

NEW MEXICO DEPARTMENT OF TRANSPORTATION

NEW MEXICO SECTION 130 FEDERAL AID HIGHWAY-RAIL GRADE CROSSING SAFETY IMPROVEMENT PROGRAM PROCEDURES AND GUIDELINES MANUAL

**NMDOT RAIL BUREAU
DECEMBER 2014**

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Introduction

The New Mexico Section 130 Highway-Rail Safety Improvement Program (“Section 130 Program”) is a federally-funded program dedicated to the elimination of hazards at existing highway–rail grade crossings (“Crossings”). The Section 130 Program is authorized by Title 23, United States Code, Section 130 (23 U.S.C 130) and is administered by the New Mexico Department of Transportation (NMDOT) Rail Bureau.

The purpose of the Section 130 Program is to reduce hazards to motorists, bicyclists, and pedestrians at Crossings. The Section 130 Program is a cooperative effort between the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), NMDOT, and railroad companies operating within the State of New Mexico, and local municipalities or counties.

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The Section 130 Program Process

Railroad grade crossings from around the State are identified for potential safety improvement projects through the NMDOT Rail Bureau with the assistance of the Federal Railroad Administration risk index data and as well as information, concerns, and requests received from railroads, NMDOT Districts, local county and municipality agencies (“Local Agencies”) and citizens.

An initial identification of potential projects is accomplished by utilizing available data sources to identify crossings that present a high hazard potential. Items evaluated include but are not limited to:

- Accident history
- Train volume and speed (including passenger trains)
- Vehicle volume and speed
- Physical conditions of crossing
- Passive or Active Warning
- School bus routes
- Pedestrian issues
- Bicycle issues
- Crossing geometry (including relation to roadway intersections and traffic signals)

Using this information, Rail Bureau staff reviews each identified crossing to determine eligibility and priorities of which should be considered for a Section 130 project. Factors considered include federal program requirements, eligibility criteria (verification if crossing is public or private), funding availability, and if suggested improvements can be covered under the scope of the Section 130 Program. Field inspections of the crossings may be warranted to assist in this determination. Potential projects are then prioritized based upon accident history, school bus, pedestrian and hazardous materials/truck routes, FRA accident prediction rankings, and physical crossing conditions.

Once a list of potential Section 130 projects has been assembled, a Section 130 project selection committee meeting is coordinated and scheduled by the Rail Bureau in order to review potential projects and concur on recommendations. Selection committee meetings generally occur once per year, but may be delayed when there are a large number of projects from previous years awaiting authorization. The committee generally includes participants from NMDOT, Federal Railroad Administration, New Mexico Public Regulation Commission, Federal Highway Administration, and each railroad in the state. The resulting list of recommended projects is then forwarded to the NMDOT Cabinet Secretary for final approval. Once approved, NMDOT Rail Bureau Staff proceeds to enter the projects into the State Transportation Improvement Program (STIP) in order to reserve funding for the projects.

Next, Rail Bureau staff coordinates with railroads, NMDOT districts and local agencies to conduct a detailed field diagnostic review for each selected project. Participants of each diagnostic review discuss suggested safety improvements and issues and concur on the scope of the project. Cost estimates are then requested by the NMDOT Rail Bureau from the respective railroad owner or operator in order to prepare contracts that are then executed with the railroads. The contracts will describe the scope of the project and will direct the railroad to perform construction of the improvements. Upon completion of the project, Rail Bureau staff will conduct a field inspection to verify that the project was completed satisfactorily to scope.

General Process Annual Timeline

Month	Process
August	Submit a Call for Projects to railroads, Districts, Communities for Following Year's Program
October-January	Review Submittals, Identify Potential Candidates
February-March	Hold Project Selection Meeting; Submit Final Project List to Cabinet Secretary for Program Approval; Reserve Funding in upcoming Federal Fiscal Year STIP
March-June	Conduct Diagnostic Reviews and Request Formal Railroad Estimates
July	Prepare and Execute Contracts, Issue Authorization to Proceed Letters for upcoming Federal Fiscal Year beginning October 1
October	New Federal Fiscal Year Begins. Projects begin once authorized.

Crossing Selection

Not all crossings are eligible for funding under the Section 130 Program. Types of grade crossings must be owned and/or maintained by a public authority. Crossings that are not eligible include:

Construction of New Crossings

Private Crossings

Crossings used only by Light Rail Vehicles

Crossings for Station Platforms

Quiet Zone Applications by local public agencies (defined in 49 CFR Part 222)

Demonstration or Pilot Projects

Grade-Separation projects, while eligible for Section 130 Program funding, are also not considered under Section 130 due to the magnitude of costs of such projects. Grade Separation projects instead can be considered under the Highway Safety Improvement Program (HSIP), a federal funding program that is separate of the Section 130 Program.

Corridor Projects

A Corridor Project is comprised of two or more crossings that are located in close proximity to one another or within a single city or county jurisdiction. These projects are usually established to address a specific improvement at multiple crossings without necessarily addressing all identified hazards at each individual location. This may be due to a change in standards such as MUTCD standards or a specific identified improvement best addressed at once over a number

of locations to encourage efficiency and lower project costs such as signal circuitry upgrades or replacing older incandescent flashing lights with updated Light-Emitting-Diodes (LED) lamps.

Corridor Projects are typically requested by a local agency or railroad. While not required, a significant financial contribution or match provided by a railroad or local agency can often help to facilitate a Corridor Project.

Review Process

Rail Bureau staff reviews each Section 130 project request submittal to determine if it is eligible for funding. Next, the staff considers the current conditions of the crossing and the characteristics of the area it serves, (such as type of development or current development plans and use of the crossing by pedestrians, school buses, hazmat and other heavy truck/bus traffic), Federal Railroad Administration Accident Prediction Formula rankings, train volume and speeds, vehicle counts and speeds, accident history, crossing geometry, and existing warning devices. This evaluation may include field visits as necessary. Crossings are ranked on hazard potential and most immediate needs. Submittals are further narrowed down to a list of priority projects base upon anticipated funding presented at the Section 130 Evaluation meeting. The evaluation committee, made up of representatives from NMDOT, railroads, Federal Railroad Administration, Federal Highway Administration, and the New Mexico Public Regulation Commission, concur on what crossings to proceed on as projects, delay, or to not consider further.

A final project list is developed based upon the results of the evaluation meeting. The projects are then submitted to the NMDOT Cabinet Secretary as recommendations for approval. Approved projects are then programmed into the STIP in order to reserve funding.

The Rail Bureau schedules diagnostic field reviews of each approved project with the respective railroad, NMDOT District staff and other local road authority agencies. Crossing issues are identified in the field and diagnostic attendees concur on the improvements to be included.

The Rail Bureau then develops a scope of work and requests project estimates from the respective railroads based upon the improvements identified at the diagnostic reviews. Using these formal estimates, contract agreements are prepared and executed. Separate agreements may be executed for design and construction for more complex projects. Once funds are obligated through the Federal Highway Administration, railroads are provided "Authorization to Proceed" letters in order to begin work.

