

Application of GIS in Road Network Analysis for Emergency Services (A Case Study of Ibadan South West Local Government Area).

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SUMMARY

The application Geographic Information System (GIS) in road network analysis for emergency services is very important because it directly integrates a technology designed to support spatial decision making into an application area with a strong need to address in order to solve numerous critical spatial problems. In Ibadan South West local government area there is need to involve a system whereby people can find the best or alternative road to get to the hospitals, police stations and fire station in an emergency situation because most of the emergency situations arise due to road, domestic and fire accidents. GIS data and tools have the potential to help save lives, limit damage, and reduce the costs of dealing with emergencies. For this reason, new applications of GIS in emergency services have flourished in recent years along with an interest in furthering this trend. This paper involved the design of a spatial database for various entities identified in the study area. Geometric data was acquired from satellite imagery through digitizing and the imagery updated through hand-held GPS receiver while attribute data was acquired through social survey. ARCGIS 10.1 was used for database creation where attribute tables were linked with geometric data. Various spatial operations were performed and these included spatial query and Network Analysis (best routes and closest facility) to map accident risk zones required for an emergency responder. ArcGIS 10.1 provides greater support in giving information about the vicinity of an emergency and solving direction finding problems. The study was concluded by recommending various ways to identify prominent and likely accident prone areas for proper monitoring and control by the appropriate agencies.