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Summer Internship at African Community Education

Stephen A. Chiavaroli III

Degree will be conferred May 2016

A GISDE final project paper

submitted to the faculty of Clark University, Worcester, Massachusetts,

in partial fulfillment of the requirements for the degree of

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in the Department of International Development, Community, and Environment

Accepted on the recommendation of

Yelena Ogneva-Himmelberger, Chief Instructor

Abstract

Summer Internship at African Community Education

Stephen A. Chiavaroli III

My internship at African Community Education (ACE) took place from May to December 2015, where I worked with GISDE alum, Joshua Plisinski. My summer was split as a volunteer at ACE and GIS Analyst in partnership with a Worcester nonprofit Cultural Exchange Through Soccer (CETS). My duties at ACE included tutoring, mentoring, and leading the students in homework assignments and various recreational activities. I also completed several GIS tasks and instructed a GIS tutorial for the high school students of ACE. The other time during my summer was spent conducting a spatial network analysis of Worcester soccer fields for CETS and presenting my final aggregated report at Worcester City Hall to the Parks, Recreation, and Cemetery Division. The purpose of that report is to locate strategic areas in need of additional funds for the construction of proposed fields and improving existing fields. This internship report details the aim of ACE, the specific tasks conducted as a volunteer, and a review of the network analysis presented to the city of Worcester.

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ACADEMIC HISTORY

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CHAPTER 1. INTRODUCTION

The journey to Clark University began in 2007 as I was deciding which undergraduate program I would attend upon graduating from high school. As a Boy Scout for nine years, I grew a passion for the outdoors and environment, which led me to attending Eastern Nazarene College majoring in Environmental Science. My undergraduate studies further shaped my interest in environmental studies by focusing on ecology, plant and animal biology, marine biology, and geology. After graduating with my Bachelors of Science Degree in 2011, I found myself in the struggling job hunt. I held three positions since graduating; environmental scientist & consultant, environmental laborer, and aquatic control technician. All three jobs provided me with valuable skills but were not what I was looking for in a career. My position as an environmental consultant introduced me to Geographic Information Science and I instantly became interested when watching a coworker use ArcGIS. My desire to pursue an advanced degree within the environmental sector led to a search of GIS Masters programs, and subsequently to Clark University.

With no previous GIS experience, the beginning of the GISDE program was difficult. I quickly became interested in raster data environmental modelling work and that was the focus of my internship search. After applying to approximately 50 internships during the winter of 2015, majority being environmental based, I did not hear back from any. This is when Joshua Plisinski, GISDE alum, visited our internship course to describe his experience at Clark and where he is at now in his career. This is where Joshua presented a potential summer internship at African Community Education (ACE) as a volunteer tutoring students and also conducting an analysis of soccer fields in Worcester. I was immediately interested since I had a background in tutoring and have a huge passion for soccer. About three weeks after this initial discussion, I emailed Josh

expressing my interest for the internship, leading to several meetings to discuss the specifics of the volunteer process and soccer field analysis.

This summer internship at ACE began in May 2015 and lasted through August, while my soccer field analysis was completed during the summer but City Council meetings are still on going.

Chapter 2 of this paper will discuss ACE in more detail by addressing their history, mission, and structure. Chapter 3 will give an extensive detailed account of all duties completed at ACE, and complex methodology of the soccer field network analysis along with description of monthly meetings at Worcester City Hall. Chapter 4 will detail an assessment of my volunteer experience along with GIS skills gained and used. The report will close with examples of some of the work completed at ACE and examples from the final soccer field report submitted to the city of Worcester.

Chapter 2: Description of Organization

2.1 Organization Introduction

African Community Education (ACE) is a community oriented non-profit program focusing on the improvement of educational well-being towards African refugee and immigrant children whom have relocated to Worcester, Massachusetts. The students who attend ACE are from various countries in Africa that have suffered from war and political or social instability. Because of their educational instability from their home country, these children were not able to receive the proper schooling that children living in the United States receive. When these students enroll in middle school and high school in Worcester, they are often far behind their peers in all subjects. Therefore, ACE provides an additional learning opportunity for these motivated students to shorten this educational gap with their fellow classmates. Educational and social stability is accomplished through this academic support along with leadership development, cultural expression, and community outreach (ACE,2015).

2.2 History

ACE was originally started by medical students at the University of Massachusetts as a part time one-on-one tutoring program to assist refugee children from Liberia. As the population of Liberian refugees and immigrants grew, the need for this part time tutoring service could not be met with the available volunteer medical students. As this need became more apparent, members of the Worcester African Community along with more medical students established ACE as a non-profit organization to serve the entire African refugee youth population in Worcester. Refugees attending ACE are from many nations including Central African Republic, Democratic

Republic of Congo, Liberia, Tanzania, Ethiopia, Somalia, Rwanda, Kenya, Ivory Coast, Cameroon, and Ghana (ACE,2015).

2.3 Location & Structure

ACE is located in the heart of downtown Worcester on Chatham St, which borders Main St and Worcester City Hall. ACE utilizes office, classroom, and gym space in the basement of the Fanning Building School which is primarily an adult learning center.

ACE has a core staff of about 15 employees including positions of executive director, multiple program coordinators, and liaison to the Worcester Public Schools. However, the heart the entire organization is the abundance of volunteers from various backgrounds including college students, teachers and professors, and retired professionals. All volunteers must complete a training course and background check prior to their start date. They are required to commit at least two hours per week for volunteering and must follow a strict schedule. ACE has many opportunities for the volunteers such as tutoring refugee kids in the after school program, leading group reading sessions, leading recreational activities such as dance and sports, and mentoring a student.

2.4 Strengths

ACE excels at providing African refugee students grade 5-12 with the necessary and proper supplemental education, leadership mentoring, and recreational activities. The staff and volunteers are committed to the mission statement and genuinely care about these kids who are at a disadvantage in Worcester. The tutors are eager to help and show the necessary patience while helping the students with their homework and even college applications for the older

students. The students at ACE respond very well and put in so much time and effort in their work while learning essential life values. ACE utilizes a computer lab with the basic Microsoft software used for writing assignments and online studying. Five computers now include the open source software QGIS that I installed during my internship. I used this software while teaching the high school students geography lessons and introductory GIS tutorials I created to establish a better understanding of GIS and to spark a future interest when these students graduate from high school and enter ungraduated school. There is also a library for the students to improve their reading skills along with other math and language books for continued practice. The gym is used for the students to play basketball, soccer, and foosball to learn teamwork and better group interactions.

CHAPTER 3. INTERNSHIP RESPONSIBILITY

3.1 ACE After School Program Volunteer

The volunteer program at African Community Education is run by the Volunteer Coordinator, Frank Murphy. There are also several other core staff whom I would report to, including my internship supervisor, Joshua Plisinski. As a volunteer, I was required to commit at least two hours per week, however I would commit approximately 10 hours of volunteer time. The strict volunteer policy required that I sign up for volunteer days the previous week with Frank Murphy. As a volunteer at ACE, I had two core roles with specific responsibilities including 1) a tutor, recreational leader, and mentor, and 2) GIS Analyst.