Safety Improvement Categories

Crossing Elimination

Railroad Track Abandonment:

Railroad track abandonment occurs when railroad operations ceases on a particular segment of track that a railroad company deems as no longer needed. The tracks are typically then removed. Section 130 funds are not available solely for the removal of grade crossings on previously abandoned tracks unless it is a part of a Section 130 project to improve the safety of an adjacent active track crossing. The removal of an entirely abandoned crossing is the responsibility of coordination between the track owner and the road authority.

Closure:

Closing and removing a railroad crossing can occur as an option to completely remove a point of conflict between vehicular traffic and trains. This includes removal of the warning devices, crossing surface and approaches, and construction of barriers or fencing and addition of signage as determined necessary in order to indicate the crossing no longer exists. Section 130 funding is available as a match to a railroad incentive payment provided to the road owner or local agency to close the crossing.

Railroad Improvements

Warning Devices:

The Section 130 Program will fund the upgrade of warning devices, such as replacing lone flashing lights with a combination of flashing lights and gates or cantilevers, or adding additional lights on existing masts or cantilevers.

LED flashing lights: LED lights will be included on all new warning device installations. In cases where the warning devices do not need to be replaced, the older incandescent flashing lights may upgraded to new LED flashing lights.

Track Circuitry: Train detection circuitry embedded in the track or other signal circuitry may be upgraded where deemed necessary to increase effectiveness and reliability of the warning system.

Interconnection: Traffic signal preemption may be installed or modified where deemed necessary in locations where grade crossings are adjacent to traffic signalized road intersections.

Road Improvements

Active Advanced Warning:

A train-activated warning device placed in advance of the crossing. This may be a flashing yellow light located at the passive advanced warning sign. The type of active advance warning device shall be determined at the field diagnostic meeting.

Medians:

Installation of medians will reduce the ability of a motor vehicle to drive around lowered crossing gates and may encourage vehicles to also slow down while approaching crossings. The type, width and length may vary due to specific field conditions.

Illumination:

Installation of street lights can provide additional visibility of the crossing at night.

Signage and Striping:

Signage and striping can be installed to meet current Manual on Uniform Traffic Control Devices (MUTCD) standards or other state or federal regulations, and also provide for site-specific conditions.

Road Geometry Improvements:

Reconstruction or paving of road approaches to the crossing.

Traffic Control Signals:

Railroad crossings are commonly adjacent to road intersections. Traffic control signals may be added to adjacent intersections or altering existing traffic signal designs can be accomplished where warranted.

Utility Relocation:

Utilities, such as overhead wirelines, may need to be adjusted or relocated to provide clearance for warning devices at the crossing.

Pedestrian Crossing Improvements

Improvements may include detectable warning strips, pedestrian flasher lights, pedestrian gates, channelization, swing gates, crossing surface improvements and signage and striping. Improvements shall comply with the Americans with Disabilities (ADA) Act.

Preliminary Engineering

Preliminary Engineering for railroad crossing improvements can be funded through the Section 130 Program under a Preliminary Engineering agreement that would cover the work necessary to produce construction plans, specifications, and estimates to the degree of completeness required for undertaking construction thereunder, including identifying crossings, field diagnostic reviews and locating utilities, surveying, designing, and other related work.

Other items:

Certain case-by-case situations may require additional applications due to specific field conditions, such as de-acceleration or acceleration lanes, four quadrant gates and removal of site-distance obstructions where possible.

Non-Eligible Items under Section 130

A local road authority may wish to implement additional improvements at their own expense at the same time as Section 130 work is being conducted in order to potentially reduce highway traffic control costs and railroad flagging protection costs. Such construction work shall be coordinated between the railroad and local road authority. Improvements that are not specifically included in the recommendations for the Section 130 portion of the project are not funded by the Section 130 Program.

In addition, Section 130 funding cannot be used for the following items:

- Station crossings
- Construction of new crossings
- Widening of a roadway for capacity improvements
- Purchase of right-of-way or easements
- Costs incurred by the railroad or public road authority prior to execution of a project agreement with NMDOT (these costs cannot be reimbursed by NMDOT).
- Environmental studies
- Significant geometric changes such as relocation or realignment of roadway or railroad track.
- Railroad crossing maintenance costs†.
- Structures providing grade separation of road from railroad ‡.

† *Section 130 funds will not be used for routine maintenance costs for crossing surfaces, approaches or flashing lights and gates. The railroad is typically responsible for maintaining the crossing surface between the rails and within two feet from outside of the rails, crossbuck assembly signage and flashing lights and gates. Beyond this, the road owner is typically responsible for maintaining the road surface, pavement markings and striping and advanced warning signage.*

‡ *While technically eligible for Section 130 funding, grade separation requests cannot be accommodated under the Section 130 Program due to the large magnitude of costs for a single project. Grade Separation requests will be referred to the HSIP selection committee for their consideration.*

Project Construction

Once a project has been recommended by Rail Bureau staff and approved by the NMDOT Cabinet Secretary, the project will be programmed under the State Transportation Improvement Program (STIP) to reserve funding for the project. The railroad or local road authority will provide a cost estimate for the project and NMDOT will enter into a formal agreement with the railroad or local road agency in order to perform construction. Separate agreements may be executed for design and construction for more complex projects.

Rail Bureau staff will obtain federal certifications required for project construction and submit the agreement and certifications to the Federal Highway Administration for project authorization. Once the project is granted authorization, Rail Bureau staff will issue a formal "Authorization to Proceed" letter to the railroad or local road agency to begin construction. Rail Bureau staff will perform one or more inspections to ensure the construction work has been satisfactorily completed.

A railroad or local agency should complete construction work and invoicing in a timely manner in order to prevent the project from entering an 'inactive' status. Proper and complete invoices may be submitted to NMDOT on a progressive basis for reimbursement as costs are incurred during the course of the project. Projects that have seen no activity over time and become inactive are susceptible to the remaining federal fund being pulled from the project by FHWA. In such an event the railroad or local agency would be responsible for any costs incurred but not reimbursed at the time when funding is pulled by FHWA.

A Section 130 project is not deemed fully complete until the NMDOT formally closes out the project through FHWA. A project cannot be closed until NMDOT conducts a final and satisfactory field inspection of the project and all project invoices have been properly submitted by the railroad or local agency and paid by NMDOT. It should be noted that for a railroad or public agency to be fully reimbursed for project costs under a Section 130 agreement, all remaining invoices should be submitted to NMDOT within a certain time frame after the

completion of construction, in accordance with the Section 130 agreement. A project should be closed in a timely manner which will allow the release of any remaining project funds back to FHWA in order to be used for future Section 130 projects.

