUMBERS AND THE LETTER.

D.3-2 (1.1)
ADVANCE STREET NAME

SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	
35 MPH OR LESS	VAR.	24	5.5	5 D	4	4 D	4	5	3	
40 MPH OR MORE	VAR.	30	6	7 D	5	6 D	6	7	5	

COLORS
 LEGEND AND BORDER - WHITE (REFL.)
 BACKGROUND - GREEN (REFL.)
 * ALTERNATE LEGEND: " NEXT SIGNAL " OR " NEXT ROUNDABOUT "
 " 2ND INTERSECTION " OR " NEXT LEFT "



1.6" Radius, 0.8" Border, White on Green;

"Otter" D; "Creek" D; "Rd" D;

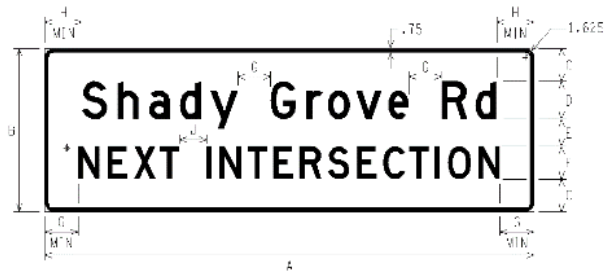
Table of widths and spaces.

12.4	0	t	t	e	r	r	C	r	e	e	k								
12.4	4.9	1.4	3.0	1.2	3.1	1.3	3.9	1.9	2.9	6.0	4.7	2.0	3.0	0.8	3.9	1.4	3.9	1.9	3.9
	6.0	R	d																
		4.7	1.5	3.9	12.4														

NEXT

INTERSECTION

FABRICATION

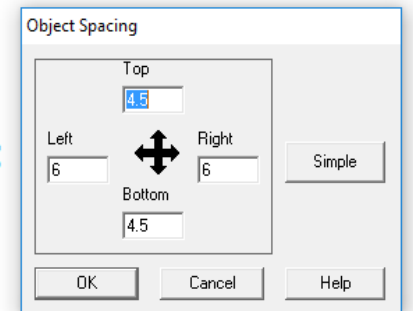
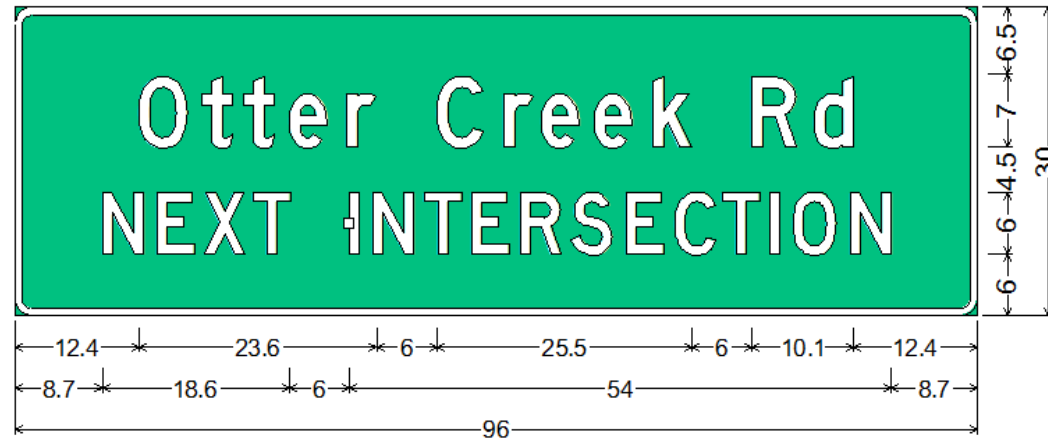


WHEN ROAD NAME USES A COMBINATION OF NUMBERS AND LETTERS
(i.e. 22ND AVE) USE 2" AS THE SPACE BETWEEN THE NUMBERS AND THE LETTER.

