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<p>16. Abstract</p> <p>All of the methods for predicting traffic conditions at intersections provide default values for saturation flow rates and their adjustment factors, lost times, and other parameters. Because these parameters are difficult to measure, the use of the default values is a common practice and it can cause significant bias in the results if the actual local values are different. The main objective of this research was to investigate the variability of capacity and delay parameters used in engineering tools for predicting delays and for determining level of service (LOS) at signalized intersections in Indiana. The variability investigation produced Indiana default values that better reflect the behavior of Indiana drivers at signalized intersection than the default values recommended in the existing engineering tools and based on arbitrary assumptions or nationwide studies.</p> <p>Traffic was observed at 19 intersections. A procedure combining Highway Capacity Manual (HCM) methodology and linear regression was used to estimate the capacity parameters. Variability was investigated using weighted linear regression. Although the state-average values for Indiana are similar to the HCM-recommended values, the base saturation flow rate and PHF exhibit strong variability depending on population size and other local factors. On average, the saturation flow rate in medium towns was 8% and in small towns it was 21% lower than large towns. These results confirm the findings for Florida and particularly for Kentucky. A table with the recommended base saturation flow rates is presented. The start-up lost time, green time extension and heavy vehicle equivalency factor were very close to the HCM values. The population size, morning/afternoon rush hour, and volume considerably affected the PHF.</p> <p>The improvement of delay estimation when using local capacity parameters instead of default values was assessed using Highway Capacity Software 2000 (HCS2000) by comparing the results to the measured delays. The average mean error for the default parameter values was slightly higher than for local values. Also, the standard deviation of the estimate for local parameter values was also lower.</p>					
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