Measuring Non-Recurrent Congestion in Alabama Cities

To effectively allocate resources to address congestion, transportation managers need to better understand the relative magnitudes of recurrent vs. non-recurrent congestion in their region. Of the two, recurrent congestion is the easier to estimate; its predictable nature lends itself well to simulation modeling. Non-recurrent congestion is far more difficult to quantify. Some large U.S. cities (Los Angeles, San Francisco, Seattle) have developed methodologies to quantify non-recurrent congestion on their roadway networks, but these methodologies are largely confined to freeway corridors and rely on extensive sensor networks already in place. In the small and medium sized cities common in the Southeast these sensor networks simply don’t exist and are too expensive to implement on a wide scale. This project will attempt to fill that void by developing methodologies that rely on low-cost data collection and analysis techniques to estimate non-recurrent congestion on key facilities. Archived cell-phone probe data collected in the Birmingham Region by the Alabama DOT will be combined with accident reports from the State’s ASAP incident response system to develop meaningful measures of non-recurrent congestion. It will also identify facilities and locations that experience high rates of non-recurrent congestion so that targeted response measures such as pre-positioned tow-trucks and special events management can be considered. This study will initially focus on interstate and freeway facilities, but there is a need to develop methodologies that apply to arterial routes as well.

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