



MEMORANDUM

STATE OF ALASKA

Department of Transportation and Public Facilities
Central Region-Division of Design and Engineering Services
Traffic, Safety, and Utilities Section

To: Distribution: Design Chiefs and Project Managers

Thru: Luke Bowland, P.E. *LB* **Date: May 13, 2023**
Regional Preconstruction Engineer

Thru: Cynthia Ferguson, P.E., Chief *CF*
Traffic, Safety, and Utilities

From: Scott E. Thomas, P.E. *SET* **Subject: RR Xing Cert Checklist 3.0**
Central Region Traffic & Safety Engineer **Traffic Control Devices Review**

An updated 2023 RR Crossing Devices Checklist (ver 3.0) is attached with necessary reference materials for field inspection within less than two years of certifying a design project. The purpose is to verify all projects near to and affecting railroad crossings have adequate warning devices in place and functioning properly before completing the project (*see 23 CFR 646.12(b)*). This version updates clearance times for WB-67 vehicles and sight triangles for double tracks.

1. Fill out a Railroad Crossing Devices Checklist 3.0 before certification, desirably by PIH review. The Design Engineer or Engineering Manager is responsible for the forms and field review.
2. Finalize the Checklist by signature of the Engineer-of-Record. List on the checklist any repairs or replacements needed and how they will be done.
3. Provide a scanned copy of the completed Checklist to the Regional Traffic & Safety Engineer and the ARRC Chief Engineer (for filing in railroad crossing files) on or before routing the Project Certification Sheet.

For any questions or assistance in filling out the Checklist, contact Larry Huling, Engineering Assistant, at 269-0637. A spreadsheet tool is available to test design vehicle track clearance times for other than WB-67 vehicles.

Attachments:

Railroad Crossing Devices Checklist - Flow Chart
Railroad Crossing Devices Checklist – Forms A-C Sight Distance, 2-6 Traffic Devices

For additional guidance, see <https://www.fhwa.dot.gov/federal-aidessentials/indexofvideos.cfm>
(Railroad Coordination and Certification Requirements – pdf and video)

Distribution:

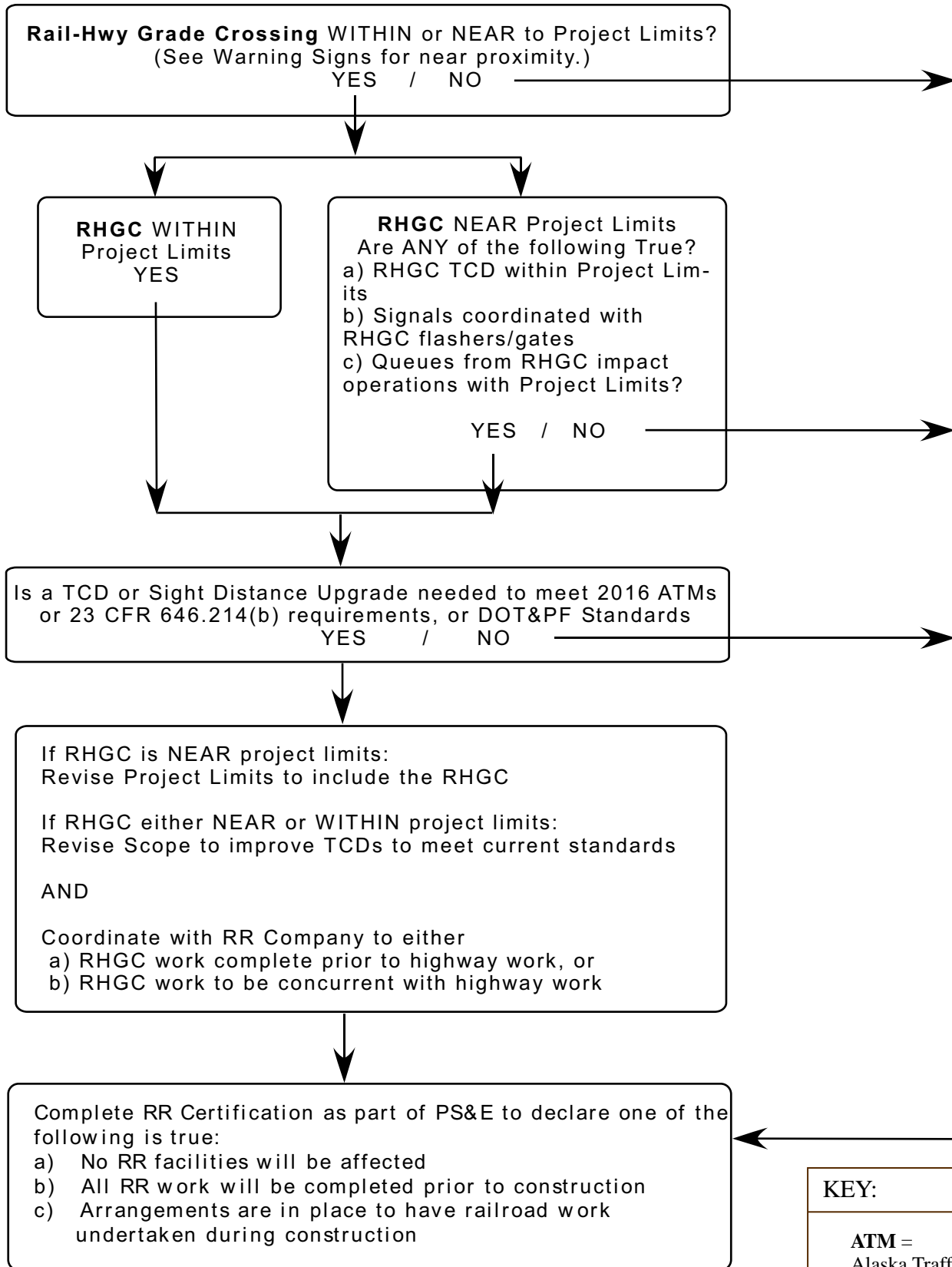
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Joel St. Aubin, P.E., Chief of Construction
Laura Paul, P.E., Chief, Highway Construction
Michael San Angelo, P.E., Chief, Statewide Materials, HQ
Carolyn Morehouse, P.E., Chief Engineer, Statewide D&ES, HQ
Matthew Walker, P.E., State Traffic and Safety Engineer HQ
Nathan Purves, P.E., Southcoast Region Traffic and Safety Engineer
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(cc: via email)

Brad Coy, P.E., Municipal Traffic Engineer, Municipality of Anchorage
Brian Lindamood, P.E., Chief Engineer, Alaska Railroad
Brad Sworts, Pre-Design and Engineering Manager, Matanuska Susitna Borough

RAILROAD CROSSING TRAFFIC CONTROL CHECKLIST



The Railroad Crossing Checklist MUST:

- 1) BE COMPLETED ON SITE AT THE RR CROSSING.
- 2) Get the responsible Engineer's Review and Concurrence signature.
- 3) Be completed again, if more than 2 years have passed.

