

SUPPORTING JUSTIFICATION
Reflectorization of Rail Freight Rolling Stock
OMB No. 2130-0566

Summary of Submission

- This is a revision to the above last approved information collection submission cleared by OMB on **September 30, 2014**, which expires on **September 30, 2017**.
- FRA published the required 60-day **Federal Register** Notice on March 14 2017. See 82 FR 13711. FRA received **no** comments in response to this Notice.
- Total number of burden **hours requested** for this submission is **8,467 hours**.
- The total number of burden **hours previously approved** was **8,769 hours**.
- Total burden decreased by **302 hours** and decreased by **99,741 responses** from the last submission.
- Total number of **responses requested** for this submission is **34,675**.
- The total number of **responses previously approved** was **134,416**.
- **Adjustments** increased the total burden **3,453 hours** and decreased the number of **responses** by **99,450** from the last approved submission.
- **Program changes** decreased the burden by **3,755 hours** and **291 responses**.
- ****The answer to question number 12 itemizes the hourly burden associated with each requirement of this rule (See pp. 9-17).**
- ****The answer to question number 15 itemizes all **program changes** and **adjustments** (See pp. 18-20).**
- ***Abstract:** This collection of information is **mandatory**, and is required under 49 CFR part 224. FRA issued this regulation to mandate the reflectorization of freight rolling stock (i.e., freight cars and locomotives) to enhance the visibility of trains in order to reduce the number and severity of accidents at highway-rail grade crossing in which train visibility acted as a contributing factor. The information collected is used by FRA to ensure rolling stock car owners are properly notified and repair or replace damaged, obscured, or missing retroreflective sheeting if less than 80 percent of the amount of sheeting required under § 224.105 (§ 224.107 in the case of locomotives subject to § 224.107(b)(3)) on either side of a freight car is present, not damaged, and not obscured at the time of the required inspection.*

1. **Circumstances that make collection of the information necessary.**

Background

During the decade that ran from 1992-2001, a train and a highway vehicle collided at one of this country's 262,000 public and private highway-rail grade crossings approximately 4,000 times each year. Over that 10-year period, approximately 23 percent of all highway-rail grade crossing accidents involved motor vehicles running into trains occupying crossings ("RIT" accidents). Many of these RIT accidents occurred during nighttime conditions (dawn, dusk, darkness), and involved a highway vehicle striking a train after the first two units of the consist. This suggests that a contributing factor to many RIT accidents is the difficulty motorists have in seeing a train consist at a crossing in time to stop their vehicles before reaching the crossing, particularly during periods of limited visibility, such as dawn, dusk, darkness, or during adverse weather conditions. The physical characteristics of trains, in combination with the characteristics of grade crossings (e.g., grade crossing configuration, type of warning devices at a crossing, rural background environment with low level ambient light, or visually complex urban background environment, etc.), and the inherent limitations of human eyesight often make it difficult for motorists to detect a train's presence on highway-rail grade crossings, particularly during periods of limited visibility. Freight trains lack conspicuity (i.e., visibility) in their different environmental settings. For example, trains are typically painted a dark color and are covered with dirt and grime, which are inherent in the railroad environment. With the exception of locomotives, trains are usually unlighted, and are not equipped with reflective devices. Similarly, a large percentage of crossings are not lighted. Consequently, much of the light from a motor vehicle's headlights is absorbed by the freight cars, instead of being reflected back toward the motorist. The large size of freight cars, which are out of scale relative to a motorist's expectations, also make them difficult to detect. For instance, even if a motorist is looking for a train, if the locomotive has already passed, it is difficult to detect freight cars because the cars often encompass the motorist's entire field of view and have the tendency to "blend" into the background environment, especially at night. In addition, because most drivers involved in grade crossing accidents are familiar with the crossings and with roadway features at the crossings, the drivers become habituated (or pre-conditioned) to the crossings. In other words, based on previous driving experiences and conditioning, a driver may not expect a train to be occupying a crossing, and without a clear auditory signal (because the locomotive has already cleared the crossing) or visual stimuli alerting the driver to a train traveling through the crossing, the driver may fail to perceive the train in time to stop. This condition is further exacerbated when a train is stopped on a crossing.

There is currently no requirement for lighting or reflective markings on freight rolling stock. However, in recognition that the transportation of goods is not restricted to daytime hours and pristine weather conditions, reflectorization has become an indispensable tool for enhancing visibility in virtually all other modes of transportation, including air, highway, maritime, and pedestrian travel. For example, airplanes and

motor vehicles are equipped with retroreflective material at key locations on the exterior surfaces to increase their conspicuity. Mircoprismatic corner cube retroreflectors, which have the ability to direct light rays back to the light source, are typically used on roadway signs that warn of construction or other hazardous conditions. Federal regulations require retroreflective materials on the sides and rear of large trucks to increase their conspicuity and to aid motorists in judging their proximity to these vehicles. Even regulations addressing bicycle safety have specific requirements on the use of reflective materials. Lifesaving marine equipment, such as life vests and rafts, require reflectorization; and to enhance the conspicuity of pedestrians, especially at night, retroreflective material has been incorporated into clothing and similar items.

The everyday use of reflectors indicates their acceptance to delineate potential hazards and obstructions to a vehicle's path of travel. Research specific to the railroad industry has demonstrated that reflective materials can increase the conspicuity of freight cars, thereby enhancing motorists' ability to detect the presence of trains in highway-rail grade crossings. Reflective material on rail equipment increases visibility inexpensively, and does not require a power source to produce light but returns light from another source (i.e., an approaching automobile's headlights). This greater visibility can help drivers avoid some accidents and reduce the severity of other accidents that are unavoidable.

