



## Section 8 Quiet Zones (QZ)

*Please recognize UP is of the opinion that sounding the locomotive horn at highway-rail grade crossings enhances safety whereas QZs increase risk to motorists, pedestrians and trespassers. At a minimum, a diagnostic to evaluate the proposed QZ is recommended and safety treatments should be implemented at each crossing which can include Supplemental Safety Measures (SSM) and/or Alternative Safety Measures (ASM).*

The federal regulation concerning train horns is officially known as the Train Horn Rule 49 CFR Part 222 or Quiet Zone Rule. The final rule became effective on June 24, 2005. This Rule requires the train horn to be sounded for 15 to 20 seconds before a locomotive enters a public at-grade crossing, but not more than a quarter mile in advance. The federal requirement preempts any state or local laws regarding the use of train horns at public crossings.

### 8.1 Quiet Zone Rule

The entity responsible for creating a QZ must be a highway agency or Authority with jurisdiction over the roadway, referred to as the Public Authority in Quiet Zone Rule. Quiet Zone Rule outlines the criteria to establish and maintain a QZ. The most common QZs are full or partial. In a full QZ, the train horn is silenced 24 hours per day. In a partial QZ, the horn is silenced between the hours of 10:00pm and 7:00am.

Upon the successful implementation of a QZ, it should be recognized that although trains will cease routine sounding of the horn at Grade Crossing(s), there are numerous situations when

sounding of the horn will be required. For example, a locomotive engineer will exercise discretion to sound the horn for safety purposes when pedestrians or workers are in proximity of the Grade Crossing(s) and when necessary to comply with any other train operating rules.

The Public Authority should refer to the FRA's [website](#) where links can be found to the [Guide to the QZ Establishment Process](#) and the final [Rule](#). The following is an abbreviated version of the process to establish a QZ at UP crossings.

It should be noted that the QZ process can be very complex and technical. If this is the Public Authority's first QZ, it may be advisable to seek the services of a consulting firm or other resource that has experience with the QZ process.

## 8.2 Minimum Requirements for a QZ

### 8.2.1 Minimum Length

The QZ must be a minimum of one-half mile in length along the length to the Railroad ROW.

### 8.2.2 Active Warning Devices

Each Public At-Grade Crossing must be equipped with Active Grade Crossing Warning System comprising of both Flashing-Light Signal and gates which control traffic over the crossing and that conform to the standards contained in the MUTCD. Such Active Grade Crossing Warning System shall be equipped with Constant Warning Time devices, if reasonably practical, and power-out indicators.

### 8.2.3 Advance Warning Signs

Each approach to every Public and Private At-Grade Crossing within the QZ shall be equipped with MUTCD compliant advance warning signs that advise the motorist that train horns are not sounded at the crossing.





## 8.2.4 Bells

Where crossings are equipped with bells and subjected to pedestrian traffic, the bells must be retained and maintained in working condition.

## 8.2.5 Private or Pedestrian Crossings

Private or pedestrian crossings within the boundaries of a QZ must be included in the QZ, evaluated by a diagnostic team and equipped or treated in accordance with the recommendations of the diagnostic team. At a minimum, each approach to every private crossing requires an MUTCD compliant crossbuck and “STOP” sign to be installed at the expense of the Public Authority.

Both private and pedestrian crossings must be equipped with MUTCD compliant advance warning signs advising that train horns are not sounded.

## 8.2.6 MUTCD Compliance

All public crossings within the QZ must be in compliance with the requirements of the MUTCD.

# 8.3 How to Initiate a QZ at UP Crossings

The first step to establish a QZ is to submit a request to the **UP Public Projects Contact Center**. The Quiet Zone Rule requires the QZ process to be initiated and progressed by the Public Authority or their representative. Requests from citizens or developers must go through the Public Authority.

