Consensus Rulemaking at the Federal Railroad Administration

All Aboard for Railway Safety Measures

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Since the mid-1990s, the Federal Railroad Administration (FRA) has promoted early and extensive participation by all interested parties in the agency's regulatory processes. FRA and industry stakeholders continue to evaluate this collaborative effort as necessary, productive, and beneficial. Two of these successful efforts demonstrate alternative approaches to working with stakeholders:

- The Roadway Worker Protection regulations, which proceeded by formal negotiated rulemaking; and
- The proposed rule for locomotive crashworthiness, which progressed through the Railroad Safety Advisory Committee (RSAC).

Both approaches have served the agency and the industry well; FRA, however, is focusing on the RSAC approach as better suited to the needs of the specialized field of railroad safety. Both approaches rely on representative working groups.

Working Groups

The working group on roadway worker protection was established after a series of roundtable meetings in 1993 on all aspects of FRA's safety program. Working groups on passenger equipment safety standards and on passenger train emergency preparedness followed in 1995. All three government–industry working groups developed approaches accepted by FRA and incorporated into regulations (*1*–*3*).

The success of the working groups, as well as of the roundtable discussions, convinced FRA to change the traditional hear-and-decide regulatory procedure for railroad safety into a consensus model involving the parties that are benefited or burdened by the regulations. The concept was that decisions about the best approach to safety should be made with full participation of all affected parties.

In 1996, FRA established the RSAC, which provides a forum for consensus rulemaking and program development. The committee includes representatives from all of the agency's major customer groups,

including railroads, labor organizations, suppliers and manufacturers, state agencies, passenger organizations, and other interested parties (see list, Table 1).

RSAC is charged with considering major safety regulatory issues. With the advice of working groups, the committee determines what information or analysis may be required, considers the relevant benefits and costs of alternative actions, and recommends to FRA an approach to address each concern—for example, continued implementation of current measures, voluntary initiatives, amendments to regulations, or proposals of new requirements.

Roadway Worker Protection

In 1990, the Brotherhood of Maintenance-of-Way Employes (BMWE) petitioned FRA to amend the Federal Track Safety Standards to address hazards to roadway workers—the maintenance-of-way workers and others who maintain signals and bridges. An Advance Notice of Proposed Rulemaking in November 1992 announced proceedings to amend the federal track safety standards.

Workshops were held to solicit the views of the public. After a March 1993 workshop to discuss related petitions for emergency orders and requests for rulemaking from BMWE and the Brotherhood of Railroad Signalmen, FRA decided to initiate a separate effort to consider roadway worker safety regulations.

FRA convened a meeting of railroad contractors, railroad management, and labor representatives in June 1994 to discuss possible actions and to review roadway worker casualty data. FRA suggested a negotiated rulemaking process, a collaborative effort that would allow input from all interested parties.

In August 1994, FRA published a notice to establish a Federal Advisory Committee, including a framework for the negotiations (*4*). According to the framework, the committee report would identify any items that did not achieve consensus, and FRA would propose a rule as recommended by the committee, unless the recommendations were inconsistent with statutory or legal requirements. In addition, FRA would address items not adequately dealt with by the advisory committee.

In December 1994, the Office of Management and Budget approved the charter for a Roadway Worker Safety Advisory Committee. The first negotiating session was held in January 1995, under the auspices of the Federal Mediation and Conciliation Service. The 25-member advisory committee included representatives from the organizations listed in Table 2.

The committee convened seven negotiating sessions with neutral, outside facilitators. The first meeting included a presentation by members of an independent task force of industry representatives that