Research relating to the conspicuity of rail cars is not a new concept. Research dating back to the early 1950s has noted the potential viability of rail car conspicuity materials such as luminous sources (lights on rail cars), self-luminous sources (phosphorescent), and reflective sources. In the mid 1950's, researchers concluded that reflective material along the side sill of boxcars increased the visibility of the cars and aided in the perception of the cars' motion. The same study also found that the amount and distribution of reflectorized material proportionally affected the level of visibility and accuracy of perception of rail cars' motion. In other words, by using material with high coefficients of reflectivity (i.e., high levels of reflected light) against a high contrast background (e.g., dark and dirty rail cars), the amount of illumination was increased, and the motorists' ability to discriminate the movement of the rail cars across their line of vision was enhanced. By the early 1970's, researchers – concentrating on the conspicuity of trains at night – had generally concluded that although luminous and reflective sources both proved effective in enhancing the visibility of trains, reflectors provided conspicuity at a greater distance and field of vision than the other sources which were studied. Although the general consensus of historical research was that reflective materials could increase the conspicuity of objects to which they were attached, previous generations of reflective materials did not reflect enough light to be effective in the railroad environment and lacked the durability to survive the harsh railroad operating environment.

FRA first evaluated the use of reflective material on rail rolling stock in the early 1980s, and supported a study (completed in 1982) on the potential use of reflectorization to reduce nighttime accidents at highway-rail intersections. The study concluded that, although the use of reflective material enhanced the visibility of trains, the reflective

material was not durable enough to withstand the harsh railroad environment. It was decided that rulemaking action was not warranted at that time.

Since 1982, however, improvements in the brightness, durability, and adhesive properties of reflective materials have been achieved. Specifically, a new material – microprismatic retroreflective material – is now available. Because of the technological advances in reflective materials and the creation of microprismatic retroreflective material, FRA renewed its research efforts in the early 1990's. FRA funded renewed research through the John A. Volpe National Transportation Systems Center (“Volpe”) in Cambridge, Massachusetts, to re-examine the issue of using reflective material to enhance railcar conspicuity. In July 1999, FRA announced the results of its renewed research efforts with the release of the report *Safety of Highway-Railroad Grade Crossings: Freight Car Reflectorization* (“1999 Volpe Report”). The 1999 Volpe Report provided significant information, including cost estimates and data on the performance of equipped rail car fleets in an actual service environment. Similar to earlier research, the 1999 Volpe Report concluded that reflective materials enhanced motorists’ ability to detect the presence of a train in a highway-rail grade crossing and could therefore prevent collisions involving highway vehicles. The 1999 Volpe Report concluded that the durability and adhesive properties of the new microprismatic retroreflective material could provide adequate luminance intensity levels, which can be sustained for up to 10 years with minimum maintenance.

Building upon the research detailed in the 1999 Volpe Report, FRA subsequently investigated whether motorists, under simulated 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. 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* (“2001 Volpe Report”). The 2001 Volpe Report concluded that motorists had difficulty discriminating unreflectorized rail cars in grade crossings, 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.

Meanwhile, in 1994, Congress passed the Federal Railroad Safety Authorization Act of 1994, Public Law 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 rules with respect to visibility of railroad cars, and mandated that, if the review established that enhanced railroad visibility would likely improve safety in a cost-effective manner, the Secretary of Transportation initiate a rulemaking proceeding to prescribe regulations requiring enhanced visibility standards for railroad cars. Section 20148 specifically directed the Secretary to examine the use of reflectors. (See 49 U.S.C.

20148(b)(3)). Accordingly, FRA, as the Federal agency responsible for ensuring that America's railroads are safe for the traveling public – and in direct response to a Congressional mandate – is issuing this final rule to require use of reflective material on the sides of rail freight cars and locomotives to enhance the visibility of trains in order to reduce the number of accidents at highway-rail grade crossings where train visibility is a contributing factor.

Although some railroads have already begun to voluntarily reflectorize their freight rolling stock to enhance safety, FRA presently has no way to track this practice. Thus, FRA has no means to determine the type of reflectorized material being used by railroads/rolling stock owners or how widespread reflectorization of freight rolling stock is among American railroads/rolling stock owners. At this time, FRA has no way to determine the exact number and identity of freight cars that are actually being reflectorized. The collection of information is necessary so that FRA can assure adherence to a uniform standard concerning reflectorized materials and their placement on U.S. freight rolling stock. It is necessary so that it can monitor this process and ensure that all freight cars and locomotives covered by this Part are reflectorized in a systematic manner over a prescribed time frame.

2. How, by whom, and for what purpose the information is to be used.

The information is used by FRA to ensure that freight rolling stock owners follow the stipulated timeframe for replacing/repairing retroreflective material on the sides of freight rolling stock (freight cars and locomotives) that is damaged, obscured, or missing in order to enhance the visibility of trains. Under section 224.109, retroreflective sheeting on freight cars (and locomotives) subject to this part must be inspected for presence and condition whenever a car undergoes a single air brake test required under 49 CFR 232.305. If at the time of inspection less than 80 percent of the amount of sheeting required under § 224.105 on either side of the car is present, not damaged, or not obscured, the inspecting railroad/contractor must promptly notify the person responsible for the reporting mark, as indicated in the Universal Machine Language Register (UMLER), of the damaged, obscured, or missing sheeting (unless the inspecting railroad or contractor is the person responsible for the reporting mark). The inspecting railroad/contractor must retain a written or electronic copy of each such notification for two (2) years from the date of the notice. Any person notified of a defect under this section has nine (9) months (270 calendar days) from the date of notification to repair or replace the damaged, obscured, or missing sheeting. Since notification records must be furnished to FRA inspectors upon request, agency inspectors review them as part of their routine duties to ensure compliance Part 224.

