Safety and Design Improvements
at Rural Expressway Median Crossovers
(Phase II)

Expressway medians provide a separation area between opposing lanes of traffic. Crossovers in medians provide protection and control for cross and turning traffic. The objective of this study was to provide a means for MoDOT engineers to determine whether particular high-speed rural expressway crossovers are performing satisfactorily and, if not, to assess alternatives for crossover design.

Design practices of other states were examined and alternative design options were identified. The *Highway Capacity Manual* (HCM) approach and the COR-SIM simulation technique were compared to determine how best to identify appropriate alternatives. A procedure was then developed to assist MoDOT district traffic and design engineers in selecting improvements for existing crossovers as they become congested. That procedure is described directly below.

Recommended Procedure for Selecting Improvements

1. Identify potential problems at Type II rural crossovers. It is expected that MoDOT Districts are aware of possible congestion and safety problems at their crossovers through their normal procedures of observation and through citizen comments.

2. Observe the specific crossover during likely time periods of concern to identify congestion problems. If problems are observed, continue to step 3.

3. Examine the list of potential alternative treatments. Identify feasible treatments and appropriate performance measures. If the principle problem is a demand for left turns from the expressway that is greater than the capacity for that movement (i.e., the left turns are causing a queue to spill back into the expressway through lanes) then consult Chapter 7 of the report.

4. Apply the CORSIM simulation tool to existing condition and to feasible treatments. Input data will include geometric, operations, demand, and control

data. Outputs will include performance measures to compare alternatives.

5. Estimate costs of treatments.

6. Identify the best alternative, based upon selected performance measures.

7. Implement and monitor the solution.

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