A Participatory GIS approach to *unearthing* Manchester's Cultural Heritage "gold mine"

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Master thesis, 30 credits, in Geographical Information Systems

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To my mom and dad, whom I love dearly and hopefully know how much I appreciate them

everyday...to God be the glory...

Abstract

Cultural heritage tourism is regarded as one avenue that can be used to stimulate the economic viability of an area; this is strongly believed by the tourism proponents in the parish of Manchester, Jamaica. With a lagging economy, and various studies done in the area, there has been no significant movement by policy makers towards implementing a sustainable tourism product, much to the ire of the stakeholders within the parish. These proponents believe that with some aid from the government, much of the cultural heritage resources in the parish can be developed into economically sustainable tourism.

This project utilizes a technological approach using PGIS techniques to map the major cultural heritage sites in the parish using a web map application, with the assistance of members of the Parish DAs. The aim of the mapping workshop was to investigate whether, as these proponents believe, there are significant heritage resources that can be developed into economically sustainable tourism sites and if they do exist, what experience do they present for visitors (*cultural heritage "gold mine"*). The project further investigates how these sites fit into the National Trust for Heritage Preservation's five basic principles for heritage tourism, by using these principles as the main assessment criteria for heritage tourism in the study area.

The result of the paper shows that there are a significant number of cultural heritage sites in the parish as identified by workshop attendees, in varying conditions, however none currently offers an experience that is wholesome enough on its own to generate significant revenues from cultural heritage tourism activities. Of the five NTHP principles, the results show that while there are some criteria that are being met, there are still significant areas that need to be addressed before the parish can be fully regarded as a "heritage gold mine".

The research concludes that while there are still much inroads left for the prospect of seeing significant revenues from cultural heritage sites, much promise lies in the present sites, the stakeholder efforts currently being made and the prospect of using GIS technology as a tool to assist with the process, as opposed to the current manual system. It is therefore encouraged that further development towards this initiative is viable.

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First I would like to give praises to my Creator, without His grace and love, I would be nothing.

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Contents

List of Abbreviations

CBT	Community Based Tourism
CFTC	Commonwealth Fund for Technical Cooperation
DA(s)	Development Area(s)
HTP	Heritage Tourism Program
ICTs	Information and Communication Technologies
IDB	Inter-American Development Bank
IOJ	Institute of Jamaica
JCDC	Jamaica Cultural Development Commission
JNHT	Jamaica National Heritage Trust
LDUC	Land Development and Utilization Commission
MLSDP	Manchester Local Sustainable Development Plan
MPC	Manchester Parish Council
MPDC	Manchester Parish Development Committee
NEPA	National Environment and Planning Agency
NRCA	Natural Resources Conservation Authority
NTHP	National Trust for Historic Preservation
PDAs	Parish Development Areas
PGIS	Participatory Geographic Information Systems
PSMP	Public Sector Modernization Programme
SCRB	South Coast Resort Board
SCSDS	South Coast Sustainable Development Study
SDC	Social Development Commission
TPD	Town Planning Department
TPDCo	Tourism Product Development Company
TMP	Tourism Master Plan
UNESCO	United Nations Educational Scientific and Cultural Organization

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1. Introduction

1.1   Background

Cultural heritage is described as the legacy of physical artifacts and intangible attributes of a group or society that are inherited from past generations, maintained in the present and bestowed for the benefit of future generations (wikipedia.org, 2009). Cultural heritage, according to Box, is the most "universally valued and most evenly distributed resource in the world" (Box, 1999). Cultural heritage in Jamaica has often been associated with words such as 'rich' or 'diverse', and includes various tangible, intangible natural and culturally significant heritage.

Heritage tourism according to the NTHP is, "travelling to experience the places, artifacts and activities that authentically represent the stories and people of the past and present" (NTHP, 2011). According to Hargrove, visits to cultural heritage sites has become one of the most popular kind of tourist activities for vacationers, ranging from seniors, families or groups both internationally and locally. This has resulted in tourist destinations paying keen interest in this "niche market" (Hargrove, 2002).

But with increased interest in cultural heritage tourism, comes the need for documentation and sustainable preservation of these sites to yield the expected economic benefits. Historic preservation, according to Mason, is judged to be a sound investment, and tends to yield significant benefit to the economy (Mason, 2005). Economic revitalization of a destination has long been associated with the development of tourism; according to Chen *et al.*, heritage is an important resource for tourism development and is a prevalent form of "special interest tourism" usually related to cultural tourism (Chen, Ching-Fu & Chen, Pei-Chun, 2010). Milne and Ateljevic, in an attempt to link the processes of economic development and tourism, stated that, "there is no denying that tourism is a major global economic force" (Milne, Simon & Ateljevic, Irena, 2001).

UNESCO is recognized worldwide as advocates for the preservation of worldwide cultural heritage and education, and supports and encourages the use of technology in safeguarding the world's heritage resources. Box, in establishing the importance of GIS in cultural heritage resource management, noted that, cultural heritage is "fragile and infinite", and therefore the "best and most appropriate" tools are to be used in the task of preserving these sites. GIS therefore becomes an important tool to aid in spatially identifying, documenting, classifying and

analysing cultural heritage resources, and managing and maintaining them for present and future use.

Participatory GIS (PGIS) is described simply as the 'integration of local knowledge and stakeholders or expert perspectives in the GIS (Quan, 2001) (Rambaldi *et al.*, 2005 via (Corbett, 2006).

PGIS techniques have been used as a tool in the protection of natural resources for cultural benefits. Quan *et al.* speaks to the usefulness of GIS as a tool for combining datasets for analytical understanding; for the PGIS approach, they noted, the 'crucial link is a spatial reference for all data'. They emphasized, "An accurate spatial reference or geo-reference not only enables us to know exactly where we are but allows information about particular places and areas to be displayed, analysed and used alongside other geo-referenced data..." (Quan, 2001).

While cultural heritage has been long associated with various areas in Jamaica such as, Port Royal in Kingston and St. Andrew Parish, Spanish Town in St. Catherine, Falmouth in Trelawny and Black River in St. Elizabeth, the parish of Manchester has not resonated with this form of recognition. On Sunday, August 28, 2011, the Jamaica Observer published an article titled "Manchester, a heritage gold mine?" (Rhoma Tomlinson, 2011); the writer cited several officials/tourism interests in the parish lamenting the lack of assistance from the relevant agencies to tap into the parish's perceived, 'heritage gold mine'. They lament that the parish has vast untapped heritage resources that can potentially become sources of revenue for the parish and the country. The view that there are significant resources in the South Coast is not new, as the South Coast Sustainable Development Study (SCSDS) (Halcrow et al, 1998), stated "…Jamaica can add significant additional dimensions to its tourism profile through the heritage, culture and natural resources that it has to offer…", they further recommended that,

 "*Given the characteristics and natural attributes of the study area it is suggested that the primary focus of tourism development on the south coast should be on nature and heritage based tourism products, including community tourism initiatives. It will be very important for Jamaica to promote the environment, history and culture of the south coast.*"

In addition, they listed several sites found in Manchester that has potential for this type of tourism, and recommended two (2) potential tour packages for the parish.

Hargrove, in referencing a recent Travel Industry Association of America study stated that historic and cultural sites ranked second to shopping in the list of activities engaged in while on

holiday (Hargrove, 2002), proof, that this kind of tourism is a growing trend, and therefore would make a feasible case for significant investment.

Developing and maintaining a successful and sustainable cultural heritage tourism program is a process that requires investment, commitment and leadership. Halcrow *et al.*, stated "*Sustainable tourism development involves making hard choices based on complex social, economic and environmental trade-offs. It requires a vision that encompasses a longer time frame than that traditionally used in community planning and decision making. Applying the concept of sustainable tourism development to the study area, requires that the local population achieves rising living standards, that the visitors are satisfied with the product and continue to arrive each year. It also requires that the natural and built environment is maintained for the continued enjoyment of both residents and visitors, all of which requires careful management.*" (Halcrow et al, 1998)

UNESCO has been supporting the development of modern computer-based tools in cultural resource management, and has tested and proven that GIS is a powerful tool to aid in cultural resource management. The UNESCO manual "GIS and Cultural Resource Management (Box, 1999), developed with the assistance of the Government of the Republic of Korea (for Asia and the Pacific), states that "UNESCO consciously chose to test the usefulness of computer-aided GIS in the difficult situation…where map data was non-existent, electricity rare and where no local manager had even heard of GIS…". From this testing, the UNESCO concluded "GIS has indeed demonstrated its usefulness…" They further affirmed "GIS is a proven tool which should be made available to all site managers everywhere in the world." It is obvious then, that the power of GIS in cultural heritage tourism and resource management cannot be overstated.

In 2007 the Manchester Parish Council (MPC) and the Manchester Parish Development Committee (MPDC) presented a comprehensive local development plan, '*The Manchester Local Sustainable Development Plan (MLSDP)*' for the parish that is, according to the article, "believed to be the first of its kind" in Jamaica and the English Speaking Caribbean (MPC and MPDC, 2009). This extensive research included a broad-based, sustainable development long-term plan for the parish and included an extensive in-depth profile on the cultural and historical environment of the parish.

With recent steps by the MPDC in collaboration with the Social Development Commission (SDC) and members from the various *Parish* Development Areas (DAs) to identify tourism

potentials in the parish, it is evident that the parish is eager to develop a sustainable tourism product using cultural heritage as one of the deciding factors.

Cultural heritage tourism is fast becoming the new '*it*' and therefore careful and detailed planning of such an initiative will be important if it is to become sustainable. There have been studies, successful initiatives and developed standards for heritage tourism that have worked in the past and still work successfully today. According to the United States' National Trust for Historic Preservation's (NTHP) Heritage Tourism Program (HTP) (NTHP, 2011), between 1990 and 1993 the NTHP's HTP coordinated a "Heritage Tourism Initiative" in sixteen (16) pilot areas in four (4) US States (Indiana, Tennessee, Texas and Wisconsin). The aim of the initiative was to "see what it took to create heritage tourism programs that were both successful and sustainable". The results from the initiative were used to develop the NTHP's five (5) basic guiding principles and four (4) steps to getting started in cultural heritage tourism.

These five principles are:

- Collaborate
- Find the fit
- Make sites and programs come alive
- Focus on quality and authenticity
- Preserve and protect

This paper takes a spatial approach to investigating Manchester's cultural heritage 'gold mines' by leveraging PGIS capabilities to map the major cultural heritage sites in the parish. It further seeks to 'measure' the viability of these sites by establishing where they fit within the five basic principles for successful and sustainable cultural heritage tourism, as established by the NTHP HTP.

The project further seeks to review the current 'paper map' (sketch mapping) process used at a workshop in February 2012, by showing how the same workshop could be infused with PGIS technology to augment the process to achieve a far more substantive outcome.

It is hoped that at the end of this study the Parish will be better able to assess their cultural heritage tourism potential using GIS as a tool to identify, analyse, assess, investigate and manage the various resources and the potential benefits to both residents and visitors. It is also hoped that the tourism proponents in the area will have a better grasp of the area's tourism potential and

understand the benefits of using GIS as an important tool in Cultural Heritage Tourism and see the value in using PGIS techniques to drive decision making.

1.2   Motivation for the Research

The collaborative attitude of the stakeholders, the belief by industry specialists that there are valuable heritage resources within the parish, the value of PGIS techniques in combining local and expert knowledge for a common outcome, and the value of GIS as affirmed by UNESCO - together forms the motivating factor for the development of this paper.

1.3   Research aims and objectives

1.3.1 Major Objectives

- Use GIS to map the major cultural heritage sites in the parish of Manchester
- Investigate how the power of spatial data can help stimulate tourism
- Using the NTHP's five basic principles, investigate the cultural heritage sites and determine whether they meet the basic requirements as set out
- Use GIS capabilities to classify sites using developed criteria

1.3.2 Primary Research Question

A GIS approach to finding out; is Manchester really a heritage 'gold mine'?

1.3.3 Secondary Research Questions

- Where are the major heritage tourism sites in the parish, and what experience do they present for the visitor?
- Are these offerings enough of an experience to stand on their own and what collaborative strategies are being employed?

1.4   Research Methodology

In order to satisfy the objectives and answer the research questions, the following research methodologies were utilized:

i.   Literature review and background information on cultural heritage, tourism, GIS technology and how they interact

ii.   Sourcing and securing secondary data

iii.   Creation and testing of web map application using available data

iv.   Use of a participatory GIS (PGIS) technique to collect and classify the primary data in a collaborative effort using the developed web map in a workshop format.

v.   Field work and data verification

vi.   Analysis and presentation of the data

vii.   Research findings and discussion

viii. Conclusions and recommendations

1.5   Description of Study Area

The parish of Manchester on the South Coast of Jamaica *(see map in figures 1 and 2)* is considered one of the youngest parishes in the country, being developed from the larger parishes of St. Elizabeth, Clarendon and Vere (no longer a parish) in 1814. The parish was named in honour the Duke of Manchester, who governed Jamaica from 1808 to 1828 with brief breaks, making him the longest serving governor in Jamaica. The parish capital, Mandeville, established in 1816, was named after his eldest son - Lord Viscount Mandeville, and now stands as the fifth (5th) largest urban area in Jamaica. The town plan was laid out in 1816 with the purchase of 40 hectares of land; land was reserved for public buildings and the rest sold for residential purposes. In the town plan, they decided to build in this order; courthouse, parsonage or rectory, jail and workhouse, church – these four (4) buildings (*see photos in figures 3-6*) are still visible in the town today (Senior, 2003), (JIS, 1991) . This 320 square miles (829 km sq) parish is located in the central area of Jamaica and access to the parish from any of the two major airports on the island requires long driving times - approximately 62 miles from Kingston and 72 miles from Montego Bay (JIS, 1991). Tourism is not considered a major activity in the parish as the traditional 'sun, sea and sand' experience is limited to a small area in the southern end of the parish, and is mostly rural in the interior areas. This cool, hilly parish, according to officials, has a rich heritage, culture and nature type activity that can be appealing to tourists that seek these types of experiences. The parish is the birth place to Jamaica's Norman Washington Manley, a National Hero and former Premier of the island; they also have the oldest and first (1st) free Library in Jamaica – the Manchester Parish Library in the capital town – established in 1937 by Reverend Walter Lewis, and boasts the first free village - Maidstone.

The parish has tried to leverage these heritage resources to boost tourism; however as the SCSDS (Halcrow et al, 1998) found, a more creative packaging of the product 'offerings' is necessary to help stimulate tourism activities.
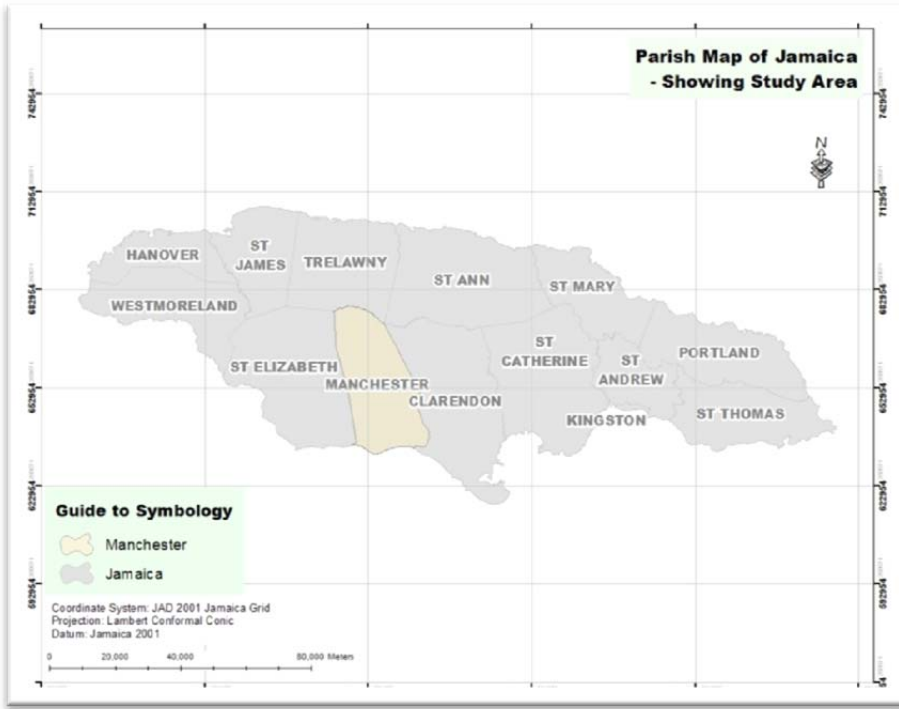
Figure 1: Parish Map of Jamaica showing Study Area (left)

Figure 2: Map of Manchester showing Special Areas (below)
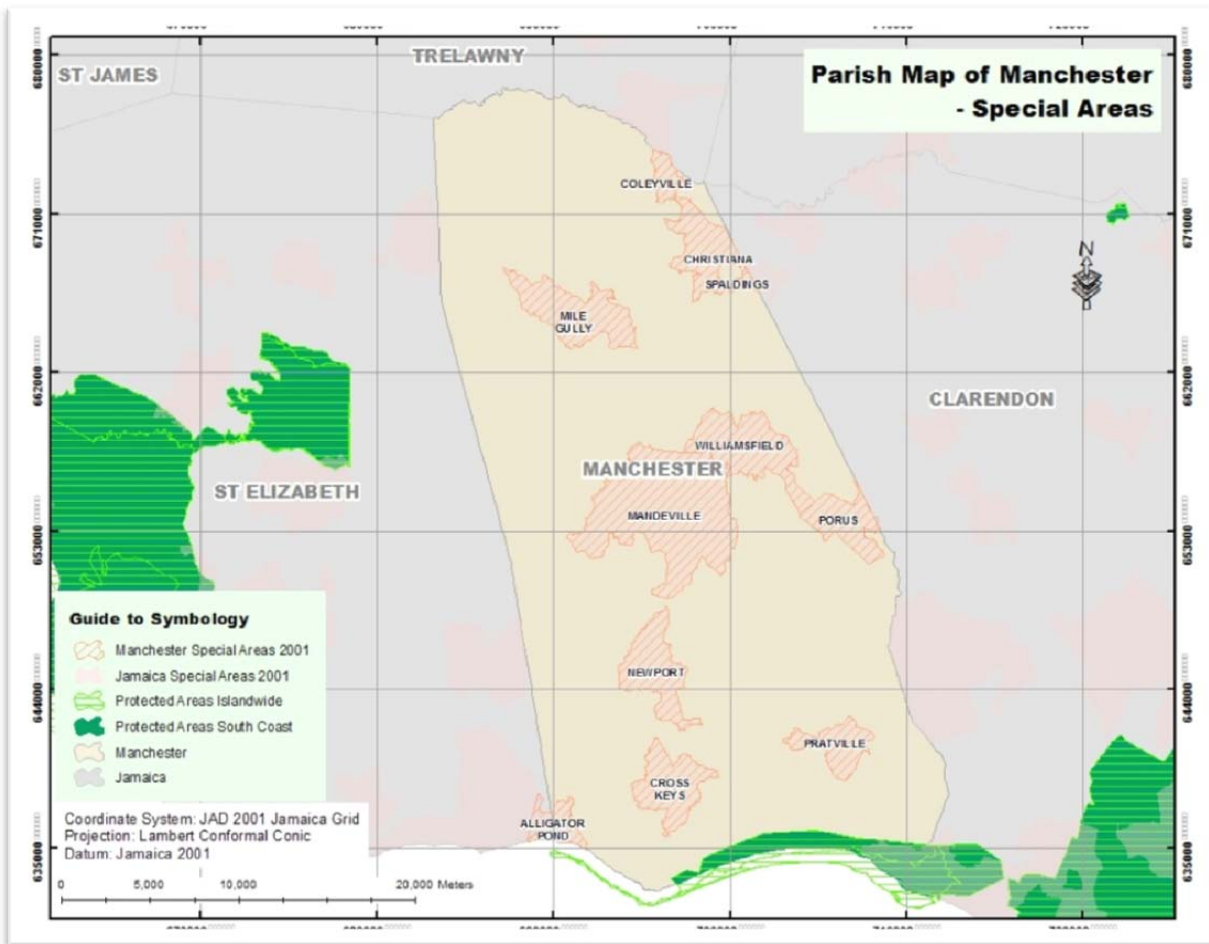
Figure 3: Courthouse - still used today as the Parish court

Figure 4: Former Parsonage/Rectory - now has commercial operations

Figure 5: Jail/Workhouse - still used today as the Parish police HQ

Figure 6: The parish church - still used today for services

1.6   Organisation of the Research

This research is organised so that the reader will get a good introduction to the background of cultural heritage, cultural heritage tourism and GIS and how they interact. The main objectives of the project is outlined along with the primary and secondary research questions to be investigated. This chapter also introduces the study area and highlights the motivation for the study.

