ANALYSIS OF TRANSIT SYSTEM SERVICE COVERAGE LEVEL OF SERVICE USING GIS

Abstract: The study of transit performance measures has generated a considerable body of research material. However, there is a need to investigate the underlying components of transit quality as this can reflect passengers’ perceptions of transit performance while performance measures can reflect a wider range of perceptions (mainly on behalf of the operator). Quality of service measures can be used to assess whether transit services are meeting the passengers or operator’s goals. As transit service coverage is one of the key components of quality of service research, this research uses geographic information systems (GIS) to examine transit quality measures utilising transit, network, and land use and population data. To assess how well a transit system serves the areas most likely to produce transit trips, the concept of transit supportive area has been used. The transit supportive area is the portion of the transit agency’s service area that provides sufficient population or employment density to require service at least once per hour. Instead of determining the coverage level of service for the entire city, coverage ratios for each of the four statistical sub-divisions (SSD) (Northern, Southern, Eastern, and Western) within the Adelaide Statistical Division (ASD) have been calculated and analysed. This analysis indicates that there are differences between the sub-divisions with regard to service level and socio-economic measures, especially income levels. These issues are addressed in more detail in this paper.

Keywords: Transit service coverage, Level of Service (LOS) and GIS