

Memorandum

To: DEPUTY DIRECTORS
See Attached List

Date: August 25, 2000
File: DDTOPD-03-00

From: **DEPARTMENT OF TRANSPORTATION**
TRAFFIC OPERATIONS
Mail Station 36

Subject: Vertical Clearance Sign Policy

Effective September 1, 2000, all new and replacement vertical clearance signs shall be installed in accordance with the attached Traffic Operations Program Directive for Vertical Clearance Sign Policy. The policy applies to all underpasses, overheads, viaducts, overcrossings, undercrossings, and grade separations for state highways. The policy requires vertical clearance signs for structures with clearance of 15 feet 6 inches or less above the traveled way, exclusive of shoulders. Our goal is full compliance by September 1, 2002.

The objective of this Program Directive is to provide uniform application of signs statewide, and to make signs conspicuous and legible to motorists. We are issuing the policy at this time to coincide with the work being done to update clearance diagrams for structures on state highways.

It is the responsibility of the District Division of Traffic Operations to conduct on-site field investigations and determine location, number and sequencing of vertical clearance signs. The District Division of Traffic Operations should work with the Construction Program and the Maintenance Program to have signs installed on construction projects currently underway.

As a first priority, it is recommended that all new and replacement signs for structures with clearance 15 feet or less be installed by September 1, 2001. The District Division of Maintenance is responsible for installing these signs. Maintenance staff may use EA 916035 for installing signs. Close coordination between Traffic Operations, Construction and Maintenance staff will be helpful in expediting this effort.

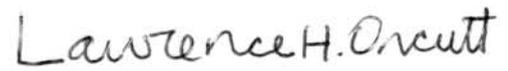
District Directors
August 25, 2000
Page 2

For structures with clearance of 15 feet 1 inch to 15 feet 6 inches, new signs may be installed through capital outlay. Projects may be constructed as minor projects or programmed as major projects in the State Highway Operations and Protection Program (SHOPP). Project Study Reports for major projects (greater than \$750,000) should be submitted by September 1, 2001, for inclusion in the 2002 SHOPP using program code 201.340 "Signs and Lighting Rehabilitation".

Traffic Operations (Headquarters) will make every effort through the budget change proposal process to secure additional resources to implement this vertical clearance policy. Also, attached is a breakdown of the number of structures by district.

If you have any questions or need additional information, contact Mr. Gerry Meis, Chief, Office of Signs and Delineation, at Calnet 464-4551, or Mr. Hossein Rostam, Chief of Truck Services, at Calnet 464-5548.


for
KIM NYSTROM
Program Manager
Traffic Operations


LAWRENCE H. ORCUTT
Program Manager
Maintenance

Attachments

VERTICAL CLEARANCE SIGNS
Number of Structures by District
August 18, 2000

District	# of Structures 15'0" or less	# of Structures 15'1" to 15'6"
01	18	52
02	27	20
03	75	92
04	181	219
05	53	69
06	50	128
07	241	352
08	63	87
09	0	2
10	52	77
11	37	77
12	36	52
Total	833	1227

PROGRAM DIRECTIVE

TR-0011 (New 10/28/1999)

TRAFFIC OPERATIONS PROGRAM DIRECTIVE	NUMBER 00-03	Page 1 of 4 (plus attachments)
KIM NYSTROM, PROGRAM MANAGER (<i>Signature</i>) 	DATE ISSUED August 25, 2000	EFFECTIVE DATE September 1, 2000
SUBJECT Vertical Clearance Sign Policy For State Highway Structures	DISTRIBUTION <input checked="" type="checkbox"/> All District Directors <input checked="" type="checkbox"/> All District Division Chiefs - Traffic Operations <input checked="" type="checkbox"/> All District Division Chiefs - Maintenance <input checked="" type="checkbox"/> All District Division Chiefs - Construction <input checked="" type="checkbox"/> All District Division Chiefs - Project Development <input type="checkbox"/> All District Division Chiefs - Planning <input checked="" type="checkbox"/> Engineering Service Center Director <input checked="" type="checkbox"/> All Headquarters Program Managers <input checked="" type="checkbox"/> Publications (For distribution to all holders of Traffic Manual)	
DOES THIS DIRECTIVE AFFECT OR SUPERSEDE ANOTHER DOCUMENT? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	IF YES, DESCRIBE 502.1 "VERTICAL CLEARANCE TOLERANCE", Caltrans Transportation Permits Manual	
WILL THIS DIRECTIVE BE INCORPORATED IN THE TRAFFIC MANUAL? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	IF YES, DESCRIBE 4-02.6 Policy For Individual Warning Signs (W34, W34A, W34B, and W34C)	

DIRECTIVE

Vertical clearance signs are used to warn motorists of low structure clearance. Four signs: W34, W34A, W34B, and W34C are used for this purpose depending on roadway conditions. The specification and typical application for each sign are attached.