In the next section, the literature review, gives a more in-depth review of the available literature and focuses more on the most recent literatures available. Here, the criteria for cultural heritage tourism are introduced according to the NTHP, and an investigation of materials as it relates to these criteria is presented. This chapter also looks into studies that were done in and around the study area as it relates to the subject area, with focus not only on Jamaica but in other sections of

the world. It gives light to what is available and the various strategies used to investigate and implement cultural heritage tourism.

Chapter three focuses on GIS and cultural heritage and reviews the current paper based mapping process and identifies how a more technological approach using GIS can enhance the processes currently used.

The methodology used is introduced next, and a detailed description of the methodological procedures used in the data collection process. A mixture of PGIS techniques using the web mapping application, along with interviews, questionnaires and site visits were included.

An analysis of the data collected follows on after the methodology, where the data collected was analysed and later the results are presented and discussed.

The conclusions and recommendations close out the project.

2. Literature Review

2.1 History of Culture Preservation in Jamaica

Former Prime Minister of Jamaica, The Rt. Hon. Edward Seaga, was the first Minister of Culture in independent Jamaica, 1962. A huge proponent of Cultural Heritage, Seaga was responsible for the formation of various agencies that focused on the preservation and promotion of Jamaica's cultural heritage, and is credited to date, as responsible for establishing the most institutions to build cultural heritage awareness and develop Jamaica's performing arts, crafts and national heritage. Guided by his deep love for folk music, he was instrumental in developing the former Jamaica Festival Office (now JCDC) which was responsible for the overall development of Jamaican cultural expressions; one of its major responsibilities was to "preserve and nurture traditional forms of cultural expression endangered by "benign neglect"; and raise the consciousness of a newly independent people as to the roots of Jamaican cultural identity" (Bryan, P.E., 2009). Various other cultural activities and offices were established under his guidance in his bid to develop Jamaica's cultural awareness and build a cultural policy to emphasize "an indigenous cultural history..."

2.2. Cultural Heritage in Manchester Parish

In (Halcrow et al, 1998) Cultural Heritage Technical Report prepared for the Government's commissioned South Coast Sustainable Development Study; the researchers found that there were a vast number of cultural heritage sites in the area. In Manchester, the study highlighted a number of sites, dating back to the Tainos (largely referred to as 'Arawaks' in the Caribbean).

Of the eighty four (84) Taino sites found in the South Coast, fourteen (14) were attributed to Manchester, which included two (2) villages and four (4) each categorized as Midden (*Taino rubbish dumps*), Burial/Ritual Caves and Petroglyph (*Taino paintings and carvings on rock walls*). The most famous petroglyph was found in Manchester at Carpenters Mountain in June 1972, now in the British Museum and the IOJ (Senior, 2003).

The researchers, in emphasizing the importance of this heritage to the area, found that there need to be urgent research done in these sites as they were under severe threat. "... *Taino heritage within the study area is under serious threat of obliteration. It is therefore necessary for all sites to be surveyed and researched archaeologically as a matter of urgency, particularly those that*

are under immediate danger of destruction. Every effort should be made to save as many sites as possible. These are a vital component of Jamaica's national heritage, as well as having potential for future heritage tourism development on the south coast."

It is believed that the Tainos inhabited Jamaica from 650AD to the 17th Century.

The study also found eighty five (85) eighteenth century sites in the south coast, one percent (1%) belonging to Manchester, more than one hundred and sixty (160) nineteenth century sites, of which eight percent (8%) were identified in Manchester and of the one hundred and eighteen (118) twentieth century sites that were identified, three percent (3%) were located in Manchester. In relation to the eighteenth century sites, the researchers warned of the urgency of salvaging these sites; "*the poor condition of the majority of the eighteenth century sites within the study area is apparent. Most of these sites require urgent archaeological investigation to recover important information on the socio-economic and cultural transformations that took place in this section of the island during this period.*"

Commenting on the nineteenth century sites, the researchers cautioned "*Whilst there are many ruined properties ...a significant number of the nineteenth century sites are in use and appear to be in fairly good condition. Attention has been paid to external appearance in many cases, although there is little emphasis on the stabilisation of the interiors of these historic structures.*"

These findings are significant, therefore, if Manchester is to develop its Cultural Heritage Tourism, these will have to be investigated and properly addressed in a similar manner to the established procedures of the NTHP.

2.3.   Conservation and Preservation of Cultural Heritage - Who is responsible?

"Helping people protect, enhance and enjoy the places that matter to them" is the tagline used by the NTHP, and is fitting in a number of ways. The NTHP, a non-profit organisation, was founded in 1949 and provides leadership, education, resources and advocacy for its 300,000 members and supporters and works with preservation groups across the United States and beyond. Since the initial 16 pilot studies in the early 1990's, the NTHP Cultural Heritage Tourism's success stories has been both rewarding and inspiring.

The successful development and implementation of the four steps and five basic principles has been utilized by many US states, ranging from large cities like New York, to rural states like

Arizona and Minnesota. These steps and principles can be applied to any country that is serious about cultural heritage tourism, and has been utilised in the Caribbean Island of St. Lucia.

In Jamaica, several agencies are responsible for the preservation and conservation of the nation's cultural heritage, and each has various laws and regulations:

- The Jamaica National Heritage Trust (JNHT) – responsible for the declaration and designation of Jamaica's built heritage, and performs under the JNHT Act 1985. Sites are declared national monuments, or designated protected national heritage if in the opinion of the Trust the preservation is of national interest by reason of historic, architectural, traditional, artistic, aesthetic, scientific or archaeological value. The Trust also designates protected areas ('Heritage Zones') where there are groups of buildings together are an important historical unit, e.g. Port Royal and Spanish Town has been designated national protected areas. (Halcrow et al, 1998) found that while the Act provides powers for the protection and preservation of heritage resources, there were limitations of the effectiveness of the Trust in practice. Limitations included the JNHT is a government department and there may be conflict of interest where they need to declare an area or site as protected from other government agencies, another was the lack of human and financial resources available.

- The National Environment and Planning Agency (NEPA) – declared as an executive agency in 2001, NEPA is a merger of four departments from the government's public sector modernization programme (PSMP) - NEPA, Natural Resources Conservation Authority (NRCA), Town Planning Department (TPD) and Land Development and Utilization Commission (LDUC). NEPA is responsible for the sustainable development and protection of the environment and is governed by several policies and acts – many of which were under the different agencies before the merger. The Policy for Jamaica's System of Protected Area – 1997 protects an area of land or water for its ecological, biodiversity, specific natural, cultural or aesthetic resources.

- The Institute of Jamaica (IOJ) – established in 1879, is responsible for "the Encouragement of Literature, Science and Art on Jamaica" and is considered the 'cultural agency of government'. The IOJ operates four special libraries – The Science Library, The African Caribbean Institute of Jamaica/Jamaica Memory Bank Library, The Junior Centre Library and The Garvey Research and Reference Library. In addition, the IOJ is

responsible for The Museums of History and Ethnography - which is responsible for the preservation and presentation of artefacts and art treasures, the Natural History and the National Gallery. The IOJ maintains material resources and is a valuable resource for cultural heritage research.

- Jamaica Cultural Development Commission (JCDC) – previously established as The Festival Office in 1963, an act of Parliament in 1968 established it as the Jamaica Festival Commission (Act 32 of 1968). In 1980, Act 8 extended the mandate of the Commission and changed its name to the JCDC. The Act outlines the functions of the JCDC, which mandates them to promote cultural programmes and activities in communities, encourage and organize yearly cultural events of national interest, stimulate and complement other agencies in carrying out community development programmes.

- As it relates to cultural heritage tourism, the Tourism Product Development Company (TPDCo), a privately registered company that falls under the jurisdiction of Ministry of Industry and Tourism, is responsible for the diversification and enhancement of the tourism product. The TPDCo has been in operation since 1996, and are currently being guided by the recommendations of the Tourism Master Plan (TMP), and lists 'Improved Product Quality, Product Enhancement and Product Diversification' as its major objectives. To date, the cultural heritage tourism prototype for the TPDCo remains the development of Accompong, a community based tourism project they became involved with in the year 2000.

2.4. The Tourism Plan

In 2002, a Master Plan for Sustainable Tourism Development, popularly referred to as the 'Tourism Master Plan' (TMP) was developed for Jamaica with funding by the Commonwealth Fund for Technical Cooperation (CFTC), Commonwealth Secretariat for the major components of the plan; with additional funding provided by the Inter-American Development Bank (IDB) to prepare a Cultural/Heritage Tourism Development Study. The objective of the TMP was to create a national plan that would position Jamaica's tourism on a sustainable path and guide development in the industry over the next decade.

A recommendation of the TMP with regard to the role of the TPDCo's Standards Department is that a grading scheme be introduced for hotels and non-hotel accommodations..." *The standards*

department should also be responsible for the introduction of the grading scheme, working with JTB to ensure that premises willing to participate are rewarded by inclusion of their grades in marketing literature." According to the TMP, the framework for development of heritage sites cannot just be based on their heritage significance or classification, and several other criteria has to be taken into account including the location, accessibility, current level of development, scale of development potential among others. The researchers stated;

> *"In arriving at priorities, perhaps the most important issue is scale. If the asset has the potential for developing a large, high profile site, by itself or in conjunction with others in close proximity, it is more likely to represent a draw for visitors, domestic and international. It is for this reason that the JNHT... has prioritised development on the basis of heritage zones.* They further stated *"...importance of a heritage asset is derived not only from its heritage significance but also from its presence in an area that contains a large number of the country's significant heritage resources".*

The Tourism section of the Islands' long-term development plan, 'Jamaica-Vision 2030 National Development Plan' (2009) noted that while there has been some advancement of some aspects of the TMP, there are still some sections such as the Community Based Tourism (CBT) (which is used interchangeably with Cultural Heritage Tourism) that has not seen the envisaged progress due to several challenges (section 2.2.3). The authors noted that that these challenges implied that there will need to be significant *"commitment of resources to build capacity and infrastructure at the community level as well as creation of marketing and management models that are sensitive to the needs of communities and visitors and that facilitate genuine inclusion of community members".*

2.5. Developing the Criteria

The South Coast Resort Board's stated aim for tourism is:

To stimulate tourism growth in the south coast region and diversify the national tourism product. The proposed tourism model builds on the resources and distinctive character of the south coast. The emphasis is on nature and heritage based tourism, community involvement and local economic linkages. Growth is to be achieved through: conservation of natural and man made (sic) *resources of tourism and recreational importance; upgrading existing accommodation and attractions in order to improve occupancy levels; selective development of new tourism*

accommodation and attractions in appropriate locations; and co-ordinated marketing of the south coast.

The NTHP's five principles can be used in accordance with the stated aim of the SC Resort Board and the SCSDS' defined requirements for sustainable tourism development. The five principles according to the NTHP and their respective criteria are as detailed in the next section.

2.6.   The Five (5) Principles

2.6.1.   Collaboration

This is seen as one of the most important aspects of a successful and sustainable heritage tourism initiative, and the forming of partnerships is one of the recommendations of the SCSDS. According to Edgell (2004, cited in (Breda, Zeila., Costa, Rui & Costa, Carlos, 2006)), partnerships and strategic alliances in tourism and hospitality were among the ten (10) most important tourism issues for 2004.

"*In order to cope with threats of global competition and develop strategic positioning, tourism destinations should encourage the emergence of tourism clusters, the establishment of networks and strong partnerships, among private sector operators, but especially between the public and the private sector*" (Breda, Zeila., Costa, Rui & Costa, Carlos, 2006).

Both local and national partnerships are an essential part of heritage tourism. Collaboration is a growing trend, (Milne, Simon & Ateljevic, Irena, 2001) noted, 'localized cooperation, trust and networking are essential' to successful tourism development outcomes, and believes that these can be created and enhanced in a number of ways, including information and communication technologies (ICTs). (Lacher, 2010) found that economic 'leakages' are often the primary reason given for tourism not producing the desired level of economic development and that 'linkage' in the sector are crucial.

Coordinated marketing, as the resort board aims to do, is one form of collaboration that can benefit the stakeholders in the study area, as advertising and marketing cost can be relatively high. The NTHP states that "... *Cooperating in a regional arrangement lets you develop regional themes, pool resources, save money and expand your marketing potential. Those resources include not only money for marketing campaigns, for example, but also facilities (accommodations for travellers, say) or expertise in tourism, preservation, the arts or another area*."

Collaboration, whether regional or national has seen new and emerging paradigms that much more can be achieved together, than can be achieved alone. (Hargrove, 2002) found that the primary driver for cultural heritage development is economics, and confirmed in studies published by the American travel industry, which found that people who engage in historic and cultural activities spend more, do more and stay longer than other types of US travellers. But Hargrove also found that with this increased popularity in cultural heritage tourism there is simultaneous increases in competition. This competition comes not only from other cultural heritage sites, but even from casinos and theme parks, who promote their attractions using their history, and uses replicas to other famous heritage sites to attract customers. In a testament to the power of collaborations and partnerships, she found that "To counter increased competition and manufactured "heritage" experiences, destinations often join together to create theme tours and trails that link sites like a string of pearls" (Hargrove, 2002). This reaffirms the NTHP's perspective that success in collaboration efforts will depend on the active participation of all stakeholders – political leaders, businesses, operators of tourist sites, arts and craft vendors, accommodation operators etc.

Criteria for Collaboration:

Partnerships formed with:

- Businesses – Loaned executives and development of materials such as newsletters and brochures, financial assistance and many other resources can be cultivated through business collaborations.
- Tourism Organizations – Pooling funds for advertising, regional promotions, inclusion in local and regional marketing collateral pieces and sharing expenses of programs such as hospitality training are just a few benefits of working with your local and state tourism organizations.
- Heritage sites and areas – Knowledge of the area's history for publications and press materials, shared consulting fees, and creating critical mass (enough sites promoted jointly to make the destination worth the drive) result from working with heritage sites and areas.
- Cultural Organizations- Local visual and performing arts organizations can help to enhance the visitor experience.

- Other nonprofits – Nonprofits such as historical groups, schools and churches have many of the same needs. Sharing resources such as materials, event equipment and volunteers will benefit everyone.

2.6.2. Find the fit (between the community and tourism)

This area deals with finding the right kind of tourism for the location that fit the needs of the community and the environment and thus measures the capabilities of the community resources against the community's views on tourism. The NTHP notes that local priorities and capabilities vary and consequently determines what needs to be done and can be done, for heritage tourism. (Milne, Simon & Ateljevic, Irena, 2001) argue that tourism should incorporate 'exogenous forces and endogenous powers of local residents and entrepreneurs' in the transaction process. 'Economic development is a model form of sustainable development' and it is a general consensus that both economic and cultural dimensions have to be taken seriously. A 2010 study by (Chen, Ching-Fu & Chen, Pei-Chun, 2010) reveals that "residents' economic benefits dependence on tourism tends to perceive a positive impact toward tourism development and positive tourism impact has a significantly positive effect on support for tourism development" (Chen, Ching-Fu & Chen, Pei-Chun, 2010). In St. Lucia, the government instituted a program to share the benefits more evenly throughout the island, developing a program that provides technical assistance, training, loans and grants to enhance sites.

In finding the right fit for residents and visitors, sites will need to ensure that the residents are comfortable with the level of tourism envisaged, and that the community can manage this in a sustainable way. The residents' attitude towards cultural heritage tourism development is imperative to the initiative, and therefore incorporating the residents into the process will garner support for the project. (Butler, 1999) stressed that there should be a focus on achieving sustainability in tourism because; the residents and visitors deserve the consideration and tourists will desert the destinations that decline in quality and attractiveness. It is therefore imperative that proper planning and residents' input be included in the tourism planning processes.