3.1.2 ACE Tutor, Recreational Leader, and Mentor

The majority of the 10 hours per week spent at the ACE office was dedicated to tutoring students and helping them with their specific homework assignments. Upon arriving at the ACE building at 230 pm, I would sign in and report to Frank Murphy. Here, I was assigned to one of the many students in attendance for the after school program. The very first day volunteering, I was assigned as a tutor assisting a high school student read scenes from Shakespeare's Romeo & Juliet and write an essay about a specific scenes in the play. Throughout the entire month of May, I tutored this student three more times which culminated in writing a ten page essay discussing the entire play. I spent a lot of time with this one student, but that was all the English subject I focused on. The majority of all other time spent tutoring was specifically focused in geography, science, and especially mathematics. I tutored basic elementary school math, all the way through high school algebra. I tutored plant and animal biology, weather patterns, and chemistry basics. Many of the younger children didn't comprehend how far away from home or

where they were in relation to home living in Worcester. Therefore, I spent time with showing them on a map or in geography books where they were from in Africa and how where they are living now. If students did not have any homework, I spent time just reading books and helping them understand grammar and spelling of the English language. It was quite rewarding and humbling to help these kids learn more and understand their studies. They were not fortunate to have the same level of education as American kids do at a young age. All the students and very smart and just need the extra time and attention to hone their thoughts and skills.

Some of the older kids finishing up their time at ACE and preparing for college didn't need so much help with homework, as they needed help with college applications. Time spent with these students was acting as a mentor. I worked with a select few who needed guidance searching for colleges to applying for, along with brainstorming potential majors and programs they are interested in. Once a college or university was selected, I assisted in the application process, mainly to help write their application essays.

The last hour of the after school program was dedicated to free time for the students. For most of the students this involved playing sports in the gym, but for some others it included staying in the classroom and reading books. I transitioned from a tutor to recreational leader during this time performing oversight of the gym. Coordinated basketball and soccer games were quite common where I would either be a referee or participate. This dedicated time for the students is strategic since it rewarded the kids for their hard work and also taught them team and group skills that are essential as they grow older.

3.1.3 ACE GIS Analyst

The first GIS task assigned to me was to conduct a network analysis of all ACE students home address in relation to the ACE building. The main purpose of the analysis was to identify which students lived within a half mile of the building, and which ones lived further than a half mile. Since most of these students do not have a form of transportation for travel, ACE dedicates a portion of their budget for purchasing bus tickets and distributing them to the students who live farther than ½ mile from the building via the road system. A simple buffer was not used since that doesn't incorporate the roads and will only draw a circle around the building. Since each student goes four times a week, money can add up fast and the budget must be spent wisely. At first I was presented with an Excel spreadsheet containing the name and address of all students who attend ACE. The spreadsheet was not formatted well at all, so I had to clean the dataset and prepare it for geocoding. In order to geocode, I needed a base layer to geocode to. The selected shapefile was the Worcester Building Addresses file downloaded from the Worcester GIS Database provided to Clark University from GISDE alum, Claire Brill, who is the city GIS Manager. Once this file was downloaded, a simple geocoding process was performed within ArcGIS. Once all addresses were geocoded, a new address shapefile was created as an input for the network analysis. The Excel spreadsheet with all relevant student information was opened in ArcGIS and joined with this address shapefile. This same process was repeated using only the address of ACE to have a shapefile with only this building. The other required input for this network analysis is a roads layer. MassGIS database was used to download a TIGER Roads file for the entire state. A Worcester city boundary shapefile was used from the Worcester database to clip roads present only in Worcester. To isolate only roads that are walkable for students, roads with a speed limit of 30 miles per hour were selected and exported as a new shapefile used

for the network analysis. The first step for this network analysis was to use ArcCatalog for creating a Network Dataset from the recently created Worcester roads file. This network dataset was input into a new network analyst project. The ACE building was added as the source feature and service area of ½ mile was created around this building. This service area was compared with the students addresses to determine which students are outside and would receive a bus pass every week. For additional information requested by ACE, several more service areas of 1-5 miles were created to show the distances away from ACE for all students. After creating a shapefile with all addresses, ACE provided another task to determine the median household income of the neighborhoods where all the students live. Median Household Income data for 2010 was downloaded from NHGIS at the census block group level in Excel format along with a census block group shapefile to join this data to. After joining this data, a spatial join was conducted on the address shapefile to join income values related to where each address falls within. This median household income value along with distance information was exported into an Excel sheet and aggregated into a file presented to ACE.

One core requirement upon receiving this internship given by Josh Plisinski was to create an Introductory GIS Tutorial for the high school students. The creation of the tutorial was not too difficult, but it did involve a lot of brainstorming and discussing with Josh the specifics of the tutorial and what key concepts needed to be taught that would be interesting and keep the attention of the students. One unifying theme that brought most of the students was their passion for soccer. Therefore, I decided to make soccer the main theme of the tutorial. Data used in this tutorial included the previous shapefiles of addresses, the Ace building, Worcester boundary, and Worcester roads. I also downloaded a shapefile from the Worcester Database with points of all soccer fields in Worcester. I created a simple map with all these shapefiles and printed out

several copies for a hands on tutorial (Figure 1). The idea of this hands on tutorial was to measure one mile circular service areas around the ace building using a protractor and scale bar as a reference. Then count how many soccer fields are within one circular mile of ACE. Once the students had a good understanding of manually doing this, the process was repeated in QGIS. The previous week, I had spent an afternoon downloading the free QGIS software onto 5 computers in the main computer lab. I also uploaded all the relevant data needed for this tutorial and ran the tutorial to make sure it worked. After completing the hands on tutorial, I gave a half hour introduction presentation on GIS. This included the history of GIS, what it is, uses and applications, and work I have conducted. After this presentation, each student was assigned a computer where the tutorial was set up and I instructed and provided guidance to essentially replicate the previous exercise. This included instructing how to create buffers and selecting fields within a buffer. The next exercise was to open the attribute table of the address shapefile and select their own address. The selection was exported and a buffer was made around their own address so the students could explore which soccer fields were within one mile of their house from a GIS perspective.

The final GIS task specifically for ACE was to create several maps to insert in the annual report. I was provided with an Excel file showing the place of birth and associated nationalities of all ACE students. The final product was two maps showing the countries in Africa where the students were born (Figure 2), and their nationalities (Figure 3).

3.2 GIS Analyst Partnership with Cultural Exchange Through Soccer (CETS)

3.2.1 Spatial Network Analysis of Existing and Proposed Soccer Fields in Worcester, MA

The rest of the summer internship was working with Joshua Plisinski in partnership with a Worcester nonprofit organization Cultural Exchange Through Soccer (CETS). CETS is a community building program utilizing soccer for youth leadership development. It runs an afterschool soccer program and advocates for equal access to soccer sporting facilities within Worcester. My role as a GIS Analyst was to produce a report that analyzed existing and proposed soccer fields in Worcester. The same analysis was conducted on all existing baseball fields for comparison.

