

A WALK IN THE SUBURBAN WOODS:
Site Assessment for an Eco-Wellness Trail at the JCC

Prepared for:
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Indianapolis (JCC)

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I. Project Overview

This semester, the environmental practicum class set out to assist the Jewish Community Center of Indianapolis (JCC), Indiana with an eco-wellness trail. The JCC is a community asset in northeast Indianapolis. It is located on Hoover Road in the heart of a residential community and is within close proximity to local destinations for young families including schools and parks. The JCC's mission is to enrich, improve and enhance the quality of life for its individual members. As the JCC continues to further develop programs that encourage fitness throughout the community, there has been a shift towards emphasizing a close connection with nature to foster a complete state of wellness. Ideally, the proposed eco-wellness trail will establish a connection between the JCC's users and the environment. In the context of this project, an eco-wellness trail is an interactive path that fosters meaningful and relevant connections to the environment in ways that enrich, improve and enhance the wellness of its users. It will be considered successful when it can be shown that the project is meaningful and relevant for the users of the trail. The project and evaluation will be ongoing as programming surrounding the trail continues.

II. Introduction

Purpose

The JCC is a valuable asset to the Indianapolis community. It is a community center with purposeful programming and personal connections. The mission statement of the JCC is to enrich, improve, and enhance wellness and quality of life for an individual (Sklare). A national problem that the JCC would like to combat locally is increased childhood obesity and a lack of connection to nature. The JCC would like to incorporate its natural surroundings into member use and programming upon the understanding that one cannot separate wellness of an individual from wellness of the environment. Last Child in the Woods: Saving Our Children from Nature Deficit Disorder discusses the importance of interacting with nature at a young age and its impacts on mental and physical health in children (Louv 2005). Children choose to stay inside to play with electronics; parents make children stay inside for safety reasons. Both are preventative measures that increase the likelihood that a child will not relate to their natural setting. Studies show that time spent in nature promotes healthy development (Louv 2005). The JCC seeks to promote environmental awareness through an Eco-Wellness trail.

One issue the JCC is looking to improve is accessibility to the surrounding residential neighborhoods. Sidewalks are limited and there are only three main access points off of Hoover Road. The goal of this project is to assess the JCC's campus as it relates to adding an Eco-wellness trail around the campus. The objective that the environmental focus group is to inventory the site and identify potential assets on the JCC campus, including: specimen trees, habitats, and wildlife. In addition, the environmental focus group will identify areas on the campus to avoid or protect, such as wetland areas and potential restoration sites. The group will provide the JCC with information regarding the environmental condition of the JCC campus. This will be used to make recommendations that influence design and placement of the trail that will highlight special areas or assets on the JCC campus. An ideal trail will also take into account JCC members' interests, and this will be addressed by a second group focusing on community/social aspects.

JCC Mission

“The JCC shall be guided by the principles of Judaism and democracy and shall promote an understanding of, and commitment to, Jewish thought, beliefs, and values. The JCC shall enrich the lives of the Jewish and general communities by developing and implementing programs for their recreational, educational, cultural, physical and social needs. The JCC shall stimulate and amplify the individual's sense of responsibility to the local community and to society.” (www.jccindy.org)

JCC History

The JCC was founded in 1914 and moved to its current site on Hoover Road in 1952. The facility that was built in 1952 was a 24,000 square-foot compound which had facilities for every age group. In 1997, the JCC had a \$25 million expansion performed. Their facility is now over 160,000 square-feet. Today there are over 8,000 members, 100 full-time staff members and 25 board members. In addition, membership is open to everyone with Jewish membership remaining consistent at 35%. The facilities that are used today include a workout area, an aquatic center, school, nursing home, day care center and outdoor areas.

Client and project description



The JCC Eco-wellness trail is proposed in and around the 40 acre JCC campus. Various fitness and environmental education stations are planned along the trail. Ultimately, these stations will act as an incentive for members to visit the campus and utilize the trail. Not only will it be a place to expand knowledge about local environments but also a place to connect and embrace nature. The Eco-wellness trail will be a way to expand JCC programs; using nature as a means of education, entertainment, reflection, fitness, and wellness. The trail will be accessible to all ages and physical abilities, such that all needs and abilities of JCC members will be met.

There are a number of Eco-wellness trails in use all over the world. Many share a similar vision and purpose as the Eco-wellness trail of the JCC. One such example comes from Ireland. The Northern Ireland Countryside Access and Activities Network (CAAN) has created more than a dozen eco-trails throughout

Northern Ireland to promote outdoor recreation (Ecotrails 2011). A website displaying the trails they have sponsored, along with a guide to each trail acts as a great resource for inhabitants of Northern Ireland as well as visitors. Kilbourney Park provides a map, a kid-friendly guide and activity book for the eco trail. It asks them to identify certain, trees, rocks, plants, and animal life throughout the trail (Kilbourney Park 2011). Each trail featured on the site is equipped with a downloadable map and guide. CANN comments that these ecotrails grant, “an opportunity for young people to develop awareness, appreciation and understanding of and responsibility to, their local natural and built environment by taking part in an environmental trial link to the sport of orienteering,” (“Welcome” 2011). This serves as a primary example of what the JCC is trying to accomplish.

Location

The location of the JCC has its advantages, disadvantages, and major issues. There are multiple access problems to the JCC. Bike and pedestrian access are limited, leaving cars as the most viable option getting to and from the campus. This is environmentally unfriendly and is a limiting factor for JCC members. With few means of accessing the JCC, only certain Indianapolis residents can use its facilities and par-



ticipate in its programs. Within three miles of the property there are approximately eighty thousand people and within 5 miles of the JCC there are over two hundred thousand people (Sklare 2011). Today, about 90% of the people that visit the JCC only use the building itself. This being said, the JCC campus does contain various sized woodlots, making it ascetically pleasing with an Eco-wellness trail addition. On the other hand, the woodlots on the JCC campus and its surrounding areas are broken up, acting as isolated patches of habitat; this has no substantial benefit for wildlife. Numerous isolated patches of habitat are interspersed throughout residential areas. Generally isolated habitats reduce biodiversity; less species are supported by smaller habitats (Tull 2001). Plant seed dispersal patterns are altered, while fauna species may experience restricted gene flow, both of which can lead to decreased population sizes. Isolated habitats can be connected via green corridors, which serve as intermediate greenspace for populations between habitat locations, see Map 1 at the end of the report (Tull 2001).

Site History

The JCC is a non-residential land use surrounded by residential single and multifamily areas. Over 800 members take advantage of their resources located on their forty acres of property. One hundred full-time staff members and twenty five board members allow the JCC to offer a vast array of facilities. Membership is open to everyone, with a Jewish membership rate at a consistent 35% (Sklare). The JCC is comprised of man-made structures surrounded by the managed landscapes. The first physical structure of the JCC was purchased in 1914, almost one hundred years ago. With the primary objective of providing leisure time activities, the early beginnings of the JCC was able to create a variety of programs and activities by conducting them on a volunteer basis while following guidelines set by the National Council of Jewish Women. The Communal building of the JCC came into existence in 1914 after a large fire destroyed The Phoenix Dance Hall on West Morris Street, the original place where all social service activities for the community were conducted. The extensive damage led to remodeling and additions of space that allowed for a wider range of activities.

In 1924, the JCC continued to expand, as a population survey made it clear that an additional building was needed. As a memorial to his wife, Rafael Kirshbaum donated the funds that led to the purchase of new building at 2314 N. Meridian which became the Kirshbaum Community Center. In 1926 the JCC association was established as constituent agency of the Federation. This led to new organization taking control of the operations of the Communal Building and the Kirshbaum Community Center. Both facilities continued to satisfy the community, until 1948 when a new survey brought to light the necessity for additional space and programs. In 1951 a site committee recommended the purchase of forty acres of land at 67th street and Hoover road. The land was purchased in 1952 and after six years of fund raising and construction the JCC opened the outdoor swimming pool in 1956 and two years later opened its doors to the brand-new Jewish Community Center in 1958.

Between the years of 1964 and 1989 the JCC added a variety of structures including handball courts, an indoor swimming pool, and pre-school rooms. In 1997 the center went through a massive twenty five million dollar renovation, quadrupling its size from 24,000 square feet to 160,000 square feet with the additions of a new fitness center, multi-recreation center, auditorium, infant/toddler center, and the Jewish Federation offices (Glick).

III. Social Survey

Goals of Assessment

The community assessment consists of several different goals. The first goal is to provide demographic profiles (e.g. obesity prevalence, activity level, health status, etc.) and community profiles (e.g. non-automotive accessibility/transportation modes to JCC and other automotive transportation routes to JCC, etc.). The second goal is to identify the local communities affected by the JCC's programs. The third goal is to determine the current fitness level and environmental awareness of members of the JCC through use of surveys. Researching the community's level of interest in an on-site eco-wellness trail will aid in determining what components could ensure the success of the trail.

Pre-site Data Gathering

Preliminary investigations confirm that Indiana ranks among the top 25 states with the highest obesity prevalence in the country (CDC, 2010) and that Marion County ranks among the top 25 Indiana counties with regards to the highest obesity prevalence (CDC, 2008). Moreover, the Center for Disease Control and Prevention (CDC) reports that the 2008 age-adjusted estimates of the percentage of adults who are physically inactive are between the ages of 26 and 31. Further investigations using SAVI, a Marion County online health data bank, and the more recent 2010 census tract data will provide a better understanding of the current obesity prevalence and physical inactivity level within Marion County as well as the affected areas surrounding the JCC.

These studies were integral in creating a working definition of an eco-wellness trail. From this primary research, the social group learned that eco-wellness trails often include fitness stations and environmental placards. Other trails focused their programming around teaching environmental responsibility and a lifelong devotion to health and fitness, mainly gearing said programming towards schoolchildren and families. The case studies also taught the social group that similar trails have had issues maintaining an interested user-base after the trail is constructed. Our suggestions to the JCC reflect this knowledge.

A literature review was also performed in order to identify the community factors that are important to reduced obesity. Through this research, we have identified that high accessibility (Frank, L., Sallis, J., Conway, T., Chapman, J., Saelens, B., Bachman, W., 2006) high prevalence of greenspace (Cutts, B, Darby, K., Boone, C., and Brewis, A., 2009), the proximity of schools (Liu, G., 2005) and a low level of crime (Cutts, B, Darby, K., Boone, C., and Brewis, A., 2009), are community characteristics associated with low levels of obesity.

As a result of the literature reviews, the social group decided that analyzing parks, as well as the surrounding greenspaces, would be important to help determine what partnerships may be a possibility for the JCC, as well as, determining the competition that the JCC may have to contest. Parks are also shown to reduce the level of obesity the surrounding neighborhoods, which is a goal of the JCC's eco-wellness trail project. Also as a result of the literature reviews, accessibility surrounding the JCC would need to be examined a little closer. Accessibility, which includes sidewalks, bike lanes, and bus stops, is a key component to JCC membership and the usage of an eco-wellness trail. Having these forms of accessibility lowers crime and

obesity rates in the surrounding areas. Schools surrounding the JCC would also be an important aspect to analyze further. Schools near the JCC may want to utilize the eco-wellness trail for educational purposes and future partnerships.

On-site inventory the community group recorded images of accessibility (including bus stops, bike lanes, and sidewalks). The image below is a picture taken on Hoover Road. It displays the lack of sidewalks, bike lanes, and bus stop shelter. This makes access to the JCC dangerous and problematic especially when considering the relatively constant flow of traffic on Hoover Road.



Figure 1. Dangerous shoulder on Hoover Road.



Figure 2:. Fragmented sidewalks near JCC property.

Methods

Using SAVI, census tract data and the CDC health reports, the community group investigators collected demographic data (e.g. household income, age distribution, gender, race/ethnicity, and crime rate) for the communities the JCC serves. The results were then compared to the demographic data that we collected from surveys. This allows for comparison of the JCC members to that of the nearby communities, which will provide stronger support for the suggested features aimed to increase local use of the trail.

To address issues such as accessibility and connectivity (to green space, sidewalks, parks, schools, bike lanes, etc.) to the area surrounding the JCC, the Geographic Information System (GIS) will also be utilized as a tool that allows the manipulation of various databases over a targeted area. It permits the isolation and analysis of physical attributes in a certain region which provides clear and workable information. GIS allows the ability to select an area, parcel, point, or feature of interest and show a distance ring (buffer) around it. This distance ring highlights the area of interest so that specific items within the ring, such as parks, sidewalks, bike paths, and major roads can be

shown in numbers and dispersal within the given distance from the target (Refer to the glossary for GIS tools). The GIS maps will be presented to the JCC in order to describe the adjacent community so as to assist in addressing community issues in the surrounding neighborhoods.

Table 1. GIS land use broken down by component parts.

GIS Component	Description
Schools	Based on land use
Sidewalk coverage	Shows where sidewalks are available
Park and Greenways	As designated by land use
Bike paths	Based on land use
Bus routes and stops	Major Roads

SAVI Community Profile

The community surrounding the Jewish Community Center (JCC) has a lot of diversity to offer. The following information was collected from SAVI online and includes the population within 14.2 square miles, because census tracts including and surrounding the JCC equate to an area of that size. A large percentage of the members of the JCC live in this 14.2 square mile radius. SAVI online provided a breakdown with graphs for the following demographics: population total, distribution of age, gender, race, household income, and the area's crime rate. These six demographic factors are extremely important when trying to understand the community and the population that lives within that community.

The population for the 14.2 square mile community is 38,169 people. Of those 38,169 people, 24.05% are under the age of 18, 58.7% are between the ages of 18 and 64, and 17.25% are over the age of 65. The male to female breakdown is as follows, 20,293 females and 17,876 males. There are at least 6 different races present in this 14.2 square mile community. The following is a breakdown of the different races present: 24.92% African American, .15% American Indian, 2.06% Asian, 67.62% Caucasian, 2.01% people that identify with multiple races and 3.24% people that identify with a race other than those specified. Another important demographic component that can be used for analysis is household income, because this factor has shown to be associated with low obesity rates (Frank, L., Sallis, J., Conway, T., Chapman, J., Saelens, B., Bachman, W., 2006). A population that is below the poverty level may also be more reliant on public transport and free greenspace than other populations.

The household income for the community is as follows: 6.33% income less than \$10,000, 17.08% income between \$10,000 to \$24,999, 24.92% income between \$25,000 to \$49,999, 16.48% income between \$50,000 to \$74,999, 12.8% income between \$75,000 to \$99,999, and 22.39% incomes with \$100,000 or more. The final demographic that helps us analyze this community is the area's crime rate. SAVI provided two different graphs to help analyze the crime rate of the area. For further reference the crime rates can be seen in Figures 1 and 2. All of the information presented on SAVI online was extremely useful for a community analysis, however it makes the most sense to narrow those topics down to get a more specific analysis.

