



New England University Transportation Center
77 Massachusetts Avenue, E40-279
Cambridge, MA 02139
617.253.0753
utc.mit.edu

Year 24 Final Report

Grant Number: DTRT12-G-UTC01

Project Title:

An Observational Evaluation of Safety and Operations Resulting from Driver Distraction

Project Number:

UMAR24-21B

Project End Date:

8/31/15

Submission Date:

12/31/15

Principal Investigator:

Michael A. Knodler, Jr.

Title:

Associate Professor

University:

University of
Massachusetts/Amherst

Email:

mknodler@ecs.umass.edu

Phone:

413.545.0228

Co-Principal Investigator:

Donald Fisher; Matthew Romoser

Title:

Professor; Assistant Professor

University:

University of
Massachusetts/Amherst; Western
New England University

Email:

fisher@ecs.umass.edu;
matthew.romoser@wne.edu

Phone:

413.545.1657; 413.782.1492

The contents of this report reflect the views of the authors, who are responsible for the facts and the accuracy of the information presented herein. This document is disseminated under the sponsorship of the Department of Transportation, University Transportation Centers Program, in the interest of information exchange. The U.S. Government assumes no liability for the contents or the use thereof.

The New England University Transportation Center is a consortium of 5 universities funded by the U.S. Department of Transportation, University Transportation Centers Program. Members of the consortium are MIT, the University of Connecticut, the University of Maine, the University of Massachusetts, and Harvard University. MIT is the lead university.

Brief description of project:

Although laws have been passed in many states that prohibit distracted driving behaviors, people disregard these restrictions and continue to use various devices while driving. By observing random drivers who may or may not be distracted, this research attempted to find commonalities among drivers and further understand driver behavior while distracted, at a critical juncture (i.e., while actively engaged in the driving task). Data collection in this area to date has primarily been concentrated at intersections where observations are easier to capture; however, observations made while drivers are engaged in the driving task are more critical in nature as it is this point in time when the distraction related behavior is most concerning. To this end, our research team employed a probe vehicle strategy on various roadway types, and as other vehicles were passed or passing direct observations were made and recorded for the driver distraction type (for both distracted and non-distracted behaviors) and associated information about the driver and vehicle. This type of mobile observation had the ability to shed light on natural driving behaviors without driver manipulation. There was a need for information regarding driver behavior while distracted.

Methodology

Despite legislation and awareness campaigns aired on television, radio, and in print, drivers continue to engage in secondary activities while driving. By completing a mobile observation on a high speed roadway, the drivers who were engaging in secondary activities were observed for a short span of time. The aim was to observe distracted drivers in their “natural habitat” as they made the decision to use a cell phone collect data regarding their driving behavior.

Before the data collection team was assembled and sent out into the field to observe drivers, several items were addressed. Specific aspects of the initial research included selecting the primary variables of interest that were able to be accurately captured while in a moving vehicle, as well as the determining the best method(s) for capturing observations. Once a field observation procedure and protocol was established, it was carried out in the field to ensure that observations were captured in a consistent fashion. The aim of both of these subtasks was to improve the data quality from the field work so that the results maintained a high level of validity.

Identify Variables for Field Observations

A list of vehicle, driver, and distraction information of the observed vehicles were recorded by the research team for analysis. Basic information about the location of observation such as time of day the observations began and ended, roadway type, number of travel lanes, and speed limit for the given observation area were recorded. If the observation was taken while a vehicle was not at free flow speed (i.e. stopped at an intersection or stopped due to congestion) it was noted by the observer.

In order to collect the variables mentioned previously, it was important to generate a standardized method for observation so that the data was recorded consistently across observations. The observation team consisted of a vehicle, a driver, and one or more research assistants. The driver only had two tasks - obey the speed limits and the rules of the road; he or she drove safely and carefully with the flow of vehicles on the roadway.

The primary method of data collection was direct observations recorded to the pre-made data collection sheet with the list of variables and categories for each observed vehicle.

Gender and Distraction Type Percentage of Observations

Gender	Cell Talk	Cell Touch	Other	No Distraction
Female	8.73%	5.57%	4.82%	80.87%
Male	7.09%	3.99%	4.32%	84.61%
Unknown	25.00%	12.50%	0.00%	62.50%
Total	7.87%	4.70%	4.51%	82.92%

Drivers were categorized by approximate age ranges as observed, somewhat subjectively, by the research team.

Observed Age Group and Distraction Type Percentage of Observations

Age Group	Cell Talk	Cell Touch	Other	No Distraction
16-19*	21.05%*	5.26%*	5.26%*	68.42%*
20-39	9.09%	7.01%	4.68%	79.22%
40-59	7.69%	3.01%	4.52%	84.78%
60+	2.17%	0.00%	3.80%	94.02%
Unknown*	0.00%*	25.00%*	0.00%*	75.00%*
Total	7.87%	4.70%	4.51%	82.92%

* indicates extremely low sample size

Of interest was the action of the vehicle at the time the observation was made as it relates to the driver's likelihood of engagement in a distracting task. The two categories of non-passing and passing were recorded in relation to the motion of the vehicle containing the research team.

Vehicle Action and Distraction Type Percentage of Observations

Vehicle Action	Cell Talk	Cell Touch	Other	No Distraction
Non-Passing	9.92%	3.87%	5.38%	80.84%
Passing	8.07%	3.11%	4.35%	84.47%
Stopped	2.97%	18.81%	11.88%	66.34%
1 Lane	5.81%	4.29%	1.52%	88.38%
Total	7.87%	4.70%	4.51%	82.92%

Conclusions:

Although there is a law against texting while driving in Massachusetts, drivers are still frequently engaging in this activity. Due to the challenging nature of observing and proving driver distraction, law enforcement may not be actively searching for drivers who are texting. However, the results of this research provide evidence to suggest that active enforcement is best suited for lower speed roads such as arterials or local roads where texting is more prevalent. This study successfully observed driver distraction behavior through the use of an innovated mobile observation method that has never before been accomplished and has paved the way for a new type of non-invasive research within the field of distracted driving.

The methodology developed within this research project has not yet been implemented.