# Safely and Effectively Communicating Non-Connected Vehicle Information to Connected Vehicles through Field- and Driving-Simulator-Based Research Dataset

**Dataset available at:** https://doi.org/10.7910/DVN/WJW1HA

(This dataset supports report **Safely and Effectively Communicating Non-Connected Vehicle Information to Connected Vehicles through Field- and Driving-Simulator-Based Research,** http://safersim.nads-sc.uiowa.edu/final_reports/UW%203%20Y2_Final%20Report.pdf)

This U.S. Department of Transportation-funded dataset is preserved by the SAFER-SIM University Transportation Center in the Harvard Dataverse Repository (https://dataverse.harvard.edu/), and is available at https://doi.org/10.7910/DVN/WJW1HA

The related final report **Safely and Effectively Communicating Non-Connected Vehicle Information to Connected Vehicles through Field- and Driving-Simulator-Based Research**, is available from the National Transportation Library's Digital Repository at https://rosap.ntl.bts.gov/view/dot/42267

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Description: The largest safety impact of connected vehicle (CV) technology will occur only when a critical mass of vehicles and infrastructure is connected. This will require significant market penetration and improvements to our infrastructure, and it is occurring at a relatively slow pace compared to autonomous vehicle technology. Until CVs are ubiquitous, strategies for communicating between CVs and non-CVs as well as with connected infrastructure will be critical in improving transportation safety. Communicating information from roadway infrastructure to CVs is key, especially for scenarios in which the line of sight of in-vehicle sensors is obstructed by other vehicles, pedestrians, buildings, etc. As part of the research project, the effectiveness of a potential warning system to communicate the presence of a likely red-light-running vehicle to the driver of a CV was evaluated. Red-light running was selected as a test scenario because non-CVs who run a red light could be detected by existing roadway infrastructure, even when not detected by sensors in CVs. The motivation for studying the

effectiveness of a warning message is to provide the driver of a CV with a warning message (and the opportunity to react) prior to the point of engaging collision-avoidance features that are becoming standard in vehicles. The evaluation of the effectiveness of a warning system was conducted using a driving simulator experiment. In the experiment, participants were exposed to an imminent collision scenario with a redlight-running vehicle. The response to the scenario for a control and treatment group were studied. Participants in the control group received a warning about the potential red-light-running vehicle at the stop bar. Participants in the treatment group received a warning message displayed as a head-up display at 50 ft, 100 ft, and 150 ft from the stop bar. The warning message was accompanied by an auditory warning. A separate component of the project evaluated the feasibility of communicating the presence of a potential non-connected red-light-running vehicle to CVs using a radar-based vehicle-detection system. The feasibility of detecting red-light runners has been previously demonstrated, and the underlying data is discussed in the report. A strategy for communicating field data to dedicated short range communications units is resented. (2019-05-01)
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**Dataset description:**
This dataset contains 9 .zip file collections and 1 .docx file described below.

**CueData.zip:**
This collection contains 27 .csv files, titled CueData and numbered 0 to 26 (eg. CueData-21.csv). The .csv, Comma Separated Value, file is a simple format that is designed for a database table and supported by many applications. The .csv file is often used for moving tabular data between two different computer programs, due to its open format. The most common software used to open .csv files are Microsoft Excel and RecordEditor, (for more information on .csv files and software, please visit https://www.file-extensions.org/csv-file-extension).

**logData.zip**
This collection contains 27 .csv files, titled logData and numbered 0 to 26 (eg. logData-1.csv). The .csv, Comma Separated Value, file is a simple format that is designed for a database table and supported by many applications. The .csv file is often used for moving tabular data between two different computer programs, due to its open format. The most common software used to open .csv files are Microsoft Excel and RecordEditor, (for more information on .csv files and software, please visit https://www.file-extensions.org/csv-file-extension).

**flow-11-log_1.zip:**
This collection contains 13 .txt files, titled flow-11.log and numbered 0 to 12 (eg. flow-11.log.txt). The .txt file type is a common text file, which can be opened with a basic text editor. The most common software used to open .txt files are Microsoft Windows Notepad, Sublime Text, Atom, and TextEdit (for more information on .txt files and software, please visit https://www.file-extensions.org/txt-file-extension).

**flow-11-log_2.zip:**
This collection contains 14 .txt files, titled flow-11.log and numbered 13 to 26 (eg. flow-11.log.txt). The .txt file type is a common text file, which can be opened with a basic text editor. The most common software used to open .txt files are Microsoft Windows Notepad, Sublime Text, Atom, and TextEdit (for more information on .txt files and software, please visit https://www.file-extensions.org/txt-file-extension).

**MoveVehdata.zip:**
This collection contains 27 .csv files, titled MoveVehdata and numbered 0 to 26 (eg. MoveVehdata-21.csv). The .csv, Comma Separated Value, file is a simple format that is designed for a database table and supported by many applications. The .csv file is often used for moving tabular data between two different computer programs, due to its open format. The most common software used to open .csv files are Microsoft Excel and RecordEditor, (for more information on .csv files and software, please visit https://www.file-extensions.org/csv-file-extension).

**RLR_database.zip:**
This collection contains 26 .db files, titled RLR_[S1 to S10]_[01 to 03] (eg. RLR_S1_01.db). However, not each [S1 to S10] has three files associated with it. The .db file type is a database file format that is used by various applications (for more information on different types of .db files and associated software, please visit https://www.file-extensions.org/db-file-extension).

**Simulation_Visuals_1.zip:**
This collection contains 13 .mov files, titled S[1 to 5]R[1 to 3] (eg. S1R1.mov). However, not each S[1 to 10] has three files associated with it. The .mov file type is a multimedia container format that can store one or more tracks of data such as video, audio, text, and effects. NTL staff were able to view the video files with Windows Media Player (for more information on .mov files and software, please visit (https://www.file-extensions.org/mov-file-extension).

**Simulation_Visuals_2.zip:**
This collection contains 13 .mov files, titled S[6 to 10]R[1 to 3] (eg. S6R1.mov). However, not each S[1 to 10] has three files associated with it. The .mov file type is a multimedia container format that can store one or more tracks of data such as video, audio, text, and effects. NTL staff were able to view the video files with Windows Media Player (for more information on .mov files and software, please visit (https://www.file-extensions.org/mov-file-extension).

**stopBarData.zip:**
This collection contains 26 files .csv files, titled stopBarData and numbered 1 to 25 (eg. stopBarData-21.csv). The .csv, Comma Separated Value, file is a simple format that is designed for a database table and supported by many applications. The .csv file is often used for moving tabular data between two different computer programs, due to its open format. The most common software used to open .csv files are Microsoft Excel and RecordEditor, (for more information on .csv files and software, please visit https://www.file-extensions.org/csv-file-extension).

**DataDictionary.docx:**
This file contains the documentation and data dictionary that corresponds with the dataset. The .docx file is a Microsoft Word file, which can be opened with Word and other free word processor programs, such as Kingsoft Writer, OpenOffice Writer, and ONLYOFFICE.

**National Transportation Library (NTL) Curation Note:**
As this dataset is preserved in a repository outside U.S. DOT control, as allowed by the U.S. DOT's Public Access Plan (https://ntl.bts.gov/public-access) Section 7.4.2 Data, the NTL staff has performed ***NO*** additional curation actions on this dataset. NTL staff last accessed this dataset at https://doi.org/10.7910/DVN/WJW1HA on 2019-08-20. If, in the future, you have trouble accessing this dataset at the host repository, please email NTLDataCurator@dot.gov describing your problem. NTL staff will do its best to assist you at that time.