



Railroad Inspection Procedure Manual





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Introduction

On February 24, 1988, legislation was signed by the Governor amending Section 58-17-1450, Code of Laws of South Carolina, 1976, and repealing Sections 58-17-1400, 58-17-1460, 58-17-1470, 58-17-1480, 58-17-1490, and 58-17-1500 that assigned railroad safety to county supervisors.

This act assigns responsibility for the examination of crossings, reporting of hazards, removal of hazards, civil penalties charged for noncompliance, and the preparation of annual reports to the South Carolina Department of Transportation (SCDOT), counties, municipalities, and owners of private property. SCDOT has responsibility for state maintained highways, counties have responsibility for county maintained roads, and municipalities have responsibility for municipal roadways.

The goals of this program are to provide a systematic, continuous method of inspecting crossings for unobstructed views of approaching trains and to see that crossbucks and other signs are properly placed and maintained at all public railroad crossings in South Carolina.



Inspection Report Form

Item numbers on the Inspection Report Form correspond with the item numbers in the Instructions for Completing Inspection Report Form

I. General Information (See Introduction)

- 1) Crossing Number _____ 2) Inspector's Name _____
3) Road Number _____ 4) Agency _____
5) Road Name _____ 6) Inspection Date _____
7) Reinspection Date _____
Is the crossing in place? 8) _____ Yes 9) _____ No
10) If No, explain _____
11) Circle direction of approach: Northbound, Southbound, Eastbound, Westbound. **(Complete one form for each approach.)**

II. Crossbuck Information (See Appendix A: I, IV, V, and Figure 1)

- 12) _____ in place
13) _____ not in place 14) comments: _____
15) _____ properly positioned
16) _____ not properly positioned 17) describe: _____
18) _____ satisfactory condition
19) _____ not satisfactory condition 20) describe: _____
Recommend crossbucks be: 21) _____ Erected 23) _____ Repositioned
22) _____ Replaced 24) _____ Repaired
25) Comments _____

III. STOP Sign Information (See Appendix A: II, III, IV, V, and Figure 1)

- 26) _____ STOP Sign in place
27) _____ STOP Sign not in place
If STOP/Stop Ahead signs are not in place, are they warranted? 28) _____ Yes 29) _____ No
30) Comments: _____

IV. View Obstruction Information (See Appendix B: I and II)

- Obstructed view? 31) _____ Yes 32) _____ No
33) _____ On railroad right-of-way 34) _____ On county/municipal right-of-way
35) _____ On state right-of-way 36) _____ On private property
37) Railroad right-of-way _____ ft. 38) Roadway right-of-way _____ ft.
39) Describe the obstruction and its position at crossing: _____

V. Advance Warning Sign Information (See Appendix A: III, IV, and V)

- 40) _____ Advance Warning Sign in place
41) _____ Advance Warning Sign not in place
If Advance Warning Sign is not in place, is placement of the sign physically feasible? 42) _____ Yes
43) _____ No

(Complete Back of Form)

VI. Railroad Crossing Pavement Marking Information (See Appendix A: VI)

44) _____ Railroad Crossing Pavement Marking in place

45) _____ Railroad Crossing Pavement Marking not in place

If Railroad Crossing Pavement Marking is not in place, is placement of the marking warranted and physically feasible? 46) _____ Yes 47) _____ No

48) Sketch of crossing showing obstruction (**Show North arrow**).

Check to whom and the date that notification of hazard was sent (See Appendix C)

49) _____ SCDOT
Director of Traffic Engineering
PO Box 191
Columbia, South Carolina 29202
Date _____

50) _____ County/Municipality
Name _____
Position _____
Address _____
Date _____

51) _____ Private Property Owner
Name _____
Position _____
Address _____
Date _____