TABLE 1 RSAC Member Groups

American Association of Private Railroad Car Owners
American Association of State Highway and Transportation Officials
American Public Transportation Association
American Short Line and Regional Railroad Association
American Train Dispatchers Association
Association of American Railroads
Association of Railway Museums
Association of State Rail Safety Managers
Brotherhood of Locomotive Engineers and Trainmen
Brotherhood of Maintenance of Way Employes
Brotherhood of Railroad Signalmen
Federal Transit Administration*
High Speed Ground Transportation Association
Hotel Employees & Restaurant Employees International Union
International Association of Machinists and Aerospace Workers
International Brotherhood of Boilermakers and Blacksmiths
International Brotherhood of Electrical Workers
Labor Council for Latin American Advancement*
League of Railway Industry Women*
National Association of Railroad Passengers
National Association of Railway Business Women*
National Conference of Firemen and Oilers
National Railroad Construction and Maintenance Association
National Railroad Passenger Corporation (Amtrak)
National Transportation Safety Board*
Railway Supply Institute
Safe Travel America
Secretaria de Communicaciones y Transporte*
Sheet Metal Workers International Association
Tourist Railway Association, Inc.
Transport Canada*
Transport Workers Union of America
Transportation Communications International Union
United Transportation Union

* Nonvoting.

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Union Pacific tie crew working in Tempe, Arizona.

TABLE 2 Roadway Workers Protection Working Group Members

American Public Transportation Association
American Short Line and Regional Railroad Association
Association of American Railroads
Brotherhood of Locomotive Engineers and Trainmen
Brotherhood of Maintenance of Way Employes
Brotherhood of Railroad Signalmen
Burlington Northern Railroad
Consolidated Rail Corporation
CSX Transportation, Inc.
Florida East Coast Railway Company
National Railroad Passenger Corporation (Amtrak)
Norfolk Southern Corporation
Northeast Illinois Regional Railroad Corporation
Regional Railroads of America
Transport Workers Union of America
Union Pacific Railroad Company
United Transportation Union

had met during the preceding year, analysis of the task force data, and information presented by other advisory committee members.

The meetings produced consensus on 11 specific recommendations and 9 general recommendations. In May 1995, the recommendations were presented in a report to the Secretary of Transportation and the Federal Railroad Administrator. The report established the basis for the proposed rule but not for the planned Notice of Proposed Rulemaking (NPRM). Therefore the committee held an additional two-day session to obtain consensus for a proposed regulation.

FRA published the NPRM in March 1996. FRA also solicited and received comments from contractors and from tourist railroads, two groups not represented on the committee. The final advisory committee meeting was held in July 1996 to consider comments submitted to the docket.

The final rule on roadway worker protection was published in the *Federal Register,* December 16, 1996, with an effective date of January 15, 1997 (*1*). All railroads that are part of the general system of transportation were required to comply by mid-1997; each railroad had to adopt an on-track safety program with an internal monitoring process.

Regulatory Benefit

In the 11-year period preceding the regulation, railroad roadway workers sustained 4.81 fatalities per year; in the 7-year period after the regulation, the fatality rate fell to 2.50 per year. The 48 percent reduction in the fatality rate indicates that the regulation has been effective (see Figure 1, below). The data represent only the fatalities linked to on-track safety and do not include fatalities from other causes, such as crane lifting incidents.

Negotiated Rulemaking

The negotiated rulemaking for roadway worker protection was the first in FRA history, and the committee worked under close scrutiny. Although the committee was staffed by knowledgeable representatives of the organizations involved, the facilitators were not familiar with the terminology, rules, and