The key therefore to finding the right fit between the community and tourism, is communication.

Criteria for finding the fit:

Finding the fit is a three-fold approach:

- Feedback is solicited from local residents about the interest in developing a cultural heritage tourism
- Local residents solicited to become involved in the process – serve on committees, volunteer as tour guides, participate in hospitality training, sponsor special events and other ways that contribute to the program
- Local resident's concerns are followed up on and there should be a developed plan for responding to concerns.

2.6.3. Make sites and programs come alive

This area deals with what the area has to offer, and the overall visitor experience. Creative strategies in creating interactive and engaging experience for the visitors are important while interpreting the site information correctly. The use of maps and other graphic materials are often used to enhance how the visitor views the area. (Milne, Simon & Ateljevic, Irena, 2001), explains that leisure and tourism is leading in the trend of producing meaning and representations of experiences. "*Tourism promotional material creates and projects powerful social, cultural and psychological meanings of place, in turn increasing and reproducing its value. For their part, consumers collect, read, interpret, compare and communicate these meanings (re-)producing processes of place (re-)construction.*"

The NTHP recommends finding ways to engage the visitor's five senses, as the more visitors are involved the more they will retain.

According to the NTHP, on average, visitors will remember:

    10% of what they HEAR

    30% of what they READ

    50% of what they SEE

    90% of what they DO

The NTHP further advises, *"…with more sophisticated and well travelled visitors, and the increase in competition, this initiative becomes even more challenging to the site owners and operators. In addition to appealing to the five senses, visitors are found to be interested in what happens behind the scenes, how things relate to them personally and the larger historical context as well as things that make them think."*

Collaborating with other sites can become important in this initiative as teaming up to create events that are appealing to visitors can be a good way of getting visitors to an area. In Iowa for instance, a Folklife Festival was created highlighting traditional artists from throughout the state and included art, traditional cooking styles and folk music.

Historical re-enactments are also popular, and Manchester can draw on some of their heritage to recreate some of their historical events. In doing this however, it is imperative that there be sensitivity to activities that may be upsetting to others. Re-enacting the Kendal train crash for instance may not go down well with residents or visitors, and therefore caution should be taken and activities planned and discussed fully. On the other hand, restoring the train lines and taking a tour of the travel path of the train leading to the crash site may be more appealing. Taking advantage of the various festivals, independence celebrations and heroes' day activities can also help to make these sites come alive by hosting events that are appealing to the cultural heritage visitors and having them take part in these activities.

Criteria for Making sites come alive:

- Printed materials with authentic information (brochures, maps, signs etc)
- Interactive sessions with visitors (questions, hands-on activities etc)
- Events or activities in collaboration with other sites
- Activities relate to the 'story' of the site

2.6.4. Focus on quality and authenticity

This is what will distinguish one area from another and will represent the true authentic contributions made by past generations to the particular area that will entice and appeal to visitors. In Jamaica, the Jamaica National Heritage Trust (JNHT) for example, is responsible for identifying and declaring authentic heritage sites. In the US, (Hargrove, 2002) found that the increased popularity in heritage tourism stems from the opportunity to educate and that "... heritage traveller is older, more educated and more affluent than other tourists". It is obvious then, that cultural heritage visitors are and will be more sensitive to 'manufactured' heritage, and often do research to find out authentic historical information about these areas before they decide to visit. In the US, the National Register for Historic Places maintains a comprehensive database of information that provides a 'handy resource' for researchers. The JNHT will therefore need to

ensure that authentic information is not only maintained for all cultural heritage sites but make this information easily available to potential researchers. (Halcrow et al, 1998) found that an inadequacy of human and financial resources is available to the Trust, and therefore making detailed information available digitally may not be feasible outside of the summary information available on their website. A good example of this lack of resources can be seen in their policy to declare cultural heritage sites; the Trust, in its capacity depends of the community or an individual to initiate the process by identifying the area and writing to them to ask for the area to be declared. Whereas this is ok in some instances, most locals may not be aware of this process, and may wait for years until the area is almost obliterated before they ask for official declaration. On the other hand, if the Trust had enough resources to initiate the research through assistance of the other agencies like the IOJ, then go into the various areas identify and assess these sites and speaking to locals, there could be much more sites declared, therefore giving them more authenticity. This authenticity would then manifest into greater leverage for locals to develop, protect and preserve these sites for tourism activities, and also provide some prestige to the site. Hargrove noted that the potential with of this form of authenticity is huge to attract visitors to little known sites and also from potential revenue intake (Hargrove, 2002).

Criteria for Quality and Authenticity

- Site is designated and declared by the JNHT
- Research was done on site (with or without the assistance of the JNHT) and is included or referenced in printed materials
- Appropriate authentic information is understood and relayed to visitors by tour guides

2.6.5. Preserve and protect

This speaks to the preservation and protection of heritage sites and traditions. The NTHP strongly believes that protecting the traditions and sites of an area greatly enhances the appeal to visitors seeking this type of experience. (Halcrow et al, 1998) reported in the Cultural Heritage Technical Report that the cultural heritage sites of the South Coast of Jamaica are at risk of being 'lost forever' unless a cultural resource policy is put in place to protect these areas. They list some of the opportunities of the area as strengthening of JNHT, that there be archaeological research, designation and declaration of historic sites, heritage education, heritage and recreational tourism. It is clear however, from the many 'cries' from the local tourism interests in

Manchester, that these opportunities are not being realised. The risk therefore is losing these valuable sites.

In preserving historical sites, the SCSDS lists a number of key criteria for achieving sustainable development of the cultural heritage; these views are also shared in general with the policies of the NTHP:

Criteria for Preservation and Protection

- Prevention of Further Degradation
- Research and Documentation of Sites
- Improved Management of Sites
- Channelling Additional Resources into Conservation
- Cultural Resource Management Policy
- Preservation is done in accordance with guidance from the JNHT

Preservation of cultural heritage resources should be carefully handled so that they are not altered in a way that impacts the authentic character of the site.

3. PGIS in Cultural Heritage Tourism

Geospatial data is used in critical decision making across industries, and it is increasingly important to understand an area of interest and utilize the data to make even more accurate spatial decisions. GIS allows us to question, interpret and understand data and allows us to visualize that data in ways that are meaningful (maps, charts, tables). In addition, a GIS allows us to show relationships and trends and to model features to suit our needs. Layers in a GIS gives people the power to ask pertinent questions that drives development and develop scenarios, breakdown complex problems and devise strategies to make the process better (esri.com).

PGIS is the integration of GIS capabilities with local peoples' knowledge (LPK), also referred to as indigenous knowledge (IK).

Osha and Weiner surmised that PGIS originates from various areas, but with a common theme - the combination of expert and local knowledge - for a common outcome.

> *"PGIS is the merging of participatory development with various geospatial technologies and has its origins within academia, development agencies and activist communities. PGIS thus contains a broad spectrum of practices, but each has in common the combination of local knowledge and formal "expert" information to produce an integrated geospatial database that addresses community concerns. Of course, communities are socially differentiated, and do not necessarily have homogenous aspirations. As a result, PGIS displays many spatial perspectives and produces outcomes ranging from community produced sketch maps to Web-based multimedia spatial decision making systems."* (Osha, 2006)

McCall and Verplanke - ITC News 2007, noted that PGIS is a development out of Rapid Rural Appraisal (RRA) and Participatory Learning and Action (PLA), therefore they opined, participation and inclusion is the first and last component in the methodology. They noted further that PGIS applies to a variety of information acquisition, analysis and synthesis tools including sketch maps, interviews, group discussions etc, and has introduced digital tools such as mobile GIS, GPS, interpretation of aerial imagery or aerial photography, P3DM etc. (McCall, 2007)

Rambaldi *et al.* also includes PLA in their description of PGIS, they view PGIS as a merger of PLA and Geographic Information Techniques (GIT). PGIS practice they noted, is geared towards

community empowerment with the use of geospatial technologies to drive decision making and support collaboration (Rambaldi *et al.*, 2005 via (Corbett, 2006).

But while PGIS speaks to the integration of local knowledge with technology, GIS technology in particular, most researchers seem to conduct PGIS processes in a disconnected manner; there seems to be no simultaneous infusion of the GIS technology with the gathering of the local knowledge.

The author of "*Empower the Non-GIS User with Advance Geospatial Functionality*" speaks to this problem that has plagued the GIS community for a very long time, what she calls – the disconnect between GIS professionals and non-GIS users. While not downplaying the importance of the GIS professional, or undermining the significant role they play in "incorporating geospatial data for decision making", the author speaks to the significance of potential 'browser-based GIS' users that are yet to be engaged and "empowered with location based workflows for updating geospatial information, including intuitive tools for advanced functionality such as vector editing…" (Zeller, 2012).

ArcGIS Flex viewer, which is used in this project, is one such tool that uses a browser based interface to engage users, can bridge the gap between the GIS expert and non-GIS users, in essence, empowering and engaging these users into the process.

3.1. Examples of PGIS in Cultural Heritage

A PGIS approach was taken by the Huaorani people in the Ecuadorian Amazon, who leveraged PGIS techniques as a tool to aid with the protection of their natural resources from oil companies, foreign interests and even their own government. The community volunteers using GPS units to collect data, and in collaboration with other stakeholders created a map of their territory highlighting their community and the area they wished to close off from oil exploration, along with areas designated for tourism, hunting, conservation etc. As the authors of the paper opined, the community chose to use PGIS as a tool to fight for their culture and threats to their land, demonstrating that the diffusion of GIS can empower communities (Osha, 2006).

Rambaldi *et al.* writes on PGIS in ecotourism management in Fiji, where PGIS techniques in the form of Participatory 3D Modelling (P3DM) in Ovalau and Aerial Orthophoto mapping in Beqa - were used in collaboration with members from the communities for - as the objective states, "developing collaborative natural resources management and development plans based on

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customary values and practices and the use of modern geo-spatial technologies". While the two techniques differed, the objectives were the same. In the case of Beqa, the process was largely a paper map process and members were placed in groups and given maps for annotating information. The data was then to be placed in a GIS for further presentation to the community for the development of the management plan. It was however found that the process of extracting and updating the GIS from the paper map was difficult...

> *"It involved three people: the first person looked at the orthophoto map. The second person identified corresponding features from the legend. The third person was responsible for on-screen digitizing, matching individual features sketched on the maps with marks identified on the digital geo-referenced orthophoto map. They had to try to accurately reproduce both the size and location of these features. Features that were found to be overlapping on different annotated orthophoto- and/or qoliqoli maps were selectively digitized. Discrepancies were noted down, ready to be raised at the follow-up workshop. This was where the verification of all captured data would have been done."*

In the case of Ovalau, a 3D model was used and data collected with the guidance of a group of facilitators with backgrounds in cartography, GIS, natural resources management and community work. Here, the participants were split into three groups based on geographic origin, professional background and experience, and assigned different tasks - to identify (i) land habitats, (ii) marine habitats and (iii) potential economic, cultural, social and environmental development opportunities. This proved to be a better approach and the author noted that the process resulted in a policy document now guiding the sustainable management of natural resources and cultural heritage in the region, fully supported by locals and policy makers. (Giacomo Rambaldi, 2006). The data collection process was participatory, however, when it came to the involvement of local people knowledge(LPK), that data was collected using paper notes made by younger residents from information provided by older residents in 'mental transect walks' using the developed 3D model (*3D replica built previously*).

3.2.   Manchester Review - The Current PGIS Process

In February 2012, the MPDC initiated a workshop in collaboration with the members of Parish Development Area (PDAs) and the SDC (Manchester). The purpose of the workshop was, as stated in the report, "*to create a Master List of all the attractions (man-made and natural) and anecdotes within the respective Development Areas (DA) with the potential to be developed into visitor attractions to help spur economic growth in the development areas.*" (Tourism Workshop Final Report)

The workshop had a large turnout from the various DAs; according to the report, a total of eighty three (83) participants took part in the workshop. The format of the workshop, as reported, was as follows (*verbatim*);

"The facilitator had the community members close their eyes and imagined a few buses filled with visitors coming into their communities with a lot of money to spend, but there is absolutely nothing for the tourists to do within the community; she then asked them to open their eyes, and now think about what is there to do within the area, what stories and attractions they can offer; highlight what makes them unique.

Ten (10) tables of participants, each given ten (10) minutes – all trying to write down historical features worth seeing. Mrs. Edwards then suggested that the participants think outside the box and look at opportunities that went outside the scope of "traditional" tourism – sun, sea and sand. Participants were encouraged to think about things that visitors could experience in the development areas as we are trying to promote "experiential tourism."

After the exercise, the participants were then instructed to go to the table that was tagged with their DA names – this would give them the opportunity to collectively compile a list of all the offerings within their DA. Very lively discussions were generated throughout each group.

All the participants also undertook a mapping exercise pinpointing/highlighting the location of all the attractions within the DA."

The outcome of this session saw the participants using paper maps dotted with coloured push pins identifying their chosen sites and collating an extensive list of sites that they thought would add to the tourist experience in their respective DAs. Corbett *et al.* noted that this form of PGIS is often referred to as *Sketch mapping*; which is described as a map drawn from observation or memory that does not rely on exact measurements, such as having a consistent scale, or geo-

referencing and usually involves drawing symbols on large pieces of paper to represent features in the landscape (Corbett, 2006).

Limitations of the Manchester workshop exercise

The following are some limitations of the above workshop process:

- The data collection process was completely manual (*see Figures 7 and 8*) - this limits the amount and accuracy of the information collected and introduces the possibilities of errors that are not easily noticed or have the ability to be corrected quickly. This also limits the number of persons who are able to enter the information for each DA simultaneously without the possibility of duplicating the information. The analytical capabilities that would be available with a GIS that could help identify errors are greatly diminished and the amount of attribute information collected was time consuming and limited, thus a robust database was not created in the process.

- There was no clear instructions given on how 'attractions' should be identified - what colour should be used to indicate what type of data. This can become confusing for the person who ultimately collates the information as different DAs may have used different colour to identify the same type of information. This type of inconsistency in the data could lead to errors or misinterpretations of the various symbology being used (*Figure 8*).

- The pushpins (*Figure 8*) used in the map to identify features can dislodge, thus important information identifying specific features may be lost; the maps may also prove difficult to store.

- The maps were not drawn to scale, spatially accurate or had discernible environmental features like roads, buildings etc., present on the hand drawn maps (*see Figures 7 and 8*). This sort of 'freeform' map drawing presents limitations as the DA members collect the information without any determined frame of reference, boundaries, orientation or control points such as roads and buildings. The inclusion of these features was totally left up to the members of each DA.

- Interactivity of geographical features were not possible using this method, as would be possible with a GIS and therefore in identifying the potential sites, the members of the DAs were not able to identify any potential conflicts with other environmental features that may be present.

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The next section will introduce the GIS approach that could be used to enhance the data collection process and provide valuable analytical capabilities that was not possible during the workshop session described above.

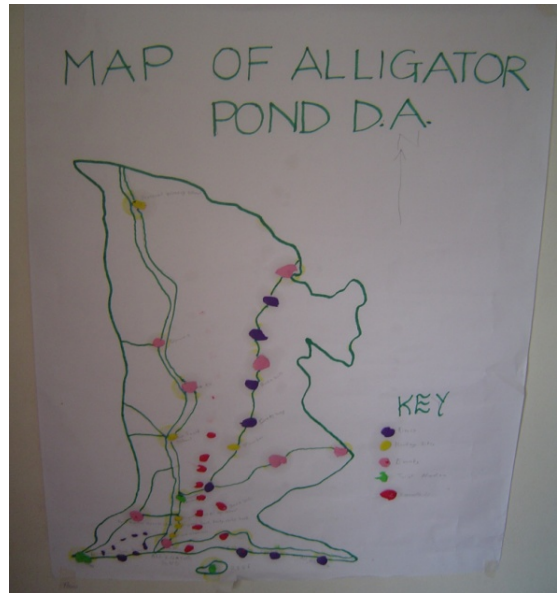**Figure 7: Members of the DA during the mapping process**

Figure 8: Map of Alligator Pond DA created during the workshop by DA members

Source: Report on Manchester PDC, Workshop on Alternative Tourism - Heritage and nature, Held at Golf View Hotel, February 15, 2012 (http://manchesterpdc.org/projects-2/alternative-tourism/)

3.3. Methodological Framework

In order to satisfy the objectives and answer the research questions, a participatory GIS (PGIS) approach was used in the data collection process in the form of a workshop. With the aid of a web map application developed by the researcher using the ArcGIS Flex Viewer Application and the assistance of various members of Manchester's Development Areas (DAs), the workshop was a collaborative effort with the various members of the DAs to identify, map, classify and collect valuable attribute information on the various heritage sites in the parish.

In preparation for the PGIS process, secondary data was gathered with the aid of various agencies and included shapefiles of the parish boundaries, community boundaries, protected areas, contours, etc. A geodatabase was created and all shapefiles were imported as feature classes in order to create the map (mxd) for publishing to the Flex viewer. A new dataset was created to collect the information on the cultural heritage sites, using domain values where possible - the decision was made to collect the same attribute information for both points or polygon features based on the NTHP's five basic principles (see Section 1.1 and Table 2) It was decided to collect polygon based features for larger areas, especially those that were classified as natural or nature based. Once published the application was tested and verified, corrections to coordinate systems were made to get all data into the same datum - the Jamaica local datum JAD2001, and republished. After testing, the application was ready for the workshop session.

With the aid of previously defined domains, the attribute information was inputted into the geodatabase via the web map application (*Figure 9*) with the use of dropdown menus, with the only necessary information to be manually entered left to a minimum in order to mitigate errors and to aid input speed.