D3-2 (1.1)
ADVANCE STREET NAME

SIGN	DIMENSIONS (INCHES)								
	A	B	C	D	E	F	G	H	J
35 MPH OR LESS	VAR.	24	5.5	5 D	4	4 D	4	5	3
40 MPH OR MORE	VAR.	30	6	7 D	5	6 D	6	7	5

COLORS
 LEGEND AND BORDER - WHITE (REFL.)
 BACKGROUND - GREEN (REFL.)
 *ALTERNATE LEGEND: "NEXT SIGNAL" OR "NEXT ROUNDABOUT"
 "2ND INTERSECTION" OR "NEXT LEFT"



1.6" Radius, 0.8" Border, White on Green;
 "Otter" D; "Creek" D; "Rd" D; "NEXT" D; "INTERSECTION" D;
 Table of widths and spaces.

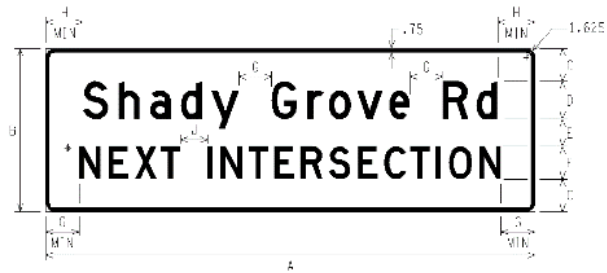
12.4	O	4.9	t	1.4	t	3.0	1.2	e	3.1	1.3	r	3.9	1.9	2.9	6.0	C	4.7	2.0	3.0	0.8	e	3.9	1.4	e	3.9	1.9	k	3.9
------	---	-----	---	-----	---	-----	-----	---	-----	-----	---	-----	-----	-----	-----	---	-----	-----	-----	-----	---	-----	-----	---	-----	-----	---	-----

6.0	R	4.7	d	1.5	3.9	12.4
-----	---	-----	---	-----	-----	------

8.7	N	4.0	1.4	E	3.7	1.1	X	4.0	0.8	T	3.6
-----	---	-----	-----	---	-----	-----	---	-----	-----	---	-----

6.0	I	1.0	1.4	N	4.0	1.1	T	3.7	1.1	E	3.7	1.1	R	4.0	1.1	S	4.1	1.4	E	3.6	1.2	C	4.0	0.7	T	3.7	1.1	I	1.0	1.4	O	4.2	1.4	N	4.0	8.7
-----	---	-----	-----	---	-----	-----	---	-----	-----	---	-----	-----	---	-----	-----	---	-----	-----	---	-----	-----	---	-----	-----	---	-----	-----	---	-----	-----	---	-----	-----	---	-----	-----

FABRICATION



WHEN ROAD NAME USES A COMBINATION OF NUMBERS AND LETTERS
(i.e. 22ND AVE) USE "2" AS THE SPACE BETWEEN THE NUMBERS AND THE LETTER.

D3-2 (1.1)
ADVANCE STREET NAME

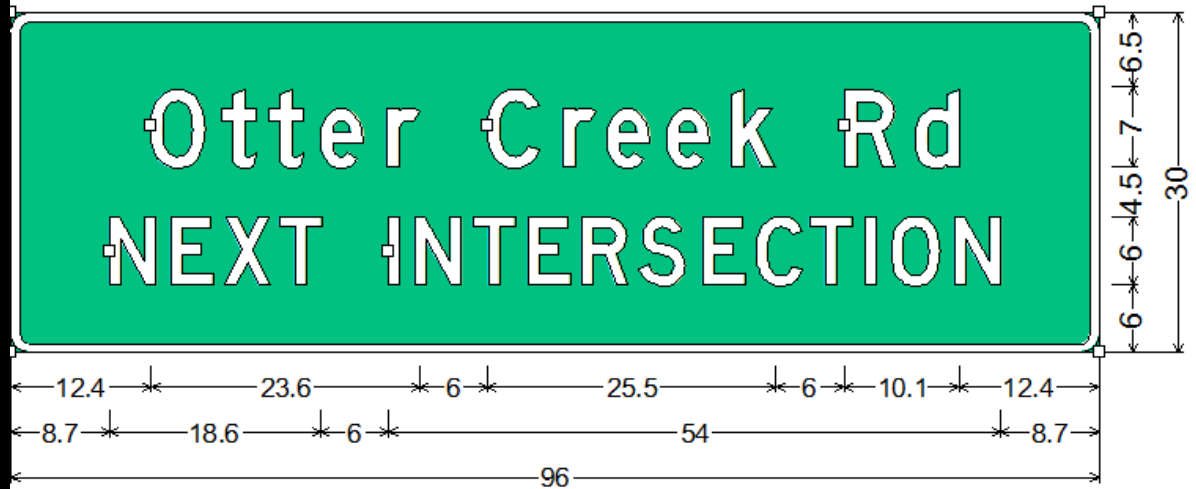
SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	
35 MPH OR LESS	VAR.	24	5.5	5 D	4	4 D	4	5	3	
40 MPH OR MORE	VAR.	30	6	7 D	5	6 D	6	7	5	