KEY:
ATM = Alaska Traffic Manual
RHGC = Railroad Highway Grade Crossing
TCD = Traffic Control Device



RAILROAD CROSSING DEVICES CHECKLIST

RR MP	Road name	Road MP	Cross Street/Intersection	Dist From:
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Federal Crossing #	Nearest Community	Max Train Speed	Roadway Posted Speed	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
Road Ownership	Location notes:			
<input type="text"/>	<input type="text"/>			
	Name	State#	Federal#	
PROJECT	<input type="text"/>	<input type="text"/>	<input type="text"/>	

NO RAILROAD CROSSINGS ARE AFFECTED BY THIS ROAD PROJECT.

ALL CROSSING DEVICES IN PLACE, CORRECT & SIGHT DISTANCE ADEQUATE.

OR SELECT THE SCHEDULE OF WORK FOR THE AFFECTED RAILROAD CROSSING:

All crossing devices work will be completed before road work begins.

Crossing devices work will be concurrent with road work. Railroad notified.

- A,B,C **SIGHT DISTANCE TRIANGLES: All Locations**
See SIGHT TRIANGLES pages. ALWAYS ATTACH. Forms A, B, C
- 2 **ADVANCE WARNING SIGNS: All Locations**
See ADVANCE WARNING SIGNS page. ALWAYS ATTACH. Form 2.
- 3 **PASSIVE DEVICES: Signs & Markings Only**
See PASSIVE DEVICES page. Attach if no lights or gates at this crossing. Form 3.
- 4 **ACTIVE DEVICES: Flashing Lights & Gates**
See ACTIVE DEVICES page. Attach if there are lights or gates. Form 4.
- 5 **PAVEMENT MARKINGS: 40 MPH or greater**
See PAVEMENT MARKINGS page. Attach only where markings used. Form 5.
- 6 **PATHWAY SIGNS or MARKINGS**
See PATHWAY page. Attach if path signs and/or markings used. Form 6.

Field inspected by: <input type="text"/>	Registered Engineer's Approval: <input type="text"/> (Printed name)
On this date: <input type="text"/> / <input type="text"/> / <input type="text"/> Month / Day / Year	X <input type="text"/> Date: <input type="text"/> / <input type="text"/> / <input type="text"/>

Notes: Provide a final copy to the Regional Traffic & Safety Engineer and Alaska Railroad Corporation Chief Engineer. This checklist is based upon the 2009 MUTCD and the 2016 Alaska Traffic Manual Supplement (ATMS). This list does not address Temporary Traffic Control.

RR Crossing Devices Checklist

REPAIR or REPLACE ITEMS:

ONLY FOR ITEMS MISSING OR DAMAGED (from page 1)

Form		WHAT Is the issue?	WHO Will correct it?	WHEN Will it happen?
	EXAMPLE	STOP sign missing	The contractor	With this Project, or MP X.x-X.x Project
ABC	SIGHT DISTANCE TRIANGLES			
2)	ADVANCE WARNING SIGNS			
3)	PASSIVE DEVICES			
4)	ACTIVE DEVICES			
5)	PAVEMENT MARKINGS			
6)	PATHWAY SIGNS OR MARKINGS			

STOPPED SIGHT TRIANGLES

Mandatory Distances - from Table C

Check files for Diagnostic Team (DT) Review, previous Checklist.

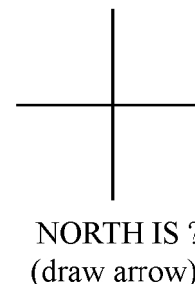
Roadway Posted Speed mph

Maximum Approved Train Speed mph

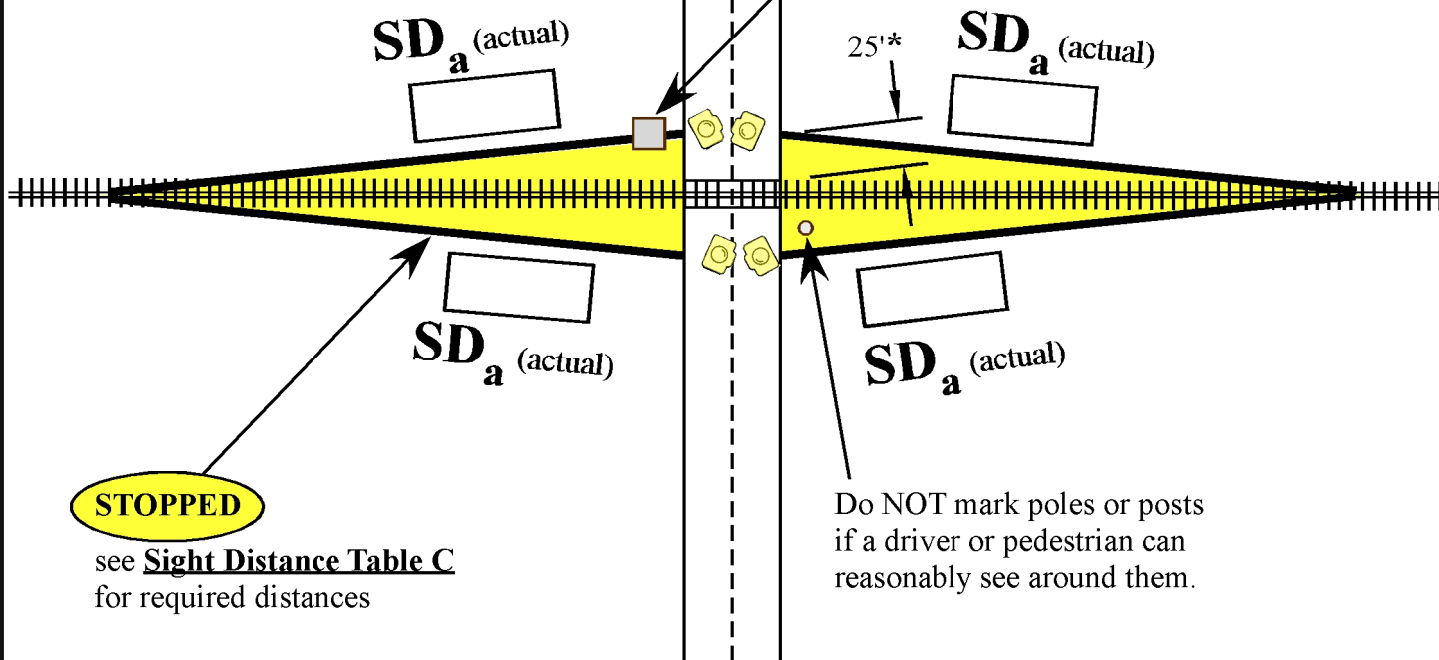
See Sight Distance Table C or D for value of SD_r (required), then:

SD_r (required)

- 1) Measure SD_a (actual) sight distance from road shoulder, or Edge of Traveled Way - from the 25' distance to Nearest Rail, using a hand held laser or range finder.
- 2) Measure at 3' 6" eye height.
- 3) Be sure to take photos of the sight distance each direction from eye height looking from the design stopped position towards each direction along the tracks.