Definitions

Traveled Way. The portion of the roadway for the movement of vehicles, exclusive of shoulders.

Minimum Vertical Clearance. The smallest vertical dimension between the traveled way and the structure.

(continued)

PROGRAM DIRECTIVE

TR-0011 (New 10/28/1999)

Continuation

Page 2 of 4

The following provides the application for each sign:

W34B

With this Program Directive, the standard for the W34B sign is changed. The words "vertical clearance" are no longer used.

The W34B sign shall be used to warn motorists of structure clearance 4.72 meters (15 feet 6 inches) or less. It should be centered over the traveled way on the approach side of all underpasses, overheads, viaducts, overcrossings, undercrossings, and grade separations for state highways. It shall not encroach over the shoulder area.

The W34B sign shall display the minimum vertical clearance to the nearest inch, not exceeding the measured value. The W34 and W34C signs shall display the same clearance shown on the W34B sign.

W34 and W34A

For clearance 4.72 meters (15 feet 6 inches) or less, in addition to the W34B, two advance vertical clearance signs (W34) shall be installed on the right side of the roadway (see special considerations below). The first W34 sign shall be placed in advance of the nearest intersecting street or highway or wide point in the road at which a motorist can detour or safely turn around. The W34A plate should be placed below the W34 sign at this location. The second W34 sign shall be placed in advance of the structure. No W34A plate is needed at the second location.

W34C

The W34C sign shall be used on all blind approaches to structures with clearance 4.72 meters (15 feet 6 inches) or less. The W34C sign is used to warn motorists of low structure clearance around corners. The W34C sign should be placed at a location where the motorist can detour or safely turn around before making the turn.

IMPLEMENTATION**General**

In all applications of this policy, engineering judgement must be exercised. The objective is to provide uniform application of signs statewide, and make signs conspicuous (target value) and legible to motorists. This policy is consistent with federal guidelines. If there are questions regarding implementation, districts should consult with the headquarters Traffic Operations Liaison.

Clearance should be checked periodically, particularly in areas where resurfacing operations have taken place. Clearance shall be verified before replacing or installing new vertical clearance signs on any roadway.

Color, Size and Sheeting

Vertical clearance signs should be sized appropriately for each location and traffic conditions. The attached sign specifications shall be used for all W34, W34A, W34B, and W34C signs. The yellow background on the signs shall be high intensity retroreflective sheeting in accordance with the following:

- 1) W34, W34A, W34C -- ASTM Type III or IV
 - 2) W34B -- 3M Brand "System 5" or equivalent, or ASTM Type III or IV.
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PROGRAM DIRECTIVE

TR-0011 (New 10/28/1999)

Continuation**Page 3 of 4****Special Considerations and Guidance**

1) The W34B should be centered over the traveled way. The W34B may be placed off-center when considering the following:

a) Lane Closures – At certain locations the placement of W34B signs may have an adverse impact on safety and motorist convenience due to lane closures. As determined by the district, the W34B may be placed at an appropriate location to the right of the center of the traveled way to reduce the number of closed traffic lanes during installation.

b) Existing Signs – There may be existing guide signs on structures. In these situations the W34B should be placed as close to the center of the traveled way as practicable where motorists can see it.

2) Skewed Structures – It may be difficult to read a W34B sign on structures with skew angles greater than 30 degrees. In these situations special sign mounting may be required for visibility. **The Caltrans Engineering Service Center shall be consulted regarding appropriate sign mounting details on state highway structures.**

3) Multiple Structures – When a single stream of traffic is diverging into separate streams there may be locations where advance W34 and W34/W34A signs are required on the same roadway for two or more separate structures downstream. In these situations engineering judgement should be exercised in developing appropriate signing packages for location and placement of W34 and W34/W34A signs.

4) Left Side Ingress/Egress – It is recognized that there are locations under structures where ingress and egress of traffic occurs on the left side of the roadway. Where appropriate and as determined by the district, advance W34 and W34/W34A signs should be placed on the left side of the roadway.

5) Multiple Approaches – Some structures, most commonly underpasses and undercrossings, will have a number of approaches from local streets or roads. Districts should evaluate all possible approaches to determine if additional advance warning signs (W34, W34/W34A, or W34C) are needed.

6) Detours – Temporary signing for detours affecting traffic on state highways should be consistent with the various provisions of this Program Directive. **The Caltrans Transportation Permits Office (which issues oversize, overheight, overwide permits) shall be notified 15 days in advance of changes in vertical and horizontal clearance due to detours.**

7) Falsework – Temporary signing for falsework on state highway structures should be consistent with the various provisions of this Program Directive. **The Caltrans Transportation Permits Office (which issues oversize, overheight, overwide permits) shall be notified 15 days in advance of changes in vertical and horizontal clearance due to falsework.**

8) Arches, Tunnels and Tubes – Two or more W34B signs should be used as necessary on the structure, to give information as to the clearance over each traffic lane of 4.72 meters (15 feet 6 inches) or less.