Upon receipt of a verified request, UP will assign a QZ consultant to the project. The consultant will perform preliminary research to assess the complexity of the project. This information will be used to estimate UP costs to participate in the QZ process. Once this information is gathered, the Public Authority will be contacted to discuss the QZ process described in this section and cost estimates.

If the Public Authority agrees to proceed, a Reimbursement Agreement must be executed by the Public Authority to reimburse UP for the engineering services required to manage the QZ project. After the agreement is executed, the following is a high-level outline of the steps required to implement a QZ at UP crossings.

## 8.3.1 Pre-diagnostic Call

The Public Authority will coordinate an initial conference call to include any other authorities with jurisdiction over the roadway, the FRA, Union Pacific, any other railroads that own tracks in the proposed QZ crossings, and any utilities that may be affected. The purpose of the call is to review the Public Authority's concept plans and to schedule the Field Diagnostic, per Section 2.2. The amount of time planned for the Field Diagnostic should include a kick-off meeting, a minimum of 30 minutes at each crossing (additional time for complex crossings) and a wrap-up meeting at the end of each day.

## 8.3.2 Field Diagnostic

The Public Authority will coordinate a Field Diagnostic comprised of the same stakeholders as were included in the pre-diagnostic call. At a minimum representatives from the Public Authority, FRA and railroad(s) must be present. A QZ diagnostic includes the same process as described in **Section 2.2** of this document and incorporates the additional criteria outlined in the Rule to establish a QZ.





## 8.4 QZ Designation

The following is a summary of some of the designations that can be used to establish a QZ.

### 8.4.1 Public Authority Designation

This designation can be found under Section 222.39(a) of the Quiet Zone Rule and does not require formal approval by the FRA. It is the opinion of UP that the public authority should make every attempt to establish the proposed QZ under section 222.39(a)(1) by implementing Supplemental Safety Measures (SSMs) at every crossing.

Supplemental Safety Measures may include the following.

- Permanent crossing closures
- Four-quadrant gate systems
- Medians or channelization devices on both approaches to the crossing
- One-way streets with gates

Note that intersecting streets, commercial driveways or alleys within 60 feet of the gate arm in down position may impact whether a median or channelization devices qualify as SSMs. Whenever possible, these intersections should be closed or moved to reduce the risk of motorists circumventing the safety measures to go around the gates.

### 8.4.2 Public Authority Application

The Public Authority may apply to the FRA for approval of a QZ that does not fall within the criteria for a Public Authority Designation described in the Rule under section 222.39(a). Under this designation one or more safety measures must be implemented that can include alternative safety measures (ASMs), or a combination of ASMs and SSMs. Criteria for this designation can be found under section 222.39(b) of the Quiet Zone Rule.

ASMs are safety improvements that do not fully comply with the requirements for an SSM. These safety improvements must be reviewed by the FRA Associate Administrator who has final approval authority for the QZ.

ASMs can include the following.

- Modified SSMs (e.g., medians less than 60 feet in length, three-quadrant gates)
- Credit for pre-existing modified SSMs
- Engineered ASMs (i.e., geometric improvements)
- Non-engineering ASMs (e.g., programmed enforcement, photo enforcement, public education, and awareness)

*UP interprets the Train Horn Rule, as a guideline of minimum safety measures to be implemented at QZs. In the interest of safety, each crossing to be considered for a QZ should be evaluated individually rather than basing the selection of crossings to achieve an averaged risk below the Nationwide Significant Risk Threshold or the Risk Index With Horns.*





## 8.5 Notices Required to Establish a QZ

At this point in the process, the diagnostic has been completed, concept plans prepared, and a QZ designation selected. The following notices must be provided from the Public Authority by certified mail. Please note that the stakeholder comment periods start from the date of the postage stamp.

It is critical for the Public Authority to carefully review section 222.43 of the Quiet Zone Rule and follow each step in detail. Failure to comply with the specific requirements for each of the notices will result in rejection due to deficiencies and could add significant delays and costs to the project.