For SCDOT Use Only

52) Date hazard notification was received _____

53) Date reinspection of deficient crossing is required _____

54) Actual date of reinspection _____

55) Have hazards been eliminated? 56) _____ Yes 57) _____ Date eliminated

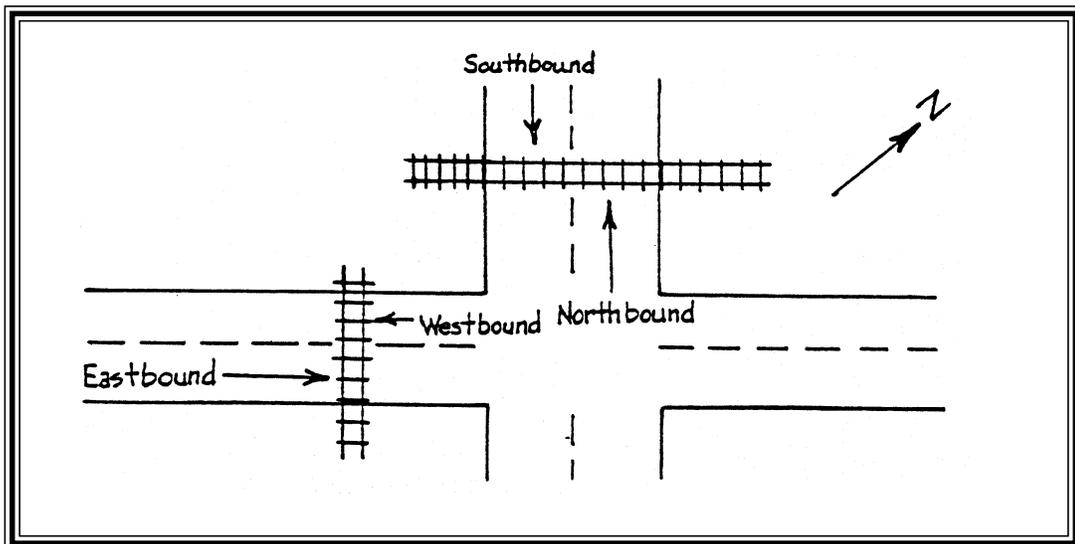
58) _____ No 59) Comments _____

Instructions for Completing Inspection Report Forms

Item numbers below correspond to the item numbers on the Inspection Report Form.

I. General Information (See Introduction)

1. Enter the crossing number which is the six digit and one letter series that has been assigned to each crossing location.
2. Enter the inspector's name.
3. Enter the route category {US, SC, or S- (for secondary road)} and the numbers that may be assigned and posted on signs for state and county maintained roads.
4. Enter the name of the agency represented (county name, city name, etc.).
5. Enter the road name as posted on signs, whether state, county, or city road.
6. Enter the date of this inspection. Leave blank when doing a reinspection.
7. When reinspecting a crossing, enter the date and complete Section I and only the pertinent parts of Sections II, III, and IV where deficiencies were reported during the prior inspection.
8. Check "Yes" if the crossing is found as shown on the maps provided, or
9. "No" if the crossing cannot be found.
10. Explain if answer is "No." For example, "Tracks have been removed"; "Tracks have been paved over"; "There is no crossing at the location shown on maps"; etc. Do not complete the remainder of the form and forward it to SCDOT.
11. The direction of approach should be answered in terms of northbound, southbound, eastbound, or westbound. That is, the direction the vehicle is moving toward the crossing. One Inspection Report should be completed for each approach to the crossing.



II. Crossbuck Information (See Appendix A: I, III, IV, and figure 1)

12. Check if there is a crossbuck at the crossing.
13. Check if there is not a crossbuck at the crossing.
14. Place any comments in blank provided. For example, "Appears that no crossbucks have ever been in place"; "May have been stolen"; etc.
15. Check if crossbuck is properly positioned at crossing.
16. Check if crossbuck is not properly positioned at crossing.
17. Describe what is improper about the position of the crossbuck.
18. Check if crossbuck is in satisfactory condition.
19. Check if crossbuck is not in satisfactory condition.
20. Describe what is improper concerning the maintenance of the crossbuck. For example, "damaged," "dirty," "faded," "no reflectivity," etc.
21. If number 13 is checked, then check number 21 to have a crossbuck erected.
22. If number 19 is checked, then check number 22 to have crossbuck replaced or see number 24.
23. If number 16 is checked, then check number 23 to have a crossbuck repositioned.
24. If number 19 is checked, then check number 24 to have a crossbuck repaired.
25. Briefly comment on recommended corrections.

III. STOP Sign Information (See Appendix A: II, III, IV, and figure 1)

26. Check if STOP sign is in place at the crossing.
 27. Check if STOP sign is not in place at the crossing.
- Check either number 28 or number 29 after considering Appendix A: II "STOP and Stop Ahead Signs."
28. If STOP and Stop Ahead signs are not in place but you think they are needed, check number 28.
 29. If STOP and Stop Ahead signs are not in place and you think they are not needed, check number 29.
 30. Briefly comment on why you think STOP and Stop Ahead signs are needed.

