

Railroad Crossings



A stylized illustration of a railroad crossing. It features a black and white striped barrier arm with three yellow circular lights on top. Above the barrier is a black vertical post with two red circular lights and a white cross-shaped sign that reads "RAILROAD CROSSING" in black letters. The background is a solid blue color.



Significant Change

- Part 8 applies to all public highway-rail grade crossings (8A.02)
- not just new or modernized crossings

Safety, Visibility, Placement, and Operations



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Changes in General

- ✚ Terminology changes
 - ✚ sixteen new definitions added
- ✚ Revised titles and order of sections
- ✚ Section 8B-5: was moved to a new section 8C.01 in chapter 8C: ILLUMINATION
- ✚ Section 8D: systems and devices has been incorporated into 8A and 8D

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New Definitions

-  Minimum track clearance distance
-  Clear storage distance
-  Preemption
-  Interconnection
-  Monitored interconnected operation
-  Minimum warning time – through train movements
-  Right-of-way transfer time
-  Queue clearance time

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New Definitions (cont'd)

-  Separation time
-  Maximum preemption time
-  Advance preemption and advance preemption time
-  Simultaneous preemption
-  Pre-signal
-  Cantilevered signal structure
-  Design vehicle
-  Dynamic envelope delineation

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Terminology Changes

 Street → Highway

 Grade-crossing → Highway-Rail Grade Crossing

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New Standards

-  Temporary traffic control zone operations (8A.05/10A.05)
 -  discusses vehicles stopping on railroad tracks
 -  **STANDARD:** shall not allow, unless a law enforcement officer or flagger is provided
 -  need to minimize possibility of stopping
 -  this section expanded in Millennium Edition

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New Standards (cont'd)

Highway-rail grade crossing (cross-buck) sign R15-1, R15-2 (8B.02)

use of retroreflective material on back of crossbuck and on supports

equal to or greater than 50 mm (2inches) in width

exception:

cross-buck signs have been installed back-to-back

compliance period – January 17, 2011

10-years for existing installations

immediately for all new installations



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New Standards (cont'd)

NO TRAIN HORN (W10-9) (8B.11)

 to be used at each crossing where FRA authorizes trains to not sound a horn

 to be mounted as a supplemental plaque below the advance warning (W10-1) sign



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New Standards (cont'd)

-  Flashing-light signals, post-mounted (8D.02)
 -  shall include a standard cross-buck sign
 -  shall include a supplemental number of tracks sign where there is more than one track
 -  shall display two red lights mounted in a horizontal line flashing alternately
 -  shall be placed to the right of approaching traffic on all highway approaches
 -  in conformance with Figure 8D-2

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New Standards (cont'd)

 Flashing-light signals, post-mounted (8D.02)
continued:

 shall include back-to-back pairs of lights when highway traffic approaches in both directions

 on one-way and divided highways, shall be placed on the approach side, on both sides of the roadway, or above the highway

 alternately flashing lights shall flash a number of 35 minimum and 65 maximum per minute

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New Standards (cont'd)

Automatic gates (8D.04)

 used as an adjunct to flashing-light signals

 **STANDARD:** describes their design, installation, and operation

 specifically, the approach lane gate arms shall be designed to fail safe in the down position

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Four-Quadrant Gate Systems



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New Standards

Four-quadrant gate system

-  new section and new technology

-  eliminate gate running

-  **STANDARD:** describes placement and operation

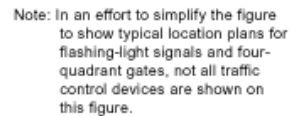
-  figure 8D-2 shows placement

-  signal specifications, location, and clearance distances in accordance with standards in 8D.01 through 8D.03

-  gate arm design, colors, and lighting requirements in accordance with standards in 8D.04

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Figure 8D-2



Changes to Existing Standards

-  Traffic control signals at or near highway-rail grade crossings (8D.07)
 -  may be used in lieu of flashing-light signals at industrial highway-rail grade crossings and other places where train movements are very slow, such as switching operations
 -  **STANDARD:** shall not be used in lieu of flashing-light signals at mainline highway-rail grade crossing

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Changes to Existing Standards (cont'd)

-  Traffic control signals at or near highway-rail grade crossings (8D.07)
 -  added new language to the preemption standard to clarify the termination of the preemption condition when crossing gates exist.
 -  **STANDARD:** “...except that when crossing gates exist, the preemption condition shall be maintained until the crossing gates are energized to start their upward movement.”

