EAST ROCK PARK: INSIDE AND OUT

AN EXAMINATION AND CASE STUDY OF EMERGING COMMUNITY MAPPING TECHNOLOGIES

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ABSTRACT
East Rock Park: Inside and Out is an interactive web based project empowering local communities to map how they use a local park – East Rock Park. The website was created to explore emerging community mapping technologies and uses like neogeography. Since the introduction of geobrowsers, like Google Maps, the layperson has been empowered to create and share spatial information over the internet with ease. Can community groups or neighbors ban together to apply these technologies to map their communities and local ecosystems? This paper examines community mapping trends, the technologies associated with neogeography and details the process of creating the Inside and Out website.

INTRODUCTION

East Rock Park: Inside and Out is an interactive web based project empowering local communities to map how they use a local park – East Rock Park. It is compiling social and ecological information, collected and communicated by the surrounding communities and park users. The map highlights the places and uses of the park that are most important to the people who inhibit the East Rock Park ecosystem – inside and out.

This project is both a case study and a learning experiment. Creating the website allowed for both academic research and applied learning opportunities. This paper is a reflection of both that hopes to guide other small community groups as they creatively seek out new methods to connect to their communities and ecosystems.

MAPPING

New technologies and old theories of public participation have merged in recent years to bring about an evolution of mapping and maps that empowers communities to interact spatially in order to advocate, to participate, to improve, and to share their spaces. Maps are a form of communication that can be used as social devices to affect cognition, emotions, and actions. [1] Community mapping has been used to: promote community cohesion by encouraging interaction between groups that have not traditionally cooperated, empower local institutions and groups to control or regulate ecological degradation, renew cultural identity by organizing communities, and help communities plan land use and/or community resources. [2]

Mapping exercises originated with simple drawings and sketch maps. Sketch maps were effective because they are accessible thus encourage participation. They are most successful during initial stages of a project to collect and disseminate simple spatial information.[2] However, they have limitations. With sketch maps it is difficult to represent complex information, participation is confined to those present during the exercise, the maps can be difficult to archive, and participant feedback and comments can be difficult to represent visually.[3]

As geographic information systems (GIS) evolved in the 1990's, many community groups, professionals and public advocates began utilizing these powerful spatial tools for community mapping exercises. With GIS technologies, the limitations associated with sketch and paper maps were overcome. Early barriers to GIS applications—financial costs, technical expertise, and availability of data – threatened its dissemination but with declining computing costs, spreading GIS expertise and increases in the availability of data , GIS applications became influential community tools. [4]

GIS technologies more recently advanced to incorporate interactive public feedback, introducing yet another form of mapping called "public participation" GIS (PPGIS) or participatory GIS (PGIS). Coupled with the rapid adoption and growth of WWW, access to information became inexpensive and accessible, resulting in new community mapping projects that were interactive, web based, visual, click-friendly, easy to interpret, accessible remotely and fun.[3] More applications and more users were coming on board everyday. Indeed, as S.D.N. Graham argues, "the internet is generating a new public sphere, supporting interaction, debate, new forms of

democracy and 'cyber cultures' which feed back to support a renaissance in the social and cultural life of cities."[5] For example, in Portland, Oregon, one public participatory planning application has increased feedback from the estimated 60 people whom would attend a traditional public workshop to more than 6000 people a week by being able to access the web based application to provide feedback.[6]

Yet GIS applications were still dominated by professionals but with the introduction of Google, Yahoo and Microsoft free web mapping applications in 2005 – mapping went mainstream. [7] These public sites released free platforms that allowed the layperson to be able to spatially share information from the bottom-up for the first time. This new culture of communication, neogeography, was prompted with advancements in Web 2.0 and theories of volunteered geographic information (VGI).[8] Goodchild was the first to advance the theory that geographic information should and could be collected from the millions of "intelligent, mobile sensors" across the world. [9] This type of data collection and sharing seeks to harness the "wisdom of the crowd" – the collective intelligence – and use it collect the missing information not provided by GPS, remote sensing and other data collection methodologies, like human names and features, cultural information, environmental information among many others.[9,10] These technologies provide opportunities for communities to connect on issue-based ideals instead of being limited by "locational proximity," allowing them to collect much more data than individually and at lower costs.[7]

EAST ROCK PARK: INSIDE AND OUT

The East Rock Park: Inside and Out project was completed in two phases. The first phase was a study conducted in the fall of 2007 at the Yale School of Forestry and Environmental Studies by a group of students. The study focused on East Rock Park and its surrounding communities to provide information on the characteristics of the different populations surrounding the park and to highlight existing relationships between these populations and the park. The project team conducted surveys, walked transects, sat for hours of observations and analyzed census data. One goal of the study was to examine the human ecosystem to learn who are the members of the communities and what are their varying perceptions and uses of East Rock Park. This research revealed two significant findings: different neighborhoods accessed the park for different uses and visited different locations and many of the park's uses were not typical uses found on a traditional map of East Rock Park. Therefore, a second goal was to create a product—a map, Inside & Out, which highlighted the places and ecology that were most important to the people who inhabit the ecosystem--inside and out. [11]

Inside & Out was a visual representation of the park to communicate to the park users and residents the ecological, physical and social features of the park most important to them. [11] However, the map fell short of capturing the complete vision of the project. The vision was to use the map to communicate the connections between the different community members and park users – in effect use East Rock Park as the means to connect neighbors, park users, and community members. Although the data was collected from these different stakeholder groups, the team reinterpreted it in order to create Inside & Out. Another problematic feature – the map was static. It represented a snapshot in time and could not change to reflect

changing community values or new dynamic uses of the park. And lastly, the map's distribution was limited. About 800 copies of the map were to be printed and the PDF map was distributed to the park's department and other local community groups but there was little to ensure that the maps could or would be accessed beyond the 800 paper copies initially distributed.

NEOGEOGRAPHY

The solution: a new, dynamic, web-based, interactive map created by and for the community and park users; a neogeography experiment to empower park stakeholders to experience, explore and document the East Rock Park ecosystem. Neogeography refers to "new geography" and was first defined by Andrew Turner to "consist of a set of techniques and tools that fall outside the realm of traditional GIS."[12] Unlike traditional and professional GIS users, neogeographers use Google Maps and geotag photos to map summer vacations. Turner further describes neogeography as the "sharing of location information with friends and visitors, helping shape the context and conveying understanding through knowledge of place." [12] Neogeography is the ultimate web-based PGIS. It taps into the local knowledge of community members and allows them to create and participate in the mapping exercises. Neogeographers map volunteered geographic information (VGI) that is collected by their neighbors or from the other 6 million sensors across the globe.[13] Mash-ups allow traditional geographic information to be collected from across the web and then superimpose it on mapping interfaces, such as, Google Maps and Google Earth. With more than a hundred million downloaded Google Earth software programs and the 4.8 million features on Wikimapia, it is becoming easy for anyone to create their spatial story on-line. [13]

