Railroad Quiet Zones

City of Loveland

Public Information Meeting

February 19, 2009
AGENDA:

7:00-7:05 Introduction – Frank Hempen (City Project Manager)

7:05- 7:20 Railroad Quiet Zones Overview - Kyle Anderson (Felsburg Holt & Ullevig)

7:20- 9:00 Review Exhibits of Individual Crossings- All (By Railroad Corridor and Area)

***Please Sign in and Fill out Comment Sheet
Railroad Quiet Zones

- Why Must Trains Sound their Horns?
  - Congress Required By Law (49 U.S.C. 20153)
  - The Federal Railroad Administration (FRA) has identified specific safety benefits.

- Use of Locomotive Horns at Highway-Rail Grade Crossings; Final Rule
  - Effective June 2005
  - Amended August 2006
  - Requires horns to be sounded at public crossings
Final Rule
- Provides exceptions where risk is minimized
- Enables communities to establish quiet zones by mitigating the silencing of horns

What is a Quiet Zone?
- A section of a rail line that contains one or more consecutive public crossings at which locomotive horns are not routinely sounded.
Establishment of a Quiet Zone

- **Public Authority Designation**
  - Does not require application to and approval by FRA
  - Implement Supplementary Safety Measures (SSMs) at each public crossing

- **Public Authority Application**
  - If Quiet Zone does not meet the standards for public authority designation
  - Requires application to and approval by FRA
  - Proposed Quiet Zone may include only Alternative Safety Measures (ASMs) or a combination of ASMs and SSMs
  - Requires calculation of Quiet Zone Risk Index (QZRI)
    - < Nationwide Significant Risk Index (NSRI)
    - < Risk Index with Horns (RIWH)
Quiet Zone Requirements

- Minimum Length – ½ mile along the Railroad right of way
- Active grade crossing warning devices
  - Crossing gate arms
  - Flashing lights
  - Bells
  - Constant warning circuitry
  - Power out indicators
- Advance warning signs for Quiet Zone
Quiet Zone Requirements

- Supplementary Safety Measures (SSM)
  - Permanent closures
  - Temporary closures (nighttime 10 p.m.- 7 a.m.)
Quiet Zone Requirements

- Supplementary Safety Measures (SSM)
  - One-way streets with full width gates
Quiet Zone Requirements

- Supplementary Safety Measures (SSM)
  - Four-quadrant gates
Quiet Zone Requirements

- Supplementary Safety Measures (SSM)
  - Raised medians or channelization devices
    - Extend 100’ from gate arm, 60’ minimum length if intersecting street is closer (Rocky Mt. Ave.@ UPRR)
Use of Wayside Horns

- Authorized at any crossing with flashing lights and gates
- Recognized as a 1:1 substitute for the train horn
- Quieter but not totally quiet
- Provides FRA approved sound level directed at vehicles
Wayside Horn

- Considered when:
  - Closure is not feasible
  - Not enough distance to implement raised medians
  - One-way street is not a viable alternative
  - Cost of 4 quadrant gates is prohibitive
  - Affordable for the community
### Wayside Horn

#### Sound Level (dBA) vs. Other Typical Common Sounds

<table>
<thead>
<tr>
<th>Sound Level (dBA)</th>
<th>Other Typical Common Sounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue &gt;70</td>
<td>Diesel Truck at 100 feet</td>
</tr>
<tr>
<td>Yellow &gt;80</td>
<td>Diesel Truck at 50 feet</td>
</tr>
<tr>
<td>Red &gt;90</td>
<td>Lawn Mower at 3 feet</td>
</tr>
</tbody>
</table>
# Wayside Horn

## Automated Train Horn

### Decibel (dBA) Contour Map

### Union Pacific RR

### North Dakota

## Sound Level (dBA) vs. Train Horn Area (acres) vs. Wayside Horn Area (acres) vs. Percent Reduction

<table>
<thead>
<tr>
<th>Sound Level (dBA)</th>
<th>Train Horn Area (acres)</th>
<th>Wayside Horn Area (acres)</th>
<th>Percent Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;70</td>
<td>265</td>
<td>37</td>
<td>86%</td>
</tr>
<tr>
<td>&gt;80</td>
<td>171</td>
<td>5</td>
<td>97%</td>
</tr>
<tr>
<td>&gt;90</td>
<td>31</td>
<td>&lt;1</td>
<td>98%</td>
</tr>
</tbody>
</table>
### Typical Improvement Costs

