

## **Final Report**

### **SYNTHESIZING COMMUNITY FORESTRY AND PUBLIC HEALTH: A BLACK HISTORY/URBAN FORESTRY WALKING TRAIL**

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#### **Research Problem**

This on-going study is aimed at answering research questions on the association between green-space deficits and physical activity in an inner-city community in Nashville, Tennessee. To date, relatively little attention has been paid to minority and low-income neighborhoods underserved in terms of green space and “walkable space.” The majority of the current literature addresses the issue in sprawling suburban communities. Of particular interest to the team conducting this study is the potential relationship between racial health disparities and barriers to physical activity related to urban design. A significant percentage of diseases leading to premature death among minority populations is associated with a lack of physical activity (i.e. diabetes, heart disease, and stroke). The Robert Wood Foundation published a report stating that the “lack of sidewalks, streetlights, and appealing scenery are related to low activity levels among adults” (2000). According to Sallis, Bauman, and Pratt, “environmental interventions should be put in place before educational interventions are attempted” (1998).

In Nashville’s predominantly Black “North Nashville” community, the REACH 2010 coalition is developing a Community Action Plan to reduce and eliminate health disparities in diabetes and cardiovascular disease. Statistics from the Metropolitan Health Department of Nashville and Davidson County show that the difference in rates between North Nashville and other city residents is most striking for diabetes. In 1997, the age-adjusted death rate due to diabetes for African Americans in North Nashville (54.3 per 100,000) was almost 4 times as high as the rate for whites in Davidson County (14.1 per 100,000), and twice as high as the U.S. rate for African Americans (Nashville REACH, 1999). Modifiable risk factors for diabetes include lack of physical activity and obesity.

The long-term mission of this study is to answer the following research questions:

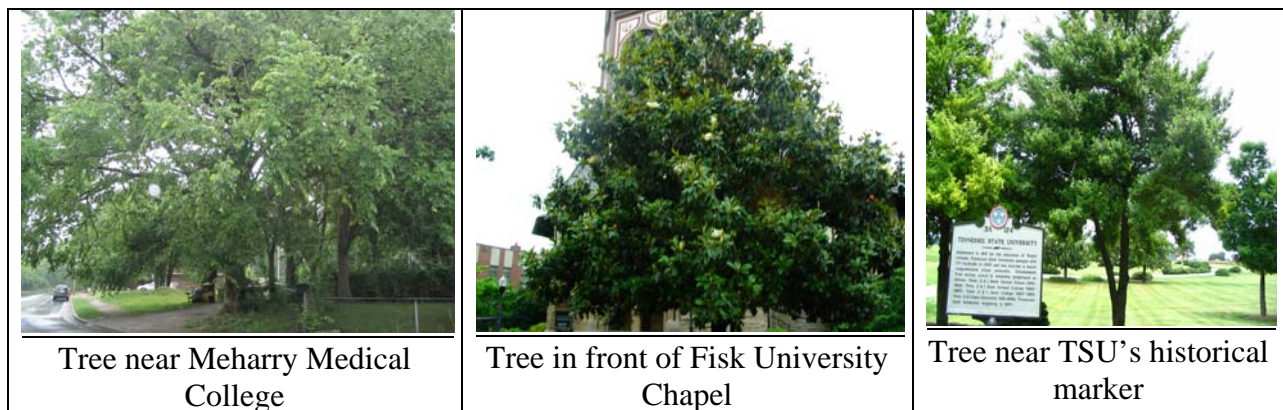
- Is the lack of physical activity among African Americans in Nashville associated with lack of walkable greenspace?
- If provided a greater connection to the local urban forest, making it more conducive to physical activity, would North Nashville’s African American population become more physically active?

Anecdotal evidence gathered via casual discussions with local residents indicate the presence of barriers to physical activity other than those associated with urban design and/or deficits in

walkable space. For instance, many residents reported that fear of crime is a major factor in their not walking the community, especially at night. The hot, humid summer weather has also been mentioned as a detractor from participation in exercise. Thus, there is a significant likelihood that the creation of a walking trail based upon the community's urban forest and history will not induce people to increase their physical activities.

