

## **VISITORS MANAGEMENT A SINEQUANON FOR DEVELOPMENT FOR FESTIVAL TOURISM IN ABUJA: GEOGRAPHICAL INFORMATION SYSTEM IS APPROACH**

**Ofobruku Sylvester Abomeh**

Tourism and Hospitality Services, Keffi, Nasarawa State, Nigeria

---

### **ABSTRACT**

This study discusses how geographic information system technology could serve as bases for visitors' management in the development of festival tourism in ABUJA. GIS functionality was used to create digital spatial database for tourist site, hotels, hospital, police station and road network for tourist (visitors) movement within ABUJA. The study 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 were acquired through social survey. ARCGIS 9.3 was used for database creation where attribute tables were linked with geometric data. Various spatial operations were performed and these include Buffering, Spatial query and Network Analysis (best routes, alternative route and closest facility) to efficiently map tourist (visitors) movement in ABUJA. ArcGIS9.3 provides greater support in giving information about tourist sites and solving routs directions finding problems. The study was concluded by recommending various ways in applying GIS to promptly identify cultural and tourism sites, managing tourist (visitors) movement and solving directions finding problems for visitors' management in festival tourism development in ABUJA.

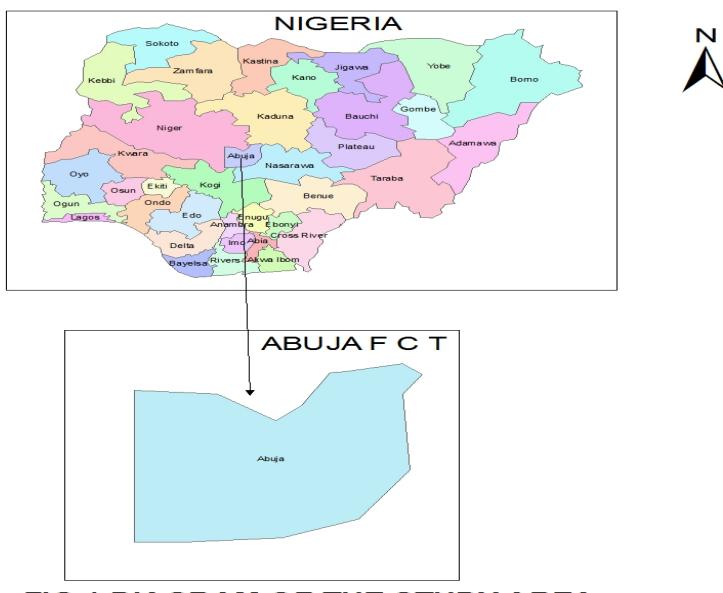
**KEY WORDS: GIS, FESTIVAL, TOURISM. TOURIST SITE, ROUTES.**

### **INTRODUCTION**

Tourism has emerged as one of the world's major's socio-economic sectors, and has been steadily expanding at an average rate of about 4-5 percent annually during the latter half of the 20<sup>th</sup> century. The combination of domestic and international tourism is now acknowledged as

comprising the world's largest industry. In 1995, tourism globally generated an estimated united state dollars of 3.4 trillion in gross output contributing 10.9 per cent of the world's gross domestic production (GDP), creating employment for about 212 million people and producing united state dollars of 637 billion in government tax revenues.(Guide for Local Authorities on developing sustainable tourism 2001)

The need for the growth of prosperous tourism industry as instrument to sustain jobs and the local economy in the federal capital territory-Abuja cannot be over emphasized. Similarly, environmental and social pressure from increased numbers of visitors could undermine the quality of life and resources on which the industry itself depends or based on, it is for this reason that the understanding of effective visitor management becomes imperative. Visitors are major spenders and therefore very important to tourism development. Visitor expenditure provides jobs in all sorts of sizes of businesses from large to the very small business in our economy, hence, that we manage visitors effectively such that they have quality and memorable experience in Abuja as a destination which will encourage repeat purchase and recommendations to their friends is essential for long term tourism development. Abuja officially became Nigeria's capital in December 1991, following relocation from the former capital Lagos. It is one of Africa's few purpose built cities (Jibril, 2006; BBC, 2007; Adama, 2007). The City was designed to serve as a model to other Nigerian cities in the way utilities and services are managed.



**FIG.1 DIAGRAM OF THE STUDY AREA**

## CONCEPT OF VISITOR

World tourism organization (WTO), the major intergovernmental body concerned with tourism, has led the way in establishing a set of definitions for general use. In 1991, the W.T.O and the government of Canada organized an international conference on travel and tourism statistic in Ottawa, Canada, which were officially adopted by the United Nations statistical commission in 1995 as a set of resolutions and recommendations relating to tourism concept, definitions and classification and explain the various types of visitors. (International tourism: a Global perspective 1997)

**INTERNATIONAL VISITOR:-** Any person who travels to a country other than that in which he/her usual residence and outside his/her usual environment for a period not exceeding 12 months and whose main purpose of visit is other than the exercise of an activity remunerated from within the country visited.

**DOMESTIC VISITOR:** - any person is residing in a country that travels to a place within the country and outside his/her usual environment for a period not exceeding 12 months and whose main purpose of visit is other than the exercises of an activity remunerated within the place visited.

**OVERNIGHT VISITOR:** - any visitor who stays at least one night in collective or private accommodation in the place visited

**SAME DAY VISITOR (EXCURSIONISTS):-** visitor who does not spend night in a collective or private accommodation in the place visited.

**VISITOR:** - any person travelling to a place other than that of his/her usual environment for less than 12 consecutive months and whose main purpose of travel is not to work for pay in the place visited.

**Festival:** as defined by Getz (1991) are “themed public celebration which extends leisure and cultural opportunities beyond every day experiences and choice” these imply the fascination of culture such as traditional dances, masquerades, traditional wrestling traditional cultural events. e.t.c. this constitute fascinating manifestation of our culture which are in high demand by tourist. Bryden (1973), in Okoli (2007) Argued that from early times, tourism has mainly been motivated by culture, such that people travel to foreign countries with the aim to observe alien culture, visit museums, art galleries for collection of works of arts, visit traditional community to experience festival and cultural events. Festival tourism do imply the practices by which local cultural heritage are been organised optimally for socio-economic benefit of the society.

**VISITOR SERVICE:** Visitor service is all about looking after visitors so well that they want to return: visitors comes first (Peter. 2004) Tourism organization cannot survive without visitor judging from the W. T. O. definition of tourism. Giving excellent visitor services plays an important part in helping organization to keep their customers and attract new ones. Once you have got customers you have to look after them. Why? Because unhappy customers don't come back as such there is no repeat purchase. If customers are upset by poor service, for example from a grumpy receptionist or poor facilities, e.g. dirty toilets, they will take their customers elsewhere. And where will they go? To your nearest competitor

## **PROBLEMS OF VISITORS MANAGEMENT IN ABUJA**

Since the movement of capital of the Nigeria from Lagos to Abuja in 1991 there was a corresponding growth of the population, the unprecedented in flow of people created the following challenges for managing visitors in: - Heavy traffic congestion to and fro from tourism destination, Lack of adequate parking space for vehicle as a result of increase traffic are major problem in most tourism areas in the city, Air pollution as a result of excessive use of combustion electric generators, vehicles, uncontrolled construction sites, creates air pollution and Lack of define carry capacity

## **VISITORS MANAGEMENT IN ABUJA: THE SURVIVAL OF TOURISM INDUSTRY**

Visitor management is the adequate planning; control and organization of visitor activities to ensure that visitor are manage in such a way as so best meet the need of those who live, work and visit within the said areas or destination. The plan is to manage, and the co-ordination of all way as so best meet the needs of those who live, work and visit within the said areas or destination. The plan is to manage, and the co-ordination of all involve with the visitor, with all interests to communicate a sense of stewardship in all visitors, welcome them and fulfil their expectations. Work in all visitors, welcome them and fulfil their expectations. Work in partnership with industry to provide value for money, high quality, environmentally aware services and facilities. This will improve the quality of services provided by the host to visitors.

