Wyoming Quiet Zone Study

A Report Prepared For

Wyoming Department of Transportation

Submitted By

Economics · Engineering · Service Planning
Arlington, VA

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Wyoming Quiet Zone Study

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Introduction/Scope of Services

The intent of this study is to show the relative need for railroad quiet zones by community, to outline general community and statewide costs for quiet zones, and to develop a priority ranking formula for implementation of quiet zones.

The R.L. Banks & Associates, Inc., (RLBA) scope of work for this project includes a field assessment of quiet zone options for each of 84 at-grade public crossings in Wyoming. Included in this scope of work is identification of FRA (Federal Railroad Administration) required equipment needed at each crossing, approximate dollar amounts for that equipment, feasible quiet zone treatments, approximate dollar amounts for those treatments, and total costs. Also included is a priority ranking formula for implementation of quiet zones in the communities inspected, and the recommended priority ranking of communities.

Acknowledgment

RLBA gratefully acknowledges the considerable help received, in performing this assignment, from two officials of the Wyoming Department of Transportation: Dan Kline, Systems Planning Supervisor, and J.W. (Bill) Thompson, Railroad Coordinator.

Federal Quiet Zone Regulations

The Swift Rail Development Act, Public Law 103-440, enacted by Congress in 1994, requires use of locomotive horns at public grade crossings but gives the Federal Railroad Administration (FRA) authority to make reasonable exceptions. Implementation of this law is embodied in Title 49 Code of Federal Regulations Parts 222 and 229, which were amended by the August 2006 Federal Railroad Administration Final Rule.

RLBA utilizes the August 2006 FRA Final Rule in this and other quiet zone studies.

Field Assessment/Identification of Equipment Needed/Recommended SSM

RLBA performed a field assessment of quiet zone options with regard to at-grade public crossings in Wyoming in or near municipalities with populations of 100 or higher, and train counts greater than two per day. Wyoming Department of Transportation (WYDOT) provided RLBA a list of 84 public crossings to be
inspected, crossings that met these criteria. These crossings are in or near 34 rail-served incorporated Wyoming communities.

The field assessments took place in two separate periods, July 27-31, and August 10-13. RLBA made considerable use of the “Field Materials” booklet, prepared by WYDOT, which contains maps identifying crossing locations, by community, as well as photos and sketches. At each crossing RLBA entered data on a Crossing Assessment form. RLBA also utilized the U.S. Department of Transportation (USDOT) Crossing Inventory Information (downloaded from Federal Railroad Administration (FRA) website), with regard to each crossing, as a cross check.

In addition to entering data on a Crossing Assessment form, RLBA made sketches of many crossings, in order to assure understanding of the geometrical configuration of the crossing.

The results of the field assessment, with cost information added, are shown in Appendix A, Crossing Assessments. In Appendix A, the 84 crossings are listed by county.

At each designated crossing, RLBA identified:

(1) Existence of FRA-required equipment per 49 CFR 222.35 (constant warning time (CWT), flashing lights (FL) and gate assemblies (G)).

(2) Approximate dollar amounts for purchase and installation of any needed equipment.

(3) Which quiet zone treatments (49 CFR 222, Appendix A) are potentially feasible.

(4) Approximate dollar amounts for each potential quiet zone treatment.

(5) Total costs for the array of possible treatments at each crossing.

In accordance with WYDOT instructions, Alternate Safety Measures (ASMs) were not considered. RLBA agrees with these instructions, as annual changes in the Nationwide Significant Risk Threshold (NSRT) can “dis-qualify” a quiet zone qualified on the basis of ASMs, whereas any quiet zone qualified on the basis of SSMs is permanently qualified.
Estimation of Costs

In coordination with WYDOT, RLBA estimated costs as follows:

Approximate Capital Costs of Supplementary Safety Measures (SSMs)

<table>
<thead>
<tr>
<th>Safety Measure</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Four-quadrant gates</td>
<td>$500,000</td>
</tr>
<tr>
<td>Non-traversable medians/curbs</td>
<td>$60,000</td>
</tr>
<tr>
<td>Add gates to one-way street</td>
<td>$150,000</td>
</tr>
<tr>
<td>Wayside horn</td>
<td>$115,000</td>
</tr>
</tbody>
</table>

Costs to Meet Initial FRA Requirements (in addition to cost of SSM selected)

<table>
<thead>
<tr>
<th>Safety Measure</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flashing lights and gates (2-quadrant gates)</td>
<td>$250,000</td>
</tr>
<tr>
<td>Gates only</td>
<td>$250,000</td>
</tr>
<tr>
<td>Constant warning time circuitry</td>
<td>$150,000 (single track) $250,000 (multiple track)</td>
</tr>
<tr>
<td>Compliance with USDOT FHWA Manual of Uniform Traffic Control Devices (MUTCD)</td>
<td>$1,000</td>
</tr>
<tr>
<td>Advance warning signs advising that locomotive horn will not be sounded (public and private crossings) (to be installed at time when QZ goes into effect):</td>
<td>$1,000</td>
</tr>
</tbody>
</table>

Because of the likelihood that masts and flashing lights often must be changed out when there are crossing improvements, the “Gates only” cost above is the same as the “Flashing lights and gates” estimate.

It should be understood that these costs are rough estimates, and that precise costs can be made only after decisions are made to implement quiet zones and to design the necessary improvements specific to any given crossing. The ultimate crossing improvements and their design are necessarily site specific.

These rough cost estimates result from recent quotes received from railroads, from crossing equipment vendors, and from RLBA and WYDOT experience.

Appendix B is a listing of all 84 crossings, by county, showing estimated costs if SSMs were placed at each crossing. Please note that this does not necessarily indicate the total cost of a quiet zone (see “Utilization of These Data” section, below).
In the assessment of quiet zone SSM options at each crossing, the least cost SSM deemed feasible -- based upon intersection geometry and other considerations at each crossing location – is recommended. Costs shown in Appendix A and Appendix B are based on this premise.

If it were decided by a community to install SSMs at each crossing, the total costs, by community, are listed in Appendix C. Once again, the reader is reminded that by aggregating crossings within a community (on the same rail line), and by using the FRA Quiet Zone Risk Calculator, it may not be necessary to install SSMs at every crossing, and quiet zone costs may accordingly be reduced. This subject will be discussed in Phase 2 of this study.