Also, FRA reviews waiver petitions from railroads and car owners to make a determination whether it is appropriate, safe, and consistent with the public interest to grant an exception to any of the requirements of this Part. Moreover, FRA reviews petitions for special approval of alternative standards to ensure that appropriate data and

analysis are provided by railroads/freight rolling stock owners regarding a proposed alternative standard, and to verify that any proposed alternative standard actually provides at least an equivalent level of safety and meets the requirements of this Part.

In sum, the information collected enables FRA to promote and enhance railroad safety. The information collected allows FRA to closely monitor the efforts of railroads/freight rolling stock owners to fully reflectorize their fleets, and maintain in good condition these reflectorized freight cars and locomotives. Full implementation/maintenance of freight rolling stock fleet reflectorization serves to provide much greater visibility of rail cars/locomotives to motorists, and helps to reduce the risk of accidents/incidents at highway-rail grade crossings nationwide in which poor visibility of rail cars acts as a main or contributing factor.

3. Extent of automated information collection.

FRA highly encourages and strongly endorses the use of advanced information technology, wherever possible, to reduce burden on respondents. In keeping with the requirements of the Paperwork Reduction Act (PRA) and the Government Paperwork Elimination Act (GPEA), FRA has provided respondents with the option for electronic submission of required information. Specifically, under § 224.109(a), railroad freight rolling stock owners must be notified by the inspecting railroad or contractor whenever freight cars undergoing single car air brake test inspections have more than 20 percent of the amount of retroreflective sheeting (required under § 224.105) located on either side of the car that is damaged, obscured, or missing. The inspecting railroad or contractor has the option to retain the required record (copy) of each such notification either in writing or electronically.

Under § 224.109(b), locomotives undergoing the annual inspection required under 49 CFR 229.27 must have the retroreflective sheeting visually inspected for presence and condition. Locomotives that have more than 20 percent of the amount of retroreflective sheeting required under § 224.105 that is damaged, obscured, or missing must have that damaged, obscured, or missing sheeting repaired or replaced. If conditions at the time of inspection are such that adequate repairs can not be applied, or if sufficient material is not available, such application can be completed at the next forward location where conditions permit, provided a record is maintained. This record may be maintained either in the locomotive cab or in a secure and accessible electronic database that is available to FRA upon request. Additionally, under § 224.15, after a notice is published in the Federal Register concerning a freight rolling stock owner/railroad petition for special approval of an alternative standard to this Part, respondents – the general public and the railroad community at large – may submit their comments to the agency on such petitions either in electronic or written form.

According to FRA's Part 224 (Reflectorization) program specialist, approximately 99 percent of responses are now submitted electronically to FRA.

4. Efforts to identify duplication.

Because this information collection is entirely associated with this rulemaking, the collection of information is unique. The information collection requirements – to FRA’s knowledge – are not duplicated anywhere.

Similar data are not available from any other source at this time.

5. Efforts to minimize the burden on small businesses.

The requirements of this Part do not apply to freight railroads that operate only on track inside an installation that is not part of the general railroad system of transportation, rapid transit operations within an urban area that are not connected to the general system of transportation, or locomotives or passenger cars used exclusively in passenger service. Thus, the requirements of this Part do not apply to tourist, excursion, or historic railroads (which are invariably small businesses).

6. Impact of less frequent collection of information.

If this information is not conducted or is conducted less frequently, FRA’s national rail safety program will be considerably hampered. Specifically, without this collection of information, FRA would have no means to monitor and, where necessary, enforce railroads/car owners’ compliance with Part 224 requirements for the reflectorization of their freight cars/locomotives and maintenance of the reflectorization on these cars/locomotives in good condition. The consequence of such a failure is likely to be a greater number of collisions between motorists and train cars at highway-rail grade crossings, particularly collisions where cars run into trains (“RIT” accidents) at night time or during other times of limited visibility, in which lack of conspicuity or visibility played a decisive or contributing role in the causation of the accident/incident. Such an increase in RIT accidents/incidents is likely to result in greater numbers of injuries and fatalities both to motorists and train crew members, as well as greater property damage.

Statistical data indicate that collisions between trains and motor vehicles often result in fatal or very serious injuries to the occupants of the motor vehicle involved, and the vehicle may be completely destroyed. Moreover, collisions between trains and motor vehicles may result in damage to the rail equipment and often cause significant delays and disruptions to rail operations along that segment of track. Such collisions then have a variety of human and economic consequences. On the human side, families suffer greatly – in many cases are completely shattered – when a loved one is seriously injured or killed in this type of collision. On the economic side, in addition to the losses sustained when there are fatalities (valued by DOT at \$9.0 million for each life) and to the losses resulting from damage to property, there are additional costs. A coalition of railroads, labor organizations, and FRA estimates that collisions that cause train delays incur a cost of approximately \$250 per hour for freight trains. This estimate does not

include the ripple effect of delays incurred by other trains, including passenger trains, awaiting use of track where the service has been interrupted, nor does it include loss of productivity due to injured/killed train crew members or loss of revenue to railroads in cases where goods that would have been transported by train are instead moved by truck because of extended delays. Doubtless, these costs are significant.