Mark any large obstacles blocking significant portion of driver's or pedestrian's view.



STOPPED

see Sight Distance Table C for required distances

Do NOT mark poles or posts if a driver or pedestrian can reasonably see around them.

* 25 ft. = Stopped Condition for motorist, measured from the nearest rail. This will normally be 10 ft. back from the STOP bar or the Crossbuck Sign.

This is CASE II, Alaska Policy on RR/Hwy crossings, 1988.

All distances in feet.

DO NOT WALK along tracks or measure along Railroad Right of Way.

ALL measurements can be taken from road shoulder.

MOVING SIGHT TRIANGLES

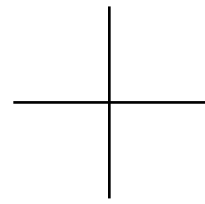
Desired Distances from Table C

Roadway Posted Speed mph Maximum Approved Train Speed mph

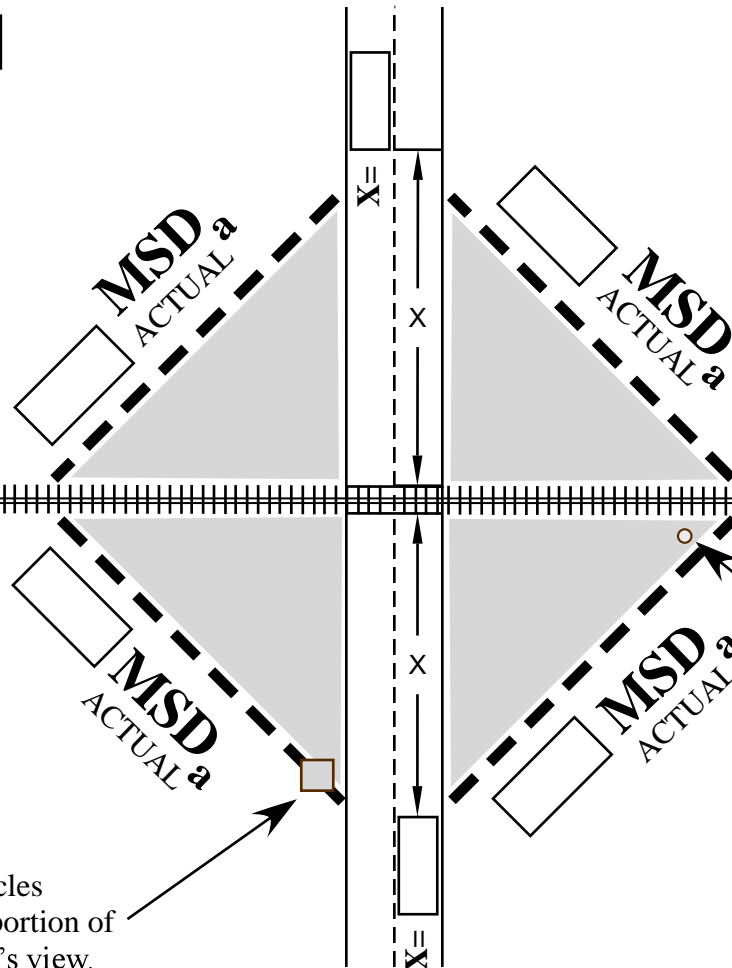
See **Sight Distance Table C** for value of **X** (distance to measure from) and **MSD_r** (required), then: measure **MSD_a** (actual) sight distance from road shoulder or Edge of Traveled Way - using a hand held laser or range finder.

X

MSD_r
 (required)



NORTH IS ?
 (draw arrow)



Do NOT mark poles or posts if a driver or pedestrian can reasonably see around them.

Mark any large obstacles blocking significant portion of driver's or pedestrian's view.

This is CASE I, Alaska Policy on RR/Hwy crossings, 1988.

All distances in feet.

DO NOT WALK along tracks or measure along RR Right of Way.
ALL measurements can be taken from road shoulder.

State of Alaska DOT/PF Central Region

SIGHT DISTANCE TABLE C

SINGLE TRACK

SIGHT DISTANCE TRIANGLE TABLES

Distances in FEET

Based on AASHTO Green Book*, 2018 Edition.

SD_r

STOPPED	SD_r = minimum Sight Distance required											Vehicle Stopped
TRAIN SPEED (mph)	5	10	15	20	25	30	35	40	45	50	55	60
SD_r	130	260	385	510	640	765	895	1020	1150	1275	1405	1530

State of Alaska DOT/PF Central Region

SIGHT DISTANCE TABLE D

DOUBLE TRACK

SIGHT DISTANCE TRIANGLE TABLES

Distances in FEET

Based on AASHTO Green Book*, 2018 Edition.

SD_r

STOPPED	SD_r = minimum Sight Distance required											Vehicle Stopped
TRAIN SPEED (mph)	5	10	15	20	25	30	35	40	45	50	55	60
SD_r	145	285	425	565	705	845	985	1130	1270	1410	1550	1690

*AASHTO Green Book: A Policy on Geometric Design of Highways and Streets, 2018, 7th Edition, Figure 9-67 & 9-6.

Only STOPPED conditions normally apply.

STOPPED is Case II, from 1988 ARRC agreement: WB-67 Vehicle stopped at crossing, and train moving at Max Approved Speed.

Case II is required for ALL crossings, except for industrial tracks and areas. If it can't be met, flagging or other interim mitigation is required.

Item B. Calculate and document moving Sight Distance conditions without MUTCD devices present separately.

MOVING is Case I; from 1988 ARRC agreement: Both vehicle and train moving at maximum speed.

(Vehicle at Posted Speed Limit, train at Max Approved Speed.)

Case I is desired for ungated, unsignalized crossings. If Case I cannot be achieved, STOP signs or gates & flashers are required.

For locations with more than 2 tracks, review measurements for greater sight distance as required.

DOT&PF has an Excel spreadsheet available as a guide for other design vehicles.

For locations where double trailer truck traffic is heavy, consider additional sight distance.

