A MODEL OF TRIPS ROUTE PLANNING TO IMPROVE THE ACCESSIBILITY OF PUBLIC TRANSPORTATION IN BENGKALIS CITY USING GEOGRAPHIC INFORMATION SYSTEM (GIS)

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ABSTRACT

With the increase in population and economic activity, the necessity for an efficient and accessible transportation system has become even more acute. However, Bengkalis City is confronted with a few challenges related to transportation, including limited infrastructure and accessibility to outlying areas. Therefore, it is important to find innovative and effective solutions to improve transportation accessibility in Bengkalis City, one of which is by planning public transportation routes. The slovin sampling method is a sampling technique used in research to determine the minimum number of samples required from a large population. The Origin-Destination is a two-dimensional matrix that contains information about the scale of movement between locations (zones) within a particular region. Interviews will be held conventionally, by home interview. With the assist of ArcGIS, transportation planners will be more easily in making decisions based on accurate geographical data. Public transportation route planning focuses on the highest demand in the area in Bengkalis City. Route planning starts from Sungai Alam Village (State Polytechnic of Bengkalis) to Kelapapati Village (RSUD Bengkalis). With the results of the analysis and a variety of considerations such as road geometric conditions, from the two alternative routes it can be determined that the best route is alternative route 1. This is because when viewed from the spatial and regional pattern map, the route passes through many office, education, shopping, and residential areas so that there will be a lot of demand which will also be more passengers.

Keywords : ArcGIS, Origin Destination (OD), Route