GIS-based Approaches to Catchment Area Analyses of Mass Transit

Catchment area analyses of stops or stations are used to investigate potential number of travelers to public transportation. These analyses are considered a strong decision tool in the planning process of mass transit especially railroads. Catchment area analyses are GIS-based buffer and overlay analyses with different approaches depending on the desired level of detail. A simple but straightforward approach to implement is the Circular Buffer Approach where catchment areas are circular. A more detailed approach is the Service Area Approach where catchment areas are determined by a street network search to simulate the actual walking distances. A refinement of the Service Area Approach is to implement additional time resistance in the network search to simulate obstacles in the walking environment. This paper reviews and compares the different GIS-based catchment area approaches, their level of detail and their strengths as applications in the planning process of mass transit.

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