

for up to 10 years with minimum maintenance. A copy of the complete 1999 Volpe Report is in the docket of this proceeding (Document No. FRA-1999-6689-17).

Building upon the research detailed in the 1999 Volpe Report, and recognizing that the study's human factors tests did not provide a realistic environment in which to evaluate the detectability and recognition of freight cars equipped with micropismatic retroreflective material in a real-world environment, FRA subsequently investigated whether motorists, under real world driving conditions, would likely confuse reflectorized trains with other roadway hazards, particularly trucks which were already required by federal regulations to be equipped with retroreflective material. It is important for motorists to be able to distinguish rail cars from trucks because motorists' interaction with trains is different from trucks. Because trucks are shorter in length and pass through an intersection more quickly than the average train, a motorist approaching a truck in an intersection may only need to slow his or her vehicle to avoid a collision, while a motorist approaching a grade crossing occupied by a train more likely will need to stop at the crossing to avoid a collision. In July 2001, FRA released the results of this research in the report *Safety of Highway-Railroad Grade Crossings: Recognition of Rail Car Retroreflective Patterns for Improving Nighttime Conspicuity* (DOT/FRA/ORD-00/07) ("2001 Volpe Report"). The 2001 Volpe Report concluded that motorists had difficulty discriminating unreflectorized rail cars from trucks as illuminance levels declined, but motorists could discriminate between reflectorized freight cars and truck trailers for each of the four reflective patterns tested. In addition, the report concluded that vertically oriented patterns, as opposed to outline or horizontally oriented patterns, were preferable because they were less likely to be confused with the horizontally oriented truck reflectorization patterns. A copy of the complete 2001 Volpe Report is in the docket of this proceeding (Document No. FRA-1999-6689-48).

Meanwhile, in 1994 Congress passed the Federal Railroad Safety Authorization Act of 1994, Pub. L. 103-440 ("Act"). The Act added § 20148 to title 49 of the United States Code. Section 20148 required FRA to conduct a review of the Department of Transportation's ("Department") rules with respect to the visibility of railroad cars and mandated that if the review established that enhanced railroad car

visibility would likely improve safety in a cost-effective manner, the Secretary of Transportation ("Secretary") must initiate a rulemaking proceeding to prescribe regulations requiring enhanced visibility standards for railroad cars. Section 20148 specifically directs the Secretary to examine the use of reflectors. Section 20148 of title 49 of the United States Code states as follows:

(a) REVIEW OF RULES.—The Secretary of Transportation shall conduct a review of the Department of Transportation's rules with respect to railroad car visibility. As part of this review, the Secretary shall collect relevant data from operational experience by railroads having enhanced visibility measures in service.

(b) REGULATIONS.—If the review conducted under subsection (a) establishes that enhanced railroad car visibility would likely improve safety in a cost-effective manner, the Secretary shall initiate a rulemaking proceeding to prescribe regulations requiring enhanced visibility standards for newly manufactured and remanufactured railroad cars. In such proceeding the Secretary shall consider, at a minimum—

- (1) visibility of railroad cars from the perspective of nonrailroad traffic;
- (2) whether certain railroad car paint colors should be prohibited or required;
- (3) the use of reflective materials;
- (4) the visibility of lettering on railroad cars;
- (5) the effect of any enhanced visibility measures on the health and safety of train crew members; and
- (6) the cost/benefit ratio of any new regulations.

(c) EXCLUSIONS.—In prescribing regulations under subsection (b), the Secretary may exclude from any specific visibility requirement any category of trains or railroad operations if the Secretary determines that such an exclusion is in the public interest and is consistent with railroad safety.

On July 28, 1999, FRA hosted a workshop on reflectorization of rail rolling stock. Attendees included representatives from the railroad industry, reflector manufacturing and supply companies, as well as representatives from the National Transportation Safety Board and the National Highway Traffic Safety Administration (NHTSA) and other interested parties. The workshop provided an opportunity for FRA and all interested parties to review and discuss the issue of rail car conspicuity and specifically, rail car reflectorization. During the workshop, representatives from Volpe provided a briefing on the 1999 Volpe Report and a representative of NHTSA provided a briefing on that agency's rule requiring the reflectorization of large truck trailers. The workshop also provided an opportunity for all interested parties to

share their views, concerns, and experiences with regard to rail car reflectorization. Discussion during the workshop focused on the potential effectiveness of rail car reflectorization under a variety of circumstances (e.g., at nighttime versus daytime, at passively protected crossings versus actively protected crossings, or when drivers are under the influence of alcohol or otherwise impaired), as well as more practical aspects of any rail car reflectorization program (e.g., maintenance and cleaning requirements, when and where reflector installation would occur, and the costs involved in installing and maintaining the reflectors). Throughout the workshop FRA representatives acknowledged participants' concerns regarding reflectorization and invited interested parties to share further comments and relevant data as FRA continued its investigation into whether a rulemaking mandating reflectorization of rail cars was warranted. A copy of the transcript of this workshop is included in the docket of this proceeding. (Document No. FRA-1999-6689-7).

Recognizing that part of the review mandated by Congress included collecting relevant data from operational experience by railroads having enhanced visibility measures in service, on January 14, 2000, FRA established a public docket (Docket No. FRA-1999-6689) to provide all interested parties with a central location to both send and review relevant information concerning railroad car conspicuity and to provide a venue to gather and disseminate information and views on the issues. The docket contains several submissions from FRA (e.g., transcript of the July 28, 1999 workshop, an analysis of signal detection theory, FRA's preliminary cost-benefit analysis on railcar reflectorization, and technical reports from the NHTSA and Volpe), as well as comments from numerous members of the public and the regulated community, which will be discussed in more detail below.

FRA regards the 1999 and 2001 Volpe Reports, as well as the 1999 workshop and establishment of the public docket as responsive to section 20148's directive to review the Department's rules with respect to rail car visibility. Further, because the 1999 and 2001 Volpe Reports concluded that reflectorization could enhance rail car visibility, FRA conducted a preliminary cost-benefit analysis ("Preliminary Analysis") to determine whether reflectorization would provide a cost effective method of reducing the number of collisions at highway-rail grade crossings and the casualties and