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# An Investigation of the Effects of New Bypass Roads on Build Form in Small Towns in Sri Lanka

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A bypass road is one of the strategies introduced to reduce traffic congestion in small and medium sized towns in Sri Lanka. However, a limited number of studies have been carried out to examine the impact of bypass roads in towns where the main transport route is replaced by another outside the town. In such a context this study explores the effects of bypass roads on build form of towns and also investigates the changes of land use and building density, along with accessibility. The small towns analysed are Avissawella, Mawenella, Balangoda and Piliyandala in Sri Lanka. The study has utilized network centrality assessment to analyse the changes in accessibility. Finally, the findings of temporal changes are compared and contrasted with theories and the key factors that influence built form changes are identified. The results of the above four case studies indicate three scenarios: i. The bypass road has more accessibility than the existing main road and new land uses and high-density areas emerge along the by-pass road, making this the main centre of the town. ii. Both bypass road and the existing main road show similar levels of accessibility and attraction. iii. Accessibility of the existing main road remains higher than the bypass road and very few new lands uses and build up areas are attracted towards the bypass road - thus the existing main road remains the main centre of the town. According to the results, if the accessibility of the new bypass road is stronger than the existing main road, the commercial activities and buildings move towards the bypass road, However, if the new bypass road has no influence over the accessibility to the town, the commercial activities and buildings of the main town remain as they are. The results confirm that spatial and economic forces are closely interrelated as indicated in the theory of the natural movement economic process. However, the study found out that the above forces are constrained by natural barriers. Accordingly, it is suggested that these findings are useful for transport engineers when making new strategies to implement bypass roads and also to urban planners when they develop local development plans after implementing bypass roads.

**Keywords:** *Bypass road, Accessibility, Network centrality, Land use changes, Urban transport planning*