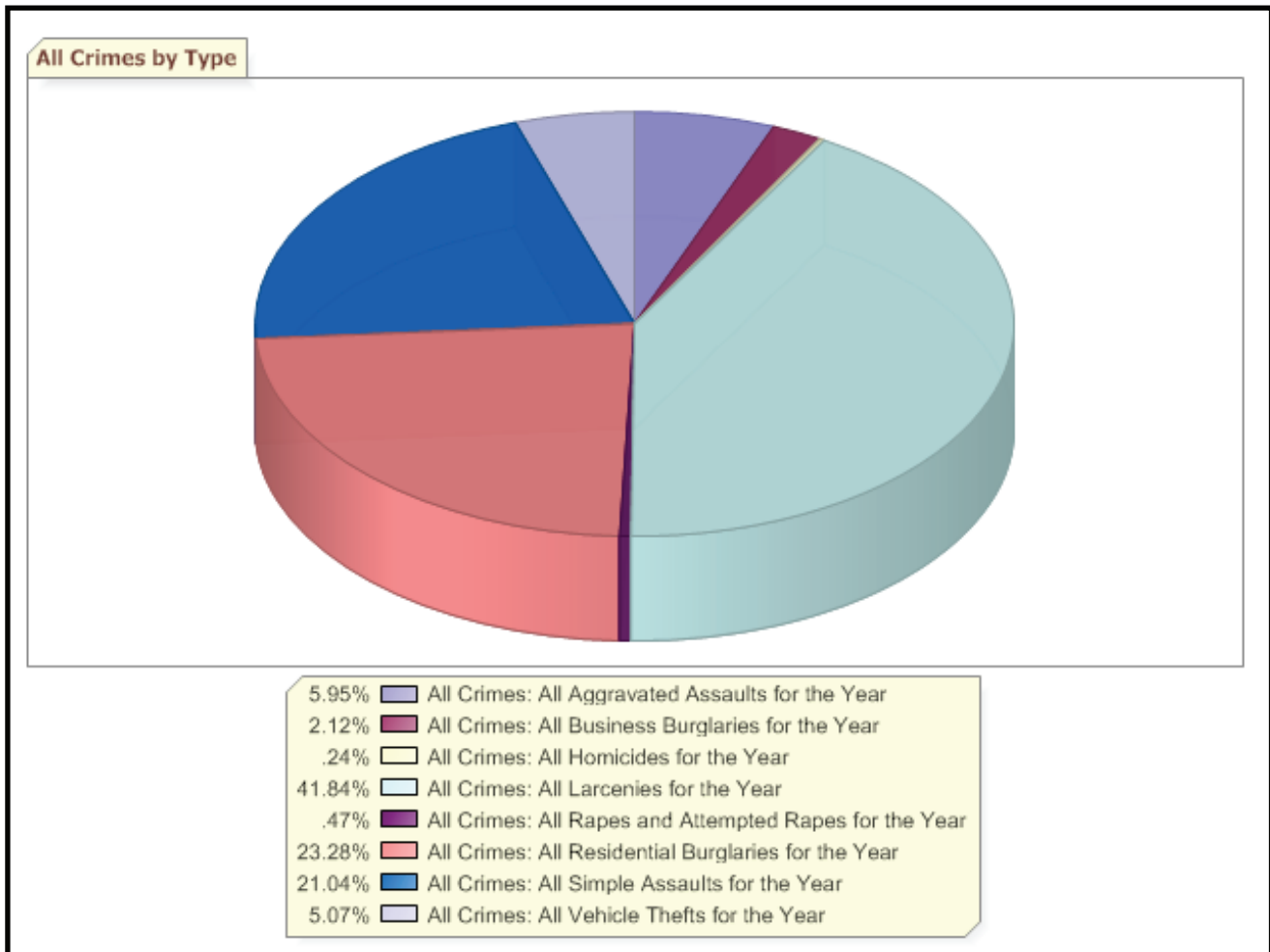


Figure 3: Reported Crimes by Type within the 14.2 mile SAVI Study Area

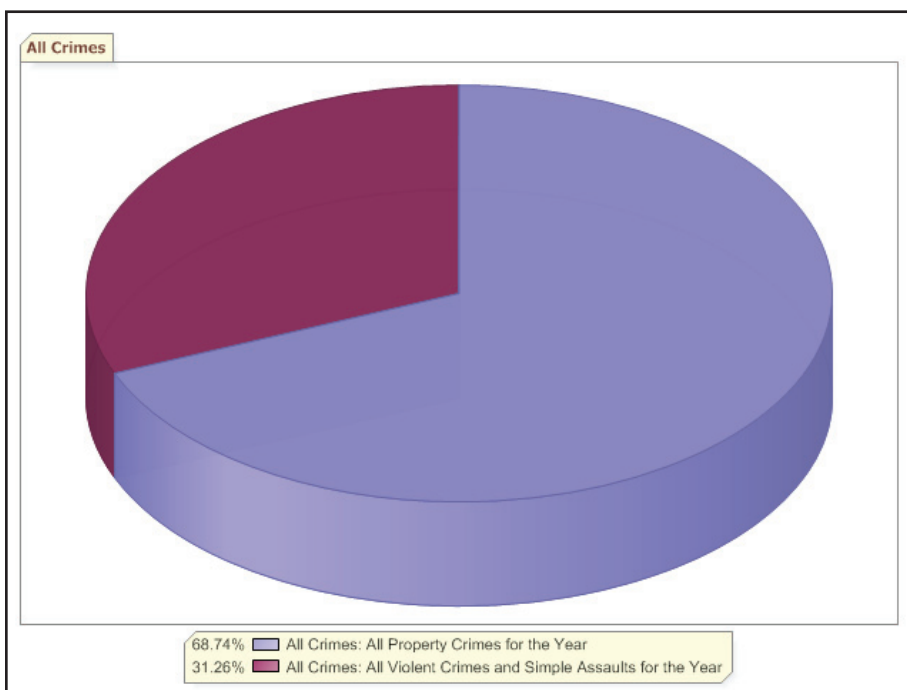


Figure 4: Percentage of Crime in the 14.2 square mile SAVI Study Area [two separate categories-property crimes vs. violent crimes and simple assaults].

Surveys were distributed during on-site visits (November 30, and December 2, 4-6) to gather data on current levels of interest in the eco-wellness trail from JCC members and local residents, as well as gather data on their current outdoor physical activity level. The survey consisted of 16 questions regarding participants' activity level, interest in an eco-wellness trail, what they would like to see the trail offer/provide, and how often they would use the trail. In addition, there were 8 demographic

questions that asked about how far they lived from the JCC, if they ever walk or bike to the JCC, their age, gender, education, income, and level of physical activity. There was a section for further comments and suggestions at the end of the survey (Refer to Appendix A for survey layout). IRB approval for procedures was received on October 28, 2011. The JCC gave approval to begin surveying at the JCC on November 29, 2011. (Refer to Appendix A for IRB approval). Investigators used several cases of other successful trails, such as Eagle Creek and the Monon trail, to help construct the survey questions on what might be included in the JCC eco-wellness trail and the factors that may influence accessibility to the trails (Refer to Appendix C).

All survey data collected will be used as base-lines to estimate whether people will use the trail in addition to how often they will use it and for what purposes. The data gathered for the current physical activity level will be used for comparison after the construction of the eco-wellness trail, which will allow the JCC to evaluate the project's effects. Investigators will analyze the data as two separate samples, one for demographics and another for the level of interest and trail use.

Analysis

Demographic Survey:

Based on the community profile that was designed using SAVI census data, the community group was able to determine the accuracy of the demographic information that was obtained from the survey. Out of a sample size of 161 members who responded to the overall survey, 7.4 percent responded that they live within walking distance of the JCC (under .25 miles). 31.06 percent responded that they live within a short car ride of the JCC (between .25 and 2 miles). 31.58 percent responded that they live within a moderate car ride of the JCC (between 2 and 5 miles). 14.29 percent responded that they live more than five miles from the JCC.

Out of a sample size of 107 respondents 77.6 percent responded that they are between the ages of 18 and 64, while 17.7 percent responded that they are over the age of 65. Out of a sample size of 107 respondents, 87.9 percent identified themselves as Caucasian while 10.3 percent identified themselves as African American and 0.9 percent identified themselves as Native American. The SAVI census data showed that 67.62 percent of residents are Caucasian, 24.92 percent of residents are African American and .15 percent are Native American. From these results it is derivative that the residents of the surrounding community possess slightly more diversity than the membership of the JCC.

Out of a sample size of 107 respondents, 4.7 percent reported a household income under \$15,000. 2.8 percent reported a household income between \$15,000 and \$29,999. 9.3 percent reported a household income between \$30,000 and \$44,999. 3.7 percent reported a household income between \$45,000 and \$59,999. 13.1 percent reported a household income between \$60,000 and \$74,999. 17.8 percent reported a household income between \$75,000 and \$89,999. 34.6 percent reported a household income of more than \$90,000. 16.8 percent of the membership of the JCC reported being at a lower income (below \$45,000) and 34.6 percent of the membership of the JCC reported being at a higher income (more than \$90,000). In compari-

son, 58.48 percent of residents of the surrounding community are reported as being at a lower income (below \$50,000), and 22.39 percent of residents of the surrounding community are reported as being at a higher income (more than \$100,000). From these results it appears that the JCC membership possesses a lower percentage of members at lower incomes than does the surrounding community, and the JCC also possesses a higher percentage of members at higher incomes than does the surrounding community. It appears that overall, the JCC membership are wealthier than the general surrounding community to the JCC.

Interest and Suggestions

Out of the 161 members that the community group surveyed at the JCC, 155 members (96.3%) responded favorably to the construction of an eco-wellness trail. In terms of the features that they would like to see added to the trail, the response that members gave to the community group varied. The features include but are not limited to fitness stations, environmental stations, plant identification plaques, access for pets, access for bikes, access for rollerblades and skateboards, resting benches, water fountains, restrooms, public art and a trail map:

Table 2: Features the sampled JCC members would like to see included in the eco-wellness trail.

Feature	Yes (%)	No (%)
Fitness Stations	32.3	67.7
Environmental Stations	52.8	47.2
Plant Identification Plaques	41.6	58.4
Access for Pets	63.4	36.6
Access for Bikes	52.8	47.2
Access for Rollerblades and Skateboards	81.4	18.6
Resting Benches	42.2	57.8
Water Fountains	32.3	67.7
Restrooms	43.5	56.5
Public Art	52.8	46.6
Trail Map	41.6	58.4

Other features that were recommended by the members who took the community group’s survey include safety access points along Hoover Road, animal tracks, emergency call boxes, handicap accessibility, lighting for extended use, mileage markers, picnic areas, recycling bins, telephone booths, trash containers, walking paths and walking trails.

What the community group found is that, in addition to the features that they suggested, the JCC members who were surveyed responded positively to the inclusion of five features: environmental stations, access for pets, access for bikes, access for rollerblades and skateboards and public art. The six features that the members responded to negatively were fitness stations, plant identification plaques, resting benches, water fountains, restrooms and a trail map.

Due to a time constraint at the end of the semester, the community group analyzed the survey data using percentages. The community group will provide the JCC with the raw data (through

excel) and the original surveys completed by the JCC members. This data can be used by the JCC to compute correlations and t-tests to determine significant relationships.

GIS Analysis

GIS will be used to analyze the level of accessibility to the JCC with a cost distance tool. Cost distance analysis demonstrates how accessible parks, greenways, and the JCC are via different modes of transportation, like sidewalks, major roads, bus routes, and bike paths. Using this information, we can determine not only availability of sidewalks, bike paths, major roads, and bus routes to the JCC, parks, and greenways, but also how easily accessible they are to use to get to and from the JCC from the parks and greenways. Investigators will determine if these features are available, and potentially how easily can they be used to access the parks, greenways, and the JCC.

There are four raster analysis maps that have been created to be utilized by the social group. One analyzes community access to open bikeways and bike lanes, another to sidewalks and greenways, and another to bus stops. The last raster map merges all three of these layers to produce a final analysis of overall community accessibility to the JCC and area parks.

Map 2 (end of report) refers to properties with access to bus stops and proximity to JCC and other parks, shows that there is a good belt of bus stop accessibility running north and south of the JCC. A lack of easily accessible east-west bus stops shows that it is much more difficult for members outside of the north-south belt to access the JCC.

Map 3 illustrates properties with access to sidewalks and greenways with proximity to the JCC and area parks shows the highest accessibility to be southeast of the JCC. This area shows high community sidewalk/greenway accessibility to Holiday Park. Although the area around the JCC appears light yellow or light green which indicates moderate accessibility to sidewalks and greenways, it is important to remember that the connectedness of the sidewalks surrounding the JCC is very low. In fact, upon a physical survey of the area surrounding the JCC, the social group was surprising to see a lack of connected sidewalks. The strip of sidewalk that is nearest to the JCC which may be causing the moderate level of sidewalk accessibility in this raster map but does not necessarily mean that the adjacent community has easy sidewalk or greenway access to the JCC.

The raster map that refers to the properties with access to bike paths and bike lanes that are proximate to the JCC and other parks (Map 4), shows that communities northwest of the JCC have high accessibility to bike lanes and bike paths that connect to the JCC and parks. Communities northeast, east, and south of the JCC, high accessibility to bike paths and bike lanes, but they do not connect to the JCC and appear to connect to other parks and green ways instead. The communities directly north of the JCC are severely lacking accessibility to any bike paths or bike lanes.

The raster map that refers to the properties with combined access to sidewalks, bike lanes, and bus stops weights sidewalks high in accessibility, followed by bike lanes and then bus stops (Map 5). The far southeast area from the JCC has highly accessible sidewalks, bike lanes and

bus stops (denoted by the light yellow) but this area is cut off from the JCC and parks to the northwest. The areas to the north, west, south of the JCC have lower overall accessibility via sidewalks and bike lanes because the ones that are available are not connected in such a way as to link the communities together to the JCC and parks. This combined accessibility raster map provides evidence that the JCC has fairly low to poor accessibility to the nearby communities on foot because there are few sidewalks and bike lanes available and those that are there are fragmented. What's more, the areas to the southeast of the JCC appear to be accessibly served by other parks that they are connected to, rather than the JCC which they cannot get to by foot or bike.

Synthesis

<p>Supporting Data</p> <p>An overwhelming majority of members surveyed, 96.3 percent, said they wish for the JCC to install an eco-wellness trail on the campus.</p> <p>84.5 percent of surveyed members said that an eco-wellness trail on the property would enhance their JCC membership.</p>	<p>Suggestion: Build a Trail</p> <p>The JCC should build an eco-wellness trail in order to improve membership experiences.</p>
<p>Supporting Data</p> <p>Of the surveyed members of the JCC, 63.4 percent wanted to see pets allowed on the eco-wellness trail.</p>	<p>Suggestion: Pets Welcome</p> <p>Welcome pets on the trail.</p> <p>Offer stations with clean up bags for owners to use, in order to ensure a well-maintained trail.</p>
<p>Supporting Data</p> <p>Of the surveyed members of the JCC, 78.49 percent have a household income of over \$50,000.</p> <p>SAVI data revealed that 48.33 percent of the population, in the areas most closely related geographically to the JCC, earned an annual household income of less than \$50,000.</p>	<p>Suggestion: Open Trail to the Public</p> <p>In order to aid the JCC in its mission to combat obesity in the neighborhoods surrounding the property, the JCC should encourage and allow access to the public on the eco-wellness trail.</p>
<p>Supporting Data</p> <p>Case studies revealed that similar organizations often had issues sustaining interest in the eco-wellness trail. To combat this, the particular organization rotated art exhibits yearly.</p>	<p>Suggestion: Keep Programming Dynamic</p> <p>Use annual “Earth Day” events to “open” the trail and sustain interest.</p> <p>Rotate fitness and ecology stations to keep content fresh.</p>

<p>Supporting Data</p> <p>Raster analysis revealed that the JCC is inaccessible from the East using sidewalks, bike lanes and bus stops.</p> <p>Holiday Park is located to the East of the JCC, has similar interests as the eco-wellness trail, and is within 1 mile of the JCC property.</p>	<p>Suggestion: Partner with Holiday Park</p> <p>The JCC should partner with Holiday Park to lobby for bike lanes, sidewalks, and bus routes in the area.</p>
<p>Supporting Data</p> <p>Of the members surveyed, 81.4 percent would like to see skateboards and rollerblading allowed.</p> <p>Of the members surveyed, 52.2 percent of the surveyed members wish to have bikes allowed on the trail.</p>	<p>Suggestion: Allow Skateboards, Rollerblades and Bikes on the Trail</p> <p>Skateboards, rollerblades and bicycles should be allowed on the trail.</p> <p>The physical material that makes up the trail should be conducive to rollerblading, skateboarding and biking.</p>
<p>Supporting Data</p> <p>Of the members surveyed, 62.74 percent live between .25 miles and 5 miles of the JCC, beyond walking distance.</p> <p>Of the members surveyed, 31.08 percent of members live between .25 miles and 2 miles of the JCC, feasible biking distance.</p> <p>Of the members surveyed, 42.9 percent would bike to the JCC.</p> <p>Of the members surveyed, 62.73 percent would not walk to the JCC.</p>	<p>Suggestion: Focus on Bike Lanes</p> <p>The JCC should focus its efforts on obtaining bike lanes in the area, rather than sidewalks, in its attempt to gain accessibility.</p>
<p>Supporting Data</p> <p>Of the members surveyed, 34.78 percent said their current level of physical activity was moderate.</p> <p>Of the members surveyed, 32.92 percent said their current level of physical activity was between moderate and rigorous.</p>	<p>Suggestion: Physical Stations should Be Moderate to Moderate-Rigorous in Level</p> <p>The JCC should install physical stations that qualify as moderate to rigorous, based on the current level of physical activity of their members, in order to adequately challenge and interest them.</p>

Supporting Data	Suggestion: Low Maintenance Costs / Sustainability
<p>In the Hennepin Canal case study, financial issues related to the maintenance costs of the trail hindered the organization's ability to continue programming.</p>	<p>The JCC should build a trail that is relatively low-cost to maintain. This makes long term management easier to plan for and ensures the life of the trail when funding is an issue.</p>
Supporting Data	Suggestion: Further Survey Research
<p>The sample size for our survey was 161, which is not a large sample size in relationship to the large membership base.</p> <p>The survey used to base this research on was a based on a convenience sample. As a result, the findings cannot be generalized to a larger audience.</p>	<p>The JCC should conduct more in-depth survey research, employing a larger sample size and a random sample.</p>

Summary

The success of the eco-wellness trail can only be determined by the nature and extent of its impact in the community. Through gathering and analysis of available information, this project has pinpointed the features and aspects of the trail that will hold the greatest impact for the community. The community group has accomplished this by determining which aspects are most needed to aid in wellness and which aspects are most desired by current JCC members in order to provide the JCC meaningful information to consider when they design and implement the trail.

IV. Environmental Assessment

An environmental assessment is necessary to provide information about the fauna, flora, and soils on site that will affect project design and future management. It also ascertains potential impacts the project may have. Although this project is not being conducted for permitting purposes, it may reveal assets and issues for the JCC as it moves forward.

In order to gather information, the class will use methods appropriate to its target. For fauna (mammals, amphibians, reptiles, birds), information such as number present, time of day activity is observed, and the areas where fauna is most likely found will be documented. The survey of flora found at the JCC will provide a better understanding of the surrounding natural environment and potentially identifying invasive species for future removal and restoration opportunities. Information pertaining to flora such as location, scientific and common name, and indication of native environment will also be documented. Locating habitats which indicate the presence of a wetland or other amenities/sensitive areas will be essential in directing the purposed trail to reduce impacts and highlight notable natural features.