In sum, this collection of information is another tool that enhances FRA's ability to promote and augment national rail safety, save lives, and reduce property damage by monitoring and enforcing, where necessary, the full reflectorization of freight cars and locomotive fleets by railroads and other car owners. Installation of reflective tape (reflectorization) increases the conspicuity/visibility of freight cars so that motorists can more readily identify them and better judge their speed and distance. This greater visibility will help prevent some accidents at highway-rail grade crossings, and will help to mitigate others by reducing the severity of those accidents which are unavoidable. The collection of information then aids both FRA's main mission and DOT's number one Strategic Goal (i.e., safe transportation of people and goods and the reduction of the number of injuries and fatalities and corresponding property damage which ensue from transportation related accidents/incidents).

7. Special circumstances.

All information collection requirements are in compliance with this section.

8. Compliance with 5 CFR 1320.8.

As required by the Paperwork Reduction Act of 1995, FRA published a notice in the Federal Register on **March 14, 2017**, soliciting public comment on this particular information collection. See 82 FR 13711. FRA received no comments in response to this 60-day Federal Register Notice.

FRA published the required 30-day Federal Register Notice on July 13, 2017, seeking additional public comment. See 82 FR 32439. As far as FRA knows since replies went to OMB, no comments were submitted in response to this Notice as well.

9. Payments or gifts to respondents.

There are no monetary payments provided or gifts made to respondents associated with the information collection requirements contained in this regulation.

10. Assurance of confidentiality.

No assurances of confidentiality were made by the Federal Railroad Administration (FRA). Information collected is not of a private nature.

11. Justification for any questions of a sensitive nature.

There are no questions or information of a sensitive nature, or data that would normally be considered private matters contained in this collection of information.

12. Estimate of burden hours for information collected.

Based on the latest FRA data, respondent universe is estimated at 755 railroads/freight rolling stock car owners. The number of United States retro-reflective manufacturers is estimated at two (2). Both make retro-reflective material that complies with FRA's regulation. According to the Association of American Railroads (AAR) publication Railroad Facts (2016), the number of freight cars in the United States is 1,600,000, while the number of locomotives is 26,574.

FRA is including the dollar equivalent cost for each of the itemized hours below using the AAR publication Railroad Facts 2016 as the basis for each cost calculation. For railroad executives, officials, and staff assistants, the hourly wage rate is \$117 per hour. For professional and administrative staff, the hourly wage rate is \$75 per hour. For railroad train and engine employees (e.g., locomotive engineers, conductors, etc.), the hourly wage rate is \$73 per hour. For maintenance of way and structures employees (e.g., signalmen), the hourly wage rate is \$69 per hour. For maintenance of equipment and stores, the hourly wage rate is \$61. For transportation other than train and engine employees, the hourly wage is \$72 per hour. Note: All hourly wage calculations include 75% overhead costs.

§ 224.7 Waivers

Any person subject to a requirement of this Part may petition the Administrator for a waiver of compliance with such a requirement. The filing of such a petition does not affect that person's responsibility for compliance with that requirement while the petition is being considered. Each petition for waiver under this section must be filed in the manner and contain the information required by Part 211 of this chapter.

FRA estimates that approximately 10 waiver petitions will be filed by railroads/car owners each year under the above requirement. It is estimated that it will take approximately eight (8) hours to complete each waiver petition and send it to FRA. Total annual burden for this requirement is 80 hours.

Respondent Universe:	755 Railroads/Freight Rolling Stock Owners
Burden time per response:	8 hours
Frequency of Response:	On occasion
Annual number of Responses:	10 waiver petitions
Annual Burden:	80 hours

Annual Cost: \$6,000 (\$75 x 80 hrs.)

Calculation: 10 waiver petitions x 8 hrs. = 80 hours

§ 224.15 Special Approval Procedures

(A.) General. The following procedures govern consideration and action upon requests for special approval of alternative standards under § 224.103(e):

(B.) Petitions. Each petition for special approval of an alternative standard must contain the following: (i) The name, title, address, and telephone number of the primary person to be contacted with regard to the petition; (ii) The alternative proposed, in detail, to be substituted for the particular requirements of this Part; and (iii) Appropriate data and analysis establishing that the alternative will provide at least an equivalent level of safety and meet the requirements of § 224.103(e).

Each petition for special approval of an alternative standard must be submitted to the Docket Clerk, Office of Chief Counsel, Federal Railroad Administration, RCC-10, Mail Stop-10, 1200 New Jersey Avenue, SE, Washington, D.C. 20590.

FRA estimates that approximately six (6) petitions for special approval of an alternative standard will be filed each year under the above requirement. It is estimated that it will take approximately 40 hours to complete each petition for special approval. Total annual burden for this requirement is 240 hours.

Respondent Universe:	2 Manufacturers
Burden time per response:	40 hours
Frequency of Response:	On occasion
Annual number of Responses:	6 petitions for special approval
Annual Burden:	240 hours
Annual Cost:	\$18,000 (\$75 x 240 hrs.)

Calculation: 6 petitions for special approval x 40 hrs. = 240 hours

(C.) Public comment. FRA will provide a period of not less than 30 days from the date of publication of the notice in the Federal Register during which any person may comment on the petition.

Each comment must set forth specifically the basis upon which it is made, and contain a concise statement of the interest of the commenter in the proceeding. Each comment must be submitted to the U.S. Department of Transportation, Docket Operations (M-30), West Building, Ground Floor, Room W12-140, 1200 New Jersey Avenue, SE, Washington, D.C. 20590, and must contain the assigned docket number which appears in the Federal Register for that proceeding. The form of such submission may be in written

or electronic form consistent with the standards and requirements established by the Federal Docket Management System and posted on its Web site at <http://www.regulations.gov>.

