DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

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DOCKET NO. FHWA–2020-0001
NATIONAL STANDARDS FOR TRAFFIC CONTROL DEVICES; THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS; REVISION

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COMMENTS OF
THE ASSOCIATION OF AMERICAN RAILROADS
AND THE
AMERICAN SHORT LINE AND REGIONAL RAILROAD ASSOCIATION

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The Association of American Railroads ("AAR") and the American Short Line and Regional Railroad Association ("ASLRRA"), on behalf of themselves and their member railroads, submit the attached comments in response to the Federal Highway Administration's December 14, 2020, notice of proposed amendments ("NPA") to the Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD).[1] AAR is a trade association whose membership includes freight railroads that operate approximately 83% of the line-haul mileage, employ 95% of the workers, and account for 97% of the freight revenues of all railroads in the United States; and passenger railroads that operate intercity passenger trains and provide commuter rail service. ASLRRA is a non-profit trade association representing the interests of approximately 500 short line and regional railroad members and railroad supply company members in legislative and regulatory matters. Short lines operate 50,000 miles of track in 49 states, touching in origination or termination one out of every four cars moving on the national

[1] 85 Fed. Reg. 80,898 (Dec. 14, 2020).

railroad system, serving customers who otherwise would be cut off from the national railroad network.

The railroads have a significant interest in this proceeding from the perspective of continuing to improve highway-rail grade crossing safety. In 2020, over 95% of rail-related fatalities were grade crossing users or trespassers.[2] DOT's Federal Railroad Administration has explained that nearly all deaths at rail-highway grade crossings are preventable, indicating that "94 percent of train-vehicle collisions can be attributed to driver behavior or poor judgment."[3] Trains cannot stop or change direction at grade crossings, so motor vehicles are legally required to yield to trains. Yet, many motor vehicle operators do not obey the law.

Railroads spend millions of dollars each year on highway-rail grade crossing warning systems, to close, improve, and maintain grade crossings, and on public safety educational programs, including Operation Lifesaver, a non-profit dedicated to improving safe behavior at highway-rail grade crossings. AAR and ASLRRA members also support DOT's program under 23 U.S.C. § 130, which allocates approximately $230 million annually to states for highway-rail grade crossing safety improvements. These efforts, in part, have resulted in an 86% reduction in highway-rail grade crossing collisions from their 1978 peak. Grade crossing fatalities in 2020

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[2] https://safetydata.fra.dot.gov/OfficeofSafety/Default.aspx.

[3] Federal Railroad Administration, Office of Railroad Policy and Development, Report No. RR-16-10 Analysis of Grade Crossing Accidents Resulting in Injuries and Fatalities May 2016; available online at: https://railroads.dot.gov/sites/fra.dot.gov/files/fra_net/15767/RR_GX%20Task%20Force_Data%20Analysis_Final.pdf.

were 52% lower than in 2000, and 17% lower than in 2011. Despite these successes in dramatically improving grade crossing safety, more work remains to be done.

The attached comments on grade crossing-related provisions of the NPA aim to further these ongoing safety improvements. The railroads specifically emphasize the revised MUTCD should involve grade crossing diagnostic teams that include railroad representatives in evaluating and determining appropriate safety measures at highway-rail grade crossings. The railroads appreciate the agency's consideration of the attached comments.

Respectfully submitted,

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May 14, 2021

Proposed Section Number(s)	Agree with concept and text as proposed	Agree with concept; suggested rewording of text in Comments	Disagree with concept	Comments *Please include justification for your position based on objective experience and empirical data. If there is a specific statement with which you take exception, please provide the* ***Page and Line numbers from the mark-up version of the proposed MUTCD text.***
5A.02	NO	NO	YES	AAR/ASLRRA opposes the reference to "trains" in the proposed Support statement on page 510 at line 21 (in accordance with FHWA instructions above, all references to page and line numbers in this comment refer of the corrected mark-up version of the proposed MUTCD text (document no. FHWA-2020-0001-0038)). Trains and locomotives do not have the capability for direct communications with highway motor vehicles. FHWA should delete this reference to trains.
5B.03	NO	YES	N/A	In the proposed Guidance statement in this section, the railroads request FHWA amend the first sentence (lines 1 and 2 on page 514) to read as follows (additional AAR/ASLRRA-proposed language underlined): "The following considerations <u>(except for railroad and light rail transit grade crossing active warning devices)</u> should be used to better accommodate machine vision used to support the automation of vehicles and benefit the performance of the human vehicle operator." First, the railroads strongly oppose any reference that might be understood to require elimination of post-mounted active warning devices under paragraph A. of the proposed Guidance (line 4 on page 514). A significant portion of active warning devices are presently post-mounted, and the cost and resource burdens, as well as the potential negative grade crossing safety implications of this proposal as to active warning devices, would be tremendous and have not been considered. In addition, the 200 Hz refresh rate for LED traffic signals that appears on page 514 at line 9 should also not apply to active warning devices. Current railroad equipment commonly operates at a refresh rate of 50 Hz. CAV machine vision should be able to detect flashing lights operating at refresh rates of 50 hz. Any suggestion that refresh rates must be 200 Hz would represent an extraordinary cost and burden imposition that FHWA has not accounted for. The present power grid powering railroad grade crossing warning systems will often only support 50-60 Hz maximum. To comply with a 200 Hz requirement would literally require replacement of the power grid in some circumstances. Further, this proposal would represent a huge cost burden in the area of lamp replacement alone, requiring replacement of hundreds of thousands of existing lamps, along with the costs of employee travel and work time necessary to accomplish such under a change to 200 Hz. The CAV industry is still in its infancy with few autonomous vehicles on the road, and CAV's should be developed to account for the infrastructure they must navigate. FHWA can resolve the issue this proposed Guidance creates with regard to grade crossing safety by excepting railroad and light rail transit grade active warning devices as requested above. FHWA should also replace references to 200 Hz with 50 Hz in this section.