Neogoegraphy is a confluence of several enabling technologies: web 2.0, georeference techniques, geotagging options, application programming interfaces (API), Global Positioning Systems, graphics and broadband internet.[13] Web 2.0 is the evolution of participant access on the web. When the web was first developed, the relationship between user and web pages was one-way – users only downloaded information. However, the web evolved to extend the role of the user. By 2000, it was possible for users to add information and populate websites, such as eBay and Craigslist. And today websites are entirely populated by user-generated content. This bi-directional relationship gave rise to blogs and wikis. All of these types of user generated web engagements have been termed web 2.0.[13]

Georeferencing enables the amateur to accurately identify the geographic coordinates of their spatial reference. Simply put, it defines its physical space in order for other data sources or layers to relate to its geographic location. One no longer needs to know the latitude and longitude coordinates but can demark a point on Google Maps based on street data to identify the location where a photo was taken.[13]

Geotags are the standardized code used to locate information.[13] Geotagging is geocoding images, sounds, texts or some other forms of data, from Flickr, Wikipedida or similar web 2.0 platform to publish them on a public map background.[8,12,14] Also commonly referred to as place-tags, social tapestries, geonotes, or sticky notes.[8]

Application programming interfaces (APIs) allow third-party users to create services or websites on top of geobrowsing platforms, like Google Maps or Microsoft's Virtual Earth.[8,14] These interfaces allow anyone to create multiple layers of points, icons, paths, and images that are then projected via geobrowsing platforms. The visual elements are positioned spatially and then linked to documents, photos galleries or other external resources.[14]

Other enabling technologies include the advent of the Global Positioning System (GPS) that allows the direct measurement of any position on Earth's surface, high-quality and three-dimensional graphic hardware improvements for computers, and broadband communication providing for high-capacity connections which enable rapid transmission of information.[13]

The Geostack brings these technologies together. The Geostack, coined my Andrew Turner is a "collection of tools and mechanisms that together cover all parts of collecting, gathering, and sharing location information" using a variety of tools, formats and applications.[12] First information is captured. It is captured with cameras, GPS units, cellphones. Next the information is produced. This could be on blogs, wiki sites, or web databases. Then the information is communicated and aggregated. And finally the information is consumed. This is through a viewer program, geospatial browser or the information can be uploaded as wayfinding or points of interest in a GPS formatted tool. [12]

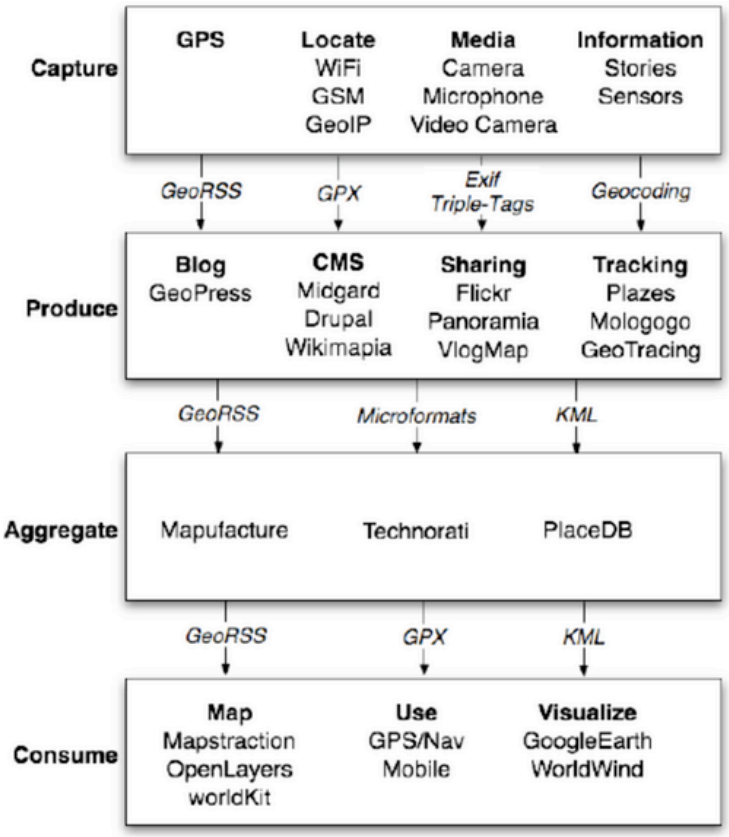

Figure 1. Andrew Turner's Geostack flow diagram

CITIZEN MOTIVATION

Why the success with the widespread use of mash-ups and neogeographers? Why are there more than 2.8 million pictures on Flickr? [13] As Christopher Seegar notes, "the public's infatuation with online socialization and sharing ideas, experiences, and philosophies has resulted in a wealth of georeferenced information."[10] There are tens of thousands of people willing to spend their time contributing without any financial incentives or assurances that anyone will actually ever make use of their contribution.[9] Just as with many personal websites, self-promotion seems to be a large driver but convenience and personal satisfaction are also motivating people to contribute their data, stories and time. Sharing information over these types of sites is a convenient way to make information available to friends.[13] It is of course much easier to share a photo gallery with multiple people than to individually forward pictures in an email. This is also true with sharing information with strangers or neighbors, sharing online is the new forum or local town bulletin board. Geotagging of photos and information allows for certain privacy but is enabling "a culture of communication by enriching physical places with socially and spatially referenced information similar to graffiti, post it notes or signs."[8] Also, certain sites, like Wikimapia, must provide a sense of personal satisfaction for its contributors. These sites are anonymous therefore by contributing content, a user might gain satisfaction from seeing their contribution appear and add to a larger growing patchwork of information.[13]

NEOGEOGRAPHY & THE EAST ROCK PARK HUMAN ECOSYSTEM

(A) East Rock Park and park uses

Established in 1881, East Rock Park is a landmark, an urban greenspace, and an ecosystem. The park straddles two towns: New Haven to the south and Hamden to the north. The park along with the Mill River have shaped the development of New Haven and Hamden as well as the physical and human ecosystems.

The 425-acre park is managed by New Haven Parks Department. Many visitors and residents travel to East Rock Park for its history, views, and recreation. In the park near the Mill river dam, one can visit the Eli Whitney Museum to view exhibits and participate in hands-on activities. On the summit of East Rock, you can find the best views of New Haven and beyond. And any day of the week, a visitor will see people hiking, running, fishing, canoeing, playing soccer, biking or enjoying many of the other recreational activities. Table 1 and table 2 detail a list of park uses by neighborhood and by park location compiled in phase one of the project.

