TRANSIT ROUTE SERVICE AREA ANALYSIS USING GIS

Abstract: It is common knowledge that part of the route location analysis problem requires an accurate estimation of population who would be using this system. Using GIS tools, various approaches are applied for estimating the population on some of the fixed routes in Adelaide, Australia, within the service area of a transit route and the results are discussed in this paper. The outcome of the research shows that when the route lengths are small, the population estimation in the service areas does not differ significantly whichever method used. However, as the route length increases the traditional area ratio method overestimates the population while the network ratio method underestimates the population. Further analysis at census district (CD) level showed consistently good results for the land use method and its estimates were the closest to digital cadastral data method. This research also showed that route buffers tend to overestimate the population significantly compared to the bus stop buffers for routes of longer lengths.

Key Words: transit service planning, GIS, population coverage, route buffer and stop buffer