Utilization of These Data

The total of the estimated cost figures in any given town, as can be derived from Appendix B, does not necessarily indicate the cost of a quiet zone in that town, unless a policy decision is made to install SSMs at every crossing.

An alternative method of quiet zone qualification is available which calculates risk with regard to two or more contiguous crossings and generally does not require SSMs at each crossing. Thus a quiet zone involving a group of crossings may be qualified, for example, by installing a SSM at one of the crossings, not at every crossing. This method of quiet zone qualification is perfectly legitimate, and involves use of the FRA on-line risk calculator, which relates placement of one or more SSMs at one or more of several contiguous crossings, and compares the subsequent Quiet Zone Risk Index (QZRI) with the Risk Index with Horns (RIWH). If the placement of one SSM reduces the QZRI to at least the level of the RIWH, then a quiet zone is qualified.

It also should be understood that a quiet zone must be at least 1/2 mile in length. Therefore if two or more crossings along a rail line are within 1/2 mile of one another, they should all be considered for inclusion in a single quiet zone. (RLBA was not asked to examine this ½ mile rule but where RLBA saw this situation, RLBA noted it. See, for example, remarks column in Appendix B.)

The above discussion refers to public crossings, i.e., crossings where the public authority exercises jurisdiction. Private crossings, that is, crossings not owned by the public, also exist in a number of Wyoming communities, and are the result of an agreement between a private owner and the railroad. If there is a private crossing between public crossings in a proposed quiet zone, it must be included in the quiet zone and must be the subject of a diagnostic team inspection, and must be treated in accord with recommendations of the diagnostic team. There are at least a few instances where potential community quiet zones in Wyoming involve private crossings. (RLBA was not asked to examine this private-
crossing-in-a-quiet-zone situation, but where RLBA saw this situation, it noted same.)

**Priority Ranking Formula**

The priority ranking formula, for implementation of quiet zones in Wyoming communities, is to show priority by community or by potential quiet zone corridors within communities, not by individual crossing. Ranking system factors may consist of trains per day, number of crossings per town, affected population, or other factors.

RLBA believes that the priority ranking formula should include the following factors:

- Trains per day, since this is a measure of the frequency with which locomotive horns are currently sounded.
- Number of crossings, since this likewise relates to the frequency of horn sounding.
- Population, as this relates to the number of persons affected by locomotive horn noise.

Inasmuch as the priority ranking formula will be utilized to provide relative rankings, a simple formula such as the following should suffice:

Relative priority = T x N x P

Where: T = number of trains per day on a given rail corridor
       N = number of public grade crossings along that rail corridor and within the community
       P = population of community along that given rail corridor

This formula will facilitate the relative ranking of community quiet zones.

The table on the following page displays the resulting ranking of communities. Please note that, since the designated public crossings in Cheyenne lie on two different rail lines with considerably different numbers of trains per day, fairness to those near these rail lines requires two separate Cheyenne lines. The priority 1 Cheyenne crossing is that on Southwest Drive (Union Pacific main line), and the priority 3 Cheyenne crossings are W. 24th Street and College Drive, on the BNSF line.
## Ranking of Communities

<table>
<thead>
<tr>
<th>Relative Priority</th>
<th>Community</th>
<th>Trains Per Day</th>
<th>Number of Crossings</th>
<th>Population (thousands)</th>
<th>Relative Priority Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cheyenne</td>
<td>60.0</td>
<td>1</td>
<td>56.92</td>
<td>3415.20</td>
</tr>
<tr>
<td>2</td>
<td>Gillette</td>
<td>12.0</td>
<td>6</td>
<td>26.90</td>
<td>1936.80</td>
</tr>
<tr>
<td>3</td>
<td>Cheyenne</td>
<td>17.0</td>
<td>2</td>
<td>56.92</td>
<td>1935.28</td>
</tr>
<tr>
<td>4</td>
<td>Laramie</td>
<td>30.0</td>
<td>2</td>
<td>27.60</td>
<td>1656.00</td>
</tr>
<tr>
<td>5</td>
<td>Torrington</td>
<td>41.0</td>
<td>6</td>
<td>5.51</td>
<td>1355.46</td>
</tr>
<tr>
<td>6</td>
<td>Casper</td>
<td>8.0</td>
<td>2</td>
<td>54.05</td>
<td>864.80</td>
</tr>
<tr>
<td>7</td>
<td>Sheridan</td>
<td>32.0</td>
<td>1</td>
<td>17.20</td>
<td>550.40</td>
</tr>
<tr>
<td>8</td>
<td>Newcastle</td>
<td>51.0</td>
<td>3</td>
<td>3.38</td>
<td>517.14</td>
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<tr>
<td>9</td>
<td>Evanston</td>
<td>40.0</td>
<td>1</td>
<td>11.78</td>
<td>471.20</td>
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<tr>
<td>10</td>
<td>Lusk</td>
<td>70.0</td>
<td>4</td>
<td>1.48</td>
<td>414.40</td>
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<tr>
<td>11</td>
<td>Rawlins</td>
<td>46.0</td>
<td>1</td>
<td>8.74</td>
<td>402.04</td>
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<tr>
<td>12</td>
<td>Wheatland</td>
<td>16.8</td>
<td>5</td>
<td>3.30</td>
<td>277.20</td>
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<tr>
<td>13</td>
<td>Worland</td>
<td>7.3</td>
<td>5</td>
<td>4.96</td>
<td>179.80</td>
</tr>
<tr>
<td>14</td>
<td>Douglas</td>
<td>9.0</td>
<td>3</td>
<td>5.97</td>
<td>161.19</td>
</tr>
<tr>
<td>15</td>
<td>Moorcroft</td>
<td>55.3</td>
<td>3</td>
<td>0.89</td>
<td>147.65</td>
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<tr>
<td>16</td>
<td>Pine Bluffs</td>
<td>58.5</td>
<td>2</td>
<td>1.16</td>
<td>135.72</td>
</tr>
<tr>
<td>17</td>
<td>Evansville</td>
<td>8.0</td>
<td>5</td>
<td>2.39</td>
<td>95.60</td>
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<tr>
<td>18</td>
<td>Thermopolis</td>
<td>7.0</td>
<td>3</td>
<td>3.24</td>
<td>68.04</td>
</tr>
<tr>
<td>19</td>
<td>Ranchester</td>
<td>34.0</td>
<td>2</td>
<td>0.80</td>
<td>54.40</td>
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<tr>
<td>20</td>
<td>Basin</td>
<td>10.0</td>
<td>4</td>
<td>1.20</td>
<td>48.00</td>
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<tr>
<td>21</td>
<td>Lovell</td>
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<td>2.28</td>
<td>41.04</td>
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<tr>
<td>22</td>
<td>Greybull</td>
<td>11.5</td>
<td>2</td>
<td>1.74</td>
<td>40.02</td>
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<td>23</td>
<td>Ft Laramie</td>
<td>41.0</td>
<td>3</td>
<td>0.23</td>
<td>28.29</td>
</tr>
<tr>
<td>24</td>
<td>Glendo</td>
<td>46.0</td>
<td>2</td>
<td>0.22</td>
<td>20.24</td>
</tr>
<tr>
<td>25</td>
<td>Lingle</td>
<td>41.0</td>
<td>1</td>
<td>0.48</td>
<td>19.68</td>
</tr>
<tr>
<td>26</td>
<td>Cokeville</td>
<td>34.0</td>
<td>1</td>
<td>0.49</td>
<td>16.66</td>
</tr>
<tr>
<td>27</td>
<td>Medicine Bow</td>
<td>60.0</td>
<td>1</td>
<td>0.27</td>
<td>16.20</td>
</tr>
<tr>
<td>28</td>
<td>Burns</td>
<td>47.0</td>
<td>1</td>
<td>0.31</td>
<td>14.57</td>
</tr>
<tr>
<td>29</td>
<td>Granger</td>
<td>89.0</td>
<td>1</td>
<td>0.15</td>
<td>13.35</td>
</tr>
<tr>
<td>30</td>
<td>LaGrange</td>
<td>6.0</td>
<td>3</td>
<td>0.33</td>
<td>5.94</td>
</tr>
<tr>
<td>31</td>
<td>Chugwater</td>
<td>16.0</td>
<td>1</td>
<td>0.22</td>
<td>3.52</td>
</tr>
<tr>
<td>32</td>
<td>Deaver</td>
<td>9.0</td>
<td>2</td>
<td>0.18</td>
<td>3.24</td>
</tr>
<tr>
<td>33</td>
<td>Clearmont</td>
<td>29.0</td>
<td>1</td>
<td>0.11</td>
<td>3.19</td>
</tr>
<tr>
<td>34</td>
<td>Frannie</td>
<td>9.0</td>
<td>1</td>
<td>0.18</td>
<td>1.62</td>
</tr>
<tr>
<td>35</td>
<td>Manderson</td>
<td>8.0</td>
<td>1</td>
<td>0.10</td>
<td>0.80</td>
</tr>
</tbody>
</table>
Conclusions