5B.05	NO	NO	YES	AAR/ASLRRA opposes the inclusion of the second paragraph of the proposed Guidance statement (page 515 at lines 1-2) recommending that V2I communication should be used to relay train arrival or presence. The railroads also oppose inclusion of the Support statement proposal (page 515 at lines 7-9) indicating CAV needs are better addressed through V2I infrastructure. Active grade crossing equipment has not been designed or equipped for V2I communication, and there is no evidence to support the statement that it could be more reliable or accurate for CAV use. Rather, it is imperative that CAVs be equipped and capable of reliably detecting existing crossing activation devices based on machine vision, to ensure motorists are adequately protected across the broad range of grade crossing scenarios.
8A.01	NO	YES	N/A	After the term "privately-owned roadways" in the first sentence of the Standard in this section (line 33 on page 680), FHWA should add the words "pathways or sidewalks", because not all private at-grade railroad crossings are on private roadways or involve only vehicular traffic. The revised sentence should read as follows (additional AAR/ASLRRA-proposed language underlined): "Except at grade crossings of privately-owned roadways, <u>pathways, or sidewalks,</u> the traffic control devices, systems, and practices described in this Manual shall be used at all grade crossings open to public travel, consistent with Federal, State, and local laws and regulations."
8A.12	NO	YES	N/A	For purposes of ensuring continued highway-rail grade crossing safety, we recommend the proposed Guidance statement (page 687 at lines 16-20) remain a Standard (as it is in the 2009 MUTCD). AAR/ASLRRA also requests FHWA retain the references to "shall" in the existing Standard rather than revising to "should" as proposed (page 687, lines 17 and 19). AAR/ASLRRA also recommends adding a new Guidance statement to this section advising that: "<u>The Diagnostic Team should review the findings of the engineering study and determine the appropriate measures to clear traffic from the grade crossing."</u> This additional Guidance would ensure railroads will have representation in reviewing the engineering study to ensure safety at a highway-rail grade crossing the railroad operates over, and because railroads are familiar with the design capabilities of crossing safety equipment. Additionally, AAR/ASLRRA recommends FHWA consider increasing the existing reference to 200 feet in the Standard to 500 feet (page 687 line 17). This increase might provide a further margin of safety in situations that involve traffic queuing near circular intersections.

8A.14	NO	YES	N/A	AAR/ASLRRA recommends deletion of the portion of the Guidance statement on page 688 lines 40-45, because it parallels the existing Standard in Section 6N.17. The railroads also request amendments to the proposed Guidance statement in this section on page 688 at lines 46-51. AAR/ASLRRA requests the below changes to clarify the situations in which the Guidance statement applies, and to reference the involvement of the railroad company or transit agency in the traffic control planning process (AAR/ASLRRA-proposed additions are reflected by underlined language, with strikeouts reflecting AAR/ASLRRA-proposed deletions): "When a temporary traffic control zone extends over an active grade crossing (see Section 6N.17) ~~equipped with automatic gates and either one-lane two-way or reversible lane operation is used~~, and where the direction of traffic in any lane is reversed over the grade crossing, ~~any improperly located gate arms that might cause vehicles to stop within the minimum track clearance distance (see Section 8A.07) should be removed~~ the railroad company or transit agency should be part of the temporary traffic control planning process. ~~At locations where a gate arm is removed~~ Where a grade crossing warning system is not modified to support the temporary traffic control operation, ~~a railroad company or transit agency employee serving as a flagger and~~ at least one uniformed law enforcement officer should be in place at all times that rail traffic might approach or occupy the grade crossing." AAR/ASLRRA also recommends deletion of the proposed Guidance on page 689 (lines 19-22) of this section because those statements are ambiguous and not related to traffic control devices.
8B.04	NO	YES	N/A	AAR/ASLRRA requests FHWA delete the words "deemed essential by an engineering study" in the Guidance statement on page 692 (line 10) of this section, and instead insert the words "determined by a Diagnostic Team." FHWA should also revise the following sentence (beginning on line 19 of page 692) to read as follows (AAR/ASLRRA-proposed additions are reflected by underlined language, with strikeouts reflecting AAR/ASLRRA-proposed deletions): "If the STOP sign is installed at the Crossbuck Assembly instead of at the highway-highway intersection, a Diagnostic Team should consider~~ation should be given to~~ installing ~~a YIELD sign or intersection~~ some other traffic control device at the highway-highway intersection." AAR/ASLRRA recommends this revised language because a Diagnostic Team with railroad representation should be involved in determining unusual situations that warrant use of STOP sign at a grade crossing, and to evaluate t-intersections for proper signage. FHWA should also amend the first sentence of the proposed Standard (page 692, lines 24-27) in this section to read as follows: "If a Crossbuck Assembly is installed on the approach to a passive grade crossing located at a highway-highway intersection controlled

				by a traffic control signal that is not interconnected with the grade crossing and not preempted by the approach of rail traffic, a Diagnostic Team shall be convened to determine the appropriate traffic control devices. ~~YIELD sign with a TO TRAINS (R15-9P) supplemental plaque shall be installed on the Crossbuck Assembly~~." This recommendation is made because the "TO TRAINS" supplemental plaque is not necessary, and if included there should be a sign figure. Further, a Diagnostic Team with railroad representation included should be involved in determining the appropriate traffic control devices at a highway-rail grade crossing.
8B.16	NO	YES	N/A	FHWA should delete the sentence in the Standard (beginning on page 698 at line 16) regarding the LOW GROUND CLEARANCE plaque only remaining in place for 3 years. For safety reasons, and so all drivers regardless of familiarity with a crossing are made aware of low ground clearance, the railroads recommend the plaque remain in place permanently (per Part 2). AAR/ASLRRA also requests the proposed Guidance statement on page 698 at lines 18-22 should instead be deemed an "Option". The word "should" in the proposed language on line 21 of page 698 should be be replaced with the word "may". The phrase "or in place of" (also on line 21) should be deleted. These proposed changes will allow a road authority the flexibility to make the appropriate safety decisions depending on the type of vehicle that needs to be addressed at a particular crossing.
8C.05	NO	YES	N/A	AAR/ASLRRA recommends Section 8C.05 (page 704, lines 4-22) be revised from that proposed by FHWA to read as follows (AAR/ASLRRA-proposed additions are reflected by underlined language, with strikeouts reflecting proposed deletions): **"Section 8C.05 Edge Lines, Center Lines, ~~Lane Lines,~~ Raised Pavement Markers, and Tubular Markers** Guidance: Except as provided in Paragraph 2, if edge lines (see Section 3B.09) ~~or lane lines (see Section 3B.06)~~or center lines (see Section 3B.01) are used on an approach to a grade crossing, the edge lines and center lines ~~and lane lines~~ should extend up to and across the track(s) to reduce the likelihood that road users might inadvertently turn into the track area. If crossing surface maintenance or approach roadway maintenance is required or performed which alters the markings, the removal or replacement of the markings, raised pavement markers and/or tubular markers should be coordinated between the road authority and the railroad or transit agency. Option: The edge lines and center lines ~~and lane lines~~ may be omitted from the highway surface at a grade crossing if the railroad or transit agency determines that the surface cannot retain the application of the edge line or lane line marking.