9) Multiple Traveled Ways – There may be locations where traffic lanes are merging or diverging under the structure such as ramps, connectors, or collector-distributor roads. In these situations, as determined by the district, separate W34B and advance signing packages (W34, W34/34A) should be considered for each separate traveled way under the structure.

BACKGROUND**Changes**

The new policy is being issued to make signs more conspicuous and consistent with federal guidelines.

Primary changes in policy are:

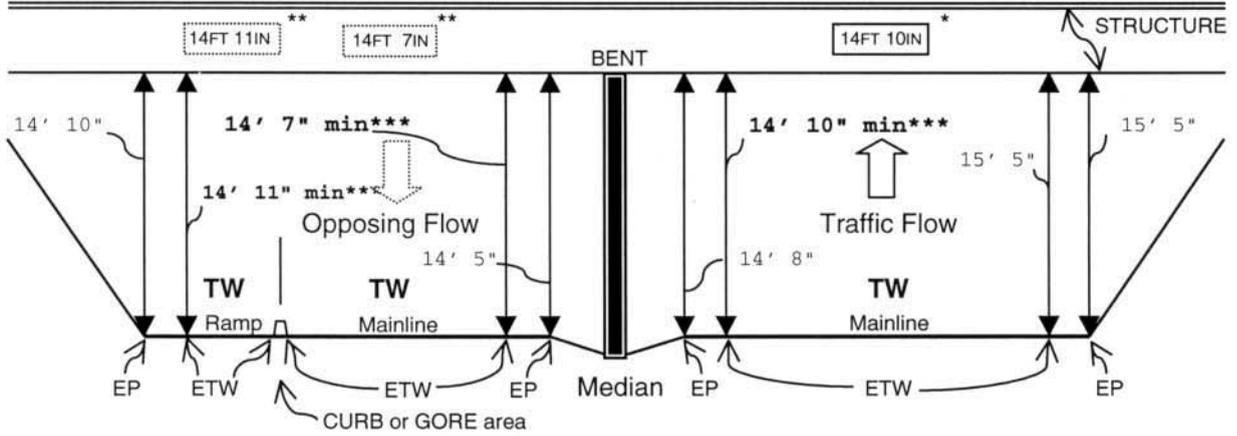
- The words “VERTICAL CLEARANCE” have been removed from the W34B sign.
- The W34B is now required for clearance 4.72 meters (15 feet 6 inches) or less. Previously, the W34 (or optionally, the W34B) sign was required for clearance below 4.5 meters (14 feet 9 inches).
- Two advance signs (W34, W34/W34A) are now required for clearance 4.72 meters (15 feet 6 inches) or less. Previously, only one advance sign (W34/W34A) was recommended for clearance less than 4.3 meters (14 feet 1 inch), and no advance signing was specified for clearance 4.3 meters (14 feet 1 inch) to 4.5 meters (14 feet 9 inches) or higher.
- The W34 C is a new sign.
- High intensity retroreflective sheetings (Type III and Type IV) are now specified. Previously, Type II sheeting was specified as the basic grade.

DEFINITIONS**Meanings of “Shall,” “Should,” and “May”**

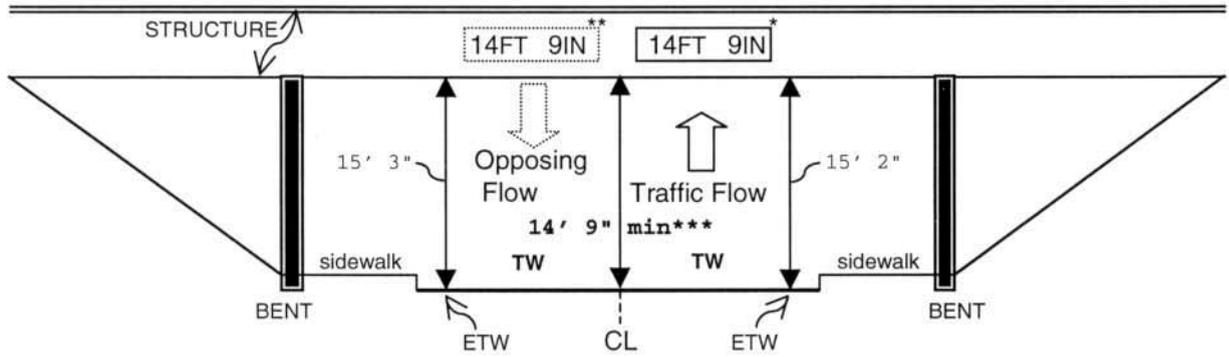
To clarify the meanings intended in this Program Directive by the use of these words, the following definitions apply:

- 1) **SHALL** – A mandatory requirement. Mandatory requirements are those considered most essential to achievement of overall objectives of this Program Directive. Mandatory requirements use the word “shall” and are printed in **Boldface** type.
 - 2) **SHOULD** – An advisory requirement. Advisory requirements are important also, but allow greater flexibility in application to accommodate varying conditions. Advisory requirements use the word “should” and are indicated by Underlining.
 - 3) **MAY** – A permissive requirement. Permissive requirements use the word “may” and indicate that no requirement for application is intended.
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TYPICAL W34B SIGNING



**TYPICAL CROSS-SECTION
OVERCROSSING**

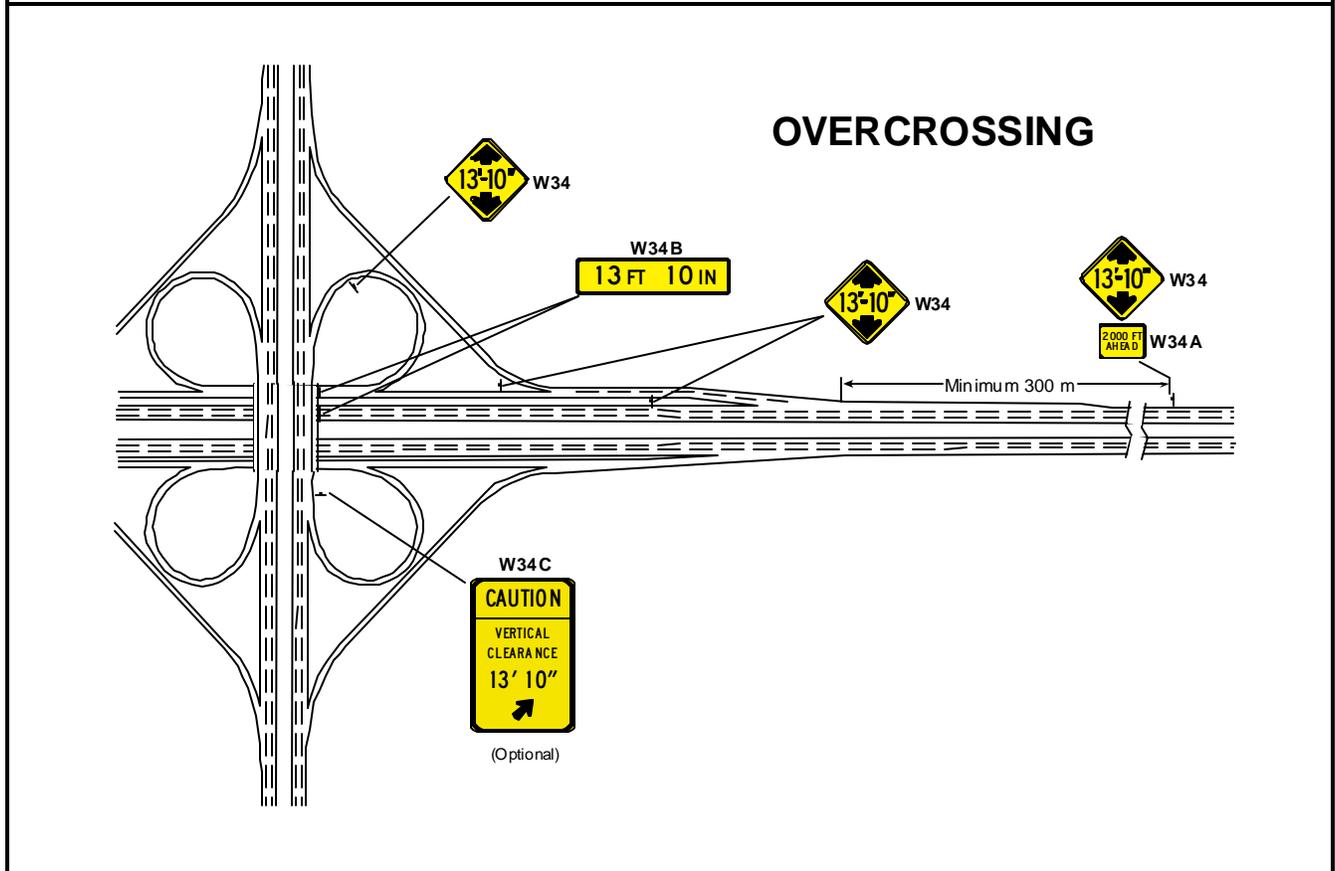
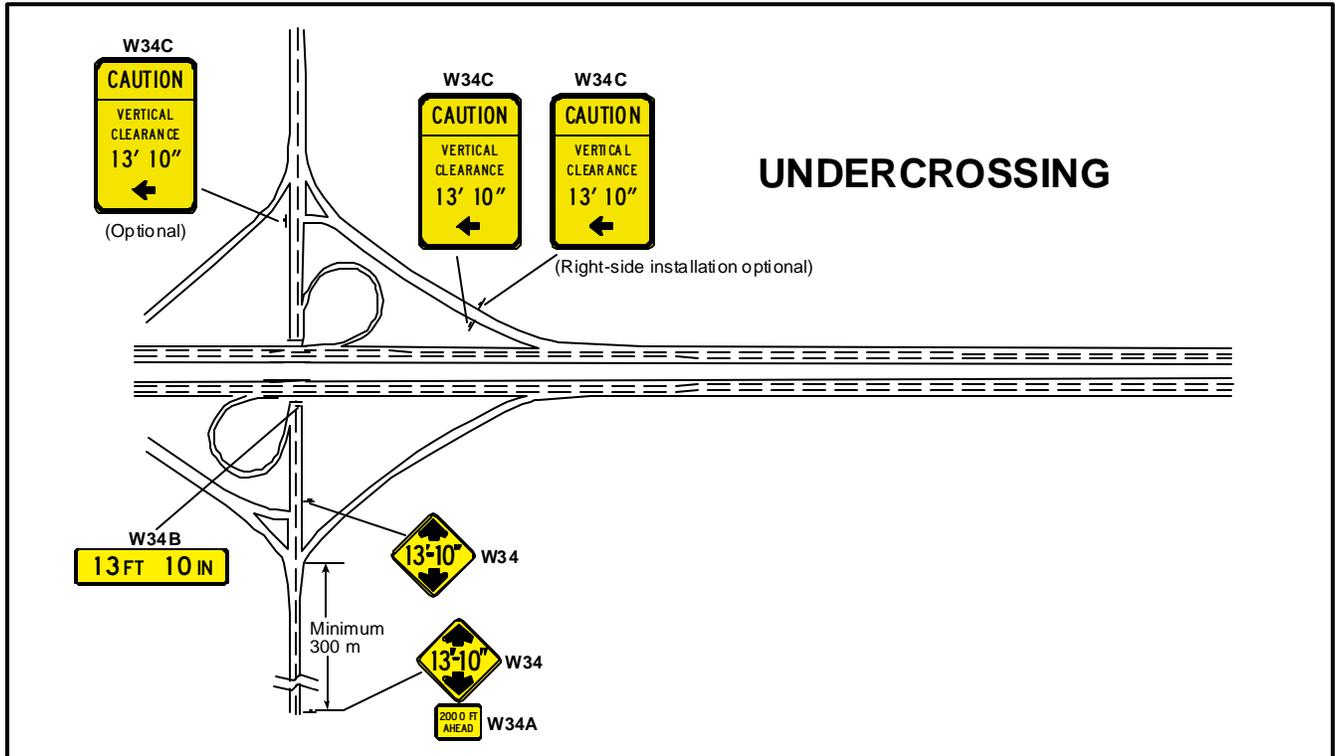