ADVANCE WARNING SIGNS TYPICALLY REQUIRED

See the bottom of this page for the few exceptions to using Railroad Advance Warning Signs.

bound bound
 ROAD APPROACH DIRECTION

North

South

Checklist:

8B.06
 AK
 Policy

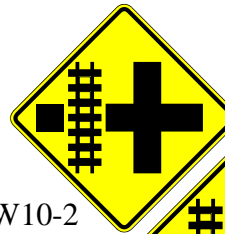
Advance warning sign (W10-1), is almost always used unless adjacent parallel roadway is less than 100 ft away;



W10-1

8B.06

THEN use W10-2, 3 or 4 series warning sign, with the correct;



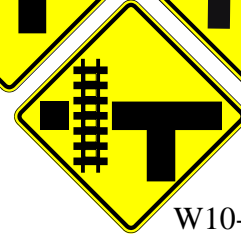
W10-2



W10-3

8B.06

W10-11 series distance sign on the same post. These are always used with the W10-2, 3 or 4 signs



W10-4

Std.Plan
 S-30

Frangible post base, or maximum of 2.5" PST post

8B.21

No train horn sign if in a Quiet Zone. (Below W10 signs)



W10-9P



W10-11a

8B.23
 AK
 Policy

Low grade clearance (graphic) sign (and text sign for 3 years), if crossing vertical profile could hang up long vehicles

8B.06

Advance warning sign(s) placed sufficiently in advance, see Table 2C-4, attached



W10-5



W10-5P
 (Below W10-5)

8B.10

Tracks out of service sign, for tracks that are not in use, but not removed from roadway

8C.12

If a circular intersection is within 200 ft, was a design study done, to review queuing to the tracks?



R8-9

W10-series, Railroad Advance Warning Signs may ONLY be omitted:

- 1) On the approaches from a parallel highway edge of less than 100 feet to the tracks.
- 2) On low-speed low-volume roads where users are advised by personnel on the ground when not to enter the crossing.
- 3) In business or commercial areas where active devices are in use,
- 4) Or where physical conditions do not permit an even partially effective display of the signs.

All references are to the 2016 ATMS & 2009 Manual on Uniform Traffic Control Devices.

PASSIVE DEVICES Signs & Markings Only

ROAD APPROACH DIRECTION

bound

bound

North

South

Checklist:

8B.03
AK
Policy

Railroad Crossbuck sign, retroreflective front & min. 6" wide strip, full length on back, or back to back Crossbuck signs

8B.03
8B.04

Number of tracks sign, if more than 1 set of tracks

8B.04
AK
Policy

YIELD (default) or STOP sign (circle one)

8B.03
8B.04
8B.06

2" retroreflective strip on front and back of sign post

8A.04

Frangible post base, or maximum of 2.5" PST

2 Ft. horizontal clearance from signs, for pedestrians?

8B.03
8B.04

2nd Crossbuck sign on left, if visibility is restricted on right

Fig.
8B-2
8B.04

4' minimum to bottom sign, 5' min. if on separate post, 7' min. with pedestrians

8B.04
8B.06

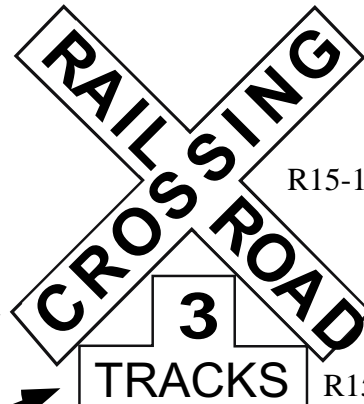
YIELD or STOP AHEAD sign, if visibility of YIELD or STOP sign is restricted, such that a driver does not have sufficient time to respond to the primary sign

8B.02

Sign sizes meet or exceed the Table in 8B-1, attached

8A.04

All signs retroreflective



R15-1

R15-2P

R1-2

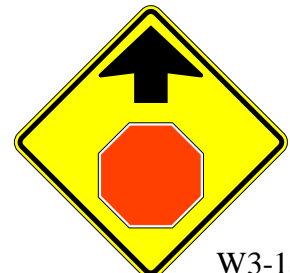
R1-1

OR

2 ft MAX."

Edge of roadway

Must use STOP sign at unmaintained crossings that the public can access (Pub-4). Must use STOP sign at crossings without Case I Sight Distance, unless other mitigation is in place.



W3-1a



W3-2a

All references are to the 2016 ATMS & 2009 Manual on Uniform Traffic Control Devices.

ACTIVE DEVICES Flashing Lights & Gates

		ROAD APPROACH DIRECTION		
	North bound	→		
	South bound	→		
		Checklist:		
8C.04	<input type="checkbox"/>	<input type="checkbox"/>	Dual flashing red 12" lights, back to back for 2-way road	
8C.04	<input type="checkbox"/>	<input type="checkbox"/>	Automatic lowering gates, that extend across all travel lanes	
8C.04	<input type="checkbox"/>	<input type="checkbox"/>	Retroreflective vertical red/white stripes on gates, at 16" intervals	
8C.04	<input type="checkbox"/>	<input type="checkbox"/>	Minimum of 3 red lights on gates facing traffic	
8C.04	<input type="checkbox"/>	<input type="checkbox"/>	Does lowering gate arm rest nearly vertical?	
	<input type="checkbox"/>	<input type="checkbox"/>	6' minimum from devices to Edge of Traveled Way	
8B.03 8C.02	<input type="checkbox"/>	<input type="checkbox"/>	Railroad Crossbuck sign, retroreflective front & min. 6" wide strip, full length on back, or back to back Crossbuck signs	
8C.01	<input type="checkbox"/>	<input type="checkbox"/>	Number of tracks sign, if more than 1 set of tracks	
8C.02	<input type="checkbox"/>	<input type="checkbox"/>	Red lights overhead or on left side for Oneway road	
8C.02	<input type="checkbox"/>	<input type="checkbox"/>	Overhead structures on non-breakaway posts	
8B.18	<input type="checkbox"/>	<input type="checkbox"/>	Emergency notification sign present	
8C.06	<input type="checkbox"/>	<input type="checkbox"/>	4 quadrant gate system used where vehicles may try to short-cut through the gates?	
8C.06	<input type="checkbox"/>	<input type="checkbox"/>	Median barriers used between the lanes for the same reason?	

All references are to the 2016 ATMS & 2009 Manual on Uniform Traffic Control Devices.

PAVEMENT MARKINGS

	ROAD APPROACH DIRECTION			
	bound	bound		
	North	South		
	<input type="checkbox"/>	<input type="checkbox"/>	Checklist:	
8B.28	<input type="checkbox"/>	<input type="checkbox"/>	Stop Bar, at approx. 8' from gate	<p>The diagram illustrates the pavement markings for a railroad crossing. It shows a road with two approach lanes (North and South) and two tracks. Key features include: <ul style="list-style-type: none"> Stop bars located approximately 8 feet from the gate. NO PASSING ZONE striping between the stop bars and the tracks. Elongated X markings in the roadway, with dimensions of 24 inches for the lines and 50 feet for the overall marking length. Advance warning signs and elongated X markings adjacent to each other. Identical markings on all approach lanes. </p>
8B.28	<input type="checkbox"/>	<input type="checkbox"/>	OR approx. 15' from edge of track	
8B.27	<input type="checkbox"/>	<input type="checkbox"/>	NO PASSING ZONE striping between "X" and tracks	
8B.27	<input type="checkbox"/>	<input type="checkbox"/>	All markings are retro-reflective	
	bound	bound	ROAD APPROACH DIRECTION	
	North	South		
	<input type="checkbox"/>	<input type="checkbox"/>	OR (if needed) (if needed)	
8B.27	<input type="checkbox"/>	<input type="checkbox"/>	Elongated X marking in roadway	<p>See Chapter 2C, Table 2C-4</p> <p>50 ft</p> <p>Pavement Marking Symbol* (see Figure 8B-7)</p>
8B.27	<input type="checkbox"/>	<input type="checkbox"/>	Elongated X and lines dimensions appear correct, per Figure 8B-7, attached	
8B.06	<input type="checkbox"/>	<input type="checkbox"/>	Advance warning sign & Elongated "X" adjacent to each other	
8B.27	<input type="checkbox"/>	<input type="checkbox"/>	Identical markings on all approach lanes	

All references are to the 2016 ATMS and 2009 Manual on Uniform Traffic Control Devices.