FRA estimates that it will receive approximately two (2) comments under the above requirement. It is estimated that it will take approximately eight (8) hours for the manufacturers/other parties to complete the comment and forward it to FRA. Total annual burden for this requirement is 16 hours.

Respondent Universe:	2 Manufacturers/Railroads/General Public
Burden time per response:	8 hours
Frequency of Response:	On occasion
Annual number of Responses:	2 petition comments
Annual Burden:	16 hours
Annual Cost:	\$1,200 (\$75 x 16 hrs.)

Calculation: 2 petition comments x 8 hrs. = 16 hours

(D.) In the event FRA determines that it requires additional information to appropriately consider the petition, FRA will conduct a hearing on the petition in accordance with the procedures provided in § 211.25 of this chapter.

FRA does not believe that it will not need any additional information to consider any submitted petitions and thus will not need to conduct a hearing on any of these petition under the above requirement. Consequently, there is no burden associated with this provision.

Total annual burden for this entire requirement is 256 hours (240 + 16).

§ 224.101 General Requirements

All rail freight rolling stock subject to this Part must be equipped with retroreflective sheeting that conforms to the requirements of this Part. Notwithstanding any other provision of this Chapter, the application, inspection, and maintenance of that sheeting must be conducted in accordance with this Subpart or in accordance with an alternative standard providing at least an equivalent level of safety after special approval of FRA under § 224.15.

The burden for this requirement is covered under that of § 224.15 above. Consequently, there is no additional burden associated with this requirement.

§ 224.103 Characteristics of Retroreflective Sheeting

(A.) Certification. The characters "FRA-224", constituting the manufacturer's certification that the retroreflective sheeting conforms to the requirements of paragraphs (a) through (c) of this section, must appear at least once on the exposed surface of each piece of sheeting in the final application. The characters must be a minimum of three millimeters high, and must be permanently stamped, etched, molded, or printed within the product, and each certification must be spaced no more than four inches apart.

Although the two (2) United States manufacturers of FRA compliant retroreflective material will make millions of sheets of retroreflective sheeting to be placed on the estimated 1.6 million freight cars presently in service, there is zero (0) burden involved because it takes the manufacturers the same amount of time to make the sheeting with or without the characters stipulated above. Consequently, there is no burden associated with this requirement. (Note: There would be no burden involved for new cars built each year needing retroreflective sheeting for the same reason. Additionally, there is no cost involved regarding the above requirement because the cost for stamping /etching/ molding /printing is included as part of the manufacturing process.

(B.) Alternative Standards. Upon petition by a freight rolling stock owner or railroad under § 224.15, the Associate Administrator may approve an alternative technology as providing equivalent safety. Any such petition must provide data and analysis sufficient to establish that the technology will result in conspicuity and durability at least equal to sheeting described in paragraphs (a) through (c) (of this section) applied in accordance with this Part and will present a recognizable visual target that is suitably consistent with freight rolling stock equipped with retroreflective sheeting meeting the technical requirements of this Part to provide the intended warning to motorists.

The burden for this requirement is included under that of § 224.15 above. Consequently, there is no additional burden associated with this requirement.

§ 224.107 Implementation Schedule

(a) Railroad Freight Cars

(I) Existing cars without retroreflective sheeting.

If, as of October 28, 2005, a car subject to this Part is not equipped on each side with at least one square foot of retroreflective sheeting specified in paragraphs (a)(3) of this section, retroreflective sheeting conforming to this Part must be applied to the car at the earliest of the following two occasions occurring after November 28, 2005, or in accordance with paragraph (a)(2)(ii) of this section: (A) When the car is repainted or

rebuilt; or (B) Within nine months (270 calendar days) after the car first undergoes a single car air brake test as prescribed by 49 CFR 232.305.

A freight rolling stock owner may elect not to follow the schedule in paragraph (a)(2)(i) of this section if, not later than January 26, 2006, the freight rolling stock owner submits to FRA a completed Reflectorization Implementation Compliance Report certifying that the cars in the owner's fleet subject to this part will be equipped with retroreflective sheeting as required by this part in accordance with the schedule specified in Table 3 of this section. Thereafter, (A) the designated fleet must be equipped with retroreflective sheeting according to the schedule specified in Table 3 of this section.

This provision has expired, and is no longer applicable. Consequently, there is no burden associated with this requirement.

(B.) No later than January 28, 2008, the freight rolling stock owner must submit to FRA an updated Reflectorization Implementation Compliance Report showing which cars of the fleet subject to this Part were equipped with retroreflective sheeting as required by this Part during the initial 24-month implementation period. Thereafter, updated Reflectorization Implementation Compliance Reports must be submitted annually, no later than December 31 of each year for the duration of the 10-year implementation period.

This provision has expired, and is no longer applicable. Consequently, there is no burden associated with this requirement.

(C.) If, following the conclusion of the initial 24-month period or any 12-month period thereafter, the percentage requirements of this section have not been met – (1) the freight rolling stock owner shall be considered in violation of this Part; (2) the freight rolling stock owner must, within 60 days after the close of the period, report the failure to the Associate Administrator; (3) the requirements of paragraph (a)(2)(i) shall apply to all railroad freight cars subject to this part in the freight rolling stock owner's fleet; and (4) the fleet owner shall take such additional actions as may be necessary to achieve future compliance.

(D.) Cars to be retired must be included in the fleet total until they are retired.

This provision has expired, and is no longer applicable. Consequently, there is no burden associated with this requirement.

