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**DEPARTMENT OF TRANSPORTATION**

Federal Railroad Administration

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DEPT. OF TRANSPORTATION  
STUDENTS

**LOCOMOTIVE CRASHWORTHINESS DESIGN  
REQUIREMENTS**

**Notice of Proposed Rulemaking**

**Small Entity Impact Assessment and Evaluation**

Federal Railroad Administration  
Office of Safety Analysis  
23 June 2004

**Small Entity Impact Assessment and Evaluation  
for  
Locomotive Crashworthiness Design Requirements - NPRM  
(49 CFR PART 229)**

Revised: 23 June 2004

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The purpose of this document is to provide information and further detail on the assessment of the impacts on small entities by the proposed Locomotive Crashworthiness Design Requirements. This document is also intended to fulfill the requirements found in the Regulatory Flexibility Act.<sup>1</sup> Further, this document illuminates the thought processes of the Federal Railroad Administration (FRA) during the rulemaking and its efforts to minimize the adverse economic impact on small entities and to ensure sufficient outreach to these entities.

This Initial Small Entity Impact Assessment and Evaluation concludes that this proposed rule would not have a significant economic impact on a substantial number of small entities. In order to determine the significance of the economic impact for the final rule's Regulatory Flexibility Act (RFA) requirements, FRA invites comments from all interested parties concerning data and information regarding the potential economic impact caused by this proposed rule. FRA will consider the comments and data it receives - or lack of comments and data - in making a decision on the RFA at the final rule stage.

The *factual basis* for the certification that the proposed rule will not have a significant economic impact on a substantial number of small entities is that the rule is estimated to cost only an average of less than \$1 per affected small railroad per year. Individual railroads within the small entity segment, however, will realize different impacts. As will be explained in greater detail later in this document, approximately 220 small railroads will have no economic impact from the rule.

In addition to its conclusion that this rule will not have a significant economic impact on a substantial number of small entities, FRA further concludes that the proposal will not have a noticeable impact on the *competitive position* of those small entities that are impacted, or on the small entity segment of the industry as a whole.

The small entity segment of the railroad industry faces little in the way of intramodal competition. Small railroads generally serve as "feeders" to the larger railroads, collecting carloads in smaller numbers and at lower densities than would be economical for the larger railroads. They transport those cars over relatively short distances and then turn them over to the larger systems which transport them relatively long distances to their ultimate destination, or for handoff back to a smaller railroad for final delivery. Although there are situations in which their

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<sup>1</sup> 5 U.S.C. § 601, et seq..

relative interests may not always coincide, the relationship between the large and small entity segments of the railroad industry are more supportive and co-dependent than competitive.

It is also extremely rare for small railroads to compete with each other. As mentioned above, small railroads generally serve smaller, lower density markets and customers. They exist, and often thrive, doing business in markets where there is not enough traffic to attract the larger carriers which are designed to handle large volumes over distance at a profit. As there is usually not enough traffic to attract service by a large carrier, there is also not enough traffic to sustain more than one smaller carrier. In combination with the huge barriers to entry in the railroad industry (need to own right-of-way, build track, purchase fleet, etc.), small railroads rarely find themselves in competition with each other. Thus, even to the extent that the proposed rule may have an economic impact, it should have no impact on the intramodal competitive position of small railroads.

*FRA encourages small entities that could potentially be impacted by this proposed rule to participate in the public comment process by submitting comments on this assessment or this rulemaking to the official US Department of Transportation (DOT) docket for this rulemaking.<sup>2</sup>*

#### **I. Rationale for Choosing Regulatory Action and Legal Authority**

In response to concerns raised by employee organizations, congressional members, and recommendations of the National Transportation Safety Board (NTSB) concerning locomotive crashworthiness, Congress enacted the Rail Safety Enforcement and Review Act (RSERA) in 1992.<sup>3</sup> Section 10 of RSERA, entitled “Locomotive Crashworthiness and Working Conditions,” required the Secretary of Transportation to assess “the adequacy of Locomotive Crashworthiness Requirements Standard S-580, or any successor standard thereto, adopted by the Association of American Railroads in 1989, in improving the safety of locomotive cabs.” In support of this requirement RSERA also required that the Secretary “conduct research and analysis, including computer modeling and full scale crash testing, as appropriate.” The Secretary should also consider costs and benefits of equipping locomotives with specific crashworthiness features.

In response to the Congressional mandate, FRA conducted a study and performed research on the consideration of additional locomotive crashworthiness features. Locomotive Crashworthiness and Cab Working Conditions Report to Congress (“Report”), dated September 1996, outlines the results of these studies. FRA’s research indicated that the current industry standard, S-580 (1989), represented a significant step on the part of the railroad industry to improve crashworthiness. The Report also found that freight locomotives built today greatly exceed the S-580 minimum criteria. However, research and analysis demonstrated that this standard could be further improved to reduce causalities without having a significant impact on the design or

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<sup>2</sup> <http://dms.dot.gov/>

<sup>3</sup> Public Law 102-365, September 3, 1992.

cost of locomotives. Most of these potential modifications appeared practical for newly constructed locomotives only.