Methods

Pre-site Visit

Pre-site visit research was conducted in order to adequately prepare to meet the goals of the project. A soil map of the area was constructed using the United States Department of Agriculture's Natural Resources Conservation Service Web Soil Survey site. Soils were reviewed for their status which may also indicate presence of a wetland on site. Geographic Information System (GIS) analysis was also used with in order to prepare for future use and mapping of the JCC campus. Experts in mammal, reptile, and amphibian trapping were consulted to aid in understanding how this process works and what fauna to expect. A presentation and follow-up interview with a plant identification expert was also performed. Utilizing the information given by these experts, Tables 3-6 were created to provide a list of what might be found on site. In addition, background information about the JCC, its campus, facilities, program offerings, and surrounding demographics was gathered.

Table 3. A table of mammal species that may occur on the JCC's campus. Those with an () after the common name were found to be active on site through survey methods.*

Species	Common Name
<i>Procyon lotor</i>	Raccoon*
<i>Didelphis virginiana</i>	Opossum
<i>Sylvilagus floridiana</i>	Eastern Cottontail
<i>Peromysues leucopus</i>	White-footed Mouse
<i>Mus musculus</i>	House Mouse
<i>Peromysues maniculatus</i>	Deer Mouse
<i>Microtus ochrogaster</i>	Prairie Vole
<i>Blarina brevicauda</i>	Short tail Shrew
<i>Rattus norvegicus</i>	Norway Rat
<i>Tamias striatus</i>	Eastern Chipmunk

Species	Common Name
<i>Scurius niger</i>	Fox Squirrel*
<i>Tamias scurius hudsonicus</i>	Red Squirrel*
<i>Scurius carolinensis</i>	Eastern Gray Squirrel
<i>Vulpes vulpes</i>	Red Fox
<i>Odoeleus virginianus</i>	White-tailed Deer
<i>Scalopus aquaticus</i>	Eastern Mole
<i>Marmota monax</i>	Eastern Woodchuck
<i>Glaucomys volaris</i>	Southern Flying Squirrel
<i>Canis latrans</i>	Coyote

Table 4. A table of reptile and amphibian species that may occur on site at the JCC. Those with an (*) after the common name were observed on-site by using a time constrained search. For a set time period, individuals looked under everything in a given area in order to observe reptiles present. As the weather was cool at the time of surveying, few species were expected.

Species	Common Name
<i>Terrapene carolina</i>	Box Turtle
<i>Thamnophis sirtalis</i>	Garter Snake
<i>Bufo americanus</i>	American Toad
<i>Chelydra serpentina</i>	Snapping Turtle
<i>Ambystoma texanum</i>	Smallmouth Salamander
<i>Acris cerpitans</i>	Cricket Frog

Table 5. A table of bird species common to Indianapolis and therefore likely to be seen at the JCC. Those with an asterisk (*) after the common name were observed on site during inventory.

Species	Common Name
<i>Branta canadensis</i>	Canada Goose
<i>Anas platyrhynchos</i>	Mallard
<i>Ardea herodias</i>	Great Blue Heron
<i>Cathartes aura</i>	Turkey Vulture
<i>Accipiter cooperii</i>	Cooper's Hawk
<i>Buteo jamaicensis</i>	Red-Tailed Hawk
<i>Falco sparverius</i>	American Kestrel
<i>Columba livia</i>	Rock Pigeon
<i>Zenaida macroura</i>	Mourning Dove
<i>Chaetura pelagica</i>	Chimney Swift
<i>Archilochus colubris</i>	Ruby-throated Hummingbird
<i>Melanerpes carolinus</i>	Red-bellied Woodpecker
<i>Picoides pubescens</i>	Downy Woodpecker
<i>Colaptes auratus</i>	Northern Flicker
<i>Dryocopus pileatus</i>	Pileated Woodpecker

Species	Common Name
<i>Cyanocitta cristata</i>	Blue Jay
<i>Corvus brachyrhynchos</i>	American Crow
<i>Tachycineta bicolor</i>	Tree Swallow
<i>Hirundo rustica</i>	Barn Swallow
<i>Poecile carolinensis</i>	Carolina Chickadee
<i>Baeolophus bicolor</i>	Tufted Titmouse*
<i>Sitta carolinensis</i>	White-breasted Nuthatch
<i>Thryothorus ludovicianus</i>	Carolina Wren
<i>Troglodytes aedon</i>	House Wren
<i>Poliophtila caerulea</i>	Blue-gray Gnatcatcher
<i>Sialia sialis</i>	Eastern Bluebird
<i>Turdus migratorius</i>	American Robin*
<i>Dumetella carolinensis</i>	Gray Catbird
<i>Mimus polyglottos</i>	Northern Mockingbird
<i>Sturnus vulgaris</i>	European Starling
<i>Melospiza melodia</i>	Song Sparrow
<i>Cardinalis cardinalis</i>	Northern Cardinal*
<i>Passerina cyanea</i>	Indigo Bunting
<i>Agelaius phoeniceus</i>	Red-winged Blackbird
<i>Quiscalus quiscula</i>	Common Grackle*
<i>Carpodacus mexicanus</i>	House Finch
<i>Spinus tristis</i>	American Goldfinch
<i>Passer domesticus</i>	House Sparrow

Table 6. A table of plant species that could be expected at the JCC's campus.

Species	Common Name
<i>Acer negundo</i>	Box elder
<i>Asimina triloba</i>	Paw paw
<i>Cardamine concatenata</i>	Cut-leaf toothwort
<i>Circaea lutetiana</i>	Common enchanter's nightshade
<i>Cryptotaenia canadensis</i>	Honewort
<i>Eupatorium rugosum</i>	White snakeroot
<i>Lonicera maackii</i>	Amur bush honeysuckle
<i>Parthenocissus quinquefolia</i>	Virginia-creeper
<i>Phytolacca americana</i>	Pokeweed
<i>Polygonum virginianum</i>	Virginia knotweed
<i>Prunus serotina</i>	Black cherry
<i>Tilia americana</i>	Basswood
<i>Toxicodendron radicans</i>	Poison ivy

Soils and Wetlands

Certain habitats like wetlands are critically important to environmental processes. Wetlands are classified by taking samples and surveys of the water, soil, and plants in the area. They are important to process and identify for future development, learning opportunities, and possible restoration projects while also eliminating possible impacts on the protected areas. A pre-site survey of the land was performed to determine if a wetland might be present on site. The NRCS on-line 'web soil survey' tool and GIS was used to map soils for the project site. Map 6 illustrates the soils mapped for the site and for the surrounding area. Based on these sources, there are three soil types mapped for the JCC campus : Brookston silty clay loam (Br), Crosby silt loam (CrA), and Miami silt loam (MmA). In the areas surrounding the JCC the same three soils were found as well as a fourth soil type; Miami silt loam, slightly eroded (MmB2).

Fauna

Sherman traps and track slabs were used to survey mammals at night beginning October 23rd and ending the morning of October 25th. Sherman traps are metal traps that measure 2 inches by 2.5 inches by 6.5 inches (Figure 5). Traps were set under the supervision of Dr. Carmen Salisbury and no animals were harmed. Each trap was lined with cotton to allow for nesting by the trapped animal. Peanut butter and granola were used for bait.

The Sherman traps were aligned in transects in three areas of interest (forested area, edge between forest and soccer field, and near a suspected wetland) (Map 7). Traps were set up overnight on consecutive days and checked the morning after, then closed during the day. A total of 42 traps were set for 14 hours per night for two nights for a total of 1,176 trap hours. Three track boards were placed to record tracks of larger animals. Track boards are large wooden squares with an inkpad border (Figure 6).

In the center is a circular bowl of food surrounded by a white paper. Oats, seeds, and peanut butter were put in the bowl in the middle on the night of October 23rd and during the day of October 24th. Wet cat food was used the night of October 24th in an effort to lure carnivores Paper was switched each morning and evening. Nine tracking papers were used in total. The boards were on site for a total of 38 hours, collecting over 114 hours of inventory. For reptiles, a time constrained search was performed. A time constrained search is a method used to explore the largest quantity of land in the smallest time. Multiple people search a plot of land at the same time, checking under de-



Figure 5: Sherman Trap used for surveying at the JCC



Figure 6: Typical track board

bris for reptiles/amphibians. Five individuals conducted the time constrained search for periods of 20 minutes each in three different areas of the site where. Thus, each area was searched for a total of 100 minutes. This provided 3 hours of inventory.

A bird survey was performed to identify bird species at the Jewish Community Center. Early mornings are peak bird activity hours, therefore, the survey was conducted in the morning of November 8, 2011. This was after the Fall migration so we were more likely to only see resident species. We walked the campus and for 5 minutes recorded the various bird species that were either seen and/or heard in a 50 meter radius at 4 points in the Northwest wooded portion of the site.

Flora

Conversely to recording animals, a plant inventory does not have specific times to be conducted, although it is easier to determine species when the leaves are still present, therefore, the changing weather was of concern. A two hour walk-thru of the woods with the use of a handheld GPS to mark points of interest was conducted with plant specialist Dr. Rebecca Dolan (Butler University) to assess size, age, and quality of trees and other plant species; a total of 45 tree and plant species were assessed. In order to obtain an idea of the quality of the environment, the species data was incorporated the Floristic Quality Assessment (FQA) which is a standardized method that assesses the natural quality of an environment by using the regionally attributed individual quality value of each plant species, the Coefficient value or C-value. The calculation of the total C-values of the plant species yielded a numerical value that represented the overall quality of the environment, the Floristic Quality Index (FQI).

$$FQI = C\text{-value} \times \sqrt{\# \text{ plant species}}$$

Analysis

Fauna

No animals were caught in the Sherman traps. Part of a line transect was, however, most likely disturbed by a raccoon during the night of October 23rd. Disruption of the line transect was observed in a number of unexplained alterations of the traps and attributed to raccoons through Dr. Salsbury's expertise.

Raccoon tracks were found on three of the nine tracking papers: nights of October 23rd (point 10)*and 24th (points 8 and 10). Figures 7 and 8 show one of the raccoon prints. Cat prints (Figures 9 and 10) were found on one track board run during the day of October 24th (point 8). The remaining five tracking sheets did not collect any tracks. While raccoons were detected, the study performed did not locate the raccoons' nest. The JCC could either be a home or a foraging area for the raccoons. As large mammals, raccoons have the ability to travel long distances overnight. Similarly, the cat may be living on site or outside the site.



Figures 7 and 8 :A raccoon print on one of the track boards. This is a representative print of the rest of those observed at points 8 and 10

are present on site. Small prints (Figures 11 and 12) were detected at point 10, run during the day of October 24 that were determined to be those of a field mouse. Error of the trap used, food used, weather, and location needs to be considered.

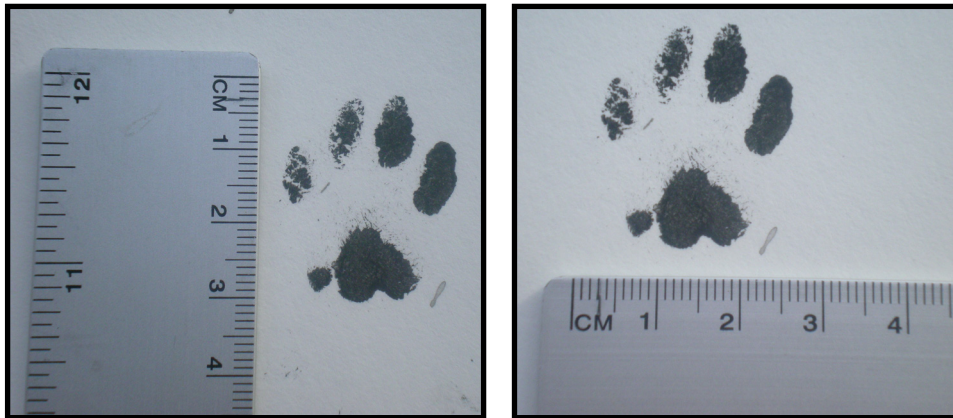
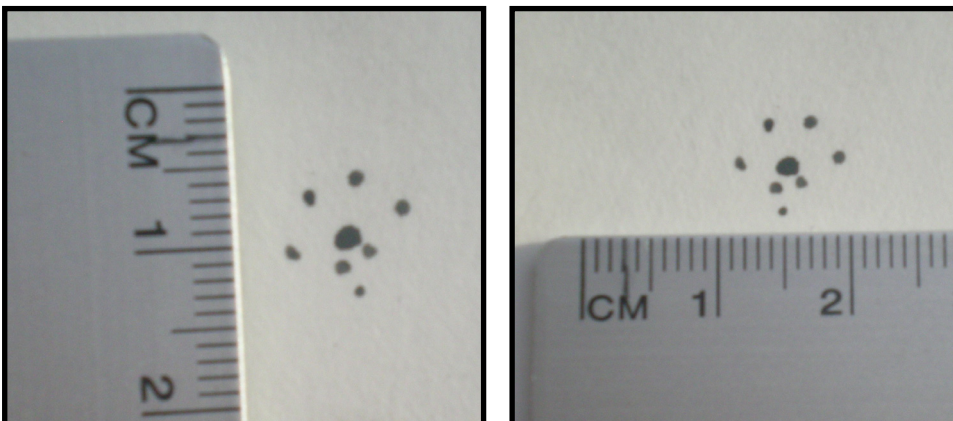


Figure 9 and 10: A domestic cat paw print as seen on the track board at point 8.



Figures 11 and 12: A small print from one of the track boards that is most likely (based on size and habitat) to be a field mouse from point 10

While walking around the site, fox squirrels and red squirrels were observed. A number of squirrel tree nests were noted on site. Squirrel nests indicate that the mammals live on the site year- round.

The time- constrained search found 2 red-backed salamanders on the campus. Salamanders were found underneath logs and wooden structures. Dr. Travis Ryan found an additional red-backed salamander during pre-site work.

For bird surveys, the site was sampled using 50 meter, fixed-radius points incorporating five minute point counts (Ralph et. al., 1993). A sampling visit was conducted on the morning of November 7, 2011 between 6:45 and 7:30 A.M. This particular time of the season falls outside the normal breeding and migration season of birds, resulting in less singing or calling of birds. However, given the project it was still felt useful to gather some information regarding birds. Sampling points were concentrated in the NW portion of the site, where, due to the size and shape of this area, only 4 sample points were required. The points were spaced out to cover the entire wooded portion and meadow like area associated with the soccer field and drainage area. All birds observed within the sample points as well as those heard, or observed moving through the site were noted. At least one Northern Cardinals was both observed or heard. At the point behind the playground, by point 10 of the trackboards, a Tufted Titmouse was heard twice and an American Robin was heard once. A Tufted Titmouse was also heard on the concrete path by point 8 of the trackboards. On the path in the playground, an American Robin was sighted changing position, as were 2 Common Grackles.

Flora

A total of 45 tree and plant species were found on site and identified based on field guides and the expertise of Dr. Rebecca Dolan, PhD of Botany at Butler University (Table 9). Utilizing the information from the Floristic Quality Assessment of the site, the following was determined:

1) which plant species increased the overall quality of the environment, 2) fundamental information about the present conditions and quality of the environment, and 3) what plant species should be marked for educational purposes.

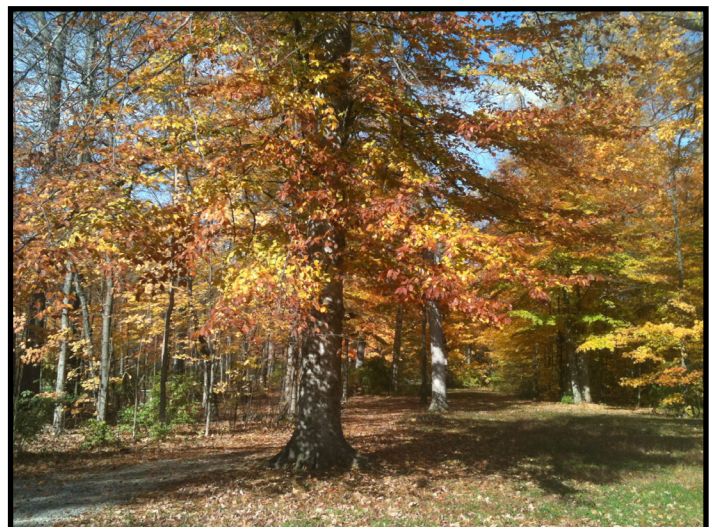


Figure 13: An American Beech tree found on site at the JCC

Citronella Horse Balm, Running Strawberry, American Beech (Figure 13), and Blue Ash are all native, highly sensitive, and high quality species that were found on site. Dr. Dolan recommended that the native species be labeled and left as they are.