IV. View Obstruction Information (See Appendix B)

Check one of the following boxes after a view obstruction study is completed. (see Appendix B: II)

31. Check number 31 if the view of an approaching train is obstructed.
 32. Check number 32 if the view of an approaching train is not obstructed.
- If number 31 is checked, then one or more of the following must be checked after determination of right-of-way is made. (see Appendix B: I)
33. Check number 33 if view obstruction is on railroad right-of-way.
 34. Check number 34 if view obstruction is on county or municipal right-of-way.
 35. Check number 35 if view obstruction is on State right-of-way.
 36. Check number 36 if view obstruction is on private property.
 37. Enter the number of feet allotted to railroad right-of-way from the centerline of the tracks.

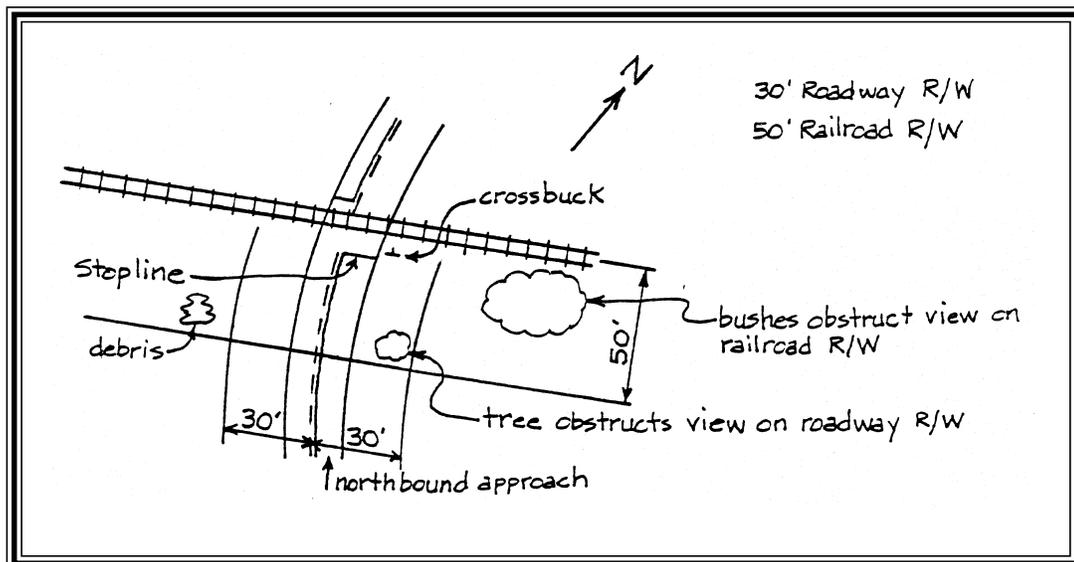
38. Enter the number of feet allotted to roadway right-of-way from the centerline of the roadway.
39. Describe what is obstructing the view of an approaching train and its position on the approach to the crossing.

V. Advance Warning Sign Information (See Appendix A: III, IV, and V)

40. Check if Advance Warning Sign is in place.
41. Check if Advance Warning Sign is not in place.
42. If an Advance Warning Sign is not in place but you think it is physically feasible to erect one then check number 42.
43. If an Advance Warning Sign is not in place and you think it is not physically feasible to erect one then check number 43.

VI. Railroad Crossing Pavement Marking Information (See Appendix A: VI)

44. Check if Railroad Crossing Pavement Marking is in place.
45. Check if Railroad Crossing Pavement marking is not in place.
46. If a Railroad Crossing Pavement Marking is not in place but you think it is warranted and physically feasible to apply one then check number 46.
47. If a Railroad Crossing Pavement Marking is not in place and you think it is not warranted or physically feasible to apply one then check number 47.
48. Draw a sketch of the crossing in the space provided. Show the following items at their approximate scale and locations:
 - a. Roadway with pavement marking. (center lines, edge lines, stop lines, etc.)
 - b. Railroad tracks. Show all tracks including sidetracks.
 - c. Railroad and roadway right-of-way from center line dimension.
 - d. Signing. (Crossbucks, STOP signs, Stop Ahead signs, Advance Warning signs)
 - e. North Arrow.
 - f. Location and description of view obstructions. (bushes, trees, etc.)
 - g. Direction of approach.