3.2.2 Aerial Maps

Before this project started, Joshua Plisinski presented me with a list of all locations such as parks and city fields where potential proposed soccer fields are located. Using ESRI Basemaps, I created a point shapefile with all these proposed soccer fields. The first task for this report was to produce an aerial map for each existing and proposed field. The previous section of this report mentioned I had downloaded a shapefile of all existing fields, which was used for this. The first step was to create a polygon of the field location and this was shown in the aerial map with its dimensions. Surrounding roads were digitized as line features and named to show geographical context. In most cases ESRI Basemap was used for the background, however several fields did not have an up to date image. Therefore Google Earth was used to take a snapshot of a current view which was then georeferenced for background context. Figures 4 & 5 show an example aerial map of ESRI and Google Earth, respectively.

3.2.3 Network Analysis

The main product of this network analysis was to produce half mile service areas around every existing and proposed soccer fields and to summarize all relevant downloaded data. The same network dataset previously created and discussed was used for this network analysis. MassGIS was used to download a Census Block shapefile which included 2010 population for every census block in the state. Several Excel spreadsheets were also downloaded with demographic information, population of all ages, and total number of households. These Excel spreadsheets were joined with census block polygon shapefile. This shapefile was then clipped to the Worcester Boundary shapefile. Spatial join was used to join the median household income data previously discussed from NHGIS at the census block group level with these census block polygons.

A network analysis was performed with the soccer fields as the source facilities to create half mile service areas around each field. Since some fields are within that distance, I chose to have non overlapping service areas. Therefore, each field has its own unique half mile service area via walkable roads (Figures 6 & 7). The resulting service areas were exported as its own shapefile and spatially joined with the Worcester Census Block polygon. The option was specified to aggregate the data values of all census blocks falling with and intersecting the service areas, and to take the sum and average of all data.

3.2.4 Service Area Data for Report

Once the service area shapefile contained all relevant data for this report, it was exported into an Excel spreadsheet for further exploration and aggregation. The first data analysis was to calculate the total population served within each service. This total for each was summed and divided by

the total population of Worcester to calculate a total percentage of served populations by existing soccer fields and what it could be with the addition of each proposed field. The next step was to sum the population of children between the ages of 10 and 19. This was calculated to show how much of Worcester's youth is served. This sum was divided by the total population of each service area to retrieve a percentage of youth served by each field. Then this total youth population was also summed for each field and divided by the total population of Worcester. The total population of Worcester is 184,772 and the total population within the existing soccer field service areas is 40,397 and is 90,963 with the proposed fields added (49% of total). The total youth population age 10 through 19 who are most likely to use the soccer fields is 5,728 and 13,517 with the proposed fields (15%). The total number of households per service area was then calculated. Finally, the average of the median household income was calculated for each service area.

The city of Worcester is split up into 5 districts, each containing a certain number of all these soccer fields. Data aggregation of all parameters previously reported was split up by districts. Therefore, five separate tables were created with all data. Within the final report published to CETS and the city of Worcester, this table was presented alongside a map of each district, the service areas for each existing and proposed field, and each city Councilor. (Figure 8)

The next step was to aggregate the demographic data into a visual table. The total population of each nationality as White, Black, Asian, and Hispanic was calculated per service area and each was divided by the total population to calculate the percentage of each demographic located in each service area (Table 1). A pie chart was also created for each field shown alongside each aerial map.

All previous GIS analysis was completed with every baseball field and included at the end of the final report. Figure 9 shows the service areas for all fields.

3.2.5 Conditions Report

To assess the condition of each field, five parameters were brainstormed by Josh and myself. The parameters include 1) the presence of goals, 2) the presence of lines, 3) the condition of the soccer grass/turf, 4) the cleanliness and presence of trash, and 5) field availability/ parking accessibility. Each field was visited to assess these five parameters along with taking photographs to include in the final report. A sample from the report is shown in Figure 10.

3.2.6 Meetings at Worcester City Hall

Starting in October 2015, the Worcester Parks, Recreation, and Cemetery Division, run by Robert Antonelli, has hosted several public meetings at Worcester City Hall to discuss rectangular fields. This division is responsible for the operations, management, and maintenance for all parks in Worcester. A Master Plan for each field is also provided to the public which is maintained by an engineering company hired by the city, Weston & Sampson. This company is the leading consultant for these rectangular field meetings and also provide representatives to all meetings. The main goal of these public meetings is to identify concerns city wide for all rectangular field sports including soccer, football, and rugby. Weston and Sampson is charged with determining where in Worcester more rectangular fields can be located and the feasibility to construct and/or provide more services. CETS, Josh, members of ACE, soccer coaches, representatives of the Worcester World Cup, and myself have all gone to these meetings to advocate for more soccer fields. During the meeting in November, I presented my report to the Parks Division along with Weston and Sampson showing them the state of affairs for these

soccer fields compared to baseball fields. The key findings of this report portrayed to Worcester is 1) to show the huge discrepancy in serviced populations between soccer and baseball. 2) Existing soccer fields and proposed are located in areas with high youth populations, high minority populations and low median household income. One unifying factor for poor minority children is their love and passion for soccer. The lack of soccer availability for these children is a major concern for the city. 3) The conditions of some existing fields is horrible with pollution, litter, and rocky turf. The report presented to the city highlights this soccer disservice to the populations in Worcester.

3.2.7 Initial Recommendations

These are the initial recommendations presented in the final report for the city to focus on.

District 1. Great Brook Valley- Proposed field condition needs improvement. Prominently Hispanic and white service area with high youth rate and low median household income.

District 2. Bell Hill- Existing field needs cleaning. Service area has a high youth and total population with low median household Income.

District 3. Vernon Hill- Proposed field condition is good but needs goals. Service area has a high youth and total population with low median household income.

District 4. University Park- Proposed field condition is good but needs goals. Service area has an extremely high youth and total population with low median household income.

Elm Park Community- Existing field condition needs improvement. Service area has a high youth and total population with low median household income.

District 5. Beaver Brook- Proposed Field and existing field are in excellent condition and serve a large youth population in Worcester.

CHAPTER 4. INTERNSHIP ASSESSMENT

My experience volunteering at African Community Education was incredibly rewarding. I spent so much time with the students, learning about their childhoods, their struggles and strengths, and bonding with them on a personal level. It was an honor tutoring and learning with them. I definitely was not an expert on Shakespeare, but working with that student helped me learn more myself. There were so many instances where I recognized how smart and brilliant some of these kids are. The GIS work completed here was fairly easy but rewarding at the same time.

Geocoding was not a skill focused on a lot at Clark University and was beneficial to geocode more. More skills with network analyst were also gained through assessing the addresses in relation to ACE. Creating and implementing a GIS tutorial helped me hone down the basics of GIS and how to portray that to students. It was a pleasure teaching them as they were eager to learn and seemed quite interested in this new topic. Some students even expressed their interest in studying geography and GIS as they enter college. Teaching was also beneficial since it assisted in my basic core understanding of GIS and how it may help me in every day conversations if people do not know what GIS is.