Honeysuckle (Figure 14), creeping smartweed, and winter creeper (Figure 15) were non-indigenous species of plant. More of a concern was the honeysuckle and winter creeper which

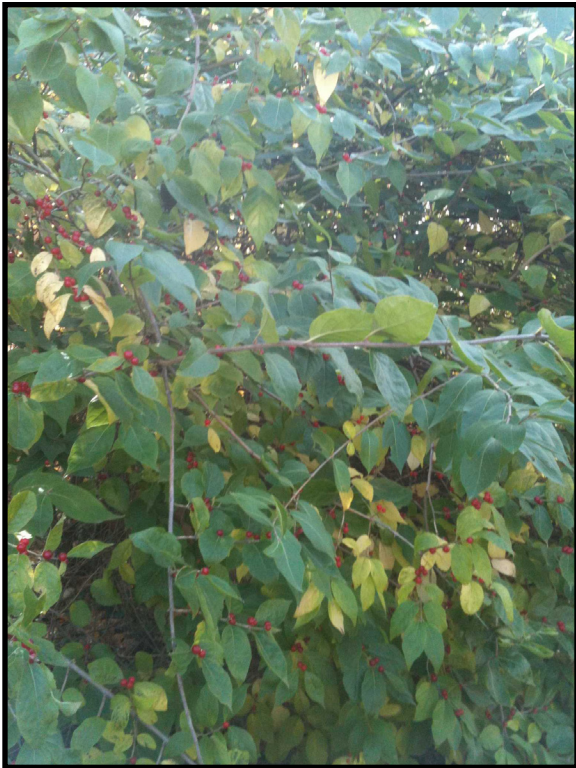


Figure 14: Honeysuckle, one of the invasive species found at the JCC

were found in every area of uncleared land. Map 8 shows where certain invasive species were found in relation to non-invasive species. It is suggested that these invasive species be removed for the success of the surrounding native flora. Removal involves the assistance of a professional with expertise in this field due to the fact that the process is highly aggressive and continual for a period of time. The species removal can be done by pulling the young shoots early, or cutting the older plants off and coating the stem and any new shoots in herbicide (McCullough).

The Coefficient of Conservatism or C-value is a regionally assigned number to a plant in order to indicate its inherent sensitivity to ecological disturbance. The value range is from 1 – 10 where one is the lowest quality and 10 is the highest, thus, the higher the number, the higher the quality of the plant species. The Floristic Quality Index (FQI) is derived from the mean C-Values and represents an overall quality of the plants. By multiplying the mean C-Value by the square root of the number of

native species, the FQI or the quality rating of the native habitat is acquired. By performing the calculation including the total number of plant species {native and non-native} the overall quality rating of the habitat is acquired. According to this measurement, the JCC habitat site would be ranked as an environment of marginal quality, but there are other factors that suggest better quality. The C-Values and FQI both are highly contingent on sampling area and site size, thus, a small sampling area and small site size will yield lower mean C-values and a decreased FQI. Another factor to consider is the individual plant species that have high C- Values, specifically, those with a 7 or 8 which denotes a habitat of long-preserved high quality plant communities.

Table 9 illustrates trees found on site at the JCC and their respective C-values. The C-Value is a value assigned to plant species that indicates sensitivity of the species to environmental disturbances. A higher C-value represents a higher quality habitat. Ranges of c-values are 1-4, 5-6, 7-8, and 9-10. From 7-10 represents a high quality habitat. A row highlighted in red shows high C-value plants. A blue row shows obligate wetland plants. A green row shows non-native plants. The physiognomy is represented by



Figure 15: Wintercreeper, another invasive species found at the JCC

the following abbreviations: Nt = Native, Ad = Adventive (Non-native); P = Perennial, B = Biennial, A = Annual, W = Woody. A forb is a plant that loses its leaves/flowers and stems at the end of the growing season.

Table 7: Trees at the JCC and C-Values

C-Value	Scientific Name	Physiognomy	Common Name
1	<i>Acer negundo</i>	Nt Tree	Boxelder
4	<i>Acer saccharum s. saccharum</i>	Nt Tree	Sugar Maple
2	<i>Ageratina altissima</i>	Nt P-Forb	White Snakeroot
0	<i>Alliaria petiolata</i>	Ad B-Forb	Garlic Mustard
0	<i>Ambrosia trifida</i>	Nt A-Forb	Giant Ragweed
6	<i>Asimina triloba</i>	Nt Tree	Papaw
4	<i>Botrychium virginianum</i>	Nt Fern	Rattlesnake Fern
5	<i>Carya cordiformis</i>	Nt Tree	Bitternut Hickory
4	<i>Carya ovate</i>	Nt Tree	Shagbark Hickory
3	<i>Celtis occidentalis</i>	Nt Tree	Hackberry
5	<i>Cephalanthus occidentalis</i>	Nt Shrub	Buttonbush
8	<i>Collinsonia Canadensis</i>	Nt P-Forb	Citronella Horse balm
0	<i>Conyza Canadensis</i>	Nt A-Forb	Horseweed
0	<i>Euonymus alata</i>	Ad Shrub	Winged Euonymus
0	<i>Euonymus fortunei</i>	Ad Shrub	Wintercreeper
7	<i>Euonymus obovata</i>	Nt Shrub	Running strawberry
4	<i>Eupatoriadelphus fistulosus</i>	Nt P-Forb	Hollow Joe Pye Weed
0	<i>Eupatorium serotinum</i>	Nt P-Forb	Late Boneset
8	<i>Fagus grandifolia</i>	Nt Tree	American Beech
4	<i>Fraxinus Americana</i>	Nt Tree	White Ash
3	<i>Fraxinus pennsylvanica v. pennsylvanica</i>	Nt Tree	Red Ash
7	<i>Fraxinus quadrangulata</i>	Nt Tree	Blue Ash
5	<i>Lactuca floridana</i>	Nt B-Forb	Blue Lettuce
2	<i>Laportea Canadensis</i>	Nt P-Forb	Canada Wood Nettle
0	<i>Ligustrum vulgare</i>	Ad Shrub	Common Privet
5	<i>Lindera benzoin</i>	Nt Shrub	Hairy Spicebush
4	<i>Liriodendron tulipifera</i>	Nt Tree	Tulip Poplar (State tree)

0	<i>Lonicera maackii</i>	Ad Shrub	Amur Honeysuckle
0	<i>Persicaria caespitosa</i>	Ad A-Forb	Creeping Smartweed
0	<i>Persicaria pennsylvanica</i>	Nt A-Forb	Pinkweed
2	<i>Pilea pumila</i>	Nt A-Forb	Canada Clearweed
3	<i>Platanus occidentalis</i>	Nt Tree	Sycamore
4	<i>Polygonatum biflorum</i>	Nt P-Forb	Small Solomon's
1	<i>Prunus serotina</i>	Nt Tree	Wild Black Cherry
5	<i>Quercus macrocarpa</i>	Nt Tree	Burr Oak
4	<i>Quercus rubra</i>	Nt Tree	Northern Red Oak
2	<i>Sambucus nigra s. Canadensis</i>	Nt Shrub	Common Elderberry
2	<i>Sanicula odorata</i>	Nt P-Forb	Clustered Black
4	<i>Smilax lasioneura</i>	Nt H-Vine	Common Carrion
0	<i>Solidago canadensis</i>	Nt P-Forb	Canada Goldenrod
0	<i>Symphotrichum pilosum v. pilosum</i>	Nt P-Forb	Hairy Aster
5	<i>Tilia americana v. americana</i>	Nt Tree	American Linden
1	<i>Toxicodendron radicans s. radicans</i>	Nt W-Vine	Poison Ivy
6	<i>Viburnum dentatum</i>	Nt Shrub	Southern Arrow-wood
1	<i>Vitis riparia</i>	Nt W-Vine	Riverbank Grape

The circumference of three American Beech trees {high C-values of 8} were measured on site; with these measurements their ages were estimated. After reviewing different calculations to estimate tree age, Dr. Rebecca Dolan suggested using the foresters' calculation:

$$\text{Estimated tree age} = (\text{Circumference} / \pi) \times 12$$

Using this calculation the following age results were found:

Beech Tree #1: 81.5 in. = ~311 yrs.
 Beech Tree #2: 73 in. = ~279 yrs.
 Beech Tree #3: 105 in. = ~401 yrs.

Three wetland plant species show that there may be a wetland on the site. This could be used as a teaching tool or utilized in another way, like a rain garden. Although this environment has many positive aspects, there are non-native species thriving there as well: winter creeper, amur honeysuckle, and creeping smartweed. Not only do these plants lower the FQI but they have a negative effect on the native species, especially the invasive winter creeper and honeysuckle.

These invasive plants should be of a high concern. Aggressive forms of chemical treatment are needed and should be continued for a certain amount of time to eradicate these species.

The results from the Floristic Quality Assessment can be a long term tool used to repeatedly assess habitat quality, compare habitat quality with various other sites, and track the quality of the habitat over time.

Synthesis

Using GIS data and putting data on a map showing where any clusters of wildlife were found, will show that the goals of the JCC in building an eco-wellness trail is foreseeable. If the site is diverse in both flora and fauna, this would be a promising result for the amount of programming the JCC has in mind. The class will provide the JCC with more data that it can use to make a case for the grant applications.

Analysis shows that there are certain measures the JCC should take in order to ensure that assets and resources on its campus are protected. The JCC is more than a community center for people, but also a habitat for urban creatures. Certain areas containing evidence of wildlife and important plant species could be highlighted with Eco-stations. Below are 9 recommendations that the JCC can use to improve their campus for Eco-wellness. Included is a map for proposed eco-destinations (Map 9). This map does not necessarily dictate the trail layout, but offers opportunities for destinations based on assets identified on campus. It also does not account for current assets that may also be incorporated (vegetable garden, soccer field, reflection areas).

1. **Build wildlife demonstration eco-station.**

- Evidence where fauna exists could be restored to encourage wildlife to use the JCC.
- Include various aspects of urban wildlife: habitat, nest/den materials, types and locations, examples of fauna diet, scat, and fur.
- This would showcase what an animal needs to survive in an urban setting.
- Young people especially could have hands on experience with nature and learn about the environment that surrounds them.
- Placards and signage would explain to JCC Eco-wellness trail visitors what each part of the demonstration station is and its importance.
- This would be incorporate environmental learning and discovery within the outdoors for users of the Eco-wellness trail.

2. **Build an eco-station dedicated to ornithology.**

- This could be an extension to the wildlife demonstration, the focus being on birds, and highlighting the Northern Cardinal, as Indiana's state bird and the most observed on site
- Discuss kinds of bird nests and who lives in them. Bird nests are an effective teaching tool of the flight patterns and how Indiana plays a role in seasonal bird migrations. This teaching tool is bilateral because it also incorporates the utility of native trees.

3. **Place bird feeders and nest and bat boxes throughout the JCC campus.**

- Enhance habitat by placing feeders and boxes at various points along the trail.
- Experiment with different types of feeders and feed to discover bird preference.

- These additions may encourage programming for avid early-morning birders. Partnering with the local chapter of the Audubon Society could allot more funding and support.
4. **Provide trail users environmental guide and activity booklet.**
 - Users will know where eco-stations are located throughout the JCC campus and what elements of nature the JCC is highlighting on its campus. This gives the breadth and range of what environmental sites of interest the JCC has to offer.
 - Pictures could be added to indicate what fauna and flora species look like.
 - This promotes environmental learning across all ages.
 - Young people can learn by doing and discovering the world around them through experiences on the trail and activities in the pamphlet or at eco-stations.
 - Adults can learn by recognizing the asceticism in their surroundings and utilizing the environmental guide.
 5. **Create an Arboretum.**
 - Plant and tree species could be marked to along the trail to highlight important flora species.
 - This provides trail users information about what flora species are most prevalent in an urban environment.
 6. **Build an eco-station dedicated to trees.**
 - Include various aspects to trees: bark, leaves, and fruits.
 - This provides hands on experience to feel various bark and leaf types. Young people can be exposed to what is in their environment.
 - A means describing how to calculate a tree's age could be set up at the Beech tree calculated to be over 400 years old. This is a remarkable specimen that should capture the attention of those walking on the Eco-wellness trail.
 - The JCC could further assess trees on site in regards to carbon sequestration and air quality, along with assessing tree canopy which is an indicator of a sustainable, healthy urban ecosystem.
 7. **Remove invasive species.**
 - A large amount of honeysuckle was found and it is suggested that it be removed for the success of the surrounding native flora. This can be done by pulling young shoots early or cutting the older plants off and coating the stem and any new shoots in herbicide (McCullough).
 - Removal of these invasive species will allow further propagation of native plant species and the advancement of an environment where native species can further thrive.
 8. **Construct a rain garden on the JCC campus.**
 - This would serve to naturally absorb water run-off from the road and a means of a natural water filtration system.
 - Instead of using man-made infrastructure like storm sewers and drains, a rain garden is a natural infrastructure that decreases water pollution, increases water quality, utilizes native flora, and enhances the overall environment.
 - Possible plants to include would be: Butterfly Weed, New England Aster, Purple Cone-

flower, Wild quinine, Sweet Coneflower, Prairie Dropseed, Spiderword, Culver's Root, Swamp Milkweed, Southern Blue Flag, and Mountain Mint.

9. **Site restoration**

- Restore plant and wildlife communities to encourage use as a green corridor.
- Take out back portion of ring road. This allows a separation of the natural and man-made environment. The ring road is a user conflict—it is a danger for playing children, disruption in serene environment, and danger for wildlife on the JCC campus. By clearing out part of the ring road, the JCC can promote connecting with nature for all users. Traffic can also be reduced.
- Conserving the understory of fallen trees, tall grasses, and tree cavities will provide habitat for small animals (Salsbury)
- Keep an intermediate age level of trees to attract mammals.

A number of bird species were seen and heard throughout the JCC campus. The JCC is not far from a major park, Eagle Creek Park which supports migrating and local bird species.

Though aggressive means of eliminating invasive species is recommended, the tree canopy on site is ample and dense (Images 15 and 16) thus, inhibiting much of the vertical growth of these invasive species and keeping their growth close to the ground. The JCC could further assess trees on site in regards to carbon sequestration and air quality, along with assessing tree canopy which is an indicator of a sustainable, healthy urban ecosystem.

A section along the trail could be created into an Arboretum. Plant and tree species could be marked to along the trail to highlight important flora species. In addition, an eco-station describing how to calculate a tree's age could be set up at the Beech tree calculated to be over 400 years old. This is a remarkable specimen that should capture the attention of those walking on the Eco-wellness trail.

V. Summary

The plants and animals assessed were in no danger of an environmental imbalance and seemed typical of an urban-suburban environment. These species observed have adapted well to developed areas. Some plant species were of high quality and reminiscent of the historical plant community. However, due to urbanization and development, invasive species have been able to colonize and dominate some areas of the site.

The class was able to assess, analyze, and provide important data through various tools and methodologies about the physical environment and social community surrounding the JCC. The class was also able to develop suggestions that involved a utilitarian approach to address the needs of the people and to enhance the attractiveness of an Eco-wellness trail to the public in order to help its implementation be more of a success to the environment and in the lives of the community. It is suggested that the invasive plant species are removed by chemical means and those areas are restored by planting native plant species and are further used as rain gardens. Also, it is suggested that further assessments of trees and tree canopy are performed to ascertain carbon sequestration facilitation and environmental health and sustainability of the site ecosystem. In regards to fauna, the JCC campus provides habitat for a diverse amount of animals. Maintaining an intermediate flora age level will increase small mammal and bird diversity. Conservation of the forest understory will provide habitat for both small mammals and reptiles.

