

ABSTRACT

The goal of this research was to assess alternative proposed bridge crossing locations over the Merrimack River between the cities of Nashua, NH and Manchester, NH resulting from two site suitability analysis studies that employ different criteria. A new bridge will provide an alternate route for commuters to access the F.E. Everett Turnpike and U.S. Route 3 in southern NH. Historic traffic count trends show that traffic on bridges and collector roads has increased substantially due to residential growth. This thesis compared alternatives proposed by a site suitability study conducted by Nashua Regional Planning Commission (NRPC) in 2003 to new solutions derived in this thesis through weighted overlay analysis, which took into account distance between major population concentrations and roads, position with respect to historic floodways and terrain, and environmental impacts. The comparison shows how the location of the most suitable bridge locations to span the Merrimack River change when the criteria are altered and different suitability analysis processes are used. The thesis includes a description of criteria and data utilized in the research, an explanation of how the standardized input layers were created, an examination of the methodology for the weighted overlay analysis, and the comparison results of the two site suitability analysis studies.