Below are some screen shots of the web mapping application...
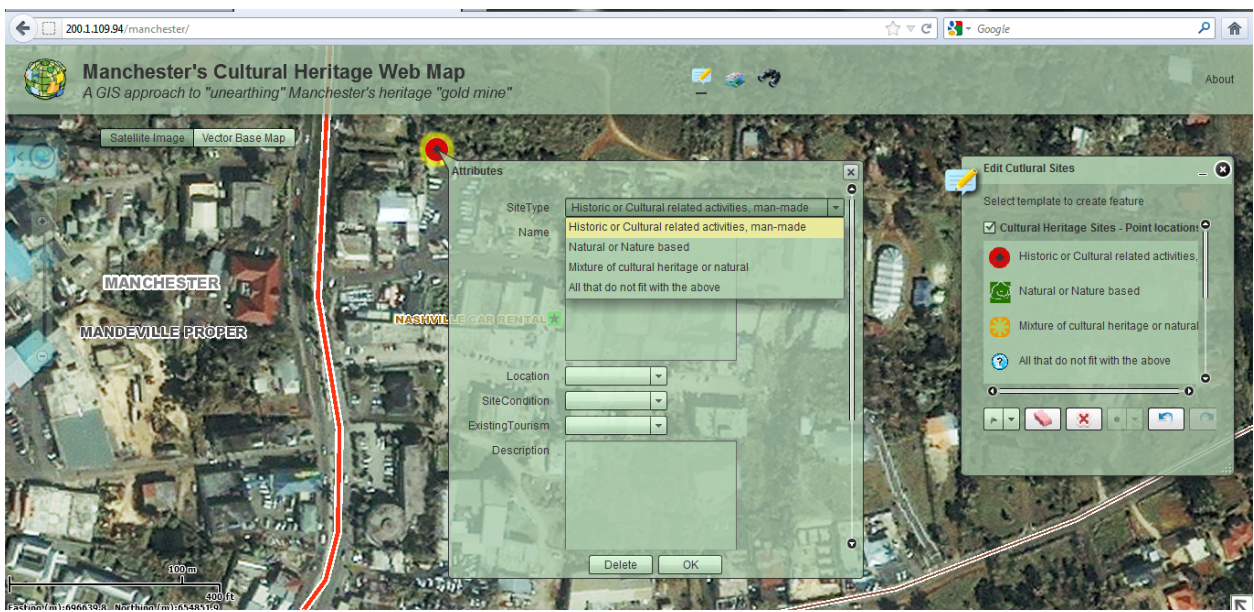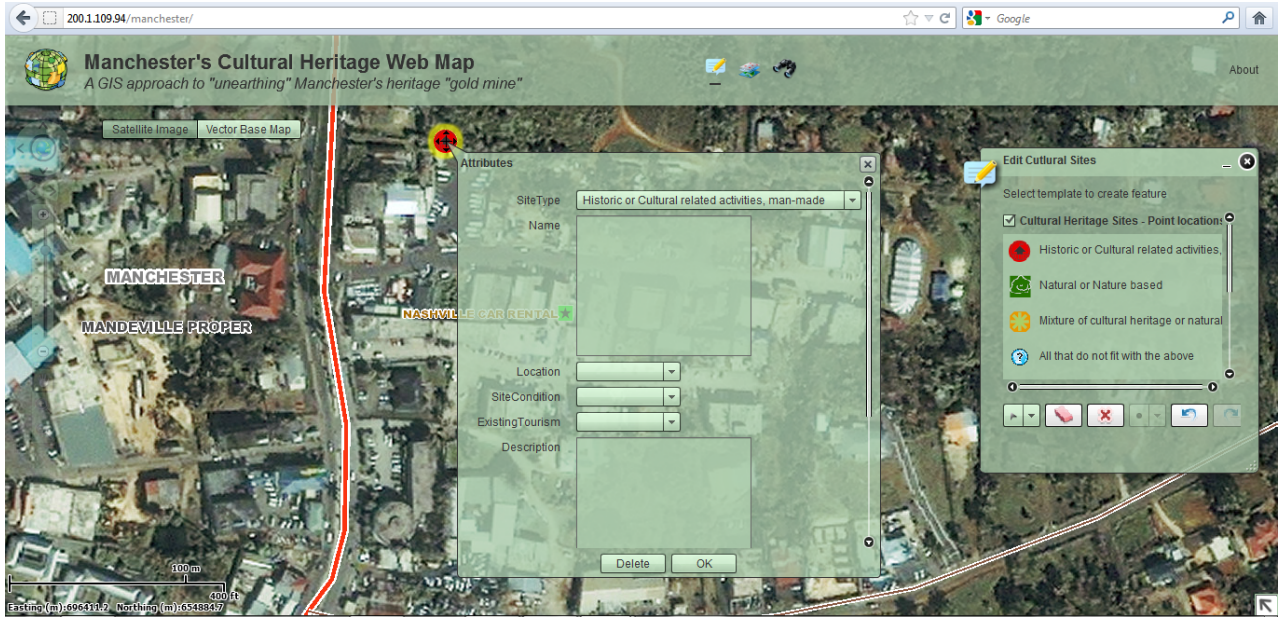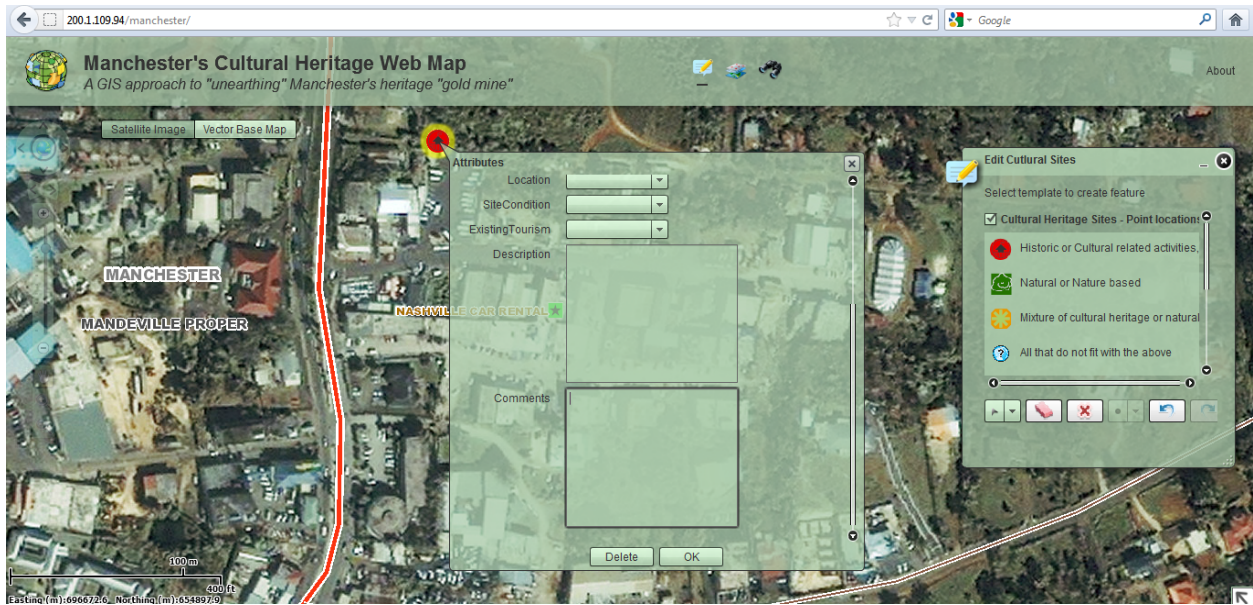
Figure 9: Screen shots of Manchester Cultural Heritage Web Map Used for PGIS Workshop

3.4. Data Collection

The Guideline to collecting the data was a combination of the recommendations as suggested by Waburton and Martin, and adapted by Quan *et al.*'s "*Tools for quantitative data collection*". (Warburton, 1999) (Quan, 2001), *box 3 pp 13 - see* Appendix A

The PGIS procedures adapted for this paper included a combination of;

    i.   *Secondary data*

    ii.   *Participatory Mapping and Classification*

    iii.   *Interviews*

    iv.   *Field Visits and transect walks*

3.4.1. Secondary Data

Secondary data (*Table 1*) were gathered from a number of agencies. Data collected from secondary sources included:

Data	Data Type	Source	Feature Type	Description	Summary of Datum and Map Projection
Jamaica					JAD_2001_Jamaica_Grid
Parish Boundaries of Jamaica	shapefiles	STATIN	Polygons	Showing all 14 parishes in Jamaica	
Protected areas of Jamaica	shapefiles	PIOJ via NRCA	Polygons	Showing NRCA protected areas in Jamaica	Projection: Lambert_Conformal_Conic
Special Areas	shapefiles	STATIN	Polygons	Showing towns or areas deemed as special interest	False_Easting: 750000.0 False_Northing: 650000.0
Manchester					Central_Meridian: -77.0 Standard_Parallel_1: 18.0
Contours	shapefiles	NLA	Lines	1:50, 000 contour lines	Scale_Factor: 1.0
Streets	shapefiles	NLA	Lines	Street centrelines	Latitude_Of_Origin: 18.0
Communities	shapefiles	STATIN	Polygons	All 74 Communities	Linear Unit: Meter (1.0)
Settlements	shapefiles	NLA	Points	Major settlement areas	
Communication Masts	shapefiles	NLA	Points	Television/Radio masts	Geographic Coordinate System: GCS_JAD_2001
Airstrip	shapefiles	NLA	Points	Landing strips for small aircrafts	Angular Unit: Degree (0.0174532925199433)
Drains	shapefiles	NLA	Lines	River drainage areas (underground)	Prime Meridian: Greenwich (0.0) Datum: D_Jamaica_2001
Railway	shapefiles	NLA	Lines	Rail line (now defunct except when used by bauxite company)	Spheroid: WGS_1984 Semimajor Axis: 6378137.0 Semiminor Axis:
Development Areas	feature class	SDC	Polygon	derived from communities	6356752.314245179 Inverse Flattening: 298.257223563
Reference Data					
Satellite Imagery	raster	CaribAnalytix	Imagery	Access to 2001 IKONO satellite imagery server data used as reference information. 1m resolution	

Table 1: Data List

3.4.2. Participatory Mapping and Classification

Using PGIS technique and leveraging GIS technology in an ArcGIS Server powered web mapping, a data collection session in a workshop format was formed, hosted by the researcher, consisting of members of the DAs. Invitations were extended to the DA chairpersons thanks to a list provided on the researcher's request by the MPDC. The list contained the name and telephone numbers of each person and the DA they chaired; each member on the list was invited to the workshop via telephone (see Appendix B). The MPDC conference room was rented to host the workshop along with a projector, and a videographer was hired to record the session.

To begin the session a brief PowerPoint presentation was made by the researcher to the attendees to explain the objectives of the thesis, and also the objectives of the workshop. Each participant was then asked to introduce themselves and give an overview of the cultural heritage sites in their respective DAs. After the introductions, the web mapping workshop session *(Figure 11)* began. Using the Flex Viewer web map editing feature, a simple user interface for entering data using pre-defined attribute domains (*Table 2,*), data gathered from the members of the group were inputted into the database and classified in as follows:

Historic/Cultural – All historic or cultural related activities, man-made/built heritage sites

Natural – All natural or nature based activities

Mixed – Combination of Historic, Cultural and Natural

Other/Not Sure – Sites that are not able to be classified as above because of insufficient information

Attribute Domains are described by ESRI as "rules that describe the legal values of a field type, providing a method for enforcing data integrity"; domains are used as a way of constraining allowed values for attributes. The attribute information was gathered using attribute domains for the sites as follows;

Field Name	Attribute/Attribute Domain
Site Name	User Input
Site Type	- Historic/Cultural - Natural - Mixed - Other/Not Sure
Site location	Community Name *(domains generated using community feature class)*
Existing tourism	- Yes - No - Not sure
Site condition	- Good - Fairly good - Damaged - Destroyed
Description	User Input (optional)
Comments	User Input (optional)

Table 2: Table showing the attribute information to be collected for each site

This information was gathered for both point and polygon based features; Point features include buildings and small sites, and polygon features include larger areas, such as parks and other natural spaces.

Figure 10 shows the web mapping process and workflow diagram.
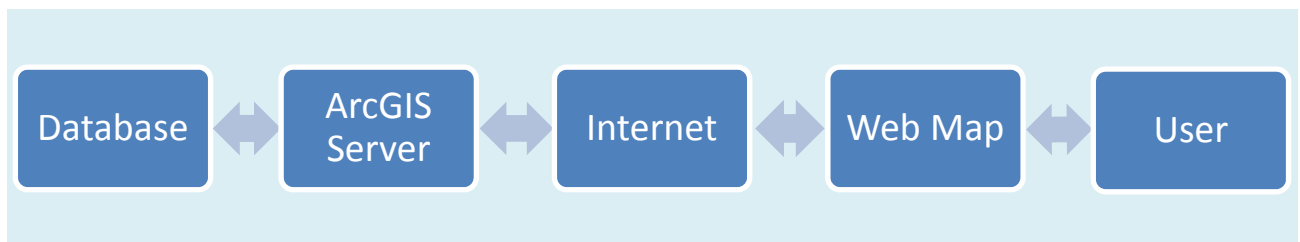
Figure 10: Internet Mapping Process and Workflow

During the session, approximately 52 sites were mapped (see list in Appendix D). Technical difficulties delayed the session significantly due to the internet service being down; while the MPDC called in the technicians to get the service up, the mxd created in ArcMap was used to enter some of the information. The information for the Mile Gully DA was entered using ArcMap simultaneously with the Aligator Pond DA being entered in the web map using a personal USB wireless internet connection. Close to the conclusion of entering data for the Mile Gully DA, the technicians got the internet working and the Williamsfield DA information was entered in the web map by the DA chairperson, Mr. Wilson (no relation). The information for the Christiana DA was entered from the information provided by Mr. Green (from the video as he had to leave early due to other commitments) and Ms. Wilson of that DA. Due to time constraints, some of the information for the Christiana DA was entered after the session ended. The Mandeville DA information was entered using information from library research and the Manchester Parish Profiles pamphlet received from the Manager of the SDC, Mrs. Booth, which was produced by the Jamaica Information Service (JIS), August 1991. In total, information was gathered on six (6) of the nine (9) DAs.
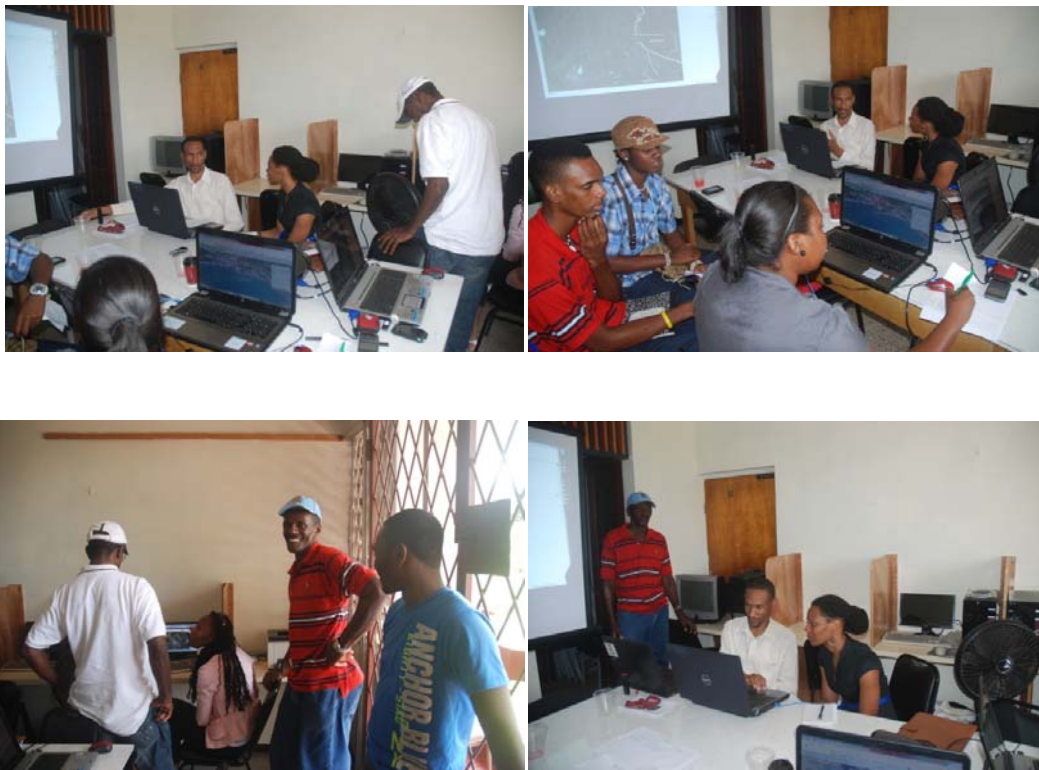
Figure 11: Scenes from PGIS Workshop Session

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3.4.3. Interviews

Data inputs describing the DA's were obtained from Mr. Oren Osbourne of the SDC, who, in an informal interview setting, was kind enough to orally provide all the communities in each DA. This information was written down and using GIS, each community was selected according to their DA, merged and used to create the feature class - ManchesterDA.

From the information gathered in the Focus Group session, it was intended that those sites identified with 'yes' for tourism activities would be visited and questionnaires administered to gather information relevant to the classification according to the criteria for heritage tourism. Information on collaborations, resident's attitude, preservation, site activities, quality and authenticity were to be asked in order to get information on the respective sites. Since no site had any 'official tourism activities', this plan was aborted; instead, some of these questions were posed to Mrs. Edwards, the MPDC representative in an interview conducted after the Focus Group session in order to get information for the parish on a whole as opposed to individual sites.

Interviewee: Mrs. Edwards, MPDC; Interviewer: Angeleta Wilson, Researcher

Mrs. Edwards is the person in charge of the MPDC's day to day operations; she was also the DA workshop facilitator. She told me that her department has been working closely with the SDC, the MPC, TPDCo, and JNHT on developing Heritage Tourism in Manchester.

I asked her where does she see Manchester right now and going forward in terms of heritage tourism. She told me that they are currently looking into implementing CBT on a whole in the parish; that will also include some aspects of our heritage. She further stated that, it is really a big thrust and that they have been looking into two DAs thus far – Mile Gully and Alligator Pond. She noted that there is a consultant who is currently working on a marketing plan and as soon as that is completed they will be looking to implement two tours which will include a Church Tour with the hope that there will be some kind of economic development for the parish from this.