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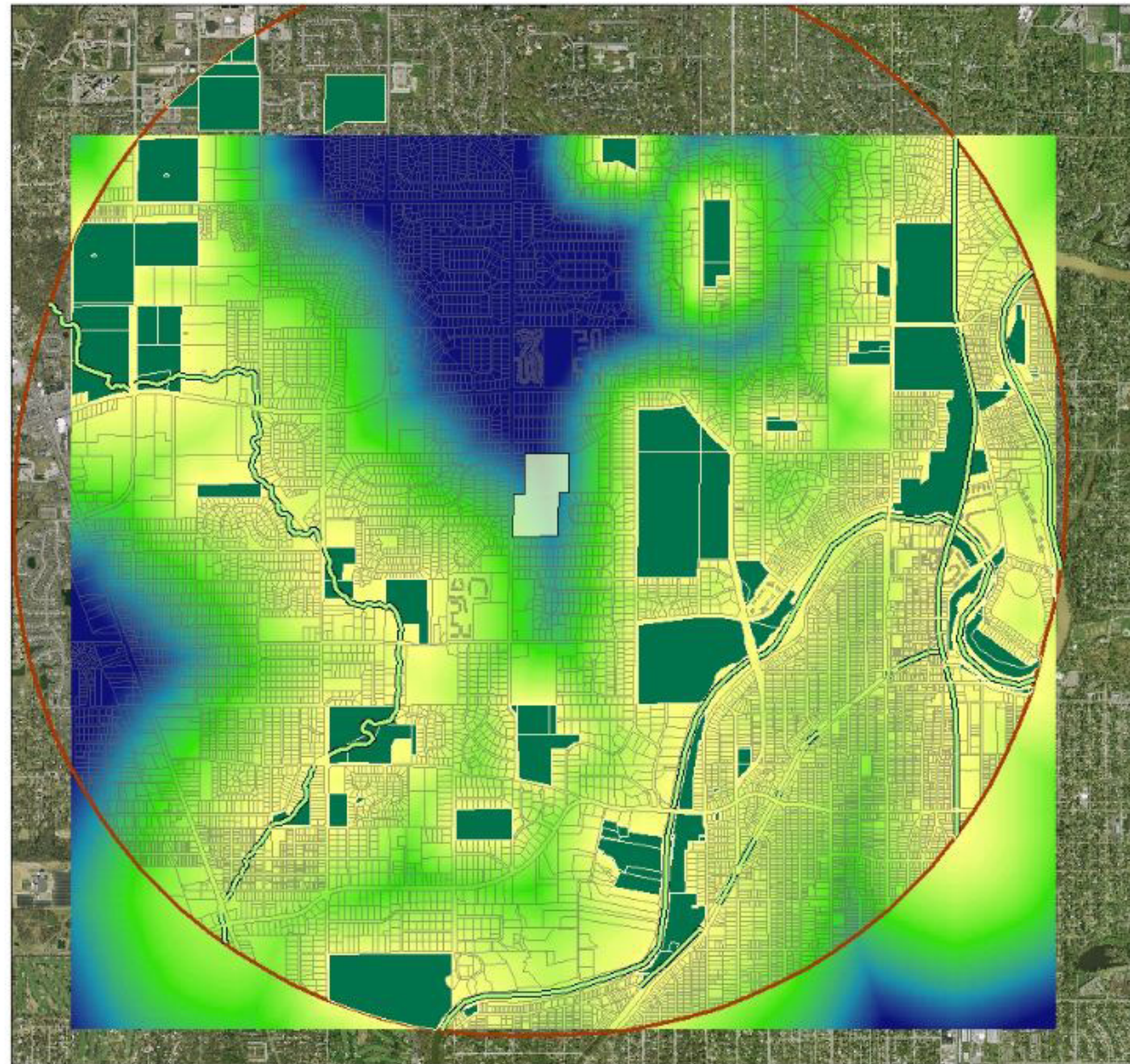
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VII. MAPS

MAP 1: Cost Distance Analysis between Greenways and Greenspace



Legend

- Greenways
- JCC
- Greenspace
- 2 Mile Boundary

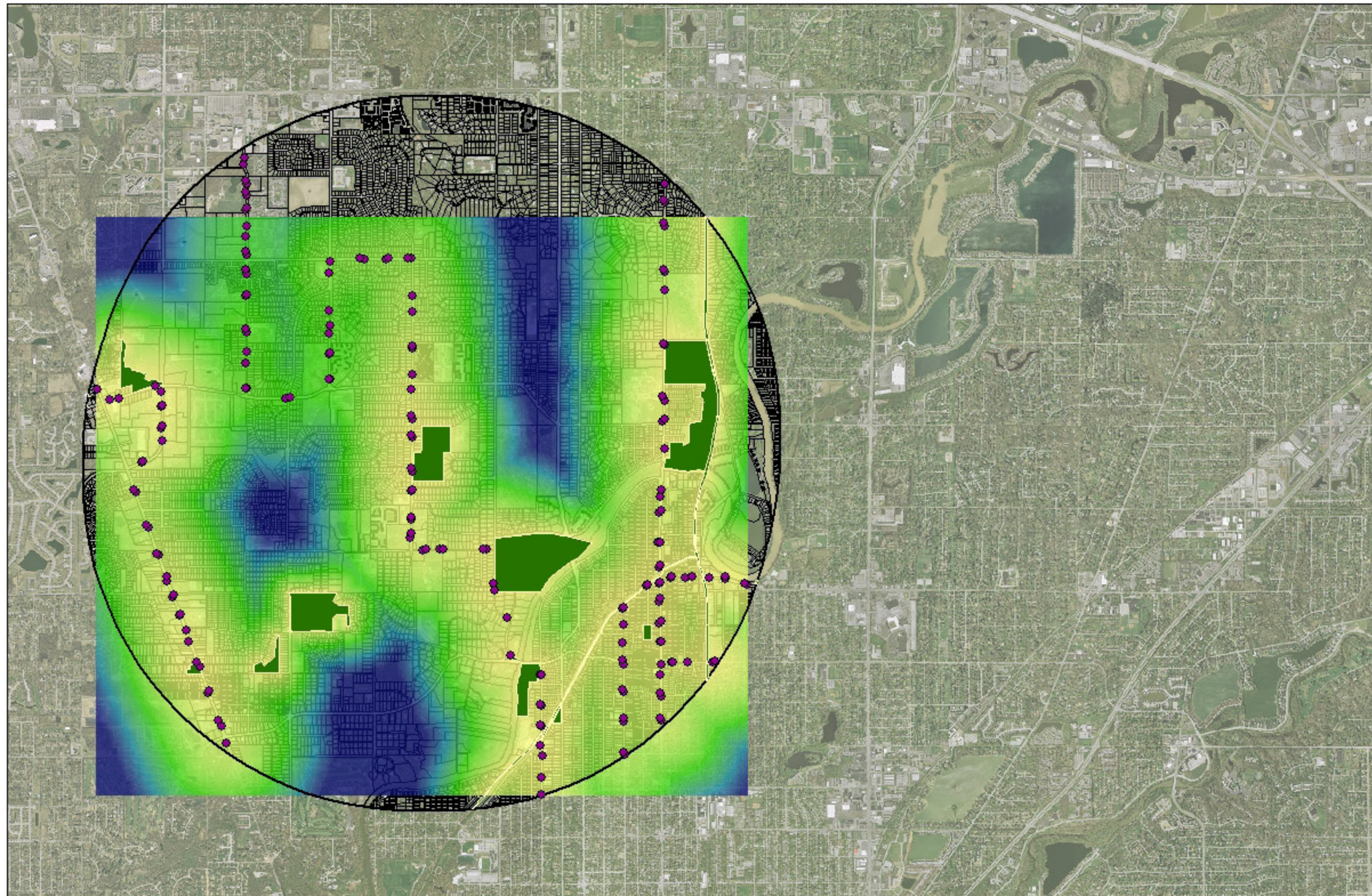
Cost Analysis

- Value**
- High 'Cost'
 - Low 'Cost'



MAP 2:

Properties with access to bus stops and proximity to JCC or other parks

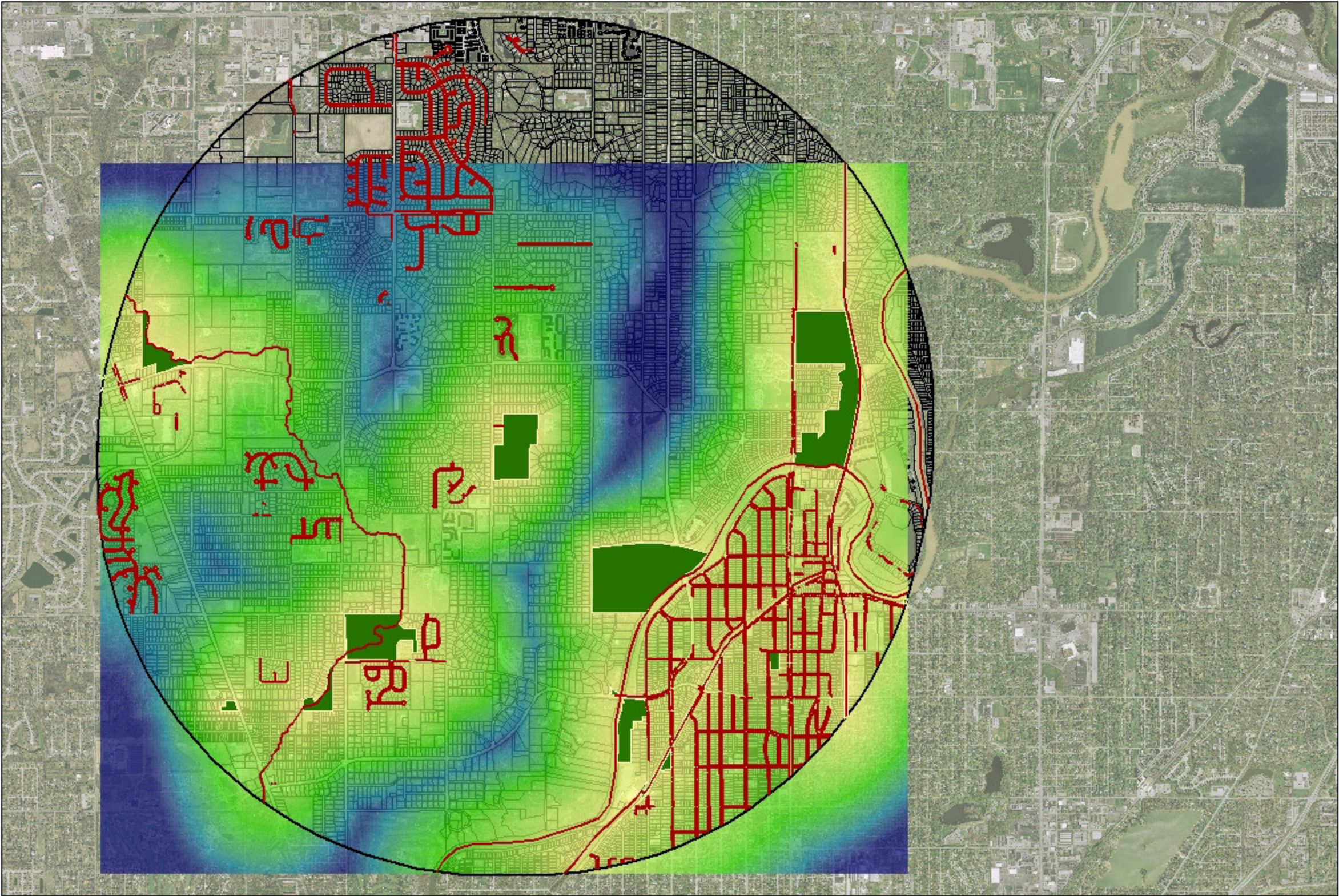


Legend
Proximity to Bus Stops and Parks

- Farther
Closer
- Bus Stops
- JCC and Area Parks
- Two Mile Radius



MAP 3:
Properties with access to sidewalks/ greenways and proximity to JCC or other parks



Legend

Proximity to Sidewalks/Greenways and Parks

Value

- Far
- Close

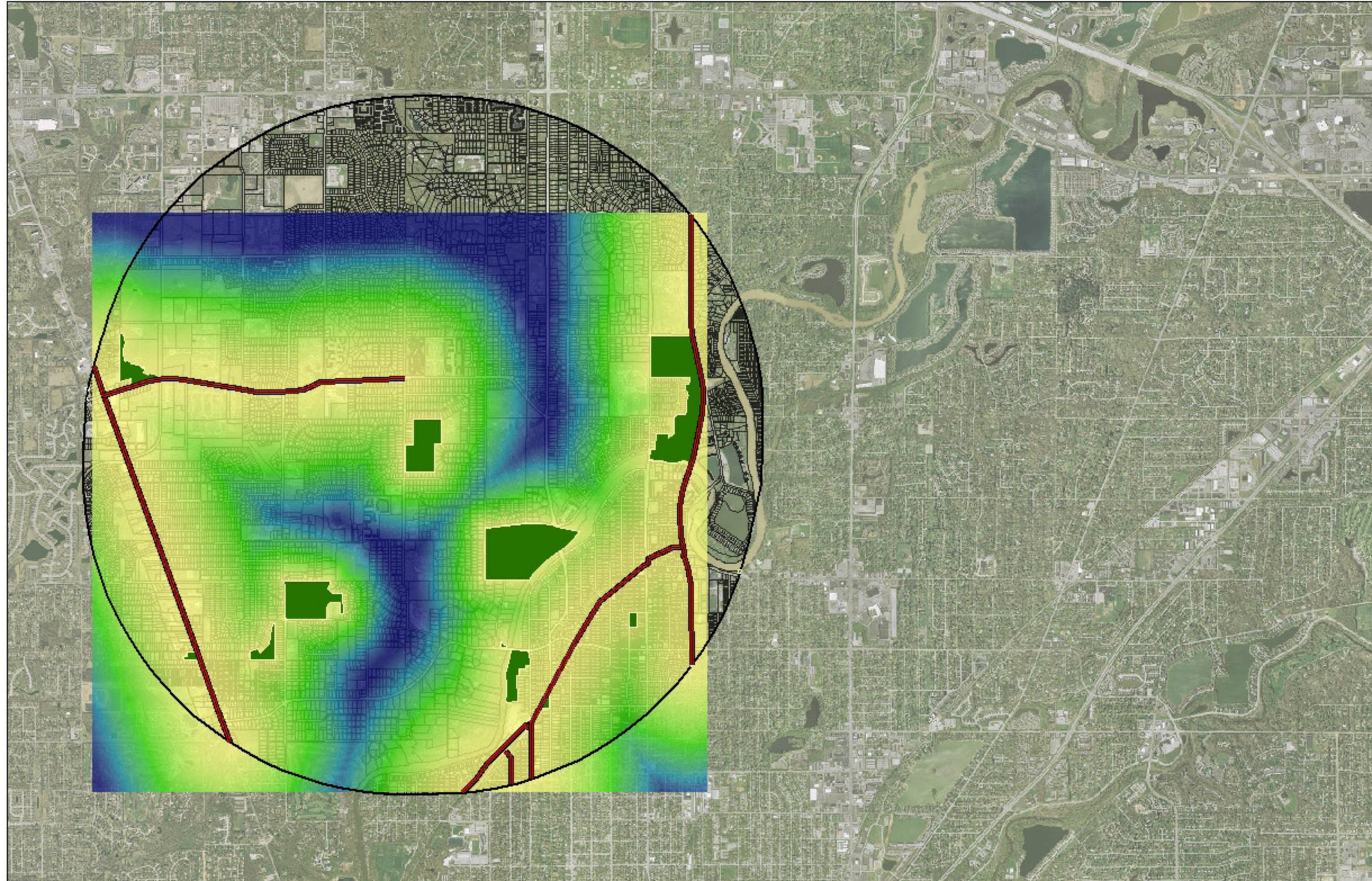
— Sidewalks and Greenways

■ JCC and Area Parks

□ Two Mile Radius

0 0.45 0.9 1.8 Miles

MAP 4:
Properties with access to bikeways or bike lanes and proximity to JCC or other parks