Visitor management that put first visitor and community need, if carefully planned developed and managed. Visitors can bring substantial benefit to local host. Developed and developing countries regard the development of tourism cautiously putting in place the best ways or methods to efficiently manage their visitors as an instrument for the survival of her tourism industries. One concept that has achieved great prominence in this regard is sustainable tourism management. World Tourism Organization definition of sustainable management in tourism as “the tourism that meet the needs of present tourists and the host regions while protecting and enhancing opportunities for the future” (W.T.O, 1999) the current WTO conceptual definition of sustainable tourism is as follow: “Sustainable tourism development guidelines and management practices are applicable to all forms of tourism in all types of destination, including mass tourism

and the various niche tourism segments. Sustainability principles refer to the environmental, economic and socio-cultural aspects of tourism development and a suitable balance” (WTO 2004)

## **EFFECTIVE VISITORS MANAGEMENT TECHNIQUE**

A number of management technique have emerged in recent decades to enable visitor's managers to effectively plan, control and organized visitors such that visitor we get the best value for the visit and be of benefit to the host too.

- Visitors carrying capacity has a dimension that includes the management of the visitor's satisfaction in relation to visitor's numbers at a place vis a vis infrastructure
- Ensure that destination clearly identified entry locations. With display maps or plans to inform visitors of the layout of the place to inform their current locations relative to major points of interest.
- Ensure that visitor movement patterns are continuous or in a one way circulation system to avoid returning visitors competing with those waking or climbing to the attraction
- Ensure that there is directional signage and barriers, or defined walkway to control the movement of visitors especially in busy periods
- Ensure to improve the quality of experience of residents and visitors alike by providing the infrastructure required to support local businesses involved in tourism.
- Ensure Accommodation Guide will contain only quality assured (Q A) properties. A campaign to encourage quality scheme will be encouraged
- Ensure maintains of quality infrastructure in accommodation, attractions, shops and restaurants this will determine how comfortable the visitor will be and how effective they can be manage
- Ensure effective visitor information centre through effective use of marketing, introduction of public relations campaign and I C T
- Provide ample areas for interpretation at visitor centre placed at points that do not disturb the flow of visitors
- Ensure adequate security is available all the time

All the above elements can be capture at a goal in single GIS platform for the effectively management of visitors for festival tourism.

**Geographic information system:** is an information system which has the capability to handle spatially distributed data, relate them to other numerical or descriptive data, and present the data visually on a map, reports, chart etc. the ultimate goal of Geographic information system is to create relationship among spatial features or entities and convert data into meaningful information needed to support decision taken in solving location problems and making optimum use of the location by small/medium enterprises for maximum profit. Geographic information system provide the opportunity to better understand geographical influences on tourism business and therefore allows tourism planning, development and management to be tailored to suite the individual needs of each destination. The overall fact is that GIS technology is an essential and effective decision support system for visitors' management in Abuja.

**Table: 2 TOURISM ISSUES AND GIS APPLICATIONS**

<b>Function capabilities of a GIS</b>	<b>GIS Basic</b>	<b>Questions</b>	<b>Tourism Application</b>
Data entry, storage and manipulation	Location	What is at	Tourism
Map production	Condition	Where is it	Identify most suitable location for development
Database integration management	Trend	What has changed	Measure tourism impacts
Data queries and searches	Routing	Which is the best route	Visitor management / flows
Spatial analysis	Pattern	What is the pattern	Analyse relationships associated with resources use
Spatial modeling Decision support	Modeling	What if.....	Assess potential impacts of tourism development

Source: modified after Bahaire and Elliot –White 1999, p.259

GIS is an integrated assembly of computer hardware, software, geographic data and personnel designed to efficiently acquire, store, manipulate, retrieve, analyze, display and report all forms of geographically referenced information geared towards a particular set of purposes (Burrough, 1986, Kapetsky, and Travaglia, 1995 ). Another scholar (Benharder, 1992) Stated in a clear term that one of the newly developed technology, which have important components of any approach to global problem solving is the GIS developed about 30 years back.

ESRI went further to define GIS as a computer-based tool for mapping and analyzing things that exist and events that happen on earth. GIS technology integrates common database operations such as query and statistical analysis with the unique visualization and geographic analysis benefits offered by maps. A processes spatial information and designed for data management, mapping and spatial and non spatial analysis (Berry, 1987). Santanu Dutta (2006) gave a comprehensive definition of the acronym GIS thus:

***“A system for input, storage, manipulates and output of geographic information. A practical instance of a GIS combines software with hardware, data, a user, etc. to solve a problem to support decision, and help planning. A Geographic Information System is a computer-based tool for mapping and analyzing geographic entities that are spatially referenced to earth.”***

Santhkumar and Mathew (1998), further stated the unique ability of GIS to combine system of hardware, software, data, people, organizations and institutional arrangements for collecting, storing, analysis and disseminating information about areas of the earth distinguish GIS from other information systems and make it valuable to a wide range of public and private enterprises for explaining events, predicting outcome and planning. Based on the definitions of the above various scholars, for the purpose of this study, GIS will be seen as

***“An integrated computer system for decision marking in managing expected events, that have the capability to acquire geospatial and attribute data, store, manipulate, process, retrieve, analyze and present information for solving complex spatial problems.”***

It is apparent that GIS serves as tool that can simultaneously integrate various dataset and present instantaneous information for decision taking in an upcoming event.

The above are necessary for taken accurate decision in festival tourism management. As such, the process by which people, moves from one geographic landscape (hotel) to another (tourism sites) an essentially movement in geographic space and an important aspect of coverage of Geographic Information System. GIS technology is applied in transportation – tracking, navigating, routing and scheduling logistics from one geographical location to another (Berry, 1987). Selecting the best route through an area is one of the oldest spatial problems. But lately, this problem has been solved with the use of GIS technology. Geographic information system and festival tourism share a common characteristic, in that both cut across the boundaries of disciplines and areas of application. Given that all festival tourism activities are spatial in nature and must take place in space and in a location the potential of GIS technology to resolve or solve festival tourism spatial problems becomes very significant.

Scores of scholars have affirm, as mention early in the study the effectiveness of GIS technology in managing, analyzing, and displaying large volumes of divers data pertinent to a lot of local and region planning activities. Festival tourism industry is highly dependent on the environmental resources. It is also a phenomenon which in the event of lack of proper planning and management is likely to erode its environmental base. Hence, the efficiency of festival tourism management will be greatly enhanced by GIS application. GIS technologies which are pertinent in tourism management are identify and its application in ABUJA.

GIS technology represents position of real word data in one of the two models

#### **VECTOR MODEL and RASTER MODEL**

The vector data model provides precise positioning of features which are resented in three formats

1, POINT symbol, (Recorded of simple x,y coordinate )

2, Line symbol, (Recorded series of x,y coordinate )

3, Polygons (Recorded closed loop of x,y coordinate )

Raster system is limited to 2.5 D reality of geographic space is seen as non empty space composed of tiling of area units with each unit having a certain location value.

Festival tourism destinations can be represented in GIS environment by points, lines, and polygons since tourism destination are characterized by three different landscape features: Point features (tourism attractions) Line features (linear pattern i.e roads,) Polygons features (Heritage site,). This location attribute are necessary to a Geographic Information System.

There is no doubt that GIS possesses significant potential as decision support system for visitors management in festival tourism. Tourism site specification information about sources of visitors origin and destination, travel motivation, spatial patterns of recreation and tourism use, visitor expenditure patterns, level of use and impacts and sustainability of tourism site for recreation/tourism development, numbers of hotels, hotel rooms available in the city and the type of services, all of which are easily implemented in the GIS arena. The fact remain that GIS technology is an essential and effective for visitors management in festival tourism.

## METHODOLOGY

Spatial database is the central force of GIS technology, according to Kufoniyi (1998) described GIS data modelling as process by which the real world entities and their interrelationship are analyzed and modelled in such a way that maximum benefit are derived while utilized a minimum numbers of data. Reality refers to phenomena as they actually exist, including all aspects which may or may not be perceived by individuals. The view of reality is the mental abstraction of reality for a particular application (user requirements) or group of applications (Kufoniyi, 1998). In this study reality refers to road network, Police station, Hospitals, Abuja boundaries, Hotels, Tourism site and Recreation places within the study area.

