

## 3-D GIS an Urban Planning for University of Khartoum Master plan

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### Abstract:

In city planning managing the third dimension is becoming a necessity. Using 3D GIS modeling within a GIS environment offers a flexible interactive system for providing the best visual interpretation because it aids the planning and decision-process. Previous 3D virtual models did not have to be completely accurate. It did need to be a relatively accurate representation of the true simulation of reality. The main objective of this research and by using ArcGIS Desktop and ArcGIS 3D Analyst is to build a master plan for the University of Khartoum campus to better understand and organize its utilities infrastructure to find a suitable procedure for acquiring geospatial information and makes it, accessible to administration, visitors, and students. Another objective in this study is to explore the capabilities of current technology software such as ArcGIS to link the spatial information about the building features and utilities within the map. In addition, this paper discourses the methodology and implementation steps which build a unified geospatial information system that can be used as an interactive system that supports planning decisions.

The results the importance of campus planning as a focus in this work in order to demonstrate the effective use of 3D GIS modeling in the decision making process, a way to very quickly communicate ideas that help to make better decisions. The conclusion showed that the 3D GIS enable users to visualize complicated urban planning information in the 3D way, to evaluate the allowable capacity of the block and to simulate building plans. With visualization and analysis capability, 3D-GIS are considered a powerful tool to solve various issues which modern cities confront.

**Keywords:** Urban Planning, Arc Scene, University of Khartoum.