This study provides an assessment of 84 Wyoming public grade crossings, including costs necessary to fulfill FRA initial requirements which must be met in quiet zone establishment, identification of the appropriate supplementary safety measure (SSM) for each crossing, its cost, and total costs with regard to each crossing assuming a SSM is to be placed at each crossing. As stated above, the qualification of a quiet zone does not require a SSM at each public crossing in the quiet zone.

This study also makes note of FRA’s requirements with regard to minimum length of a quiet zone (1/2 mile), and requirements with regard to private grade crossings, if included in a proposed quiet zone.

In Phase 2 of this study, the FRA Quiet Zone Calculator will be utilized to indicate, by community, what minimum level of Quiet Zone cost is possible, by judicious use of SSMs.
Appendix A

Crossing Assessments
This appendix contains the R.L. Banks & Associates, Inc., (RLBA) assessments with regard to 84 Wyoming grade crossings. The assessments are listed in the same order as on the Wyoming Department of Transportation list of crossings. “2Q gates” means two-quadrant gates. “4Q gates” means four-quadrant gates. See text of report for discussion of quiet zone options. FL = flashing lights. G = gates. CWT = constant warning time.

Crossing Assessment
Crossing: 810434Y, located in Laramie, Albany County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
- 2Q gates & median barriers: not feasible because of intersection geometry
- 4Q gates: feasible
- Wayside horns: feasible and recommended
- One way with gates: not deemed feasible
- Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates, plus the $1,000 upgrade cost

Crossing Assessment
Crossing: 810427N, located in Laramie, Albany County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
- 2Q gates & median barriers: feasible and recommended
- 4Q gates: feasible
- Wayside horns: feasible
- One way with gates: not deemed feasible
- Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $60,000 for median barriers to $500,000 for 4Q gates, plus $1,000 upgrade costs

Crossing Assessment
Crossing: 090830Y, located in Basin, Big Horn County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
- 2Q gates & median barriers: not feasible because of intersection geometry
- 4Q gates: feasible
Wayside horns: feasible and recommended
One way with gates: not deemed feasible
Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates, plus $1,000 upgrade costs

Crossing Assessment
Crossing: 090831F, located in Basin, Big Horn County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
  2Q gates & median barriers: not feasible because of intersection geometry
  4Q gates: feasible
  Wayside horns: feasible and recommended
  One way with gates: not deemed feasible
  Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates, plus $1,000 upgrade costs

Crossing Assessment
Crossing: 090832M, Basin, Big Horn County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
  2Q gates & median barriers: not feasible
  4Q gates: feasible
  Wayside horns: feasible and recommended
  One way with gates: not deemed feasible
  Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates, plus $1,000 upgrade costs

Crossing Assessment
Crossing: 090833U, Basin, Big Horn County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
  2Q gates & median barriers: not feasible
  4Q gates: feasible
  Wayside horns: feasible and recommended
  One way with gates: not deemed feasible
  Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates, plus $1,000 upgrade costs
Crossing Assessment
Crossing: 091482B, Deaver, Big Horn County
Requisite Equipment: gates, pavement markings
Cost to Upgrade: $251,000
Quiet Zone Options:
  2Q gates & median barriers: feasible and recommended
  4Q gates: feasible
  Wayside horns: feasible
  One way with gates: not deemed feasible
  Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $60,000 for median to $500,000 for 4Q gates, plus $251,000 upgrade costs