## DATABASE DESIGN PHASE

1. Conceptual design phases
2. Logical design phases
3. Physical design phases

## **CONCEPTUAL DESIGN**

Conceptual design is the arrangement of a human conceptualization of reality, how the view of reality will be presented in a simplified manner but still accommodate the information requirement for successful implementation of the project at hand. Abstraction of reality is the first step to be addressed before designing and creating a database. For this study, the reality stands as the spatial arrangement of tourism site in other to see their spatial relationship with other factors that interact with tourism, such as road, hotels, hospital, banks, recreation, parks, gardens, police post, etc. The vector data model was adopted for the representation of the complex reality in this study. The vector data model represents the real word using points, line and polygons or area. The complex reality in this study will be represented as follows using vector data mode;

POINT: Tourist Sites, Hotels, Cultural centre, Sport houses.

LINE: Roads, rives or any liner feature

Polygons or Area: Boundary

This study considered the following entities: Tourism sites, Hotels, Recreation Park, Hospitals, Police station Arts and Culture Centre and Roads.

## **DATABASE CREATION**

Abuja imagery from IKONOS was geo-reference and used for this study. It was digitized on-screen using ARCGIS 9.3 version. Following the design phase, the database was created and populated in ARCGIS 9.3 environment. Polygon, Line and Point layers were created respectively for Tourism site, Hospitals, Recreation centre, Hotels, police station and Roads data. These form individual relations which were then populated with their attribute values.

Database implementation involves the following steps:

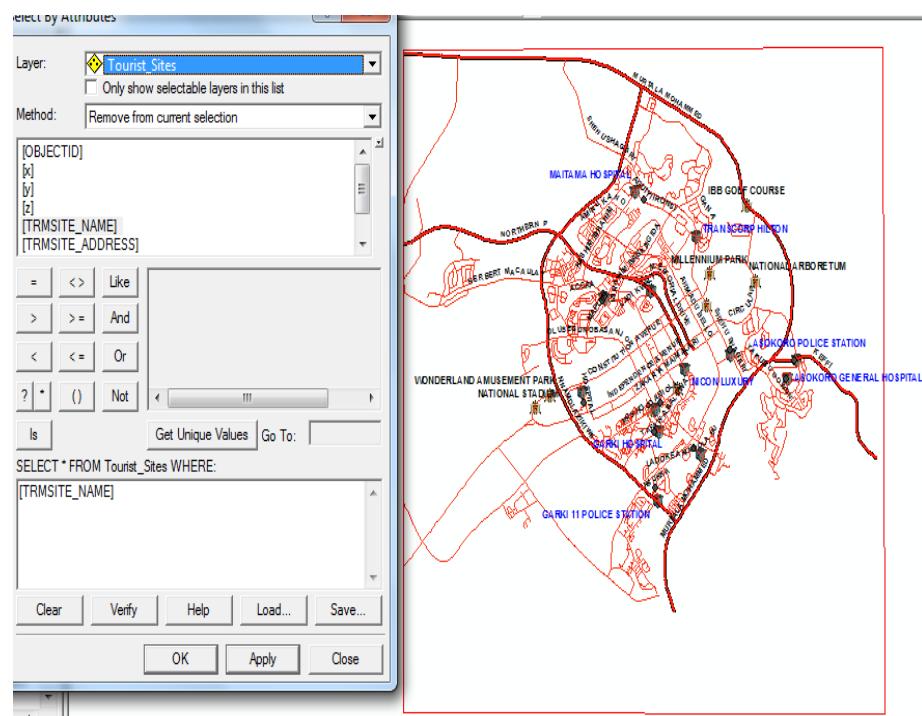
- ❖ Hardware and software based on data to be stored and the format
- ❖ Physical database creation, to input data into the database
- ❖ Lastly, the graphical display of the spatial data context of the database.

## DISCUSSION OF FINDING

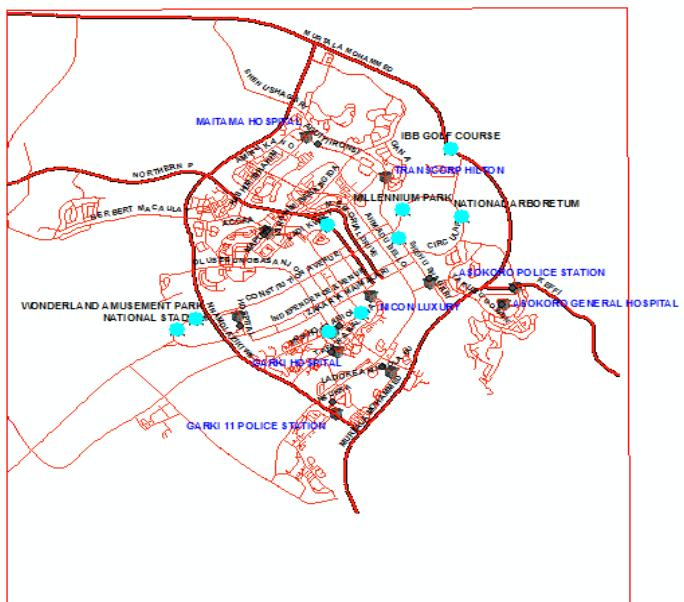
There is wide range of functions for data analysis in GIS platform, which distinguishes it from other information system. GIS capabilities among others includes spatial analysis, measurements techniques, spatial search, attribute queries, proximity analysis, buffering operations and analysis of models of surface and network analysis. The following spatial analysis was carried out in this research: Spatial Search, Network analysis (Finding the best route and closest facility for tourist in Abuja), Buffering to determine tourism facility with a define radius using the recommended criteria. Spatial search was used to test the database created by looking for certain attributes within Abuja, which is logical and systematically defined. The database towards answers generic questions of what is where and where is what.

Single criterion query is the analysis of the database stating one condition for the search from the database prepared for the study, while the multiple criteria combine more than one field to generate result. The variants of query (selection) involved are, Query by Attribute, Query by Location, and Query by use.

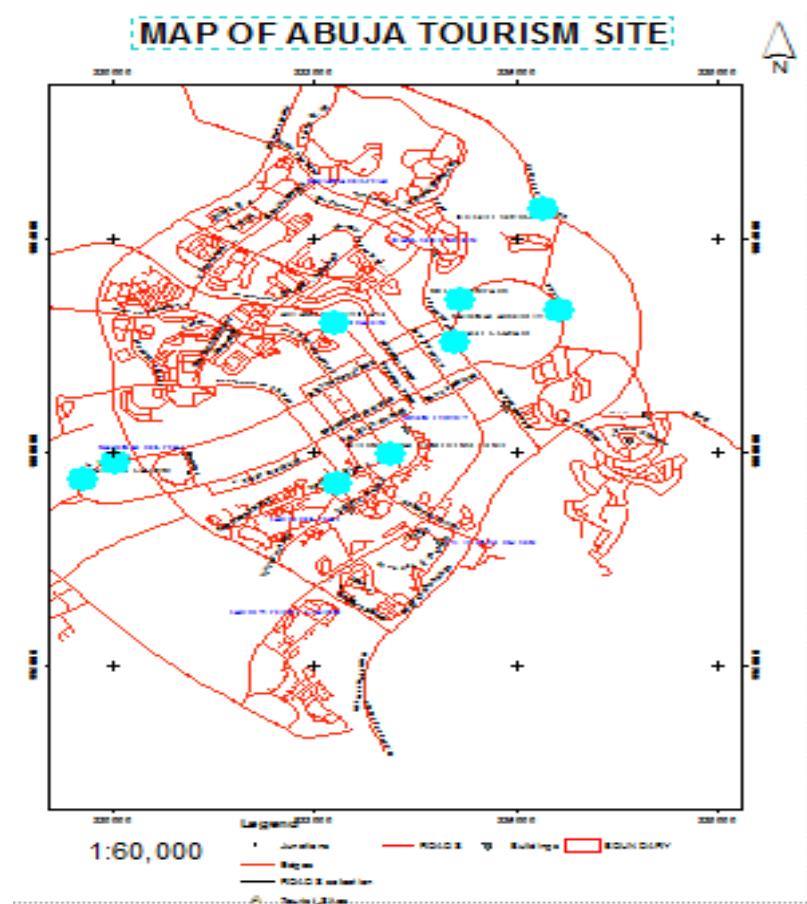
Query Syntax : SELECT\* WHERE “TRMSITE\_NAME”