**TYPICAL CROSS-SECTION
UNDERCROSSING**

- Legend:**
- CL = Centerline of Roadway
 - TW = Traveled Way
 - ETW = Edge of Traveled Way
 - EP = Edge of Pavement
 - * Sign faces flow of traffic in the direction shown
 - ** Sign(s) faces opposing direction of traffic on opposite side of structure
 - *** Actual location of minimum vertical clearance (min) will vary (shown as example only)

NOT DRAWN TO SCALE

TYPICAL VERTICAL CLEARANCE SIGNING FOR CLEARANCES 15'- 6" OR LESS (PARTIAL INTERCHANGE SIGNING SHOWN)



August 11, 2000

POLICY FOR APPLICATION
OF
VERTICAL CLEARANCE SIGNS

W34 and W34A

For clearance 15'-6" or less, in addition to the W34B, two advance vertical clearance signs (W34) shall be installed on the right side of the roadway. The first W34 sign shall be placed in advance of the nearest intersecting street or highway or wide point in the road at which a motorist can detour or safely turn around. The W34A plate should be placed below the W34 sign at this location. The second W34 sign shall be placed in advance of the structure. No W34A plate is needed at the second location.

W34B

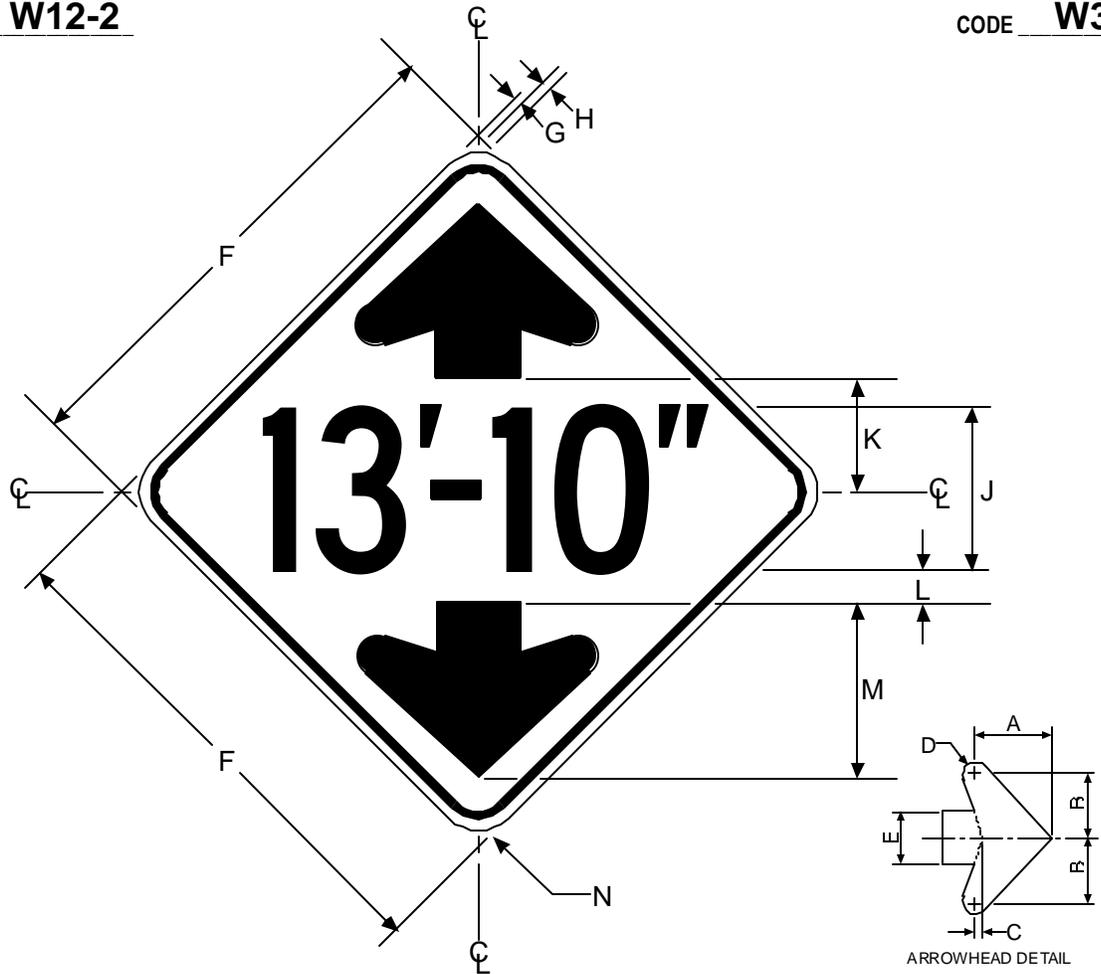
The W34B sign shall be used to warn motorists of structure clearance 15'-6" or less. It should be centered over the traveled way on the approach side of all underpasses, overheads, viaducts, overcrossings, undercrossings, and grade separations for state highways. It shall not encroach over the shoulder area.

The W34B sign shall display the minimum vertical clearance to the nearest inch, not exceeding the measured value.

W34C

The W34C sign shall be used on all blind approaches to structures with clearance 15'-6" or less. The W34C sign is used to warn motorists of low structure clearance around corners. The W34C sign should be placed at a location where the motorist can detour or safely turn around before making the turn.

The W34 and W34C signs shall display the same clearance shown on the W34B sign.



SIGN SIZE (in)	DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	J	K	L	M	N
36 x 36	8-1/2	7-1/4	3/4	1-1/2	6	36	5/8	7/8	12D	8	2	12-1/2	2-1/4
48 x 48	11-5/16	9-5/8	1	2	8	48	3/4	1-1/4	16D	10-5/8	2-5/8	16-1/2	3
60 x 60	14-1/8	12	1-1/4	2-1/2	10	60	7/8	1-1/2	20D	13-1/4	3-1/4	20-5/8	3-3/4

SIGN SIZE (mm)	DIMENSIONS (MILLIMETERS)												
	A	B	C	D	E	F	G	H	J	K	L	M	N
914 x 914	216	184	19	38	152	914	16	22	300D	203	51	318	57
1219 x 1219	287	244	25	51	203	1219	19	32	400D	270	67	419	76
1524 x 1524	359	305	32	64	254	1524	22	38	500D	337	83	524	95

COLORS
LEGEND & BORDER - BLACK (NON-REFLECTIVE)
BACKGROUND - YELLOW (REFLECTIVE)

