I-93/I-95 Interchange Feasibility Study Woburn/Reading/Stoneham, MA
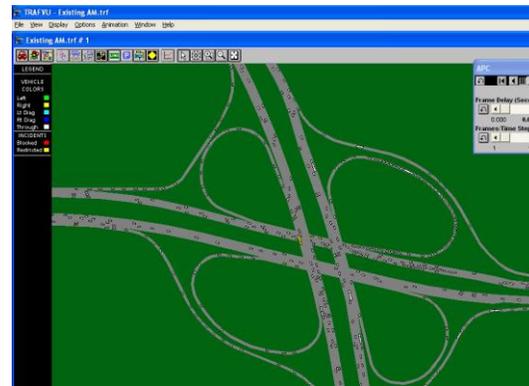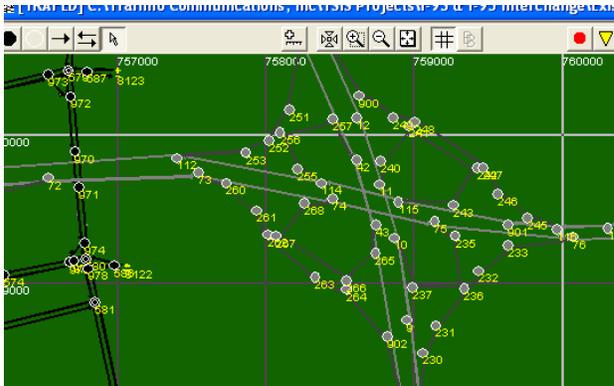
As a sub-consultant, TrafInfo is responsible for the development, and calibration of a micro-simulation model as part of the I-93/I-95 Interchange study. This system interchange was cited as having the highest number of crashes, with intense traffic congestion during the peak hours. This study involves the development of improvement alternatives including other associated surface street improvements. In order to develop detailed measures of effectiveness (MOEs), CORSIM, a micro-simulation model developed by the FHWA was utilized.

The micro-simulation model developed by TrafInfo included a combination of freeway and surface streets including Interstates 93 and 95, along with several interchanges on either sides of the system interchange under study. In addition, important arterials consisting of signalized and unsignalized intersections were included to access the impacts of freeway operations on the surface street system.

The model was calibrated to reflect existing conditions in terms of traffic counts as well as travel time studies conducted by CTPS (the Boston MPO planning staff) on the interstates within the study area. This calibrated model was subsequently used to test various interchange improvement alternatives. TrafInfo worked with the CTPS in incorporating the traffic forecasts from the regional model into the micro-simulation model..

To compare traffic operations among the various interchange alternatives, Several MOEs were extracted from the model including density by lane, average travel speeds by lane, speed differential across the lanes, number of lane changes, and queue lengths and delays at intersections. TrafInfo adopted an innovative method to extract travel times for various movements through the interchange using a "floating car" technique within the micro-simulation model. Results of the micro-simulation model were also used in the economic analysis and comparison of the various alternatives in terms of land use and secondary developments.

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