(II.) Existing Cars with Retroreflective Sheeting.

(A.) If, as of October 28, 2005, a car is equipped on each side with at least one square foot of retroreflective sheeting, uniformly distributed over the length of each side, that car shall be considered in compliance with this part through November 28, 2015, provided the sheeting is not unqualified retroreflective sheeting, and provided the freight rolling

stock owner files a completed Reflectorization Implementation Compliance Report with FRA no later than January 26, 2006, identifying the cars already so equipped.
This provision has expired, and is no longer applicable. Consequently, there is no burden associated with this requirement.

(b.) Locomotives

(1.) New Locomotives

Retroreflective sheeting conforming to this part must be applied to all locomotive constructed after January 26, 2006, before they are placed in service.

(2.) Existing Locomotives without Retroreflective Sheeting.

(A) If as of October 28, 2005, a locomotive subject to this part is not equipped with the minimum amount of retroreflective sheeting specified in paragraph (b)(3) of this section, retroreflective sheeting conforming to this part must be applied to the locomotive not later than nine months after the first biennial inspection performed pursuant to 49 CFR 229.29 occurring after November 28, 2005.

(ii) A freight rolling stock owner may elect not to follow the schedule in paragraph (b)(2)(i) of this section if, not later than January 26, 2006, the freight rolling stock owner submits to FRA a Reflectorization Implementation Compliance Report certifying that the locomotives in the owner's fleet subject to this part will be equipped with retroreflective sheeting as required by this part in accordance with the schedule specified in Table 4 of this section. Thereafter, (A) the designated locomotive fleet must be equipped with retroreflective sheeting according to the requirements of this paragraph (b)(2)(ii).

This provision has expired, and is no longer applicable. Consequently, there is no burden associated with this requirement.

(B.) No later than January 28, 2008, the freight rolling stock owner must submit to FRA an updated Reflectorization Implementation Compliance Report showing which locomotives of the fleet subject to this part were equipped with retroreflective sheeting as required by this part during the initial 24-month implementation period. Updated Reflectorization Implementation Compliance Reports must be submitted annually, no later than December 31 of each year, for the duration of the five-year implementation period.

This provision has expired, and is no longer applicable. Consequently, there is no burden associated with this requirement.

(C.) If, following the conclusion of the initial 24-month period or any 12-month period thereafter, the percentage requirements of this section have not been met (1) the freight

rolling stock owner shall be considered in violation of this part; (2) the freight rolling stock owner must, within 60 days after the close of the period, report the failure to the Associate Administrator; (3) the requirements of paragraph (b)(2)(i) shall apply to all locomotives subject to this part in the freight rolling stock owner's fleet; and (4) the fleet owner shall take such additional actions as may be necessary to achieve future compliance. Locomotives to be retired must be included in the fleet total until they are retired.

This provision has expired, and is no longer applicable. Consequently, there is no burden associated with this requirement.

(II.) Existing Locomotives with Retroreflective Sheeting.

(A.) If, as of October 28, 2005, a locomotive is equipped on each side with at least one square foot of retroreflective sheeting, that locomotive shall be considered in compliance with this part through November 28, 2015, provided the existing material is not unqualified retroreflective sheeting, and provided the freight rolling stock owner files a Reflectorization Implementation Compliance Report with FRA no later than January 26, 2006, identifying the cars already so equipped.

This provision has expired, and is no longer applicable. Consequently, there is no burden associated with this requirement.

(B.) If, as of October 28, 2005, a locomotive is equipped with unqualified retroreflective sheeting, the locomotive will be considered in compliance with this part through November 28, 2015, provided the locomotive is equipped with a minimum of three (3) square feet of retroreflective material on each side and provided the freight rolling stock owner files a Reflectorization Implementation Compliance Report with FRA no later than January 26, 2006, identifying the locomotives already so equipped.

This provision has expired, and is no longer applicable. Consequently, there is no burden associated with this requirement.

§ 224.109 Inspection, Repair, and Replacement

(a.) Railroad Freight Cars. Retroreflective sheeting on railroad freight cars subject to this part must be visually inspected for presence and condition whenever a car undergoes a single car air brake test required under 49 CFR 232.305. If at the time of inspection less than 80 percent of the amount of sheeting required under § 224.105 (§ 224.107 in the case of freight cars subject to § 224.107(a)(3)) on either side of a car is present, not damaged, and not obscured, the inspecting railroad or contractor must promptly notify the person responsible for the reporting mark, as indicated in the Universal Machine Language Register (UMLER), of the damaged, obscured, or missing sheeting (unless the inspecting railroad or contractor is the person responsible for the reporting mark). The

inspecting railroad or contractor must retain a written or electronic copy of each such notification made for at least two years from the date of the notice, and must make these records available for inspection and copying by the FRA upon request. Any person notified of a defect under this section shall have nine months (270 calendar days) from the date of notification to repair or replace the damaged, obscured, or missing sheeting. Where the inspecting railroad or contractor is the person responsible for the reporting mark, the person shall have nine months (270 calendar days) from the date of the inspection to repair or replace the damaged, obscured, or missing sheeting.

According to AAR Interchange Rule 3, freight cars must undergo a Single Car Air Brake Test (SCABT) once every five (5) years. Accordingly, with a pool of approximately 1,600,000 freight cars (based on the 2016 AAR publication, Railroad Facts (p. 53)), approximately 320,000 freight cars (1,600,000 freight cars/5 = 320,000 freight cars) would undergo a SCABT. Further, FRA estimates that approximately 10 percent of these cars (320,000 cars/10) or approximately 32,000 freight cars would need to have missing, damaged, or retroreflective sheeting repaired or replaced, and that it would take approximately four (4) minutes to inspect each car and another eight (8) minutes per car to repair or replace the retroreflective sheeting (i.e., secure new tape, clean a place to apply new tape, and affix the new sheeting). Additionally, FRA estimates the required notification to freight rolling stock owners will take approximately two (2) minutes to complete each notification. Total annual burden for this requirement is 7,467 hours.