**FIG 4.4 QUERY OF TOURIST SITE LOCATION**



## **FIG 4.5 RESULT OF QUERY (TOURIST SITE)**

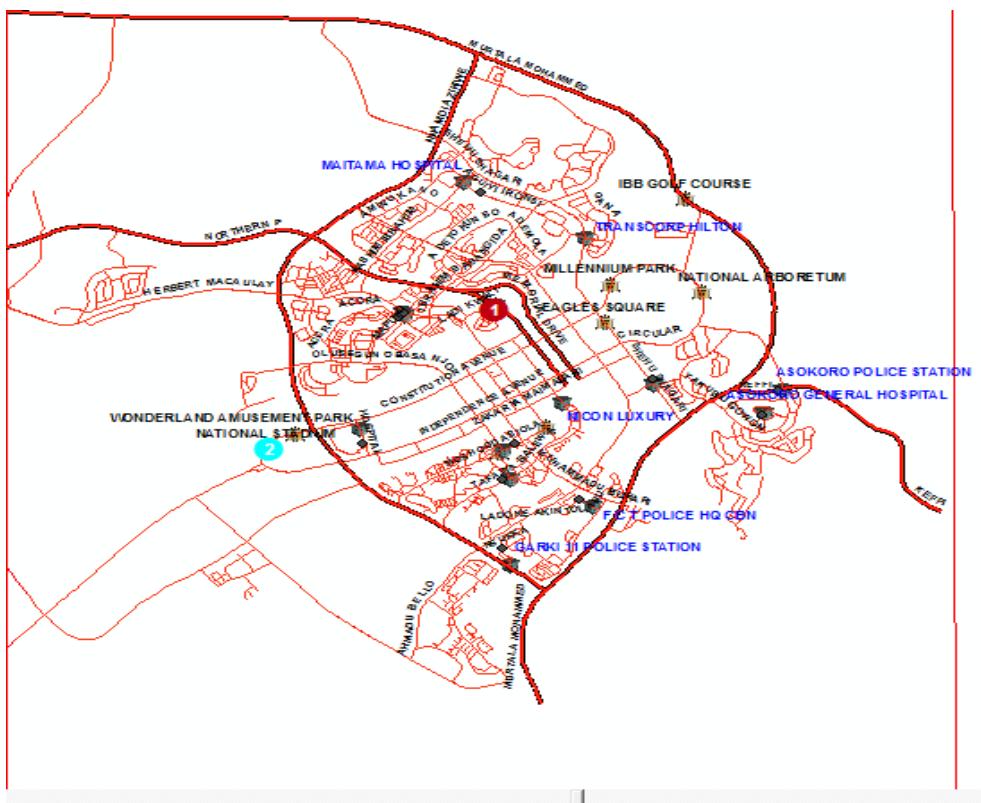
**FIGURE 4.6 ABUJA TOURIST SITE MAP**

### NETWORK ANALYSIS

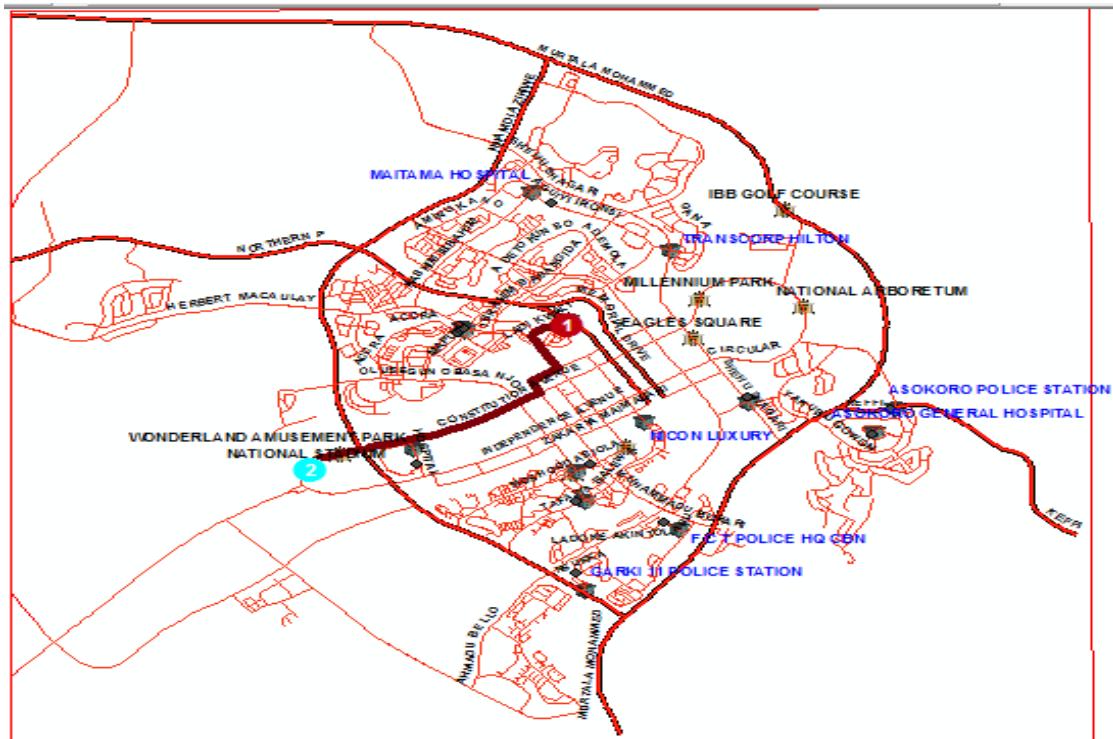
A network is a set of interconnected lines linking up a set of features through which resources can flow. Network with appropriate attributes can be used directly for finding shortest path and measuring accessibility to closest facility. A network can also assist in solving location problems, and transportation planning for tourist.

#### **ANALYSIS 1: SHORTEST ROUTE**

Shortest route finds the path with the minimum cumulative impedance between nodes on a network. It can be used for movement of tourist. Below in figure 4.12 show the shortest route between sheraton hotel at point 1 and national stadium at point 2.