### **Project Objectives**

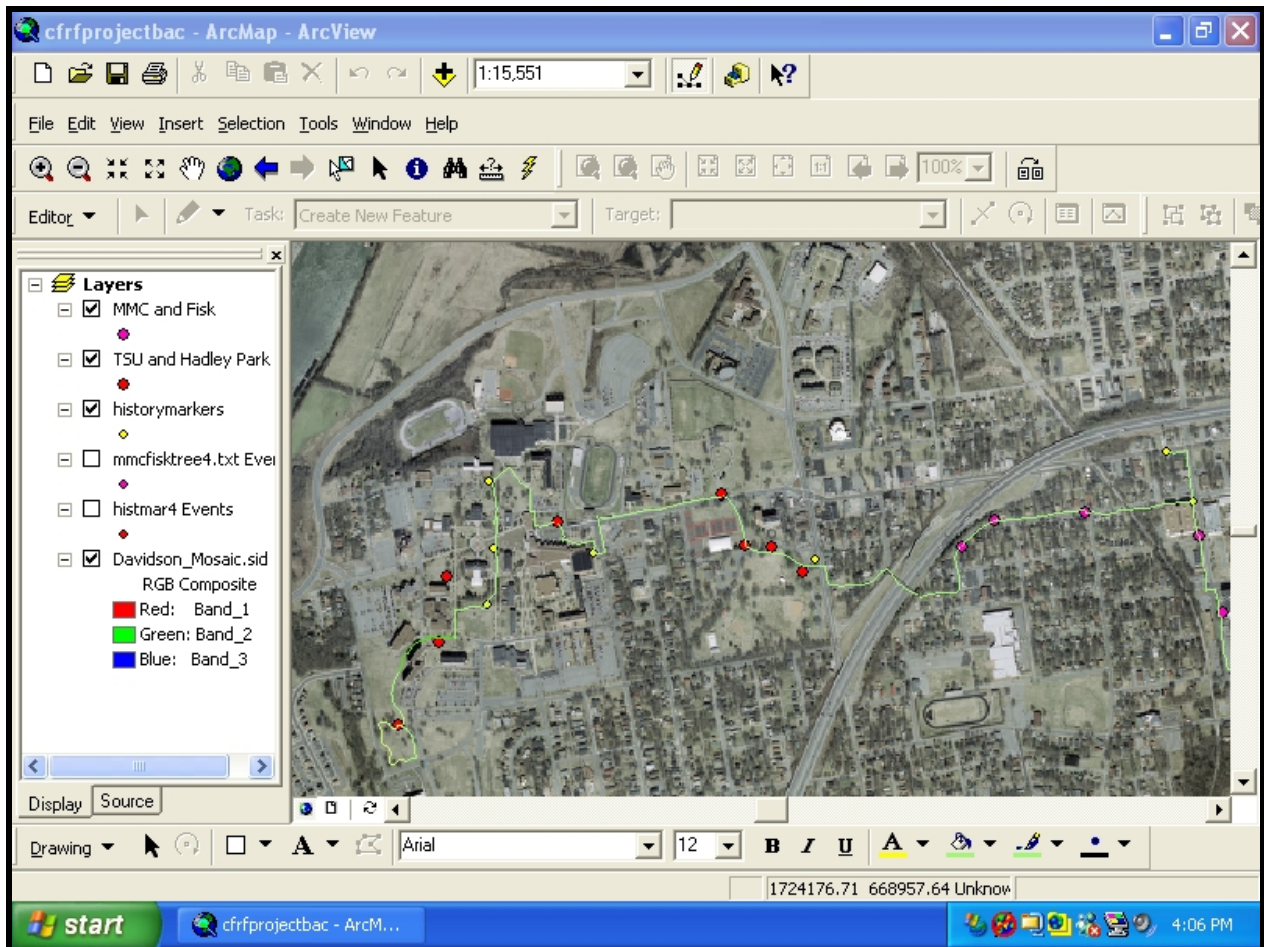
The primary objective of the summer 2005 portion of this study was to use geographic information systems (GIS) and global positioning systems (GPS) to develop a model of expanded walkable green space in North Nashville, the “North Nashville Historic Sites/Urban Forestry Fitness Trail” and a jogging/fitness par course. The Community Forestry Research Fellow (CFRF), Juan Salter, under the supervision of the Director of the Tennessee State University (TSU) Geographic Information Sciences (GISc) Lab, Dr. David A. Padgett, used GPS receivers to map point locations of historic sites and tree species of interest. Salter was assisted in gathering data on area trees by Drs. Josh Idassi, Nathaniel Appleton, and Chris Catanzano, research faculty with TSU's Cooperative Extension Program ([www.tnstate.edu/cep](http://www.tnstate.edu/cep)). Selected walking trail trees are at Figure 1. The point locations, photographs, and attribute data for trees to be included on the walking trail model were uploaded into ArcGIS, a widely used GIS software package. The final map/model created (Figure 2.) displays the route of the trail which connects the TSU, Fisk University and Meharry Medical College campuses and their surrounding neighborhoods.



