An Integrated Traffic Simulation/GIS Platform for the Bruckner Expressway/ Sheridan Expressway Interchange Improvement Project

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Abstract

The New York State Department of Transportation (NYDOT) has sponsored a study to investigate the problems and deficiencies at the interchange of the Sheridan (SE) and Bruckner (BE) expressways and to recommend alternatives to enhance mobility and improve highway operations, safety, and geometrics.

The BE/SE interchange project integrates the analysis of the interchange with a number of complementary issues that need to shape the formulation of alternatives, including Hunts Point Market access needs, local community concerns and other transportation-related projects.

As part of this project, Urbitrans Associates conducted origin/destination surveys at the Hunts Point Market and the MTA Bridge and Tunnel facilities was well as on the transit lines serving the study corridors to identify travel patterns. The recommended feasible alternatives for the interchange are being evaluated using CORFLO and FRESIM. For this purpose, an innovative approach was developed by interfacing GIS software with the simulation packages to allow for ease of data exchange as well as for informative presentations.

MapInfo for Windows provided the GIS platform for the development of the CORFLO and FRESIM networks, while the LION file maintained by the New York City Department of City Planning (NYCDCP) provided the network skeleton (the LION file was selected over the TIGER file, since it is richer in data and detail for the five New York City boroughs).

Programs were developed to accommodate LION “pseudo” links, uni-directional links as well as exporting the networks from MapInfo to CORFLO and FRESIM formats. THe programs read the pertinent fields for each CORFLO and FRESIM record from the database and stores all the information in an ASCII CORFLO or FRESIM format. After the simulation runs are performed, he output of CORFLO and FRESIM are converted to a database file and are imported in MapInfo for analysis of the results.

This paper provides a description of the integrated simulation/GIS platform as well as the application of CORFLO and FRESIM to evaluate the feasible alternatives for the BE/SE interchange.