Complete to whom and the date that notification of hazard is to be sent (see Appendix C)

49. All completed original inspection forms shall be sent to the Director of Traffic Engineering. A copy should be retained for your files.
50. If the roadway is under county or municipal responsibility and numbers 28, 31, and 34 or 36 are checked, send a copy of the inspection form and written notification to the appropriate department of the county or municipality. Enter the agency contact person, his or her position, and address.
51. If number 36 is checked, send written notification to the private individual. Enter the individual's name and address.

Appendix A

Sign Inspection Guidelines

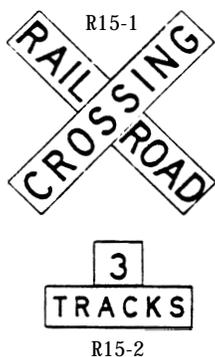
Appendix A is excerpted from the South Carolina and National Manuals on Uniform Traffic Control Devices for Streets and Highways (SCMUTCD and MUTCD).

I. Crossbuck Signs

The Crossbuck sign is furnished and installed by the railroad company. It is located on the railroad right-of-way to show the location of the tracks. If there are two or more tracks, including sidings, the number of tracks are indicated on an auxiliary sign of inverted T-shape mounted below the Crossbuck. The distance that should be assumed to separate tracks before an additional crossing sign is considered necessary is 100 feet, unless local conditions require otherwise.

Where physically feasible and visible to approaching traffic, the Crossbuck sign shall be installed on the right-hand side of the roadway on each approach to the crossing. Where an engineering study finds restricted sight distance or unfavorable road geometry, Crossbuck signs shall be placed back to back or otherwise located so that two faces are displayed to each approach.

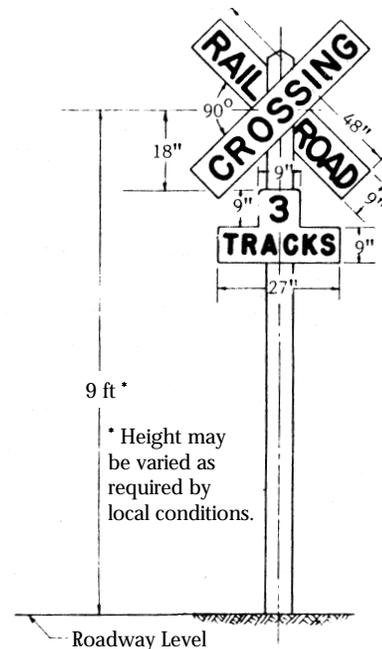
Crossbuck signs should be located not less than 12 feet from the center line of the nearest track. Where unusual conditions demand, variations determined by good judgment should provide the best possible combination of view and safety clearances attainable, occasionally utilizing a location on the left-hand side of the roadway.



Railroad Crossbuck Sign

Number	Size	Class
R15-1	48" x 9"	See Text
R15-2	9" x 9"	See Text
	27" x 9"	See Text

Background: White—Reflectorized
Legend and Border: Black



II. STOP and Stop Ahead Sign:

The use of STOP signs at railroad-highway grade crossings shall be limited to those grade crossings selected after need is established by a detailed traffic engineering study. No STOP signs should be erected without the concurrence of the Director of Traffic Engineering. Such crossings should have the following characteristics:

1. The highway should be secondary in character with low traffic counts.
2. Train traffic should be substantial.
3. Line of sight to an approaching train is restricted by physical features such that approaching traffic is required to reduce speed to 10 miles per hour or less in order to stop.
4. At the stop line there must be sufficient sight distance down the track to afford ample time for a vehicle to cross the track before the arrival of the train.

The engineering study may determine other compelling reasons for the need to install a STOP sign; however, this should only be an interim measure until active traffic control signals can be installed. STOP signs shall not be used on primary through highways or at grade crossings with active traffic control devices.

Whenever a STOP sign is installed at a grade crossing, a Stop Ahead sign shall be installed in advance of the STOP sign.



STOP Sign

Number	Size	Class
R1-1-30	30" x 30"	Standard
R1-1-48	48" x 48"	Major

Background: Red—ReflectORIZED
Legend and Border: White—ReflectORIZED



Stop Ahead Sign

Number	Size	Class
W3-1-36	36" x 36"	Standard
W3-1-48	48" x 48"	Major

Background: Yellow—ReflectORIZED
Arrow and Border: Black
Symbol: White Border on Red Background—ReflectORIZED

III. Railroad Advance Warning Signs



Railroad Advance Warning Sign

Number	Size	Class
W10-1-36	36" D	Standard

Background: Yellow—ReflectORIZED
Legend and Border: Black

A Railroad Advance Warning sign shall be used on each roadway in advance of every grade crossing except:

1. On low-volume, low-speed roadways crossing minor spurs or other tracks that are infrequently used and which are flagged by train crews.
2. In the business districts of urban areas where active grade crossing traffic control devices are in use.
3. Where physical conditions do not permit even a partially effective display of the sign.

