

8.0 Cost Benefit Comparison

Maximum Horn Sound Levels

The provision for a maximum sound level for the train horn accounts for about \$3 million (20-year PV) of the total rule costs. To comply with the provision, the sound level of all existing locomotive horns will need to be tested. The costs result from this testing requirement. The most significant contribution to costs is the labor charge for the railroad's selected testing method, whether the railroad chooses to test the locomotive horn in-house, by using rental equipment, or by contracting out the task. The estimated prices for these testing methods are applied to the number of locomotives to calculate costs. The primary benefit of mandating a maximum sound level is the mitigation of noise related impacts from sounding the train horn. According to the Final Environmental Impact Statement for this Interim Final Rule, FRA estimates that capping the sound level at 110 dB(A) will reduce the number of impacted residents by 12%.

Pre-Rule Quiet Zones

The estimated \$15 million (PV) total twenty-year cost associated with compliance with the requirements for the establishment of Pre-Rule Quiet Zones should be justified by over \$48 million (PV) in estimated twenty-year safety benefits in the form of casualties avoided. Safety benefits exceed costs for three Pre-Rule Quiet Zone categories with CCRI greater than NSRT (those with relevant collisions in the past five years, those with no relevant collisions in the past five years and CCRI greater than the product of two times the NSRT, and those with no relevant collisions and CCRI between one and two times the NSRT) for both the Chicago area and the rest of the nation. For Pre-Rule Quiet Zones with CCRI less than NSRT, administrative costs totaled slightly over \$1 million. No quantifiable safety benefits are expected to result for these quiet zones because no safety improvements would be required. Nevertheless, these costs are justified by the ability to ensure that any increases in risk to levels over the NSRT are detected before they result in serious safety problems.

Cancellation of Existing Whistle Bans

Assuming that some communities decide not to include certain existing whistle-ban crossings in quiet zones due to low train traffic volumes and low numbers of potentially severely impacted persons, this analysis includes relocation and noise mitigation costs totaling about \$2 million (20-year PV). The value of the reduction in casualties as a result of sounding train horns at those crossings is expected to total \$6 million (20-year PV). Most of the impacts are expected to occur outside of the Chicago area. This rule provides communities with sufficient time to plan in advance for any whistle ban cancellations.

New Quiet Zones

This rule gives individual communities flexibility and discretion regarding the sounding of locomotive horns within their boundaries. Communities establishing New Quiet Zones will have to make highly individualized decisions and trade-offs regarding investments in various strategies to protect the public at grade crossings. FRA does not have the specific information necessary to forecast with precision the decisions communities will make regarding the sounding

of locomotive horns at crossings within their boundaries. These decisions will ultimately be made in a political environment with a strong recognition of other competing uses for the financial resources.

Making what it considers to be reasonable assumptions, FRA estimates that it would cost up to approximately \$22 million (20-year PV) to establish and maintain New Quiet Zones. However, given the uncertainty as to how many of the potential New Quiet Zones will actually be established, this estimate likely represents an upper bound of potential costs. The associated safety benefits of approximately \$22 million (mostly resulting from installation of flashing lights and automatic gate systems at crossings not already equipped with these) justify the overall cost.

About \$9 million of the \$22 million would be spent on establishing and maintaining New Quiet Zones with CCRIs less than the NSRT. FRA could not quantify the safety benefits that would accrue from the safety improvements made at crossings in these quiet zones because current safety levels are good and there have been no casualties as a result of relevant collisions at these crossings. FRA cannot estimate how many casualties, if any, would result from relevant collisions if the quiet zones were established in absence of this rule. In many cases the quiet zones would not be established at all due to opposition from railroads or other factors that have not allowed communities to do so thus far. This rule does more than require for compensation of the train horn warning. The safety improvements implemented in response to the requirements of this rule would ensure a minimum level of warning and protection for motorists traversing crossings in New Quiet Zones. Since these crossings do not have sufficient, if any, recent experience without train horns sounding, it is not possible to estimate with any level of confidence whether the increase in risk at these crossings once train horns are silenced will result in the occurrence of collisions with casualties. Through the passage of time, other factors, such as train traffic level increases and highway traffic level increases, may also increase risk levels. This rule provides motorists protection in the event that risk increases after New Quiet Zones are established. These safety benefits cannot be quantified and are therefore not included in this analysis. Nevertheless, FRA believes that these benefits would justify the incurring the implementation cost.

This analysis does not quantify the benefit of eliminating community disruption caused by the sounding of train horns. Since this rule is permissive as to the establishment of quiet zones, communities will establish New Quiet Zones to the extent that elimination of the train horn disruption coupled with the safety benefit exceeds the costs of compliance associated with the requirements for establishing New Quiet Zones.