Crossing Assessment
Crossing: 091483H, Deaver, Big Horn County
Requisite Equipment: gates, CWT, pavement markings
Cost to Upgrade: $401,000
Quiet Zone Options:
  2Q gates & median barriers: feasible and recommended
  4Q gates: feasible
  Wayside horns: feasible
  One way with gates: not deemed feasible
  Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $60,000 for medians to $500,000 for 4Q gates, plus $401,000 upgrade costs

Crossing Assessment
Crossing: 091476X, Frannie, Big Horn County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
  2Q gates & median barriers: not feasible
  4Q gates: feasible
  Wayside horns: feasible and recommended
  One way with gates: not deemed feasible
  Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates, plus $1,000 upgrade costs

Crossing Assessment
Crossing: 091020K, Grebull, Big Horn County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
  2Q gates & median barriers: not feasible
  4Q gates: feasible
Wayside horns: feasible and recommended
One way with gates: not deemed feasible
Temporary or permanent closure: not deemed feasible
**Range of total cost for quiet zone options:** $115,000 for wayside horns to $500,000 for 4Q gates, plus $1,000 upgrade costs

**Crossing Assessment**
Crossing: 086338Y, Greybull, Big Horn County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
- 2Q gates & median barriers: not feasible
- 4Q gates: feasible
- Wayside horns: feasible and recommended
- One way with gates: not deemed feasible
- Temporary or permanent closure: not deemed feasible
**Range of total cost for quiet zone options:** $115,000 for wayside horns to $500,000 for 4Q gates, plus $1,000 upgrade costs

**Crossing Assessment**
Crossing: 091498X, Lovell, Big Horn County
Requisite Equipment: FL, G, CWT, pavement markings
Cost to Upgrade: $501,000
Quiet Zone Options:
- 2Q gates & median barriers: not feasible
- 4Q gates: feasible
- Wayside horns: feasible and recommended
- One way with gates: not deemed feasible
- Temporary or permanent closure: not deemed feasible
**Range of total cost for quiet zone options:** $115,000 for wayside horns to $500,000 for 4Q gates, plus $501,000 upgrade costs

**Crossing Assessment**
Crossing: 091500W, Lovell, Big Horn County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
- 2Q gates & median barriers: not feasible
- 4Q gates: feasible
- Wayside horns: feasible and recommended
- One way with gates: not deemed feasible
- Temporary or permanent closure: not deemed feasible
**Range of total cost for quiet zone options:** $115,000 for wayside horns to $500,000 for 4Q gates, plus $1,000 upgrade costs
Crossing Assessment
Crossing: 090842T, Manderson, Big Horn County
Requisite Equipment: none
Cost to Upgrade: none
Quiet Zone Options:
   2Q gates & median barriers: feasible and recommended
   4Q gates: feasible
   Wayside horns: feasible
   One way with gates: not deemed feasible
   Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $60,000 for medians to $500,000 for 4Q gates

Crossing Assessment
Crossing: 064969N, Gillette, Campbell County
Requisite Equipment: CWT, pavement markings
Cost to Upgrade: $151,000
Quiet Zone Options:
   2Q gates & median barriers: feasible and recommended
   4Q gates: feasible
   Wayside horns: feasible
   One way with gates: not deemed feasible
   Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $60,000 for medians to $500,000 for 4Q gates, plus $151,000 upgrade costs

Crossing Assessment
Crossing: 064970H, Gillette, Campbell County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
   2Q gates & median barriers: not applicable
   4Q gates: four-quadrant gates are currently in place
Range of total cost for quiet zone options: $60,000 for medians to $500,000 for 4Q gates, plus $1,000 upgrade costs

Crossing Assessment
Crossing: 064975S, Gillette, Campbell County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
   2Q gates & median barriers: not applicable
   4Q gates: four-quadrant gates are currently in place
Wayside horns: not applicable
One way with gates: not applicable
Temporary or permanent closure: not applicable
Range of total cost for quiet zone options: four-quadrant gates are in place at this grade crossing. Pavement markings should be added ($1,000).

Crossing Assessment
Crossing: 064976Y, Gillette, Campbell County
Requisite Equipment: CWT on one track, pavement markings
Cost to Upgrade: $151,000
Quiet Zone Options:
  2Q gates & median barriers: not feasible
  4Q gates: feasible
  Wayside horns: feasible and recommended
  One way with gates: not deemed feasible
  Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates, plus $151,000 upgrade costs

Crossing Assessment
Crossing: 095097L, Gillette, Campbell County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
  2Q gates & median barriers: feasible and recommended
  4Q gates: feasible
  Wayside horns: feasible
  One way with gates: not deemed feasible
  Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $60,000 for medians to $500,000 for 4Q gates, plus $1,000 upgrade costs

Crossing Assessment
Crossing: 098836S, Gillette, Campbell County
Requisite Equipment: none
Cost to Upgrade: none
Quiet Zone Options:
  2Q gates & median barriers: feasible and recommended
  4Q gates: feasible
  Wayside horns: feasible
  One way with gates: not deemed feasible
  Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $60,000 for medians to $500,000 for 4Q gates
Crossing Assessment
Crossing: 810437U, Medicine Bow, Carbon County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
  - 2Q gates & median barriers: not feasible
  - 4Q gates: feasible
  - Wayside horns: feasible and recommended
  - One way with gates: not deemed feasible
  - Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates, plus $1,000 upgrade costs

Crossing Assessment
Crossing: 810468T, Rawlins, Carbon County
Requisite Equipment: none
Cost to Upgrade: none
Quiet Zone Options:
  - 2Q gates & median barriers: feasible and recommended
  - 4Q gates: feasible
  - Wayside horns: feasible
  - One way with gates: not deemed feasible
  - Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $60,000 for medians to $500,000 for 4Q gates

Crossing Assessment
Crossing: 089291R, Douglas, Converse County
Requisite Equipment: CWT, pavement markings
Cost to Upgrade: $151,000
Quiet Zone Options:
  - 2Q gates & median barriers: feasible and recommended
  - 4Q gates: feasible
  - Wayside horns: feasible
  - One way with gates: not deemed feasible
  - Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $60,000 for medians to $500,000 for 4Q gates, plus $151,000 upgrade costs