Placement of the sign shall be in accordance with Table 2C-4 of the 2003 MUTCD. On divided highways and one-way roads, it is desirable to erect an additional sign on the left side of the roadway.

IV. Sign Maintenance

All traffic signs should be kept in the proper position, clean, and legible at all times. Damaged signs should be replaced.

Special attention and necessary action should be taken to see that weeds, trees, Shrubbery, and construction materials do not obscure the face of any sign.

V. Sign Installation

Height:

Signs erected at the side of the road in rural districts shall be mounted at a height of at least five feet, measured from the bottom of the sign to the near edge of the pavement. In business, commercial, and residential districts where parking and/or pedestrian movement is likely to occur or where there are other obstructions to view, the clearance to the bottom of the sign shall be at least seven feet. The height to the bottom of a secondary sign mounted below another sign may be one foot less than the appropriate height specified above.

Lateral Clearance:

Signs should have the maximum practical lateral clearance from the edge of the traveled way for the safety of motorists who may leave the roadway and strike the sign supports. Advantage should be taken of existing guardrail, overcrossing structures, and other conditions to minimize the exposure of sign supports to traffic.

Normally, the nearest edge of a sign should be placed not less than six feet, but preferably not less than 12 feet, from the edge of the traveled way. Where physical conditions exist (i.e., a curve, limited right-of-way, roadside vegetation, etc.) that cannot otherwise be remedied, adjustment of the lateral clearance may be necessary for best viewing. When the shoulder is paved and usable, the above distances should be referenced from the edge of the paved shoulder, but in no case should the nearest edge of a sign be closer than two feet from a paved shoulder. A clearance of two feet is the minimum from a curb face to a sign except that one foot may be permitted where roadside width is limited or where existing poles are close to the curb.