**FIGURE 4.10: POINT 1 SHERATON HOTEL AND POINT 2 NATIONAL STADIUM**

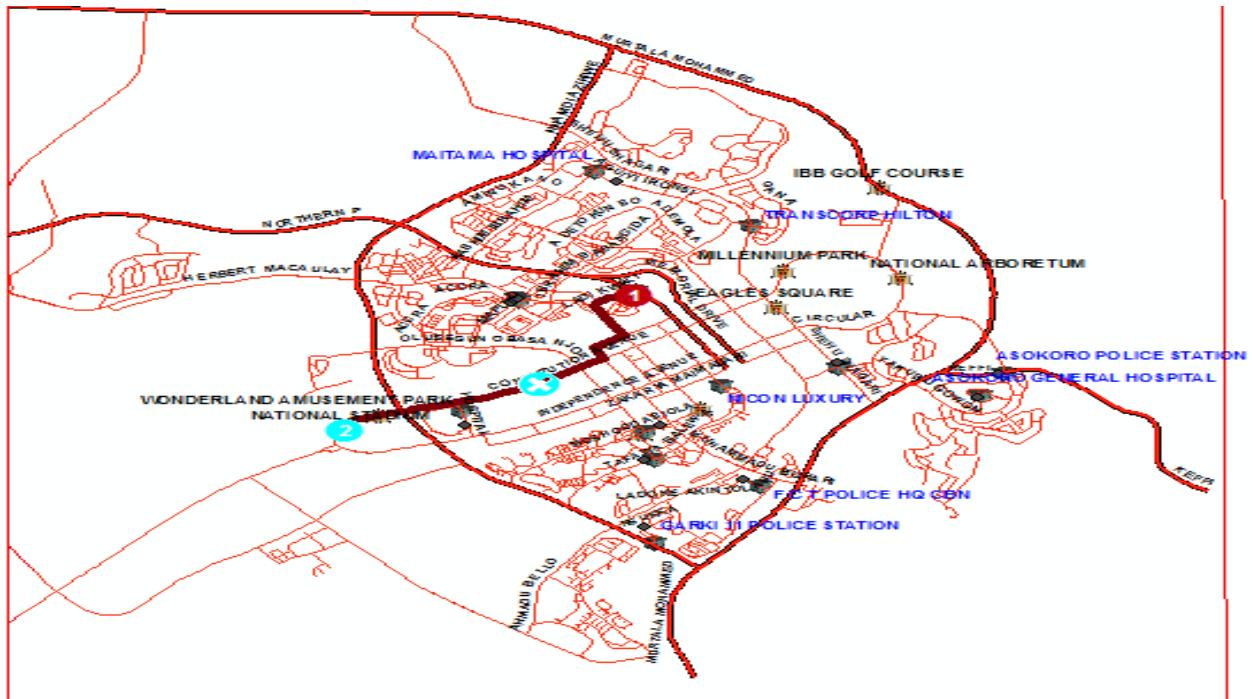


**FIGURE 4.11 SHORTEST ROUTE FROM SHERATON HOTEL TO NATIONAL STADIUM**

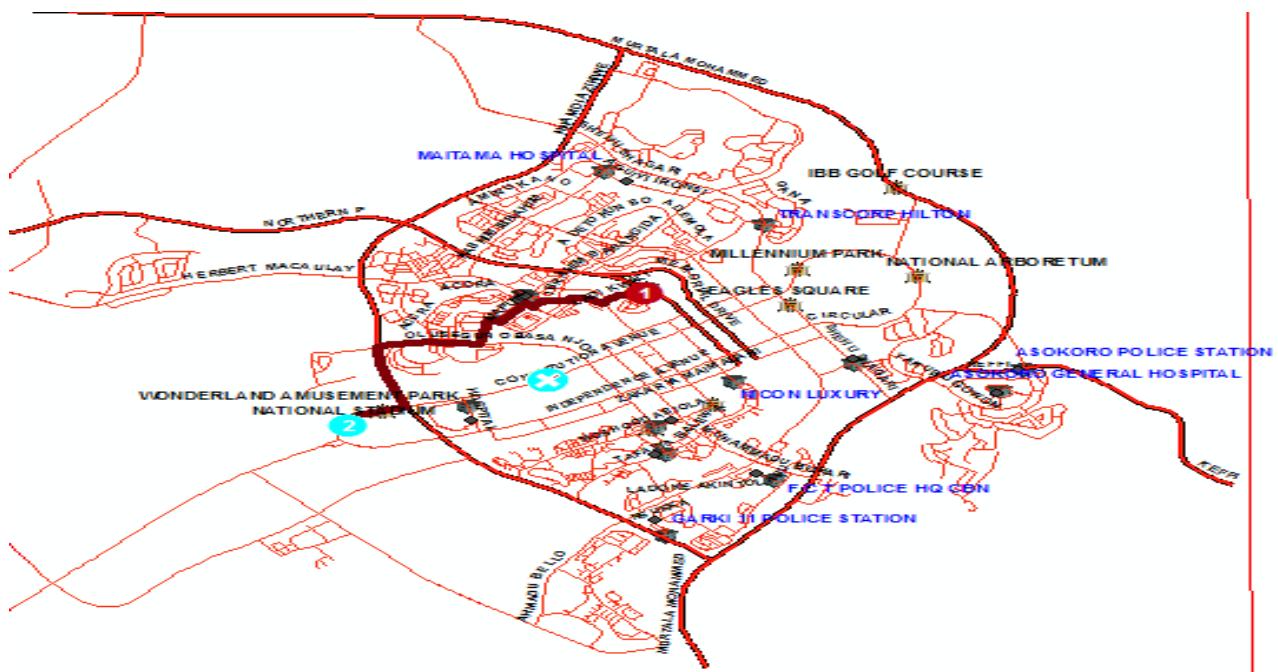
<b>Route: SHERATON HOTEL - NATIONAL STADIUM</b>		5.8 km
<u>1:</u>	Start at SHERATON HOTEL	
<u>2:</u>	Go northwest toward LADI KWALI	< 0.1 km
<u>3:</u>	Turn left on LADI KWALI	0.5 km
<u>4:</u>	Turn left on HERBERT MACAULAY	0.7 km
<u>5:</u>	Turn right on SAMUEL ADEMULEGUN	0.5 km
<u>6:</u>	Turn left on MUHAMMADU BUHARI	0.3 km
<u>7:</u>	Turn right on CONSTITUTION AVENUE	2.8 km
<u>8:</u>	Continue on NATIONAL STADIUM	0.9 km
<u>9:</u>	Finish at NATIONAL STADIUM, on the left	
Total distance: 5.8 km		

**FIGURE 4.12 SHORTEST ROUTE RESULT FROM SHERATON HOTEL TO NATIONAL STADIUM**

## ANALYSIS 2: ALTERNATIVE ROUTE



**FIGURE 4.13 ALTERNATIVE ROUTE FROM SHARATON HOTEL TO NATIONAL STADIUM WITH BARRIERS AT CONSTITUTIONAL AVENUE**



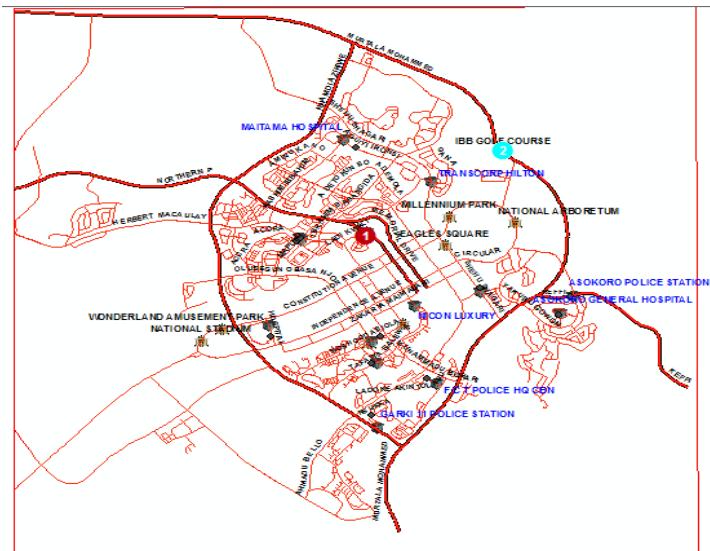
**FIGURE 4.14 ALTERNATIVE ROUTE RESULT FROM SHARATON HOTEL TO NATIONAL STADIUM WITH BARRIERS AT CONSTITUTIONAL AVENUE**

[-] <b>Route: SHERATON HOTEL - NATIONAL STADIUM</b>		6.4 km
<u>1:</u>	Start at SHERATON HOTEL	
<u>2:</u>	Go northwest toward LADI KWALI	< 0.1 km
<u>3:</u>	Turn left on LADI KWALI	0.5 km
<u>4:</u>	Turn right on HERBERT MACAULAY	0.4 km
<u>5:</u>	Turn left	< 0.1 km
<u>6:</u>	Turn right	0.5 km
<u>7:</u>	Turn right	0.1 km
<u>8:</u>	Turn left on MAPUTO	0.5 km
<u>9:</u>	Turn right	0.1 km
<u>10:</u>	Turn left on SUL TAN ABUBAKAR	0.5 km
<u>11:</u>	Turn right on OLUSEGUN OBASANJO	1.3 km
<u>12:</u>	Turn left on NNAMDI AZIKIWE	1.3 km
<u>13:</u>	Turn right on NATIONAL STADIUM	0.9 km
<u>14:</u>	Finish at NATIONAL STADIUM, on the left	
Total distance: 6.4 km		

