



Quiet Zone Information

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Grade Crossing and Trespasser Outreach Inspectors for District 7

Topics of discussion

Responsibility and Understanding

- Mission
- Statistics
- Historical context-Purpose of regulation
- When must a locomotive horn be used?
- How does this regulation affect sounding of the horn? 222.21/222.23

Overview of establishing QZs

- How QZ is established Title 49 Part 222.39
- Who can establish Title 49 Part 222.37
- QZ minimum requirements Title 49 Part 222.35
- Qualifying Conditions or possible crossing treatments?
- Notice of Intent Title 49 Part 222.43(b)
- Notice of Establishment Title 49 Part 222.43 (d)
- Periodic Updates Title 49 Part 222.47
- Termination of QZ Title 49 Part 222.51

FRA's Mission

To enable the safe, reliable, and efficient movement of people and goods for a strong America, now and in the future.

We accomplish our mission of grade crossing safety and trespasser prevention by:

- ❖ Issuing and enforcing safety regulations
- ❖ Partnering with stakeholders to mitigate grade crossing accidents and trespasser fatalities
- ❖ Investing in rail corridors
- ❖ Conducting research and developing technology

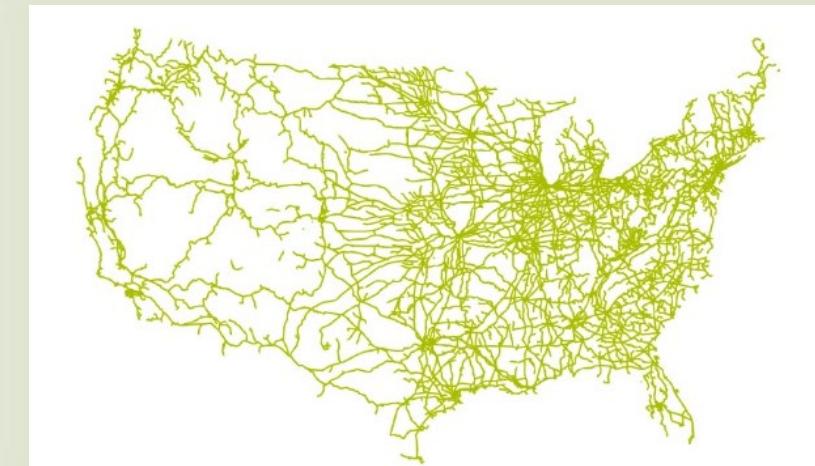


Image source: <https://www.aar.org/railroad-101>

What is the purpose of Title 49 Part 222?

To provide for safety at public highway-rail grade crossings by requiring locomotive horn use at public highway-rail grade crossings except in quiet zones established and maintained in accordance with this part.

Grade Crossings and Trespassing Alarming Statistics

As part of FRA's mission to improve safety, we are working to reduce railroad crossing and trespasser incidents through the "3-E framework": Education, Engineering, and Enforcement as well as through extensive analysis of rail safety Data and Statistics.

- Trespassing along railroad rights-of-way is the leading cause of rail related deaths in America.
 - About every three hours, a trespasser or highway user is hit by a train.
- Collisions at grade crossings are the second leading cause of rail related fatalities in the U.S.
 - Slightly over half of public crossings have active warning devices (including gates, bells, and/or flashing lights, yet account for 66% of collisions).

National Stats



U.S. Department of Transportation
Federal Railroad Administration

U.S. Railroad System

732
Railroads

143,804
Route Miles of Track

203,642
At-Grade Railroad Crossings (Public, Private, and Pedestrian)



Nationwide Public At-Grade Crossings

Active

56%

(with gates, bells, and/or flashing lights)



Passive

44%

(with signs and markings, but not active warning devices)



Nationwide Incident Statistics

8 people or vehicles are hit by a train daily.



of rail-related fatalities over the past 10 years are due to railroad grade crossing and trespassing incidents.