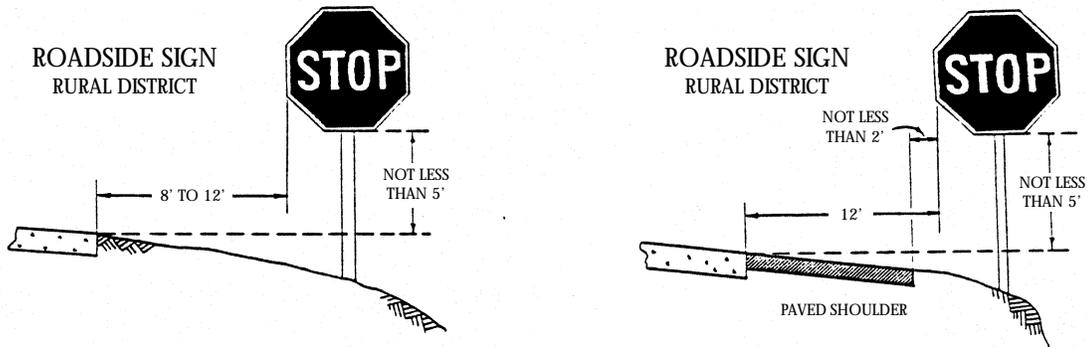


Figure 1A — Height and Lateral Location of Typical STOP Sign Insatllations

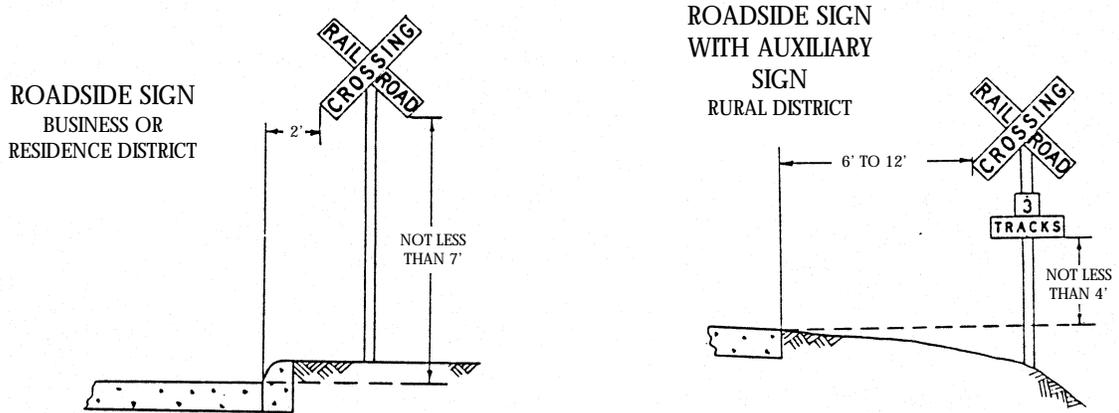


Figure 1B — Height and Lateral Location of Typical Crossbuck Sign Installations

VI. Railroad Crossing Pavement Markings

Pavement markings in advance of a railroad crossing shall consist of an X; the letters RR; a no-passing marking and certain transverse lines. These markings, if physically feasible, shall be placed at all grade crossings where railroad highway grade crossing signals or automatic gates are operating, and at all other crossings where the prevailing speed of highway traffic is 40 miles per hour or greater.

The markings shall also be placed at crossings where engineering studies indicate there is a significant potential conflict between vehicles and trains. At minor crossings or in urban areas, these markings may be omitted if an engineering study indicates that other devices provide suitable control. Such markings shall be white except for the no-passing markings.

The design of railroad crossing pavement markings shall be essentially as illustrated in Figure 2. The symbols and letters are elongated to allow for the low angle at which they are viewed. Such markings shall be white except for the no-passings markings. Duplicate markings shall be placed in each appropriate lane.

While these markings have value as a means of attracting the attention of the driver to the proximity of a railroad grade crossing, because they are distinctively different from all other pavement markings, they are only auxiliary to the standard Railroad Advance Warning sign and the Crossbuck sign, which must be used in every case, and crossing signals or gates.

