

Using Network Analysis-GIS in Landscape Planning Case Study: Valetta and Floriana, Republic of Malta. Creative Collaborations between Geographic Digital System and Planning for Landscape Design Purposes

Anddys FIRSTANTY

Lecturer - Department of Architecture,
Institute of Technology Adhi Tama Surabaya - INDONESIA
afirstanty@gmail.com

ABSTRACT

GIS (Geographic Information System) has been used in many different disciplines to support many ways of work, including landscape planning. Network Analysis is a part of its feature for analyzing any set of connected linear marks that can be used as a network theme.

More than 1,000,000 tourists visit Valetta, the capital of the Republic of Malta, every year. In this paper, a network analysis was used to solve the problems of directing tourists, to analyze different paths based on their different requirements indicating time and distance for optimal path choice relative to their interest, time or distance they wish to cover. There is a complexity in defining this network because of the uniqueness of the region. The challenge of this definition comes from the unique size of the city, the number and diversity of people, insiders and outsiders, the dissimilar street structures, the dynamic topography, the eclectic combination of streets and stairs, and the overlapping of roads.

Two methodologies were used: Route tracing and Location-allocation modeling (Heywood, Cornelius, Carver 2002, Mitchell 1999). Route tracing was used to find the best route for tourist attractions. Location-allocation modeling was used to analyze service areas of main arrival points to help decision-making for new parking places for instance. Four routes are defined according to the city's features and the starter points. The result would be the best path to be chosen based on time and distance, which could be the initial step in landscape planning for further creative phases.

Keywords: *network analysis, Route tracing, location-allocation modeling, landscape planning*