				If recommended by a Diagnostic Team, raised pavement markers (see Section 3B.16) may be used to supplement the edge lines or center ~~lane~~ lines that extend up to and across the track(s). If recommended by a Diagnostic Team, tubular markers (see Section 3I.01) may be used to supplement the edge lines that extend up to and across the track(s). Guidance: Tubular markers should ~~not~~ be installed in accordance with railroad or transit agency and regulatory authority (if applicable) clearance requirements. ~~within 6 feet of any rail.~~ Option: Shorter tubular markers may be used where they are installed closer to rails. **Standard:** **The color under both daytime and nighttime conditions of raised pavement markers or tubular markers that are used at a grade crossing shall be the same color as the edge line or center ~~lane~~ line that they supplement."** As reflected above, AAR/ASLRRA recommends amending reference from "lane lines" to "center lines" throughout Section 8C.05, as center lines are more significant from a safety perspective and lane lines would include outer edge of pavement markings. Next, AAR/ASLRRA recommends the additional Guidance and Option sections as described above to make clear the need for coordination with the relevant railroad or transit agency if the markings at a crossing contemplated by this section are disturbed. AAR/ASLRRA also recommends deletion of reference to the six-foot limitation in FHWA's proposal in order to make this section consistent with proposed Section 8D.01. Further, it is also more beneficial for decisions involving marking placement to adhere to the specific railroad or transit agency guidance versus compliance with an arbitrary six-foot limitation. AAR/ASLRRA also recommends FHWA include an additional Option in this section permitting the use of tubular markers between tracks when appropriate, as proposed above.
8C.06	NO	YES	N/A	FHWA should revise the second sentence of the proposed Guidance statement in this section (at page 704, lines 38-40), to read as follows (AAR/ASLRRA-proposed additions are reflected by underlined language, with strikeouts reflecting proposed deletions): "If used, dynamic envelope pavement markings should be placed ~~at a distance 6 feet from~~ parallel to the nearest rail in accordance with ~~unless~~ the operating railroad company or LRT agency requirements ~~standard advises otherwise"~~. This revision would delete reference to the six-foot limitation consistent with our comments on Section 8C.05 above, and would make this section consistent with proposed Section 8D.01.