PATHWAY GRADE CROSSINGS 25 Ft or further from a Road Crossing

ROAD
 APPROACH
 DIRECTION

bound

bound

North

South

Checklist:

8D.03

Stop Bar, at approx. 12' from near track

8D.05

Railroad Crossbuck sign, reflective front & back

8B.04

Number of tracks Sign, if more than 1 set of tracks

8B.04

YIELD (default) or STOP sign (circle one)

8D.03

Consider elongated X marking in pathway, and/or advance warning sign (W10-1), if high-speed users can be expected

8D.03

Elongated X and line dimensions appear correct

8D.03

Advance warning sign at beginning of Elongated X

8D.03

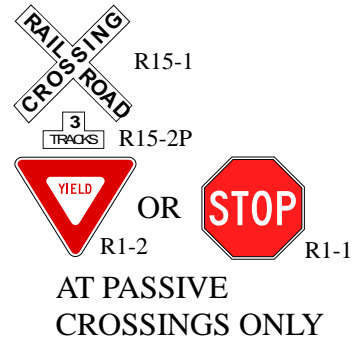
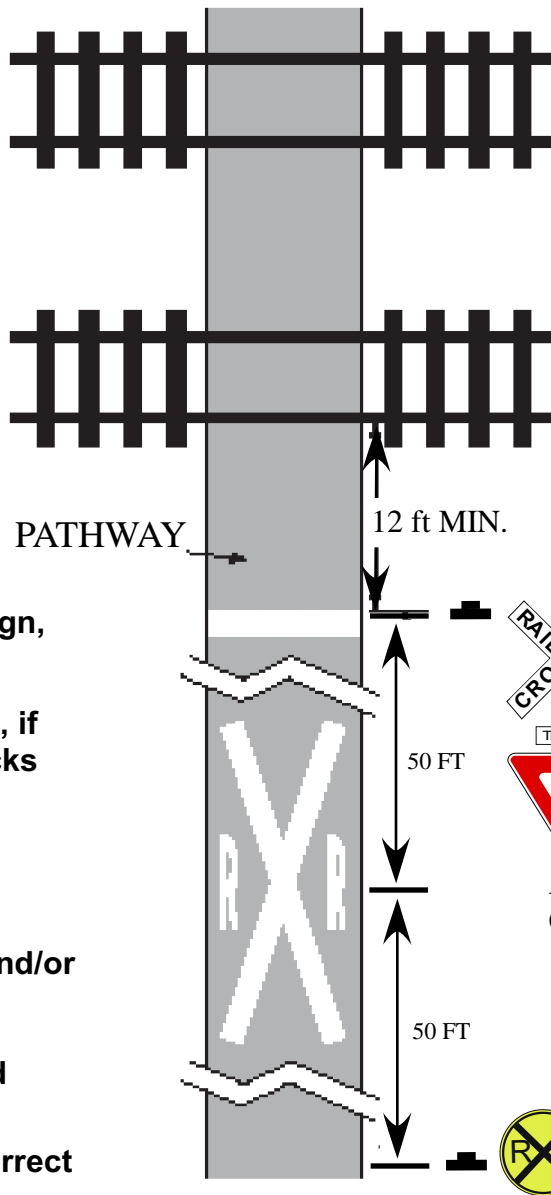
4 ft. minimum mounting height to base of signs?

8D.03

2 ft. minimum clearance to the edge of all signs, that are shorter than 8 ft?

8D.03

All sign appropriate size? See Table 9B-1, attached.



All references are to the 2016 ATMS and 2009 Manual on Uniform Traffic Control Devices.

06 Signs and plaques larger than those shown in Tables 2C-2 and 2C-3 may be used (see Section 2A.11).

Guidance:

07 *The minimum size for all diamond-shaped warning signs facing traffic on exit and entrance ramps should be the size identified in Table 2C-2 for the mainline roadway classification (Expressway or Freeway). If a minimum size is not provided in the Freeway Column, the Expressway size should be used. If a minimum size is not provided in the Freeway or the Expressway Column, the Oversized size should be used.*

Section 2C.05 Placement of Warning Signs

Support:

01 For information on placement of warning signs, see Sections 2A.16 to 2A.21.

02 The time needed for detection, recognition, decision, and reaction is called the Perception-Response Time (PRT). Table 2C-4 is provided as an aid for determining warning sign location. The distances shown in Table 2C-4 can be adjusted for roadway features, other signing, and to improve visibility.

Guidance:

03 *Warning signs should be placed so that they provide an adequate PRT. The distances contained in Table 2C-4 are for guidance purposes and should be applied with engineering judgment. Warning signs should not be placed too far in advance of the condition, such that drivers might tend to forget the warning because of other driving distractions, especially in urban areas.*

Table 2C-4. Guidelines for Advance Placement of Warning Signs

Posted or 85th-Percentile Speed	Advance Placement Distance ¹								
	Condition A: Speed reduction and lane changing in heavy traffic ²	Condition B: Deceleration to the listed advisory speed (mph) for the condition							
		0 ³	10 ⁴	20 ⁴	30 ⁴	40 ⁴	50 ⁴	60 ⁴	70 ⁴
20 mph	225 ft	100 ft ⁶	N/A ⁵	—	—	—	—	—	—
25 mph	325 ft	100 ft ⁶	N/A ⁵	N/A ⁵	—	—	—	—	—
30 mph	460 ft	100 ft ⁶	N/A ⁵	N/A ⁵	—	—	—	—	—
35 mph	565 ft	100 ft ⁶	N/A ⁵	N/A ⁵	N/A ⁵	—	—	—	—
40 mph	670 ft	125 ft	100 ft ⁶	100 ft ⁶	N/A ⁵	—	—	—	—
45 mph	775 ft	175 ft	125 ft	100 ft ⁶	100 ft ⁶	N/A ⁵	—	—	—
50 mph	885 ft	250 ft	200 ft	175 ft	125 ft	100 ft ⁶	—	—	—
55 mph	990 ft	325 ft	275 ft	225 ft	200 ft	125 ft	N/A ⁵	—	—
60 mph	1,100 ft	400 ft	350 ft	325 ft	275 ft	200 ft	100 ft ⁶	—	—
65 mph	1,200 ft	475 ft	450 ft	400 ft	350 ft	275 ft	200 ft	100 ft ⁶	—
70 mph	1,250 ft	550 ft	525 ft	500 ft	450 ft	375 ft	275 ft	150 ft	—
75 mph	1,350 ft	650 ft	625 ft	600 ft	550 ft	475 ft	375 ft	250 ft	100 ft ⁶

¹ The distances are adjusted for a sign legibility distance of 180 feet for Condition A. The distances for Condition B have been adjusted for a sign legibility distance of 250 feet, which is appropriate for an alignment warning symbol sign. For Conditions A and B, warning signs with less than 6-inch legend or more than four words, a minimum of 100 feet should be added to the advance placement distance to provide adequate legibility of the warning sign.