The experience conducting this spatial network analysis of soccer fields was extremely useful, beneficial, and rewarding. I learned skills such as GIS data creation, and grew my experience with georeferencing, network analyst, cartography, data aggregation, report writing, and city politics. Along with the previous skills used, it was a challenge to use unprepared data for analysis. Generally in class at Clark University, pre made data sets come with instruction from the professor and it is easy to conduct an analysis. This is generally not the case when given data from an organization such as needing to be cleaned and aggregated properly. Unexpected

challenges also arise with data sets downloaded that are not present in class. However it is definitely beneficial to fight through a problem and learn from mistakes.

I also gained experience on changing my own product based on the need of others. Several times my maps and report was presented to Cultural Exchange Through Soccer and they made edits based on how they wanted information to be portrayed. That can potentially assist me in future employment dealing with the needs of others. Presenting the results of my final report at Worcester City Hall was quite nerve racking but extremely valuable. Conducting an analysis with real data and creating influential results to present is highly rewarding. It is a great feeling when your work is viewed and implemented by a city for beneficial change. Meetings with the city councilors, city managers, and vice presidents of Weston and Sampson also taught me a lot about city politics. I learned about city budget, money aggregation between departments, processes for passing bills, and the process of implementing change. This whole soccer field initiative may take a while for implementation, but it will definitely happen.

Several beneficial connections were made with Weston and Sampson at these meetings. I became connected with the Project Manager and Vice President who are overseeing this city wide project. They were highly impressed with my work and contacted me with the GIS department in their company. Creating a network of connections in the work force is highly beneficial and can potentially present an employment opportunity in the future.

Even though my internship was all unpaid volunteer work, it was an excellent and rewarding experience. The flexible hours per week allowed me to work another full time job to make money, so the lack of pay was not an issue. Volunteering at ACE is an amazing time and I highly recommend this internship for someone wanting to gain teaching experience. There are many volunteer opportunities for Clark students and is a great way to get involved with the city and

help the underserved youth populations. There is no GIS work done at ACE and all the minimal GIS related projects are now complete. I don't predict any more like this in the future except for a reoccurring network analysis of ACE students as new students join every year.

CHAPTER 5. CONCLUSION

The GISDE program at Clark University has been extremely influential in driving my interest in the many applications of GIS. The program along with the alumni network has opened up many doors for me I never thought I could be a part of or even interested in. My internship at African Community Education was an unforgettable and rewarding experience I am thankful and honored to be a part of. Spending time with the refugee students at ACE was humbling and rewarding to see the kids grow and excel in their studies. It was also awesome to teach GIS and have such a great response and future interest in the subject. My collaboration with Cultural Exchange Through Soccer conducting the network analysis of Worcester soccer fields was also a gratifying experience. The ability to conduct a high quality GIS analysis and present the results to city council representatives, and have such a positive reception is unbelievably satisfying. Knowing that my work has brought positive change for the less fortunate citizens and mainly underserved minority children has been remarkable. I was unsure how this internship would unfold at the beginning of the summer, but I am more than pleased with how it progressed and ended. I made several beneficial connections in the GIS field and I am excited to see what my future holds in store. For those looking for a useful and beneficial internship to gain more teaching experience, I highly recommend volunteering at ACE.

FIGURES AND TABLES

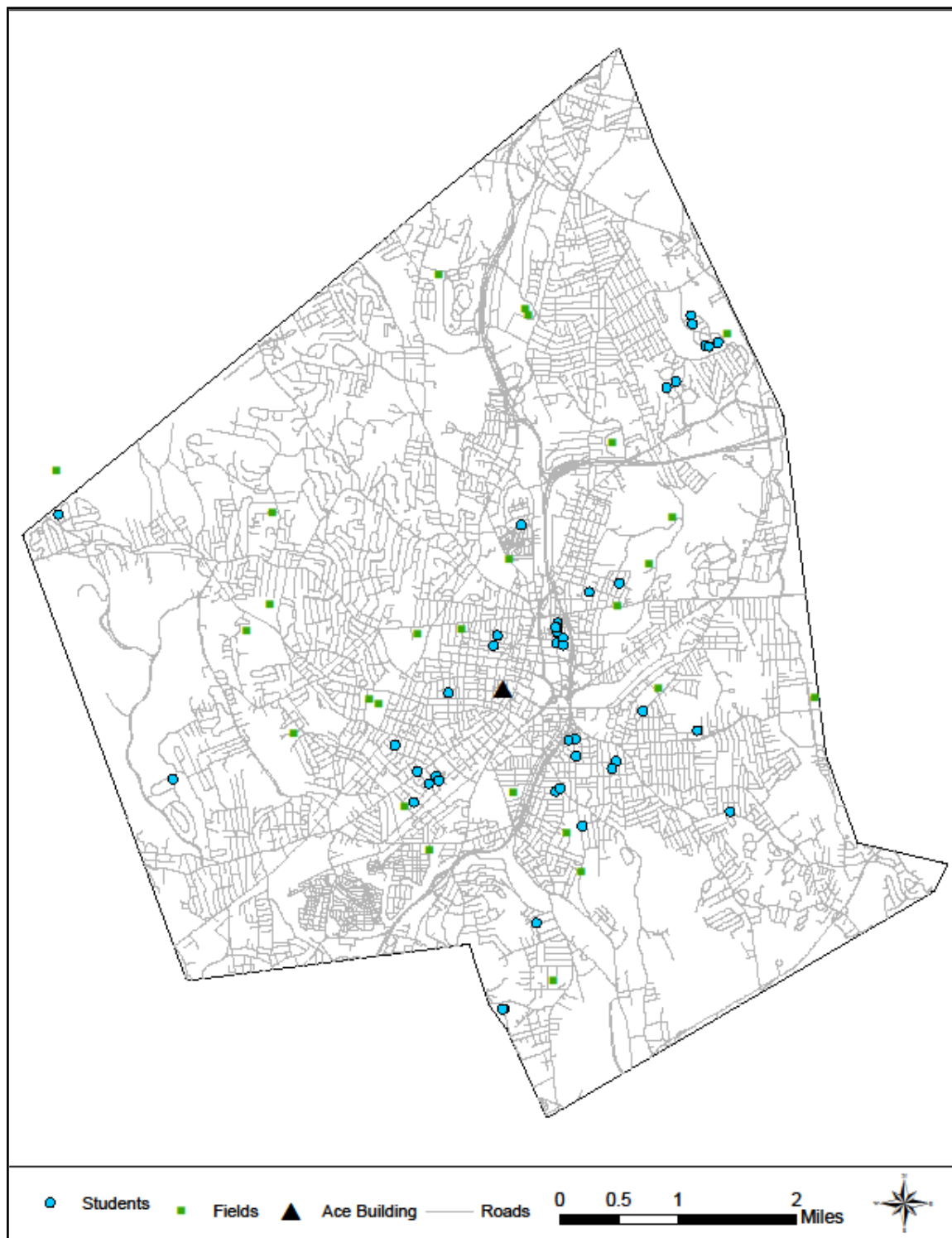


Figure 1. GIS Tutorial basic map showing soccer fields, ACE building, student locations, and scale bar used for hands on exercise.