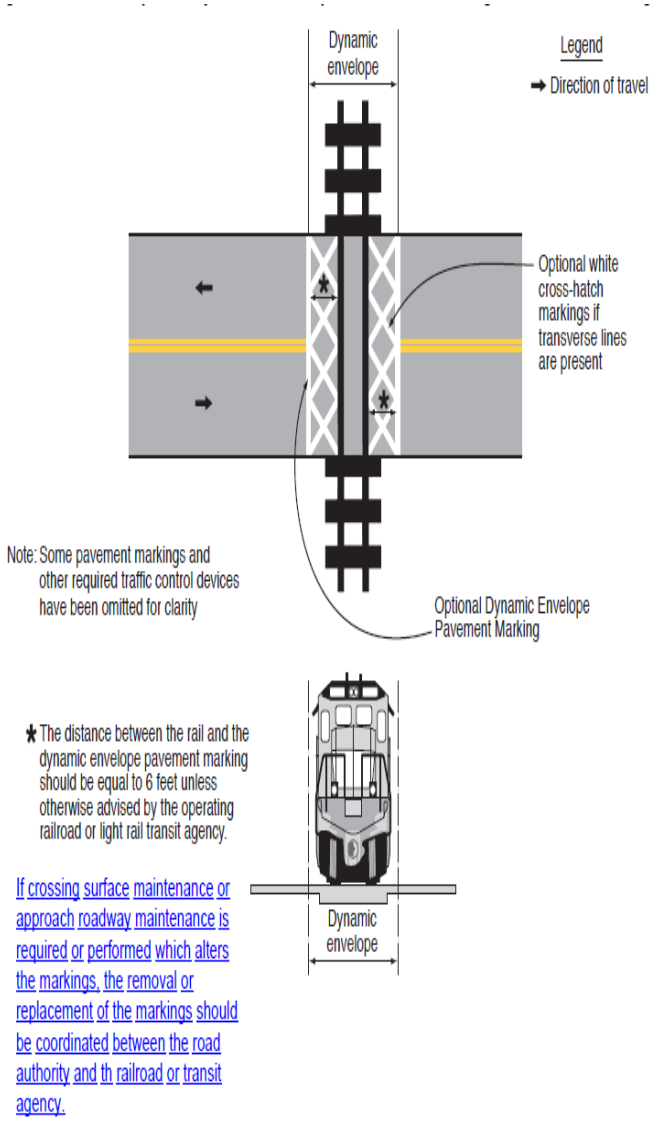
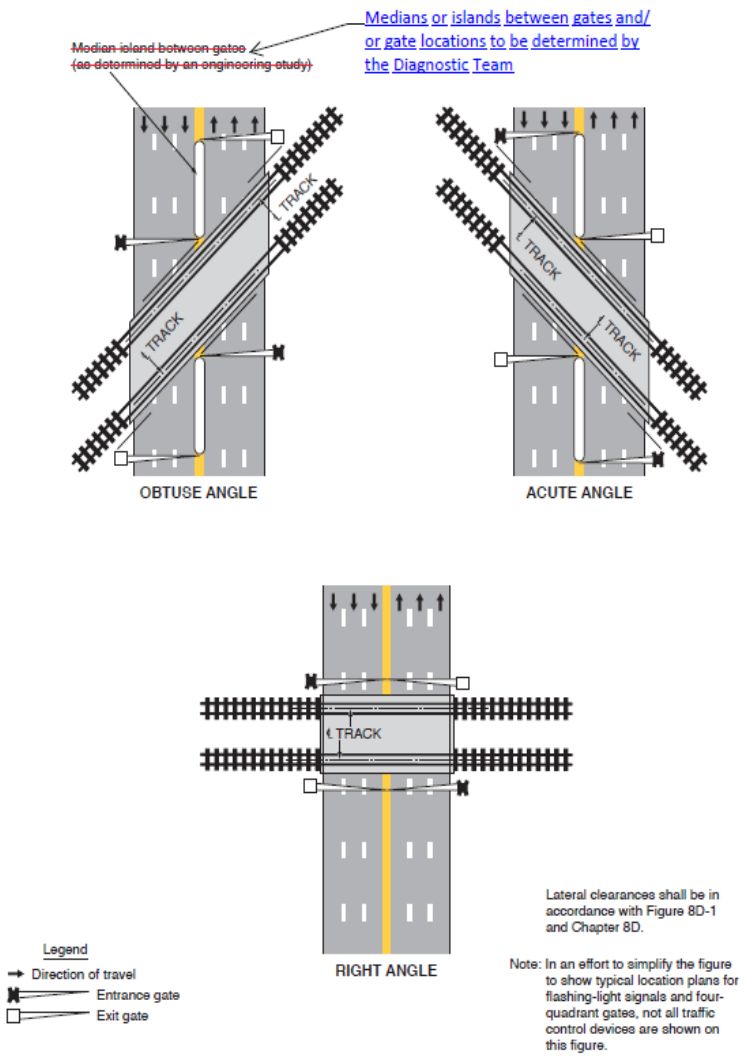
				Next, AAR/ASLRRA recommends FHWA delete Figure 8C-4 and its reference in this section (line 48 of page 704), because the markings are more clearly addressed in Figure 8C-3 and in Part C (Figure 8C-4 as proposed has the potential to cause confusion). Last, AAR/ASLRRA also recommends FHWA revise Figure 8C-3 to include an additional clarifying explanation regarding coordination between road authorities and the railroad or transit agency (to read as follows): "If crossing surface maintenance or approach roadway maintenance if required or performed which alters the markings, the removal of the markings should be coordinated between the road authority and the railroad or transit agency." The proposed AAR/ASLRRA amendment to Figure 8C-3 is reflected in blue text in the figure below: 
Figure 8C.3	NO	YES	N/A	See the proposed amendments to Figure 8C-3 in the discussion of Section 8C.06 directly above.

Figure 8C.4	NO	NO	YES	See the discussion of the AAR/ASLRRA recommendation to delete Figure 8C-4 in the discussion of Section 8C.06 directly above.
8D.01	NO	YES	N/A	FHWA should delete the proposed Guidance statement sentence in on page 706 at lines 38-40. The railroads recommend such because this sentence conflicts with the proposed sentence in the Standard directly above (at lines 34-35). Consistent with the proposed Standard in this section, the minimum dimensions should conform with those provided by the relevant railroad or transit agency.
8D.03	NO	YES	N/A	In the Support statement on page 709 (line 42), AAR/ASLRRA requests deletion of the word "typically". AAR/ASLRRA also recommends deletion of two sentences in the Guidance statement on page 710 (lines 5-6 and 9-10) addressing the tip of the gate arm and the gate arm being in upright position. This request is to make this proposed section consistent with Section 8D.01 and Figure 8D-1. Next, in the proposed Standard on page 709 at lines 23-26, FHWA's proposal specifies a 4" minimum height for retroreflective gate striping. However, the proposed Standard is not tenable for gates longer than 32 feet. Gates are tapered beyond 32 feet to be able to withstand high wind impacts. In light of this consideration, AAR/ASLRRA proposes FHWA amend the relevant Standard language as follows: "The height of the gate arm retroreflective tape on the vertical face of the gate arm shall be four inches in height minimum for the first 32 feet of gate arm length (measured from the center of the gate mast to the tip of the arm). If gate arms in excess of 32 feet long are required for a crossing application, the front face of the remaining gate section can taper down to no less than two inches in height to improve the arm's ability to sustain high wind conditions." Last, in the proposed Guidance statement on page 710 (lines 11-12) addressing the distance the counterweight should extend when the gate arm is in the down position, AAR/ASLRRA recommends FHWA replace the dimension of "4.25 feet" with "56.5 inches".
8D.05	NO	YES	N/A	FHWA should revise the sentence beginning on line 34 of page 711 of the proposed Standard in this section to read as follows (AAR/ASLRRA-proposed additions are reflected by underlined language, with strikeouts reflecting proposed deletions): "If an Exit Gate system is present, the ~~queue~~ exit gate clearance time (see AREMA Manual Part 3.3.10 ~~Section 8D.10~~) shall be long enough to permit the exit gate arm to lower after a design vehicle of maximum length is clear of the minimum track clearance distance (see Section 8A.07). AAR/ASLRRA requests this change so the Standard is consistent with the American Railway Engineering and Maintenance-of-Way Association terms for exit gate clearance timing, and to amend the reference from Section 8D.10 to the applicable AREMA Communications & Signals Manual Part. Next, this section also references Figure 8D-2. AAR/ASLRRA recommends that for the "obtuse angle" drawing in Figure 8D-2, that

				FHWA delete the proposed language accompanying that drawing and instead describe that: "Medians or islands between gates and/or gate locations to be determined by the Diagnostic Team." AAR/ASLRRA recommends this change for purposes of consistency with Section 8D.01, and because a Diagnostic Team with benefit of railroad representation can more appropriately determine a median or island between gates. The proposed AAR/ASLRRA amendment to Figure 8D-2 is reflected in red text/strikethrough and blue text in the drawing below: . 
Figure 8D-2	NO	YES	N/A	See the proposed amendments to Figure 8D-2 in the discussion of Section 8D.05 directly above.
8E.02	NO	YES	N/A	FHWA should replace the word "pedestrians" in the Support statement on page 729 (line 42) with the word "user". Bicycles and wheelchairs are referenced in this Support statement (page 729 at lines 42 and 43), and so this requested change will more appropriately describe the affected universe of crossing users.

