MarTREC UTC Project Information Form
USDOT Tier 1 University Transportation Center
Agency ID or Contract Number 69A3551747130

Project Title: Measures of Freight Network Resiliency: An expanded data capture of Truck Drivers and Support Services under Pandemic Distress

Project Abstract (Brief Description): In this project, we consider an expanded definition of the freight network, beyond roads and warehouses, to include truck drivers and driver support systems. Driver support systems include physical infrastructure like public and private rest stops as well as operational protections like Hours of Service (HOS). COVID-19 responses by public agencies and private citizens have affected drivers and driver support systems by three mechanisms. First, increased demand for medical supplies, food and packaged goods creates a need for more trucks and drivers, and the increased need for quick shipments promotes an environment in which speeding and unsafe driving practices may prevail. Second, with HOS restrictions lifted by the National Highway Transportation Safety Administration (NHTSA) driver fatigue may occur at greater frequency leading to unsafe driving conditions and higher likelihood of accidents. Third, the effects of social distancing mandates can lead to closures of critical, but oft forgotten, freight infrastructure like rest areas and truck stops, leaving drivers without necessary rest opportunities. While any single mechanism has detrimental effects on driver health and safety, the economy, and national recovery efforts, when combined, the system can be pushed to failure. Pandemic responses have only exacerbated critical industry issues like driver shortages, lack of available parking, and HOS compliance issues stemming from electronic logbooks.

Describe Implementation of Research Outcomes The purpose of this research was to collect timely data on the impacts of the Covid-19 pandemic on truck driver and trucking operations with a specific focus on issues that affect driver health and safety. An online opt-in panel survey was developed using the Qualtrics survey platform. The survey questionnaire contained 65 questions with skip logic dependent on responses. A total of 523 responses were collected between the dates of May 19th and June 1st, 2020. The dates of the survey correspond to the period of lifted Hours of Service (HOS) restrictions. This report summarizes the responses to each survey question. Along with this report, a complete data file of the responses in a Comma Separated Value (.csv) format is available on Zenodo (www.zenodo.org) in the MarTREC repository.
Future work aims at developing econometric models to quantify the significant impacts of Covid-19 pandemic response actions on driver health and safety. The goal of the work is to provide evidence of the impacts of Covid-19 responses in order to develop future policy that may mitigate unintended consequences of pandemic responses. In this way, we can ensure that goods, medicines, and supplies are delivered in a timely and safe manner during a pandemic without causing undue harm on the drivers that transport those goods.

Impacts/Benefits of Implementation (actual, not anticipated)
To be determined upon conclusion of the project: The economic and human loses generated from pandemics have been steadily increasing over the last 30 years. However, individual state and local governments as well as the business community have allocated significant amounts of resources to build physical and social infrastructures that mitigate the consequences of natural disasters (e.g., earthquakes, fires, etc.) and the response to such disasters when they occur. Although there is a growing quantity of research about how to build such infrastructure for natural disasters (which often impact a specific region), pandemics affect at a much broader scale (e.g., national and global scale),

requiring coordination of all affected areas (e.g., social distancing, stay-at-home executive orders, etc.) to combat large scale spread and to provide for the needs of all those impacted. Recent headlines depict significant shifts in operations within the freight community in particular, e.g., HOS laws suspended at a national level for the first time in 82 years[1]; national carriers shifting operations completely to grocery supply chains[2]; fleet operators laying off employees in response to manufacturing closures[3]. As a result of the current COVID-19 pandemic, there is a great need to capture freight movement data (not otherwise collected) to measure the effects of the COVID-19 response and recovery practices on freight network resiliency.
Web Links: martrec.uark.edu
Budget (Funding) Amounts & Source(s) (US DOT +Match(s) =Total Costs): MarTREC $15,750 + UA $15,750
Project Start and End Dates: 05/08/20-09/30/2020 completed project
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