NMDOT Section 130 Program Recommended Minimum Installation Guidelines

These minimum guidelines are meant to serve as a minimum guideline to promote consistency and uniformity for NMDOT Section 130 projects. These standards are not meant to be a sole substitute for sound judgment and experience by professional highway-rail grade crossing engineers and designers. Sound judgment and engineering experience should be applied through a multi-disciplinary and multi-agency design team in the application of these standards to specific field conditions and situations. In addition, individual railroads may have and can use standards that exceed these minimum guidelines.

It is important to remember that all highway-rail grade crossings should comply with all applicable FRA, New Mexico Public Regulation Commission, and other Federal or State regulatory requirements. They should also comply where possible to Manual on Uniform Traffic Control Devices (MUTCD) standards and recommendations. As such, this manual is not meant to be a complete and exhaustive source for such recommendations, standards, rules or regulations.

Crossing surfaces:

When a crossing surface is beyond its useful lifespan and a replacement is warranted under the Section 130 Program, new crossing surfaces should at a minimum contain the following:

- Concrete panel crossing surfaces for full width of roadway, including shoulders, plus at least three feet beyond roadway on each end of crossing surface. The proposed new crossing width should consider whether the road authority has near-term plans to install sidewalks where sidewalks currently do not exist. Curved crossing panels should be used for crossings in curves of 3° or greater.
- Roadway approaches should be smoothly transitioned from existing road surface to the new crossing surface. For paved roads, the use of hot mix is preferred where available.
- New track panel consisting of new 10 foot long hardwood timber ties on 19.5 inch centers, new anchors, tie plates, spikes or elastic fasteners extending to the end of the 10' ties (preferred). Solid anchors should be applied to keep ties in place.
- Minimum rail size of 115 lb.

- No bolted rail joints within the rail crossing. Welded rail joints should be avoided within the crossing where possible.
- No bolted rail joints within 20 feet from the edge of the crossing.
- New 10 foot hardwood transition ties should extend out on each track approach to the crossing a distance of 10 ties from each end of the crossing surface.
- Sufficient subgrade compaction to prevent the track structure from sinking (preferably a hardpan under the track such as asphalt)
- Design for proper drainage; water should be diverted away from track. Crossing surface should not act as drainage for the highway.
- Sufficient full depth ballast a minimum of 8" under ties.

Active warning devices (flashing lights and gates):

Each passive crossing (crossings with only signage for warning) considered under the Section 130 Program shall be recommended to receive an active warning system (flashing lights, or flashing lights and gates) if so warranted †. Crossings with existing active warning devices may also be considered for upgrading to current standards or product availability (older signal components may no longer be produced or supported).

New flashing lights and gates installed at Section 130 Program crossings should have:

- 12" LED lights
- Constant Warning Time train approach detection circuitry ‡.
- Flashing light and gate masts should be installed between 12' and 15' distance from the closest edge of track. Distance of flashing lights and gate mast from the edge of road shall be governed by MUTCD or railroad standards.
- Signal Control boxes should be installed a minimum of 30 feet from edge of road and at least 25 feet from edge for rail.
- Overhead or Cantilevered lights and structures should not contain break-away posts.
- Placement of active warning devices should comply with current MUTCD standards.
- Crossing signage should comply with current MUTCD standards.

Passive Crossing Signage: Passive Crossing signage installed as part of a Section 130 Program should follow the current Manual on Uniform Traffic Control Devices (MUTCD) size and placement standards and applicable Federal Railroad Administration regulations, and shall consist of:

- Retro reflective crossbuck (R15-1). Required at both passive and active warning crossings.
- Retro reflective yield sign (R1-2). A stop sign (R1-1) may be placed in lieu of a yield sign due to field conditions. Required at passive warning crossings only.
- Emergency Notification System (ENS) sign facing each direction of traffic that contains the unique USDOT crossing number for the crossing, a railroad emergency phone number, and milepost and/or road name. Required at both passive and active warning crossings.
- Retro reflective ‘multiple track’ sign (R15-2P) if more than one track exists at crossing. Required at both passive and active warning crossings.
- Signage should be mounted on break-away posts or other collision protection measures and should be mounted at least 15 feet from edge of track.
- All signs described above should where possible be mounted on the same post facing each direction of traffic at the crossing and installed on the right side of the roadway of each approach. The post shall also contain retro reflective strips. This is known as the “Crossbuck Assembly”. See Exhibit A for signage examples.
- Crossbuck assembly signage is typically the maintenance responsibility of the railroad once installed. In lieu of Section 130 assistance, it is the railroad’s responsibility to install crossbuck assemblies at crossings at their own cost unless set forth otherwise in a crossing agreement between the railroad and the road owner/authority.
- Placement of passive warning signage shall comply with current MUTCD standards.

Advanced Crossing Warning Signage and Striping:

Advanced Warning signage and striping shall comply with MUTCD standards and will typically consist of:

- Advanced Warning sign (W10-1) placed in advance of each approach to the railroad crossing, or in the case that the approach is less than 75 feet from an intersecting

highway, the Advanced Warning Sign (W10-2, W10-3, W10-4)) shall be installed on the intersected highway on each approach to the highway intersection.

- Advanced warning striping should be placed typically adjacent to the Advanced Warning sign (W10-1). Stop bar pavement markings should be placed immediately in front of the crossbuck assembly or flashing lights and gate mast, but no closer than 15' from the rail, indicating to vehicles where to come to a safe stop in order to look for or wait for trains to pass. This signage is typically the maintenance responsibility of the road authority (i.e. City, County, State) that owns the road once installed under the Section 130 Program.
- Railroad crossings should be signed and striped as a "No Passing Zone".
- In lieu of Section 130 assistance, it is typically the road authority's responsibility to install signage and striping at their cost. See Exhibit A for signage examples. See Exhibit B for striping example.
- Placement of advanced warning signage and pavement markings should follow current MUTCD standards.

Other Warning Signage:

Additional signage may be warranted at a railroad crossing such as "Do Not Stop on Tracks" or "Stop Here on Red". These signs are typically used at locations where a grade crossing is near or adjacent to a highway intersection and are typically the responsibility of the road authority to install and maintain at their cost. Needs for these additional signs can be determined from a field diagnostic review. See Exhibit A for sign examples.

Medians:

Medians should be of sufficient length to discourage vehicles from driving around lowered gates. While no regulations defines a minimum length, it is desirable to have a minimum of 100 feet in length except where an adjacent roadway intersection or nearby driveways make such a length unattainable. In these cases, a minimum of 60 feet in length is desirable. Medians should have non-traversable curbs on roads where speed limits are below 45 mph and where road width or other factors allow. Use of delineators attached to the median is also recommended to improve visibility and to encourage vehicles to slow on approach to the crossing. For installations where non-traversable curbs are not allowed or possible, or as a lower cost alternative, use of "Qwick Kurb" can be an option to consider. The end of the median shall be no closer than 10 feet from the center-line of track. The end of the median may be further than 10 feet from the center line of track but in no case shall be farther away than the location of the gate masts.