96%

Data Source: data.transportation.gov

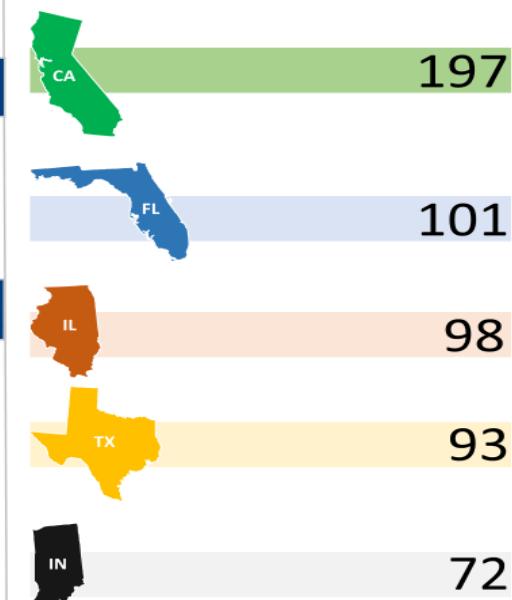
FRA Grade Crossing and Trespasser Outreach Information

Nationwide Statistics and Top Five States for Grade Crossing and Trespassing Fatalities

5-Year Grade Crossing Trends (2020-2024 and includes Public and Private Grade Crossings)

Fatalities
193
(2020) **266** 32%

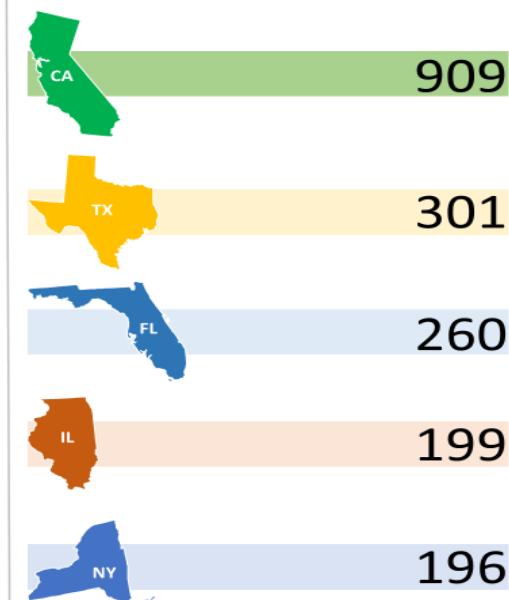
Grade Crossing Fatalities (2020-2024 and includes Public and Private Grade Crossings)



5-Year Trespassing Trends (2020-2024, suicide fatalities included)

Fatalities
664
(2020) **818** 21%

Trespassing Fatalities (2020-2024, suicide fatalities included)



Grade Crossing and Trespasser Outreach Division

March 2025



U.S. Department of Transportation
Federal Railroad Administration

District 7 Stats



U.S. Department of Transportation
Federal Railroad Administration

District 7 Railroad System

65
Railroads

10,800
Route Miles of Track

11,583
At-Grade Railroad Crossings (Public, Private, and Pedestrian)



Data Source: data.transportation.gov

Active

56%

(with gates, bells,
and/or flashing lights)



44%

(with signs and markings,
but not active warning
devices)



Nationwide Incident Statistics

8 people or vehicles are hit by a train daily.



96%
of rail-related fatalities
over the past 10 years are
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FRA District 7 Grade Crossing and Trespasser Outreach Information

Arizona, California, Hawaii, Nevada, and Utah

5-Year Grade Crossing Trends

(2020-2024 and includes Public and Private Grade Crossings)

Fatalities
47
(2020)
56
(2024)



17%



Grade Crossing Fatalities

(2020-2024 and includes Public and Private Grade Crossings)



5-Year Trespassing Trends

(2020-2024, suicide fatalities included)

Fatalities
181
(2020)
238
(2024)

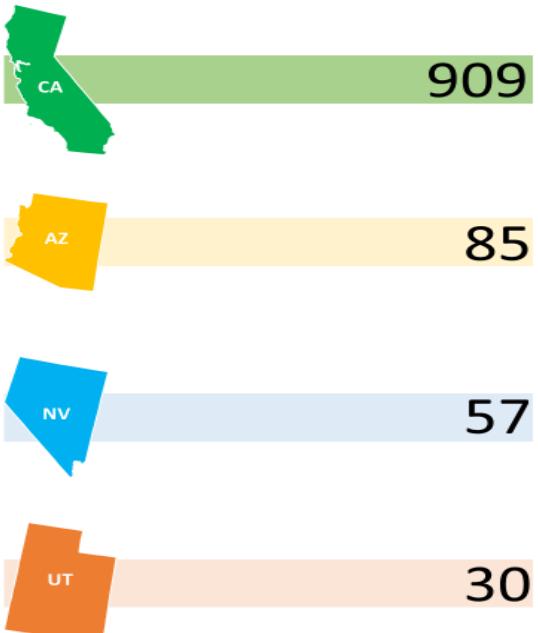


27%



Trespassing Fatalities

(2020-2024, suicide fatalities included)



Grade Crossing and Trespasser Outreach Division

March 2025



U.S. Department of Transportation
Federal Railroad Administration

Federal Regulation of Locomotive Horn Use (Title 49 Part 222.21)

