GIS Based Classification System for Low Volume Roads

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In Sri Lanka, vast amount of infrastructure facilities have been built, still building, but yet no proper classification system has implemented sometimes. The road network in Sri Lanka is a classic example for this. Based on the current classification systems, roads are categorized as "A" class, "B" class, "AB" class and so on. There are many miles of roads that have been built, yet not categorized under any of these classes and remained for years without a category. Most of these roads are low volume roads and total approximated length is 70,000 km according to statistics.

Planning is important for a country in many aspects. Specially for a developing country like Sri Lanka would definitely have a need for proper planning covering attributes such as financial, social, environmental and land use mix. Thus, classified road network comes into play where policy makers and planners can start thinking from transportation aspect because it is a well known fact that road network or the transportation system of a country is vital for its development.

This paper presents a model for classifying low volume road network system using multiple parameters. The Kesbewa DS Division was taken as the study area for this research and first main parameter considered was the shortest distance and adjusted shortest distance. The Map of the selected area is adopted and regenerated in to feature solution of ArcGIS 9.3 and network analysis component of ArcGIS 9.3 is used to obtain the routes of each goal nodes and other nodes by selecting different parameters. The Network Analysis component has been implemented by Digistra Algorithm. The customization capability with programming language like VB 6.0 is used to develop a customized software component to gather all the possible links between each of two goal nodes and other nodes. The proposed software model presents the capability of finding the minimum path of any two nodes for each of factors, and also it is to possibility to compare two routes for particular two nodes relevant to the factors. The final outcome is also implemented to list out the all list of nodes with number of link usage at each route.

This solution can also be extended to incorporate many other factors such as economical, road value, place of importance, land use mix, etc. depending upon the inherited values of considered area.

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