Quad Gate installations:

Quad Gate installations consist of a gate in each entrance and exit quadrant of a crossing. They may be used to prevent vehicles from driving around lowered gates (standard two gate installations) and are considered a more effective method than the use of medians, but at a much higher installation cost. It should be noted that a railroad may require the requesting entity be responsible for the costs of maintaining additional exit gate installations.

† *Not all passive crossings may have conditions that will warrant the best use of funds for installation of lights and gates. Considerations will include factors such as sight distance for motorists while approaching or stopped at a crossing, train speeds, train volumes, and roadway speed and traffic volume (is a crossing heavily used in a commercial, residential, or institutional area, or is the crossing rural with very few users)*

‡ *Constant Warning Time approach circuitry may not be required in certain field conditions where heavy switching activity exists near industry tracks or yards, or on certain sidings, or where the track speed is approximately 10-15 mph.*

END OF TEXT DOCUMENT

EXHIBIT A-1



R1-1



R1-2



R3-1a
Activated Blank-Out



R3-2a
Activated Blank-Out



R8-8



R8-9



R8-10



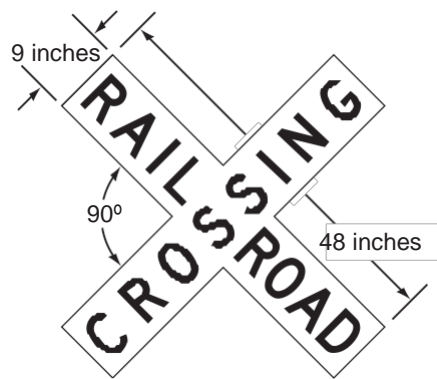
R8-10a



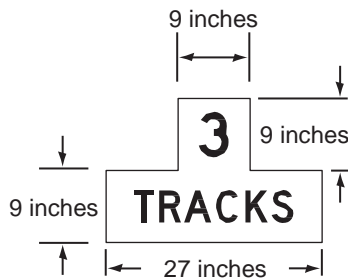
R10-6



R10-6a



R15-1



R15-2P



R15-3P



R15-6



R15-6a



R15-7



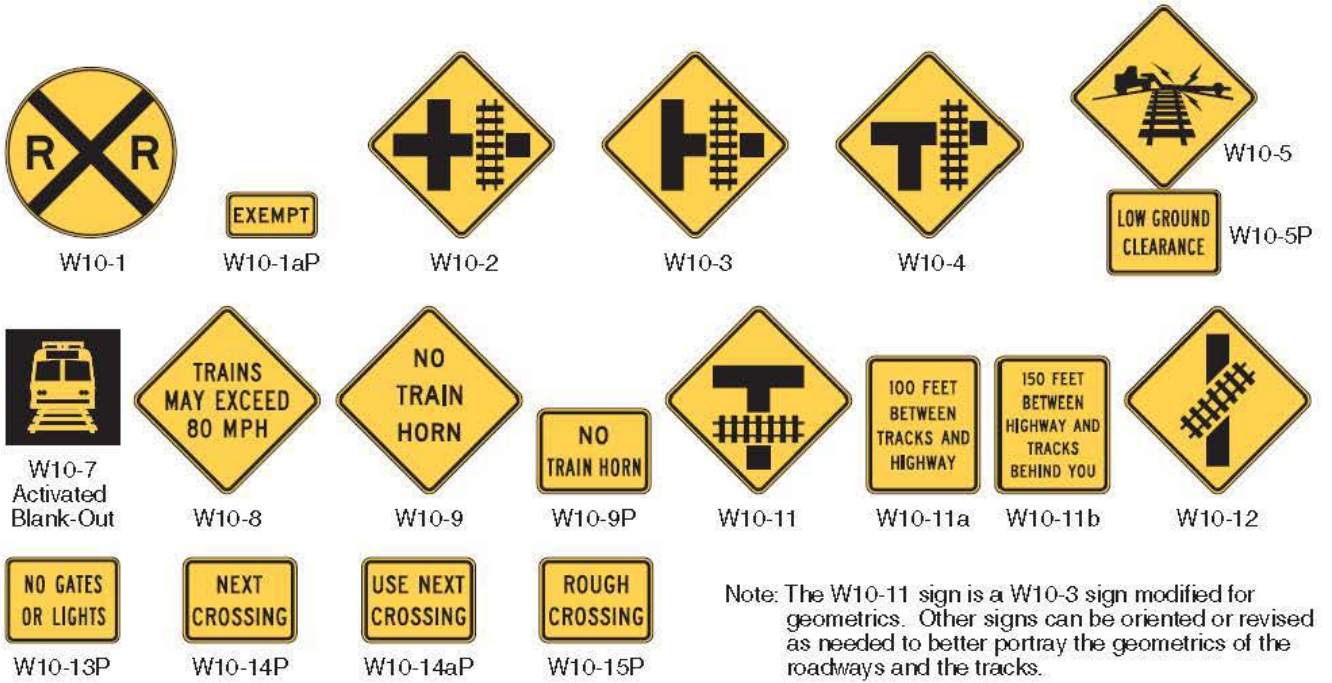
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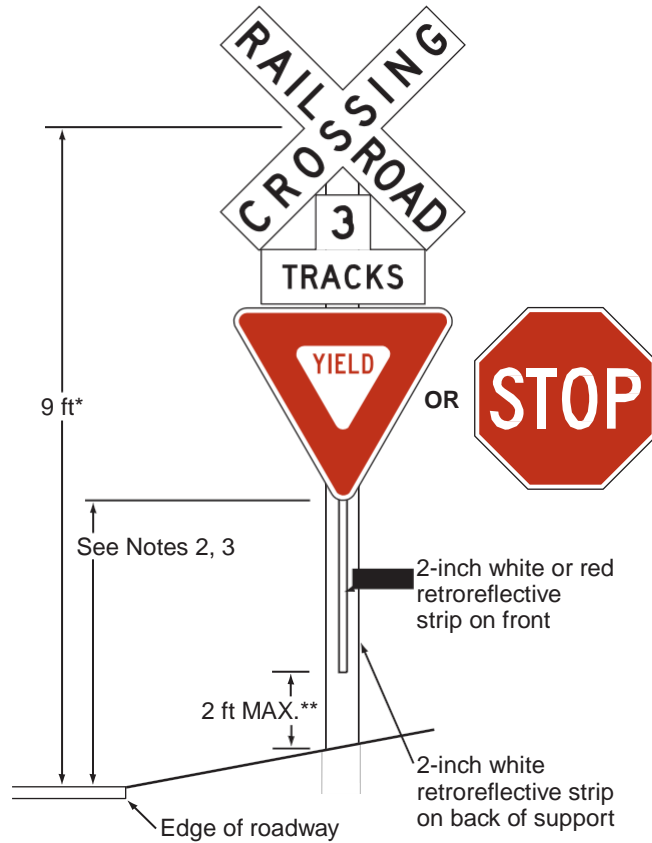
R15-8

EXHIBIT A-2

ADVANCED WARNING SIGNS



**EXHIBIT A-3
CROSSBUCK ASSEMBLY SAMPLE**



* Height may be varied as required by local conditions and may be increased to accommodate signs mounted below the Crossbuck sign

** Measured to the ground level at the base of the support

Notes:

1. YIELD or STOP signs are used only at passive crossings. A STOP sign is used only if an engineering study determines that it is appropriate for that particular approach.
2. Mounting height shall be at least 4 feet for installations of YIELD or STOP signs on existing Crossbuck sign supports.
3. Mounting height shall be at least 7 feet for new installations in areas with pedestrian movements or parking.