- Time based pattern approximately 15-20 seconds on approach
- Regular train horn pattern: 2 long, 1 short, 1 long
- Repeated or prolonged until locomotive enters the crossing or where the crossings are close together.
- Not sounded more than $\frac{1}{4}$ mile from the crossing when trains are going faster than 60 mph and will be less than the 15 seconds

Federal Regulation of Train Horn Use within Quiet Zone (Title 49 Part 222.23)

Emergency situations

- Locomotive engineer may sound the locomotive horn to provide a warning to animals, vehicle operators, pedestrians, trespassers or crew on other trains in an emergency situation if, in the locomotive engineer's sole judgement, such action is appropriate in order to prevent imminent injury, death, or property damage.
- Crossing devices known to be malfunctioning
- Roadway Worker Protection (RWP)
- Railroad Operating Rules

What are the minimum requirements for Quiet Zones? (Title 49 Part 222.35)

- Minimum of $\frac{1}{2}$ mile in length
- Must include pedestrian and private crossings within $\frac{1}{4}$ mile
- Pedestrian or private crossings may bookend the quiet zone corridor if they are within $\frac{1}{4}$ mile
- May include grade crossings on a segment of rail line crossing more than one political jurisdiction
- Each public highway-rail grade crossing must be equipped with active warning devices comprising of flashing lights and gates which control the traffic over the crossing.
- Each highway approach to every public and private highway-rail grade crossing shall have an advanced warning sign that advises the motorists of the railroad crossing and that train horns are not sounded at the crossing.

Who may establish a Quiet Zone? (Title 49 Part 222.37)

Public Authority

- If there are multiple jurisdictions all parties must agree to the establishment of the quiet zone and must jointly or by delegation provided to one of the authorities.

How is a Quiet Zone established? (Title 49 Part 222.39)

Public authority designation

A quiet zone may be established by implementing, at **every** public highway-rail grade crossing within the quiet zone, one or more SSMs identified in appendix A of 49 CFR 222.

Public authority application to FRA

A public authority may apply to the Associate Administrator for approval of a quiet zone that does not meet the standards for public authority designation, but it is proposed that one or more safety measures be implemented by using ASMs or a combination of ASMs and SSMs at various crossings within the quiet zone.

Definitions Title 49 Part 222.9

SSMs= Supplemental Safety Measures

ASMs= Alternative Safety Measures

QZRI= Quiet Zone Risk Index

NSRT= National Significant Risk Threshold

RIWH= Risk Index with Horns

Qualifying conditions used to establish a Quiet Zone

- SSMs at each public crossing
- QZRI \leq NSRT without additional safety measures
- QZRI \leq NSRT with additional safety measures
- QZRI \leq RIWH - Safety measures reduce QZRI to risk level that would exist with horns (RIWH)

Supplemental Safety Measures (SSM's)

1. Temporary closure of a public highway-rail grade crossing
2. Four-quadrant gate system
3. Gates with medians *or* Channelization devices
4. One way street with gate(s)
5. Permanent closure of a public highway-rail grade crossing

Alternative Safety Measures (ASM's)

If there are unique circumstances pertaining to a specific crossing or number of crossings which prevent SSM's from being fully compliant with all the SSM requirements listed in appendix A, those SSM requirements may be adjusted or revised.

In that case, the SSM, as modified by the public authority, will be treated as an ASM and not an SSM.

After reviewing the estimated safety effect of the modified SSM and the proposed quiet zone, FRA will approve the proposed quiet zone if FRA finds that the Quiet Zone Risk Index (QZRI) will be reduced to a level at or below either the Risk Index With Horns (RIWH) or the Nationwide Significant Risk Threshold (NSRT).

The public authority must submit estimates of effectiveness in their application for approval.

Required Notices and Other Info to Create or Continue QZ (Title 49 Part 222.43)

Notice of Intent (NOI): Provides brief details of the intent to establish the QZ and opens comment/recommendation period.

Notice of Establishment (NOE): Describes in full detail the QZ establishment.