**Figure 1.**  
**Selected trees along the proposed Black History/Urban Forestry Walking Trail**

With the walking trail model successfully completed during the summer, the primary objective for fall 2005 is to develop a survey on “physical activity” to be administered to potential walking trail users. North Nashville residents, TSU, Fisk, and Meharry faculty, staff, and students will be surveyed in focus group settings. The questionnaire will be accompanied by a live demonstration of the walking trail map/model. The survey will consist of questions aimed at

determining residents' likelihood of increasing their daily physical activity if the course were to be developed.



**Figure 2.**  
**Screen capture of ArcGIS workspace displaying the walking trail model. Trees are shown as red point symbols.**

The original plan was for Juan Salter to conduct the focus group exercises; however, after consultation with health experts from TSU, Meharry Medical College, the Nashville Metropolitan Health Department, and the Matthew Walker Comprehensive Health Center, it became evident that the public health sector of the study required greater attention to detail and protocol than expected. During the fall of 2005, a TSU student majoring in the health sciences, or a related discipline, will be selected to develop and administer the survey instrument under the supervision of local experts in public health.

The questionnaire and focus group discussions will be designed to determine the effectiveness of connecting the community to the urban forest in inducing North Nashville residents to utilize the proposed walking trail. Attention will be paid to various reasons given for visiting or not visiting the course. Respondents will be asked how often they would utilize the walking trail and par course if it were to be developed, and if so, if that use would represent an increase in their

normal level of physical activity. The numbers of those responding positively will be recorded and compared with the total number of survey participants. Those responding negatively will be asked to provide details on what factors would prevent them from using the facility. All respondents will be asked to list the factors, including those associated with urban green space design, that currently limit their propensity to walk their neighborhood streets as a form of exercise. The survey results will be analyzed in order to determine whether increased connection to the local urban forest and history may contribute to a potentially significant increase in physical activity for the community.

The survey and focus group findings will provide an insight into the potential impacts of associated with access to walkable green space upon populations with demographic and socio-economic characteristics similar to those of North Nashville. Further, if survey results indicate that a proposed historic sites/urban forestry walking path and par course might significantly increase physical activity among North Nashville residents, the data may be used to encourage Metro government to fund the development of a fitness circuit/greenway in cooperation with TSU, Fisk University, and Meharry Medical College. Nashville's local government has been aggressively funding greenways development (<http://www.nashville.gov/greenways>). Largely under the support of the Mayor's Office, the city has created a new division aimed at encouraging citizens to be more physically active (<http://healthweb.nashville.org/HealthyN2010>). Thus, if the focus groups evince significant interest and/or demand for the development of the walking trail, there is a strong possibility that it may actually be developed. If so, the walking trail could serve as a "living laboratory" for further research on relationships between physical activity and urban design. It may also be used to determine the extent to which urban forest and green space design may potentially reduce racial health disparities.

### **Notable Information and Developments**

Information gathered during the summer suggests that there are no current development plans for the area on the southwest end of TSU's campus, the site of the proposed par course section of the walking trail (Figure 3.).