Collaboration in any initiative is important, so in a view to find out if the parish has been working with the more established tourist areas on the island, I asked her have they thought about any form of collaboration with the north coast areas. In response, she noted that they actually have, as they are actually planning an introductory tour and some of the persons who will be taking that tour will be tour operators from the north coast. She said that they had initially

done a study to get a feel of how visitors on that side [north coast] felt about the south coast, and they are collaborating with persons from the north coast in that regard.

My next question to her was based on her mentioning the CBT initiative; I wanted to find out about the residents' attitude to the prospect of tourism in their area. I asked her whether they have been in any of these communities, talking to residents to get a feel of how they felt about tourism in their area with the prospect of people coming in to their communities, using their facilities etc. She explained that they have been speaking with persons from the communities and have had two workshops so far looking at tourism. She explained that they have brought persons from across the parish into the town, Mandeville, where they have identified possible sites that can be developed in their communities and they are fully on board with the initiative.

Having the residents of an area identifying the areas that can be developed for tourism helps to boost residents' attitude to tourism, as Chen *et al.* (2010) found. But identifying the sites is only one step to getting the process started. I wanted to find out what have they done with the information so far. Mrs. Edwards explained; "...In the first workshop we had a 'brainstorm session' where we kind of developed what we call "the wish list"; so we listed any and every thing that was possible and then we had a second workshop where we converted that wish list into a reality list. That reality list brought it down to about six to eight (6-8) sites in each DA. She said they have had follow-ups to that because they had TPDCo attend the workshop and looked at the sites and the possibilities and advised the group on how to go forward. She said they are currently looking at doing product development however, funding for this is not yet realised in order to get them to the next stage.

I then queried what type of sites were identified (nature-based, culture based, historic or a mixture) and whether the information was in a GIS. She noted that it was a mixture of all these categories, and that they have partnered with a local "GIS expert" who will be mapping some of the sites for them. She said some have already been mapped, but the others will also be mapped.

It has been noted in Hargove (2002) that the declaration of heritage sites by the NTHP has elevated the status and authenticity of the heritage sites in the USA. Since the JNHT is the NTHP's equivalent in Jamaica, I then asked her whether the JNHT and the IOJ in their respective capacities are involved and what research, if any, has been done to verify the authenticity.

After a long pause, Mrs. Edwards replied that they have not approached the JNHT. Of authenticity or research on these sites, she noted that they have done interviews with senior citizens in the communities and have also gotten information from the JNHT's archives.

Of the IOJ, she noted that they have already done an assessment for the Mile Gully area, so "we are trying to be as 'authentic' as possible".

But what of preservation and protection of these sites and are there any developed criteria? I put this question to Mrs. Edwards. She explained that it will have to become a work-in-progress because..."not a lot of our history has been documented". She said, developing criteria for protection and preservation is lagging behind and that they will be depending on the community members to ensure that the sites are protected and left as natural as possible. (*See full interview in* Appendix C)

3.4.4. Field Visit and Transect Walk

Subsequent to the participatory mapping process, a day and a half of field work was carried out. The decision was made to visit some of the more prominently mentioned sites from the workshop, and focus especially on those that the participants identified as having some sort of tourism activities. The purpose of the field work was to gather information on the condition of the sites, and to identify what, if any, kind of tourism activities were taking place.

In total, twenty four (24) sites were visited during the field work, photos were taken, information gathered on the condition and GPS coordinates taken for verification.

Transect Walk

A transect walk took place in a section of the Mile Gully DA (Maidstone Community) where sites were pointed out *in situ* by the DA Chairperson, Mr. McNally. Maidstone is believed to be one of the first free villages in Jamaica *(Figures 12-14)*.

Figure 13: Nazareth Moravian Church

Figure 12: Old Slave Hospital
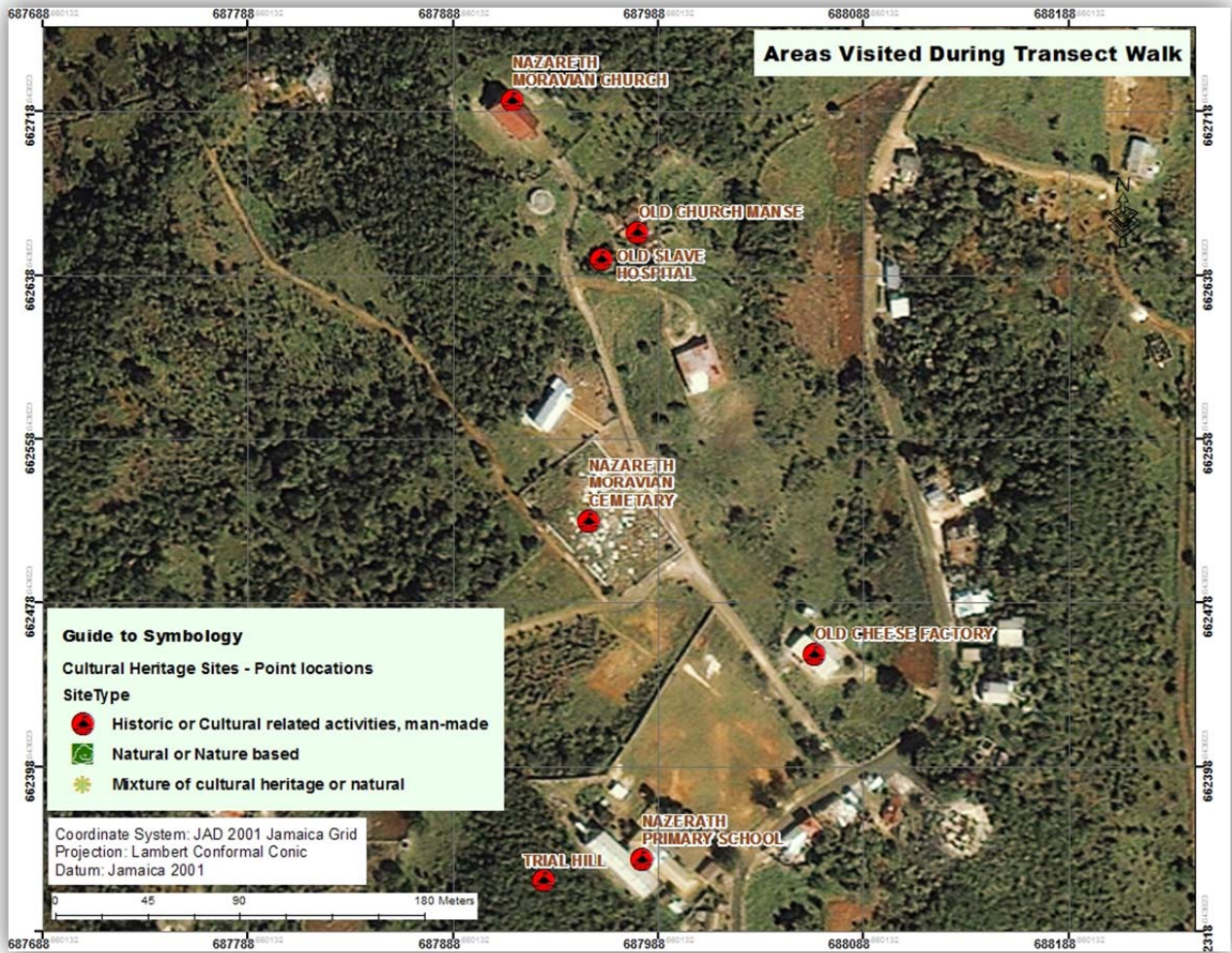
Figure 14: Areas visited during Transect Walk - Maidstone, Manchester

4.   Data Analysis

In investigating whether the sites were enough of an experience to stand on their own, it was noted that most of the sites are classified as historic sites that do not offer much of an adventure by themselves. A proximity analysis of the railway line shows that majority of the sites mapped were within five (5) miles of the train line. A geometric intersection of the rail buffer from the proximity analysis and the cultural heritage sites was done, and the results used to symbolize the sites by distance from the railway line and overlaid on the proximity buffer (Figure 19).

To get a better spatial understanding of the data, a surface (raster) layer was developed from the contour lines using the Topo to Raster tool. This tool is designed to work specifically with contour data, and uses an iterative finite deference interpolation method. The surface layer was then used to do a 3D analysis of the sites within the five mile buffer using the ArcGIS ArcScene application. The application was used to calculate a vertical exaggeration of 5.1577m from the extents and applied along with a hillshading effect for enhancement of the 3D visualization (Figure 20).

Although the rail service, which has significant historic attachments in and of itself, is no longer in operation, the possibility of restoring a service for the heritage tourism initiative could be explored. Since the sites on their own cannot provide enough adventure, this could be used as a way of clustering the sites to provide a wholesome heritage experience. In order to explore the option of clustering sites, a grouping analysis was done on the cultural heritage sites to identify the possible spatial grouping of the sites. The grouping analysis tool classifies and tries to find natural clusters in the data (Figure 21). The total number of sites included in the analysis was thirty-seven (37), and the number of groups indicated for the analysis output was five (5); the results from the analysis showed the potential groups and number of sites as follows:

- Group 1 – 10 sites
- Group 2 – 6 sites
- Group 3 – 1 site
- Group 4 – 11 sites
- Group 5 – 9 sites

Since the output showed that only one (1) site was returned for group three (3), the result was modified and group three (3) was added to group one (1) since group one was the closest in

proximity and road accessibility; groups four (4) and five (5) were recalculated as three (3) and four (4) respectively, using the ArcGIS field calculator, therefore having only four (4) groups altogether. After modifying the results, the groups were:

- Group 1 – 11 sites *(with former group 3 added)*
- Group 2 – 6 sites
- Group 3 – 11 sites *(formerly group 4)*
- Group 4 – 9 sites *(formerly group 5)*

The output from the group analysis was used in an intersection analysis with the communities layer to identify the communities in each DA that would form the potential clusters (Figure 21). It was found that fourteen communities were included in these clusters as follows:

- Group 1 – 1 Community from the Mandeville DA
- Group 2 – 4 Communities from the Christiana DA
- Group 3 – 5 Communities from the Mile Gully DA
- Group 4 – 4 Communities from the Williamsfield DA and 1 from the Porus DA

Table 3 shows the community names and their respective DAs.

A site accessibility analysis was done to determine how accessible were each site from the roads. Using a near analysis to determine the distance of each site from a road within a one mile radius, it was shown that every site in the parish were within close proximity to a road (Figure 22). The result of the analysis shows that:

- All sites are within less than 1 mile of a road
- All but 2 sites are within 0.5 mile of a road
- All but 4 sites are within 0.25 mile of a road

5.   Findings and Discussion

From the data collected, 43 or 83% of the sites were classified as historic/cultural, 6 sites or 11.5% classified as natural or nature based, 3 or 5.5% classified as mixed (Figure 15).
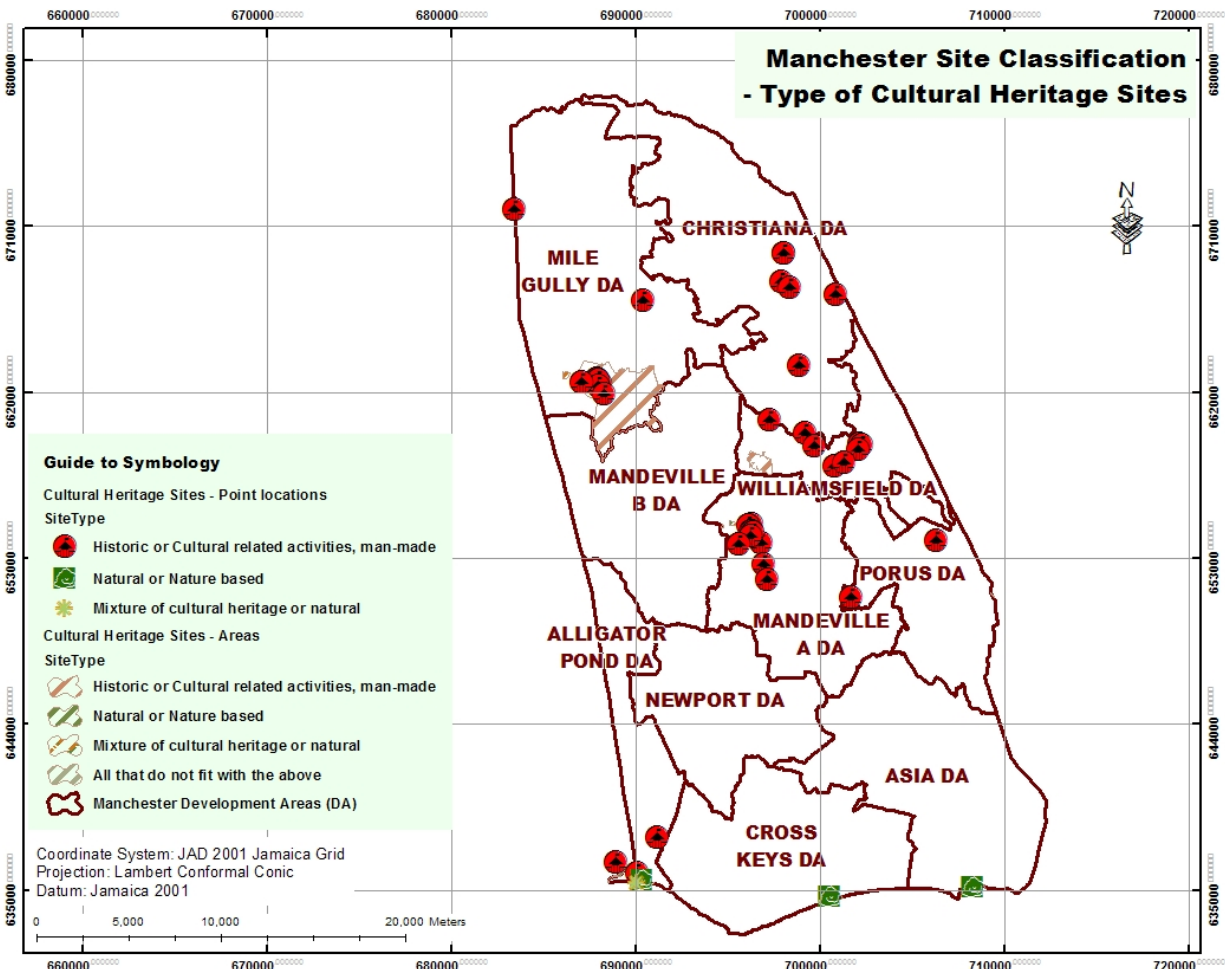
Sixteen (16) sites were noted as having some form of tourism activity, accounting for approximately 31% of the total sites mapped (Figure 16).
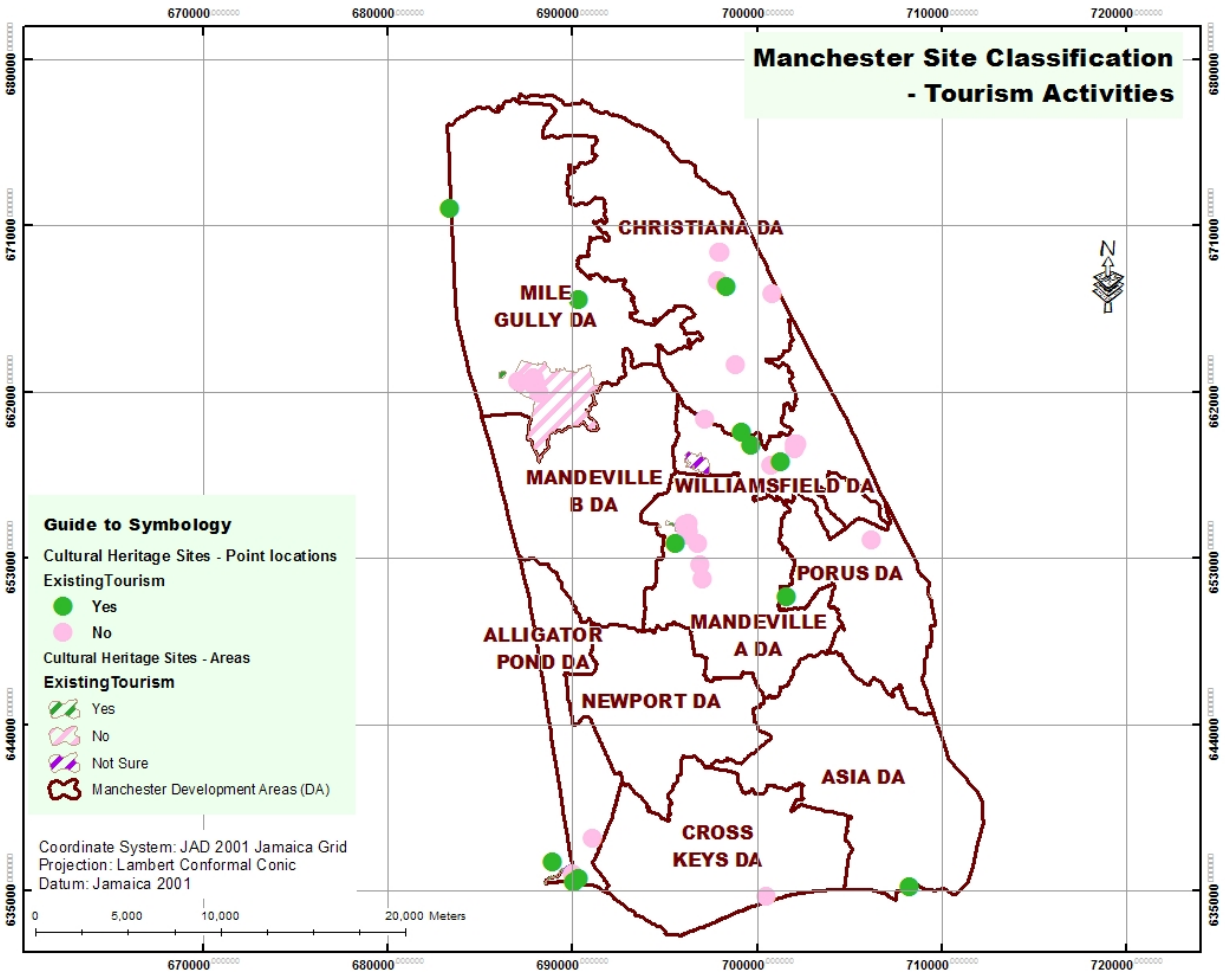
Figure 16: Site showing tourism activities

It should be noted that, the sites noted as having tourism activities by the participants, does not have actual tourism activities including guided tours with trained tour guides that have the ability to give visitors the expected level of service normally expected at 'tourist sites'. Therefore it was not possible to do a true assessment of whether these sites fit into the NTHP's principles of 'making sites and programs come alive 'or 'focus on quality and authenticity'. The 'tourism activities' alluded to in this instance refers to the fact that from time to time visitors to the parish will go to these sites because a local may know the area or they have heard of it from someone. It is also understood from residents and documentation obtained online from the CountryStyle Foundation that they offer guided tours to specific sites, however efforts to contact the organisation went unanswered. Visits to some of the sites mentioned however, showed that the sites cannot be regarded as 'official tourist sites' based on the criteria as set out in this study.