- THE POLICY FOR INTENDED USAGE OF THIS SIGN IS SHOWN ON REVERSE SIDE -

Gerry Meis
 CHIEF, OFFICE OF SIGNS AND DELINEATION

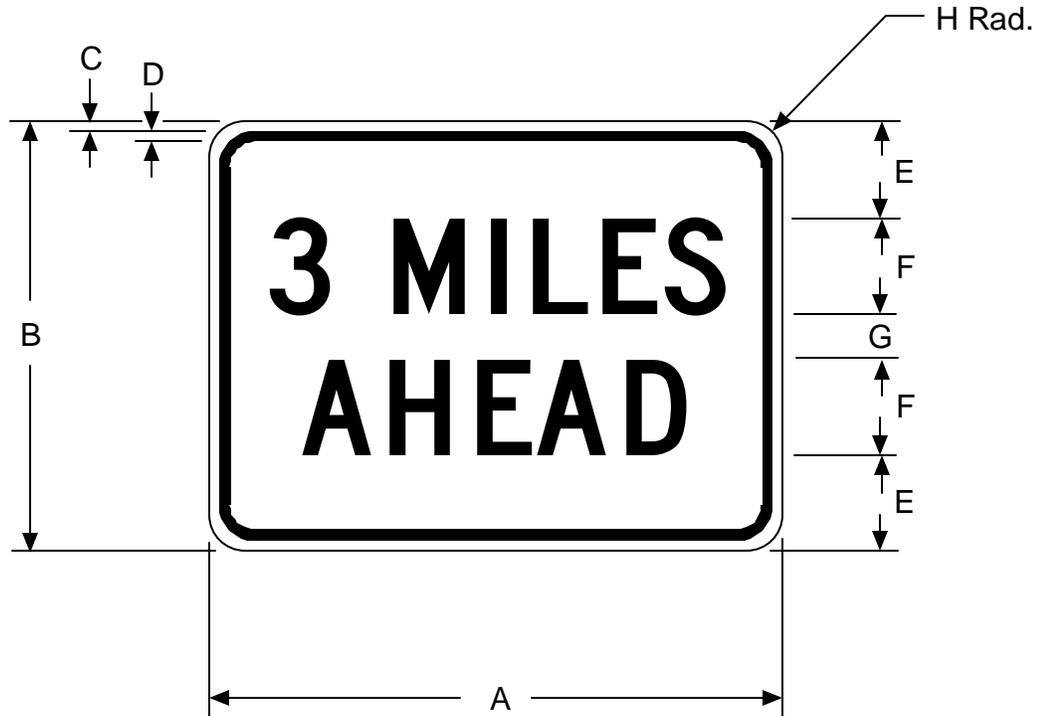
4/4/00
 DATE

REVISION

REVISION

MUTCD NUMBER None

CODE W34A



Alternate Message, Line 1: ____ FT
Specify distance when ordering.

SIGN SIZE (in)	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
36 x 30	36	30	5/8	7/8	7	6C	4	2-1/4
48 x 36	48	36	3/4	1-1/4	7	8C	6	3
60 x 48	60	48	7/8	1-1/2	10	10C	8	3-3/4

SIGN SIZE (mm)	DIMENSIONS (MILLIMETERS)							
	A	B	C	D	E	F	G	H
914 x 762	914	762	16	22	180	150C	102	57
1219 x 914	1219	914	19	32	180	200C	154	76
1524 x 1219	1524	1219	22	38	258	250C	203	95

COLORS
LEGEND & BORDER - BLACK (NON-REFLECTIVE)
BACKGROUND - YELLOW (REFLECTIVE)

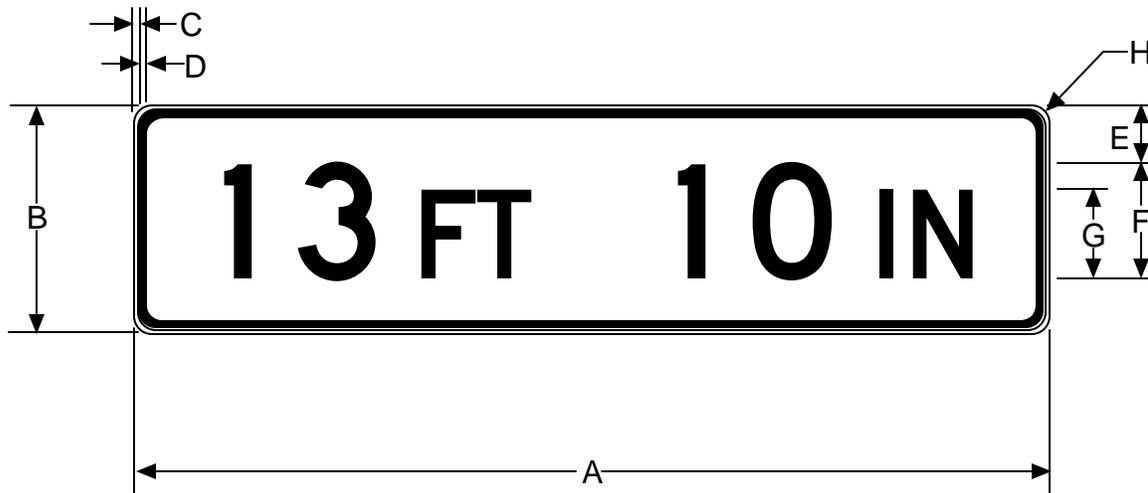
- THE POLICY FOR INTENDED USAGE OF THIS SIGN IS SHOWN ON REVERSE SIDE -