Table 1. Uses of East Rock Park by community members from phase one of the East Rock Park project[11]

Neighborhood	Location	Uses
Cedar Hill	Playing Fields	Youth games/team sports
	Basketball Court	Youth basketball
	Walking Trail along Mill River	Walking, illness recovery
	Blocked-off roads	Walking (for weight loss)

East Rock	Walking/Hiking trails	Jogging, hiking
	Roads	Bicycling
	Walking bridge over mill river	
	Summit	Teen hanging out, fireworks, watching moonrise
	Mill River	Canoeing
	College Woods	Playground, cross-country skiing
	Whitney museum	Site-seeing
Fair Haven	Summit	Views, scenic drive, hanging out, bringing children to play
Hartford Turnpike	Walking trails	Walking
Lower State Street	English Shelter	Views, walking
	Rose Garden	Walking/fresh air
	Summit	Views, Dog walking, bringing children to play, picnics, teens hanging out
	Sheep's (North) Meadow	Sledding
Upper State Street	Softball Fields	Softball
	Summit	
	Sheep's (North) Meadow	Kite-flying, sledding
	English Drive	Scenic drive
Whitneyville	Whitney Museum	Site-seeing
	Bridges over Mill River	Walking, dog-walking, play, views
	College Woods	Playground use
	Walking/Hiking trails	Walking, hiking, dog-walking, bird-watching
	Indian Head peak	Hiking, views
	Old archery range	Site-seeing
	Barricaded roads	Walking, tree-spotting, bird-watching

Table 2. Uses of East Rock Park by park users encountered in the park from phase one of the East Rock Park project[11]

Location	**Uses**
Summit	Views, relaxing, picnicking, photography, reading, bird (and hawk) watching, socializing, courting behavior, skateboarding, looking at trees, collecting dried grasses for Christmas decorations
Rock Ledges	Sunbathing, hanging out
Walking/Hiking trails	Walking, running, hiking, exploring, deer-spotting, tree id
Roads	Scenic driving, bicycling
Basketball courts	Basketball
North (Sheep's) Meadow	Sledding
College Woods	Dog walking, playground use, basketball

(B) Project Team

Last winter a friend set up a meeting between Eudald Lerga, a classmate and myself. Eudald is a political scientist and artist who focuses on developing information visualization platforms for community-oriented projects.[15] It was at this time, during our discussions, when describing the motivation behind the East Rock Park mapping project, that Eudald referenced neogeography projects and highlighted the benefits of using these types of these participatory community mapping websites. To really achieve the vision of the project, connecting people through nature, the three of us began to brainstorm how to leverage these social digital technologies to address the phase one findings. With these new participatory and accessible geotechnologies, communities can join together digitally to share, to advocate for, or to remember their local natural resources. Through these new tools, the citizen is granted expert authority.

Although, the East Rock Park study was wrapping up last fall, my interest in the project continued. After speaking with Mr. Lerga, we decided to further pursue the idea of creating a neogeography site based on East Rock Park for the community members and park users to address the findings and as well as some of the failures of the phase one map and studies. With the assistance of the Hixon Center at the Yale School of Forestry and Environmental Studies, a small amount of funding was awarded to begin the project. The goal: to create a site that is engaging, empowering and tapping into the local knowledge of the people using and surrounding East Rock Park to preserve the ecological biodiversity as well as the diversity and solidarity of its adjacent communities. Centered on East Rock Park, the map focuses on the park as the connector – connecting neighbors and connecting people to the local ecosystem.

As a researcher, I was able to create a framework and a design for the website working with community input and academic research. After the design phase of the project, the website would be released to the community to populate. The

burden of time and resources to create the site would be leveraged by my research therefore freeing time and resources that would have been required for a local community group or government agency to create a similar site.

(C) Partners

Over the last year, a community group, Friends of East Rock Park (FERP), was reestablished. Their mission, "… a community and environmental advocacy group that uses East Rock Park as a venue for community members to meet each other, interact, learn about the environment and increase their sense of belonging to their environment and community," meshed extremely well with the goals of the project.[16] We partnered with FERP to host the project website, connect to active park users and advocates, meet community members, generate interest in the site, guide us in creating useful content, and to manage the site once the project term ended. In exchange, their website was updated, funding was provided to host their website, and the framework of the mapping website would reflect and promote their mission objectives.

THE WEBSITE

The site connects neighbors through their participation and exploration of the East Rock Park ecosystem on the website map. Individuals and park users can view and post photos, read and share stories, and create and view community or park features. As web participants log points, they digitally recreate their park and ecosystem to share with their neighbors and others.

Figure 2. The East Rock Park: Inside & Out website (www.friendsofeastrockpark.org/map)

(A) Design

To create a successful website, four targets guided the design: establishing an appropriate web domain and location, designing a user-friendly interface with accessible content, and fostering web participation. These targets were created from the project teams' experiences in the past with successful social marketing campaigns. Before beginning to design the website, it is necessary to first locate an

appropriate location to host the website. For the East Rock Park project, it was important to tie into the website of FERP. The groups' membership was developed and the members could serve as a core user group for the Inside and Out website. For other mapping websites, it would be important to first try to leverage existing local community groups or government agency websites to allow for visibility, to provide legitimacy and to promote the site. Creating a new website requires more work to establish. If a new website is developed, particular attention should be given to establishing an appropriate yet catchy web domain name to stir interest and legitimize the goals of the site.

After establishing a location to build the website, design of the site begins. This entails two steps, creating accessible content and developing a user-friendly interface. The content is driven by: the intended audience, the information that needs to be transmitted to the audience, and the information that needs to be collected from the audience. For the East Rock Park map, wide participation was envisioned but from an audience of those with an interest in East Rock Park or the surrounding communities therefore, the content concentrated on the park and surrounding communities. Information on New Haven or other surrounding parks was not included. By focusing the content for the intended audience, the design could be simplified allowing the content to be more accessible. Also, it is important to tailor the content. For Inside and Out, only information related to the project goals was included. Therefore, the content presented was limited to simple how-to guidelines and the content actually collected by the community members. As noted above, the simpler and more focused the content, the easier the website users can access the information they seek.

Designing a user-friendly interface is vital for any website. A confusing and busy website deters participation. The first step in designing a participatory mapping websites is selecting an appropriate geography-based interface. For East Rock Park project, Google Maps was utilized as the geobrowser but there are many other geobrowers that can be used for these types of community-based mash-ups. Google Maps incorporates standard navigation tools (zoom and panning), therefore, web participants, if familiar with Google Maps, can easily navigate through East Rock Park and the neighborhoods on the website.

The next step is to select or create symbols or icons that match the information to be presented. For example, many of East Rock Park's uses include activities. Therefore, the symbols selected were representative of these different uses: soccer, sledding, basketball. Symbols or icons also need to be clear and simple. This type of community mapping project relies heavily on the visual representation of information. Careful attention is required to ensure that the symbols or icons can easily be interpreted and represent the information in a simple form.

Figure 3. Soccer symbol for website

The web interface needs to be organized with clear information management strategies. It is easy for mapping websites to become overwhelming with multiple layers of symbols and icons. To combat this problem, one information management strategy is to allow users to turn on and off the information. This is easily accomplished with a legend of layers that can be clicked or unclicked depending on the user's interests or preferences. If too many layers still remain, another strategy would be to group different layers. This was accomplished on the East Rock Park website with three main categories, ecosystems, points of interest and trails or roads. And under the points of interest category, the layers were further grouped into subcategories, like, park infrastructure, children friendly, or playing fields. Another strategy for organizing or managing the information would be to institute a color scheme or other symbolic representation that delineates between the different types of layers or categories of information.