² Typical conditions are locations where the road user must use extra time to adjust speed and change lanes in heavy traffic because of a complex driving situation. Typical signs are Merge and Right Lane Ends. The distances are determined by providing the driver a PRT of 14.0 to 14.5 seconds for vehicle maneuvers (2005 AASHTO Policy, Exhibit 3-3, Decision Sight Distance, Avoidance Maneuver E) minus the legibility distance of 180 feet for the appropriate sign.

³ Typical condition is the warning of a potential stop situation. Typical signs are Stop Ahead, Yield Ahead, Signal Ahead, and Intersection Warning signs. The distances are based on the 2005 AASHTO Policy, Exhibit 3-1, Stopping Sight Distance, providing a PRT of 2.5 seconds, a deceleration rate of 11.2 feet/second², minus the sign legibility distance of 180 feet.

⁴ Typical conditions are locations where the road user must decrease speed to maneuver through the warned condition. Typical signs are Turn, Curve, Reverse Turn, or Reverse Curve. The distance is determined by providing a 2.5 second PRT, a vehicle deceleration rate of 10 feet/second², minus the sign legibility distance of 250 feet.

⁵ No suggested distances are provided for these speeds, as the placement location is dependent on site conditions and other signing. An alignment warning sign may be placed anywhere from the point of curvature up to 100 feet in advance of the curve. However, the alignment warning sign should be installed in advance of the curve and at least 100 feet from any other signs.

⁶ The minimum advance placement distance is listed as 100 feet to provide adequate spacing between signs.

Table 8B-1. Grade Crossing Sign and Plaque Minimum Sizes

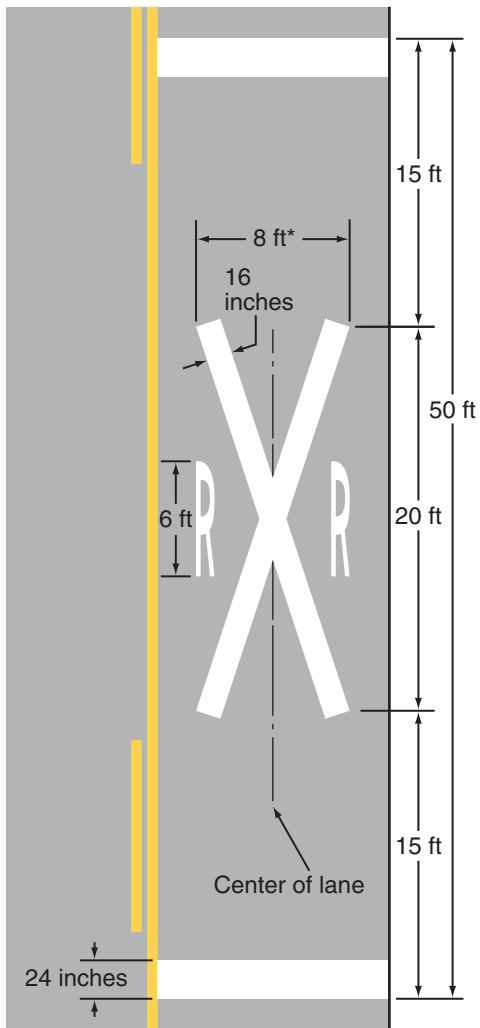
Sign or Plaque	Sign Designation	Section	Conventional Road		Expressway	Minimum	Oversized
			Single Lane	Multi-Lane			
Stop	R1-1	8B.04, 8B.05	30 x 30	36 x 36	36 x 36	—	48 x 48
Yield	R1-2	8B.04, 8B.05	36 x 36 x 36	48 x 48 x 48 36x36x36	48 x 48 x 48	30 x 30 x 30	—
No Right Turn Across Tracks	R3-1a	8B.08	24 x 30	30 x 36	—	—	—
No Left Turn Across Tracks	R3-2a	8B.08	24 x 30	30 x 36	—	—	—
Do Not Stop on Tracks	R8-8	8B.09	24 x 30	24 x 30	36 x 48	—	36 x 48
Tracks Out of Service	R8-9	8B.10	24 x 24	24 x 24	36 x 36	—	36 x 36
Stop Here When Flashing	R8-10	8B.11	24 x 36	24 x 36	—	—	36 x 48
Stop Here When Flashing	R8-10a	8B.11	24 x 30	24 x 30	—	—	36 x 42
Stop Here on Red	R10-6	8B.12	24 x 36	24 x 36	—	—	36 x 48
Stop Here on Red	R10-6a	8B.12	24 x 30	24 x 30	—	—	36 x 42
Grade Crossing (Crossbuck)	R15-1	8B.03	48 x 9	48 x 9	—	—	—
Number of Tracks (plaque)	R15-2P	8B.03	27 x 18	27 x 18	—	—	—
Exempt (plaque)	R15-3P	8B.07	24 x 12	24 x 12	—	—	—
Light Rail Only Right Lane	R15-4a	8B.13	24 x 30	24 x 30	—	—	—
Light Rail Only Left Lane	R15-4b	8B.13	24 x 30	24 x 30	—	—	—
Light Rail Only Center Lane	R15-4c	8B.13	24 x 30	24 x 30	—	—	—
Light Rail Do Not Pass	R15-5	8B.14	24 x 30	24 x 30	—	—	—
Do Not Pass Stopped Train	R15-5a	8B.14	24 x 30	24 x 30	—	—	—
No Motor Vehicles On Tracks Symbol	R15-6	8B.15	24 x 24	24 x 24	—	—	—
Do Not Drive On Tracks	R15-6a	8B.15	24 x 30	24 x 30	—	—	—
Light Rail Divided Highway Symbol	R15-7	8B.16	24 x 24	24 x 24	—	—	—
Light Rail Divided Highway Symbol (T-Intersection)	R15-7a	8B.16	24 x 24	24 x 24	—	—	—
Look	R15-8	8B.17	36 x 18	36 x 18	—	—	—
Grade Crossing Advance Warning	W10-1	8B.06	36 Dia.	36 Dia.	48 Dia.	—	48 Dia.
Exempt (plaque)	W10-1aP	8B.07	24 x 12	24 x 12	—	—	—
Grade Crossing and Intersection Advance Warning	W10-2,3,4	8B.06	36 x 36	36 x 36	48 x 48	—	48 x 48
Low Ground Clearance	W10-5	8B.23	36 x 36	36 x 36	48 x 48	—	48 x 48
Low Ground Clearance (plaque)	W10-5P	8B.23	30 x 24	30 x 24	—	—	—
Light Rail Activated Blank-Out Symbol	W10-7	8B.19	24 x 24	24 x 24	—	—	—
Trains May Exceed 80 MPH	W10-8	8B.20	36 x 36	36 x 36	48 x 48	—	48 x 48
No Train Horn	W10-9	8B.21	36 x 36	36 x 36	48 x 48	—	48 x 48
No Train Horn (plaque)	W10-9P	8B.21	30 x 24	30 x 24	—	—	—
Storage Space Symbol	W10-11	8B.24	36 x 36	36 x 36	48 x 48	—	48 x 48
Storage Space XX Feet Between Tracks & Highway	W10-11a	8B.24	30 x 36	30 x 36	—	—	—
Storage Space XX Feet Between Highway & Tracks Behind You	W10-11b	8B.24	30 x 36	30 x 36	—	—	—
Skewed Crossing	W10-12	8B.25	36 x 36	36 x 36	48 x 48	—	48 x 48
No Gates or Lights (plaque)	W10-13P	8B.22	30 x 24	30 x 24	—	—	—
Next Crossing (plaque)	W10-14P	8B.23	30 x 24	30 x 24	—	—	—
Use Next Crossing (plaque)	W10-14aP	8B.23	30 x 24	30 x 24	—	—	—
Rough Crossing (plaque)	W10-15P	8B.23	30 x 24	30 x 24	—	—	36 x 30