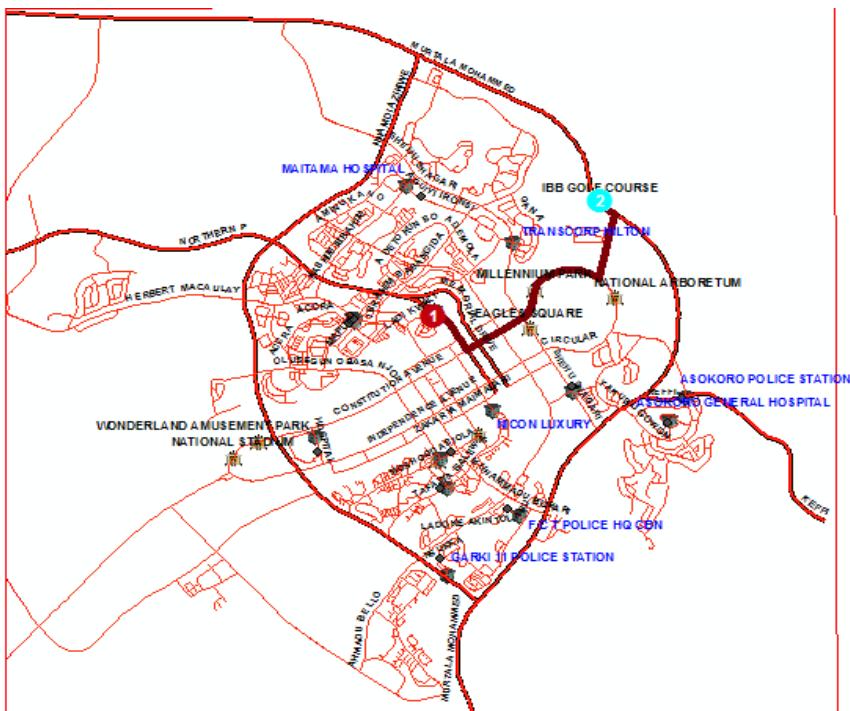
**FIGURE 4.15 ALTERNATIVE ROUTE RESULT FROM SHARATON HOTEL TO NATIONAL STADIUM WITH BARRIERS AT CONSTITUTIONAL AVENUE**

## **ANALYSIS 2: ALTERNATIVE ROUTE**

The shortest route from Sheration hotel at Ladi Kwali to National Stadium at Natonal Stadium road for event tourism for tourist is 5.8 km through constitutional avenue to national stadium road. Why the alternative route from Sheraton hotel at Ladi Kwali to National Stadium at National Stadium road is 6.4 km through Olusengu Obasanjo,Nnamdi Azikiwe if there are barries in counstitution avenue that is the shortest route from Sheraton.



**FIGURE 4.16 POINT 1 SHERATON HOTEL AND POINT 2 IBB GOLF COURSE**

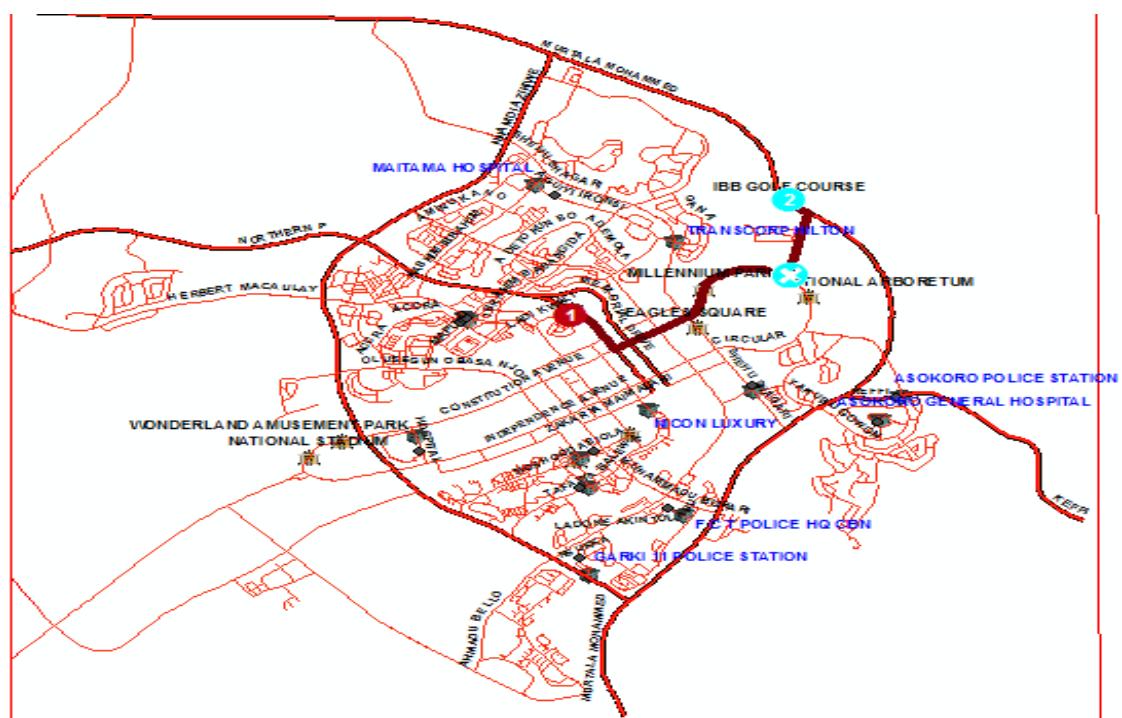


**FIGURE 4.17 SHORTEST ROUTE FROM SHERATON HOTEL TO IBB GOLF COURSE**

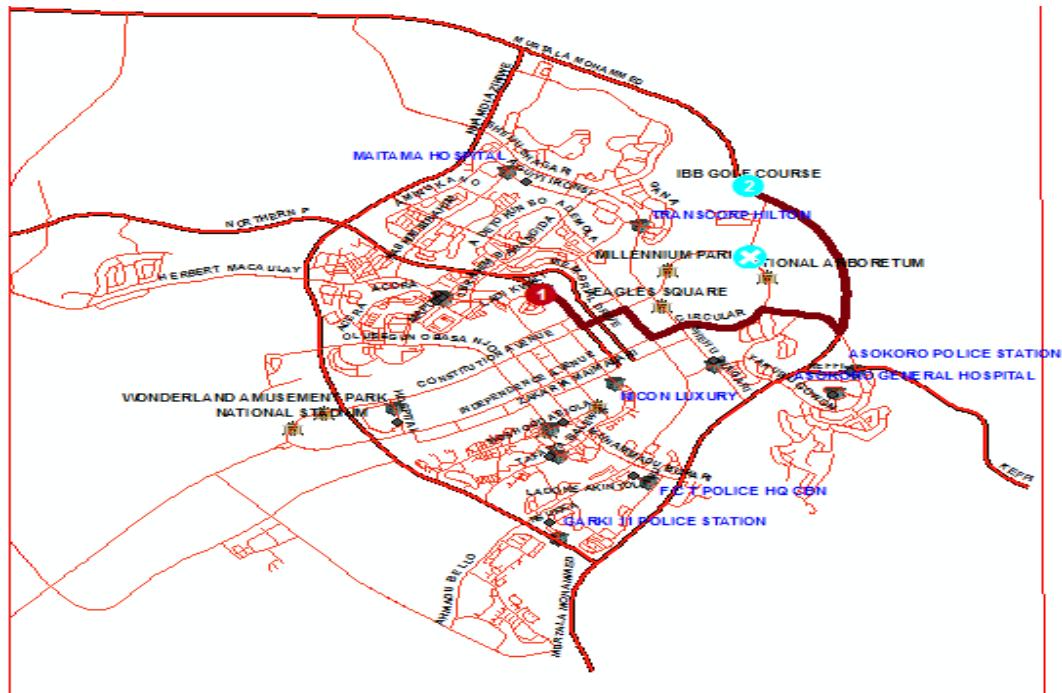
<u>Route: SHERATON HOTEL - IBB GOLF COURSE</u>	6.1 km
1: Start at SHERATON HOTEL	
2: Go northwest toward LADI KWALI	< 0.1 km
3: Turn right on LADI KWALI	0.1 km
4: Turn right on MEMORIAL DRIVE	1 km
5: Turn left on CONSTITUTION AVENUE	0.7 km
6: Continue on CONSTITUTION	0.5 km
7: Bear left on CIRCULAR	2 km
8: Make sharp left	1.3 km
9: Turn left on MURTALA MOHAMMED	0.4 km
10: Finish at IBB GOLF COURSE, on the right	

