A GIS Based Road Network System of Port Harcourt, Nigeria.

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SUMMARY

A GIS BASED ROAD NETWORK OF PORT HARCOURT, NIGERIA. Mrs Amina. S. Dienye [ANIS][MWIS] (B.Tech (Hons) Land Surveying, (Mphil.) Env. Mgt, Rivers State University of Science & Technology, Port Harcourt) e-mail: aminadienye@gmail.com And Mr. Ajie Ukeame Emmanuel (ANIS) (B. Tech) (Hons) Land Surveying, Rivers State University of Science and Technology, Port Harcourt. e-mail: ukans4u@gmail.com. ABSTRACT The issue of an improved road network due to the dynamic and massive development of Port Harcourt calls for serious concern and adequate attention. The recent physical developmental projects within the metropolis, for example, the construction of a flyover along Ikwerre road, and the expansion of Ada-George road resulted in the demolition of structures because the government intends to create a conducive and optimized road network system. The aim of this work is to evaluate the problems (traffic jams, small width) in the road network at specific locations and suggest possible solutions. Geographic Information Systems (GIS) operations using Arc GIS 9.3 were performed on the road map digitized with AutoCAD 2007. The handheld Global Positioning System (GPS) in combination with Satellite Imagery from the remote sensing technology was used to acquire data of new roads, for map updating and revision, as well as some major locations experiencing traffic jams and schools. The study signifies the versatility of GIS demonstrated in the buffering, overlay and networking techniques', having been employed successfully in addressing the problems of traffic (road width, lack of alternative routes) identified along some routes such as Harold Wilson Drive and Ada George/Iwofe junctions. The study recommends that; the road network in Borikiri axis of Port Harcourt should be improved by constructing a by-pass to ease the traffic along Harold Wilson road; The width of roads should be increased at T-junctions and cross-junctions rather than reducing as is the case of most of the junction as seen on the field; All public facilities especially those located along major roads should have good parking plots before approval for construction; The government should encourage the use of GIS techniques by training and retraining personnel in their various fields of application regarding road usage; The government should be engaged in projects that would ease traffic flow along the roads; It is also recommended that at proximity of 500km from a developing area, a boulevard should be constructed at the junction linking such area to the center of the town. Example is the Wimpey/Iwofe junction; the government should ensure a proper plan is developed prior to construction of buildings; Provisions for taxi parks should be considered. The road network as predicted in this study is expected to contain

a minimum of 217,360 cars in 2022 for the identified routes excluding larger vehicles like trucks.