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New Guidance

⚡ Highway-rail advance warning signs (W10-1, 2, 3, 4) (8B.03)

⚡ advance warning sign (W10-1) is not required:

- ⚡ on highways with less than 30 m (100 ft) between the crossing and a highway intersection
- ⚡ where physical conditions prevent effective display



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New Guidance (cont'd)

 Emergency notification signs (I-13 or I-13a) (8B.09)

 new guidance on posting emergency notification signs at all highway-rail grade crossings

 location and placement to be decided cooperatively by railroad company and highway agencies; however, typically located on the railroad right-of-way

 white message on blue background

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New Guidance (cont'd)

 Low-ground clearance highway-rail crossing sign (W10-5) (8B.14)

 to be used in advance of crossings when the highway profile conditions are sufficiently abrupt to create a hang-up situation for vehicles with low clearance

 since it is a new sign, an accompanying STANDARD requires an education plaque – LOW GROUND CLEARANCE – to remain for at least three years after its initial installation

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New Guidance (cont'd)

Storage space signs (8 B.15)

 should be mounted in advance of the crossing to advise drivers of the space available for vehicle storage between the intersection and crossing.

 signs W10-11 and W10-11A

 new sign W10-11b; use is optional

 similar use to remind motorists of the storage space

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New Guidance (cont'd)

Stop lines (8B.17)

 new guidance added on the placement of stop lines at crossings

 2.4 m (8 ft) from the gate if present

 no closer than 4.6 m (15 ft) from nearest rail

 transverse line at a right angle to the traveled way

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New Guidance (cont'd)

 Flashing-light signals, gates, & traffic control signals (8D.01)

 new guidance to address pedestrians: “If a pedestrian route is provided, sufficient clearance from supports, posts, and gate mechanisms should be maintained for pedestrian travel”

 complies with ADA

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I-13 and I-13A

TO REPORT STALLED
VEHICLE ON TRACKS OR
OTHER EMERGENCY
CALL 1-XXX-XXX-XXXX
AND REFER TO
CROSSING #XXX-XXXX
ON STREETNAME RD