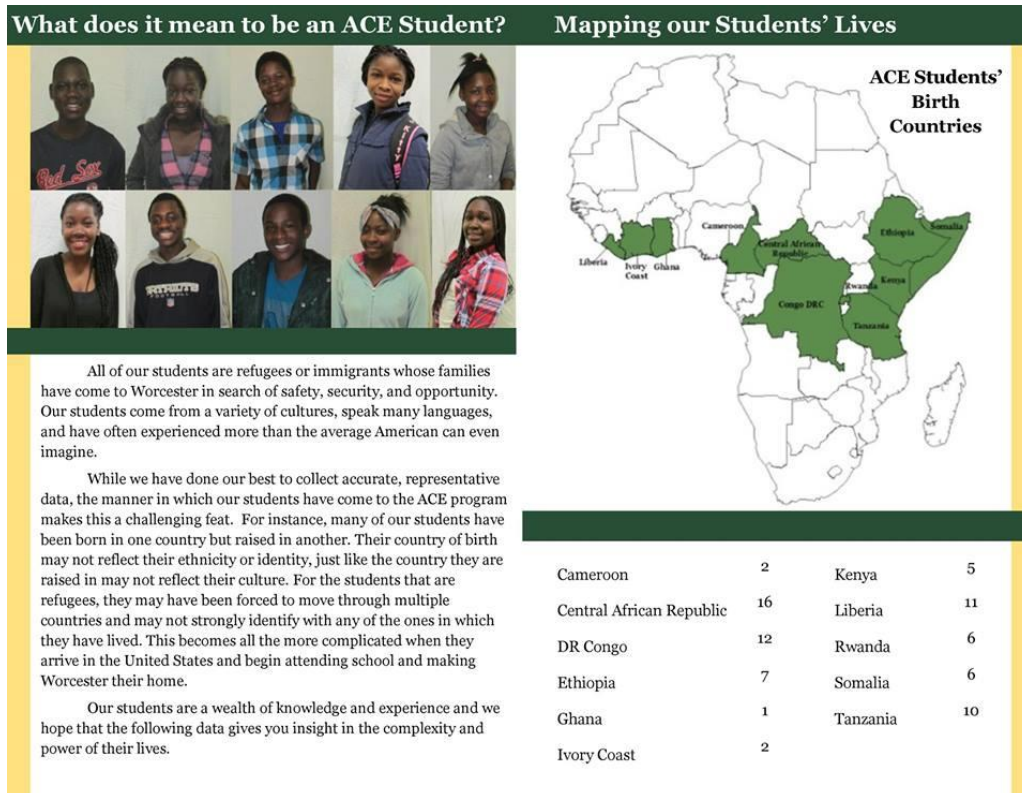


Figure 2. ACE Students Birth Countries map included in annual report.

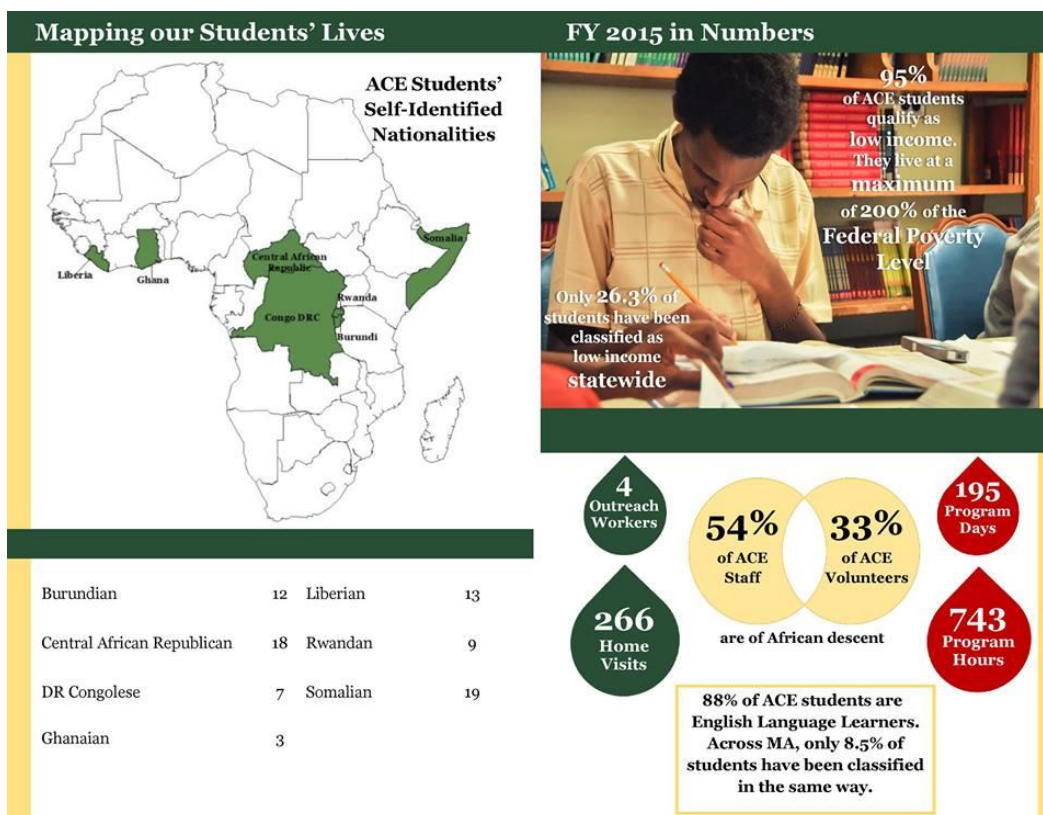


Figure 3. ACE Students Nationalities map included in annual report.