<table>
<thead>
<tr>
<th>Safety Improvement</th>
<th>Typical Construction Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permanent/Temporary Closure</td>
<td>Varies</td>
</tr>
<tr>
<td>Convert to One-Way Street</td>
<td>Varies</td>
</tr>
<tr>
<td>Raised Medians</td>
<td>$15,000 - $65,000</td>
</tr>
<tr>
<td>Four-Quadrant Gates</td>
<td>$300,000 - 500,000</td>
</tr>
<tr>
<td>Wayside Horns</td>
<td>$120,000 - $160,000</td>
</tr>
</tbody>
</table>
Alternative Safety Measures

- **Alternative Safety Measures**
  - Active warning devices must be present

- **Modified Supplementary Safety Measures**
  - Not fully compliant with all of the SSM requirements
  - Provide an estimate of effectiveness or actual field data
  - Calculate Quiet Zone Risk Index
  - Requires review and approval from FRA
  - Treated as an Alternative Safety Measure (ASM)
Alternative Safety Measures

- Non-Engineering Alternative Safety Measures (ASMs)
  - Programmed enforcement
  - Public education and awareness
  - Photo/Video enforcement
Alternative Safety Measures

- Non-Engineering ASMs
  - Requires application, review and approval from FRA
  - Requires systematic and measurable monitoring
  - Must be continued indefinitely- annual resource commitment
  - Must demonstrate a significant reduction in gate violations
  - Subject to audit at anytime by FRA
  - Quiet Zone may be terminated if not effective or if QZRI falls above Nationwide Risk Index
Alternative Safety Measures

- Engineering ASMs
  - Engineering Improvements
  - Address underlying geometric conditions that are the source of increased risk at the crossing
  - Follow similar evaluation and monitoring as other ASM’s
  - If found effective FRA may treat as SSM in future
Quiet Zone Evaluation

- Field review of existing crossings within the proposed Quiet Zone corridor
  - Identify grade crossing warning devices & circuitry
  - Determine average daily traffic and train counts
  - Compile collision history

- Conduct a Diagnostic Review
  - Includes Railroad, FRA, State (PUC) & Local Agency
  - Required for Quiet Zones with private or pedestrian crossings, but should be held for all Quiet Zones
Quiet Zone Evaluation

- Determine the appropriate Quiet Zone treatments for each grade crossing
- Identify Basic Active Warning & Circuitry Upgrades
  - Significantly increases the cost of implementation
- Develop conceptual drawings and cost estimates
- Create report summarizing the study findings
- Treat Every Crossing with approved safety measures
Key Quiet Zone Issues

- Process required to establish a Quiet Zone
  - Notice of Intent (60 days for comments)
  - Notice of Establishment (21 days notice)

- Liability Issues
  - Use of wayside horn requires railroad agreement requires liability insurance from municipality
Funding Options

- Funding Sources
  - No state or federal funds are available for creation of quiet zones—can be used for other crossing safety improvements
  - Railroads typically will not participate unless crossings are closed
  - Local Funding options
    - General Funds
    - Sales Tax Revenues
    - Special Districts
Implementation Schedule

- **Required Notifications**
  - **Notice of Intent** to create a quiet zone – 60 day review
  - **Notice of Quiet Zone Establishment** – 21 day notice

- **Schedule**
  - No railroad improvements (crossing or circuitry)
    - As soon as roadway improvements are in place and Notifications have been submitted
  - Railroad signal and crossing improvements
    - Railroad Agreements – 6 months
    - Railroad engineering design – 6 months
    - Order and install equipment – 6 months

- **Effective Quiet Zones**
  - .25 miles in advance of crossings
Now It’s Your Turn!

- View Exhibits By Railroad Corridor
  - BNSF
  - UPRR
  - Great Western
- Ask Questions of Consultant Team and City Staff
- Provide Feedback
  - Written comments preferred on comment sheets
- Give Us Your General Ideas and Specific Priorities