Preservation and protection of sites – 33 sites were identified as being in good condition accounting for 63.5% of all sites collected. Those listed as being in fair condition were 11 or 21%, damaged sites were 5 or 9.6% and destroyed 3 or 5.8% (Figure 17).
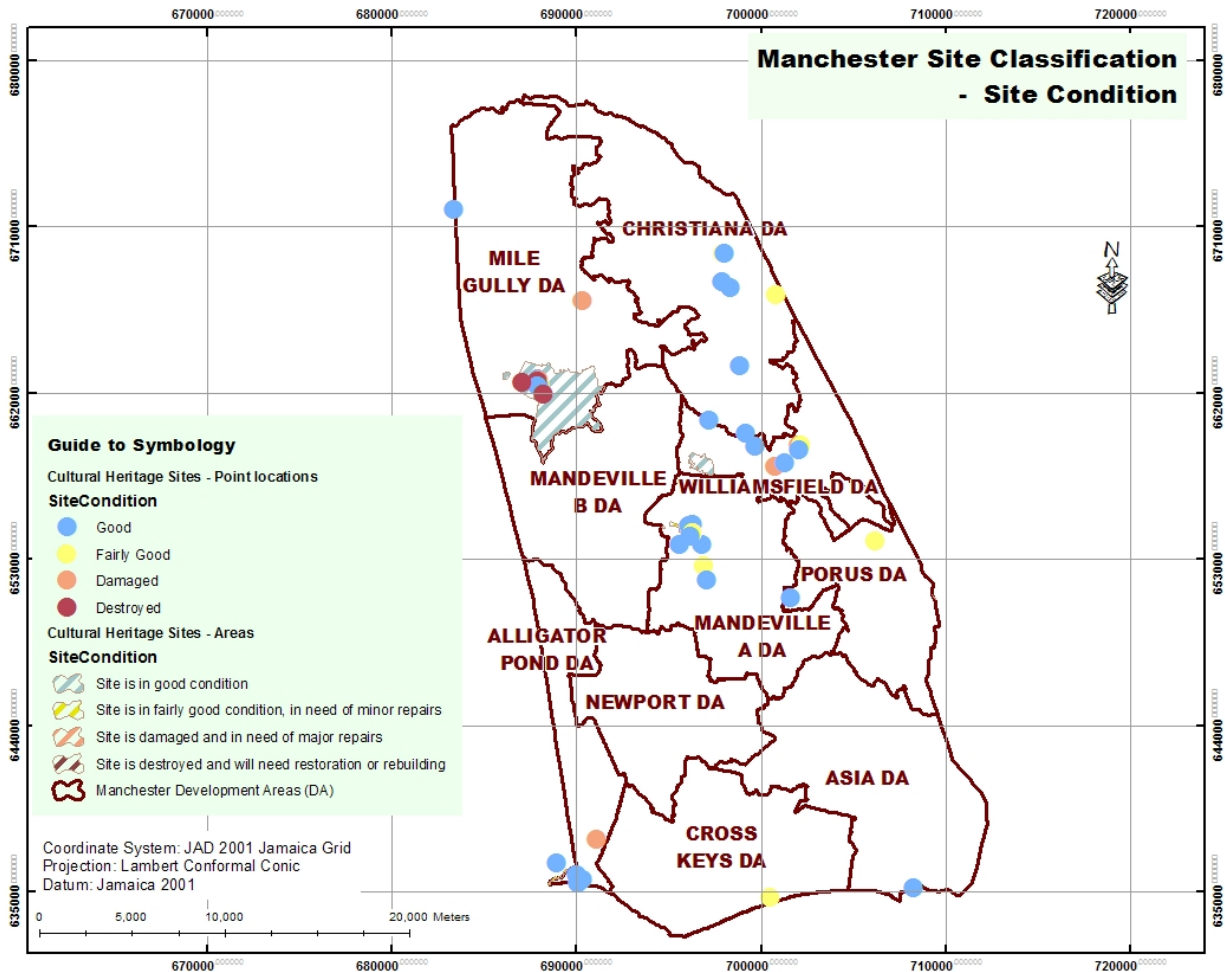
Figure 17: Site condition

External tourist access to the parish is often considered a deterrent as it requires long driving times from the two (2) main international airports and the three (3) main cruise ports on the island; the closest port to the parish (St. Elizabeth) has been inactive for many decades. The SCRB however, has been entertaining the possibility of reopening the St. Elizabeth port in the future. The topography of the parish is also a deterrent as tour operators have to traverse hilly terrain and complaints regarding the wear on their vehicles have also been considered a major obstacle in getting tourists to the area. An accessibility analysis was not possible because of lack of data, however, Figure 18 is a visual location of each access point.
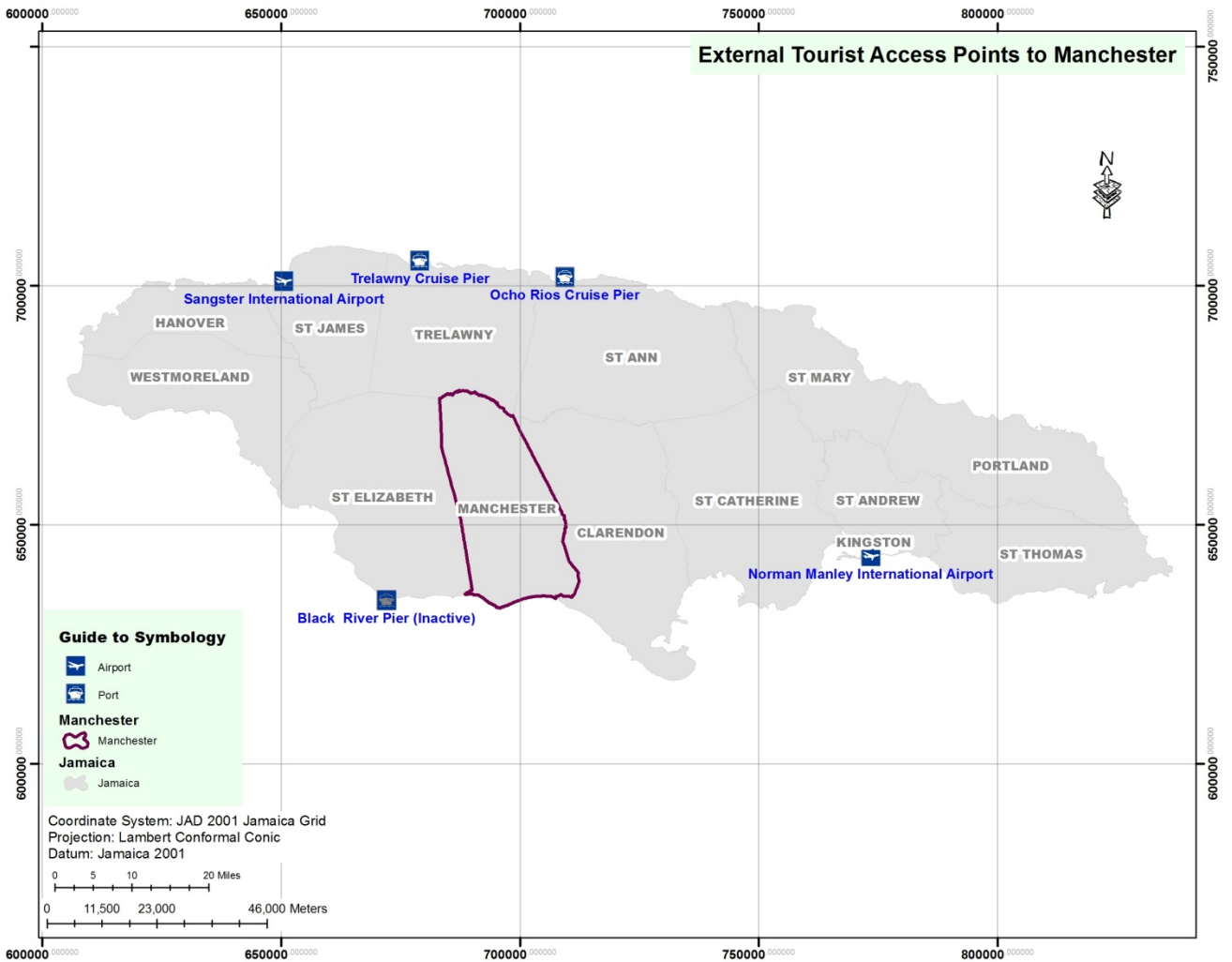
Figure 18: Tourist access points

The site proximity analysis shows that thirty seven (37) of the fifty two (52) sites mapped were within five miles of the railway (Figure 19).
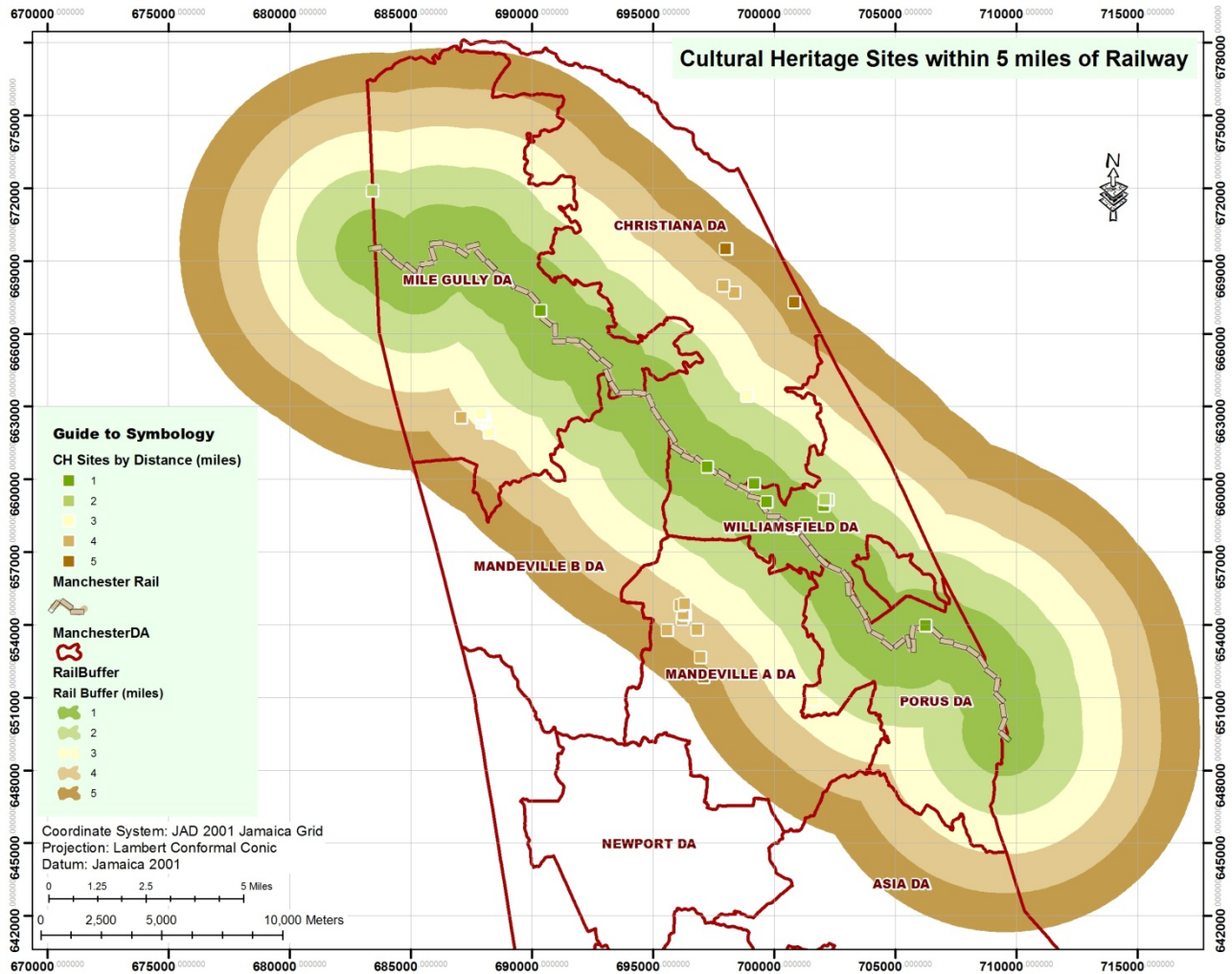
Figure 19: Site Proximity to railway

The 3D analysis with enhanced visualization shows the cultural heritage sites draped on the 3D surface developed from the contour data (Figure 20)
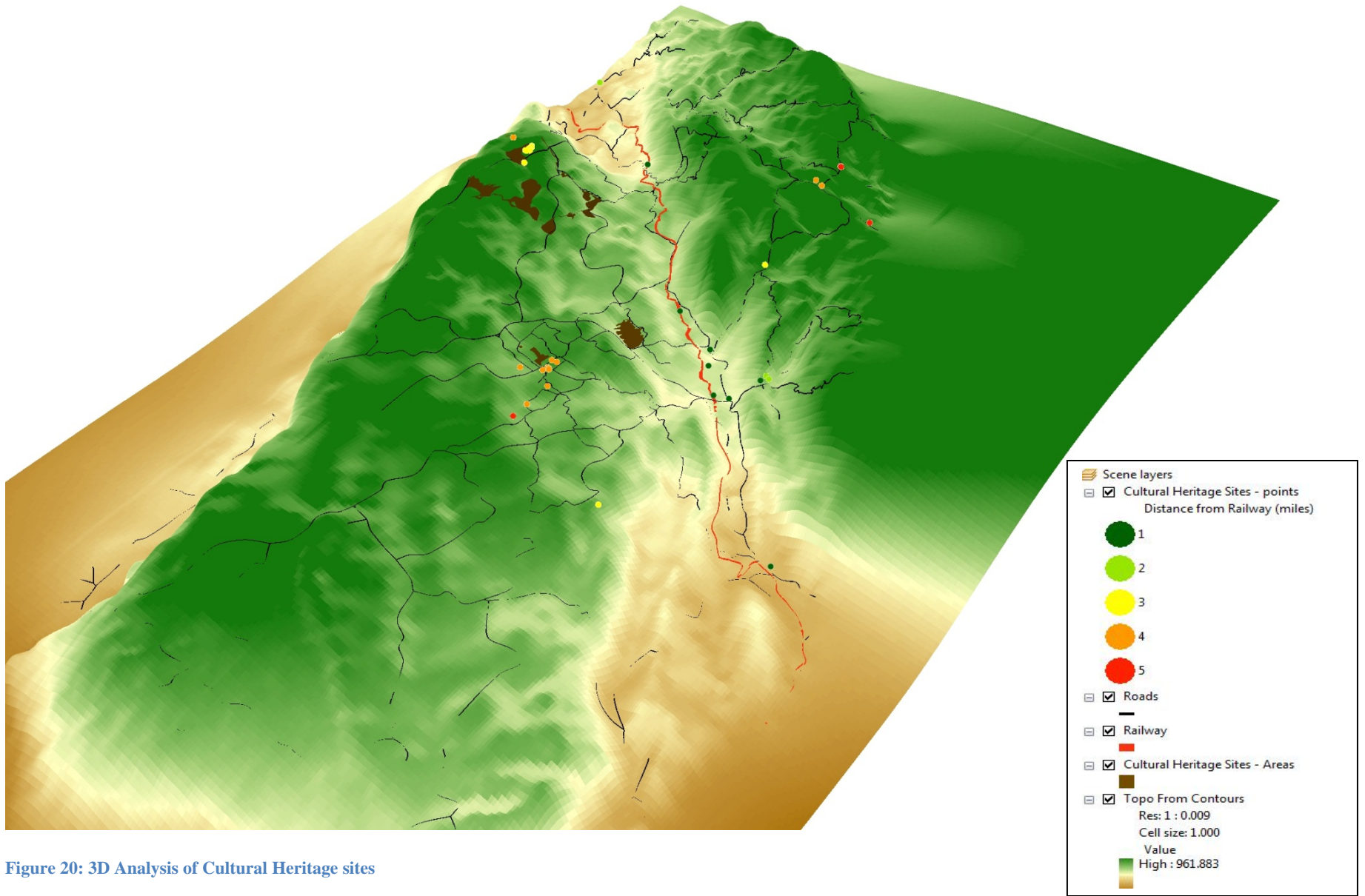
Figure 20: 3D Analysis of Cultural Heritage sites

Scene layers
- ☑ Cultural Heritage Sites – points
  - Distance from Railway (miles)
    - ● 1
    - ● 2
    - ● 3
    - ● 4
    - ● 5
- ☑ Roads
- ☑ Railway
- ☑ Cultural Heritage Sites - Areas
- ☑ Topo From Contours
  - Res: 1 : 0.009
  - Cell size: 1.000
  - Value
    - High : 961.883

The intersection of the results from the grouping analysis and the communities and DAs shows that approximately fourteen communities and five DAs are included in the clusters (Table 3). A map was done to show the sites and their resulting community clusters (Figure 21).