Elm Park Community School Soccer Field

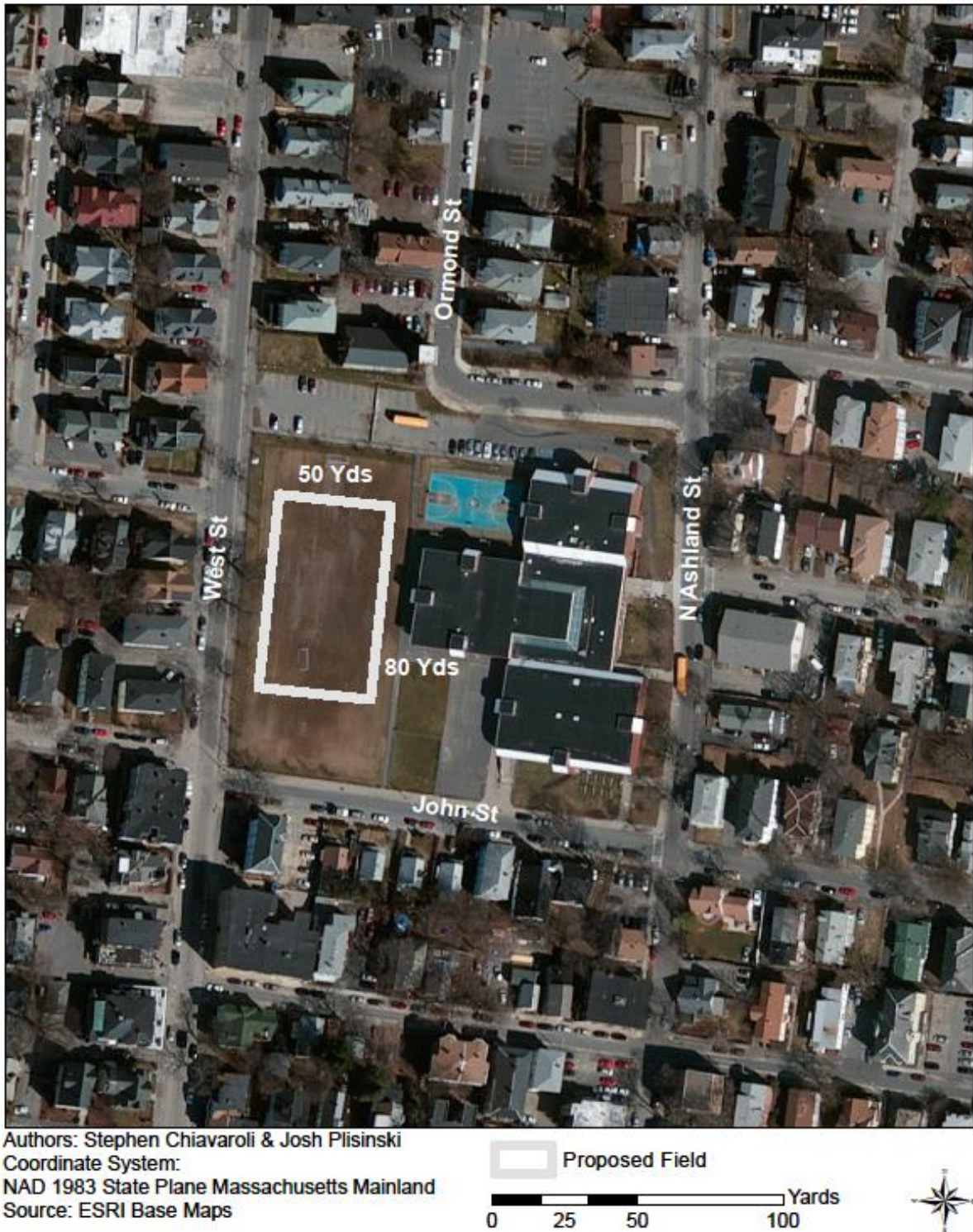


Figure 4. Aerial Map of Elm Park School Field with ESRI Base Map

University Park Soccer Field



Authors: Stephen Chiavaroli & Josh Plisinski
Source: Google Earth

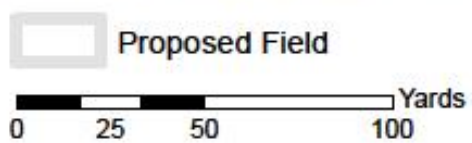


Figure 5. Aerial Map of University Park with Google Earth Base Map.