COLORS
LEGEND AND BORDER - WHITE (REFL.)
BACKGROUND - GREEN (REFL.)
* ALTERNATE LEGEND: "NEXT SIGNAL" OR "NEXT ROUNDABOUT"
"2ND INTERSECTION" OR "NEXT LEFT"



P:\Reference Documents\Traffic Reference\lyalpicis\Develop\Sign_Sdmy\Signs_D\03_02_11.sgn

REVISION: DA: E: 09/27/2017 NM DRAWN BY: NN CHECKED BY: MN



1.6" Radius, 0.8" Border, White on Green;

"Otter" D; "Creek" D; "Rd" D; "NEXT" D; "INTERSECTION" D;

Table of widths and spaces.

12.4	O	t	t	e	1
4.9	1.4	3.0	1.2	3.1	1.3
3.9					
6.0	R	d			
4.7	1.5	3.9	12.4		
8.7	N	E	X	T	
4.0	1.4	3.7	1.1	4.0	0.8
3.6					
6.0	I	N	T	E	3
1.0	1.4	4.0	1.1	3.7	1.1

Cut Selected [X]

Plotter: Graphtec
Port: USB
Tool: Knife

Material Size:
Width: 47.52" Margin: 0
Length: 96.85" Extensible
Units: in.

Orientation:
 Portrait
 Landscape

Arc Fit:
 Arc fit polylines
Tolerance: 0.05

Weeding:
 Weed border
Weed margin: 0.04

Remove text spacing:
Corner Rounding:
 Round corners
Corner radius: 0.125

Geometry:
Offset: X 0.8531 Y 0
Size: Width 96 Height 30

Multi-panel:
 Show edges

Automatic Tile:
 Multi-sheet [Tile options]

Status: _____ Sizes obtained.

[Cut] [Done] [Help] [Save As...] [View and Edit...] [Obtain Sizes] [Cutter Setup]