Legend

Proximity to Bikeways and Parks

Value

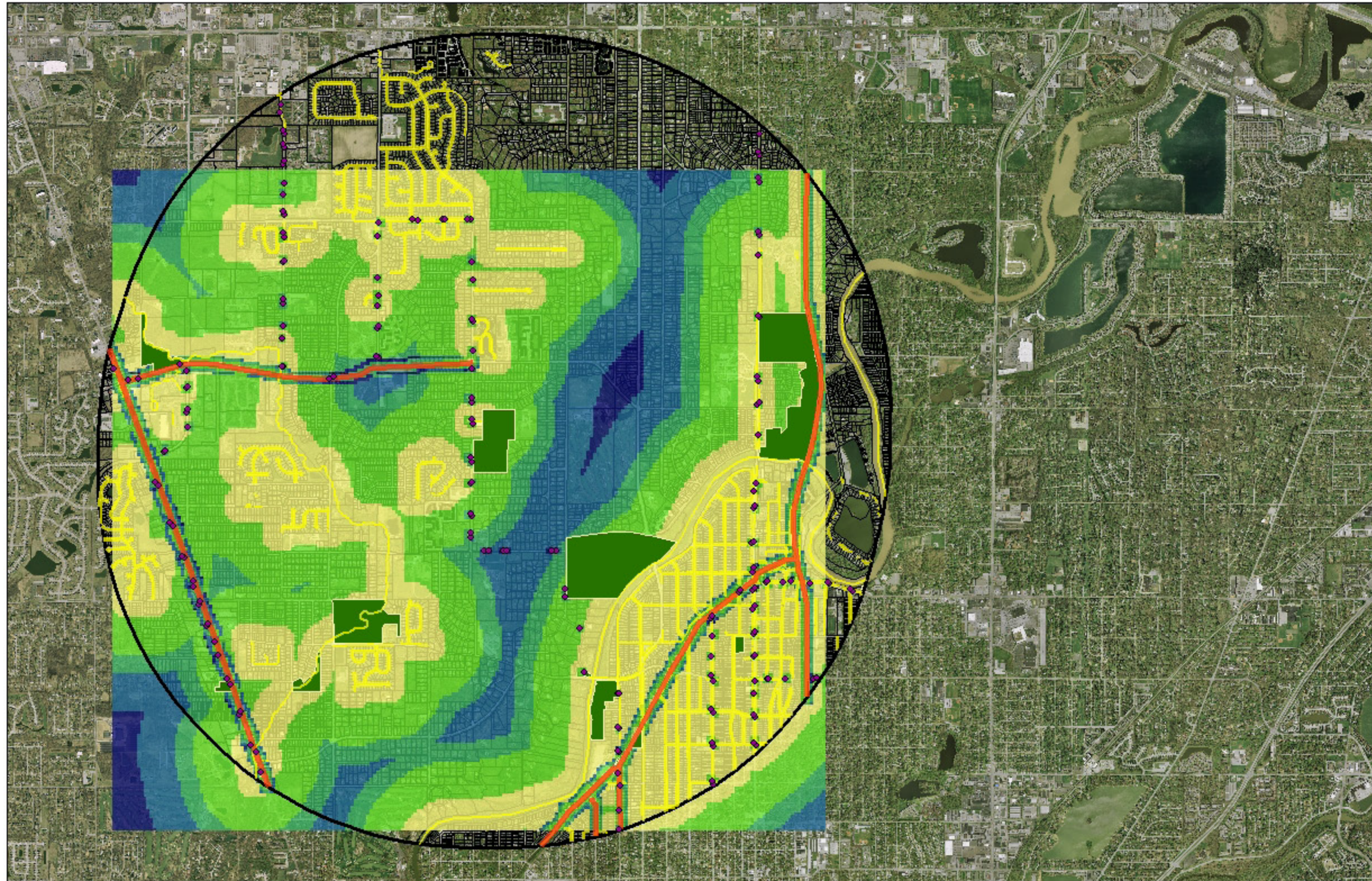
- Far
- Close

— Open Bikeways or Bike Lanes

■ JCC and Area Parks

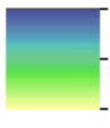


□ Two Mile Radius

MAP 5:
Weighted Accessibility to Sidewalks, Bike lanes, and Bus Stops



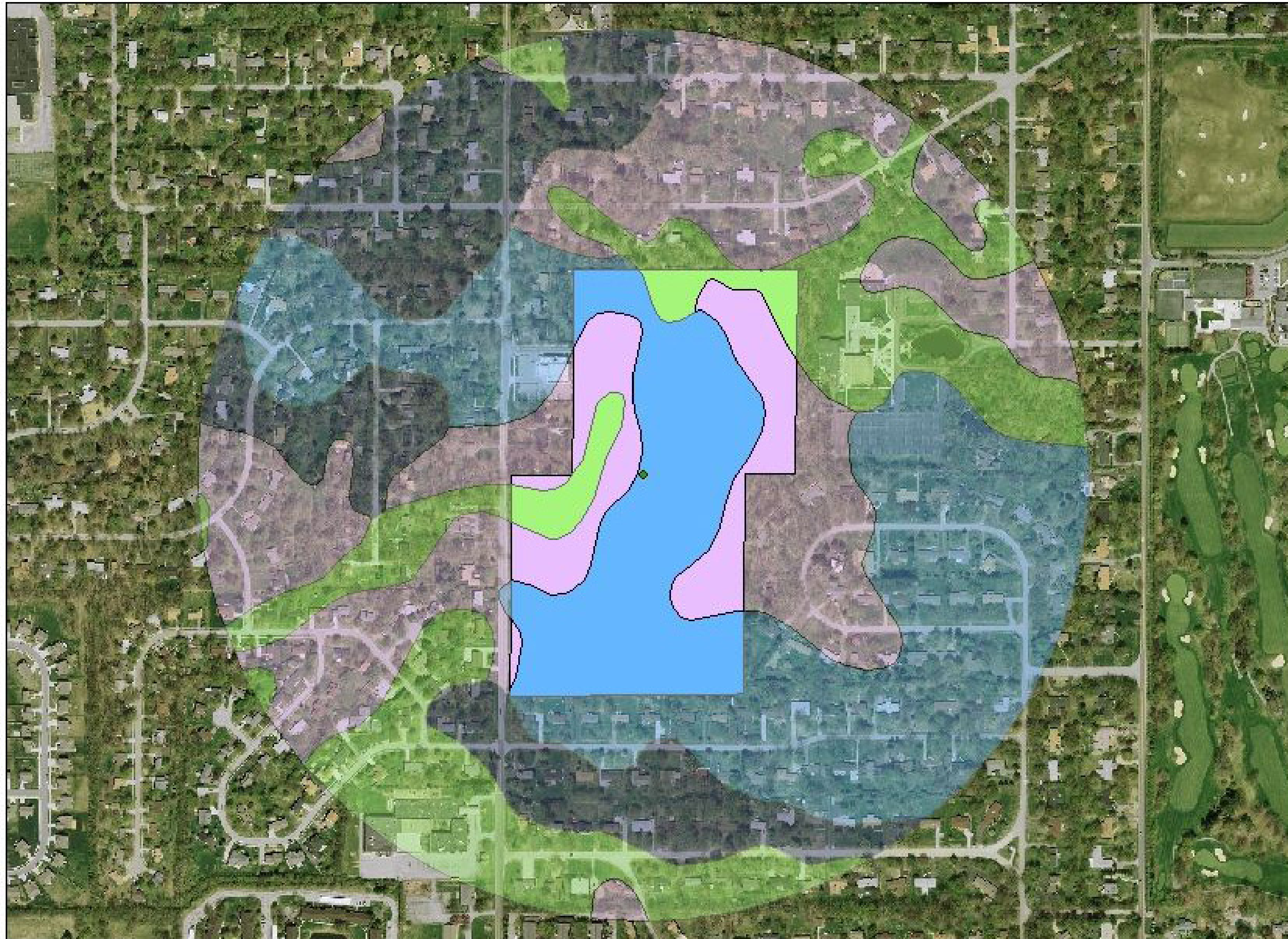
Legend

Weighted Analysis

-  Limited Access
-  Higher Access
-  Bus Stops
-  Open Bikeways or Bike Lanes
-  Sidewalks and Greenways
-  Two Mile Radius
-  JCC and Area Parks



MAP 6: Soils



Legend

◆ Jcc_midpoint

Soil on campus

-  Br
-  CrA
-  MmA

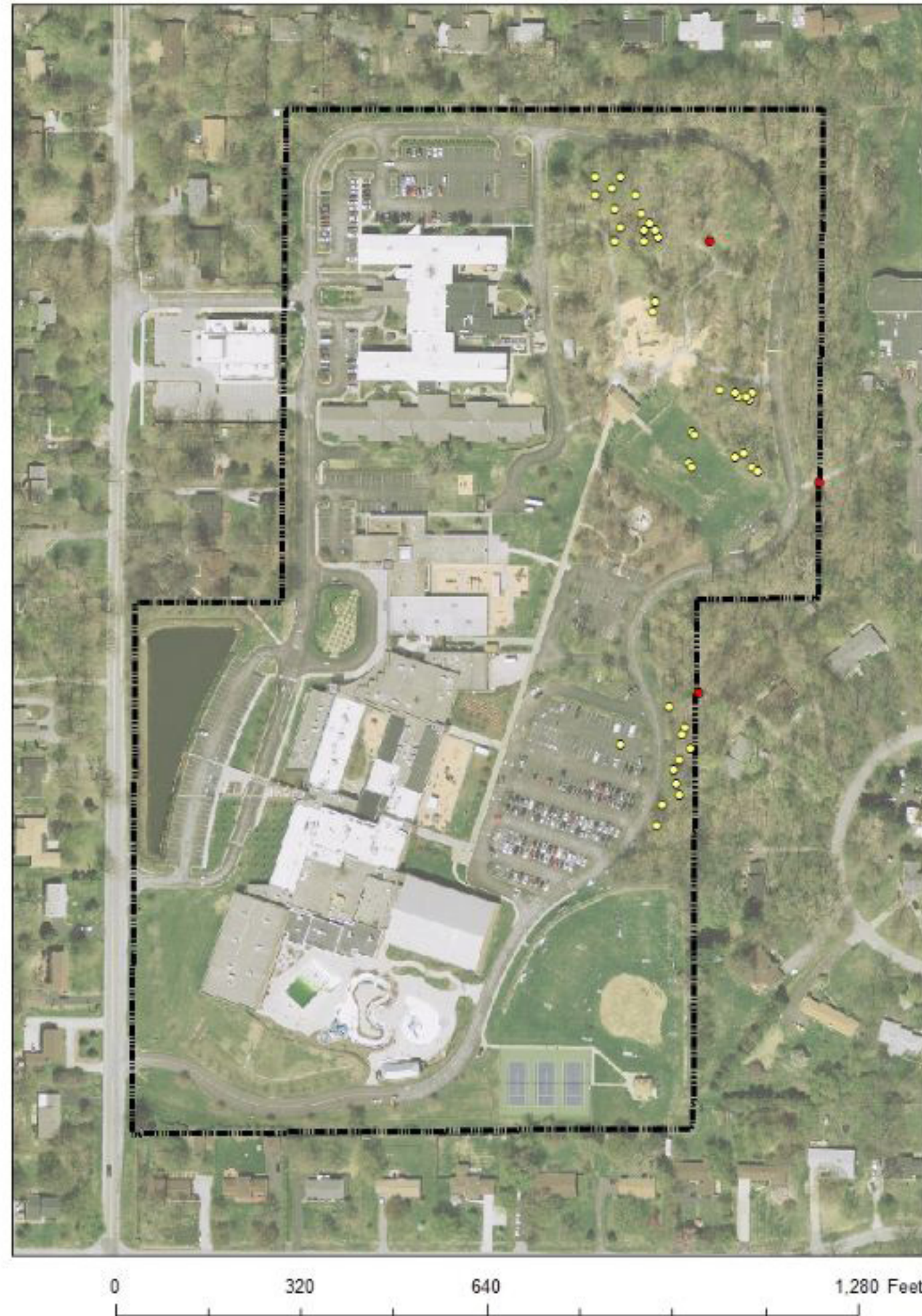
Soil w/in a Quarter Mile

-  Br
-  CrA
-  MmA
-  MmB2

0 0.05 0.1 0.2 Miles



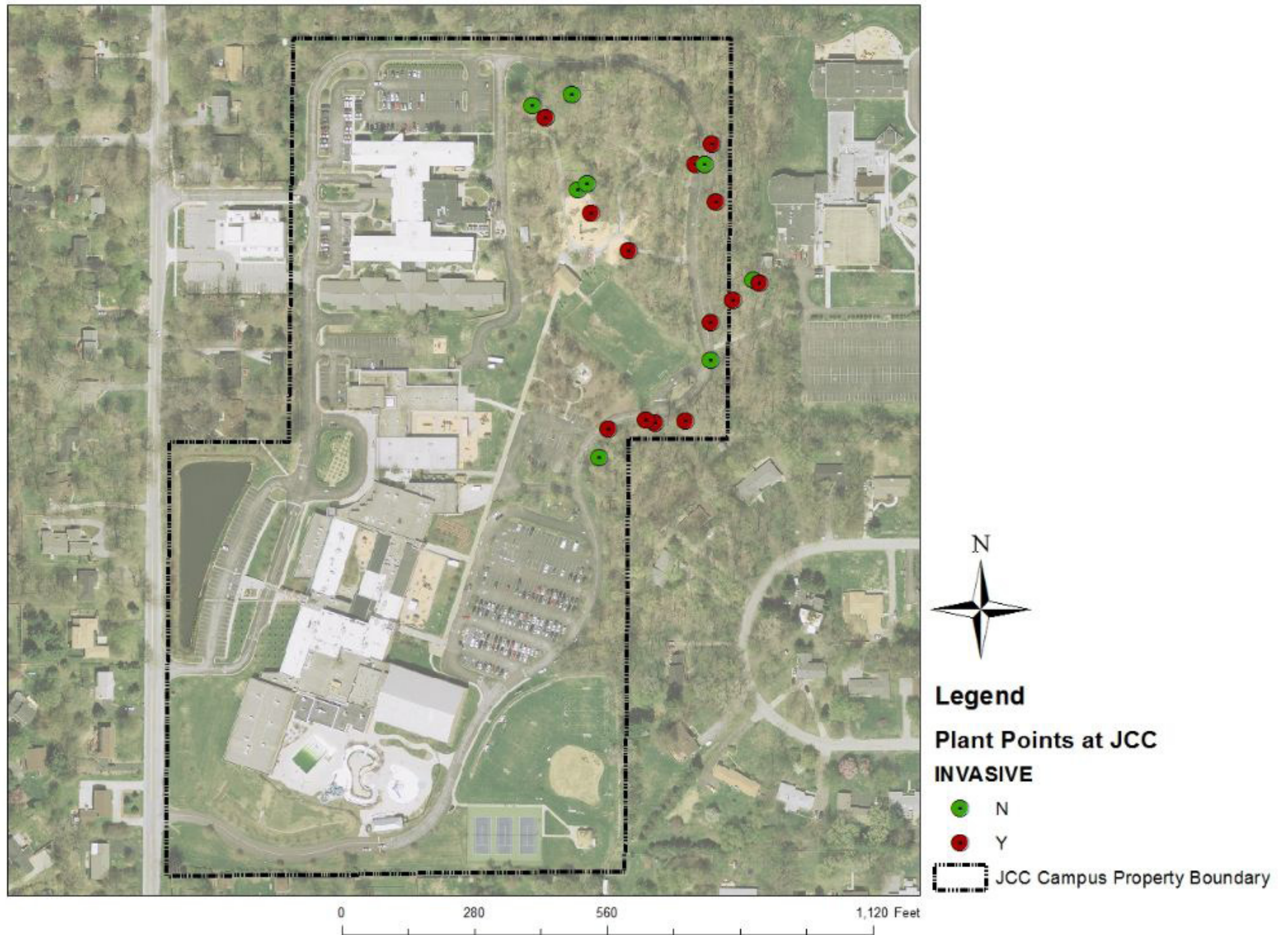
MAP 7: Trap points and trackboard points at the JCC



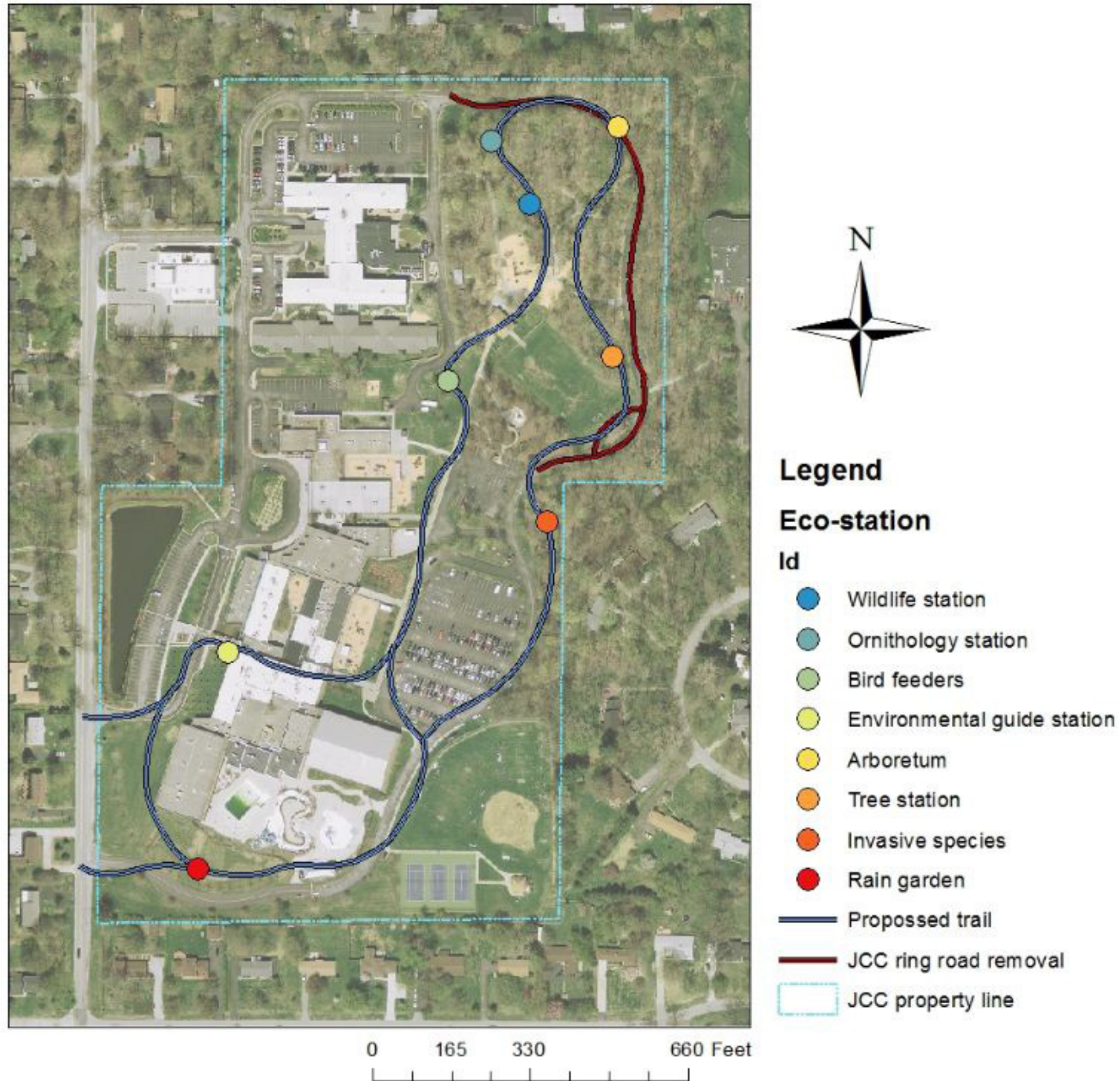
Legend

- Trackboards
- Trap points
- ▭ JCC Property line

MAP 8: Point representation of invasive and non-invasive plant species



MAP 9: Proposed Destinations for an Eco Wellness Trail at the JCC



Appendix A



**BUTLER
UNIVERSITY**

**Institute for Research
and Scholarship**

4600 Sunset Avenue
Indianapolis, Indiana 46208-3485
(317) 940-9766
Fax: (317) 940-9990
Email: birs@butler.edu
Web: <http://www.butler.edu/birs>

INSTITUTIONAL REVIEW BOARD

October 28, 2011

Ms. Cam Thompson
435 W. 46th St.
Indianapolis, IN 46208

RE: IRB Protocol: An Investigation for an Eco-fitness Trail for the Jewish Community Trail

Dear Ms. Thompson:

On behalf of the Institutional Review Board (IRB), I am pleased to announce that your application for research involving human subjects was approved as exempt on October 28, 2011. As such, there will be no further review of your protocol, and you are cleared to proceed with the procedures outlined in your protocol.