Next, this section references Figures 8E-2 and 8E-3. AAR/ASLRRA recommends those figures be revised as follows (proposed amendments in red text and blue underlined additional language). AAR/ASLRRA makes these requests so the figures are consistent with our comments on section 8E.04 further below (dimensioning in all Chapter 8E text, with figures revised to provide measurements from "nearest rail" for consistency purposes):

Figure 8E-2. Example of Placing Sidewalks on the Outside of the Gates at a Perpendicular Grade Crossing

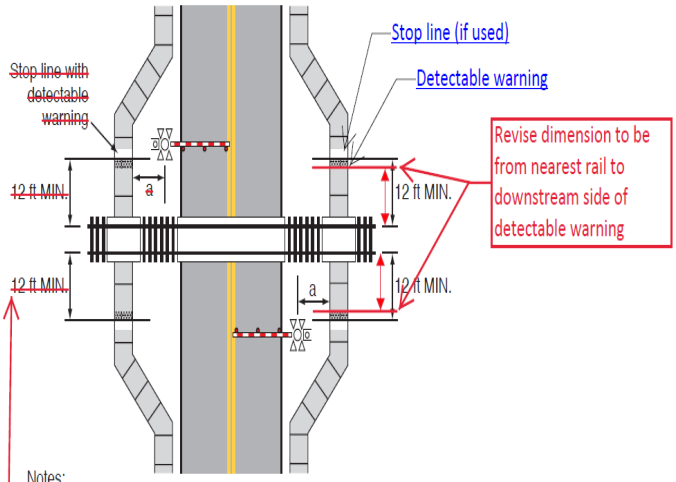
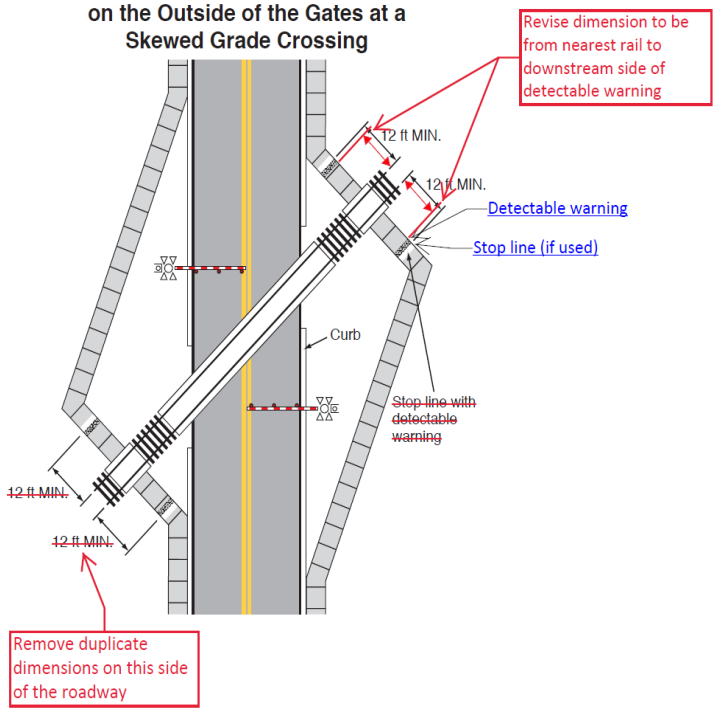
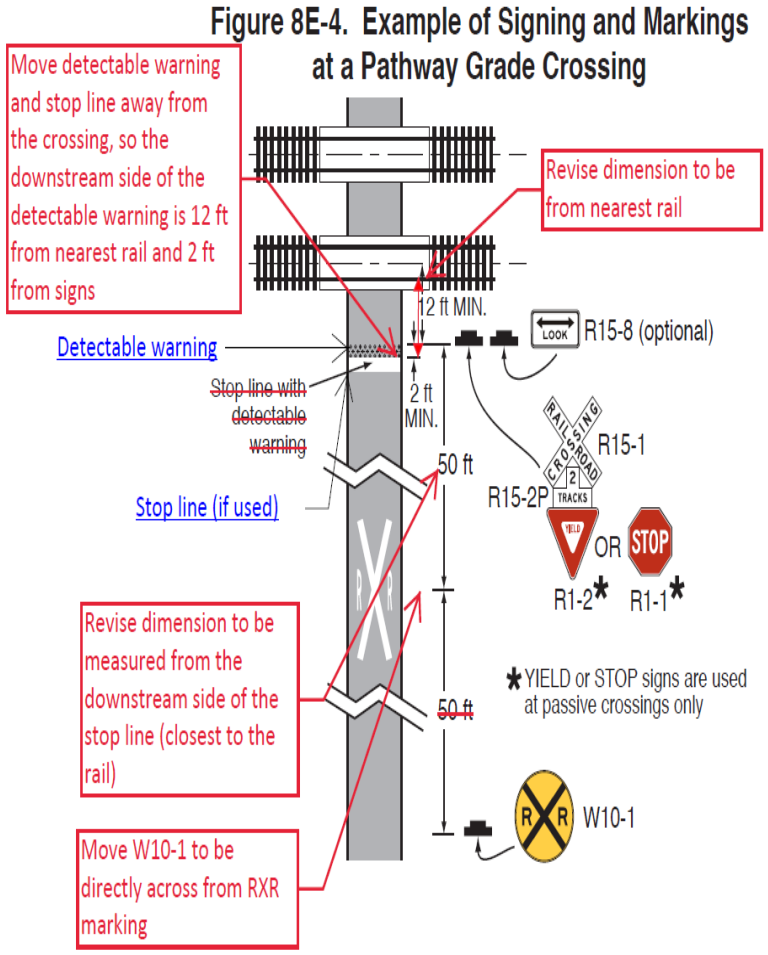
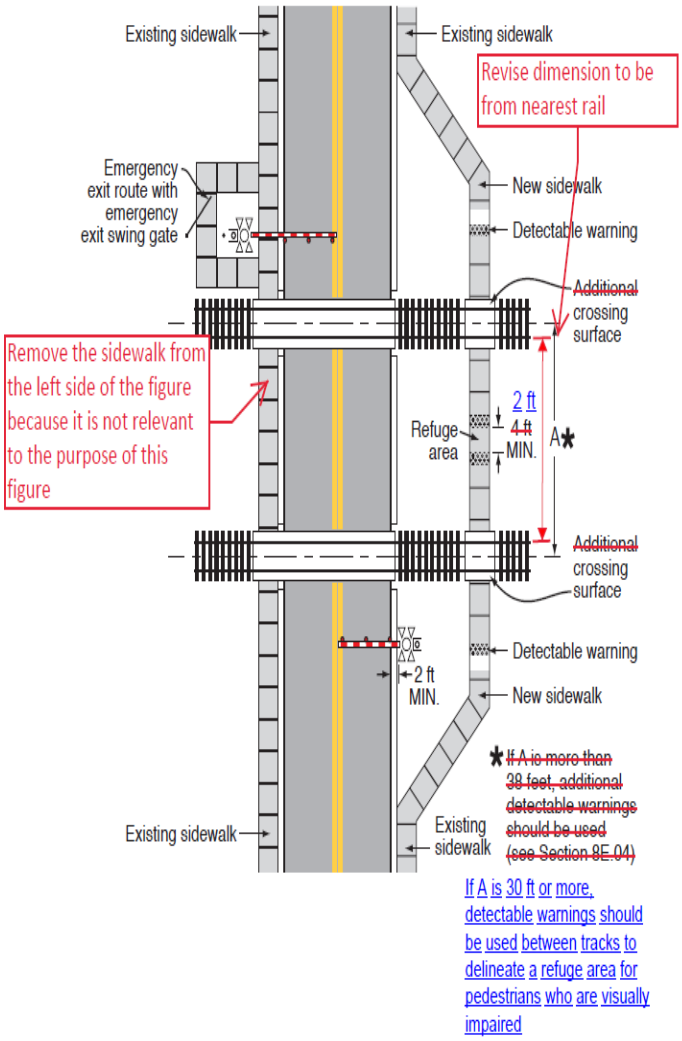