Total distance: 6.1 km

**FIGURE 4.18 SHORTEST ROUTE RESULT FROM SHERATON HOTEL TO IBB GOLF COURTE**



**FIGURE 4.19 ALTERATIVE ROUTE FROM SHARATON HOTEL TO IBB WITH BARRIERS AT CIRCULAR ROAD**



**FIGURE 4.20 ALTERATIVE ROUTE FROM SHARATON HOTEL TO IBB WITH BARRIERS AT CIRCULAR ROAD**

<b>Route: SHERATON HOTEL - IBB GOLF COURSE</b>	9.5 km
<u>1:</u> Start at SHERATON HOTEL	
<u>2:</u> Go northwest toward LADI KWALI	< 0.1 km
<u>3:</u> Turn right on LADI KWALI	0.1 km
<u>4:</u> Turn right on MEMORIAL DRIVE	1 km
<u>5:</u> Turn left on CONSTITUTION AVENUE	0.7 km
<u>6:</u> Turn right on AHMADU BELLO	0.7 km
<u>7:</u> Turn left on INDEPENDENCE AVENUE	0.5 km
<u>8:</u> Bear right on CIRCULAR	1.4 km
<u>9:</u> Turn right on YAKUBU GOWON	1.3 km
<u>10:</u> Make sharp left on MURTALA MOHAMMED	3.7 km
<u>11:</u> Finish at IBB GOLF COURSE, on the right	
Total distance: 9.5 km	

**FIG 2.21 ALTERNATIVE ROUTE RESULT FROM SHARATON HOTEL TO IBB WITH BARRIERS AT CIRCULAR ROAD**

The shortest route for tourist from Sheraton hotel at Ladi Kwali through Circular to IIB Golf Course at Murtala Mohammed is 6.1 km. While the alternative route for tourist from Sheraton hotel at Ladi Kwali to IIB Golf Course at Murtala Mohammed if there are barries at Circular is 9.5 km through Independence avenue, Yakubu Gowon, Murtala Mohammed.

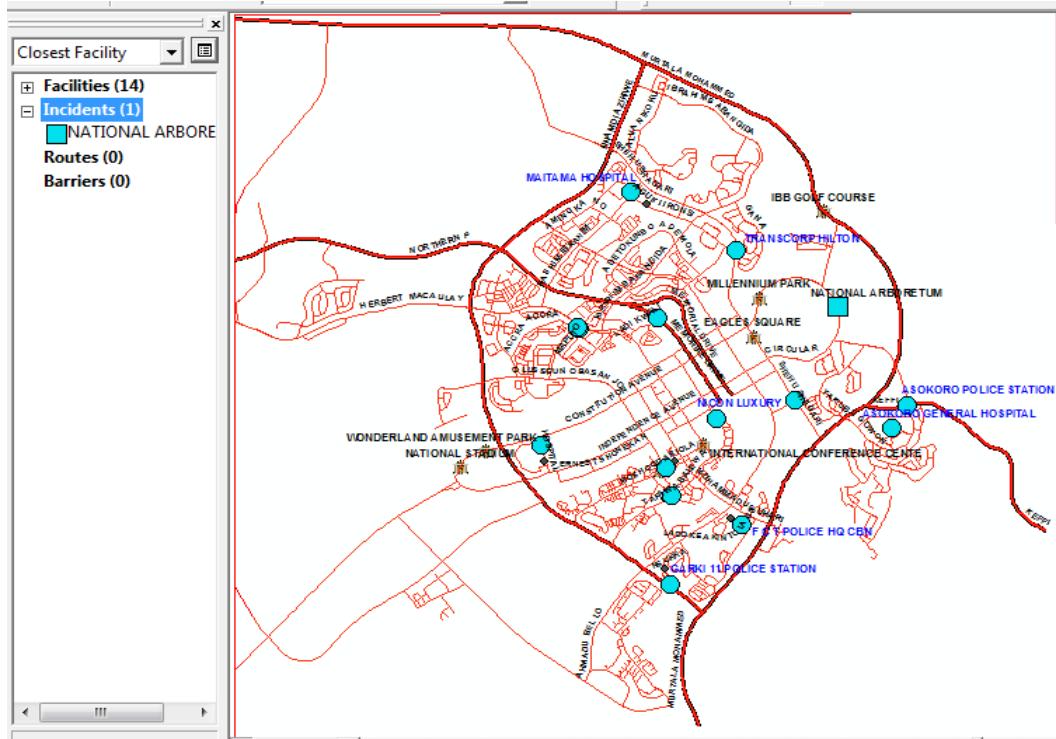
**TABLE 6: SHOWING DIFFERENCE BETWEEN ROUTES**

From	To	Shortest	Alternative	Difference	Remarks
<b>Sheraton Hotel</b>	<b>National stadium</b>	5.6KM	6.4 KM	<b>0.8KM</b>	
<b>Sheraton Hotel</b>	<b>IBB Golf Course</b>	6.1KM	9.5KM	<b>3.4KM</b>	

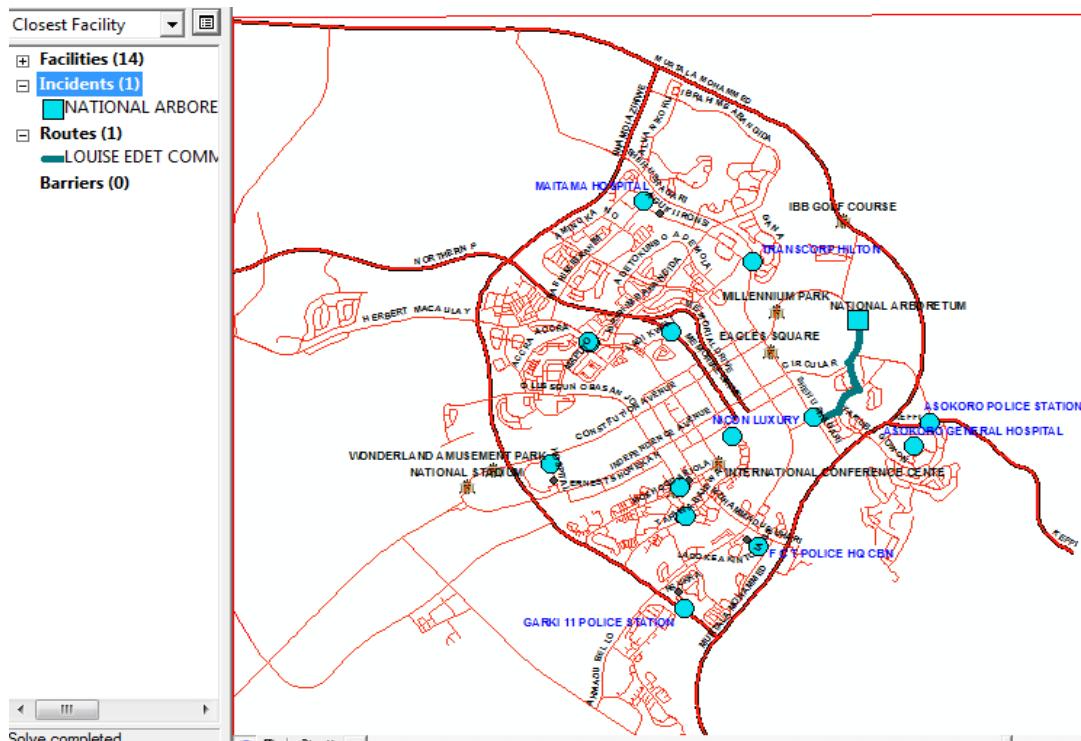
### **ANALYSIS 3: CLOSEST FACILITY**

Closest facility is a network analysis that is used to determine facilities closest to you from a current location or to any location on the network for example from a tourism site to nearest police station. Below in Figure 4.24 is the analysis showing a tourist site NATIONAL

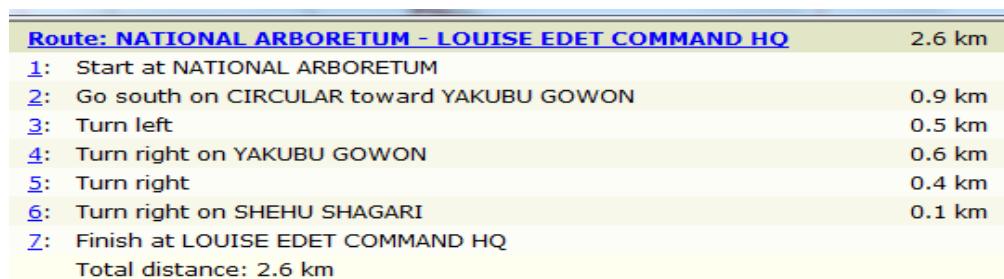
ARBORETUM located at 43 Circular road, the closest police station is the LOUISE EDET COMMAND HQ located at 20 Shehu Shagari, with a total distance of 2.5 km .



