Project #10104 - Characterization of Non-recurrent Arterial Congestion

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This project is intended to develop a better understanding of the causes and characteristics of non-recurrent congestion (NRC) on arterials with an aim to developing tools that will aid in mitigating its impacts. The project will identify data needs necessary to characterize the onset of NRC and to understand the relationship between its causes and characteristics and other parameters such as traffic conditions (volumes, speeds, etc.), location on arterial (midblock or intersection), number of lanes, traffic signal spacing, number of external access points (side streets and driveways), roadway capacity and driver behavior parameters (lane changing, queue discharge, gap acceptance, control adherence, etc.). Data will be collected using the UTCA ITS/TMC lab, probes, field measurements and CCTVs on arterials in and around Birmingham, Alabama. The data will be analyzed in attempt to develop suitable relationships for characterizing NRC with specific aim towards developing ways to predict it and lessening its impacts to traffic operations. It is also intended that this project will include visits to other university based traffic management laboratories to examine data acquisition and processing methodologies and discuss collaborative/comparative research opportunities. The proposed project directly supports the Management theme of UTCA. Also, the proposed project will indirectly address the Safety theme as a better understanding of NRC and possible means of anticipating and managing it will result in improved incident response and reduced secondary crashes resulting from congested conditions. This project is directly related to UTCA Projects 04116, 07112, and 09201. The proposed project compliments a number of national level surface transportation research initiatives. It will also contribute to the on-going research on travel time prediction and reliability. By addressing current needs and initiatives established by the FHWA, the project will position UTCA researchers to contribute to NRC related research and compete for funding on the national level.

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Source Organization: University of Alabama, Tuscaloosa

Notes: The project will primarily enhance the understanding of NRC, thereby helping in improved accuracy in predicting NRC and better modeling of driver behavior parameters associated with non-recurrent congestion. In addition to that, it is expected that the project will also aid in facilitating strategies for better management of congestion during incidents and reduce the emergency response time. Finally, the project will also contribute to the on-going research on travel time prediction and reliability. By addressing current needs and initiatives established by the FHWA, the project will position UTCA researchers to contribute to NRC related research and compete for funding on the national level.

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