EXHIBIT B-1 ROADWAY PAVEMENT STRIPING AND ADVANCED SIGNAGE PLACEMENT

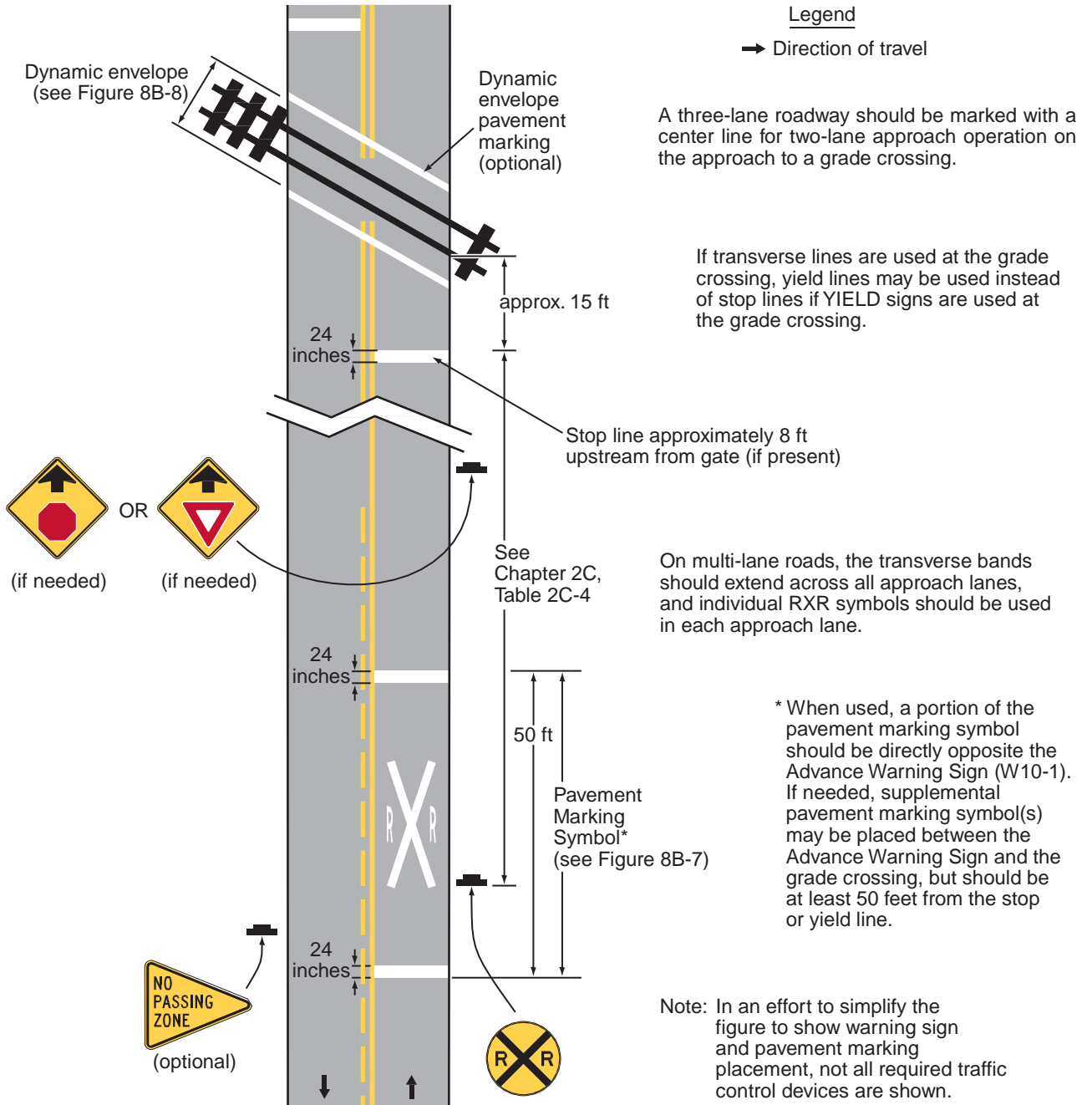
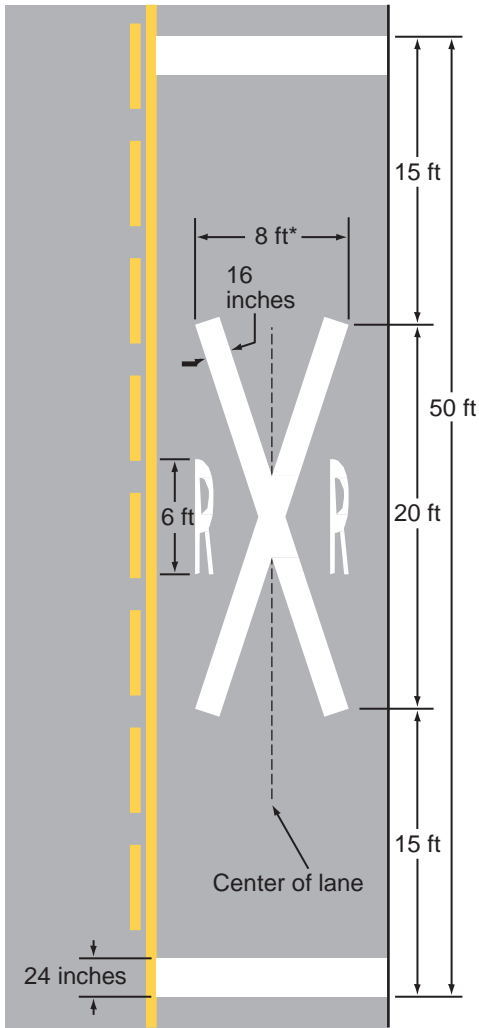