FABRICATION

View and Edit
File Edit View Tool Preferences Manage Help

12.4 23.1
8.7 18.6

1.6" Radius, 0.8" Border
"Otter" D; "Creek" D; "F"
Table of widths and spacings

12.4	O	4.9	1.4	t	3.0	1.2	t	
			R	4.7	1.5	d	3.9	
8.7	N	4.0	1.4	E	3.7	1.1	X	4.4
			I	1.0	1.4	N	4.0	

Otter Creek Rd
NEXT INTERSECTION

Weed border
Weed margin 0.04

Show edges

Multi-sheet

Tile options

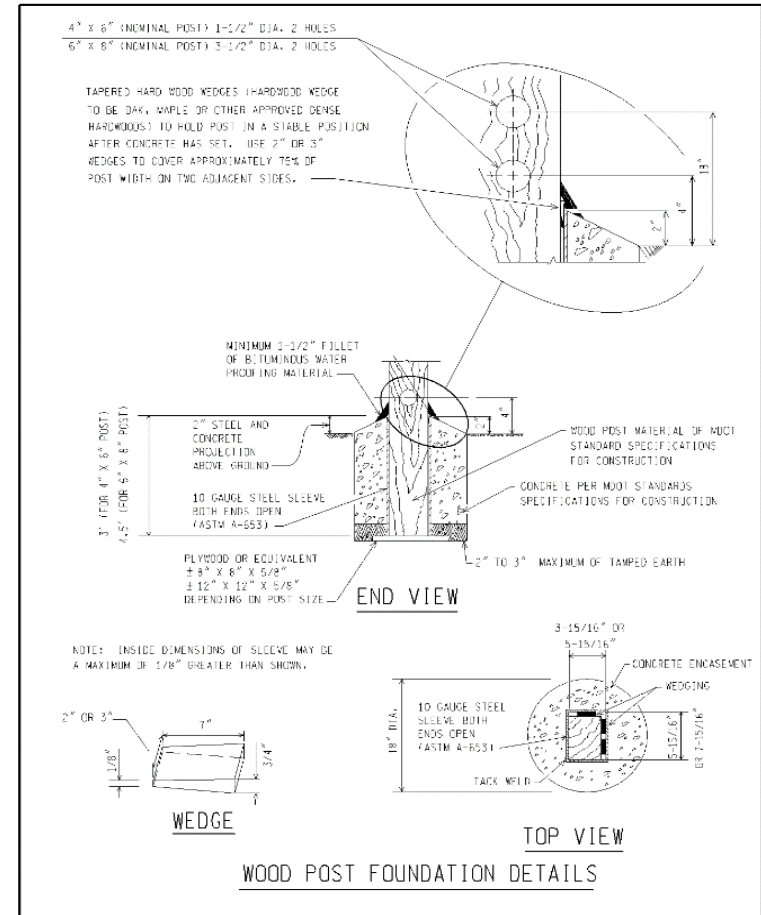
Status: Sizes obtained.



SIGNS INSTALLATION

By the Michigan DOT Statewide Crew

INSTALLATION



<p>PREPARED BY DESIGN DIVISION</p> <p>DRAWN BY: <u>QHD</u></p> <p>CHECKED BY: <u>AJL</u></p>	<p>STRATFORD DIRECTOR Dr. T. Gaudin</p> <p>APPROVED BY: <i>Randy W. Poff</i> DIRECTOR, BUREAU OF FIELD SERVICES</p>	<p>MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN 104</p> <p>WOOD POSTS</p>	
	<p>APPROVED BY: <i>Mark A. Van Pelt</i> DIRECTOR, BUREAU OF HIGHWAY DEVELOPMENT</p>	<p>05/01/15 F.H.W.A. APPROVAL</p>	<p>08/13/14 PLM DATE</p>

INSTALLATION



- A wooden “cookie” is placed in the bottom of the hole
- The sleeves are set in and plumbed

INSTALLATION



- Sleeves are aligned and held in place with an angle and locking pliers
- Spacing is determined by the size of the sign
- $1/6$ from each end leaving $2/3$ in the middle
- An easier way is to take the length of the sign in feet and multiply by 8 inches

INSTALLATION



- Wedges installed – wedges should cover approximately 75% of the post on 2 adjacent sides.
- Tar should be applied to adhere to the post and the sleeve. Ensure the tar encapsulates the wedges.
- Sign 210 states in the Notes that the foundations should set 24 hours before the signs are installed.

INSTALLATION



- Level tops of the posts.
- Drill mounting hole approximately 1" down from top of post, use level to mark and drill the second hole.

INSTALLATION



- Hang sign then drill bottom holes.
- Use stainless steel bolts, nuts and washers.
- Use a nylon washer against the face of the sign.

INSTALLATION



- Place $\frac{1}{4}$ " saw cut approximately 6" below bottom of sign on traffic approach side.
- 1" deep for 4"x6" post
- $1\frac{1}{2}$ " deep for 6"x8" post

INSTALLATION



- Install date tags.
- On two panel signs, make sure there is a date tag on both panels.

CONTACTS

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- Matt Niemi niemim@michigan.gov
- Kwame Johnson johnsonk30@michigan.gov