I-55 Integrated Diversion Traffic Management Benefit Study
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Abstract Recent studies indicate that a significant portion of congestion is nonrecurring and could be caused by incidents, including accidents, extreme weather conditions (e.g., hurricanes and floods), and evacuations. Integrated Corridor Management (ICM) is one of the recent highlights by U.S. DOT to relieve the recurrent and non-recurrent congestions. Integrating diversion from a congested freeway and traffic signal timing on parallel arterials could form an ICM strategy. The objective of this paper is to study ICM control strategies about how to best manage the diversion traffic and to evaluate the benefits of the proposed ICM control strategies. Two frameworks, an expert system approach and an approach based on system-wide optimality, were proposed to establish the detail strategies. I-55 corridor in Northern Jackson, MS was studied to demonstrate the implementation of the approach and show benefits of ICM. A series of CORSIM simulations under different scenarios were conducted under the proposed IDTMS control strategies. The Measures of Effectiveness, including travel time, delay, density, etc from those scenarios were extracted and used as the base to calculate the user benefits. The results showed wide range of benefits in terms of time saving, fuel saving, impact to environment, etc. Key Words: Integrated Corridor Management, Diversion, Work Zone, Signal Optimization