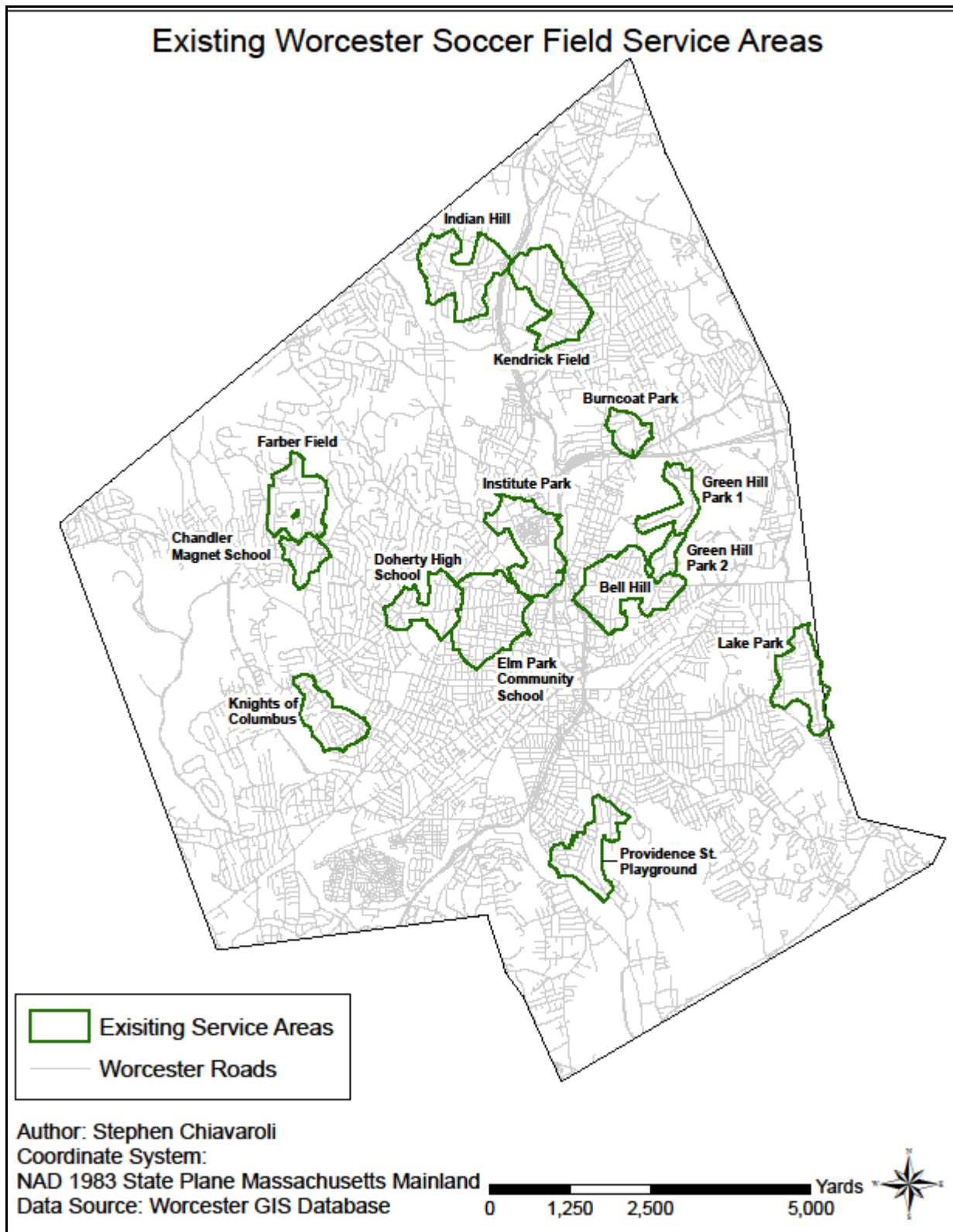


Figure 6. Existing Soccer Field Service Areas

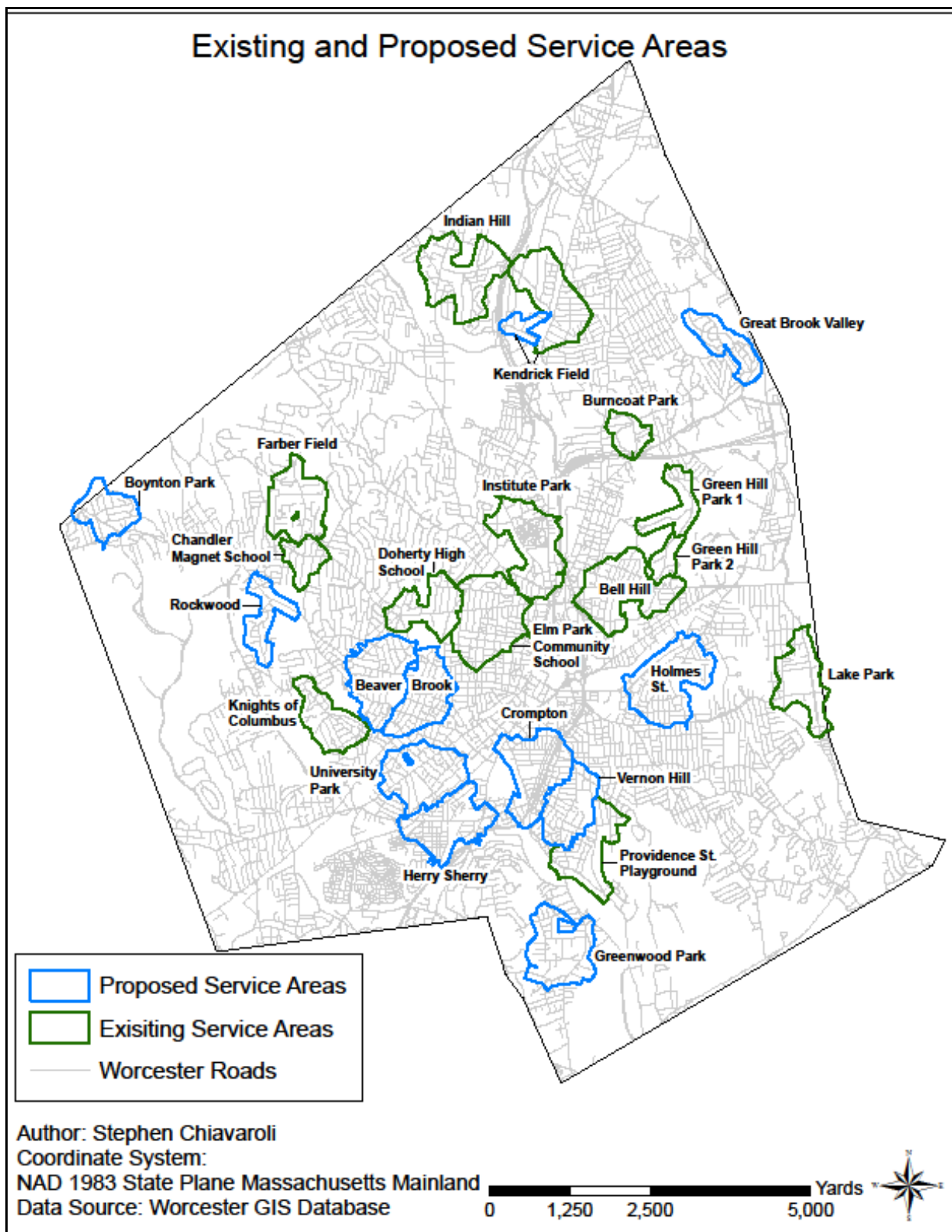
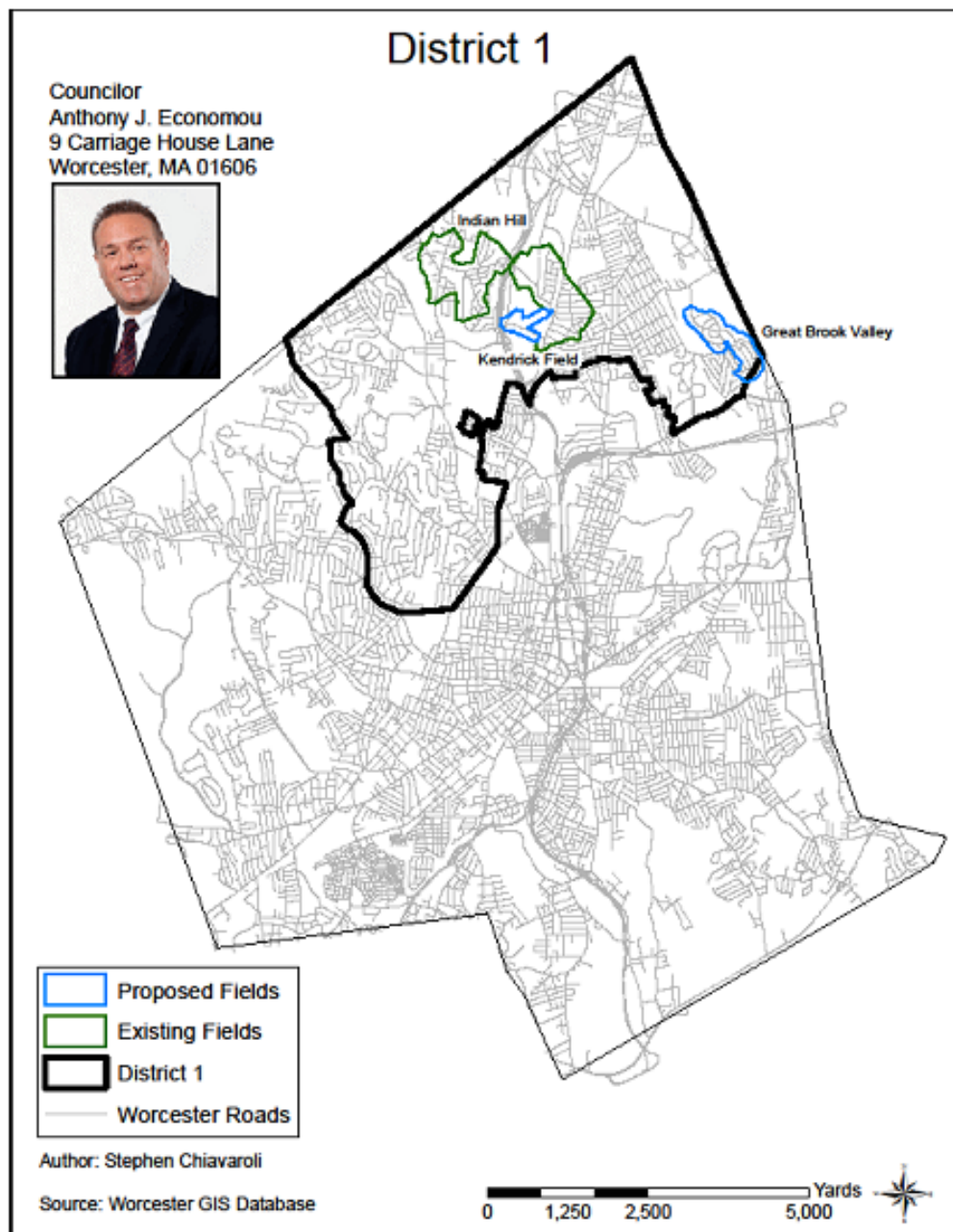


Figure 7. Existing and Proposed Soccer Field Service Areas.