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- Notes: 1. Larger signs may be used when appropriate
2. Dimensions in inches are shown as width x height
3. Table 9B-1 shows the minimum sizes that may be used for grade crossing signs and plaques that face shared-use paths and pedestrian facilities

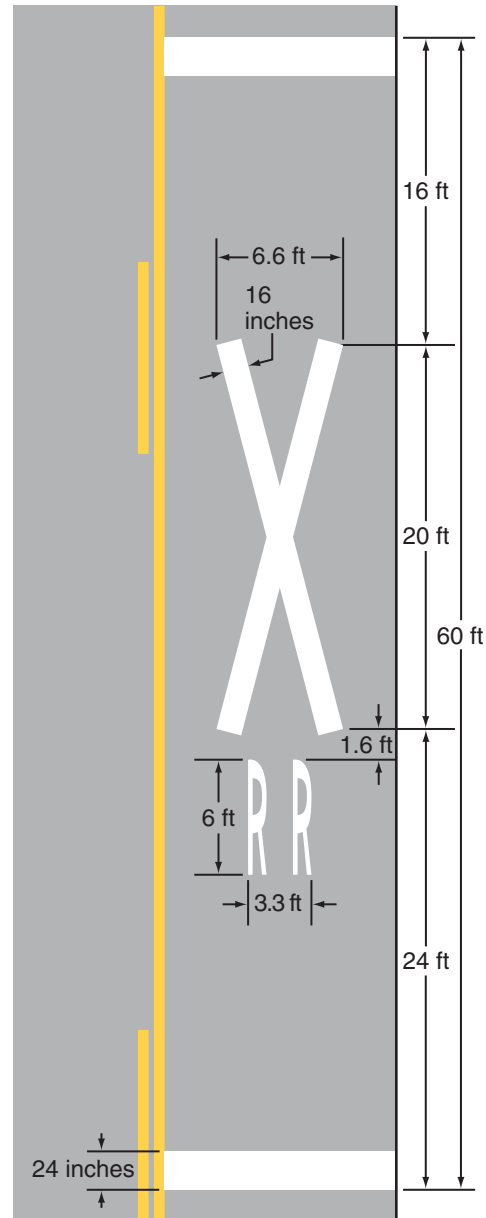
Figure 8B-7. Grade Crossing Pavement Markings

A - Grade crossing pavement marking symbol



*Width may vary according to lane width

B - Grade crossing alternative (narrow) pavement marking symbol



Note: Refer to Figure 8B-6 for placement

Section 8B.28 Stop and Yield Lines

Standard:

01 **On paved roadways at grade crossings that are equipped with active control devices such as flashing-light signals, gates, or traffic control signals, a stop line (see Section 3B.16) shall be installed to indicate the point behind which highway vehicles are or might be required to stop.**

Guidance:

02 *On paved roadway approaches to passive grade crossings where a STOP sign is installed in conjunction with the Crossbuck sign, a stop line should be installed to indicate the point behind which highway vehicles are required to stop or as near to that point as practical.*

03 *If a stop line is used, it should be a transverse line at a right angle to the traveled way and should be placed approximately 8 feet in advance of the gate (if present), but no closer than 15 feet in advance of the nearest rail.*

Table 9B-1. Bicycle Facility Sign and Plaque Minimum Sizes (Sheet 1 of 2)