EXHIBIT B-2 ADVANCED PAVEMENT STRIPING DETAIL



*Width may vary according to lane width

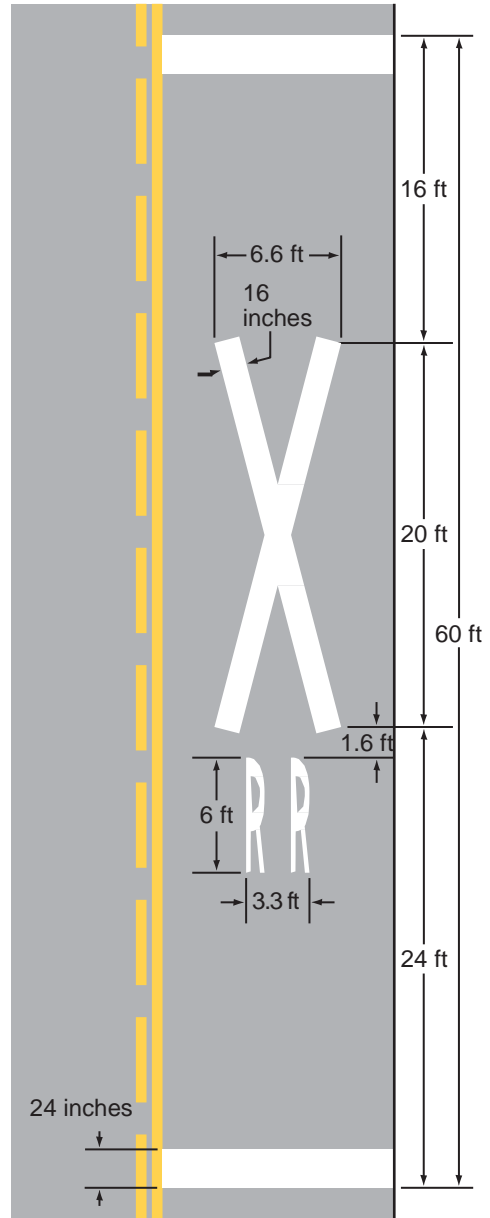


EXHIBIT B-3 SHARED-USED PATHWAY RAILROAD CROSSING PAVEMENT STRIPING AND SIGNAGE PLACEMENT

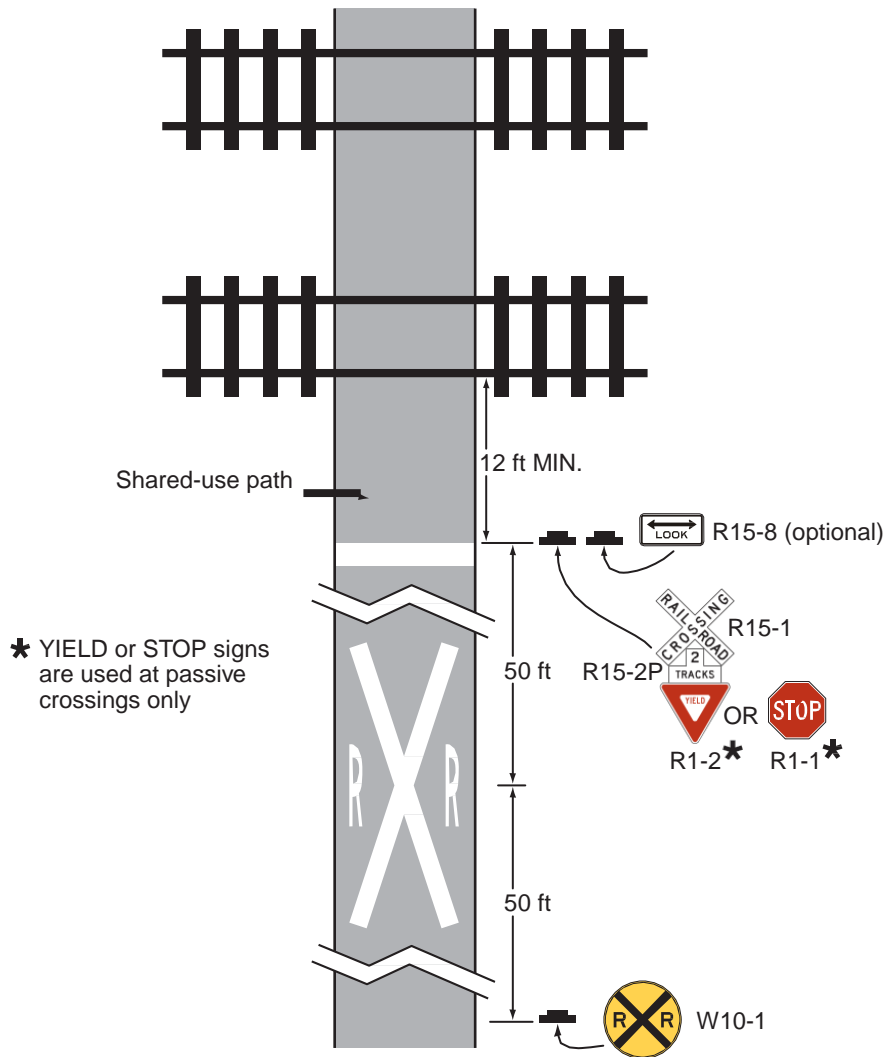
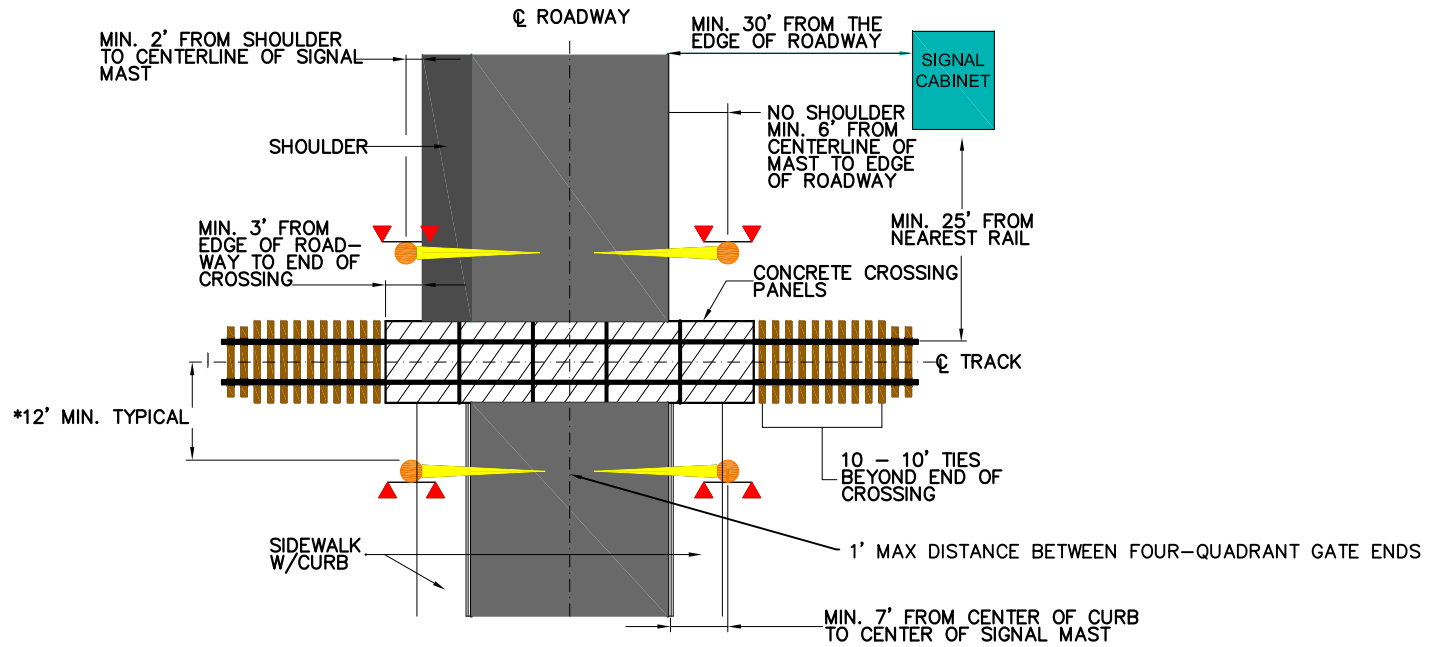
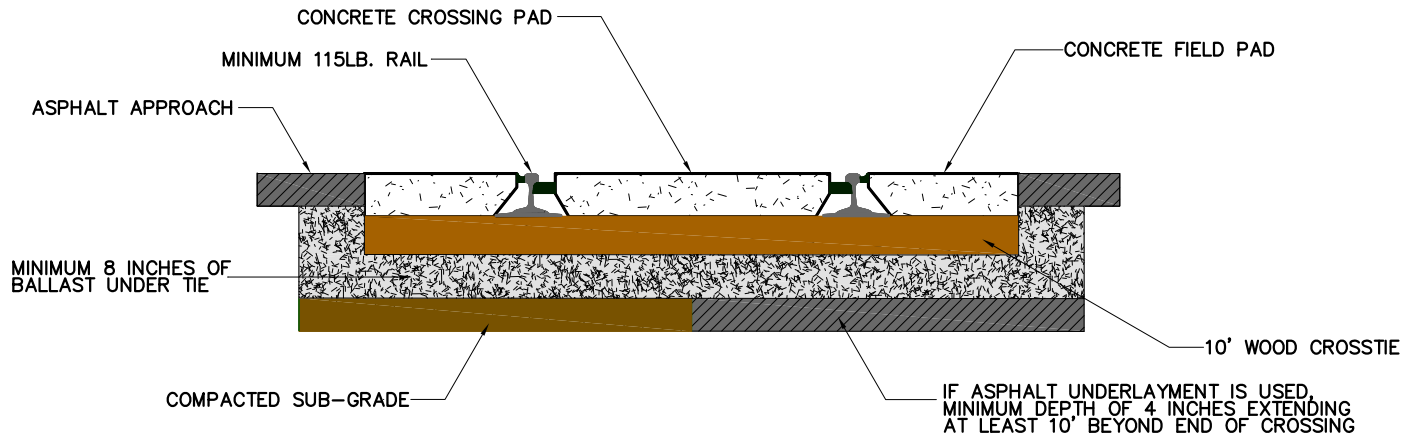