Crossing Assessment
Crossing: 094931Y, Douglas, Converse County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
  - 2Q gates & median barriers: feasible and recommended
  - 4Q gates: feasible
Wayside horns: feasible
One way with gates: not deemed feasible
Temporary or permanent closure: not deemed feasible

Range of total cost for quiet zone options: $60,000 for medians to $500,000 for 4Q gates, plus $1,000 upgrade costs

Crossing Assessment
Crossing: 089293E, Douglas, Converse County
Requisite Equipment: CWT
Cost to Upgrade: $150,000

Quiet Zone Options:
2Q gates & median barriers: not feasible
4Q gates: feasible
Wayside horns: feasible and recommended
One way with gates: not deemed feasible
Temporary or permanent closure: not deemed feasible

Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates, plus $150,000 upgrade costs

Crossing Assessment
Crossing: 927512F, Moorcroft, Crook County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000

Quiet Zone Options:
2Q gates & median barriers: not feasible
4Q gates: feasible
Wayside horns: feasible and recommended
One way with gates: not deemed feasible
Temporary or permanent closure: not deemed feasible

Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates, plus $1,000 upgrade costs

Crossing Assessment
Crossing: 064947N, Moorcroft, Crook County
Requisite Equipment: none
Cost to Upgrade: none

Quiet Zone Options:
2Q gates & median barriers: not feasible on 12’ wide gravel road
4Q gates: feasible
Wayside horns: feasible and recommended
One way with gates: not deemed feasible
Temporary or permanent closure: not deemed feasible

Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates
Crossing Assessment
Crossing: 064950W, Moorcroft, Crook County
Requisite Equipment: none
Cost to Upgrade: none
Quiet Zone Options:
  2Q gates & median barriers: feasible and recommended
  4Q gates: feasible
  Wayside horns: feasible
  One way with gates: not deemed feasible
  Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $60,000 for medians to $500,000 for 4Q gates

Crossing Assessment
Crossing: 089241M, Fort Laramie, Goshen County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
  2Q gates & median barriers: feasible and recommended
  4Q gates: feasible
  Wayside horns: feasible
  One way with gates: not deemed feasible
  Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $60,000 for medians to $500,000 for 4Q gates, plus $1,000 upgrade costs

Crossing Assessment
Crossing: 089242U, Fort Laramie, Goshen County
Requisite Equipment: CWT, pavement markings
Cost to Upgrade: $151,000
Quiet Zone Options:
  2Q gates & median barriers: not feasible
  4Q gates: feasible
  Wayside horns: feasible and recommended
  One way with gates: not deemed feasible
  Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates, plus $151,000 upgrade costs

Crossing Assessment
Crossing: 089243B, Fort Laramie, Goshen County
Requisite Equipment: CWT
Cost to Upgrade: $150,000
Quiet Zone Options:
  2Q gates & median barriers: feasible and recommended
  4Q gates: feasible
Wayside horns: feasible  
One way with gates: not deemed feasible  
Temporary or permanent closure: not deemed feasible  
Range of total cost for quiet zone options: $60,000 for medians to $500,000 for 4Q gates, plus $150,000 upgrade costs

**Crossing Assessment**  
**Crossing:** 816026J, LaGrange, Goshen County  
**Requisite Equipment:** G, CWT, pavement markings  
**Cost to Upgrade:** $401,000  
**Quiet Zone Options:**  
- 2Q gates & median barriers: not feasible  
- 4Q gates: feasible  
- Wayside horns: feasible and recommended  
- One way with gates: not deemed feasible  
- Temporary or permanent closure: not deemed feasible  
**Range of total cost for quiet zone options:** $115,000 for wayside horns to $500,000 for 4Q gates, plus $401,000 upgrade costs

**Crossing Assessment**  
**Crossing:** 816027R, LaGrange, Goshen County  
**Requisite Equipment:** FL, G, CWT  
**Cost to Upgrade:** $400,000  
**Quiet Zone Options:**  
- 2Q gates & median barriers: not feasible on 12' wide gravel road  
- 4Q gates: feasible  
- Wayside horns: feasible and recommended  
- One way with gates: not deemed feasible  
- Temporary or permanent closure: not deemed feasible  
**Range of total cost for quiet zone options:** $115,000 for wayside horns to $500,000 for 4Q gates, plus $400,000 upgrade costs

**Crossing Assessment**  
**Crossing:** 816028X, LaGrange, Goshen County  
**Requisite Equipment:** G, CWT  
**Cost to Upgrade:** $400,000  
**Quiet Zone Options:**  
- 2Q gates & median barriers: not feasible  
- 4Q gates: feasible  
- Wayside horns: feasible and recommended  
- One way with gates: not deemed feasible  
- Temporary or permanent closure: not deemed feasible  
**Range of total cost for quiet zone options:** $115,000 for wayside horns to $500,000 for 4Q gates, plus $400,000 upgrade costs
Crossing Assessment
Crossing: 089227S, Lingle, Goshen County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
  2Q gates & median barriers: not feasible
  4Q gates: feasible
  Wayside horns: feasible and recommended
  One way with gates: not deemed feasible
  Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates, plus $1,000 upgrade costs

Crossing Assessment
Crossing: 089204K, Torrington, Goshen County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
  2Q gates & median barriers: not feasible
  4Q gates: feasible
  Wayside horns: feasible and recommended
  One way with gates: not deemed feasible
  Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates, plus $1,000 upgrade costs

Crossing Assessment
Crossing: 089205S, Torrington, Goshen County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
  2Q gates & median barriers: not feasible
  4Q gates: feasible
  Wayside horns: feasible and recommended
  One way with gates: not deemed feasible
  Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates, plus $1,000 upgrade costs

Crossing Assessment
Crossing: 089208M, Torrington, Goshen County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
  2Q gates & median barriers: not feasible
  4Q gates: feasible and recommended because of downtown setting
Wayside horns: feasible
One way with gates: not deemed feasible
Temporary or permanent closure: not deemed feasible

Range of total cost for quiet zone options: $500,000 for 4Q gates, plus $1,000 upgrade costs