Community	Development Area	Cluster/Group
Mandeville Proper	Mandeville A DA	1
Christiana	Christiana DA	2
Spring Ground	Christiana DA	2
Part of Spaldings	Christiana DA	2
Walderston	Christiana DA	2
Comfort Hall	Mile Gully DA	3
Harry Watch	Mile Gully DA	3
St. Paul's	Mile Gully DA	3
Medina	Mile Gully DA	3
Maidstone	Mile Gully DA	3
Kendal	Williamsfield DA	4
Content	Williamsfield DA	4
Porus	Porus DA	4
Williamsfield	Williamsfield DA	4
Content	Williamsfield DA	4

Table 3: Communities and related Groups in each DA

The site proximity analysis shows that all sites were within one mile of a road (Figure 22)
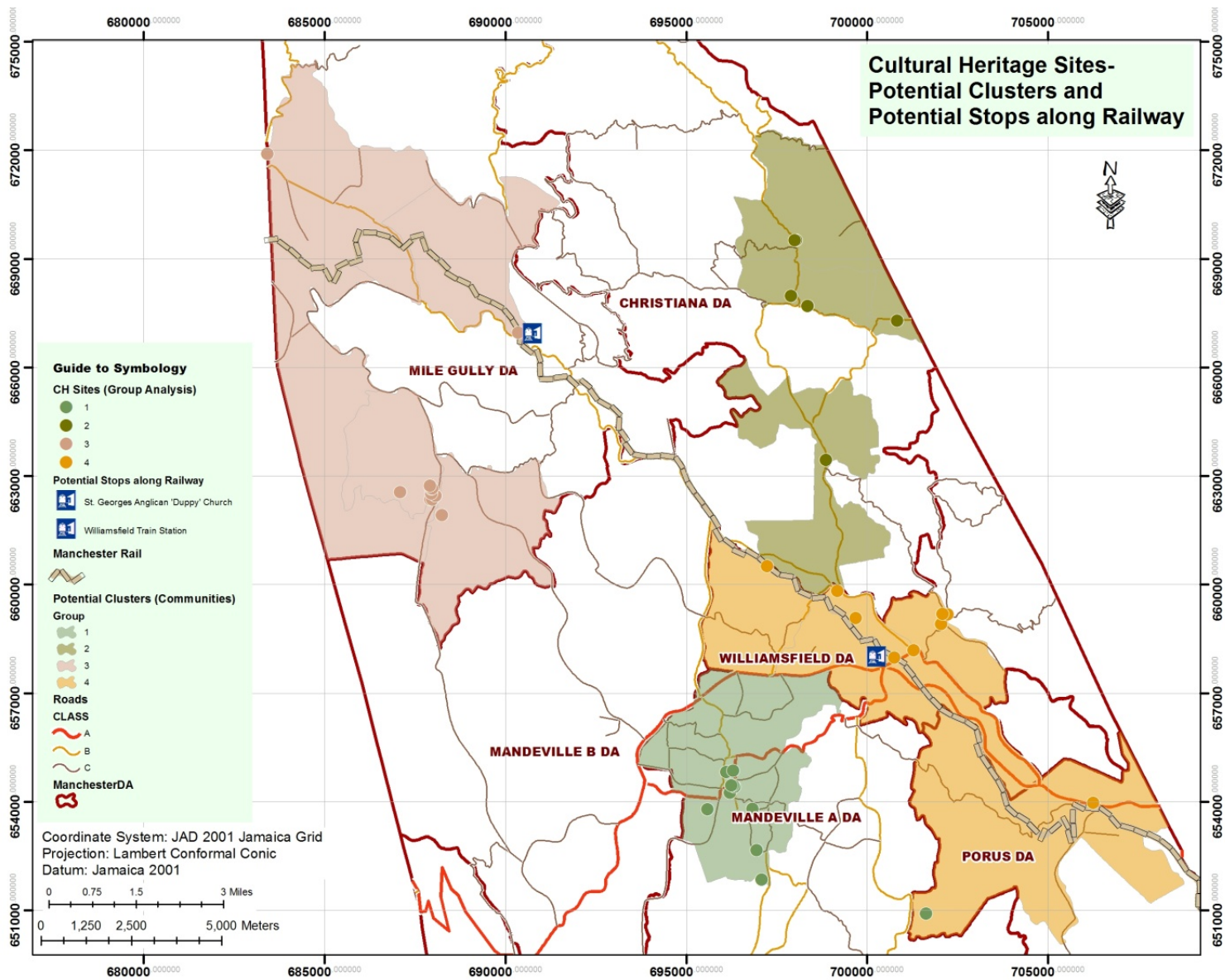
Figure 21: Potential clusters of sites and stops
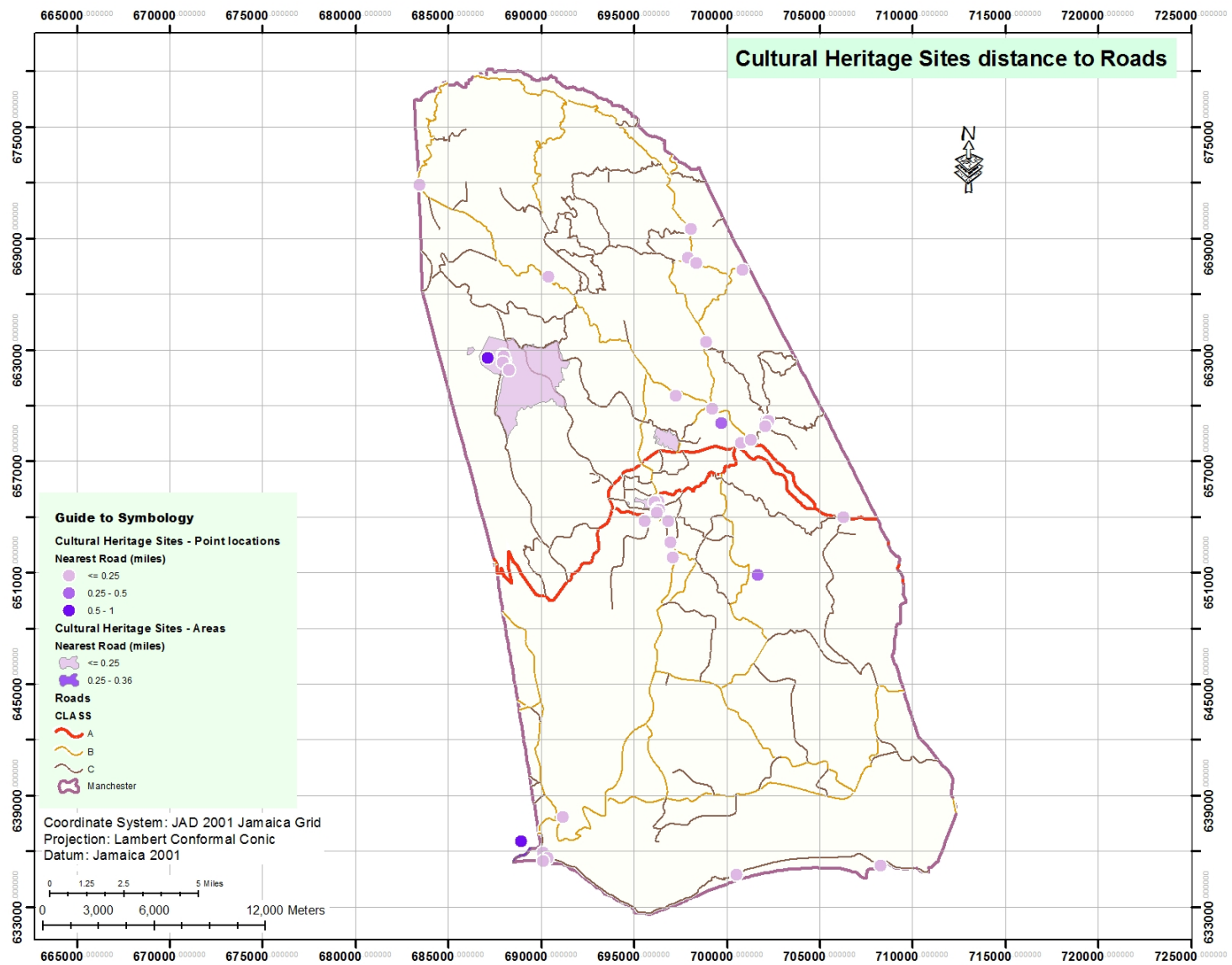
Figure 22: Site proximity to roads

In assessing whether the sites fit into the NTHP principles of 'Collaboration' and 'Finding the fit', the information gathered from the Manager of the MPDC, Mrs. Edwards, and from conversations with the four members of the SDC – Mr. Oren Osbourne, Mrs. Boothe, Ms. Gilbert and Ms. Muirhead – it is clear that the parish organisations on a whole has been collaborating in the effort to develop heritage based tourism. In this regard, the collaborative assessment on the parish is favourable. The formation of the DAs and the various workshops and community events also shows that there are collaborations with members of the residential and business communities in the parish. This was also evident from the members of the DAs who graciously turned out and willing and enthusiastically gave information during the data collection process for this project. The passion of those who attended, and those contacted who were not able to attend for various reasons, proved that the zeal for the development of heritage tourism has been elevated within the parish.

The information gathered also shows that the NHTP's principle of 'Finding the fit' is somewhat being achieved with the early involvement of the residents of the area into the project plan. This is key to having a successful initiative. Other areas of the principle will need to be implemented, however, this is a significant step in the right direction.

Progress will have to be made in determining how the area will fulfil the principle of 'Making the sites come alive'. It is clear that tourists will need to be adequately stimulated for any heritage process to be successful. With the word-of-mouth advertising and the new social networking arena, the proponents will have to ensure that the information being given is not only authentic, verifiable and well preserved, but also ensure that the visitors are given a good experience. From the information gathered and the sites visited, it is clear that none of these sites can stand on their own to provide a wholesome tourism experience. It will therefore be imperative that the principle of 'Making the sites come alive' is given priority since this will be significant in determining whether economic viability and sustainability is achieved. The development of the marketing plan is a good step in the right direction and will hopefully include aspects that will fulfil this principle.

Consequently, there will have to be more progress in getting the involvement of the related agencies to declare and designate the cultural heritage sites, and to ensure that adequate research is done in order to have an authentic 'story' for each site. This will be important when sites are

being researched by visitors on websites such as those of the JNHT and the IOJ. From the information gathered, it is clear that some effort has been made thus far with the involvement of the IOJ and the interviews of senior citizens in a bid to get information on these heritage sites. The information gathered should be carefully documented, including in video or audio if possible, and made available for research purposes once completed.

The findings of this research, as with those of the SCSDS, although conducted fourteen years apart, shows that there needs to be some urgency placed on the preservation and protection of the heritage sites if they are to be used for heritage tourism. The researchers of the SCSDS also found, as with this project, that there is a lack of management and resources for these sites, which will need to be in place for a sustainable heritage tourism initiative.

Developing and implementing preservation and protection criteria for heritage sites will be very important in the sustainability of heritage tourism in the area. It is imperative that the procedures involved be of international standards, and that they do not change the quality and overall unique aesthetic of the sites. Once there are strict guidelines involved, they will need to be implemented as a part of the management procedures for each site. See *Table 3* for a summary of the criteria.

GIS guidelines from the UNESCO's 'Management of Natural Resources' manual can be utilized as a guide in getting the information into a spatial management geodatabase to help with the ongoing management and maintenance of these sites. As was shown in this project, implementing a web based PGIS process, where users are empowered to work with the GIS, can greatly enhance the data gathering process that can provide information for various analysis. In this project, the cultural heritage sites were gathered from residents who were armed with local knowledge of their respective DAs. Further information can be gathered in this format, where other residents can be empowered through training, to not only enter the information, but to maintain the information as well. Using this process, Manchester can continue to improve on the value of the information gathered with a bid to not only knowing the location of the resources, but doing analysis to determine how these sites can be clustered to enhance the visitor experience.

While there were some resource limitations to this project as it relates to the amount of time available to visit the sites, to interact with the community members and to collect more detailed information from a wider cross-section of residents, the information gathered represents a good sample of the heritage resources of the study area. More time would have been ideal as well to

train the respondents on how to use the web map to enter the information on their own, as only two respondents were able to use the application with limited assistance. Having more persons entering information however, would require much better access to fast and reliable internet service and more computers that were not available at the time. The room used was also insufficient to have better interaction with the respondents and for respondents to adequately interact with each other, however, the fact that they were able to give information verbally that was quickly entered into the GIS, proved to be a worthwhile experience that has enhanced the previous manual process used. The limited time that the respondents had was also a limitation since the time of year saw many potential respondents being busy with graduation commitments.

CRITERIA MATRIX	MANCHESTER PARISH; Findings
Criteria for the five principles:	
1. Collaborate	
a. Regional collaboration	
i. Marketing initiatives	*Partly yes;* *Work in progress*
ii. Pooled resources	*No*
iii. Money saving initiatives	
iv. Development of regional themes or programs	
v. Tourism expertise	*Partly yes; Work in progress*
b. Local collaboration, active participation of:	
i. Political leaders	*Somewhat*
ii. Business leaders	*In progress;* *local business community receptive and participate in meetings*
iii. Operators of tourist sites	
iv. Artists and craftspeople	
v. Hotel/motel operators	
vi. Other people and groups	
2. Find the fit	
a. Local residents are supportive of initiative	*Yes*
b. Restriction to certain areas at certain times are respected	*No;* *expected once implemented*
c. Revenues improve life in the area (affect services such as fire and police protection)	
d. Carrying capacity of the area is respected	
e. Amenities are sufficient to accommodate visitors	*Not sure*
f. Visitors with special needs/disabilities are accommodated	
3. Make sites and programs come alive	
a. Creative ideas used to capture visitor's attention	*In progress;* *Consultant currently working on marketing plan*
b. Interactive and engaging	
c. Relate to visitor's own experiences	
d. Use of graphic materials; maps, pictures, brochures etc	
4. Focus on quality and authenticity	
a. Research conducted on history of site	*Yes;* *Working with the IOJ on authentic study; interviews with seniors*
b. Trained, well informed tour guides	*No;* *Expected once project is closer to implementation*
c. Authenticity and accuracy of self-guided materials	
d. How historic events are interpreted	
e. Presentation	
5. Preserve and protect	
a. Prevention of Further Degradation	*No;* *Currently lagging behind; Expected to be a work in progress once the project is implemented; community members are expected to play a big role in management and protection*
b. Improved Management of Sites	
c. Channeling Additional Resources into Conservation	
d. Cultural Resource Management Policy	
e. Preservation is done in accordance with guidance from the JNHT	
f. Protection and preservation of traditions, cuisine etc	

Table 4 : Summary Analysis of Criteria for Manchester

6. Conclusions

The major objectives of the project were:

- Use GIS to map the major cultural heritage sites in the parish of Manchester
- Investigate how the power of spatial data can help stimulate tourism
- Using the NTHP's five basic principles, investigate the cultural heritage sites and determine whether they meet the basic requirements as set out
- Use GIS capabilities to classify sites using developed criteria

This thesis investigated the cultural heritage sites in the parish of Manchester, by using a web map application to map and collect valuable attribute information on each site that was used to classify and analyse these sites in a GIS. Using a technological PGIS approach, it was shown how the power of spatial data can enhance an otherwise manual process. The PGIS process was used in achieving the first objective of this thesis - Use GIS to map the major cultural heritage sites in the parish of Manchester.

During the data collection workshop lasting just over two hours, the respondents were able to map over fifty sites, and record attribute information that classified the sites based on type, condition, tourism activities, and add name and description to each, achieving the objective of - Use GIS capabilities to classify sites using developed criteria. This approach was used as a critical review of the process currently used by stakeholders in the parish, who collected information during a workshop using hand drawn maps and push pins, to identify potential cultural heritage tourism sites in the parish.

The outcome of this process showed how useful GIS can be in getting critical information in a timely manner; it also showed how valuable geospatial data can be used to analyse information depending on what the user is interested in at the time. From the information gathered, it is clear that the stakeholders would be able to quickly classify or group the information based on their target audience or target areas, something that would not be possible using the current manual methods. This showed that the power of spatial data can help stimulate tourism, since knowing where the resources are, what type of resources are available and what they have to offer is very important to the cultural heritage tourism development.

The thesis, in a bid to find out if the parish was a cultural heritage gold mine, as stakeholders suspected, embarked on not only mapping the sites, but developed a criteria list for assessment,

based on the NTHP's five basic principles for cultural heritage tourism. The paper took a critical look at the current sites and did an analysis based on the principles and their respective criteria. The results from this analysis found that the parish is lacking in some crucial aspects of the principles that would be necessary to invoke sustainable cultural heritage tourism. These important steps included:

- No clear plan in place for preservation and protection of the cultural heritage sites - a critical step for a sustainable cultural heritage tourism. Not having JNHT integrally involved in developing preservation and protection policies and guidelines for each site could cause continued denigration of the sites. The JNHT should also be responsible for declaring and designating these sites as culturally significant, otherwise there could be severe impact on the needed authenticity. It will be necessary for the stakeholders to solicit the JNHT to play an integral part in this process, along with the residents of the area to not only adhere to the JNHT's policies, but to help enforce them.

- No significant plans on making the sites come alive. For the potential visitors, having specific activities would not only keep them occupied and interested, but also encourage them to come again or to encourage others to visit. This is an important step for a sustainable product, as this will determine whether the product 'fizzes-out' over time, or becomes a revenue generating 'gold mine' for the relevant stakeholders. The development of a marketing plan can be seen as promising in fulfilling this principle, however, it is not clear whether this was the focus of the plan. Aspects of the marketing plan however, once completed, can be looked into in a bid to fulfilling this principle.

The results were not all daunting however; the analysis also found encouraging steps being taken in other areas of the NTHP principles, that, even though still needs to be worked on and is in variable stages, is laudable and should be encouraged to continue; these include:

- Collaborative efforts between stakeholders in the various sectors including business representative group the MCOC, local government agencies including the MPDC, SDC, MPC and tourism interests from the north coast region. More will be needed from policy makers, politicians and potential investors as funding seems to be a major deterrent.

- The early involvement of residents into the process is encouraging, coupled with their obvious interest in the process. The formation of the relevant DAs and having persons within each area working together to identify potential sites will make the process more

welcoming to the residents once the program is implemented. This is a giant step in the principle of 'Finding the Fit' (between the residents and tourism). Added focus will have to be placed on carrying capacity, amenities and other environmental factors.