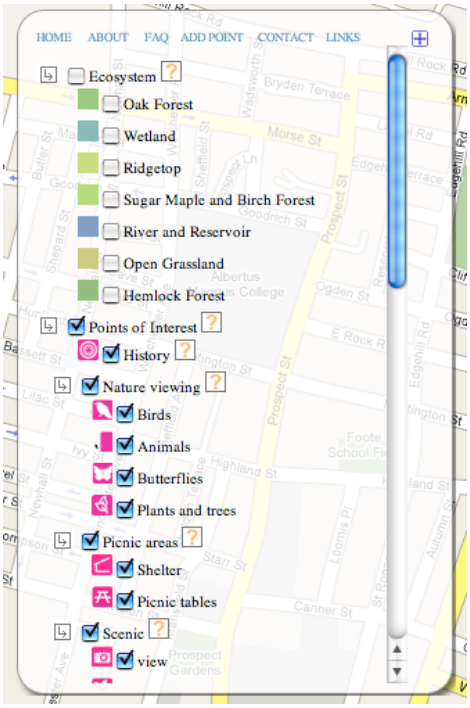

Figure 4. Legend from website

For interactive community mapping websites, specific strategies need to be developed to engage web browsers. Although, as mentioned previously, people are readily volunteering information, special attention is still required to encourage and promote the engaging components of the website. Simple designs, easy to follow

directions, enticing graphics, active use, and detailed information are strategies for attracting users but it is also important, as with the East Rock Park website, to provide options for personalizing the information that is collected. This was accomplished by providing multiple options for icons that could be selected to add to the map as well as by providing space for comments and pictures. Pictures and comments also validate the information collected. For instance, a picture of a view from the bridge with a comment about the time of year that the picture was taken is much more informative than a simple icon for a view. This information, the photo and description of the point, serve two purposes, the individual who mapped the point has a personal stake in the website and those who view the new point will be further persuaded to visit the mapped location. Another strategy for engaging web participants is providing instant feedback. If participants log a point, the reward comes from instantaneously viewing the newly created point. However, this is tricky to implement because of misuse or misconduct. Instead of requiring participants to log on, the East Rock Park website decided to forgo registration and instead institute a screening process for newly created points. This was to ensure validity of the locations and to monitor for inappropriate language. As stated above, this will decrease the immediate enjoyment for many participants, but will hopefully not dissuade user participation.

(B) Data, information & content

The data collected from Inside and Out support the specific goals of the website. There are three divisions of data layers presented on the site: ecosystems, park infrastructure and community. The community data layer is generated from web participants, the ecosystem data layers were created previously in phase one of the project, and the park infrastructure layers were generated previously in phase one as well as collected from New Haven Parks Department. In addition to the data layers, there is supplemental information about the park and the surrounding neighborhoods. This information was collected in phase one and then was edited to include online.

The ecosystems layer is a unique presentation of the different ecosystems that are found in East Rock Park. This data was collected and assembled in phase one by several colleagues, Julie Witherspoon, Jorge Figueroa, and Moe Myint. The initial data layers were extensive. In order to include the ecosystems layer on the website, a simplification was required. The resulting layer is still informative but is now more digestible. The ecosystems layer includes: oak forest, wetland, open grassland, ridgetop, hemlock forest, sugar maple and birch forest, and river and reservoir. The layer consists of several polygons delineating the different ecosystem areas. To navigate the ecosystem layer, one can turn on the specific ecosystem they are interested in or all of the ecosystems. In order to present specific information on these ecosystems, the website was designed so when various ecosystem areas are clicked on the map, an information bubble pops up with a brief description and a photo.

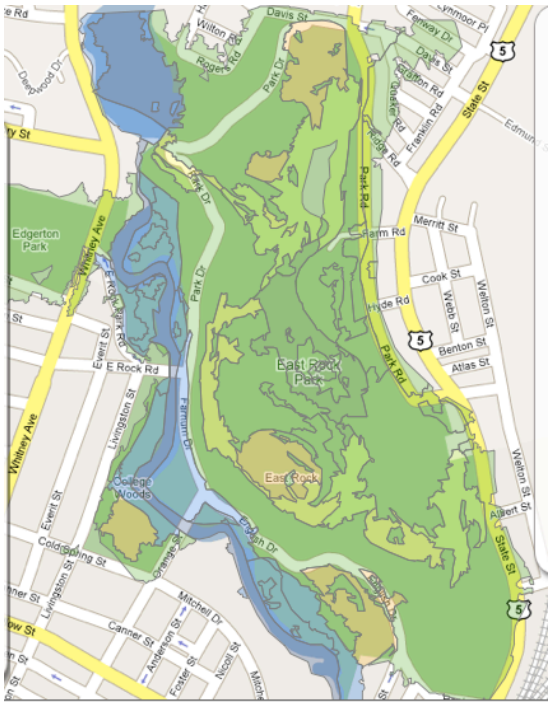

Figure 5. The ecosystem layer

Trails, parking areas, bathrooms, basketball courts, baseball fields, and other common or traditional park features are included on the park infrastructure layers. The park infrastructure layers consist of a point data layer for specific locations of park amenities and a polyline data layer to delineate the hiking and biking trails. The point layer was created in phase one of the project and referenced the existing East Rock Park map created by New Haven Parks Department.[17] The polyline data layer was created by Chris Guerette at New Haven Parks Department and then edited by the project team in order to align it with the Google Map coordinate system and to adjust the symbology.

The last division of data layers is the community layer. The community layer is a point data layer that demarks specific locations. This layer consists of both data collected in phase one of the project as well as data that is generated by web participants as they log features of the park or surrounding neighborhoods. The community layer depicts the East Rock Park human ecosystem. This is the most extensive layer with several subcategories of data. The subcategories and points are listed in Table 1. Several of the subcategories contain points that could also be listed as park infrastructure but for simplification in presenting the information, it was decided not to specify this distinction. Many of these points would never be found on a traditional map of a park but representing these unconventional features is central to the project. When individuals chose to map a point, they are given the option to also include a photo and to type a brief statement or description. Therefore when web browsers click on the various points, an information bubble appears with a photo and the description or statement provided when the point was created.

Figure 6. One of the information bubbles describing a community point

Several of the community points require a brief description. The "community projects" point demarks community projects and efforts that have taken place to improve the park. These are projects where the community has come together to collectively improve the park and to connect with their neighbors. "Community landmark" points describe and map special places in the park and surrounding neighborhoods as mapped by community members and park users. These points capture stories of friends and family, highlight unique uses of the park, and demark special features. The "what if…" point allows participants to map and describe features or uses they would like to see in the park and communities. This point is in response to a request from the Friends of East Rock Park group. This data can be collected to assist them in assessing how to target future park improvement efforts. Lastly, in order to emphasize the ecological features of the park, the "nature viewing" subcategory was created for participants to map plants and trees, birds, animals and butterflies.

