***GEOGRAPHIC INFORMATION SYSTEM MAPPING OF***

***THE DISTRICT ROAD NETWORK***

***(Case Study : The Public Works and Highways Department of***

***Mandailing Natal Regency)***

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***ABSTRACT***

*Mandailing Natal Regency is one of the regencies in North Sumatra Province with the capital city Panyabungan. The Regency has 23 districts, 27 villages, and 380 villages. Geographically it is located between 00 ° 10´-10 ° 50´ NL and 98 ° 50´-100 ° 10´ East. Pursuant to Government Regulation No. 34/2006 concerning Roads, it is stated that the distribution of authority for the administration of roads has been regulated where regency or city roads are organized by regency / city governments or regents / mayors. In the framework of planning the development and management of the district road network, The Public Works and Highways Department of Mandailing Natal Regency firstly conducted a direct survey to the relevant location, then the survey results were changed to report data in the form of reports which were further developed into analog maps. Based on information obtained from The Public Works and Highways Department of Mandailing Natal Regency, recorded the number of district roads managed as many as 224 roads. However, along with the addition of district roads and road widening activities that will continue, the staffs claim to have difficulty in analyzing and managing changes in the quantity of road network data because the type of information available is limited to non-spatial data only, namely report data entered using word processing and number processing software. Based on these problems, a dynamic system is needed, that is, a system that can accommodate inputting, processing, editing, updating, maintaining, storing (database), and accessing the entire district road network data easily and quickly.*

*Keywords: WEB GIS, Road Mapping, V-Model, Blackbox Testing, Leaflet, Unit Acceptance Testing, The Public Works and Highways Department of Mandailing Natal Regency.*