The Report concluded that the following design modifications warranted further investigation: increased collision post strength, increased corner post strength, improvement of anti-climber design, strengthened glazing requirements, and addition of post collision features such as emergency lighting provisions. The Report also recognized potential safety benefits from improved fuel tank integrity. This improvement would not only prevent the loss of fuel in the event of a collision, but also make collisions more survivable for the crew reducing the costs of environmental cleanups.

On June 24, 1997, FRA tasked the Railroad Safety Advisory Committee (RSAC) with developing recommendations on locomotive crashworthiness.<sup>4</sup> The purpose of the task was to safeguard the health of locomotive crews and to promote the safe operation of trains. RSAC accepted this task, formed a Locomotive Cab Working Conditions Working Group (“Working Group”), and designated this assignment Task No. 97-1. The general purpose of this Working Group is “[t]o promote the safe operation of trains and the survivability of locomotive crews where train accidents do occur.” The purpose was further defined to investigate and develop, if necessary, crashworthiness specifications to ensure the integrity of the locomotive cab in accidents resulting from collisions such as highway-rail crossing accidents, sideswipes, and shifted loads.

The Working Group proceeded on a consensus basis, and has recommended that FRA propose new standards for design of crashworthy locomotives. This proposed rule is intended to mitigate the severity of casualties to locomotive crew members involved in locomotive collisions. The proposed rule is also intended to decrease the likelihood of loss due to breached fuel tanks integrity which might occur from train incidents/accidents, and any subsequent environmental damage. The benefits from the proposed rule would be realized by requiring new locomotives to be designed and built to standards which provide an increased level of safety to cab occupants over current conventional designs. Compliance with the proposed requirements for crashworthiness design would be demonstrated by meeting either the proposed rule’s performance standards or an approved design standard.

Legal Authority: The Rail Safety Enforcement and Review Act, Public Law 102-365, Section 10, (September 3, 1992). This Act has not been codified into Title 49. 49 U.S.C. 20102-03, 20133, 20137-38, 20143, 20701-03, 21301-02, 21304; 49 CFR 1.49(c), (m).

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<sup>4</sup> RSAC was established to provide advice and recommendations to the FRA on railroad safety matters. The Committee consists of 48 representatives, drawn from among 27 organizations representing various railroad industry interests, including both the AAR, which represents large railroads, and the ASLRRRA which represents the small and medium railroads.

## II. Small Entities Affected

The U.S. Small Business Administration (SBA) stipulates in its "Size Standards" a "for profit" railroad business firm may not have more than "1,500 employees for "Line-Haul Operating" Railroads, and 500 employees for "Switching and Terminal Establishments" to be considered as a "small entity."<sup>5</sup> "Small entity" is defined in 5 U.S.C. 601 as a small business concern that is independently owned and operated, and is not dominant in its field of operation. SBA's "size standards" may be altered by federal agencies upon consultation with SBA and in conjunction with public comment.

Pursuant to that authority, FRA has published a final policy which classifies "small entities" as being railroads which meet the line haulage revenue requirements of a Class III railroad.<sup>6</sup> Currently, the revenue requirements are \$20 million or less in annual operating revenue. The \$20 million limit is based on the Surface Transportation Board's (STB's) threshold of a Class III railroad carrier, which is adjusted by applying the railroad revenue deflator adjustment.<sup>7</sup> The same dollar limit on revenues is established to determine whether a railroad shipper or contractor is a small entity. FRA is using this definition of "small entity" for regulatory flexibility purposes in this rulemaking.

For this rulemaking there are approximately 410 small railroads that could potentially be affected by this proposed regulation.<sup>8</sup> Tourist, Steam and Historic operations are not required to meet any of the proposed requirements. Thus, approximately 220 very small railroad operations will incur no burden from this proposed rulemaking. However, only railroads which purchase new or original equipment will be impacted, and FRA is not aware of any small railroads that purchase new locomotives. Hence, FRA does not expect this proposed regulation to impact any small railroads.

FRA estimates that in aggregate, small railroads own approximately 2,500 locomotives.

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<sup>5</sup> "Table of Size Standards," U.S. Small Business Administration, January 31, 1996, 13 CFR Part 121.

<sup>6</sup> See 68 FR 24891 (May 9, 2003).

<sup>7</sup> For further information on the calculation of the specific dollar limit please reference 49 CFR Part 1201.

<sup>8</sup> 680 railroads - 220 (Tourist, Steam & Historic) railroads - 50 (large, medium, passenger and commuter) = 410 railroads.

Furthermore, FRA is not aware of any commuter railroads which qualify as small entities. This is likely due to all commuter railroad operations in the United States being owned by government entities whose jurisdictions exceed 50,000 in population.