Table 3. Community layer categories and points

Subcategory	**Points**
History	
Nature viewing	Birds
	Butterflies
	Animals
	Plants and Trees

Scenic	View
	Rose garden
	Monument
	Summits
Community points	Community landmarks
	Schools
	Neighborhood Cafes
Community projects	
Picnic areas	Shelters
	Picnic Tables
Playing/activity fields & courts	Baseball
	Basketball
	Soccer
	Swimming
	Fishing
	Sledding
	Ice skating
	Canoe launch
	Tennis
What if…	
Children friendly	Playground
	Fun for kids

USING THE WEBSITE AND THE PARK

By utilizing the website, neighbors and park users can share how they use the park in order to invite other park users to explore new places in the park as well as sparking interest in new features and uses of the park. The park already brings people together but the website will aid in connecting people from a larger geographic region. For example, if families with young children from Whitneyville and Upper State Street visit the website, they will learn from the children-friendly and community landmark subcategories about the kite-flying and sledding at Sheep's Meadow as well as the playground that was constructed by the East Rock community in College Woods. Local high school students from Wilbur Crossing can visit the site and discover Cedar Hill's basketball court or the local teenage gathering area at the top near the rock cliffs. The families living in the Hartford Turnpike neighborhood could learn how their backyard trails connect to the larger system of trails weaving through the park. Residents from East Haven who enjoy spaces for

gathering could learn about the picnic shelters in College Woods as well as the Pardee Rose Garden. Students living in the East Rock neighborhood could find out about the local events sponsored by FERP and learn how to become engaged with their community and the park.[11]

LESSONS LEARNED

As with any new initiative, there are unexpected delays, miscommunications and missed opportunities. The East Rock Park website was no different and there are several take-away lessons that can be transferred to future project. Creating open and accessible websites requires some sort of mechanism to deter non-stakeholders from participating by requiring a sign-in process or a screening of information before it is posted. This is necessary in order to try to prevent occurrences of misconduct or misinformation Choosing between the two options is difficult because by requiring participants to sign-in, each participant would need to pre-register. This could deter participation. However, if the website does not require a sign-in then the content and information that is posted by individuals needs to be prescreened. This slows down the process of posting information, thus possibly reducing user activity and it poses a larger concern over who certifies the data and on what basis. Each project will need to evaluate these options and others to see which one matches the project goals and the audience. This is something that was stumbled upon during the design of the East Rock Park website but really should be thoroughly vetted with a project team from the outset of a project.

Websites are dynamic – continuously changing to communicate new information and removing outdated information. This poses a problem – when is a website complete? A website continually needs updates and must be actively managed. A website is never complete but oftentimes, resources, human and financial, are finite. With the East Rock Park website, this was case. Although, many features of the website are in place, there are many changes and new information that the project team would still like to incorporate. But time, human capital and financial resources have run out. Websites are never complete so resources should be managed accordingly. With the East Rock Park site, the Friends of East Rock Park will coordinate much of the post-design management of the site but if problems occur or changes are requested, will the FERP be able to locate the financial resources and technical expertise. Partnering with FERP to manage the site was only half of the solution. The ideal solution would be to have allocated a small sum of money to sustain the website over time as well as have trained a group member to manage more of the technical aspects. For many websites this is not a problem but with smaller organizations or citizen groups this could definitely hinder a project so management and resources over time should be discussed during initial planning phases.

One of the more difficult lessons – lack of communication is a form of miscommunication. Since this project was completed in two phases over two distinct periods of time with two project teams, there was bound to be inconsistencies. The largest hurdle was with the potential loss of a partnership with the City of New Haven Park's Department. In phase one of the project, different neighborhoods were assigned to different team members. New Haven was assigned to a team member that did not continue onto phase two of the project. However,

they were responsible for communicating with the City of New Haven Parks Department. Phase one of the project abruptly ended with the end of an academic semester. Unfortunately, all of the follow-up that was planned for phase one was never completed. And somewhere in the lack of communication or even miscommunication, the project burned bridges with the City of New Haven Parks Department. This only became clear during phase two when the new project team encountered difficulties in attempting to communicate with the Parks Department. In order to collect data from the Parks Department, FERP was used to facilitate communications. Although support from the Parks Department is not necessary for the project to function, support from the Parks Department could validate the site and assist in promoting the website to park users. At the time of this paper, strategies were being devised to rearticulate the project to the Parks Department to attempt to mend the relationship.

WHAT IS SUCCESS?

What is success for this project and how can it be achieved? Michael Brandt developed guidelines for success when evaluating public participatory GIS projects and many of the criteria he set forth can also be adapted and applied to websites developed based on volunteered geographic information or neogeography.[18] There are two parts of the evaluation, project results and project management. Brandt suggests evaluating the project results to ensure the appropriate information is presented, the project is action orientated, timely, the information is accurate, the project is insightful, the time perspective is correct, a synergy is produced from the information collected and the project combines both quantative and qualitative information.[18] Just as important in the evaluation is to review the management of the project. Five measures of successful project management include: sustainability, does the project utilize low-cost resources and can the program sustain by contracting and expanding resources as required; replicability, can the project be replicated if successful; efficiency, were resources, both financial and human, used efficiently; integral, is access open and are the results immediate; and system complexity, was the site designed to ease use and operation?

Is Inside and Out a success? A quick analysis was conducted to discover how the East Rock Park website fared when applying Brandt's evaluation criteria. However, since the website is still in beta-version there is little feedback or user data to inform the evaluation. The author, the lead project team member, conducted the evaluation. The evaluation is preliminary but is still useful in highlighting areas of the website that need more improvement. Also, by establishing a framework for evaluating success, a project will more likely be successfully implemented. The evaluation of project results is listed in Table 2 and listed in Table 3 is the evaluation of the project management. The evaluation was crude with a simple qualitative ranking of high, medium or low. A brief review of the results yields two low marks. In Table 2 the criteria for synergy received a low score. This score reflects the limited amount of interactive engagement on the website at this time. This will hopefully improve once the website is announced and fully operational. In Table 3, a low score was assigned to the sustainability criteria. The reason for this was discussed previously. The financial resources were targeted solely for creation of the website with no resources allocated to maintenance and operations. If the site is

successful and useful for FERP then perhaps they could contribute funds if necessary in the future. In conclusion, there is a lot of room for improvement but the project is on track to achieve high marks in many of the criteria categories.