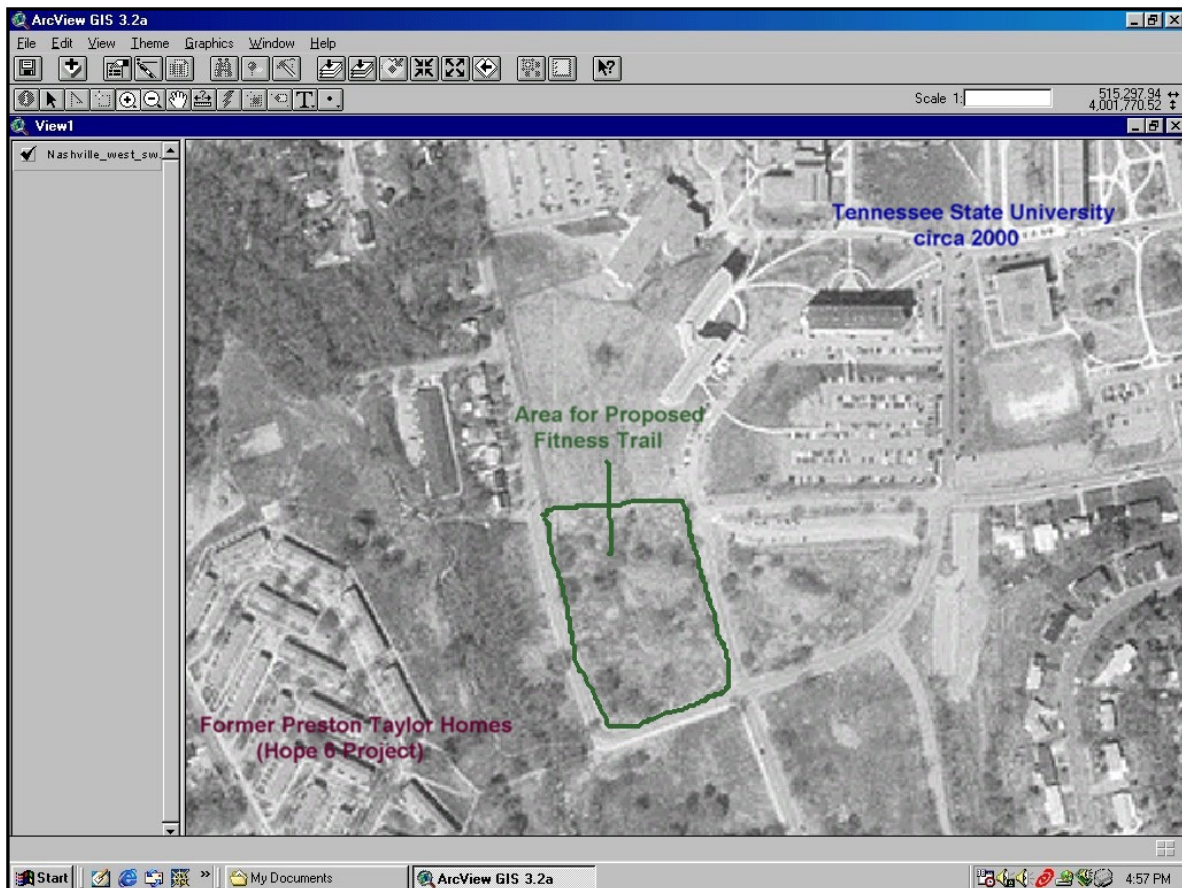
It should be noted that an educational "tree trail" with accompanying map has been drafted for Centennial Park, a large public green space near Vanderbilt University. Plans are for it to be released to the public during fall 2005.

### **Evaluation and Discussion**

The CFRF proved to be an invaluable asset in ensuring the continuation of this research. Efforts to obtain funding over a two-year period were unsuccessful. The support provided by the Fellowship funds allowed for both the student and faculty advisor to be fully engaged in the project. Although the study is continuing, the summer experience resulted in the development of the core data needed to address the research questions. Among the most positive outcomes was the opportunity to work with a multidisciplinary team of agricultural and public health



professionals. In particular, our working with TSU's agriculture faculty has bolstered their efforts to conduct a campus tree survey. Their support was pivotal in the success of Juan Salter's summer field work. Connections have been made among departments at TSU and Meharry Medical College, and are expected to continue beyond the life of this project. Future cooperation with neighborhood organizations will occur with the implementation of the focus groups. The final results of this project are greatly anticipated and have a strong likelihood of affecting change for the communities adjacent to TSU's campus.



**Figure 3.**  
**ArcView GIS workspace with aerial photograph of an area on the southwest end of TSU's campus proposed for a par course fitness trail. The area's forest cover is dominated by a stand of Hackberry trees.**

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