Notice of Intent Title 49 Part 222.43(b)

Notice of Intent (NOI)

PA must provide written Notice of Intent to establish a QZ to:

- All railroads operating over crossings
- State highway and road safety agency
- State agency responsible for crossing safety
- Any other affected stakeholder

Notice of Intent Title 49 Part 222.43(b) cont'd

Components of the Notice of Intent (NOI):

(1) Timing

- (i) NOI must be mailed 60 days before the Notice of Establishment (NOE)**

(2) Required Contents

- (i) A list of each public, private, and pedestrian grade crossing within the quiet zone,**
- (ii) A statement of the time period within which restrictions would be imposed on the routine**
- (iii) A brief explanation of the public authority's tentative plans for implementing improvements**
- (iv) Name and title of the QZ point of contact, and manner to contact person**
- (v) List of all affected stakeholders receiving the NOI**

Notice of Intent 222.43(b) cont'd

(3) 60 Day Comment period

- (i) Allows stakeholders a time period to submit information or comments
- (ii) 60-day comment period may terminate if all stakeholder's have submitted comments or “no comment” statements.

Notice of Establishment Title 49 Part 222.43 (d)

Notice of Establishment (NOE)

Components of the Notice of Establish of the QZ to:

- (1) Timing – NOE shall provide the establishment date, but in no event shall the date be earlier than 21 days after the mailing date.
- (2) Required Contents – 11 Items

Notice of Establishment Title 49 Part 222.43 (d) cont'd

(2) NOE Required Contents -

- (i) A list of each public, private, and pedestrian grade crossing within the quiet zone,
- (ii) A specific reference to the regulatory provision that provides the basis for quiet zone establishment,
- (iii) Diagnostic Team Review, to include list of recommendations,
- (iv) A statement of the QZ time period,
- (v) An accurate and complete Grade Crossing Inventory Form for each grade crossing within the quiet zone,
Reflecting conditions before any new SSM or ASM were implemented,

Notice of Establishment Title 49 Part 222.43 (d) cont'd

(2) NOE Required Contents -

- (vi) An accurate and complete Grade Crossing Inventory Form for each grade crossing within the quiet zone, Reflecting SSM or ASM in place upon QZ establishment,
- (vii) Written statement affirming NOI was provided as required,
- (viii) If NOI was mailed less than 60 days before NOE, written statement affirming written comments/no-comments have been received by all stakeholders,
- (ix) Name and title of the person responsible for monitoring compliance with the requirements of this part and the manner in which that person can be contacted.
- (x) A list of the names and addresses of each party that shall be notified (all stakeholders)
- (xi) A statement signed by the chief executive officer of each public authority participating in the establishment of the quiet zone, in which the chief executive officer shall certify that the information submitted by the public authority is accurate and complete to the best of his/her knowledge and belief.

Cease Sounding of the Locomotive Horn (Title 49 Part 222.45)

NOI → **NOE** → **Sets the date horns will cease**

Railroads shall refrain from, or cease, routine sounding of the locomotive horn at all public, private and pedestrian grade crossings identified in the Notice of Quiet Zone Establishment.

Required Periodic Updates (Title 49 Part 222.47)

(a) QZ with SSMs at each public crossing

- Between 4 ½-5 years after the date of the QZ establishment continuing every 4 ½- 5 years while QZ is established.

(b) QZ with SSMs/ASMs at some crossings

- Between 2 ½-3 years after the date of the QZ establishment continuing every 2 ½-3 years while QZ is established.

Electronic submission of:

- Letter of Affirmation
- Up-to-date, accurate and complete grade crossing inventory forms for each public, private and pedestrian crossing within the QZ.
 - Include updated traffic counts no older than 3 years

Under what conditions will quiet zone status be terminated?

(a) New Quiet Zones—Annual risk review.

(1) FRA will annually calculate the Quiet Zone Risk Index for each quiet zone established pursuant to §§ 222.39(a)(2) (QZRI at/or below) and 222.39(b) (PA Application) of this part, and in comparison to the Nationwide Significant Risk Threshold (NSRT).

(2) Actions to be taken by public authority to retain quiet zone.

If the Quiet Zone Risk Index is above the NSRT, the quiet zone will terminate six months from the date of receipt of notification from FRA.

Under what conditions will quiet zone status be terminated?

(c) Review at FRA's initiative.

- (1) The Associate Administrator may, at any time, review the status of any quiet zone.
 - (i) Safety systems and measures implemented within the quiet zone do not fully compensate for the absence of the locomotive horn due to a substantial increase in risk;
 - (ii) Documentation relied upon to establish the quiet zone contains substantial errors that may have an adverse impact on public safety; or
 - (iii) Significant risk with respect to loss of life or serious personal injury exists within the quiet zone.

Diagnostic Team Considerations-Appendix F to Part 222

- Public Authority
- Engineering personnel from the State agency responsible for grade crossing safety
- Railroad personnel
- Public Safety or law enforcement
- Federal Railroad Administration

Contact Us

Federal Railroad Administration
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Connect with us at USDOTFRA

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