Table 4. Evaluation of Project Results

Criteria	Evaluation		
	High	Medium	Poor
Appropriate Information		X	
Action Orientated		X	
Timely	X		
Accuracy of Information		X	
Insightful	X		
Time Perspective	X		
Synergistic			X
Quantative & Qualitative	X		

Table 5. Evaluation of Project Management

Criteria	Evaluation		
	High	Medium	Low
Sustainability			X
Replicability	X		
Efficiency		X	
Integral		X	
Reduced System Complexity		X	

IMPROVEMENTS

Although the evaluation yielded okay results, there are many improvements that could be incorporated if there was more time, people and money. Of course, this is a battle with all projects. The number one constraint to the project was time. With enough time, a project can maximize the efforts of a small project team but if time is limited then it is better to have more people. And with enough time, creative solutions can be devised to minimize the financial strain. Many of the

improvements could occur if there was simply more time. The first improvement would be to host a significant amount of outreach. This is critical for a public participatory website, however, this is where the project team has fallen extremely short of their goals. The project team is still planning on hosting training workshops and promoting the site but minimal outreach has occurred at the time of this paper. A plan for outreach was drafted but the timeline for creating the website was misjudged, therefore the outreach plan has not been initiated.

On a similar note, a second improvement to the project would be to involve more community groups and local government entities. Once again time became a factor. During phase one of the project, the team was able to reach out to several key community members and groups in New Haven and in Hamden. In the future, it would be a good idea to reach out to some of these groups again to engage members of all of the surrounding park communities. The website requires a diverse and broad spectrum of users therefore engaging these groups might help to aid outreach and build support.

The project set out to use new technologies to facilitate communication across communities. Developing the community participatory website to connect neighbors and promote the local ecosystem has proven to be a great application of neogeography. In continuing the trend to utilize new technologies, one additional improvement would be to apply new cellphone technology. It is now possible to create an application that would allow community members to actually log points while they are outside in the park or neighborhoods. This application would allow participants to log their geographic location, select the community point, include a description and attach a photo from their cellphone. To collect data instantaneously would be a huge benefit to the project and probably increase interest from younger community members that are advancing these types of new cellphone applications.

CONCLUSION

Fisher notes the significance of neogeography in creating "new visibility and memory about place, people and activities" and then continues to ask, "is this significant for the subjective assignment of sense to a place".[8] Can the East Rock Park project assist in restoring a sense of place to those whom engage with the website? Of course, this is not a simple question and these types of community neogeography websites are just beginning to come online, but the potential of these emerging social networking and mapping exercises in local communities could be vast. As people become more technologically savvy and technologies such as GIS become more user-friendly, there will be many more creative projects tapping into local knowledge to communicate ideas and share stories about communities and places people call home. The outstanding concern is will people define their place in terms of their ecosystem? With new geotechnologies will people limit their maps to supermarkets and daycares and choose not to share the location of the rare chestnut trees? With the East Rock Park project, East Rock Park anchors and defines the place, but will other communities define themselves differently?

The East Rock Park project sought to utilize participatory web based mapping for a local ecosystem to better connect people through their place, East Rock Park. The website is designed but that is only the beginning. It will now take time to see if the

website is successful and even more time to see if it really works. If the site is successful, perhaps then other communities will also embark on interactive community and ecosystem mapping projects.

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Appendix A. Phase one Human Ecosystem Analysis

Critical Resources: Natural

Land

Land is a resource that is both acquired in its natural state and created by human societies. The naturally awe inspiring formation of East Rock suggested it as a place for preservation and limited its uses in the human economy. But in the end it was human tenacity that worked on the land's suggestion and actually created the park, and preserved it against such encroachments as a proposed highway. The Mill River is another natural phenomenon that shapes the physical and human ecosystem.

Physical barriers such as the Mill River are some of the most important factors in forming neighborhoods. Not all of these are natural, however. The I-91 and railroad lines that were built are just as effective in separating space and creating distinct units. Separation and identity are formed not only by physical barriers but by distance, location, and political boundaries. The Hamden neighborhoods' removal from the city of New Haven in all these ways surely played a large part in the demographic of the people who live there. It would attract those who have the resources to commute to work, and those who would pay a premium in money and time for a feeling of security and space.

The demographic and cultural aspects of residents in turn determine the infrastructure that is built. A wealthier neighborhood, which attracts residents with the suburban feel of space and privacy, is likely to have infrastructure of single family houses, low housing density, and large yards. Not surprisingly, that is just what one finds in our Hartford Turnpike neighborhood. But spatial considerations surely interacted with the cultural ones—land prices tend to be cheaper at the outskirts of town, making it possible to fulfill the cultural values cited above.

Infrastructure is another part of land where the interaction between the social and physical characteristics is highly visible. For example, though streets and sidewalks tend to be in good condition throughout the ecosystem, there are occasional areas of overgrowth or disrepair. Perhaps not surprisingly these tend to be in the poorer parts, particularly in Fair Haven and Lower State Street neighborhoods. However, demographics do not have the final word on the beauty of a neighborhood's streets. Cedar Hill's demographics are very similar to Fair Haven's but the residents there have made a concerted effort to change the look of their neighborhood. Through social cohesion and willingness to give of their own time they created flowered medians, street trees, and cleaner streets. And they did this not simply for the physical look of their neighborhood but because they understand that the streets' physical features will effect how those streets are perceived and thus what kind of activities they support.

Within this area there is great variation in the use of land and the quantity and quality of vegetation. Street trees and yard trees were most mature and of the highest quality in Hartford Turnpike to the north of the park, where a true urban forest canopy exists. A mix of somewhat younger trees are planted to the east in Upper State Street. Yards in these areas are well managed and manicured, with attention to grass and attractive plantings, though they tend to be larger in the

Hartford Turnpike area and smaller as you progress down the ridge. Front yards in Whitneyville are also small and tidy. Yards in Lower State Street are small in front but tend to be larger on the sides and back, though plantings in this area tend to be quite simple. Some yards in Fair Haven were quite sparsely vegetated.

Housing density also varies across the ecosystem, with the highest densities to the south west in East Rock and Cedar Hill neighborhoods and lowest densities to the north and northeast (Hartford Turnpike and Upper State Street). Sidewalks are absent in some areas, in some parts of the Hamden communities in particular.

Critical Resources: Socioeconomic

Population

Across eight neighborhoods, the total population of the East Rock Park human ecosystem is over 13,000, averaging about 88 persons per block. Population density varies across these different neighborhoods, from high density in East Rock South and Cedar Hill neighborhoods (143 and 130 persons per block, respectively), to low density in Hartford Turnpike (55 persons per block). In general, population appears to be concentrated south of the park in New Haven (almost half located in the East Rock South neighborhood) although less so in Fair Haven, and then spread somewhat more evenly in the Hamden communities.

Capital

As with population, capital is concentrated in certain parts of the East Rock Park ecosystem, however population and capital do not coincide. Concentrations of capital seem to occur to the north and west of the park, where incomes are higher and percentages of vacant housing stock lower.

Labor

An average of about 64% of the population in the East Rock ecosystem is of working age, with limited variation between neighborhoods. East Rock South neighborhood shows the highest percentage of working age population, but that area is highly populated with graduate students, a populace of working age that is arguably not a contributing part of the traditional labor force.

