

# **Drivers' Response to Scenarios when Driving Connected and Automated Vehicles Compared to Vehicles with and without Driver Assist Technology Dataset**

**Dataset available at:** <https://transweb.sjsu.edu/research/1944-Driver-Reponse-Connected-Automated-Vehicle>

(This dataset supports report **Drivers' Response to Scenarios when Driving Connected and Automated Vehicles Compared to Vehicles with and without Driver Assist Technology**, <https://doi.org/10.31979/mti.2022.1944>)

This U.S. Department of Transportation-funded dataset is preserved by the Mineta Transportation Institute (MTI) in the MINETA Repository housed at San José State University (SJSU) (<https://transweb.sjsu.edu/>), and is available at <https://transweb.sjsu.edu/research/1944-Driver-Reponse-Connected-Automated-Vehicle>

The related final report **Drivers' Response to Scenarios when Driving Connected and Automated Vehicles Compared to Vehicles with and without Driver Assist Technology**, is available from the National Transportation Library's Digital Repository at <https://rosap.ntl.bts.gov/view/dot/60790>

## **Metadata from the MINETA Repository record:**

### Abstract:

Traffic related crashes cause more than 38,000 fatalities every year in the United States. They are the leading cause of death among drivers up to 54 years in age and incur \$871 million in losses each year. Driver errors contribute to about 94% of these crashes. In response, automotive companies have been developing vehicles with advanced driver assistance systems (ADAS) that aid in various driving tasks. These features are aimed at enhancing safety by either warning drivers of a potential hazard or picking up certain driving maneuvers like maintaining the lane. These features are already part of vehicles with Driver Assistance Technology, and they are vital for successful deployment of connected and automated vehicles in the near future. However, drivers' responses to driving vehicles with advanced features have been meagerly explored. This research evaluates driver participants' response to scenarios when driving connected and automated vehicles compared to vehicles with and without Driver Assistance Technology. The research developed rural, urban, and freeway driving scenarios in a driver simulator and tested on participants sixteen years to sixty-five years old. The research team explored two types of advanced features by categorizing them into warnings and automated features. The results show that the advanced features affected driving behavior by making driver participants less aggressive and harmonizing the driving environment. This research also discovered that the type of driving scenario influences the effect of advanced features on driver behavior. Additionally, aggressive driving behavior was observed most in male participants and during nighttime conditions. Rainy conditions and female participants were associated with less aggressive driving behavior. The findings from this research help to assess driver behavior when driving vehicles with advanced features. They can be inputted into microsimulation software to model the effect

of vehicles with advanced features on the performance of transportation systems, advancing technology that could eventually save millions of dollars and thousands of lives.

Publications:

- Drivers' Response to Scenarios when Driving Connected and Automated Vehicles Compared to Vehicles with and without Driver Assist Technology (Full Report)
- Research Brief

Authors:

- RAGHUVVEER GOURIBHATLA: Mr. Raghuvveer Gouribhatla is pursuing his PhD in the Infrastructure and Environmental Systems (INES) program at the University of North Carolina at Charlotte, where he earned his Master's degree in Transportation Engineering. His areas of interest are traffic safety, connected and automated vehicles, transit systems, and traffic operations.
- SRINIVAS S. PULUGURTHA: Dr. Srinivas S. Pulugurtha, PE, F.ASCE is currently working as a Professor & Research Director of the Department of Civil and Environmental Engineering at the University of North Carolina at Charlotte. He is also the Director of the Infrastructure, Design, Environment, and Sustainability (IDEAS) Center at the University of North Carolina at Charlotte.

Publication Type: January 2022

Keywords: Advanced Driver Assistance systems (ADAS), Driver Behaviors, Simulator, Warning, Automated, Connected

**Recommended citation:**

Srinivas S. Pulugurtha and Raghuvveer Gouribhatla. "Drivers' Response to Scenarios when Driving Connected and Automated Vehicles Compared to Vehicles with and without Driver Assist Technology" Mineta Transportation Institute Publications (2022).

<https://transweb.sjsu.edu/research/1944-Driver-Reponse-Connected-Automated-Vehicle>

**Dataset description:**

This dataset contains 1 file collection described below.

**1944-Dataset.zip:**

- 1944-Dataset.xlsx

The .xlsx file types are Microsoft Excel files, which can be opened with Excel, and other free available software, such as OpenRefine.

**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://transweb.sjsu.edu/research/1944-Driver-Reponse-Connected-Automated-Vehicle> on 2022-04-06. If, in the future, you have trouble accessing this dataset at the host repository, please email [NTLDataCurator@dot.gov](mailto:NTLDataCurator@dot.gov) describing your problem. NTL staff will do its best to assist you at that time.