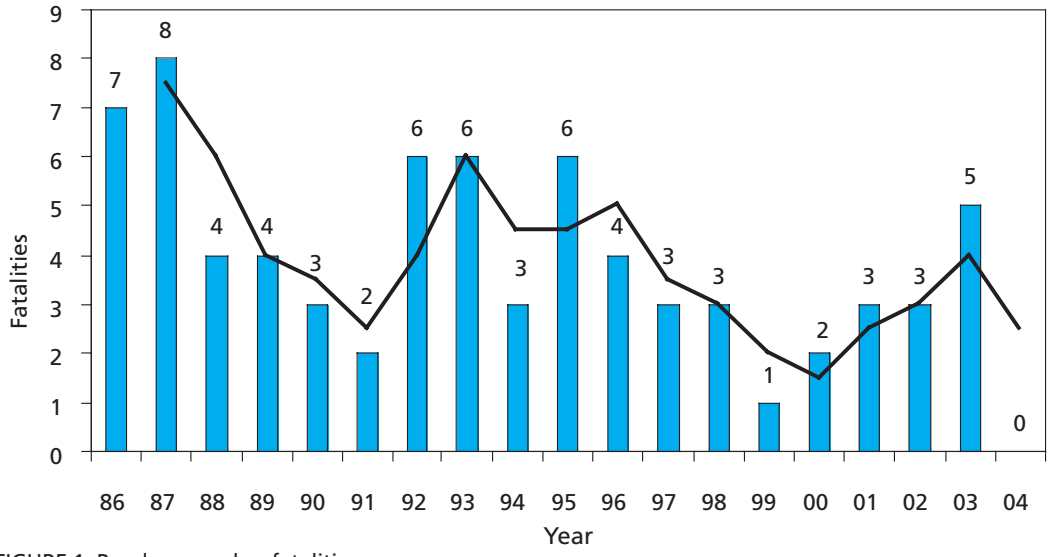

FIGURE 1 Roadway worker fatalities.

practices of the railroad industry. The committee was under pressure to report a consensus. Perhaps for these reasons, the rule's text did not clearly resolve some key matters, and several issues have arisen concerning interpretation of the rule.

The Association of American Railroads (AAR), for example, challenged a key FRA interpretation unsuccessfully in court.[1] FRA recently completed two major Technical Resolution Committee efforts—including the creation of an RSAC working group—to revise and clarify the regulation and to develop solutions for other issues of interpretation. Support for the regulation remains strong.

Locomotive Crashworthiness

In June 1997, FRA asked the RSAC to review accident data, available technology, implementation costs, and other applicable factors and make recommendations about the crashworthiness of locomotives. RSAC created a Locomotive Crashworthiness Working Group with representatives from the railroads, labor, and the two major manufacturers of locomotives, as well as FRA (see Table 3, below).

The working group broke the task into three phases. The first included an accident review to formulate the prevalent scenarios involving injuries and deaths. Second, the group drafted structural modifications for locomotives and analyzed the potential effects on the scenarios. Third, the group recommended federal regulations and industry standards for locomotive crashworthiness.

[1] *AAR v. Department of Transportation* (198F.3d944, D.C. Cir. No. 1999).

TABLE 3 RSAC Locomotive Crashworthiness Working Group Members

- American Association of State Highway and Transportation Officials
- American Public Transportation Association
- American Short Line and Regional Railroad Association
- Association of American Railroads
- Brotherhood of Locomotive Engineers and Trainmen
- Federal Railroad Administration
- International Brotherhood of Electrical Workers
- National Transportation Safety Board
- Railway Supply Institute
- Sheet Metal Workers International Association
- United Transportation Union

Scenario 1 locomotive crash near Smithfield, West Virginia, August 20, 1996—collision with a 28-car train traveling at 24 mph caused the trailing locomotive of a 41-car train traveling at 22 mph to override the leading locomotive.

Accident Scenarios

The working group discussed accidents and alternative approaches to crashworthiness at the first meeting in September 1997. The group created an Engineering Review Task Force to study accidents and to develop tradeoffs for structural modifications to locomotives.

At the request of the working group, FRA reviewed locomotive accident data from 1995 to 1996 and narrowed the pool of accidents to 23, presenting summaries to the Engineering Review Task Force. From these, five scenarios were developed: three for head-on collisions and two for oblique collisions. The scenarios are intended to encompass the range of locomotive collisions (Figures 2 and 3).

Locomotive Design

The working group asked FRA to direct a study of locomotive crashworthiness in the five collision scenarios (5–7). This effort used and refined train collision models that had been developed in previous studies of rail equipment crashworthiness (8).

Baseline levels of occupant protection were determined for the five scenarios with representative locomotive designs. Design modifications were investigated and were compared with the baseline designs (Figure 4). The results indicated that strengthened window structures, collision posts, and short hoods would increase crashworthiness for particular collision scenarios.

