

SUPPORTING JUSTIFICATION – Part A
ENS Sign Study; OMB No. 2130-NEW
Form Number FRA F 6180.158

Summary

- This is a new collection of information related to the Emergency Notification Signs (ENS) required under 49 CFR part 234.
- FRA published the required 60-day Notice in the Federal Register on **September 17, 2018**. See 83 FR 47000. FRA received no comments in response to this Notice.
- FRA is publishing the required 30-day Notice in the Federal Register on **February 7, 2019**. See 84 FR 2661.
- The total number of burden **hours requested** for this information collection submission is **100 hours**.
- The total number of **responses requested** for this information collection submission is **100**.
- By definition, this entire information collection submission is a **program change**.

** The answer to question **number 12** itemizes the hourly burden associated with each requirement of this rule (See pp. 21-63). Cost to respondents is **\$158,958** per year.

1. Circumstances that make the collection of information necessary.

The Federal Railroad Administration (FRA) is interested in understanding more about drivers' awareness and understanding of the Emergency Notification System (ENS) signs posted at highway-rail grade crossings. ENS signs are placed at every crossing so that if a driver encounters a malfunctioning crossing or an emergency at that crossing they can call the number on the sign and use the posted crossing ID to report this issue. If a driver were to become stuck on the tracks, they can also call the ENS number. This would help to slow or stop the oncoming train and to dispatch individuals who could help safely remove the stuck vehicle. Drivers may also choose to call the ENS number if they feel the crossing signage is damaged or obstructed.

A driver may consider calling the number on the ENS sign if the crossing warning devices are malfunctioning. An active crossing may malfunction in one of three ways (from 49 Code of Federal Regulations Part 234):

- *Activation Failure:* The failure of the active crossing warning system to indicate the approach of a train at least 20 seconds prior to the train's arrival (or to indicate the presence of a train occupying the crossing);
- *Partial Activation:* The warning system activates incompletely, such as the gates not fully descending or the gates not descending while the lights flashed; or
- *False Activation:* The activation of a warning system caused by something other than an approaching train (e.g., a condition that requires correction or repair of the system).

Each of these types of malfunctions creates an abnormal situation and the driver must decide how to react.

In some of the malfunction situations, a driver approaching the crossing during the malfunction may realize that an error has occurred quickly, while other malfunction situations may require prolonged exposure (or in some cases, drivers may never realize that the gate malfunctioned). Regardless, the driver must make a decision about how to act based on the information they are being provided at the crossing in that moment. Sometimes these actions are not safe. As an example of an unsafe action, a preliminary National Transportation Safety Board (NTSB) report¹ from the January 31, 2018, Amtrak collision in Crozet, Virginia, includes witness statements that the refuse truck struck in the incident went around the crossing gates after the crossing gates were down. Additional media reports have indicated that the gates at this crossing were prone to malfunction and had done so in the days before the incident².

These reports of the malfunctioning gate raise serious questions about safety at highway rail grade crossings: how do drivers behave when approaching an active crossing that they believe to be malfunctioning? Specific to this accident, why did the driver go around the down gates? Why had no one reported this crossing—by calling the number on the posted (ENS) sign—as needing maintenance to fix this known issue? One way to begin to address these questions will be to investigate current ENS sign placement and use of the numbers on those public signs. This will help to understand more about the current use of the ENS sign.

The study will help shed light on how drivers react when crossing infrastructure that appears to be malfunctioning or when becoming stuck on the crossing. This study will pay particular attention to whether drivers look for or attempt to make use of the information on the ENS sign

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

The focus of this study is to collect empirical data to better understand how drivers interact with the ENS signage at a variety of rail crossings, including some that are malfunctioning. The study will examine the effect of different orientations of ENS signs on driving behavior. The experiment will consist of one session, and participants will not be asked to participate in future

¹ <https://www.nts.gov/investigations/AccidentReports/Reports/HWY18MH005-prelim.pdf>

² See: <https://nypost.com/2018/02/01/drivers-experienced-crossing-malfunction-before-gop-train-crash/> or <https://www.sltrib.com/news/nation-world/2018/02/02/safety-arms-at-gop-train-garbage-truck-crash-site-seemed-to-malfunction-drivers-say/>

studies focusing on driver interaction with ENS signage. The results of the information will be summarized in a report for FRA. This data may be used by FRA to determine if the current ENS signage policies are effective or if new policies should be developed and put in place.

3. Extent of automated information collection.

Although a driving simulator will be used to enable participants to provide answers to the proposed information collection questionnaire, the proposed collection of information does not lend itself to the use of advanced information technology. Thus, no information will be collected in an automated fashion. All data will be collected by voluntary subjects who agree to participate in person, and fill-out the questionnaire/form.

4. Efforts to identify duplication.

An extensive literature review was conducted to better understand previous research in this field. No relevant literature was found. Thus, the information collection requirements to our knowledge are not duplicated anywhere.

Similar data are not available from any other source.

5. Efforts to minimize burden on small businesses.

The participants intended for this study are individually licensed drivers between 18 to 60 years of age. While many licensed drivers may work for a small business or own their own small business, participation is completely voluntary. Consequently, only willing licensed drivers will participate in the data collection activity.

There will be no effect on small businesses as a result of the proposed study. Moreover, because the full experiment will only take approximately one hour, this one session experiment is not considered to be burdensome.

Every effort has been made in the design of this experiment to ensure each part is absolutely necessary.