The only businesses that potentially could be impacted by the requirements in this proposed rule are locomotive manufacturers, i.e., Original Equipment Manufacturers (OEM) and re-manufacturers. The primary manufacturers (OEMs) of locomotives for use in North America are large corporations. However, some re-manufacturers or locomotive re-builders produce locomotives which could be subject to the requirements of the proposed rule. These manufacturers start with an old locomotive underframe or "deck" and basically build a new locomotive superstructure upon it. Since this proposal would require greater strength of locomotive underframes, these manufactures would in some situations have to incur the greater cost of producing or purchasing new underframes that meet the proposed requirements. It is not possible to permit locomotives to be built with underframes that do not meet the requirements in this proposal. If such an alternative were allowed then the overall increase in safety would not materialize. Basically crashworthiness features such as the proposed increase in strength of the collision posts would be nullified. Since the underframe could fail sooner than the collision posts in an accident, it would not be beneficial to require collision posts that absorb greater energy loads than the underframe that supports them. Even though this requirement could be considered to be a substantial burden on these manufacturers, FRA does not believe that these companies would be considered small entities.<sup>9</sup>

### **III. Reporting, Record-keeping, and other Compliance Requirements**

The only reporting or record-keeping requirements in this proposed rulemaking are for petitions for approval of alternative locomotive designs, petitions for approval of changes to the model crashworthiness design standard, and maintenance of all records of locomotive crashworthiness designs. In addition there is a requirement for identification of locomotives built to the requirements in this proposal. However, since no small railroads purchase new locomotives these requirements are not anticipated to impact any small entities.

### **IV. Impacts**

The impacts from this proposed regulation are primarily a result of increased cost to produce more crashworthy locomotives. These costs include re-design and engineering costs for the new locomotive designs/models, and for the marginal costs of the incremental crashworthiness improvements. All of these impacts or costs are passed on to customers or purchasers of new locomotives. Again, since no small railroads purchase new locomotives these impacts are not anticipated to impact any small entities.

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<sup>9</sup> FRA seeks comments, information and data that would substantiate that there either are or are not secondary equipment manufactures that would be considered small entities and impacted by this proposed regulation.

The Regulatory Impact Analysis for this rulemaking estimates that the total non-discounted costs over twenty years is \$81.6 Million. The Present Value (PV) for this cost total is \$43.9 Million for the twenty year period. FRA estimates that less than \$7,000 (PV) would impact the small railroads for the time-period of this analysis. As noted above, the RIA contains more details on the individual impacts of each section of the final rule. This impact is equivalent to less than \$1 per small railroad per year.<sup>10</sup>

#### **V. Alternative Treatment for Small Entities**

Since FRA does not anticipate that this proposed rule will impose any burdens on small entities, there is no alternative treatment proposed for small entities.

#### **VI. Outreach to Small Entities**

The process used to develop this proposed rule provided outreach to small entities in two ways. First, the RSAC Working Group had at least one representative from a small railroad association, the American Short Line and Regional Railroad Association (ASLRRA). Second, members of the RSAC itself include the ASLRRA and other organizations that represent small entities. Thus, it is possible to conclude that small entities had an opportunity for input at every stage of the process on the consensus based RSAC recommendation made to the FRA Administrator.

#### **VII. Conclusion**

The FRA's proposed locomotive crashworthiness design requirements are intended to mitigate the severity of future casualties to locomotive crew members involved in locomotive collisions. It is also intended to decrease the likelihood of any loss in the integrity of locomotive fuel tanks which might occur from train incidents and accidents.

This Small Entity Impact Assessment and Evaluation concludes that this proposed rule would not have an economic impact on any small entities. In order to determine the significance of the economic impact for the final rule's Regulatory Flexibility Assessment (RFA), FRA invites comments from all interested parties concerning the potential economic impact on small entities caused by this proposed rule. The Agency will consider the comments and data it receives - or lack of comments and data - in making a decision on the RFA for the final rule.

Executive Order No. 13272, "Proper Consideration of Small Entities in Agency Rulemaking," requires a Federal agency, *inter alia*, to notify the Chief Counsel for Advocacy of the Small Business Administration (SBA) of any of its draft rules that would have a significant

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<sup>10</sup> FRA estimates that \$6,500 (PV) of the total costs would be borne by the affected small railroads. For the twenty-year analysis this is estimated to be \$325 per year. To determine the cost per affected small railroad this average annual cost was divided by 410.

economic impact on a substantial number of small entities, to consider any comments provided by the SBA, and to include in the preamble to the rule the agency's response to any written comments by the SBA unless the agency head certifies that including such material would not serve the public interest.<sup>11</sup> Since FRA has determined that this proposed rule would not have significant impact on a substantial number of small entities, no notification to SBA has been provided for this purpose.

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<sup>11</sup> See 67 FR 53461 (Aug. 16, 2002).