As an exempt study, there is no requirement for continuing review. Your protocol will remain on file with the IRB as a matter of record. Although your study is exempt from a continuing review, you are not exempt from ethical research practices and should therefore employ all protections for your participants and their data which are appropriate to your project.

The duration of the IRB approval is from October 28, 2011 to December 12, 2011. Any modifications to your protocol or any extension to the approval period must be evaluated by the IRB before being implemented, as some modifications may change the review status of this project

May I offer my congratulations on your approval and wish you success on your research. Should you desire additional assistance or clarification, please call me at 9766.

Sincerely,

A handwritten signature in cursive script that reads "Robert F. Holm".

Robert F. Holm, Ph.D.
Director, Institute for Research and Scholarship

cc: M. Hennessy, CUE

Appendix B

Social Inventory Survey Questions for JCC Eco-wellness Trail

Dear Respondent,

Thank you for participating in this survey regarding the development of an eco-wellness trail at the JCC. The survey will take less than 10 minutes to complete. This project is part of the Butler University Environmental Practicum course in partnership with the JCC. Prof. Marjorie Hennessy is the survey project supervisor and may be contacted at 317-940-6505 if you have any questions.

Please be assured that as a respondent,

- A. Your participation is voluntary.
- B. You are free to skip any questions you do not wish to answer.
- C. Your survey will be kept confidential with access limited to members of the project team only.
- D. Excerpts from this survey may be made a part of the final report, but your name or any information that may personally identify you will not be included in the report.

On behalf of the Butler and JCC project team, thank you for your time and interest in participating in this survey! Your responses will be of great value to the JCC in developing programs and resources for our community.

General Questions:

An eco-wellness trail is defined as an interactive path that fosters meaningful and relevant connections to the environment to enrich, improve, and enhance the fitness of its users.

1. Based on this definition, would you like to see the JCC install an eco-wellness trail on the Max and Mae Simon Jewish Community Campus? Yes___ No___

2. What features/activities below would you use on an eco-wellness trail? Please check all that apply.

- Fitness stations___
- Environmental stations___
- Plant identification plaques___
- Pet walking___
- Bike riding___
- Roller blading/skate boarding___
- Benches___
- Water fountains___
- Restrooms___
- Public art___
- Trail map___
- Other___

If other, please define _____

3. Would an eco-wellness trail add value to your JCC membership?

Yes___ No___

4. Do you have a membership at another health club or fitness center?

Yes___ No___

For questions 5-12, circle the number that corresponds to your agreement on the subject, 1 being the least and 5 being the most.

5. Prior to this survey, I was aware of eco-wellness trails.

Strongly Disagree 1 2 3 4 5 Strongly Agree

6. I feel connected to nature.

Strongly Disagree 1 2 3 4 5 Strongly Agree

7. I consider the environmental impacts of my actions.

Strongly Disagree 1 2 3 4 5 Strongly Agree

8. I care about recycling.
Strongly Disagree 1 2 3 4 5 Strongly Agree
9. I try to choose alternative transportation modes to driving.
Strongly Disagree 1 2 3 4 5 Strongly Agree
10. I value being physically fit.
Strongly Disagree 1 2 3 4 5 Strongly Agree
11. I prefer to work out indoors.
Strongly Disagree 1 2 3 4 5 Strongly Agree
12. I prefer to work out outdoors.
Strongly Disagree 1 2 3 4 5 Strongly Agree
13. How far do you currently live from the JCC?
Short walking distance (under .25 mile)
Short car ride (under 2 miles)
Moderate car ride (2-5 miles)
More than 5 miles

14. Would you walk to the JCC from where you currently live?
Yes No
Comments:

15. Would you ride a bicycle to the JCC from where you currently live?
Yes No
Comments:

16. How would you describe your current level of your physical activity?
Moderate _____ Rigorous
1 2 3 4 5

Demographic Information (optional):

- What is your age? _____
- Gender?
Male _____
Female _____
Prefer not to specify _____
- Race?
Asian _____
Black or African American _____
Hispanic or Latino _____
Native American _____
White or Caucasian _____
Prefer not to specify _____
- Current relationship status?
Single (never married) _____
Committed Relationship (married or otherwise) _____
Divorced _____
Widowed _____
Prefer not to specify _____
- Do you have children?
Yes No
- If you answered yes to the previous question, how many children under 18 do you have living at home?

- Please indicate your household income.

Under \$15,000 _____
\$15,000-\$29,999 _____
\$30,000-\$44,999 _____
\$45,000-\$59,999 _____
\$60,000-\$74,999 _____
\$75,000-\$89,999 _____
More than \$90,000 _____
Prefer not to specify _____

- What is the highest level of education you have completed?

High School _____
Associate Degree _____
Some College (No degree) _____
Undergraduate Degree _____
Graduate or terminal degree _____
Prefer not to specify _____

- Please feel free to share any other comments or feedback that will help the JCC assess the viability of creating an eco-wellness trail.

Thank you for completing this survey. The JCC will not sell or share member information with any other organization.

Appendix C

CASE STUDIES:

Name of Organization: Lopez Island School District

Type of Organization: Public school system

Location: Lopez Island, San Juan Archipelago, Washington

Year Established: 2006

Mission of the Trail: The life trail acts to enhance district students' health and wellness, to provide students with an integral and unique resource for understanding and developing personal fitness in a natural environment. A vital element in the school's wellness policy, the L.I.F.E. Trail contributes substantively to the personal, community and environmental health of the island (Lopez Island School District, 2011). (Lopez Island School District, 2011)

Demographics:

Staff: The "L.I.F.E." programs (trail and garden) are staffed by school personnel and volunteer students. Students can take an elective biodiversity class in which they study and maintain the L.I.F.E. programs (Lopez Island School District, 2011).

Audience: public

Community served: children, families, other community members

Evolution: Programming throughout the school system has been "streamlined" because of the economic downturn (Lopez Island School District, 2011).

Funding: Funding has come from the community and the public school systems. The amount was not disclosed.

Installation/Project Name: L.I.F.E Trail or Lopez Island Fitness and Ecology Trail

Project Location: Lopez Island, South End. Willow Wetlands.

Project Purpose: to provide students, as well as the public, with and understanding and development of personal fitness in a natural environment.

Project Need: Undisclosed.

Problems: Funding

Issues: Willow wetland areas (careful construction).

Concerns: habitat for endangered species, Island Marble Butterfly

Target: students K-12 on Lopez Island

Partners: Ecologists Russel Barsh and Madrona Murphy

Stakeholders: The school and general community benefit from the project. Developers may object. Other schools in the area may be concerned with being one-upped by the competition.

Project planning: The school used a model in Zurich, Switzerland at the start of the project. From what I can tell, the two ecologists were brought on the project to help design where, how and what to highlight on the land. They also collaborated with the community. Nick Teague, an employee with the Bureau of Land Management, and Liz Scranton, a birdwatcher, both

aided voluntarily in the process. Lopez Island citizens hand-cleared the trail to ensure the best treatment of wildlife (Harrison, 2011). I don't know what grants and permits were needed, but I am sure they were extensive seeing as the path forms a habitat for an endangered species.

Philosophy: The school operates sustainably and is featured in a few books as examples of how to do so. It teaches sustainability through the L.I.F.E. trail and gardens. The trail also operates to be effective for fitness in all ages and skill levels. It is a policy to teach fitness and ecology throughout ones lifetime. (Lopez Island School District, 2011)

Incentives: The school uses the trail in their physical fitness programming. When kids buy into something, it's easier for their parents to want to get on board too.

Policy: See philosophy. The school's policy is also through it's physical fitness system.

Media: As mentioned before, the school has been mentioned in a book dealing with schools and sustainability. The Trail and the process of creating it was also featured in a local online newsletter. Earlier that year, The New York Times wrote an article featuring Lopez Island and cited it's beautiful trail system. It did not name the L.I.F.E trail specifically (Harrison, 2011).

Description:

The Lopez Island Fitness and Wellness Trail is a one-mile loop incorporating both fitness and ecological lessons. Located in Lopez Island, Washington, the L.I.F.E. trail is a part of a 33-acre school district campus. The trail is designed to enhance the health and wellness of the island's citizens by providing an "integral and unique resource for understanding and developing personal fitness in a natural environment."(Lopez Island School District, 2011). The trail is located in a protected deciduous willow woodland and is the rare habitat of the endangered Island butterfly species. While other areas of the island are exploited, the Trail gives students a glimpse of rare natural habitats as well as lessons in biology, ecology and natural history. Throughout the trail, there are nine fitness stations to promote agility, range-of-motion, stamina and strength at various, adaptable levels. The trail features chin-up bars, balance beams, step and slalom setups and gymnastics rings among other things (Lopez Island School District, 2011). In this way, the L.I.F.E. Trail combines the efforts of promoting wellness and promoting the study of the environment.

As a community, the citizens of Lopez Island value their connection to nature. (Technosen, 2010). The school system reflects that. With the L.I.F.E. Trail and garden, they teach students to value both fitness and the natural environment from a young age. In high school, students are able to take an 8-week elective course to learn how food from the garden is farmed to put food in the lunchroom. They also study and maintain the fitness and ecology trail as part of the Biodiversity course. The Trail is open to all members of the public. Local publications have The L.I.F.E. trail was modeled after a similar and very successful project in Zurich, Switzerland. It was created using school resources while heavily involving the community. Volunteers with certain land surveying skills and passions collaborated with two local ecologists to design the trail. Other volunteers hand-built the trail so as to preserve nature as much as possible. The trail winds through the willow wetlands as well as a natural meadow area.

I could find no indicators of how the Lopez Island School District measures success. I also could not find the budget that was spent on the project or how additional funds were raised.

Summary: One of the most important lessons that the L.I.F.E. trail can offer us at the JCC of Indianapolis is that programming is important to success. The L.I.F.E trail incorporates its programming through the school system, but it also offers “self-programming.” There are signs offering exercise ideas ranging in levels. There are similar signs addressing the ecological aspect of the trail.

Case Study 2

Name of Organization: Whitehill Town Council.

Type of Organization: Governmental.

Location: Whitehill Bordon, East Hampshire, U.K.

Year Established: The 1980's.

Mission: To make the city of Whitehill Bordon an eco-town through the creation of projects such as the eco-fitness trail.

Demographics: Over 15,000 people live in the town of Whitehill Bordon and are represented by the Whitehill Town Council.

Evolution: The council was founded in the 1980's as a result of the towns of Whitehill and Bordon merging to become one unified city.

Funding: Governmental (£28,000 were used for the eco-fitness trail).

Installation/Project Name: Whitehill Bordon eco-fitness trail.

Project Location: Whitehill Bordon, East Hampshire, U.K.

Project Purpose: To provide the town of Whitehill Bordon with an environmentally-friendly, state-of-the-art eco-fitness trail.

Project Need: To improve the wellbeing of the people of Whitehill Bordon through the construction of an eco-fitness trail.

Problems/Issues/Concerns: Securing funding for their projects, keeping them relevant, etc.

Target: The citizens of Whitehill Bordon.

Partners: The British Parliament and the Whitehill Town Council.

Stakeholders: The British Parliament, the Whitehill Town Council and the citizens of Whitehill Bordon.

Project Planning: Through the acquisition of funds from the British Parliament and planning that was achievement by the Whitehill Town Council.

Philosophy: To create an environmentally friendly, sustainable city through projects like the eco-fitness trail.

Incentives: The eco-fitness trail is free to the public and it's a great way to stay in shape.

Policy: To pursue environmentally-friendly alternatives in an effort to make Whitehill Bordon an eco-town.

Media: News articles and information sites are what the Whitehill Town Council is using to promote their trail. The city of Whitehill Bordon and the council itself both have websites of their own.

Overview:

On July 29th, 2010, the eco-town of Whitehill Bordon, East Hampshire, opened their first eco-fitness trail. This trail, which was funded using £28,000 from the eco-town project, is over half a mile and resides in the recreation ground of Mill Chase Road. It also consists of recycled wood that makes the trail itself environmentally friendly. As ambitious as the project is, however, it is only part of a larger initiative to make the community of Whitehill Bordon an eco-town. The project was overseen by the Whitehill Town Council on land that is owned by the council and funded due to Whitehill Bordon's eco-town status. Like the project that we will be engaging in this semester, the benefits of this trail and some of the other initiatives within Whitehill Bordon have had a significant impact on the city.

The organization that is responsible for funding the environmental initiatives in Whitehill Bordon is the Whitehill Town Council. It is a government organization that is located in the town of Whitehill Bordon in East Hampshire, United Kingdom. The organization was founded back in the 1980's as a result of the towns of Whitehill and Bordon being linked together with residential buildings. The community that the Whitehill Town Council serves consists of over 15,000 people. Its mission is to lead the development of the eco-town initiative in conjunction with the East Hampshire District Council. Over the years, it has evolved with the development of the city and has been funded by the British government.

The trail itself was created as part of an initiative to make Whitehill Bordon an eco-town. Although it was part of a larger initiative, the trail was created for the same reason that the Jewish Community Center (JCC) will be creating their own: to improve the wellness of people's lives through physical fitness. The mayor of Whitehill Bordon himself stated that "This new facility is a real boost to Whitehill and Bordon." Since it was funded by money derived from the eco-town project, it was the first of the town's projects to be completed. Although it was created primarily for the residents of Whitehill Bordon, the trail will be like the one created for the JCC in the sense that it will be free to use.

Case Study 3

Name of Organization: Illinois Department of Natural Resources

Type of Organization: government

Funding: State

Project Name: Hennepin Canal State Trail

Year Established: 1907/1970

Project Location: Rock Island, Bureau, Henry, Lee, and Whiteside counties

Project Purpose: Man-made canal originally used for transportation of local goods but became a state-run eco-fitness trail in 1970

Demographics:

Staff: volunteer and paid

Audience: public

Community Served: Rock Island, Bureau, Henry, Lee, and Whiteside counties

Project Need: There is currently a struggle to maintain the trail with the limited funding from the state. If the Illinois Department of Natural Resources cannot afford proper upkeep for the trail, the trail could become potentially dangerous to users.

Partners: In the early nineteenth hundreds the Corps of Engineers built the canal. Today, aside from the state budget, the Illinois Department of Natural Resources depends on the aid of the Friends of Hennepin Canal, a volunteer organization aimed to maintain and develop recreational and educational use of the trail.

Stakeholders: The canal is free to the public and provides recreational and educational benefits for the communities surrounding the Hennepin Canal State Trail.

Project Planning: The Corps of Engineers originally created a tow way for cattle to pull boats up the canal. Later, the Illinois Department of Natural Resources adapted that tow way into the state trail seen today.

Overview:

In the early eighteen hundreds, trading and selling farm and industry products from Rock Island to Chicago was easier said than done. It is easy to forget that back then, communities relied on train and water transportation to exchange products between cities. The communities surrounding what we now call the Quad Cities wanted to find a way to transport materials from the Mississippi area to Chicago, quickly and easily. After years of campaigning, in 1871 Congress finally authorized surveying of the area (Rock Island, Bureau, Henry, Lee and Whiteside counties) that would one day be home to the Hennepin Canal (Hennepin Canal State Trail, 2011).

It wasn't until 1907 that the first boat made its way up to Chicago using the manmade canal (Hennepin Canal State Trail, 2011). Unfortunately, all the years of campaigning, organizing, and construction created a relatively short lived transport system. The masterminds behind the Hennepin Canal couldn't have known that technology would grow so rapidly, making the canal obsolete in comparison to vehicle transportation. The building of the canal would serve a few more purposes however. The Corps of Engineers, who created the canal, used concrete rather than cut stone that was the typical material for canal building Canal (Hennepin Canal State Trail, 2011). The use of concrete, a cheaper material, revolutionized canal building and probably influenced the construction of the Panama Canal (Hennepin Canal State Trail, 2011). The canal, closed to boats by 1951, would continue to influence the communities surrounding it, not utilized as transportation but as recreation (Hennepin Canal State Trail, 2011).