Crossing Assessment
Crossing: 089209U, Torrington, Goshen County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
- 2Q gates & median barriers: not feasible
- 4Q gates: feasible
- Wayside horns: feasible and recommended
- One way with gates: not deemed feasible
- Temporary or permanent closure: not deemed feasible

Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates, plus $1,000 upgrade costs

Crossing Assessment
Crossing: 089210N, Torrington, Goshen County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
- 2Q gates & median barriers: not feasible
- 4Q gates: feasible
- Wayside horns: feasible and recommended
- One way with gates: not deemed feasible
- Temporary or permanent closure: not deemed feasible

Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates, plus $1,000 upgrade costs

Crossing Assessment
Crossing: 089211V, Torrington, Goshen County
Requisite Equipment: CWT, pavement markings
Cost to Upgrade: $151,000
Quiet Zone Options:
- 2Q gates & median barriers: not feasible
- 4Q gates: feasible
- Wayside horns: feasible and recommended
- One way with gates: not deemed feasible
- Temporary or permanent closure: not deemed feasible

Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates, plus $151,000 upgrade costs
Crossing Assessment
Crossing: 090462L, Thermopolis, Hot Springs County
Requisite Equipment: FL, G, CWT
Cost to Upgrade: $400,000
Quiet Zone Options:
   2Q gates & median barriers: not feasible on 12’ gravel road
   4Q gates: feasible
   Wayside horns: feasible and recommended
   One way with gates: not deemed feasible
   Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates, plus $400,000 upgrade costs

Crossing Assessment
Crossing: 090463T, Thermopolis, Hot Springs County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
   2Q gates & median barriers: not feasible
   4Q gates: feasible
   Wayside horns: feasible and recommended
   One way with gates: not deemed feasible
   Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates, plus $1,000 upgrade costs

Crossing Assessment
Crossing: 090465G, Thermopolis, Hot Springs County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
   2Q gates & median barriers: not feasible
   4Q gates: feasible and recommended (downtown setting)
   Wayside horns: feasible, but many nearby residences
   One way with gates: not deemed feasible
   Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $500,000 for 4Q gates, plus $1,000 upgrade costs

Crossing Assessment
Crossing: 817680H, Burns, Laramie County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
   2Q gates & median barriers: feasible and recommended
   4Q gates: feasible
Wayside horns: feasible
One way with gates: not deemed feasible
Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $60,000 for medians to $500,000 for 4Q gates, plus $1,000 upgrade costs

Crossing Assessment
Crossing: 810600N, Cheyenne, Laramie County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
- 2Q gates & median barriers: not feasible
- 4Q gates: feasible
- Wayside horns: feasible and recommended
- One way with gates: not deemed feasible
- Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates, plus $1,000 upgrade costs

Crossing Assessment
Crossing: 245617J, Cheyenne, Laramie County
Requisite Equipment: none
Cost to Upgrade: none
Quiet Zone Options:
- 2Q gates & median barriers: feasible and recommended
- 4Q gates: feasible
- Wayside horns: feasible
- One way with gates: not deemed feasible
- Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $60,000 for medians to $500,000 for 4Q gates

Crossing Assessment
Crossing: 245684D, Cheyenne, Laramie County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
- 2Q gates & median barriers: not applicable
- 4Q gates: in place
- Wayside horns: not applicable
- One way with gates: not applicable
- Temporary or permanent closure: not applicable
Range of total cost for quiet zone options: 4Q gates are in place. Add pavement markings ($1,000) and this grade crossing is qualified.
Crossing Assessment
Crossing: 817675L, Pine Bluffs, Laramie County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
   2Q gates & median barriers: not feasible
   4Q gates: feasible
   Wayside horns: feasible and recommended
   One way with gates: not deemed feasible
   Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates, plus $1,000 upgrade costs

Crossing Assessment
Crossing: 817676T, Pine Bluffs, Laramie County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
   2Q gates & median barriers: feasible and recommended
   4Q gates: feasible
   Wayside horns: feasible
   One way with gates: not deemed feasible
   Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $60,000 for medians to $500,000 for 4Q gates, plus $1,000 upgrade costs

Crossing Assessment
Crossing: 807292G, Cokeville, Lincoln County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
   2Q gates & median barriers: not feasible
   4Q gates: feasible
   Wayside horns: feasible and recommended
   One way with gates: not deemed feasible
   Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates, plus $1,000 upgrade costs

Crossing Assessment
Crossing: 095107P, Casper, Natrona County
Requisite Equipment: G, CWT
Cost to Upgrade: $400,000
Quiet Zone Options:
   2Q gates & median barriers: not applicable (one lane)
   4Q gates: not applicable (one lane)
Wayside horns: feasible and recommended
One way with gates: feasible
Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $115,000 for wayside horns to $150,000 to add gates, plus $400,000 upgrade costs

Crossing Assessment
Crossing: 089345U, Casper, Natrona County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
- 2Q gates & median barriers: feasible and recommended
- 4Q gates: feasible
- Wayside horns: feasible
- One way with gates: not feasible
- Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $60,000 for medians to $500,000 for 4Q gates, plus $1,000 upgrade costs

Crossing Assessment
Crossing: 089336V, Evansville, Natrona County
Requisite Equipment: none
Cost to Upgrade: none
Quiet Zone Options:
- 2Q gates & median barriers: feasible and recommended
- 4Q gates: feasible
- Wayside horns: feasible
- One way with gates: not feasible
- Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $60,000 for medians to $500,000 for 4Q gates

Crossing Assessment
Crossing: 089337C, Evansville, Natrona County
Requisite Equipment: CWT, pavement markings
Cost to Upgrade: $151,000
Quiet Zone Options:
- 2Q gates & median barriers: feasible and recommended
- 4Q gates: feasible
- Wayside horns: feasible
- One way with gates: not feasible
- Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $60,000 for medians to $500,000 for 4Q gates, plus $151,000 upgrade costs
Crossing Assessment  
Crossing: 089340K, Evansville, Natrona County  
Requisite Equipment: CWT, pavement markings  
Cost to Upgrade: $151,000  
Quiet Zone Options:  
   2Q gates & median barriers: feasible and recommended  
   4Q gates: feasible  
   Wayside horns: feasible  
   One way with gates: not feasible  
   Temporary or permanent closure: not deemed feasible  
Range of total cost for quiet zone options: $60,000 for medians to $500,000 for 4Q gates, plus $151,000 upgrade costs