Respondent Universe:	AAR + 300 Independent Car Shops
Burden time per response:	14 minutes
Frequency of Response:	On occasion
Annual number of Responses:	32,000 inspections/repairs/ replacements/ notifications
Annual Burden:	7,467 hours
Annual Cost:	\$455,487 (\$61 x 7,467 hrs.)

Calculation: 32,000 inspections/repairs/replacements/notifications x
14 min. = 7,467 hours

(b.) Locomotives. Retroreflective sheeting must be visually inspected for presence and condition when the locomotive receives the annual inspection required under 49 CFR 229.27 of this chapter. If at the time of inspection less than 80 percent of the amount of sheeting required under § 224.105 (§ 224.107 in the case of locomotives subject to § 224.107(b)(3)) on either side of a locomotive is present, not damaged, and not obscured, the damaged, obscured or missing sheeting must be repaired or replaced within nine months (270 calendar days) from the date of inspection, provided a record of the defect is maintained in the locomotive cab or in a secure and accessible electronic database to which FRA is provided access upon request.

As noted above in the summary at the beginning of question number 12, there are approximately 26,574 locomotives currently in operation (according to AAR 2016 publication Railroad Facts (p. 51). Again, FRA estimates that approximately 10 percent of these locomotives or approximately 2,657 locomotives will have less than 80 percent retroreflective material on them because they are damaged, obscured, or missing at the time of the required inspection. FRA estimates that it would take approximately four (4) minutes to inspect each locomotive and another eight (8) minutes per locomotive to repair or replace the retroreflective sheeting (i.e., secure new tape, clean a place to apply new tape, and affix the new sheeting). Additionally, FRA estimates it will take an additional three (3) minutes to complete the required record of the defect/restriction and place it in the cab of the locomotive/in a secure and accessible electronic database. Total annual burden for this requirement is 664 hours.

Respondent Universe:	755 Railroads/Freight Rolling Stock Owners
Burden time per response:	15 minutes
Frequency of Response:	On occasion
Annual number of Responses:	2,657 defect/restriction records
Annual Burden:	664 hours
Annual Cost:	\$40,504 (\$61 x 664 hrs.)

Calculation: 2,657 defect/restriction records x 15min. = 664 hours

Total annual burden for this entire requirement is 8,131 hours (7,467 + 664).

Total annual burden for this entire information collection requirement is **8,467 hours**, and the total annual dollar cost equivalent for these burden hours is **\$521,191** (6,000 + 19,200 + 455,487 + 40,504).

13. Estimate of total annual costs to respondents.

There really is no additional cost to respondents relating to this collection of information since respondents, who already have the use of advanced information technology to transmit notifications and keep required records.

14. Estimate of Cost to Federal Government.

COST TO FEDERAL GOVERNMENT

There will be additional costs to the Federal Government relating to this collection of information. The estimated costs involve the review by appropriate FRA staff of

documents submitted by respondents. Costs are as follows: GS-13-5 FRA employee = \$90.40 p/hr.; GS-14-5 FRA employee = \$106.80 p/hr.; and GS-15-5 FRA employee = \$125.65 p/hr. [Note: 2017 Federal wage rates are burdened with overhead costs of 75 percent.]

(1) Annual Review of 10 General Petitions for Waivers under § 224.7. FRA estimates that an Office of Safety Staff Specialist spends approximately 15 minutes per petition, or a total of 2.5 hours annually perusing these petitions. For an experienced staffer at the GS-14-5 level, the cost comes to **\$267**

(2) Annual Review of Six (6) Special Approval Procedure Petitions (for alternative standards) under § 224.15. FRA estimates that an Office of Safety Staff Technical Specialist spends approximately 10 hours per petition, or a total of 60 hours annually thoroughly reviewing and evaluating these petitions. For an experienced staffer at the GS-14-5 level, the cost comes to **\$6,408**. Additionally, FRA estimates that an Office of Safety engineer also spends approximately 10 hours per petition, or a total of 60 hours annually thoroughly perusing and evaluating these petitions. For an experienced engineer at GS-14-5 level, the cost comes to **\$6,408**. Finally, FRA estimates that an agency attorney spends approximately 30 minutes per petition, or a total of 3 hours annually examining special approval procedures petitions to ensure that they comply with legal requirements and agency regulations. For an experienced attorney at the GS-14-5 level, the cost comes to **\$320.40**. Total cost then for reviewing these petitions is **\$13,136.40**.

The total cost to the Federal Government is **\$13,403.40 or \$13,403 rounded (267 + 13,136.40)**.