				Figure 8E-3. Example of Placing Sidewalks on the Outside of the Gates at a Skewed Grade Crossing 
Figure 8E-2	NO	YES	N/A	See the proposed amendments to Figure 8E-2 in the discussion of Section 8E.02 directly above.
Figure 8E-3	NO	YES	N/A	See the proposed amendments to Figure 8E-3 in the discussion of Section 8E.02 directly above.
8E.03	NO	YES	N/A	The first sentence of the proposed Standard on page 730 (line 14) should be revised to read (proposed AAR/ASLRRA amendment underlined): “Pathway <u>and sidewalk</u> grade crossing signs shall be standard in shape, legend, and color.” The addition of the words “and sidewalk” to the sentence will make the proposed Standard consistent with the title of this section and with the following paragraph (page 730 at line 19). Next, on line 21 of page 730, AAR/ASLRRA recommends that the proposed table references be deleted and replaced with the correct reference to “Table 9A-1”. AAR/ASLRRA also recommends that the Guidance statement as proposed on lines 22-25 of page 730 be deleted and be replaced with a paragraph that reads as follows: “No portion of a traffic control device or its support should protrude into the pathway or sidewalk grade crossing. Minimum clearance dimensions between pathway grade crossing traffic control devices and the closest track should conform to the requirements provided by the railroad company and/or transit agency.” AAR/ASLRRA recommends this revised paragraph be adopted for consistency with Section 8D.01 and because the clearance dimensions should be consistent with those established by the appropriate railroad or transit agency.

8E.04	NO	YES	N/A	AAR/ASLRRA recommends that the proposed Guidance statement in this section on page 731 (at lines 20-24) be revised to read as follows (proposed AAR/ASLRRA additions underlined, strikethrough reflecting proposed deletions): "If used at pathway or sidewalk grade crossings, the stop line should be a transverse line that extends across the full width of the pathway or sidewalk at the point where a pathway or sidewalk user is to stop. If no detectable warning is provided, t~~T~~he stop line should be placed at least 2 feet upstream from the automatic gate, counterweight, flashing-light signals, or Crossbuck assembly (if any of these are present), and at least 12 feet perpendicular from the nearest rail. AAR/ASLRRA recommends this amendment so the Guidance statement is consistent with the detectable warning standards and to clarify that the dimensions cited are only applicable if detectable warning is not provided. Next, in a following Guidance statement in this section on page 732 at lines 4-12, AAR/ASLRRA recommends that the discussion be revised to read as follows (proposed AAR/ASLRRA additions underlined, strikethrough for proposed deletions): "The ~~width~~ upstream to downstream dimension of the detectable warning should be at least 2 feet. Detectable warnings should be placed immediately downstream from the pathway or sidewalk stop line approaching the grade crossing (if a stop line is present) or should be incorporated into and made a part of the stop line. The downstream edge of the detectable warning adjacent to the grade crossing should be located at least 2 feet upstream from the automatic gate, counterweight, flashing-light signals, or Crossbuck assembly (if any of these are present), and at least ~~no less than~~ 12 feet perpendicular from the ~~center of the nearest track~~ nearest rail (see Figure~~s~~ 8E-4). If the distance between ~~the centers of~~ two adjacent tracks at a sidewalk or pathway grade crossing is ~~more than 38 feet~~30 feet or more measured from the inside rail to the inside rail, additional detectable warnings should be used to designate the limits of the pedestrian refuge area (see Figure 8E-5)." AAR/ASLRRA recommends these revisions for purposes of clarity and for consistency with the Guidance statement for stop lines appearing elsewhere in this section. The proposed revisions would also amend all dimensions in Chapter 8E to reference the "nearest rail" for consistency purposes. Next, this section references Figure 8E-4. AAR/ASLRRA requests FHWA adopt the below amendments to this figure (additions reflected in red text/strikethrough and blue underlined additional language). These amendments are intended so Figure 8E-4 is consistent with the proposed text of Section 8E.04 as proposed in this comment, and to show the dimensions from the nearest rail and the sign placement consistent with Section 8C.02:

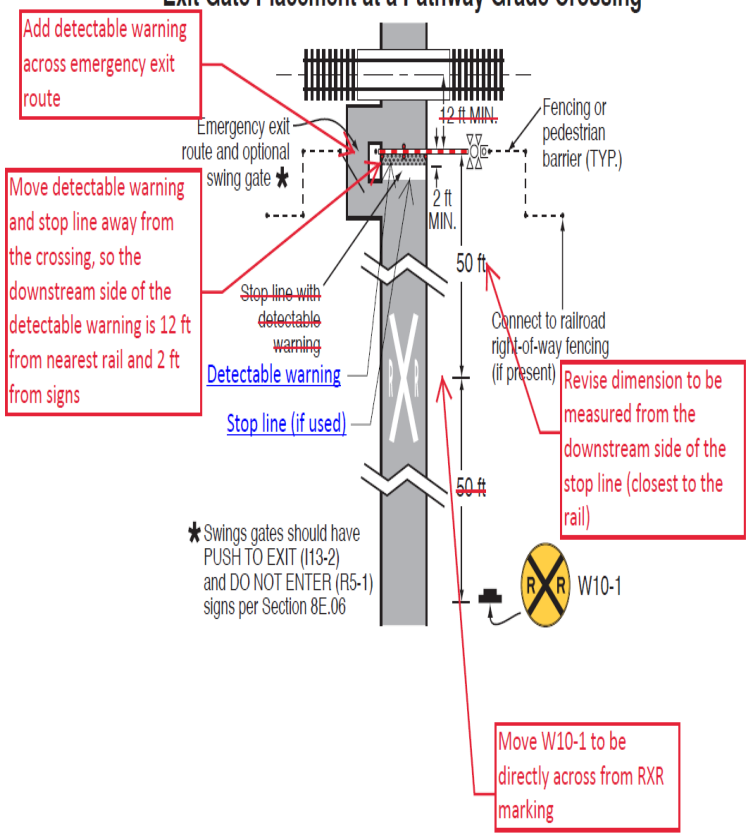


This section also references Figure 8E.5. Note that FHWA mislabeled Figure 8E-5 as Figure 8E-6 in the attachment to the NPA. As reflected by the text of the NPA, Figure 8E-5 is supposed to address the "Example of a Refuge Area and Detectable Warnings at a Sidewalk Grade Crossing". However, that figure is actually labeled as Figure 8E-6 in FHWA's proposal. Figure 8E-6 is supposed to address "Example of a Crossbuck Assembly for a Pathway or Sidewalk Grade Crossing". AAR/ASLRRA's proposed additions to what should appropriately be labeled Figure 8E-5 follows below (AAR/ASLRRA's proposed additions reflected in red text/strikethrough and blue underlined additions). The proposed changes are to reference the correct figure number, the dimensions from the nearest rail, and to specify the dimension of the refuge area consistent with ADA Accessibility Guidelines:

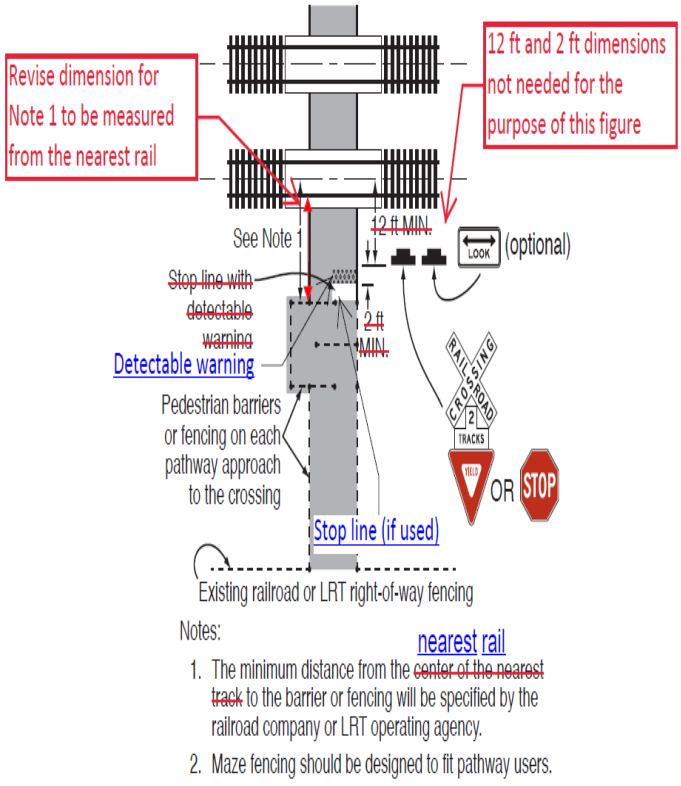
				8E-5 **Figure ~~8E-6~~. Example of a Refuge Area and Detectable Warnings at a Sidewalk Grade Crossing** 
Figure 8E-4	NO	YES	N/A	See the proposed amendments to Figure 8E-4 in the discussion of Section 8E.04 directly above.
Figure 8E-5	NO	YES	N/A	See the proposed amendments to Figure 8E-5 (including correction to the designated figure number) in the discussion of Section 8E.04 directly above.
8E.06	YES	N/A	N/A	AAR/ASLRRA agrees with proposed Section 8E.06. However, this section references Figures 8E-7 and 8E-8. AAR/ASLRRA recommends a correction to the figure number from that published by FHWA for Figure 8E-7 (which was labeled Figure 8E-5. See discussion in Section 8E.04 above). AAR/ASLRRA also recommends amendments (AAR/ASLRRA's proposed additions reflected in red text/strikethrough and blue underlined additions) to Figure 8E-7 to show dimensions from the nearest rail and to show sign placement consistent with Section 8C.02:

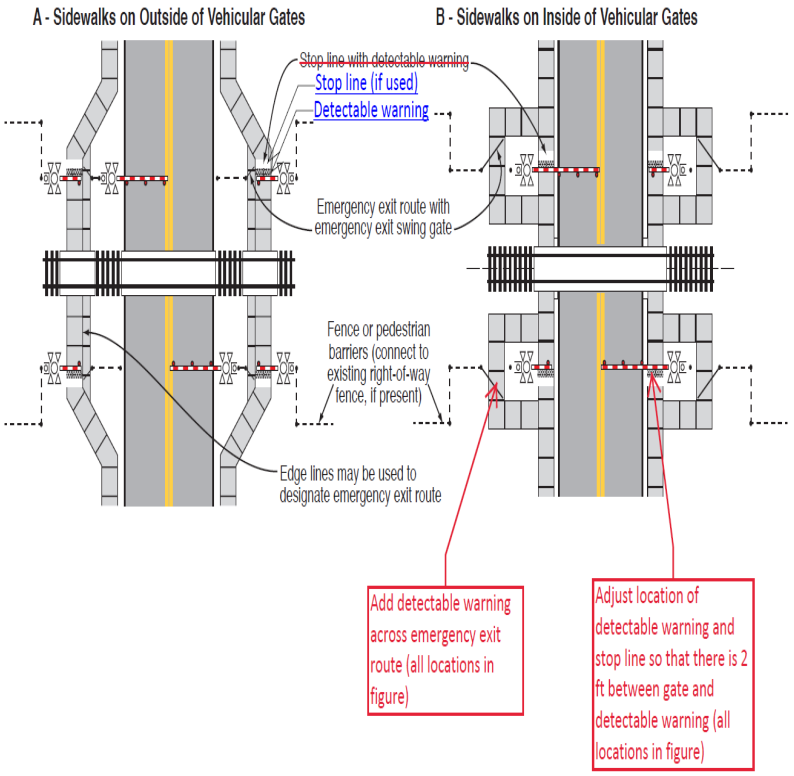
8E-7

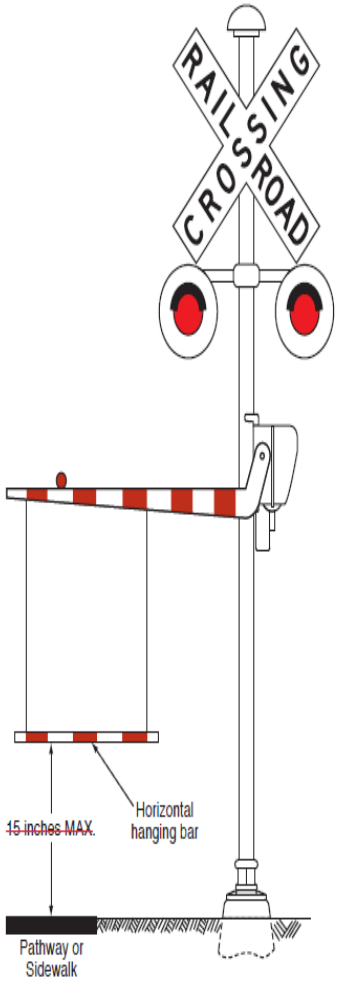
Figure ~~8E-5~~. Example of Pedestrian Gate and Emergency Exit Gate Placement at a Pathway Grade Crossing



Next, AAR/ASLRRA proposes amendments to Figure 8E-8 to reflect that maze fencing is also intended to address bicycles and wheelchairs ("users" instead of "pedestrians"), and to show the dimensions from the nearest rail:

				Figure 8E-8. Example of Barriers at a ~~Pedestrian-Only~~ Pathway Grade Crossing 
Figure 8E-7	NO	YES	N/A	See the proposed amendments to Figure 8E-7 in the discussion of Section 8E.06 directly above.
Figure 8E-8	NO	YES	N/A	See the proposed amendments to Figure 8E-8 in the discussion of Section 8E.06 directly above.
8E.09	NO	YES	N/A	AAR/ASLRRA recommends revision to the proposed Guidance statement on page 737 (lines 43-45). AAR/ASLRRA recommends deletion of the reference to the 15-inch heigh in the FHWA proposal, and replacement with reference to the determination of the Diagnostic Team. The railroads recommend such because research has been conducted regarding the horizontal bar at various heights, and the Railroad/Light Rail Transit Technical Committee supports a Diagnostic Team making the determination regarding the appropriate height. The railroads' proposed revisions to the Guidance statement are as follows ((proposed AAR/ASLRRA additions underlined, strikethrough for proposed deletions): "If a horizontal hanging bar is attached to an automatic pedestrian gate, the height of the horizontal hanging bar when in the down position should be ~~a maximum of 15 inches above the pathway or sidewalk~~ determined by the Diagnostic Team." Next, AAR/ASLRRA proposes revisions to Figures 8E-11 and 8E-14 that are referenced in this section. FHWA should revise Figure 8E-11 to add detectable warning across the emergency exit route and to locate detectable warning and stop lines consistent with Section 8E.04. AAR/ASLRRA's proposed amendments to Figure 8E-11 are

				reflected in red text/strikethrough and blue underlined additions in the figure below: Figure 8E-11. Example of Placement of Automatic Pedestrian Gates at a Sidewalk Grade Crossing  AAR/ASLRRA requests FHWA amend Figure 8E-14 to to reflect our comment on the Guidance statement addressing horizontal bar height in this section (as discussed directly above for page 737 on lines 43-45). AAR/ASLRRA's proposed amendments to Figure 8E-14 are reflected in red strikethrough in the figure below:

				
Figure 8E-11	NO	YES	N/A	See the proposed amendments to Figure 8E-11 in the discussion of Section 8E.09 directly above.
Figure 8E-14	NO	YES	N/A	See the proposed amendments to Figure 8E-14 in the discussion of Section 8E.09 directly above.