Crossing Assessment  
Crossing: 089341S, Evansville, Natrona County  
Requisite Equipment: CWT, pavement markings  
Cost to Upgrade: $151,000  
Quiet Zone Options:  
   2Q gates & median barriers: feasible and recommended  
   4Q gates: feasible  
   Wayside horns: feasible  
   One way with gates: not feasible  
   Temporary or permanent closure: not deemed feasible  
Range of total cost for quiet zone options: $60,000 for medians to $500,000 for 4Q gates, plus $151,000 upgrade costs

Crossing Assessment  
Crossing: 089342Y, Evansville, Natrona County  
Requisite Equipment: G, CWT, pavement markings  
Cost to Upgrade: $401,000  
Quiet Zone Options:  
   2Q gates & median barriers: not feasible  
   4Q gates: feasible  
   Wayside horns: feasible and recommended  
   One way with gates: not feasible  
   Temporary or permanent closure: not deemed feasible  
Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates, plus $401,000 upgrade costs

Crossing Assessment  
Crossing: 188630R, Lusk, Niobrara County  
Requisite Equipment: pavement markings  
Cost to Upgrade: $1,000  
Quiet Zone Options:  
   2Q gates & median barriers: feasible and recommended  
   4Q gates: feasible
Wayside horns: feasible
One way with gates: not feasible
Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $60,000 for medians to $500,000 for 4Q gates, plus $1,000 upgrade costs

Crossing Assessment
Crossing: 188632E, Lusk, Niobrara County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
   2Q gates & median barriers: not feasible
   4Q gates: feasible
   Wayside horns: feasible and recommended
   One way with gates: not feasible
   Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates, plus $1,000 upgrade costs

Crossing Assessment
Crossing: 188628P, Lusk, Niobrara County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
   2Q gates & median barriers: not feasible
   4Q gates: feasible
   Wayside horns: feasible and recommended
   One way with gates: not feasible
   Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates, plus $1,000 upgrade costs

Crossing Assessment
Crossing: 188627H, Lusk, Niobrara County
Requisite Equipment: FL, G, CWT, pavement markings
Cost to Upgrade: $401,000
Quiet Zone Options:
   2Q gates & median barriers: feasible and recommended
   4Q gates: feasible
   Wayside horns: feasible
   One way with gates: not feasible
   Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $60,000 for medians to $500,000 for 4Q gates, plus $401,000 upgrade costs
Crossing Assessment
Crossing: 245470L, Chugwater, Platte County
Requisite Equipment: CWT, pavement markings
Cost to Upgrade: $151,000
Quiet Zone Options:
- 2Q gates & median barriers: not feasible
- 4Q gates: feasible
- Wayside horns: feasible and recommended
- One way with gates: not feasible
- Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates, plus $151,000 upgrade costs

Crossing Assessment
Crossing: 089268W, Glendo, Platte County
Requisite Equipment: none
Cost to Upgrade: none
Quiet Zone Options:
- 2Q gates & median barriers: not feasible
- 4Q gates: feasible
- Wayside horns: feasible and recommended
- One way with gates: not feasible
- Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates

Crossing Assessment
Crossing: 089425M, Glendo, Platte County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
- 2Q gates & median barriers: feasible and recommended
- 4Q gates: feasible
- Wayside horns: feasible
- One way with gates: not feasible
- Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $60,000 for medians to $500,000 for 4Q gates, plus $1,000 upgrade costs

Crossing Assessment
Crossing: 245488W, Wheatland, Platte County
Requisite Equipment: FL, G, CWT
Cost to Upgrade: $400,000
Quiet Zone Options:
- 2Q gates & median barriers: not feasible on 9’ gravel road
- 4Q gates: feasible
Wayside horns: feasible and recommended
One way with gates: not feasible
Temporary or permanent closure: probably not deemed feasible
Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for
4Q gates, plus $400,000 upgrade costs

Crossing Assessment
Crossing: 245489D, Wheatland, Platte County
Requisite Equipment: CWT, pavement markings
Cost to Upgrade: $151,000
Quiet Zone Options:
  2Q gates & median barriers: not feasible
  4Q gates: feasible
  Wayside horns: feasible and recommended
  One way with gates: not feasible
  Temporary or permanent closure: probably not deemed feasible
Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for
4Q gates, plus $151,000 upgrade costs

Crossing Assessment
Crossing: 245492L, Wheatland, Platte County
Requisite Equipment: CWT, pavement markings
Cost to Upgrade: $151,000
Quiet Zone Options:
  2Q gates & median barriers: not feasible
  4Q gates: feasible
  Wayside horns: feasible and recommended
  One way with gates: not feasible
  Temporary or permanent closure: probably not deemed feasible
Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for
4Q gates, plus $151,000 upgrade costs

Crossing Assessment
Crossing: 245494A, Wheatland, Platte County
Requisite Equipment: CWT, pavement markings
Cost to Upgrade: $251,000
Quiet Zone Options:
  2Q gates & median barriers: not feasible because of roadway width
  4Q gates: feasible
  Wayside horns: feasible and recommended
  One way with gates: not feasible
  Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for
4Q gates, plus $251,000 upgrade costs
Crossing Assessment
Crossing: 245496N, Wheatland, Platte County
Requisite Equipment: CWT, pavement markings
Cost to Upgrade: $151,000
Quiet Zone Options:
   2Q gates & median barriers: not feasible
   4Q gates: feasible
   Wayside horns: feasible and recommended
   One way with gates: not feasible
   Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates, plus $151,000 upgrade costs

Crossing Assessment
Crossing: 098898P, Clearmont, Sheridan County
Requisite Equipment: CWT, pavement markings
Cost to Upgrade: $251,000
Quiet Zone Options:
   2Q gates & median barriers: not feasible
   4Q gates: feasible
   Wayside horns: feasible and recommend
   One way with gates: not feasible
   Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates, plus $251,000 upgrade costs