Information

Information is also concentrated within certain parts of this ecosystem, with particularly high levels of educational attainment in the southwest corner (again, East Rock South and East Rock North, where there is a high concentration of Yale graduate students and some faculty). As educational attainment was one of the variables we could not get on a block-by-block basis, it is difficult to make accurate assessments at the neighborhood level, but it would appear that educational attainment is around the college level west and north of the park as well, decreasing somewhat to the east of the park in the State Street neighborhoods, and at its lowest levels in Fair Haven and Cedar Hill to the southeast and south. The flow of information may be further limited in these latter two neighborhoods by language barriers, as was mentioned particularly in the profile on Fair Haven.

Critical Resources: Cultural

Organizations

Cultural resources were somewhat difficult to measure in this study, although the organizations we did encounter clearly make an important contribution to these neighborhoods. Based on the data we were able to obtain, the East Rock neighborhoods (both north and south) seem to be particularly rich in cultural resources, with an abundance of non-profit and religious organizations, as well as well-established networks for community-wide communication. Cedar Hill and Whitneyville also boast active organizations for civic engagement. In contrast, community organization seems to be conspicuously absent to the north and east of East Rock Park, where even agreed-upon names for the neighborhoods were difficult to come by. Although we were unable to engage any community groups in Fair Haven, it is difficult to say with any confidence whether such organizations do not exist in this area or whether they merely fell under our radar.

Human Social Systems: Social Institutions

Family

Average family size was very similar throughout the ecosystem, fluctuating only slightly from 2.7 in East Rock South to 3.3 in Fair Haven, and averaging in all the neighborhoods at about 3 persons. However, this seeming similarity can hide extremes at both ends if for example a neighborhood with very large families was also rich in single person households. The number of families per block is perhaps only significant in comparison with the number of households per block, to give an idea of ratios. Interestingly, the highest percentages of families (of total households in the neighborhood) occurred in both the wealthiest and poorest of neighborhoods (Hartford Turnpike and Fair Haven, respectively). The lowest percentage of families was in East Rock South, perhaps again because of high numbers of students and young professionals, although Whitneyville also had a low percentage of families.

One of the more significant variables related to family available through the census, is the percentage of single parent families. Again, this percentage varied greatly throughout the ecosystem, with the highest percentages of single parent families in the southeast corner (Cedar Hill and Fair Haven) and the lowest percentages in the northwest (Upper East Rock and Whitneyville). These figures seemed to correspond somewhat with capital concentrations, as might be expected.

Justice

Crime was another variable that was difficult to evaluate using census data. We relied mainly on subjective accounts of those we spoke to, and on qualitative information from the police sergeant for the police district that includes East Rock and Cedar Hill. Crime is perceived to be a much greater problem in the southeast corner of the ecosystem, where housing vacancy and single-parent families are also highest and median income and owner occupancy appear to be lowest. Perceived crime was of some concern to all of the New Haven neighborhoods, and seemed to be less in the Hamden neighborhoods. Perceptions of crime within the park however, seemed to be highest in the northeast corner, on the Hamden side.

Commerce

Nearly all of the neighborhoods in the East Rock Park human ecosystem include areas of commercial activity. Exceptions are Hartford Turnpike neighborhood and East Rock North, the populations of which are assumed to access most of their commercial needs outside of the immediate neighborhood. This may be true for many of the other neighborhoods as well, although some areas were endowed with essential businesses that neighbors clearly access frequently by foot or bicycle (particularly East Rock South, Fair Haven and perhaps to a somewhat lesser degree the State Street neighborhoods). Both Whitney Avenue to the west and State Street to the east act as primary commercial corridors running north-south adjacent to the park, and appear to be centers of commercial activity for neighborhoods on either side. Lower State Street is the only neighborhood in the ecosystem with light industrial activity in addition to commercial business.

Recreation

Of course all of the neighborhoods in this ecosystem are located in close proximity to East Rock Park, but access to the park and its facilities is not equal. The neighborhoods to the southeast and south (East Rock and Cedar Hill) probably have the best direct access to East Rock Park and particularly to its playground and playing field facilities, and to numerous walking and hiking trails. Fair Haven is significantly cut-off from the park, separated by Interstate 91 and the New Haven railroad line, across which there are only two bridges within the study area. The neighborhoods on State Street also have somewhat limited access, with many fewer walking trails leading into the park on this side, and no fields or playground facilities. Although walking and hiking trails exist to the north of the park, there are none of these other amenities. They do have better access to the Sheep's Meadow, professed to be the best place for sledding and kite-flying by neighbors who live there.

Several other parks and recreational facilities are available within these neighborhoods, at times used more readily and frequently than East Rock Park for proximity, ease of access, or safety reasons. This is particularly true in Fair Haven, where residents use Chapel Hill and Clinton parks, and in Upper State Street neighborhood where many neighbors use the local Bassett Street park and playground.

Human Social Systems: Social Cycles

Physiological

Looking at human physiological cycles in the East Rock Park human ecosystem, the greatest percentage of the population in its youth years (from 0-18) resides in the southeastern neighborhoods of Lower State Street, Fair Haven, and Cedar Hill. These places house a greater concentration of those who will steward this ecosystem in the future. The greatest concentration of those at the end of their life cycle (over 65) is in the neighborhoods of East Rock North and South.

Individual

The greatest variation in individual cycles within this ecosystem on a daily and weekly basis may be between workers and non-workers. Those areas with high percentages of single parent families and lower median incomes (such as the

southern and eastern neighborhoods) are more likely to have higher percentages of adults in the household working and thus less flexibility of schedule and time for leisure and recreation. Another area of great variation in individual social cycles is in the East Rock South neighborhood, where a conspicuously higher percentage of students (primarily graduate students) reside. Individuals in this area may have greater flexibility and time for leisure but they may also have very different seasonal cycles (leaving the area during summers or holidays) as well as more transience than other populations (as residency in the area may last only a few years). This may lead to a large population of avid park users but a much smaller population of long-term, invested stewards of the resource.

Institutional

Institutional cycles were more difficult to measure. For those community organizations known to exist, those in East Rock and Cedar Hill to the south seemed to be more on the upswing, while those in Whitneyville and Upper State Street appeared to be older and perhaps declining.

Population

Change in population was also difficult to accurately evaluate, as temporal comparisons of census data could only be applied with blockgroup level data, as opposed to the block level data we were able to use for many of the sf1 variables in the 2000 census. Population appears to be increasing to the southeast and northwest of the ecosystem, and decreasing in the East Rock neighborhoods and along Upper State Street. There is a general trend toward greater racial diversity throughout the ecosystem, with relative increases in black and Latino populations throughout the area.

Human Social Systems: Social Order

Age

As was mentioned above, the greatest percentages of youth in the ecosystem can be found in the southeastern neighborhoods and the greatest concentration of elderly are in the southwestern neighborhoods. In general median age is highest to the north of the park, in the Hamden communities, and lowest to the south in the New Haven neighborhoods, with the transitional areas of East Rock North and Lower State Street falling somewhere in the middle.