Design and Performance

Meeting in October 1998, in Kansas City, Missouri, the working group reviewed the modeling results. At the next four meetings, the working group debated the feasibility of alternative structural designs for locomotives, formats for specifying crashworthiness requirements, and the potential economic impact of new requirements.

Scenario 2 locomotive crash near West Eola, Illinois, January 20, 1993—the underframe of locomotive 9710 drawing 92 cars of mixed freight at 21 mph was overridden at impact by the underframe of a locomotive drawing 15 cars of automobile racks at 9 mph.

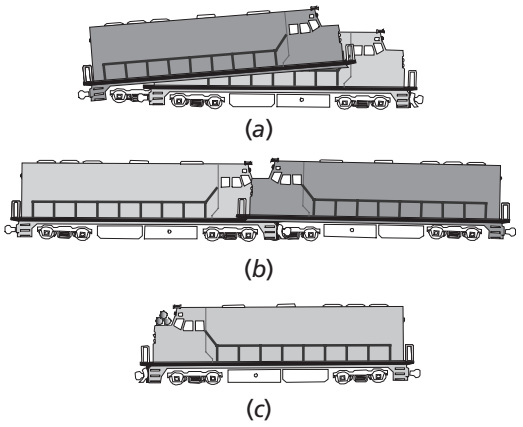

FIGURE 2 In-line or head-on collision scenarios: (*a*) Scenario 1—a trailing locomotive overrides the leading locomotive, eliminating the operator's cab; (*b*) Scenario 2—the underframe of one colliding locomotive overrides the underframe of the other, crushing the operator's cab of the overridden locomotive; (*c*) Scenario 3—the upper portion or window area of the operator's cab is destroyed.

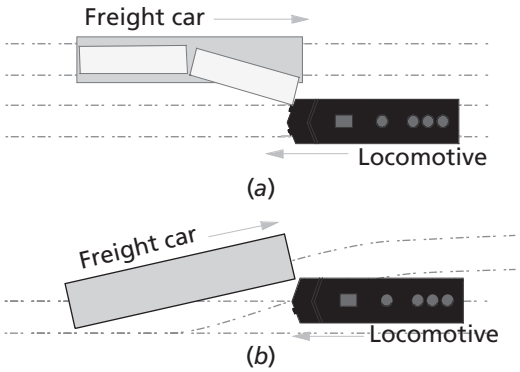

FIGURE 3 Oblique collision scenarios: (*a*) Scenario 4—an intermodal trailer fouls the right of way of an oncoming locomotive; the trailer strikes the short hood outboard of the collision post, causing damage to intrude into the operator's cab; (*b*) Scenario 5—a locomotive obliquely collides with a freight car at a switch, so that the freight car rakes down the side of the locomotive, and damage intrudes into the operator's space.

The working group considered specifying crashworthiness through design standards and performance standards:

- With design standards, static loads are applied to structural components. Compliance can be verified with closed-form calculations or nondestructive tests.
- Performance standards aim to limit impact intrusion into occupied space. Compliance typically requires mathematical simulation, destructive tests, or both. The principal advantages are fewer requirements for structural details and a closer correlation to desired performance.

The working group recommended that the AAR standards should incorporate design standards and that the FRA regulations should rely on a combination of design and performance standards. The working group endeavored to make both sets of requirements as equivalent as possible (*9*).

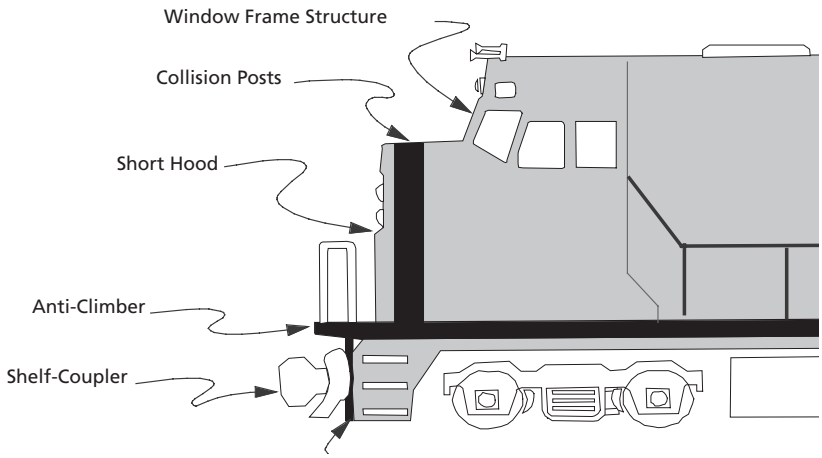

FIGURE 4 Locomotive components considered for design modification.