Crossing Assessment
Crossing: 104151E, Ranchester, Sheridan County
Requisite Equipment: CWT, pavement markings
Cost to Upgrade: $251,000
Quiet Zone Options:
   2Q gates & median barriers: not feasible
   4Q gates: feasible
   Wayside horns: feasible and recommended
   One way with gates: not feasible
   Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates, plus $251,000 upgrade costs

Crossing Assessment
Crossing: 104150X, Ranchester, Sheridan County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
   2Q gates & median barriers: feasible and recommended
   4Q gates: feasible
Wayside horns: feasible
One way with gates: not feasible
Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $60,000 for medians to $500,000 for 4Q gates, plus $1,000 upgrade costs

Crossing Assessment
Crossing: 103877K, Sheridan, Sheridan County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
2Q gates & median barriers: not feasible
4Q gates: feasible
Wayside horns: feasible and recommended
One way with gates: not feasible
Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates, plus $1,000 upgrade costs

Crossing Assessment
Crossing: 810480A, Granger, Sweetwater County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
2Q gates & median barriers: feasible and recommended
4Q gates: feasible
Wayside horns: feasible
One way with gates: not feasible
Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $60,000 for medians to $500,000 for 4Q gates, plus $1,000 upgrade costs

Crossing Assessment
Crossing: 810323G, Evanston, Uinta County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
2Q gates & median barriers: not feasible
4Q gates: feasible
Wayside horns: feasible and recommended
One way with gates: not feasible
Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates, plus $1,000 upgrade costs
Crossing Assessment
Crossing: 924582K, Worland, Washakie County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
  2Q gates & median barriers: feasible and recommended
  4Q gates: feasible
  Wayside horns: feasible
  One way with gates: not feasible
  Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $60,000 for medians to $500,000 for 4Q gates, plus $1,000 upgrade costs

Crossing Assessment
Crossing: 090867N, Worland, Washakie County
Requisite Equipment: none
Cost to Upgrade: none
Quiet Zone Options:
  2Q gates & median barriers: not feasible
  4Q gates: feasible and recommended (downtown setting)
  Wayside horns: feasible
  One way with gates: not feasible
  Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $115 for wayside horns to $500,000 for 4Q gates

Crossing Assessment
Crossing: 090866G, Worland, Washakie County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
  2Q gates & median barriers: not feasible
  4Q gates: feasible
  Wayside horns: feasible and recommended
  One way with gates: not feasible
  Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates, plus $1,000 upgrade costs

Crossing Assessment
Crossing: 090864T, Worland, Washakie County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
  2Q gates & median barriers: not feasible
  4Q gates: feasible
Wayside horns: feasible and recommended
One way with gates: not feasible
Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates, plus $1,000 upgrade costs

**Crossing Assessment**
Crossing: 099131E, Worland, Washakie County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
- 2Q gates & median barriers: not feasible
- 4Q gates: feasible
- Wayside horns: feasible and recommended
- One way with gates: not feasible
- Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates, plus $1,000 upgrade costs

**Crossing Assessment**
Crossing: 046920E, Newcastle, Weston County
Requisite Equipment: pavement markings (faded)
Cost to Upgrade: $1,000
Quiet Zone Options:
- 2Q gates & median barriers: not feasible
- 4Q gates: feasible and recommended (downtown setting)
- Wayside horns: feasible
- One way with gates: not feasible
- Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates, plus $1,000 upgrade costs

**Crossing Assessment**
Crossing: 064921L, Newcastle, Weston County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
- 2Q gates & median barriers: not feasible
- 4Q gates: feasible
- Wayside horns: feasible and recommended
- One way with gates: not feasible
- Temporary or permanent closure: probably not deemed feasible
Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates, plus $1,000 upgrade costs

**Crossing Assessment**
Crossing: 064922T, Newcastle, Weston County
Requisite Equipment: pavement markings
Cost to Upgrade: $1,000
Quiet Zone Options:
   2Q gates & median barriers: not feasible
   4Q gates: feasible
   Wayside horns: feasible and recommended
   One way with gates: not feasible
   Temporary or permanent closure: not deemed feasible
Range of total cost for quiet zone options: $115,000 for wayside horns to $500,000 for 4Q gates, plus $1,000 upgrade costs
Appendix B

Estimated Costs
## Appendix B
### Estimated Costs

In the “Requisite Equipment” column:  
- P = pavement markings.  
- G = gates.  
- CWT = constant warning time.  
- FL = flashing lights.

In the “Recommended SSM” (supplementary safety measure) column:  
- W = wayside horns.  
- M = medians.  
- 4Q = four-quadrant gates.

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NOTES

1. Every crossing in a QZ will require, at time of implementation, an advance warning sign stating that no locomotive horn will be sounded. In the Total Est Cost column, $1,000 is added as the estimated cost of these advance warning signs.

2. The "1/2 mile" notation in the remarks column indicates that two or more crossings within a community fall within this distance along the rail corridor. The minimum length of a quiet zone is 1/2 mile. RLBA did not make a thorough check with regard to the 1/2 mile rule; this should be done.

3. The "4Q gates" notation in the remarks column indicates that four-quadrant gates are now in place at this grade crossing.

4. The "private" notation in the remarks column indicates presence of a nearby private crossing. Where a private crossing lies within a proposed quiet zone, it must be inspected by a diagnostic team and treated in accord with diagnostic team recommendations. RLBA did not make a thorough check with regard to existence of private crossings; this should be done.

5. The total of the estimated cost figures in any given town do not necessarily indicate the cost of a quiet zone in that town, unless a policy decision is made to install SSMs (supplementary safety measures) at each crossing. An alternative method of quiet zone qualification is available which calculates risk with regard to two or more contiguous crossings and generally does not require SSMs at each crossing.

6. Total cost for all communities listed, assuming a SSM is placed at each crossing, is $16.782 million. Phase 2 of this study will indicate that a considerable reduced cost is possible, based upon aggregation of community crossings, and use of the FRA Quiet Zone Risk Calculator.
Appendix C

Costs by Community
Appendix C
Costs by Community

The cost estimates in this appendix assume a SSM is placed at every grade crossing. Phase 2 of this study will indicate that quiet zone cost may be minimized by aggregating crossings on the same rail line within any given community, and by using the FRA quiet zone risk calculator to add SSMs as required to reduce the Quiet Zone Risk Index to at least the level of the Risk Index With Horns.

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