

# **Developing Emergency Management System for Fire and Road Accidents (A case study of Abuja Municipal Council Area, Federal Capital Territory, Nigeria)**

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**Key words:** Emergency, GIS, Database

## **SUMMARY**

The value of GIS in emergency management arises directly from the benefits of integrating a technology designed to support spatial decision making into a field with a strong need to address numerous critical spatial decisions. Abuja Municipal Area Council has been well planned but there is need to involve a system whereby people can find the best or alternative road to get to the hospital, ambulance station and fire station in an emergency situation because most of the emergency situations arise in the city due to road and fire accidents. Geospatial 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 management have flourished in recent years along with an interest in furthering this trend. This paper involved the design of 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 include 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 appropriate traffic agencies for coordination of traffic flow on the roads across the town for effective response and solving direction finding problems during an emergency.