

## **Impact of Proposed Modal Shift from Private Users to Bus Rapid Transit System: An Indian City Case Study**

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**Abstract :** One of the major thrusts of the Bus Rapid Transit System is to reduce the commuter's dependency on private vehicles and increase the shares of public transport to make urban transportation system environmentally sustainable. In this study, commuter mode choice analysis is performed that examines behavioral responses to the proposed Bus Rapid Transit System (BRTS) in Surat, with estimation of the probable shift from private mode to public mode. Further, evaluation of the BRTS scenarios, using Surat's transportation ecological footprint was done. A multi-modal simulation model was developed in Biogeme environment to explicitly consider private users behaviors and non-linear environmental impact. The data of the different factors (variables) and its impact that might cause modal shift of private mode users to proposed BRTS were collected through home-interview survey using revealed and stated preference approach. A multi modal logit model of mode-choice was then calibrated using the collected data and validated using proposed sample. From this study, a set of perception factors, with reliable and predictable data base, to explain the variation in modal shift behaviour and their impact on Surat's ecological environment has been identified. A case study of the proposed BRTS connecting the Surat Industrial Hub to the coastal area is provided to illustrate the approach.

**Keywords :** BRTS, private modes, mode choice models, ecological footprint

**Conference Title :** ICCSEE 2014 : International Conference on Civil, Structural and Earthquake Engineering

**Conference Location :** Toronto, Canada

**Conference Dates :** June 16-17, 2014