- The process of interviewing seniors and assistance from the JNHT and the IOJ is a step in the right direction to the principle of 'Focus on quality and authenticity'. Much more research will be necessary and there will need to be a clear guideline as to how the information, once gathered will be used to attract potential visitors.

From the results, it is clear that whilst the parish has quite a number of potential heritage sites that could generate revenues from tourism activities, and the encouraging steps by stakeholders in trying to implement the process, there is still much more work needed in getting to a sustainable cultural heritage tourism product.

7.   Recommendations

The findings of the research shows that there are greater efforts needed to bring the current sites up to par to meet the necessary criteria for cultural heritage based tourism. It is recommended that a specific plan be put in place that will create an avenue for the implementation of the principles of the NTHP, or to develop similar, internationally recognized criteria that will be used in the parish. For those criteria that are currently partially implemented, it is also recommended that those be strengthened. The following are also recommended:

- An in-depth analysis of the various sites that are in disrepair by a group of qualified professionals who will be able to assess the necessary repairs needed, recommend restoration procedures and estimate the associated costs.

- The stakeholders to collaborate in funding or to seek funding for the careful restoration of the sites and the enhancement of all others. Potential investors should be solicited since the government funding is limited, therefore it will be important for the TPDCo to get involved and take a lead role in this aspect.

- Establish a Visitors Centre in the parish where persons wishing to visit the various cultural heritage sites can access literature, information, maps, tour guides etc. This centre can be used as a resource centre for all visitors, where they can organise tours to

the different sites. This centre can also be used as a welcoming area where visitors are grouped and bussed to their specific tour sites based on their specifications.

- Implement a GIS based management and maintenance programme for all sites using the guidelines from the UNESCO's 'Management of Natural Resources' manual. This GIS based system can be utilized in the creation of maps for visitors. The versatility of using GIS is that these maps can be either tour specific, area specific or general maps. Extending the system into a web based map with editing capabilities can also utilize citizens and visitors to engage in adding in useful data to the system.

8.   Appendix

8.1.   Appendix A

Tools for quantitative data collection

BOX 3: INFORMAL RESEARCH TOOLS FOR INVESTIGATING LPK

Semi-structured interviews Semi-structured interviews allow the participants more scope to investigate what people know and to follow up topics of interest as they arise in the discussion. They can be used with groups and individuals.

Group (focus) interviews Group interviews provide exchanges between participants with differences of opinion which can often lead to greater insights into people's perceptions. Care is required over the composition of the group so that as many participants as possible feel free to express their opinions, especially those with less status who may be better interviewed in a separate group or individually.

Key informant interviews 'Experts' – those identified by local people as having specialist knowledge – may be interviewed taking care that they do not only include those with formal education and access to scientific knowledge.

Field visits and transects These combine observation and discussion and are useful in allowing the farmer or respondent to point things out *in situ*. They may also provide a more relaxed atmosphere than a group meeting, making communication easier.

Field observations These are useful for comparison of actual practice to the 'norms' presented in group discussions or interviews.

Mapping, diagramming, ranking exercises and games These can be used to elicit farmers' perceptions, including spatial conceptions, definitions, classifications and boundaries. Tools include participatory mapping, ranking of importance, comparing characteristics using pairwise ranking diagrams, seasonal calendars and network diagramming.

Local classification systems/taxonomies This is quite a difficult area, involving the identification of local terms, then asking local people to sort and group the categories, identifying common features and contrasts in the context of the wider language and cultural system.

Cultural expression The content of songs, poetry and speeches on celebrations and public occasions can reflect significant messages and social values.

Source: Waburton and Martin, and adapted by Quan *et al.*'s "*Tools for quantitative data collection*". (Warburton, 1999) (Quan, 2001), *box 3 pp 13*

8.2. Appendix B

List of DA Chairmen

Name (chairman)	Organization	Telephone
Smeadley Reid	Cross Keys DA	358-5056
Omar Robinson	Alligator Pond DA	373-6971
Ivan Green	Christiana DA	999-6982
Delroy Hudson	Mandeville DA	291-5565
Elrith Gooden	Newport DA	856-5181
Greta Myrie	Porus DA	904-0323
Desmond Wilson	Williamsfield DA	436-8993
Milton McNally	Mile Gully DA	574-1799
Everton Meikle	Asia DA	457-3324

List of actual workshop attendees

Name	Organization	Telephone
Conroy Watson / Kenmore Core	Alligator Pond DA	373-6971
Ivan Green / Randi Wilson	Christiana DA	999-6982/ 396-0116
Delroy Hudson	Mandeville DA	291-5565
Desmond Wilson	Williamsfield DA	436-8993
Milton McNally	Mile Gully DA	574-1799
Ms. Muirhead	SDC - rep Porus DA	962-3263

8.3.   Appendix C

Interview

Interviewee: Mrs. Edwards, MPDC; Interviewer: Angeleta Wilson

Mrs. Edwards is the person in charge of the MPDC's day to day operations; she was also the DA workshop facilitator. She told me that her department has been working closely with the SDC, the MPC, TPDCo, and JNHT on developing Heritage Tourism in Manchester.

Question: Where do you see Manchester right now and going forward in terms of heritage tourism?

Answer: We are currently looking into implementing CBT on a whole in the parish; that will also include some aspects of our heritage. It is really a big thrust that we are doing currently and we have been looking into two DAs so far – Mile Gully and Alligator Pond. We have a consultant who is currently working on a marketing plan and as soon as that is completed we will be looking to implement two tours which will include a Church Tour because Manchester has many historic churches – so we are trying to do something [focused] around that to push for some kind of economic development for the parish.

Question: Have you thought about any form of collaboration with the north coast areas?

Answer: We actually have because right now we are actually planning an introductory tour and some of the persons who will be taking that tour will be tour operators from the north coast. We had initially done a study to get a feel of how visitors on that side [north coast] felt about the south coast. So yes, we are collaborating with persons from the north coast.

Question: You mentioned that you are getting into CBT, have you been in any of these communities, talking to residents to get a feel of how they feel about it in terms of people coming in to their communities, using their facilities etc?

Answer: Yes, we have been speaking with persons from the communities and so far we have had two workshops looking at tourism; so we have brought persons from across the parish into Mandeville under one roof and they have identified possible sites that can be developed in their communities and they are fully on board and ready to go.

Questions: These sites that they have identified, what have you done with that information so far?

Answer: We have collated the information; just to give you a background on what we did. In the first workshop we had a 'brainstorm session' where we kind of developed what we call "the wish

list"; so we listed any and every thing that was possible and then we had a second workshop where we converted that wish list into a reality list. That reality list brought it down to about six to eight (6-8) sites in each DA. We have had follow-ups to that because we had TPDCo coming on board to that workshop and kind of looked at the sites and the possibilities and advised the group on how we go forward. So we are currently looking at doing product development where that is concerned but of course, with everything else we have to search for the funding first before we can move forward. So we are at that stage now where we are trying to identify the funds so that we can start our product development in order to get to the next stage.

Question: The sites that we identified, were they nature-based, culture based, historic or a mixture?

Answer: It's a little bit of everything because there will be some water-based tours involved there as well because I had no idea that they had waterfalls up in the hills of Manchester and this was actually identified by a community member. So there will be some amount of water-based activities, there will be cultural etc. It will be a little bit [mixture] of everything.

Question: Are you putting any of this information into a GIS at all?

Answer: Actually yes. We have partnered with Ryan Wallace who is based at the MPC who worked [here] at the MPDC when we worked on the plan [referencing the MPDC Parish Plan] so he is our GIS expert who will be mapping some of the sites for us – some have already been mapped, but the others he will also do [map].

Question: Are there any efforts now to get some of these sites declared or designated as national heritage sites by the JNHT?

Answer: [long pause] We haven't approached them, but over the years we have been trying to get the Canoe Valley area declared as a protected area which has some aspects of heritage involved there.

Question: What about authenticity or research on these sites; in terms of getting people [tourists] there, what kind of research has been done to say 'this is the true history or the true story of the site'?

Answer: We have done interviews with senior citizens in the communities and we have also gotten information from the JNHT's archives.

Question: What about the IOJ; are they on board at all?

Answer: Yes, we have worked with the IOJ; they have already done an assessment for us for the Mile Gully area so we are trying to be as 'authentic' as possible.

Question: In terms of preservation and protection of these sites; are there any developed criteria or will it become a work-in-progress once the heritage tourism begins?

Answer: It will have to become a work-in-progress because... not alot of things have been documented – not alot of our history has been documented – and in terms of developing criteria for protection and preservation it is kind of lagging behind; and we will kind of be depending on the community persons to ensure that the sites are protected and left as natural as possible.

Question: So that is something that will affect the carrying capacity; is that something that is being looked at currently or will be looked at soon?

Answer: Yes; it has been looked at in the past when we did the business plan for Mile Gully and Alligator Pond and it is something we will continue to look at going forward.

Question: How will this impact resources in terms of police and hospitals since they are already stretched. Have anyone for instance from the police or hospital come in to say we will need more resources?

Answer: Well in our last workshop a couple weeks ago we had someone from the police department who came in and spoke about just that; in terms of security because we will have these additional persons coming in and as you said they are already stretched for resources so he spoke about that at length. So we are cognizant of all of those limitations and so we are trying to work with the communities as much as possible because once the communities have bought in to it they will take charge and ensure that the visitors are protected as far as they can go and ensure they are kept as safe as possible. A lot will be dependent on the community members.

Question: So in terms of the main stakeholders, is it the MPDC, MPC and SDC?

Answer: And the other agencies that are involved in the tourism sector

Question: What about the business community; have they been receptive, coming to meetings to talk about it or anything...?

Answer: We have met with the MCOC recently and they are on board.

Question: So in terms of timeframe –do you see Manchester starting some form of heritage tourism anytime soon?

Answer: Yes well we are shooting to start – at least with the first two areas that we have been working on for so long – by the beginning of the next winter tourist season; which is this year.

8.4. Appendix D

List of Cultural Heritage Sites Mapped

Name	SiteLocation	SiteType	SiteCondition	Existing Tourism	Description	Comments	Feature Type
Alligator Hole	Alligator Pond	Natural	Good	Yes	People visit to look at manatte & crocodile	Not much Tourism at the moment becase the road condition is bad and the site is not properly advertised.	Point
Alligator Pond Fishing Village	Alligator Pond	Mixed	Good	Yes	Fresh Fish purchase, fried fish & beach		Point
Alligator Pond Housing Scheme	Alligator Pond	Historic/Cultural	Good	No	2nd Housing Scheme to be built in Jamaica outside of Kingston		Polygon
Alligator Pond River	Alligator Pond	Natural	Fairly Good	Yes	Tourist visit to view crocodile and to swim, catch fish & dive. Canoe ride up the river		Polygon

Alligator Pond United Church	Alligator Pond	Historic/Cultural	Good	No	In existence for a long Time.back then the church bell rings when there is a death or natural disaster warning		Point
Jewish cemetary	Alligator Pond	Historic/Cultural	Damaged	No	Only Jews buried there		Point
Rebel Salute Venue	Alligator Pond	Historic/Cultural	Good	Yes	Event held every January since 1993		Point
Sand Dome	Alligator Pond	Natural	Good	Yes	Largest Sand Dome in the Caaribbean. Tourist would normally stop to take pictures but they do not climb at the moment		Point
Tainos Cave	Alligator Pond	Natural	Fairly Good	No	Taino's writing on the walls of the cave.Artifacts were found but has been removed to a museum		Point
Oxford Cave & River	Auchtembeddie	Historic/Cultural	Good	Yes	Favourite for localss and foreigners come to study bats - different species live in the gave	Plans to implement a nature trail	Point
Bellefield High School	Bellefield	Historic/Cultural	Good	No	Upgraded high school Shift school ~1500 student pop.	Only high school in the DA Among the top upgraded high schools in Jamaica	Point

Bellefield Primary School	Bellefield	Historic/Cultural	Damaged	No	Site of old school new modern school built adjacent to it. Exceeds 70yrs in age.		Point
High Mountain 5k & 10k Road Race	Bellefield	Historic/Cultural	Good	Yes	Annual road race		Point
Slave Burial Ground	Bellefield	Historic/Cultural	Fairly Good	No	~ 200 slaves buried.		Point
Christ Church, Christiana	Christiana	Historic/Cultural	Good	No	Founded 1890; still used as a church		Point
Christiana Moravian Church	Christiana	Historic/Cultural	Good	No	Established in 1903		Point
Christiana Police Station and Court House	Christiana	Historic/Cultural	Fairly Good	No	Built in 1896		Point
Hotel Villa Bella	Christiana	Historic/Cultural	Good	Yes	Still used as a site, the hotel is one of the oldest in the area		Point
Site of the Kendal Train Crash	Kendal	Historic/Cultural	Good	No	Largest train crash in Jamaica's recorded history		Point
Windalco Red Mud Lake/Pond	Kendal	Historic/Cultural	Good	Not Sure	Largest red mud lake in Jamaica - a by-product of alumina from the jamaica's first processing plant - Kirkvine, that began operation in 1952		Polygon

Adams Valley Farms	Maidstone	Mixed	Good	Yes	Farming area, green houses; farmer teaches organic farming techniques to visitors		Polygon
Maidstone Free Village	Maidstone	Historic/Cultural	Good	No	1st 'Free' Village in Jamaica; contains various historic sites		Polygon
Nazerath Primary School	Maidstone	Historic/Cultural	Good	No	Built in the 1950's...		Point
Old Cheese Factory	Maidstone	Historic/Cultural	Fairly Good	No	1st cheese factory in the English speaking Caribbean, built in the 1980s, out of commission since apprx 2006 (ovr 5 yrs)		Point
Old Slave Hospital	Maidstone	Historic/Cultural	Destroyed	No			Point
Old Slave Prison	Maidstone	Historic/Cultural	Destroyed	No	Called Sterling Castle, contains old buildings and irons, sculls, shackles...heavily wooded		Point
Site of Old Church preceded Nazareth	Maidstone	Historic/Cultural	Destroyed	No	Old foundation of site, has old tank with water	Currently inaccessible	Point
Trial Hill	Maidstone	Historic/Cultural	Good	No			Point
Bishop Gibson High School for Girls	Mandeville Proper	Historic/Cultural	Good	No	All Girls School founded in 1962		Point
Bloomfield Great House	Mandeville Proper	Historic/Cultural	Good	Yes	Building carefully restored and is currently being used as a restaurant		Point

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Compton House (originally the Rectory)	Mandeville Proper	Historic/Cultural	Fairly Good	No	Originally built as a Rectory in 1816, the building was then leased as a Tavern.		Point
Foster Barracks	Mandeville Proper	Historic/Cultural	Fairly Good	No	Reserve Camp for the Jamaica defense Force		Point
High Mountain 5k & 10k Road Race	Mandeville Proper	Historic/Cultural	Good	No	First 'free' library in Jamaica, the building was constructed in 1937		Point
Manchester Club & Golf Course	Mandeville Proper	Mixed	Fairly Good	Yes		Original shingle roof being replaced with aluminum	Polygon
Manchester Horticultural Society	Mandeville Proper	Natural	Good	Yes	Established 1865; oldest in Jamaica		Polygon
Mandeville Court House	Mandeville Proper	Historic/Cultural	Good	No	One of the original buildings in the town of Mandeville, constructed in 1816, the building is still being used as a courthouse today		Point
Mandeville Hospital	Mandeville Proper	Historic/Cultural	Good	No	Opened in1877, with a compliment of 26 beds. The original building was previously occupied by the British army		Point
Mandeville Parish Church	Mandeville Proper	Historic/Cultural	Good	No	Built in 1816, this is one of the first 4 buildings to be built in the to Mandeville		Point

Name	Location	Type	Condition		Description		Geometry
Mandeville Police Station (Jail and Workhouse)	Mandeville Proper	Historic/Cultural	Fairly Good	No	One of the original four buildings to be built in the town, still being used as a Jail and houses the Police Station		Point
Northern Caribbean University	Mandeville Proper	Historic/Cultural	Good	No	Only University in the Parish and only one outside of Kingston		Point
Nazareth Moravian Cemetary	Medina	Historic/Cultural	Good	No	Graves dating back to the 1600s and graves that are readable dating back to the 1800s		Point
Nazareth Moravian Church	Medina	Historic/Cultural	Good	No	Church, has an old pipe organ - does not work now	1888 and finished in 1890	Point
Old Church Manse	Medina	Historic/Cultural	Damaged	No	Former dwelling of a property owner of Maidstone that had 65 slaves - John Cohen, bought from him in 1840 and subdivided and sold to newly emancipated	Damaged by hurricane	Point
St. Georges Anglican 'Duppy' Church	Mile Gully	Historic/Cultural	Damaged	Yes	Site is damaged and in need of major repairs	Yes, there is curently some tourism activities	Point
Percy Junior Hospital	Part of Spaldings	Historic/Cultural	Fairly Good	No	Plans in place for improvement and the addition of an A&E department		Point
Porus Community Center	Porus	Historic/Cultural	Fairly Good	No	Reported to be the 2nd community center in Jamaica		Point

Roxborough	Porus	Historic/Cultural	Good	Yes	Birth place of former premier and national hero, Norman Washington Manley	Original buildings totally damaged only foundation remains, however, there is a beautifully erected monument that was built at the site	Point
Scotts Pass River and Nature Area	Scotts Pass	Natural	Good	No	River on the border of Manchester and Clarendon	To be developed into a tourist attraction site	Polygon
Mizpah Moravian Church	Walderston	Historic/Cultural	Good	No	Opened in 1866; still serves as a church and has most of its original structure		Point
Kirkvine Processing Plant	Williamsfield	Historic/Cultural	Good	Yes	Since 1952; first alumina processing plant in Jamaica		Point
The Pickapeppa Co. Ltd	Williamsfield	Historic/Cultural	Good	Yes	Since 1921; offers factory tours		Point

Williamsfield Train Station	Williamsfield	Historic/Cultural	Damaged	No	Site is in total disrepair, building seems to also be taken over by squatters noticeable by radios playing and other signs of persons living on site	Potential for site to be restored	Point
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