Sign or Plaque	Sign Designation	Section	Shared-Use Path	Roadway
Stop	R1-1	2B.05, 9B.03	18 x 18	30 x 30
Yield	R1-2	2B.08, 9B.03	18 x 18 x 18	30 x 30 x 30
Bike Lane	R3-17	9B.04	—	24 x 18
Bike Lane (plaques)	R3-17aP, R3-17bP	9B.04	—	24 x 8
Movement Restriction	R4-1,2,3,7,16	2B.28,29,30,32; 9B.14	12 x 18	18 x 24
Begin Right Turn Lane Yield to Bikes	R4-4	9B.05	—	36 x 30
Bicycles May Use Full Lane	R4-11	9B.06	—	30 x 30
Bicycle Wrong Way	R5-1b	9B.07	12 x 18	12 x 18
No Motor Vehicles	R5-3	9B.08	24 x 24	24 x 24
No Bicycles	R5-6	9B.09	18 x 18	24 x 24
No Parking Bike Lane	R7-9,9a	9B.10	—	12 x 18
No Pedestrians	R9-3	9B.09	18 x 18	18 x 18
Ride With Traffic (plaque)	R9-3cP	9B.07	12 x 12	12 x 12
Bicycle Regulatory	R9-5,6	9B.11	12 x 18	12 x 18
Shared-Use Path Restriction	R9-7	9B.12	12 x 18	—
No Skaters	R9-13	9B.09	18 x 18	18 x 18
No Equestrians	R9-14	9B.09	18 x 18	18 x 18
Push Button for Green Light	R10-4	9B.11	9 x 12	9 x 12
To Request Green Wait on Symbol	R10-22	9B.13	12 x 18	12 x 18
Bike Push Button for Green Light	R10-24	9B.11	9 x 15	9 x 15
Push Button to Turn On Warning Lights	R10-25	9B.11	9 x 12	9 x 12
Bike Push Button for Green Light (arrow)	R10-26	9B.11	9 x 15	9 x 15
Grade Crossing (Crossbuck)	R15-1	8B.03, 9B.14	24 x 4.5	48 x 9
Number of Tracks (plaque)	R15-2P	8B.03, 9B.14	13.5 x 9	27 x 18
Look	R15-8	8B.17, 9B.14	18 x 9	36 x 18
Turn and Curve Warning	W1-1,2,3,4,5	2C.04, 9B.15	18 x 18	24 x 24
Arrow Warning	W1-6,7	2C.12, 2C.47, 9B.15	24 x 12	36 x 18
Intersection Warning	W2-1,2,3,4,5	2C.46, 9B.16	18 x 18	24 x 24
Stop, Yield, Signal Ahead	W3-1,2,3	2C.36, 9B.19	18 x 18	30 x 30
Narrow Bridge	W5-2	2C.20, 9B.19	18 x 18	30 x 30
Path Narrows	W5-4a	9B.19	18 x 18	—
Hill	W7-5	9B.19	18 x 18	30 x 30
Bump or Dip	W8-1,2	2C.28, 9B.17	18 x 18	24 x 24
Pavement Ends	W8-3	2C.30, 9B.17	18 x 18	30 x 30
Bicycle Surface Condition	W8-10	9B.17	18 x 18	30 x 30
Slippery When Wet (plaque)	W8-10P	9B.17	12 x 9	12 x 9
Grade Crossing Advance Warning	W10-1	8B.06, 9B.19	24 Dia.	36 Dia.
No Train Horn (plaque)	W10-9P	8B.21, 9B.19	18 x 12	30 x 24
Skewed Crossing	W10-12	8B.25, 9B.19	18 x 18	36 x 36
Bicycle Warning	W11-1	9B.18	18 x 18	24 x 24
Pedestrian Crossing	W11-2	2C.50, 9B.19	18 x 18	24 x 24
Combination Bike and Ped Crossing	W11-15	9B.18	18 x 18	30 x 30
Trail Crossing (plaque)	W11-15P	9B.18	18 x 12	24 x 18
Low Clearance	W12-2	2C.27, 9B.19	18 x 18	30 x 30
Playground	W15-1	2C.51, 9B.19	18 x 18	24 x 24
Share the Road (plaque)	W16-1P	2C.60, 9B.19	—	18 x 24

Table 9B-1. Bicycle Facility Sign and Plaque Minimum Sizes (Sheet 2 of 2)

Sign or Plaque	Sign Designation	Section	Shared-Use Path	Roadway
XX Feet (plaque)	W16-2P	2C.55, 9B.18	18 x 12	24 x 18
XX Ft (plaque)	W16-2aP	2C.55, 9B.18	18 x 9	24 x 12
Diagonal Arrow (plaque)	W16-7P	9B.18	—	24 x 12
Ahead (plaque)	W16-9P	9B.18	—	24 x 12
Destination (1 line)	D1-1, D1-1a	2D.37, 9B.20	varies x 6	varies x 18
Bicycle Destination (1 line)	D1-1b, D1-1c	9B.20	varies x 6	varies x 6
Destination (2 lines)	D1-2, D1-2a	2D.37, 9B.20	varies x 12	varies x 30
Bicycle Destination (2 lines)	D1-2b, D1-2c	9B.20	varies x 12	varies x 12
Destination (3 lines)	D1-3, D1-3a	2D.37, 9B.20	varies x 18	varies x 42
Bicycle Destination (3 lines)	D1-3b, D1-3c	9B.20	varies x 18	varies x 18
Street Name	D3-1	2D.43, 9B.20	varies x 6	varies x 8
Bicycle Parking Area	D4-3	9B.23	12 x 18	12 x 18
Reference Location (1-digit)	D10-1	2H.02, 9B.24	6 x 12	10 x 18
Intermediate Reference Location (1-digit)	D10-1a	2H.02, 9B.24	6 x 18	10 x 27
Reference Location (2-digit)	D10-2	2H.02, 9B.24	6 x 18	10 x 27
Intermediate Reference Location (2-digit)	D10-2a	2H.02, 9B.24	6 x 24	10 x 36
Reference Location (3-digit)	D10-3	2H.02, 9B.24	6 x 24	10 x 36
Intermediate Reference Location (3-digit)	D10-3a	2H.02, 9B.24	6 x 30	10 x 48
Bike Route	D11-1, D11-1c	9B.20	24 x 18	24 x 18
Bicycles Permitted	D11-1a	9B.25	18 x 18	—
Bike Route (plaque)	D11-1bP	9B.25	18 x 6	—
Pedestrians Permitted	D11-2	9B.25	18 x 18	—
Skaters Permitted	D11-3	9B.25	18 x 18	—
Equestrians Permitted	D11-4	9B.25	18 x 18	—
Bicycle Route	M1-8, M1-8a	9B.21	12 x 18	18 x 24
U.S. Bicycle Route	M1-9	9B.21	12 x 18	18 x 24
Bicycle Route Auxiliary Signs	M2-1; M3-1,2,3,4; M4-1,1a,2,3,5,6,7,7a,8,14	9B.22	12 x 6	12 x 6
Bicycle Route Arrow Signs	M5-1,2; M6-1,2,3,4,5,6,7	9B.22	12 x 9	12 x 9
Type 3 Object Markers	OM3-L,C,R	2C.63, 9B.26	6 x 18	12 x 36

Notes: 1. Larger signs may be used when appropriate
2. Dimensions are shown in inches and are shown as width x height

Guidance:

04 *Except for size, the design of signs and plaques for bicycle facilities should be identical to that provided in this Manual for signs and plaques for streets and highways.*

Support:

05 Uniformity in design of bicycle signs and plaques includes shape, color, symbols, arrows, wording, lettering, and illumination or retroreflectorization.

Section 9B.03 STOP and YIELD Signs (R1-1, R1-2)

Standard:

01 **STOP (R1-1) signs** (see Figure 9B-2) shall be installed on shared-use paths at points where bicyclists are required to stop.

02 **YIELD (R1-2) signs** (see Figure 9B-2) shall be installed on shared-use paths at points where bicyclists have an adequate view of conflicting traffic as they approach the sign, and where bicyclists are required to yield the right-of-way to that conflicting traffic.

REFERENCES

for the Railroad Crossing Checklist:

- 1) The Federal Railroad Administration (FRA) online database, accessible here:
<http://safetydata.fra.dot.gov/OfficeofSafety/PublicSite/Crossing/Xingqryloc.aspx>
An example of the search pages is attached (pg 2). Be sure to enter State and Railroad for only the Alaska Railroad.
This database has the latest info on the crossings; train speed, and other important info.
- 2) Traffic & Safety section has Inventory Sheets (example is attached, pg 3)
These can be very helpful. The federal crossing numbers, train MPs, max speed, road MP, etc. are on there.
It can also help locate a crossing.
- 3) Always ask Traffic & Safety if there is a Diagnostic Team (DT) Review on file for the crossing.
Many crossings will not have one, but it's important to check.
If there is one on file, it may have recommendations that DOT will be expected to follow.