Emergency Evacuation Route: A Case Study of Irma

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ABSTRACT

This study is to determine the evacuation route for extremely events by using Hurricane Irma data from Florida Department of Transportation (FDOT). , The analysis is to calculate the Level of Service (LOS) of the selected evacuation routes, and to identify where the highest volume data is in three main Florida interstates (I-4, I-95, I-75). This analysis will be done through VISSIM, as a simulation model that will be easily identified by the data inputted from FDOT. Two methodologies are used this research, Archived Data Management Subsystem (ADMS) and Traffic Management Subsystem (TMS). Achieved Data Management Subsystem (ADMS) is when a data is collected and formatted with qualities that define the data source and conditions to interpret the data. The subsystem prepares data products that can serve as inputs to state and local data reporting systems especially during hurricane evacuations. The data that was collected, was from all the different sensors in many different areas of the state of Florida, but our focus is on the three major interstates stated above, which provides a general data warehouse service for a region. The Traffic Management Subsystem (TMS) keeps track of and controls traffic and road network by communicating with the roadway subsystem to monitor and manage traffic flow and monitor the conditions of the roadway. That in which coordinates and adapts to maintenance activities, closures, and detours, in this case, of the evacuation. This subsystem also manages traffic and transportation resources to support allied agencies (FDOT, among others) in responding to, and recovering from, incidents ranging from minor traffic incidents through major disasters.

Geometric data, volume, and traffic data are obtained from FDOT as well to analyze and compare the highest volume during this evacuation. The data collected was from the sensory equipment that the FDOT establishes at specific sites and counties along the interstates. The method of collecting this data was done through FDOT and some data was calculated to find the level of service (LOS) of the highways. Also the different data points that was gathered were historical average volume, present average volume before and after the storm, locations, site number, county, and present average speed before and after the storm. There are several redoubts on the causes of delays. By analyzing the data, we can somewhat predict if it is because of construction, detours, exits' volumes, or a crash. The results can determine a range time of delays through this simulation model by the inputting data..