EXHIBIT 'C'



* MEASURED TO THE NEAREST PART OF THE LIGHTS/GATE ASSEMBLY TO THE CENTERLINE OF TRACK

AT-GRADE CROSSING LAYOUT PLAN



AT-GRADE CROSSING CROSS SECTION

EXHIBIT D

**RAILROAD CROSSING INVENTORY AND DIAGNOSTIC
EVALUATION REPORT**



HIGHWAY-RAIL GRADE CROSSING DIAGNOSTIC EVALUATION REPORT

Street/Road Name:	USDOT Crossing No.:	Date:
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DIAGNOSTIC INFORMATION		
Funded By:	<input type="checkbox"/> SECTION 130 <input type="checkbox"/> STATE <input type="checkbox"/> RR <input type="checkbox"/> OTHER	Purpose of Diagnostic:
Initiated By:	<input type="checkbox"/> STATE <input type="checkbox"/> RR <input type="checkbox"/> LOCAL <input type="checkbox"/> OTHER _____	

LOCATION INFORMATION			
Railroad Name:	County:	City (In or Near):	
R.R. Line / I.D.:	Nearest R.R. Timetable Station:	R.R. Milepost:	ENS Sign Present? <input type="checkbox"/> If Yes, #:

RAILROAD INFORMATION					
DAILY TRAIN MOVEMENT*		MAXIMUM SPEED OF TRAIN		TYPE AND NUMBER OF TRACKS	
PASSENGER		PASSENGER	mph	MAIN	If Other, Specify:
FREIGHT		FREIGHT	mph	OTHER	
*CHECK IF LESS THAN ONE MOVEMENT PER DAY <input type="checkbox"/>		CROSSING ANGLE:		Can two trains occupy crossing at same time? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Crossing is Quiet Zone? <input type="checkbox"/> Yes <input type="checkbox"/> No				Can one train block the motorist's view of another train at the crossing? <input type="checkbox"/> YES <input type="checkbox"/> NO	If Yes, explain:
Xing Surface	TRACK	SURFACE TYPE	WIDTH (Feet)	CONDITION (Poor, Fair, Good, New)	

Crossing adjacent or within railyard? <input type="checkbox"/> Yes <input type="checkbox"/> No	
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TEN-YEAR ACCIDENT DATA					
TOTAL ACCIDENTS		Number with Injuries		Number with Fatalities	Number with Property Damage Only
Have any near misses occurred? <input type="checkbox"/> Yes <input type="checkbox"/> No			Explain:		