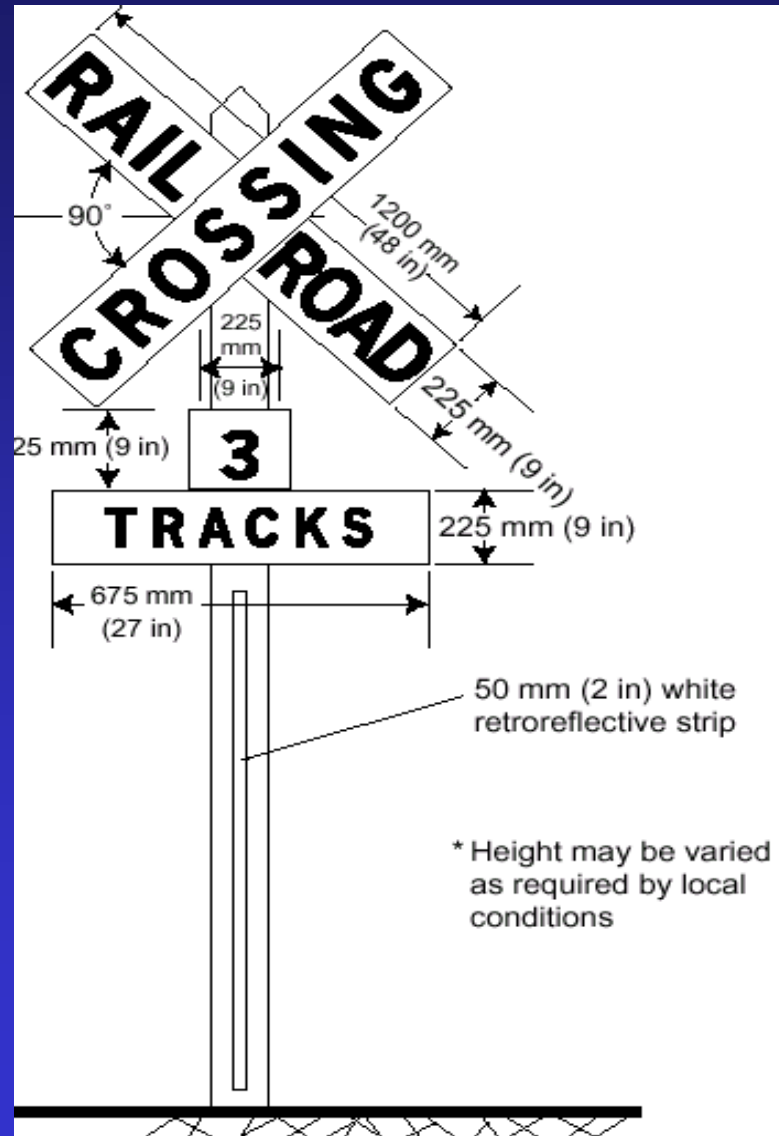
I-13

REPORT EMERGENCY
TO 1-XXX-XXX-XXXX
CROSSING #XXX-XXXX
ON STREETNAME ROAD

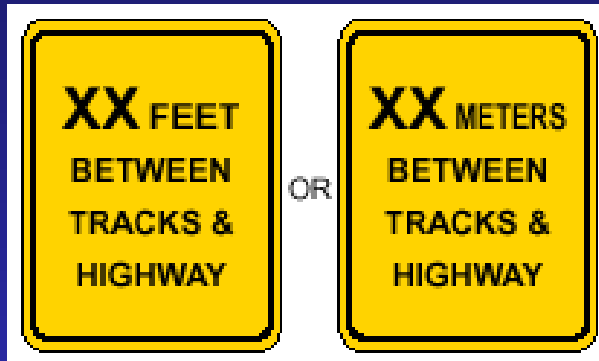
I-13a

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Cross-Buck Sign



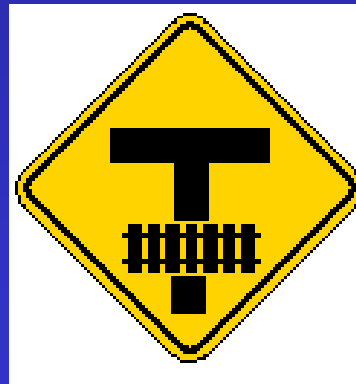
New Signs



W10-11



W10-11b



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New Options

-  Use of standard devices, systems, and practices (8A.02)
-  added an option and support on National Highway-Rail Intersection (HRI) architecture
 -  Intelligent Transportation Systems
 -  links highways, vehicles, and traffic management systems with rail operations and wayside equipment

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New Options (cont'd)

-  STOP or YIELD signs at highway-rail grade crossings (8B.07)
 -  state or local highway discretion for sign use
 -  crossings that have two or more trains per day and are without automatic traffic control devices
 -  1988 manual limited use based on engineering study
 -  if signs are used, their installation shall be in accordance with chapter 2C, section 2C.26

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New Options (cont'd)

Delineation of the dynamic envelope

(10C.15)

-  new markings to indicate required clearance
-  conditions are where there is a highway intersection in close proximity to the crossing and an engineering study determines that vehicles might stop within the dynamic envelope area.
-  if used, shall be a 100 mm (4 inch) normal solid white line in accordance with part 3

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Intelligent Transportation Systems

Option for the engineering study to include the highway-rail intersection components of the National ITS Architecture

To improve highway-rail grade crossing safety and operations



Lockheed-Martin Information Management Systems - Photo Enforcement Group

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From the NPA

- Private highway-rail grade crossings
- Being addressed by the Federal Rail Administration (FRA) in upcoming safety inquiry

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Compliance Considerations

 8B.02: highway-rail grade crossing
(cross-buck) sign R15-1, R15-2

 10-year phase in, January 17, 2011

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Questions?

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