### 8.5.1 Notice of Intent (NOI)

This is the first notice required to officially start the regulatory process to establish a QZ. It must be sent by certified mail to:

- all railroads operating over the public crossings within the QZ,
- the State agency responsible for highway and road safety, and
- the State agency responsible for Grade Crossing safety.

Although not specified in the Quiet Zone Rule, it is recommended to provide a courtesy copy of the notice to the local FRA contact.

A period of 60 days is allowed for comments to be returned to the public authority from the designated stakeholders. Section 222.43(b) of the Quiet Zone Rule specifies all contents required to be submitted in the NOI.

### 8.5.2 Notice of Establishment (NOE)

The NOE is the final stage of a QZ project. It is filed once all of the safety improvement project work is complete and the QZ is ready for implementation. The NOE must be sent by certified mail to:

- all railroads operating over the public grade crossings within the QZ,
- the highway or traffic control or law enforcement authority having jurisdiction over vehicular traffic at grade crossings within the QZ,
- the landowners having control over any private grade crossings within the QZ,
- the State agency responsible for highway and road safety,
- the State agency responsible for grade crossing safety, and
- the FRA Associate Administrator.

The NOE must include the date upon which the QZ will be established. This date can be no earlier than 21 days after the date on the postage stamp.

Upon receipt of the NOE, UP performs a review of the information provided to verify all requirements specified under section 222.43(d) of the Rule have been met. Any discrepancies will result in rejection of the NOE. If this happens, the Public Authority must resolve the discrepancies and resubmit the NOE with a new date of establishment.

Additionally, a pre-implementation inspection will be scheduled for attendance by representatives from the Public Authority, FRA, and Railroad(s). The purpose of the inspection is to verify all safety improvements, signs, and pavement markings have been implemented in accordance with the Diagnostic Team recommendations and the Quiet Zone Rule.

UP requests 60 days advance notice of the planned QZ establishment. This communication can be made by email or phone in advance of the official NOE mailing. This allows sufficient time to schedule the pre-implementation inspection, address any discrepancies identified and perform preparation required by the Railroad to cease routine sounding of the train horn.







## 8.6 General Costs of Safety Measures

QZs not only have the potential to create a risk but can also be a cost burden to taxpayers. The Public Authority is responsible for the costs associated with project management, safety measure design, construction, and maintenance and replacement of existing Active Grade Crossing Warning Systems and their components. These costs also include Wayside Horn Systems used either within a QZ or as a one-for-one replacement for the train horn.

In addition to the Reimbursement Agreement required to fund the QZ establishment process, additional agreements may be required for any construction and maintenance work performed by the Railroad. UP will need guaranteed reimbursement for all actual costs associated with the installation and maintenance of the Railroad improvements.

Estimated costs for Railroad improvements for typical QZ safety measures are as follows.

**Table 8.1 QZ Safety Measure Estimated Costs**

Four-quadrant gate systems:	<b>\$300,000 to \$500,000</b>
Active Grade Crossing Warning Systems (includes flashing lights and gates, constant warning time detection, power out indicator, and cabin):	<b>\$185,000 to \$400,000</b>
Interconnection for existing Active Grade Crossing Warning System with constant warning time:	<b>\$50,000 to \$130,000</b>
Annual maintenance:	<b>\$4,000 to \$20,000</b>

These costs are exclusive of engineering, design, construction management, inspection, travel, and testing.

## 8.7 Contact Information

To ensure timely response, please forward all QZ notifications by certified mail to the address below.

**Union Pacific Railroad**  
Engineering-Public Projects  
Attn: Quiet Zone Establishment  
1400 Douglas Street, MS 910  
Omaha, NE 68179-0910

## 8.8 Union Pacific Project Agreements

An agreement will be required to reimburse the Railroad for all costs associated with a QZ project. Estimated costs for the agreement are based on several factors including the complexity of the project.

See [Section 12.1.1 Reimbursement Agreement](#) for more information.