**Figure.4.22 Analysis of the closest police station from a tourist site ( NATIONAL ARBORETUM).**



**Figure.4.23 Result of the closest police station from a tourist site ( NATIONAL ARBORETUM).**

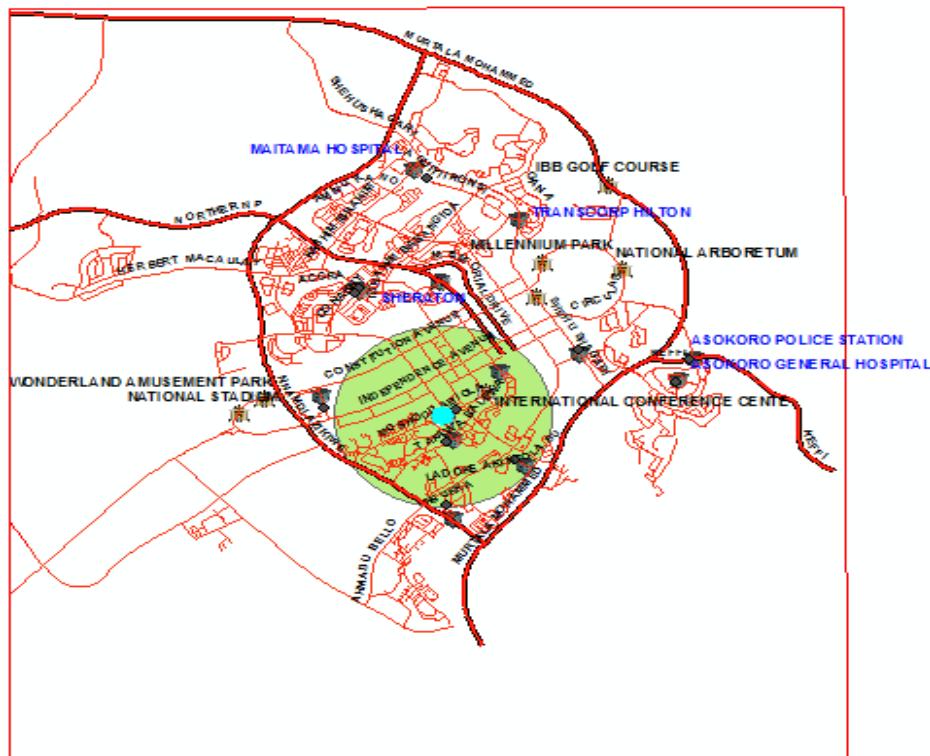


**Figure.4.24 Result of the closest police station from a tourist site ( NATIONAL ARBORETUM).**

#### **ANALYSIS 4: BUFFERING**

In consideration of the distance of facilities such as police station, hospital, etc to tourist site so as to enhance confidence on the tourism destination it is encouraged that tourist should not travel more than 1 hour before having access to hospital or police station. One important spatial

operation in GIS is the determination of spatial proximity or nearness to various geographic features. Using the above criterion in the Arc GIS software, 2 KM was buffer from a tourist site ABUJA ARTS AND CULTURE located at 61 memoria drive.



**FIGURE 4.25: BUFFERING RESULT SHOWNIG TOURISM FACILITY THAT FALL WITHIN 2 KM OF ABUJA ART AND CUTURE**

From the above buffering analysis, facilities that fall within the define parameter is said to be within the buffer zone that have met the above recommendation, the tourist facilities that fall within the buffer zone, are police station CBN at 19 zaria, area 10 police station at 8 moshood abiola, louise edet police hq at 20 shehu shagari and garki general hospital at 12 tafawa belewa.

The GIS analysis carry out in this project will enable tourist to access information on the closest facility, query the hospitality database to get information on the type of tourist sites, services that are available for visitors, proximity to tourist facility, distance from the hotel, best route and alternative. This will enhance the value of abuja as tourism destination, increase petronage and make information about abuja hospitality facilities easily avialable, economical and time saving,

as tourism information is accessed from the tourism database. Moreover the hospitality database will serve as a spatial decision support system for policy formation and decision making.

All the analysed result generated in this study can be diagrammatically/ graphically view on the computer system, internet, printed in hardcopy or store in a CD/DVD depends on the users' specification.

## **CONCLUSION**

The reason for repeat purchase is nothing other than the level of confidence the host has been able to instil in the visitors, the level of understanding the host has been able to exhibit and these two words confidence and understanding cannot be created without planning consciousness and tactfully. The level of understanding and satisfaction of visitors varies and depends again on various factor which are infrastructure, visitor information, environment, social, psychological, religious, culture, and previous experience. For effective visitor management and repeat purchase host community must be able to inter-marry these various factors to their own advantage using the GIS platform.

The study started with the design of spatial database as a decision support system for festival tourism management. The entities in the study area were identified and vector data model was employed, satellite imagery of the project site was geo-referenced and digitized in ARCGIS 9.3 while the imagery data was updated with hand-held GPS. Attribute data for the site was collected through social survey. Spatial database was created in ARCGIS 9.3 where attribute table was linked with geometric data. Various spatial operations such as spatial query, best or shortest route and closest facilities were performed and results were presented.

Spatial database of digital road network for decision support in festival tourism management has been created. It is now possible to manipulate the database to answer basic question using GIS technology. Moreover, maps or plan or report can now be produced at will when required. The database is capable of capturing the tourism site, closest location of tourism facilities, closest Hospital and the best shortest route from tourist hotel to the closest tourist site, police station or hospital.

## RECOMMENDATIONS

The tourism industry is very important economically and visitors' management is a vital part, because visitor activity touches nearly every aspect of the daily life in the Abuja city. The key to good visitor's management is by providing warm welcome to visitor and high quality of planned facility and services for visitor so as to make visitor enjoy their visit and get value of their money. Adapting and evolving approach to ensure that the needs and demands of visitor are achieve in other to encourage repeat purchase

Integrity of the database should be ensured at all times, thus care must be taken while inserting data and updating the database. A hardcopy should always be printed at regular interval and examined for any entry errors. This is very important for efficient tourist management, there are lots of benefits that are derivable from GIS technology in supporting decision making in hospitality management, I therefore recommend based on the finding of this study that:

- The government should properly document all the tourist sites in Abuja and develop a functional festival tourism database using GIS technology to better enhance visitors experience and stay in Abuja as a tourist destination.
- Detailed information about festival tourism activities should be easily available for visitors via, internet, printed in hardcopy or store in a CD/DVD and accessible from the Abuja tourism database.
- The festival tourism database should be made to cover the road network of Abuja and updated from time to time in other to capture new developing areas with the facilities that are present.

## REFERENCES

1. Bhatia (2006) *International tourism management* sterling publisher Prt. Ltd New Delhi. India
2. Christopher, H (2001): *The Business of tourism* Harlow, Essex cm 2o 2JE, England

3. Chuch, Y. gee (1997): *International tourism: A global perspective* published by world tourism organization, Madrid Spain
4. *Guide for local authorities and developing sustainable tourism* (2001). Published by the world tourism organization
5. Getz, O. (1991). Festivals, Special Events and Tourism. New York. Van Nostrand.
6. Peter, H (2004) *Leisure and tourism* Heinemann educational publishing Ltd oxford U.K
7. McIntosh 2005 [www.Into-tourism.org](http://www.Into-tourism.org)
8. Okoli, C. (2007). Event Management: Spotlight on Hospitality and Tourism Owerr. Websmedia Communications.
9. *Tourism congestion management at natural and cultural sites* published by world tourism. Organization Madrid Spain. (2004)
10. Woodford et al (2000) *Cambridge international Dictionary of English* Cambridge university press united kingdom.