Expected Improvements

The Data Analysis and Benefit Assessment Task Force developed the information for a regulatory impact analysis. FRA provided the working group with an initial, favorable economic analysis, but discussion revealed disagreements about the methodology and cost assumptions, particularly for redesigning the upper portion of the cab of conventional platform locomotives. The working group therefore deferred the consideration of strength improvements in window post arrangements.

FRA's regulatory impact analysis includes qualitative discussions and quantitative measurements of costs and benefits of the recommended regulation. The analysis considered 17.4 severe injuries equivalent to one statistical life. FRA estimates that 48 statistical lives would be saved during the 19 years that benefits will accrue from the proposed rule.

The accident review revealed 286 relevant accidents with 315 casualties in 1995, 1996, and 1997. For that 3-year period, 8.7 fatalities and 96.3 severe injuries occurred per year. With the rule in place, 2.5 statistical lives would be saved per year.

The estimates, assumptions, and calculations in the regulatory impact analysis showed that the monetary benefits will exceed the costs on a yearly basis in the eighth year. For the 20-year period analyzed, the estimated quantified costs totaled $81.6 million,

and the present value of the estimated quantified costs was $43.9 million; the estimated quantified benefits totaled $125.9 million, and the present value of the estimated quantified benefits was $52.4 million. The net present value of the proposed rule was approximately $8.5 million.

Status of the Standard

The Locomotive Crashworthiness Working Group approved the recommendations for FRA regulations and the AAR standard. The RSAC then reviewed the recommendations and forwarded the proposed regulations to FRA and the proposed industry standard to AAR.

FRA drafted an NPRM, which was reviewed and approved by the Secretary of Transportation and by the Office of Management and Budget. The NPRM was published in the *Federal Register* on November 2, 2004.

The AAR Locomotive Committee is reviewing the draft standard. After receiving public comments, FRA will ask the working group to provide recommendations for finalizing the rule.

RSAC Consensus Process

Like other RSAC products, the NPRM on locomotive crashworthiness was the result of an informal negotiated rulemaking under a highly specialized process unique to FRA. The RSAC is a Federal Advisory Committee, but its substantive work is performed largely through working groups, which are not subcommittees but serve as staff to the full committee.

According to the RSAC Process document, which was negotiated with major industry stakeholders before the committee was chartered, the RSAC may accept or decline a task offered by FRA. FRA's Associate Administrator for Safety chairs the RSAC and is responsible for determining the stakeholders for a task and for appointing those organizations to the working group. Representation on each working group sets a balance between management and labor.

No recommendation may proceed to the full committee without consensus among the stakeholders. Consensus entails that all stakeholders can accept and support the recommendation, whether or not the recommendation would be the stakeholder's first choice. Any stakeholder may withhold concurrence.

Working groups are encouraged to produce recommendations in a timely fashion, but flexibility is allowed for necessary fact finding. A working group may recess while FRA contracts for the research needed to resolve underlying issues, as occurred in the Locomotive Crashworthiness task.

Salaried FRA employees, trained in interest-based bargaining and facilitation, guide the RSAC working group deliberations. These employees have experience in the railroad industry and are familiar with the nomenclature and with working and operating conditions. Although the facilitators act on behalf of the working group, they also work to achieve FRA's objectives of cost-effective, clear, and enforceable rules.

The working group forwards consensus recommendations to the RSAC, which can accept or reject the recommendations by a simple majority of the voting members. The RSAC forwards accepted recommendations to the FRA Administrator; however, the FRA Administrator is not bound by the recommendations.