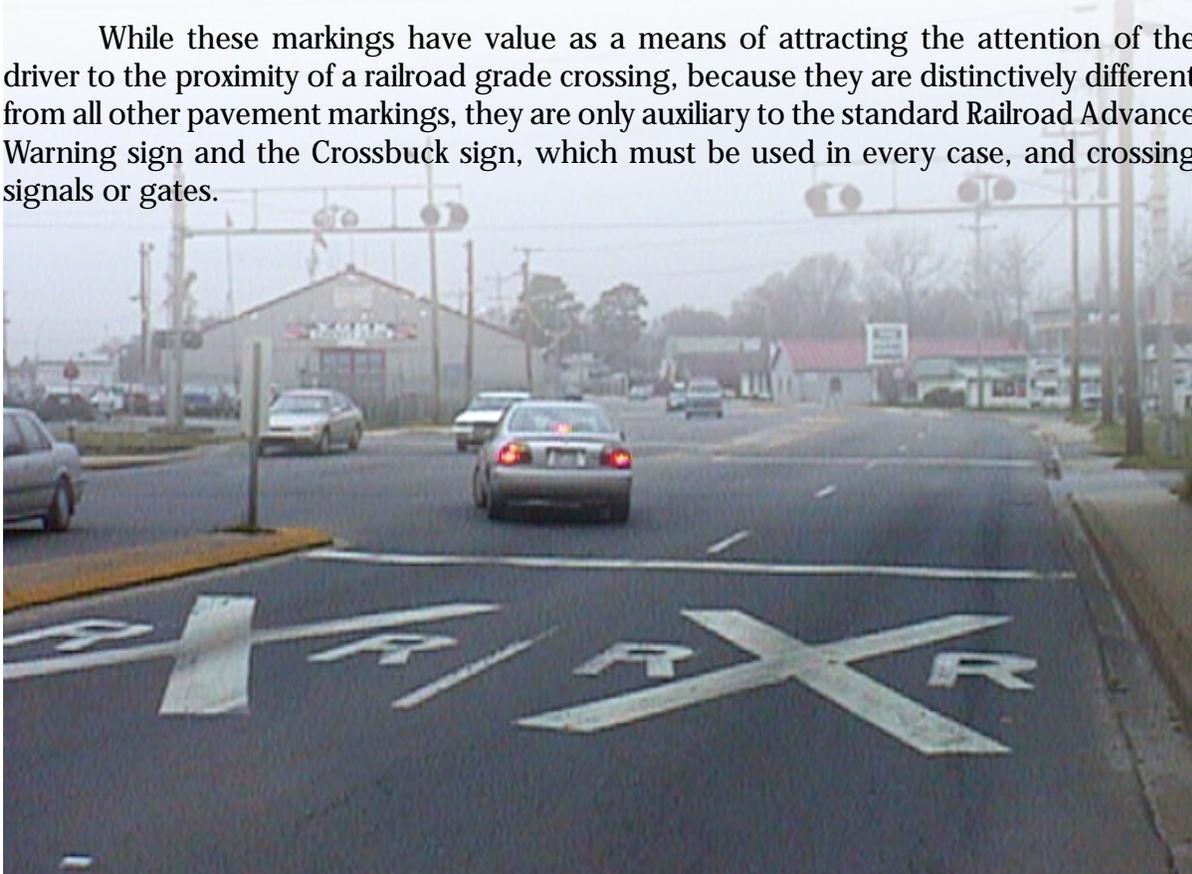
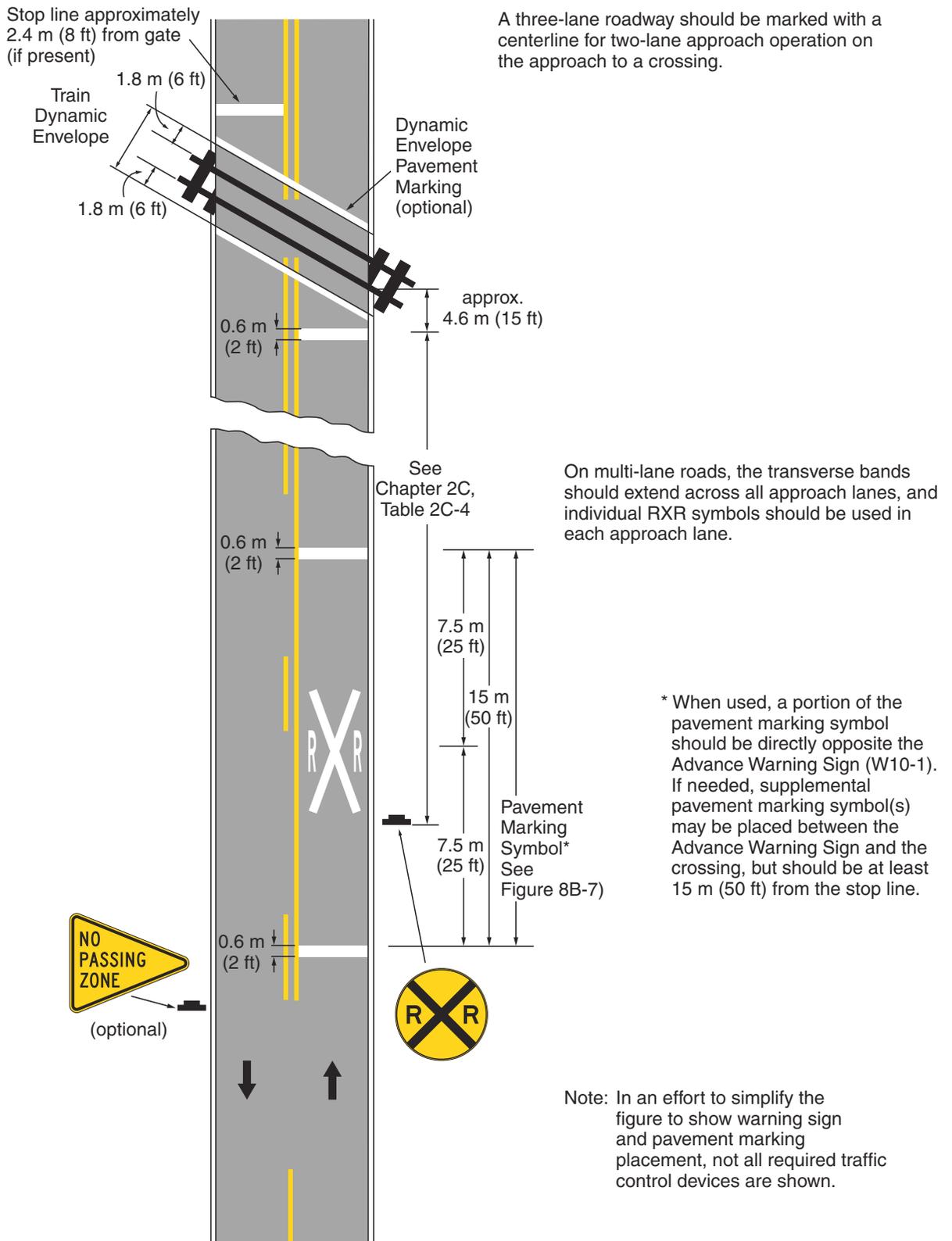