6. Impact of less frequent collection of information.

Along with the fast and efficient movement of people and goods throughout the United States, FRA's core mission is to improve safety by reducing the number of rail accidents/incidents that occur annually and the injuries, property damage, and fatalities that accompany them. For many years, FRA has worked on enhancing safety at highway-rail grade crossing throughout the country by various methods. To date, however, there is no public information describing how drivers interact with, or look for, ENS signs.

The proposed collection of information and the new data, provided by this one-time study, will help DOT/FRA to better understand if current recommendations for ENS signage are consistent

with expected driver behavior, or whether a different/altered placement of signs or a different design of signs will serve to increase the number of calls by members of the public related to unsafe grade crossing conditions and thereby enhance safety by reducing the number and severity of rail accident/incidents that occur each year at highway-rail grade crossings.

7. Special circumstances.

There are no special circumstances related to the information being collected for this study

All information collection requirements contained in this rule are in compliance with this section.

8. Compliance with 5 CFR 1320.8.

As noted above in the Summary on page 1, FRA published the required 60-Day notice in the **Federal Register** on **September 17, 2018**, requesting public comment on the proposed study pertaining to this new information collection. See 83 FR 47000. FRA received no comments in response to this Notice.

Further, FRA is publishing the required second or 30-day Notice in the **Federal Register** on **February 7, 2019**, specifying any public comments be sent directly to OMB. See 84 FR 2661.

9. Payment or gifts to respondents.

All participants will be compensated with a \$75 gift card for participating in the experiment. The gift card will be given to the subject by the experimenter at the end of the experiment.

10. Assurances of Confidentiality.

Confidentiality of the information will be protected by reasonable security safeguards against loss or unauthorized access, destruction, usage, modification, or disclosure. These safeguards incorporate standards and practices required for federal information systems under the Federal Information Processing Standards (FIPS) Publication 200, *Minimum Security Requirements for Federal Information and Information Systems* dated March 2006 and NIST Special Publication (SP) 800-53 Rev. 2, *Recommended Security Controls for Federal Information Systems* dated December 2007. Respondents are being assured that no individual data will be publicly available in any form. The data would be stored on secure servers housed at the John A Volpe National Transportation Systems Center (Volpe Center). Volpe Center Information Technology (IT) specialists would conduct a certification and approval process to ensure data security.

11. Justification for collection of sensitive information.

No sensitive information will be collected during the study. Participants will not be asked any questions of a private or sensitive nature during the course of the proposed study.

12. Estimates of burden hours for information requested.

The experiment will focus on individuals that are licensed drivers. The information collection burden is estimated to be approximately 60 minutes per subject. The experiment will call for approximately 100 participants from 18 years to 60 years of age.

The U.S. Department of Labor, Bureau of Labor Statistics determined the median hourly wage for Massachusetts residents to be \$22.81 (the primary demographic that will participate in this study) (see http://www.bls.gov/oes/current/oes_ma.htm#00-0000).

| Form Name | Form Number | No. of Respondents | No. of Responses per Respondent | Average. Burden per Response (in hours) | Total Annual Burden (in hours) | Average Hourly Wage Rate | Total Annual Respondent Cost |
|-----------|-------------|--------------------|---------------------------------|---|--------------------------------|--------------------------|------------------------------|
| | | 100 | 1 | 1 | 100 | \$22.81 | \$2,281.00 |
| Total | | 100 | 1 | 1 | 100 | \$22.81 | \$2,281.00 |

13. Estimates of total annual costs to respondents.

| | | Sq. Ft. Rate | 6 Month Cost | Notes |
|-------------------|---------|--------------|--------------|--------------------------|
| Simulator | Sq. Ft. | FY19 | FY19 | |
| Driving sim | 330 | ~56.00 | \$ 9,240 | split w/ other projects |
| Electric workshop | 40 | ~56.00 | \$ 1,120 | |
| Subtotal | | | \$ 10,360 | |
| Acq. OH Rate: | | | ~7.5% | |
| Total | | | \$ 11,137 | All FY19 rates estimated |

14. Estimate of cost to the Federal government.

The total federal government budget for this information collection is approximately \$143,000, itemized as follows:

COST TO FEDERAL GOVERNMENT

| Tasks | Total costs, by task |
|--|----------------------|
| Project Management costs | \$10,000 |
| Development and piloting of simulation for study | \$28,000 |
| Preparation of OMB package | \$12,500 |
| Collection of data through simulator study | \$45,000 |
| Compensation provided to participants | \$7,500 |
| Statistical analysis | \$18,000 |

| | Tasks | Total costs, by task |
|------------------------|-------------------------------|----------------------|
| Preparation of reports | | \$22,000 |
| | Total costs, all tasks | \$143,000 |

15. Explanation of program changes or adjustments.

This is a new collection of information. Thus, by definition, it is a complete **program change**.

16. Publication of results of data collection.

The Volpe National Transportation Center will publish a final report that describes the study goals, methodology, and results. This report will be available to the public at the FRA website: www.fra.dot.gov.

Below is the approximate time schedule for the project:

- *July 2018*: Complete required forms to satisfy Paperwork Reduction Act (PRA).
- *February 2019 – March 2019*: Develop the simulation and refine the experimental procedure.
- *May 2019 – July 2019*: Recruit participants and collect data in simulator.
- *August 2019 – September 2019*: Analyze results from simulator study and deliver a draft report to the FRA.
- *October 2019 – November 2019*: Work with FRA on review of draft report – revise and finalize technical report.

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

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

18. Exceptions to certification statement.

No exceptions are taken at this time.