Recommendations rejected by the RSAC can be returned to the working group for revision. The RSAC is not permitted to make changes in the recommendations without the consensus of the working group.

The RSAC working group for the locomotive crashworthiness task included engine and train crew members, railroad mechanical officers who order and maintain locomotives, locomotive manufacturers, a state motive power and equipment inspector, and FRA personnel—mechanical engineers, an attorney, and an economist—supported by staff at the Volpe Center. Each participant was familiar with one or more of the fatal accidents reviewed. The group also was able to build on a 1989 AAR standard and on improvements in passenger locomotive design.

Other RSAC Products

In addition to the proposed rule on locomotive crashworthiness, the RSAC has produced many other consensus products (see box, page 14) (*10*).

In only two cases in which the RSAC has failed to reach consensus has FRA found it necessary to act on its own. In one case, an RSAC working group failed to reach consensus on proposed freight power brake revisions. In the other, the RSAC failed to endorse working group recommendations on public comments about the Processor-Based Signal and Train Control Systems rule. In both cases, FRA withdrew the task and proceeded, applying best judgment in light of RSAC considerations and public comments.

In another case, the RSAC was unable to proceed to full consideration of locomotive cab temperature; FRA completed the necessary research but was unable to develop a clear case for proceeding to a proposed rule. FRA reported the research findings to the industry at an RSAC meeting, and the Federal Railroad Administrator encouraged railroads to equip and maintain locomotives with temperature control systems in areas where extreme temperatures could affect performance adversely.

Other RSAC Products

Final Rules

- Revised track safety standards, including new track–vehicle interaction standards for high-speed rail and new provisions for use of the Gage Restraint Measurement System.
- Revision of FRA's railroad communication rules, including new requirements for communications media for train crews and roadway workers.
- Revised requirements for steam locomotives.
- Revised rules for qualification and certification of locomotive engineers.
- New requirements for locomotive cab sanitation.
- Revised requirements for reporting accidents and incidents.
- New requirements for roadway maintenance machines.

Proposed Rules

- Performance Standards for Processor-Based Signal and Train Control Systems. (A final rule, fashioned outside RSAC, is now in clearance.)
- Occupational Noise Exposure of Railroad Operating Employees. (Public comments are under review.)
- Next-Generation Locomotive Event Recorders. (Public comments are under review.)

Components of Success

FRA has been developing regulations with the active participation of the rail industry and the public for more than 10 years. FRA has found that safety issues can be resolved effectively with the full participation of all affected parties, and the agency has developed many effective regulations with this approach. The efforts have helped to achieve the highest levels of safety yet for railroad operations in the United States.

The roadway worker protection regulation and the proposed rule for locomotive crashworthiness illustrate the ability of railroad industry parties to work with FRA to fashion consensus. Components of success have included

- A recognition by all parties that an issue needs to be addressed;
- Participation by an FRA interdisciplinary team that maintains negotiating instructions and provides support for the eventual RSAC product;
- Agreement on procedures before the negotiation;
- Clear focus on the details of the proposed remedy, so that all parties have the same understanding of the proposed rule;
- Flexibility to incorporate industry rules and standards into the federal regime, recognizing that one approach may not work in every situation;
- Appropriate consideration of costs and benefits;
- Follow-through by FRA to apply the results of the negotiations, consistent with the agency's regulatory purpose and legal requirements; and
- FRA's willingness to terminate the task if the group is unable or unwilling to proceed.

FRA has refrained from using the consensus process in several important areas of regulation, either because the necessary parties could not be assembled or because other agencies of government have final authority. For example, the scope of parties interested in highway–rail crossing safety issues makes assembly of an appropriate advisory committee impossible. Similarly, FRA has withheld from the RSAC issues involving alcohol and drug use and issues involving hazardous materials, which are not exclusively under the agency's jurisdiction.

FRA continues to work with labor, management, suppliers, state agencies, and other interested parties to increase railroad safety. The RSAC process has worked well, actively involving the necessary parties and informing agency decision making.

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