Field	Status	Median Household Income	Total Pop	Total # Ages 10-19	Total Households
Great Brook Valley	Proposed	\$40,113	4686	822 (18%)	1182
Kendrick Field	City Dictated Unused/ Proposed	\$64,550	2490	311 (12%)	1069
Indian Hill	City Dictated Unused	\$71,962	2941	377 (13%)	113

Figure 8. Screenshot from final report showing the district map with each field and census data table.

Table 1. Demographic Breakdown for each service area.

Field	White	Black	Asian	Hispanic
Great Brook Valley	36%	13%	3%	48%
Kendrick Field	81%	9%	2%	8%
Indian Hill	85%	5%	7%	3%
Lake Park	74%	10%	9%	7%
Holmes Park	70%	8%	7%	15%
Bell Hill	52%	15%	5%	28%
Green Hill Park 1	89%	4%	1%	6%
Green Hill Park 2	100%	0%	0%	0%
Burncoat Park	86%	5%	5%	4%
Institute Park	65%	16%	6%	13%
Greenwood Park	66%	14%	3%	17%
Providence St Playground	56%	19%	5%	19%
Vernon Hill	56%	14%	3%	26%
Herry Sherry	45%	11%	10%	33%
University Park	46%	11%	11%	32%
Crompton Park	50%	11%	5%	34%
Elm Park Community	61%	10%	9%	20%
Farber Field	82%	8%	7%	3%
Chandler Magnet School	82%	8%	8%	2%
Rockwood Field	85%	5%	3%	7%
Knights of Columbus	70%	12%	10%	18%
Doherty High School	85%	6%	6%	3%
Beaver Brook	45%	12%	9%	34%
Beaver Brook Proposed	69%	11%	7%	13%
Boynton Park	85%	5%	5%	5%

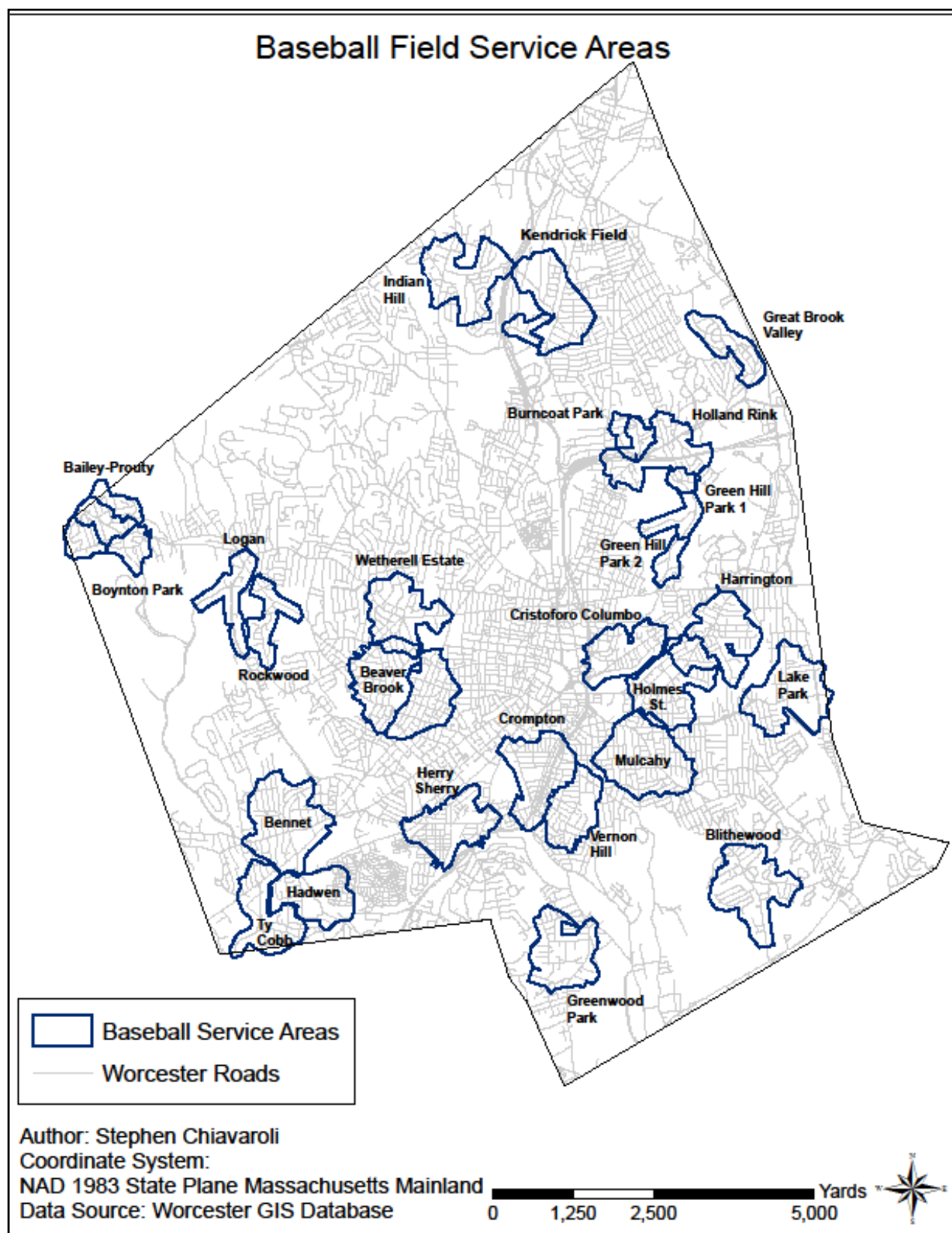


Figure 9. Baseball field service areas

Conditions

1. Goals- None
2. Grass- Field Entrance is very rocky. Contains dirt bike trails. Grass is in good shape
3. Lines- None
4. Cleanliness- No trash. Excellent
5. Availability- Contains small parking lot with limited parking. Not locked. Field is easily accessible

Rocky Entrance to Field**Dirt Bike Trail**

Figure 10. Conditions Report for Great Brook Valley

References

African Community Education (ACE). 2015. <http://acechildren.org/index.php>.