The public has never been charged to use the 155 miles of the Hennepin Canal (Hennepin Canal State Trail, 2011). In the early nineteenth hundreds, each winter ice would be cut out of the canal and sold; the proceeds went toward upkeep and renovations (Hennepin Canal State Trail, 2011). In 1970, Illinois Department of Natural Resources inherited the canal from the federal government and began renovating the canal for recreational use (Hennepin Canal State Trail, 2011).

When the state received the canal path, it only had a preliminary trail that was originally created for animals to help pull boats up the canal (Hennepin Canal Parkway State Park, 2010). The

54 Hennepin Canal's target demographic was forever changed from businesses to the general pub-

lic. The Illinois Department of Natural Resources has transformed the historical canal into an eco-fitness trail that allows hiking, biking, fishing, horseback riding, canoeing, camping, hunting, and picnicking. The maintenance of the canal depends on State funded repairs and upkeep and is aided by a volunteer based organization; The Friends of Hennepin Canal.

Comparable to the Jewish Community Center, the Friends of the Hennepin Canal mission is “to maintain and develop recreational and educational opportunities and assist in the preservation of the historical features of the Hennepin Canal Parkway State Park” (Hennepin Canal Parkway State Park, 2010). The Friends of Hennepin Canal and general canal users were shocked when it came out that under Rod Blagojevich’s budget cuts in 2008, multiple state parks would be closed, including the canal (Barker, 2008). Luckily, due to the many supporters and the efforts by Friends of Hennepin Canal, the Hennepin is still open today.

Although the Hennepin Canal is state owned, there is some information to gather that can be taken into account when working with the Jewish Community Center. The Hennepin Canal is a good example of creating a very versatile eco-fitness trail. By allowing so many activities there is something for every outdoorsmen and, in turn, the target demographic is larger. A trail in Indianapolis is very different than in rural communities but we could definitely try to make the JCC’s trail bike, hike, and picnic friendly. I’m glad that the JCC isn’t state run because the debate on closing the canal definitely isn’t over. One thing to keep in mind is not to create a trail that is too large or complex for reasonable upkeep. When the canal was conceived, the creators didn’t even know that one day preservation of trails would be an issue. It is helpful to remember when we are conceiving of possible educational activities for the trail that the activities shouldn’t require expensive or frequent maintenance. The Hennepin Canal has influenced generations of nature lovers and families; I hope that the JCC eco-fitness trail has the opportunity to do the same.

Case Study 4

Name of organization: Hoosier Rails to Trails Council, Inc. (HRTC)

Type of organization: Indiana Trails Community is a government based organization

Location Address:

Mail: PO Box 402 Indianapolis, IN 46202-0402

Office: 217 West 10th Street #120 Indianapolis, IN 46204

Phone: (317)237-9348

Year established: 1987

Mission: advocate for trails and greenways in Indiana; in particular, rail-trails for walking, bicycling, non-motor transportation, and smarter environmental land use, in order to build healthy living and lifestyles.

Demographics:

Staff: volunteers and park experts

Audience: public policy, political, and arch-communities

Community served: Hoosiers and non –residents

Evolution: HRTC was incorporated July, 1987 as a non-profit corporation to serve Hoosiers

and non-residents. It tracks legislation and promotes bills to support/lobby public policies for trails and greenways, organizes statewide and regional trail conferences, publishes the Hoosier Pathways newsletter 3-4 times a year, and maintains Indiana's largest rail-trail library. The HRTC receives continual public support through membership and donations.

Funding: Most of HRTC funding comes from organizations like Indiana Trails Fund, B&O Trails Association, and Bicycle Indiana, as well as donations from private individuals and its members.

Installation/project name: The Monon Rail trail

Project location: The Monon Rail Trail extends across three counties (Hamilton, Carrol, and Marion) and five cities (Carmel, Delphi, Sheridan, Westfield, and Indianapolis). It currently is working on extending the trail south into Monroe County through the City of Ellettsville.

Project purpose: promote healthy living and lifestyles to the surrounding Hoosier communities by providing safe and enjoyable trails and greenways for walking, biking, and non-motor transportation that connect historic, shopping, restaurant, and scenic districts. The Monon Trail also provides parking, water and rest stops, as well as connection to major street intersections without the hassle of navigating the dangerous roads.

Project Need: 1) to promote outdoor physical activity in order to support healthy living and lifestyles in a safe and fun manner and 2) to provide access and availability to shopping, restaurant, scenic and fun district destinations.

Problems: automobile traffic, lighting fixtures, safety

Issues: funding, media exposure, violations of trail usage, trash dumping

Concerns: safety and use of trailway

Target: Families and individuals in the Hamilton, Carrol, Marion, and Monroe Counties, as well as the surrounding areas.

Partners: Surrounding city planning organizations and city parks.

Stakeholders: City planning and city parks, as well as organizations who are funding (Indiana Trails Community, B&O Association, Indiana Bicycle, and individual members).

Philosophy: For everyone to enjoy the natural outdoors, discover what surrounding areas have to offer, and build healthy living and lifestyle. To mainly decrease "sprawl" space (decrease society's practice of car-dependency).

Incentives: Trail use is free and offers inexpensive, safe, and environmentally friendly mode of non-automobile transportation as well as physical exercise. Trail use limits the community dependency on investing in road construction/expansion and reduces carbon emission (promotes clean air).

Policy: 1) to link commercial districts, schools, parks, state fairgrounds, and residential neighborhoods, 2) railbanking (to use abandoned railroads) and 3) decrease car/road dependency. Media: Facebook group, Newsletter issued 3-4 times per year, Indiana Trails website.

History

The Monon Rail Trail is part of the broader Indiana Trails Community and was initiated specifically by Indy Parks and Greenways after Ray Irvin was appointed administrator in 1989 and the City of Indianapolis received funding to convert the Monon Rail into a greenway system. Shortly after, the first section, connecting Nora to Broad Ripple, was completed in 1996 and by 1999 Indy Parks and Greenways completed the 10.1 mile Indianapolis portion of the Monon Rail Trail system (picture of the 10-mile portion of the Indianapolis Monon rail Trail is included to the right). Today, the Monon Rail Trail has emerged as a positive example of turning unused and abandoned rail systems into greenways and trails that support community health, protect resources, and help rehabilitate the community at large.

Profile

The Monon Rail Trail is approximately 16.7 miles of asphalt linking commercial districts (e.g. Broad Ripple and Massachusetts Avenue), schools, parks, other trails (e.g. Fall Creek Trail, Monon Greenway of Carmel, Central Canal Towpath, and White River Wapahani Trail) the state fairgrounds, the Indianapolis Art Center, and residential neighborhoods in the districts of Carmel, Delphi, Sheridan, Westfield, and Marion. The Monon Rail Trail provides a free and safe mode of non-automobile transportation, as well as parking, resting and drinking stations for the surrounding Hoosier communities and non-residents. The Monon Rail Trail cost about \$5.5 million in planning and construction. Currently, Indy Parks and Greenways and the Hoosier Rails to Trails are expanding the Monon Rail Trail system further south to reach Monroe County, Ellettsville. The Eppley Institute estimates more than 4,000 people use the trail per day and over two million users visit the Monon Rail Trail each year.

Link to JCC

Like the JCC eco-fitness trail, the Monon Trail also had to consider extensive planning and funding dilemmas. The planning involved conducting a physical site inventory, developing a public involvement process, identifying design standards, estimating costs for the trail, promoting trail usage, and analyzing surrounding affected communities, demographics, land uses, and project's historical significance/importance. After doing a physical and social inventory, the projects' teams can better decide what districts to connect, what environmental areas should be preserved and or highlighted along the trail, how to ensure accessibility to all people (like wheelchairs), and where best to elicit funding.

Media and Concerns

Promoting the trail through the media continues to be a challenge along with general trail safety. The Monon Rail Trail utilizes three self-promotional media sources: a Facebook group, a newsletter that the Hoosier Rails to Trails issues 3-4 times a year, and the Indiana Trails website. Safety continues to be a prevailing concern for all trail users alike. Since January 1, 2011, Indianapolis Police report that there have been seven incidents occurring along the 10-mile Indianapolis portion of the Monon Rail Trail, alone (three of which involved crimes against person). Major Greg Ballard reassures that the City of Indianapolis is increasing motorcycle,

bicycle, and park ranger patrols on the trail as a result. The trail still lacks lighting fixtures, though, so Police advise trail visitors to always carry a cell phone and be wary of using the Monon Rail Trail before or after daylight hours.

A third problem besides promotion and safety addresses violations of trail usage and trash dumping. The Monon Rail Trail is geared specifically to non-automotive transportation, but there have been incidents of people violating this policy and riding mopeds or other energy-powered devices and trash has to be regularly removed from the trails. These issues will continue as long as the Monon Rail Trail exists and extends into more communities, but the Hoosier Rails to Trails will also maintain the reinforcement of trail policies.

Case Study 5

Name: University of California Davis

Type: Public University

Location: Davis California

Year Established: 1905. Arboretum established 1936

Mission: “The central purpose of UC Davis, as a comprehensive research university, is the generation, advancement, dissemination and application of knowledge.”

Demographics:

- Staff – 20,000 (23 Just for the Arboretum)
- Audience – Public
- Community Served – students and the City of Davis

Funding: Research funding: \$678.6 million in 2009–10

Private support: \$112.3 million in 2009–10

Total UC Davis endowment: \$539 million

Arboretum funded by the university and private donations

Project Name: Arboretum GATEways (Gardens, Arts, and The Environment) Project: City Arts GATEway

Location: UC Davis Campus, Davis California

Purpose: To “focus on the arts and on families” (and) “will promote lively interaction and provide a relaxed, informal orientation to the campus.” To bridge the gap between the community and the campus.

Need: Funding mostly present, waiting on completion

Target: Local Community

Partners: The UC Davis Arboretum, Civic Arts Commission of Davis, Lutsko Associates

Stakeholders: The community, student body, and the City of Davis

Project Planning:

- Timeline: To be completed 2012
- Received a federal grant, total committed money: \$300,000
- No Permits needed, as the area is already a garden.

Incentives: Offers many free community activities such as performance by different university groups

Media: PDF of the project overview complete with images (link included in references)

In short this project will be mostly funded by a federal grant with the anticipated assistance of the Civic Arts Commission. The City GATEway project is only a small part of a much larger project, which will create many outdoor facilities all over the campus. I chose the city portion of the project to focus on because it is the part most dedicated to community outreach and it also includes an eco-fitness trail. Located on the portion of campus most closely connected to downtown Davis, this project seeks to create a bridge between the campus and the community not only by offering resources such as trails, visual art, and natural environment space, but also by providing outdoor performance areas and a learning center that will be focused on environmental education.

This project is on many levels different from the undertaking of the JCC, as it is supported by a much larger organization and has access to much more land already designated as a garden of sorts. This project is attempting to renovate an existing area not necessarily create one in a limited space. However I do think that this project can prove to be very helpful to the JCC's undertaking. Like the JCC, the City Arts GATEway is incorporating an eco-fitness trail and is committed to both improving the health and environmental knowledge of the surrounding community. While I could not find much material on the eco-fitness trail as it was only mentioned in the PDF, I did find one aspect of this project helpful. In 2001 before this project was designed, the Arboretum staff surveyed over 4000 members of the community in order to structure a ten-year plan for improvement of the current gardens. After receiving this feedback, they designed this section of their GATEway project. It is then not a large leap in judgment to assume that such portions of the project as the eco-fitness trail, arts walk, bike trails, and performance spaces were at least supported by the community. This illustrates the importance of understanding the community one wishes to reach before planning is done. The project was similar to the JCC in ways of funding, as it did not simply have the cash lying around. The Arboretum received federal grant funding and in April 2011, they petitioned the Civic Arts Commission of Davis to help fund artwork for the arts walk. I found the arts portion of this project to be quite fascinating, as it seemed to be supported by the community and opened up new avenues by which to receive funding. While the project differs from our endeavor there are some aspects from which may be gleaned.

Case Study 6

Name of Organization: Indianapolis Museum of Art

Type of Organization: public

Location: Indianapolis, IN

Year Established: 1883, but 1969 was when the current location and the current name became established

Mission: The Indianapolis Museum of Art serves the creative interests of its communities by fostering exploration of art, design, and the natural environment. The IMA promotes these interests through the collection, presentation, and interpretation and conservation of its artistic, historic, and environmental assets.

Demographics:

Staff: 350 paid employees and many unpaid volunteers

Audience: public- Indianapolis Community, Artists, Visitors- form outside the Indianapolis area, Students, Families, etc.

Community Served: general public, artists, environmentalists, scientists, and students

Evolution: The Indianapolis Museum of Art has evolved since its beginning in 1883. With the help of donors, both financially and with art, the museum has been able to grow and move to its current location.

Funding: Fundraisers, Donors, Membership Fees

Installation/ Project Name: 100 Acre: The Virginia B. Fairbanks Art and Nature Park

Project Location: Indianapolis, IN behind the Indianapolis Museum of Art

Project Purpose: "...Designed to strengthen the public's understanding of the unique, reciprocal relationships between contemporary art and the natural world..."

Project Needed: The project needed the park space and the artists to help design the space. Also needed was the funding to help move this project along.

Problems: The park is located in the flood plains of the White River, so flooding was an issue and may continue to be an issue. Also some of the area of 100 park is wetlands.

Issues: Major issues are not really presented right now, just keeping the community engaged as well as keeping the nature in good condition.

Concerns: Concerns included ways to get the community involved in this park and now the concern is how to keep the community engaged in the park.

Target: The public. The goal of the project was to engage the community in art, as well as in nature. Visitors from all over are welcome.

Partners: Edward L. Blake Jr., Moore and Goltsman (MIG), The Landscape Studio and Marlon Blackwell Architect, Lisa Freiman, along with other volunteers and staff of the IMA.

Artists: Kendall Buster, Antonio Castillo Valdes, Dagoberto Rodriguez Sanchez, Jeppe Hein, Alfredo Jaar, Tea Makipaa, Adam Ames, Andrew Borwin, Atelier Van Lieshout, Andrea Zittel, Mary Miss, Vision Division

Donors: Betsy Dustman, Bren and Mel Simon, Dan and Kate Appel, Edgar and Dorothy Fehnel, Elizabeth McLain, Friends of Bret Waller, IMA Horticultural Society, Jack and Susanne Sogard, Juanita Smith, Melvin and Bren Simon, Charitable Foundation Number One, Meredith Hull, Michelle and Perry Griffith, Mr. Frank C. Springer Jr., Mrs. Jane H. Fortune, Mrs. Jeannette E. Winters, Mrs. Macy G. Simmons, Mrs. Ruth Lilly, Myrta Pulliam, Nancy C. and James W. Smith, Nicholas Gergakopoulos, Nina Mason Pulliam, Charitable Trust, Richard M. Fairbanks Foundation, Sandra Hardee, The Indianapolis Foundation, a CICF Affiliate, The Pulliam Family, W.C. Griffith Foundation Trust

Stakeholders: The 100 Acre Park benefits anyone in the Indianapolis community, as well as, anyone who visits the Indianapolis Museum of Art. The IMA is constantly looking for ways to keep adding artwork to the site, so any artist is welcome to present their ideas to the IMA board.

Project Planner: The IMA was able to accomplish this project through the help and support from many people. The project was first thought of around 1970 and through multiple fundraisers and donations, along with many hours of strategic planning, the 100 Acre Park was created. The park is constantly being upgraded and new plays are always in the works.

Philosophy: The IMA 100 Acre Park is constantly being updated and new artists are being hired to help sustain the park.

Media: The IMA is constantly in the news promoting their exhibits and things they have to offer. They are always willing to have volunteers there to help run the museum and to help keep funding lower.

Summary:

The 100 Acre Park is a great place for people to go and enjoy both nature and art. Their goals were definitely accomplished with this park. Many people go through this park daily. The 100 Acre Park is one of the largest nature/art parks in the nation, because of this it has a certain uniqueness that it brings to the community. The park is completely free, so it provides a place for people to go whenever they want and they can spend as much time as they want there as well. There are new pieces of art constantly in the works to be added to the nature/art park. It is one of the only parks like this in the nation that has ongoing projects constantly being planned. There are many things that we can take from the 100 Acre Park and apply towards our project at the JCC.

The Eco-Fitness trail at the JCC seems to be very similar to the idea of the 100 Acre Park. The JCC would like a trail that gets the community more involved in the outdoors while giving them a place to enjoy for free. The JCC is obviously going to be on a smaller scale than the 100 Acre Park. Also, the JCC's trail is going to include fitness concepts as well as educational concepts, while the 100 Acre Park is more about nature and artwork. Since the two projects are still very similar, there are a few things we can learn from the 100 Acre Park. The 100 Acre Park has many different types of environments. There are meadows, wetlands, forested areas, and a lake. We can research the process the IMA took to build in/on these types of areas. At the JCC, we will be building in/on forested areas and wetlands, as well as near a pond. The IMA, though at a much larger scale, could be a very good resource during our planning process.

Overall, the Indianapolis Museum of Art's 100 Acre Park will be a great place to turn to if we run out of ideas or if we run into problems. It is so close that it will be a great resource. Most of the environmental issues or roadblocks that we may or may not face will be something that the IMA most likely encountered in their construction process.