Figure 2. Example of Placement of Warning Signs and Pavement Markings at Highway-Rail Grade Crossings



Legend

→ Direction of travel

Appendix B

View Obstruction Inspection Guidelines

I. Right-of-Way

The approximate railroad right-of-way limits should be determined in advance of the actual field inspection by examination of county tax maps in the vicinity of the railroad crossing or by consulting with a local railroad representative.

The approximate roadway right-of-way limits should also be determined in advance by examining county tax maps or by examining roadway construction plans, when available.

II. Visual Inspection

To determine view obstructions on roadway right-of-way, the inspector shall examine the roadway right-of-way on each approach to the crossing for vegetation, growth, or objects not permanently affixed to realty within roadway right-of-way that block a motorist's view of approaching trains.

To determine view obstructions on railroad right-of-way, the inspector shall stop a car at the stopline in front of the railroad tracks or, if no stopline is present, with the front of the car stopped at a position 15 feet from the near rail of the railroad tracks. The inspector shall then examine the railroad right-of-way in both directions for vegetation, growth, or objects not permanently affixed to realty within railroad right-of-way that block a motorist's view of approaching trains.

To determine view obstructions on private property, the inspector shall examine the private property on each approach to the crossing in both directions for vegetation, growth, or objects not permanently affixed to realty that lies on private property that block a motorist's view of approaching trains.

Appendix C

Organization & Responsibilities

The county or municipality is responsible for providing the names and addresses of its assigned inspectors to the Director of Traffic Engineering.

The Director of Traffic Engineering is responsible for informing the counties, municipalities, and SCDOT District Engineering Administrators of their assigned crossings and their locations.

The inspector is responsible for the inspection and the completion of Inspection Report Forms for each assigned crossing.

The inspector shall send all Inspection Report Forms where no deficiencies are found to the Director of Traffic Engineering by January 1 of each year.

I. Deficiencies on Railroad Right-Of-Way

The inspector shall send Inspection Report Forms showing deficiencies on railroad right-of-way immediately to the Director of Traffic Engineering. A deficiency is defined as missing or improperly maintained or placed crossbucks or the warranted need for a STOP sign or a view obstruction of approaching trains.

The Director of Traffic Engineering will furnish written notice to the inspector of the reinspection date. This date is determined by the date the railroad acknowledges receipt of the deficiency notice sent to them by the Director of Traffic Engineering.

The original inspector is to reinspect the deficient crossing location on the specified date and send the Director of Traffic Engineering the Reinspection Report Form showing the date of reinspection and the status of the deficiency.

The Director of Traffic Engineering will notify the railroad of any deficiencies noted, the time limits in which they have to correct them, and the fines levied if not corrected.

II. Deficiencies on SCDOT, County, or Municipal Right-Of-Way

The inspector shall immediately send original Inspection Report Forms showing deficiencies to the Director of Traffic Engineering. He must also send a copy of the Inspection Report Form and written notice of the hazard to the appropriate department of SCDOT, county, or municipality.

SCDOT, counties, and municipalities have 30 days from the date notice was issued by the inspector to correct deficiencies.

The original inspector is to reinspect at the deficient crossing location within a week to ten days after the 30 day notice has expired and send the Director of Traffic Engineering the Reinspection Report Form showing the date of reinspection and the status of the deficiency.

If the counties or municipalities fail to eliminate the noted deficiencies by the deadline date, SCDOT must make the corrections.

Then, counties and municipalities must by law reimburse SCDOT for all costs incurred while making the corrections.

III. Deficiencies on Private Property

The inspector shall immediately send original Inspection Report Forms showing deficiencies to the Director of Traffic Engineering. He must also send a copy of the Inspection Report Form and written notice of the hazard to the appropriate department of SCDOT, county, or municipality that maintains the roadway adjoining the private property involved. The inspector must also send written notice to the property owner.

The property owner has 30 days after receipt of notice to correct deficiencies.

The original inspector is to reinspect the deficient crossing location within a week to ten days after the 30 day notice has expired.

The inspector shall send the Director of Traffic Engineering the Reinspection Report Form showing the date of reinspection and the status of the deficiency.