15. Explanation of program changes and adjustments.

The total burden for this information collection has decreased by **302 hours** and **99,741 responses** from the last approved submission. The decrease is due both **program changes** and **adjustments** in agency estimates, which are completely delineated in the tables below:

PROGRAM CHANGES

Part 224 Section	Responses & Avg. Time (Previous Submission)	Responses & Avg. Time (This Submission)	Burden Hours (Previous Submission)	Burden Hours (This Submission)	Difference (plus/minus)
224.107A (a) – Implementation Schedule – Existing cars w/o retroreflective sheeting:	100 reports/forms 15 minutes	<i>Provision has expired and is no longer applicable.</i>	25 hours	<i>Provision has expired and is no longer applicable.</i>	-- 25 hours -- 100 responses

Compliance reports					
224.107B - Annually Updated Reflectorization Implementation Compliance Reports (Forms)	100 reports/forms 20 hours	<i>Provision has expired and is no longer applicable.</i>	2,000 hours	<i>Provision has expired and is no longer applicable.</i>	-- 2,000 hours -- 100 responses
- Failure Reports	5 reports 2 hours	<i>Provision has expired and is no longer applicable.</i>	10 hours	<i>Provision has expired and is no longer applicable.</i>	-- 10 hours -- 5 responses
-- Existing Locomotives with Retroreflective Sheeting: Implementation Compliance Reports by 1/26/06	86 reports/forms 20 hours	<i>Provision has expired and is no longer applicable.</i>	1,720 hours	<i>Provision has expired and is no longer applicable.</i>	-- 1,720 hours -- 86 responses

Program changes above decreased the burden by 3,755 hours and by 291 responses.

TABLE FOR ADJUSTMENTS

Part 224 Section	Responses & Avg. Time (Previous Submission)	Responses & Avg. Time (This Submission)	Burden Hours (Previous Submission)	Burden Hours (This Submission)	Difference (plus/minus)
224.7 – Waivers	20 waivers 1 hour	10 waivers 8 hours	20 hours	80 hours	+ 60 hours -- 10 responses
224.15 – Petitions for Special Approval	12 petitions 40 hours	6 petitions 40 hours	480 hours	240 hours	-- 240 hours -- 6 responses
-- Comments on special approval petitions	3 comments 1 hour	2 comments 8 hours	3 hours	16 hours	+ 13 hours -- 1 response
224.109 – Inspection, repair, replacement of retroreflective sheeting and notification to Rolling Stock Owners of Damaged, Obscured, or Missing Retroreflective Sheeting on	131,619 notices 2 minutes	32,000 inspection /repairs/ replacements/ notifications 14 minutes	4,387 hours	7,467 hours	+ 3,080 hours -- 99,619 resp.

freight cars -- Locomotives Record of Restriction for Damaged, Obscured, or Missing Retroreflective Sheeting after Inspection	2,471 records 3 minutes	2,657 inspections/ repairs/replacements /records 15 minutes	124 hours	664 hours	+ 540 hours + 186 responses
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Adjustments above increased the burden amount by *3,453 hours*, and decreased the number of *responses* by *99,450*.

The current inventory shows a burden total of *8,769 hours*, while the present submission exhibits a burden total of *8,467 hours*. Hence, there is a burden decrease of **302 hours**.

There is no change in cost to respondents.

16. Publication of results of data collection.

There are no plans for publication of this submission.

17. Approval for not displaying the expiration date for OMB approval.

Once OMB approval is received, FRA will publish the approval number for these information collection requirements in the Federal Register.

18. Exception to certification statement.

No exceptions are taken at this time pertaining to the certification statement identified in item 19, "Certification for Paperwork Submissions," of OMB Form OMB 83-I.

Meeting Department of Transportation (DOT) Strategic Goals

This information collection supports the main DOT strategic goal, namely transportation safety. Rail safety is likely to be made considerably safer through this rule and associated information collection. Specifically, the collection of information allows FRA to monitor and, where necessary, enforce railroad/car owners' compliance with the full reflectorization of their freight cars and locomotives which fall under this rule. Reflectorization of freight cars provides greater conspicuity or visibility to motorists, particularly at night time, and therefore serves to reduce the number of collisions at highway-rail grade crossings. Run-into-train (RIT) accidents affect communities throughout the nation.

Statistical data indicate that collisions between trains and motor vehicles often result in fatal or very serious injuries to the occupants of the motor vehicle involved, and the vehicle may be completely destroyed. Moreover, collisions between trains and motor vehicles often result in damage to the rail equipment and significant delays and disruptions to rail operations along that segment of track. Such collisions then have a variety of human and economic consequences. On the human side, families suffer greatly – in many cases are completely shattered – when a loved one is seriously injured or killed in this type of collision. On the economic side, in addition to the losses sustained when there are fatalities (valued by DOT at \$9.0 million for each life) and to the losses resulting from damage to property, there are additional costs. A coalition of railroads, labor organizations, and FRA estimates that such collisions, in general, cause an average of a two-hour train delay at \$250 per hour for freight trains. This estimate does not include the ripple effect of delays incurred by other trains, including passenger trains, awaiting use of track where the service has been interrupted, nor does it include loss of productivity due to injured/killed train crew members or loss of revenue to railroads in cases where goods that would have been transported by train are instead moved by truck because of extended delays.

The collection of information furthers DOT's goal of reducing the number of injuries, fatalities, and property damage that results from transportation related accidents by providing another useful instrument that FRA can use to monitor and indeed increase national rail safety. Ensuring that railroads and other freight rolling stock owners fully reflectorize their freight cars and locomotives achieves greater visibility so that motorists can more easily identify them and better judge their speed and distance. This greater visibility aids in preventing some accidents at highway-rail grade crossings, and helps mitigate others by reducing the severity of those accidents which are unavoidable.

In summary, this collection of information contributes to both FRA's mission and DOT's number one Strategic Goal, namely safe transportation of people and goods throughout the United States and the reduction of the number of injuries and fatalities and associated property damage which ensue from transportation-related accidents/incidents. In this information collection, as in all its information collection activities, FRA seeks to do its utmost to fulfill DOT Strategic Goals and to be an integral part of One DOT.