Implementing a Quiet Zone to Address Train Horn Noise
FRA Locomotive Horn Final Rule (49 CFR 222)

• Issued 4/27/05
• Rule became effective 6/24/05
• Amended 8/17/06
• Requires horns to be sounded to warn motorists at public crossings
• Provides exceptions where risk is minimized
• Enables communities to establish quiet zones by reducing the risk caused by lack of horns
Sounding the Horn

A Train Engineer is required to sound the horn in:

• 2 long, one short, two long blasts, starting 15 to 20 seconds before the train enters crossing; approximately ¼ mile prior to crossing.

• It shall be repeated or prolonged until the locomotive occupies the crossing.

• The horns must be a minimum 96 dB to a maximum 110 dB, measured 100 feet in front of train
What is the Purpose of this Regulation?

The purpose of this regulation is 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 CFR 222.
City of Eugene Conditions

- There are 25 major public at grade crossings within UGB.

- Union Pacific Mainline runs 23 trains per day through 10 City and 3 County crossings daily.

  *This represents 90 % of the train horns heard within the UGB*

- Portland & Western runs 2 trains per day through 4 City and 3 Lane County crossing (5% of horns)

- Coos Bay Rail runs 3 trains per day through 4 City and 1 Lane County crossing (5% of horns)

- There are also 13 minor public at grade crossings and about 2 dozen private crossings.
The **Goal** of this Project is to silence routine train horns that are sounded on the 10 City crossings of the Union Pacific Line.

The **Outcome** of this Project would be the silencing of 70% of the routine train horns in the UGB.
Project Limits

Phase 1: Van Buren to 8th & Hilyard (Union Pacific Line)
What is a Quiet Zone?

• A quiet zone is a section of a rail line that contains one or more consecutive public crossings at which locomotive horns are not routinely sounded.

• A Quiet Zone must be at least ½ mile long.

• There must be no other crossings within a ¼ mile of the beginning or end of the quiet zone.
Who Can Establish a Quiet Zone?

• A Public Authority with jurisdiction for the roadway at the crossing.

• If a Quiet Zone includes more than one Public Authority:
  – All agencies must agree.
  – Actions must be taken jointly.

• Quiet Zones may be established irrespective of state law.
How are Quiet Zones Created?

- Local governments will have two ways of creating a quiet zone:
  - Show that the lack of the horn does not pose a significant safety risk.
  - Implement safety measures to reduce excess risk associated with no horn.
Steps to Creating A Quiet Zone

1. Form a Diagnostic Team of City, State Rail and Railroad Personnel. (Federal Rail Administration is optional).

2. This team then makes a site inspection of each of the crossings within the proposed Quiet Zone.

The team is reviewing:

- Roadway/rail line geometry
- Traffic volume, traffic mix (trucks, autos, bikes, peds) and accident history.
- Surrounding land use (commercial/residential/etc).
- Intrusions on the sight-distance of drivers and train engineer.
Steps to Creating A Quiet Zone

3. The diagnostic team then discusses the limitations of each crossing and what safety measures can work at each crossing.

Footnote: Usually there are several options (safety measures) that will work at each crossing. The pro/cons of each are discussed; but nothing is finalized. During this exercise, cost of a particular safety measure does not control the discussion.
Steps to Creating A Quiet Zone

4. Decide on the added safety measures that will be installed at each crossing.

Footnote: These safety measures must be sufficient to reduce the QZ Risk Index to at or below the Nationwide Significant Risk Threshold.

Footnote 2: We are Here
Steps to Creating A Quiet Zone

5. Make a “public authority designation” of a Quiet Zone according to CFR 222.39(a).

   or

6. Make a “public authority application” to the Federal Rail Administration for a Quiet Zone according to CFR 222.39(b).

   FRA will take about a year to review the application under this alternative.
Steps to Creating A Quiet Zone

Under Public Authority Designation –
The Quiet Zone is made by installing SSM’S at each public highway-rail at-grade crossing.

SSM = Supplemental Safety Measure. A narrow, prescriptive list of 14 measures that, if used will obtain QZ status without formal application to FRA.

The 4 common (and relevant to Eugene crossings) SSM’s are:

• Installation of quad gates.
• Convert street to one-way flow with gates.
• Install medians through the crossing.
• Close the crossing to all use.

(Found in Appendix A of CFR 222)
Steps to Creating A Quiet Zone

Under Public Authority Application (to FRA) – The Quiet Zone is made by proposing ASM’S on an application and receiving approval from FRA to construct a Quiet Zone.

ASM = Alternative Safety Measure. Engineering measures and modified SSM’s at a crossing that reduce the QZ Risk Index to at or below the Risk index with Horns.

Common examples of ASM’s are:

• Three gate crossings with medians.
• Medians with a driveway entrance within 60 feet if it is on the gated side of the crossing.
• Close crossings to motor vehicles, but leave open for bike/peds.

(Found in Appendix B of CFR 222)
SSM vs ASM

• SSMs at all crossings offers the highest safety improvement; can be implemented faster; but are generally more more costly.

  (City of Salem used this method)

• Alternate Safety Measures require FRA approval for the specific ASM before construction can begin; but may be substantially less expensive than SSM’s.

  (City of Vancouver, Wa used this method)
Supplemental Safety Measure

Quad Gate System
Supplemental Safety Measure

Median
Supplemental Safety Measure

One-Way Street with Gates
Supplemental Safety Measure

Permanent Road Closure
Questions?

Thank you