Adjacent Railroad Crossings within 1/4 Mile

USDOT No.	Street/Road Name	Warning Devices	AADT

HIGHWAY-RAIL GRADE CROSSING DIAGNOSTIC EVALUATION REPORT

Street/Road Name:	USDOT Crossing No.:	Date:
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EXISTING WARNING DEVICES																		
Type of Passive Warning Device							Type of Active Warning Device											
Type	Qty	NB	SB	WB	EB	Type	Qty	NB	SB	WB	EB							
<input type="checkbox"/> R15-1						<input type="checkbox"/> R1-2						Flashing Light Type		Qty.	Lenses	LED		
<input type="checkbox"/> R15-2						<input type="checkbox"/> W3-2						<input type="checkbox"/>	Mast Mounted Flashing Lights		8"	12"		
<input type="checkbox"/> W10-1						<input type="checkbox"/> R8-10						<input type="checkbox"/>	Cantilever Flashing Lights					
<input type="checkbox"/> W10-2						<input type="checkbox"/> R10-6						<input type="checkbox"/>	Back Lights					
<input type="checkbox"/> W10-3						<input type="checkbox"/> W10-5						<input type="checkbox"/>	Side Lights					
<input type="checkbox"/> W10-4						<input type="checkbox"/> W10-11						Gate Type		Qty.	Location(s)			
<input type="checkbox"/> R8-8						<input type="checkbox"/> W10-12						<input type="checkbox"/>	Entrance					
<input type="checkbox"/> R1-1						<input type="checkbox"/> R15-8						<input type="checkbox"/>	Exit					
<input type="checkbox"/> W3-1						<input type="checkbox"/> W10-9						<input type="checkbox"/>	Pedestrian					
<input type="checkbox"/> R3-5						Note: Choose direction that is closest to direction of traffic flow over crossing.					<input type="checkbox"/>	Pedestrian Swing						
Is the crossing illuminated? <input type="checkbox"/> Yes <input type="checkbox"/> No							Other Devices							Qty.	Location(s)			
See "Typical MUTCD Signs at Highway-Rail Crossings" on page following.							<input type="checkbox"/>							Bells				
Pavement Striping							<input type="checkbox"/>							Modified Blank Out Sign w/ Train Indicator				
Type		Qty.		Location(s)			<input type="checkbox"/>							R3-1 Blank Out Sign				
<input type="checkbox"/>	Stop Bars						<input type="checkbox"/>							R3-2 Blank Out Sign				
<input type="checkbox"/>	RxR						<input type="checkbox"/>							Other Blank Out Sign ()				
<input type="checkbox"/>	No Passing						<input type="checkbox"/>							Other	Specify:			
<input type="checkbox"/>	Lane Lines						Device Notes:											
<input type="checkbox"/>	Other																	
TRAFFIC SIGNAL INTERCONNECTION AND PREEMPTION																		
Are highway traffic signals interconnected? <input type="checkbox"/> Yes <input type="checkbox"/> No							Is preemption existent at the crossing? <input type="checkbox"/> Yes <input type="checkbox"/> No											
Do pre-signals exist at the crossing? <input type="checkbox"/> Yes <input type="checkbox"/> No																		
CLOSURE																		
Can roadway realignment be accomplished to allow crossing consolidation? If yes, provide sketch. <input type="checkbox"/> Yes <input type="checkbox"/> No							Sketch:											
Impact of Closure:																		



R1-1



R1-2



R3-1a
Activated Blank-Out



R3-2a
Activated Blank-Out



R8-8



R8-9



R8-10



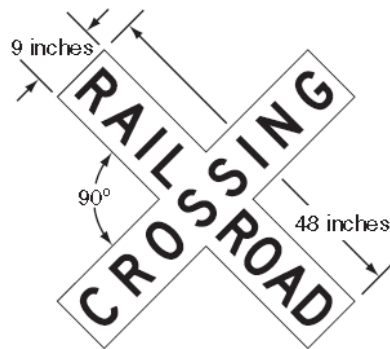
R8-10a



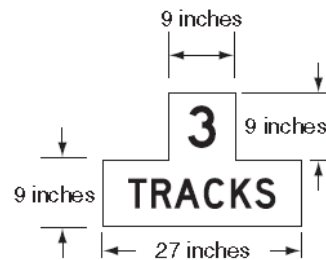
R10-6



R10-6a



R15-1



R15-2P

R3-5 is a left turn oriented example.



R15-3P



R3-5



W10-1



W10-1aP



W10-2



W10-3



W10-4



W10-5



W10-5P



W10-7
Activated
Blank-Out



W10-8



W10-9



W10-9P



W10-11



W10-11a



W10-11b



W10-12



W10-13P



W10-14P



W10-14aP



W10-15P

Note: The W10-11 sign is a W10-3 sign modified for geometrics. Other signs can be oriented or revised as needed to better portray the geometrics of the roadways and the tracks.



R15-8

Sign examples from pages 753 & 759 of 2009 MUTCD. R3-5 example is from <http://www.trafficsign.us/r3.html>

HIGHWAY-RAIL GRADE CROSSING DIAGNOSTIC EVALUATION REPORT

Street/Road Name:	USDOT Crossing No.:	Date:
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ROADWAY INFORMATION

Agency Having Jurisdiction (Road Owner):		Highway Type:	AADT:	Truck Traffic: %
Vehicle Speeds	School Bus Operation	Hazardous Materials	Pedestrians	Roadway Surface:
Posted _____ m.p.h.	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	Roadway Width:
Typical _____ to _____ m.p.h.	No. / Day	No. / Day	Curb & Gutter	Roadway Condition:
			<input type="checkbox"/> Yes <input type="checkbox"/> No	
Is Shoulder Present? <input type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, Width:	Is Shoulder Surfaced? <input type="checkbox"/> Yes <input type="checkbox"/> No	Is Sidewalk Present? <input type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, Width:
Channelization (Medians w/ Gates): <input type="checkbox"/> All Approaches <input type="checkbox"/> One Approach <input type="checkbox"/> None				

Special Conditions Required as a Result of Nearby Highway Intersections:

TYPE OF DEVELOPMENT

Open Space Residential TOD Industrial Institutional Commercial

Planned developments that could affect AADT? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown	If yes, explain:
--	------------------

SHARED PATHWAY CROSSING INFORMATION

Yes	No	Crossing Information	Pedestrian and Bike Trips	AADT
<input type="checkbox"/>	<input type="checkbox"/>	Is Crossing Surface Smooth?	Pedestrian:	
<input type="checkbox"/>	<input type="checkbox"/>	Is Adequate Lighting Available?	Bicycle:	
<input type="checkbox"/>	<input type="checkbox"/>	Does Crossing Panel Extend 1' Behind Back of Path?	Notes:	
<input type="checkbox"/>	<input type="checkbox"/>	Is Path Width Adequate? (48" Minimum)		
<input type="checkbox"/>	<input type="checkbox"/>	Are Flange Gaps 2½" or Less, or Flange Fillers Used?		

<input type="checkbox"/> Yes	<input type="checkbox"/> No	Is the crossing adjacent to a passenger station? If yes, sketch access from station:

HIGHWAY-RAIL GRADE CROSSING DIAGNOSTIC EVALUATION REPORT

Street/Road Name:	USDOT Crossing No.:	Date:
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COMPREHENSIVE SKETCH OF CROSSING

(Include location of warning devices, nearby schools, emergency services facilities, and other landmarks):

HIGHWAY-RAIL GRADE CROSSING DIAGNOSTIC EVALUATION REPORT

Street/Road Name:	USDOT Crossing No.:	Date:
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RECOMMENDATIONS

ARE IMPROVEMENTS TO THE CROSSING RECOMMENDED?		<input type="checkbox"/> Yes <input type="checkbox"/> No	If No, Explain:
If Yes, what improvements?			
Yes	No	Type of Improvement	Describe
		Sight Improvement	
		Crossing Surface	
		Roadway Approaches	
		Highway Traffic Signs	
		Crossing Signals	
		Crossing Closure	

Prepared By:	Title:	Date:
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Comments:

HIGHWAY-RAIL GRADE CROSSING DIAGNOSTIC EVALUATION REPORT

Street/Road Name:	USDOT Crossing No.:	Date:
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DIAGNOSTIC ATTENDANCE				
No.	Name	Affiliation	Phone No.	E-Mail
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				

CONTACTS
(Contact name, agency or company, department, address, phone number, e-mail address)
School District:
Other (Specify):
Other (Specify):
Other (Specify):
Other (Specify):
Other (Specify):
Other (Specify):