Gerry Meis
 CHIEF, OFFICE OF SIGNS AND DELINEATION

4/4/00
 DATE

REVISION

REVISION



SIGN SIZE (in)	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
84 x 18	84	18	3/8	5/8	4	10D	8D	1-1/2

SIGN SIZE (mm)	DIMENSIONS (MILLIMETERS)							
	A	B	C	D	E	F	G	H
2134 x 457	2134	457	10	16	102	250D	200D	38

COLORS
LEGEND & BORDER - BLACK (NON-REFLECTIVE)
BACKGROUND - YELLOW (REFLECTIVE)

- THE POLICY FOR INTENDED USAGE OF THIS SIGN IS SHOWN ON REVERSE SIDE -

Garry Myers
 CHIEF, OFFICE OF SIGNS AND DELINEATION

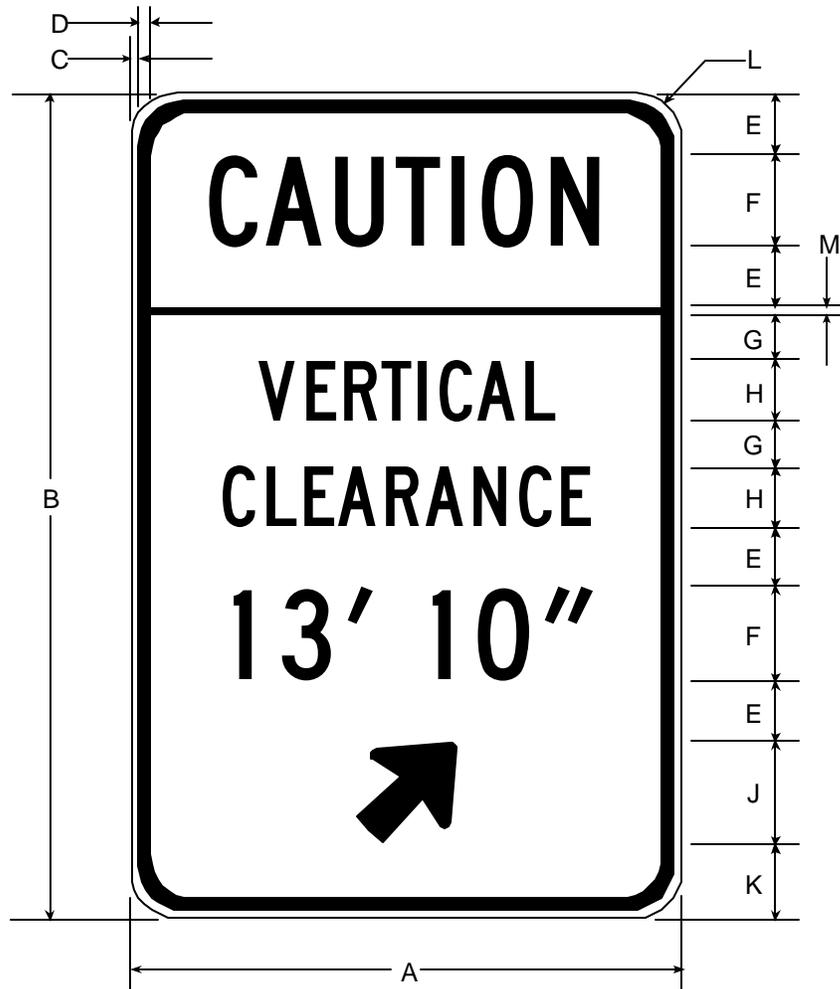
8/24/00
 DATE

REVISION

REVISION

MUTCD NUMBER None

CODE W34C



Arrow direction is variable. Specify direction when ordering.

SIGN SIZE (in)	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	M
36 x 54	36	54	1/2	3/4	4	6C	3	4C	6-3/4	4-3/4	1-7/8	1/2
48 x 72	48	72	5/8	1	5-1/4	8C	4-1/2	6C	7-1/2	5-3/4	2-5/8	3/4

SIGN SIZE (mm)	DIMENSIONS (MILLIMETERS)											
	A	B	C	D	E	F	G	H	J	K	L	M
914 x 1372	914	1372	13	19	104	150C	76	100C	171	120	48	13
1219 x 1829	1219	1829	16	25	135	200C	115	150C	191	147	67	21

COLORS
BACKGROUND - YELLOW (Reflective)
ARROW, MESSAGE & BORDERS - BLACK (Non-Reflective)

- THE POLICY FOR INTENDED USAGE OF THIS SIGN IS SHOWN ON REVERSE SIDE -

Garry Kreis
 DEPUTY CHIEF, DIVISION OF TRAFFIC OPERATIONS

5/31/00
 DATE

REVISION

REVISION