Race

Although racial diversity is increasing across the area there are still areas of greater racial diversity than others. The neighborhoods with the highest concentrations of white residents are Hartford Turnpike and Upper State Street, with the highest black and Latino populations in Cedar Hill and Fair Haven respectively. Both these neighborhoods in the southeast corner of the study area had high levels of diversity, nearing a balance among white, black, and Latino residents.

Class

Household income is another variable for which we have no reliable data at the neighborhood level. The highest income level appears to be in the Hartford

Turnpike neighborhood to the north of the park, the lowest levels in the southeastern neighborhoods of Cedar Hill and Fair Haven. Income also appears to be relatively low in Lower State Street and parts of East Rock South (although where there is a large population of students, income does not provide a good indicator of class). Our qualitative observations of class have been that the wealthiest part of the population (upper middle class) lives to the north of the park, moving to lower middle class as you move down the slope that defines Upper State Street and continuing to decrease as you move through Lower State Street toward Cedar Hill and Fair Haven. East Rock North appears to be wealthier than some parts of Whitneyville, which varies somewhat block to block.

Territory

Using owner occupancy as our primary indicator of territory, this variable relates somewhat to class in the section above. There was a great deal of variation in percentages of owner occupancy across our ecosystem, with the lowest levels in Cedar Hill and East Rock South (22 and 27% respectively) and the highest levels in Hartford Turnpike and Upper State Street (91 and 85% respectively). East Rock North and Whitneyville areas have mid-levels of owner occupancy at 46 and 52% respectively.

Social Norms

Some generalizations can be made from the data collected in each neighborhood on the social norms surrounding recreation in each neighborhood. In many parts of the ecosystem, park use and recreational time are focused on social time with family, particularly in the State Street neighborhoods, Whitneyville and East Rock. In Cedar Hill and Fair Haven, somewhat more focus seems to be placed on sports and games, particularly for youth. In the East Rock neighborhoods and Whitneyville much emphasis is put on exercise (presumably for health) and physical activity as a part of daily lifestyle. In Upper State Street an emphasis is also placed on dogs and dog-walking.

The findings above provide insights on the particularities of the neighborhoods, concentrations of resources, and multiple (and overlapping) gradients inherent within this urban ecosystem. But our discussion does not stop at description for curiosity's sake. We hope that the data we collected can be used to inform decisions on how the park is managed.

In one semester a student team can hardly have the final word on the life of eight neighborhoods and over 13,000 people. As such we would not presume to give hard and fast management recommendations, but below we suggest some trends we noticed that we believe warrant further analysis when allocating resources and making decisions for East Rock Park in the future.

Migrations and Change

Historically, all of the neighborhood populations we studied have undergone major changes. As the economy and availability of employment shift, as major infrastructure is built, as national and local demographic trends change, some new populations are attracted to these neighborhoods, while others leave for greener pastures. Park managers need to be attuned to such dynamism, and ready to adapt

the services and amenities they provide in the park to fit the needs of new populations. If not, parks risk a negative feedback cycle, becoming increasingly neglected, deprioritized, and under funded.

Perhaps the strongest trend and the one true for most of the neighborhoods in this study is the increase in ethnic diversity. Most particularly, the entire area has seen a rapidly growing Latino population. Our team does not feel qualified to draw rigorous conclusions regarding the difference in park uses of Latino populations from the small sample size of our interviews and observations. However, we can suggest that more park information printed and outreach conducted in Spanish and directed toward this growing community would probably be welcome. Park resources and space use (i.e. whether some ethnicities require resources that accommodate recreation in larger groups), accessibility issues, and preferences regarding programming and organized activities (i.e. what the culturally popular sports are for a particular ethnicity), could be ascertained by more targeted surveys and a more thorough review of behavioral studies done in other parts of the country. Ethnicity is also only one variable; the other demographic variables described above (e.g. age distribution, educational attainment, etc.) could also be profitably considered for decision making.

Park User Conflicts

A particularly challenging aspect of park management is that this public space is different things for different people. On the one hand, it is a haven for dog walkers; on the other, there are residents who would have the park closed to dogs. In another instance, the news of an upcoming introduction of mountain bike trails upset a long time park user who expressed regret that he had lived long enough to see his beloved quiet walking trails be opened to this more dangerous activity. While many expressed an opinion that they would like to see the summit patrolled at night and better lit, one woman told us "I'd hate to see patrols up there." She liked the idea of having a place to watch the moonrise, a place for romance, for "kids to go and talk the way kids need to, without adults there." The park manager in a way becomes arbiter between these many different needs, thinking not only about the concerns of today, but what the changes would mean for the park in the future. We hope the information provided in this report gives a more complete picture of the populace whose needs the park might consider, including those whose voices might be less frequently heard.

Accessibility

There are obvious physical barriers and issues of distance that make East Rock Park less of a neighborhood destination in some of our study sites than others. Fair Haven is the clearest example of this, as noted above. But even a resident of a neighborhood like Whitneyville, who lives quite close to the park border, on Augur Street, for instance, would have a half mile walk to the nearest entrance point into the park. While a half mile might not seem insurmountable (and indeed many of the Whitneyville residents with whom we spoke do use the park) it could very well discourage use, especially for short-term activities. Additionally, the absence of sidewalks leading to a park entrance in the Hartford Turnpike, State Street and Whitneyville neighborhoods could provide deterrents to access, especially for parents with children in strollers and those in wheelchairs.

In addition to physical barriers, there are psychological barriers to access of East Rock Park. Absence of sidewalks might not physically stop a healthy adult or child from crossing to the Davis Street entrance, but could create a psychological barrier that requiring greater motivation to overcome. Anyone who has ever built trails will recognize that humans can be herded almost like cattle—a tree branch barring one choice of trails or some rocks defining the path, and most people won't think twice about following the track laid out for them. Conversely, an unmarked area of grass, unkempt trailhead or barricaded road can easily lead to the assumption that a space is off-limits.

More importantly, for people unfamiliar with the park, the absence of signs or trailheads that are visible from public sidewalks may be a deterrent to entry. On the east side of the park especially, apart from the more visible Pardee Rose Garden, there are no signs or easily recognized trails that would invite potential users to enter the larger park. The road that does exist, from Bishop's Gate, is barricaded, with no indication that pedestrians or cyclists are permitted to pass. Signage and information could also enhance people's experience at the summit of the park - the "entry point" we spoke of at the beginning of this paper. This area, which draws the greatest numbers of people, many of whom might not otherwise be attracted to East Rock Park, holds great potential for further outreach. A family that drives up here to look at the view might be drawn into other activities (perhaps educational or stewardship-focused) or enticed to explore the park deeper with a little targeted encouragement.

Information

Outreach and information dissemination are perhaps the most important avenues for increasing park use and for making that use more rewarding. As can be seen in the previous section, several of the concerns and recommendations we received for improvement to the park are in fact amenities or services that already exist in the park. This implies a failure in information exchange. During the course of our investigation we were surprised by such statements as "I would use East Rock Park if only there were picnic tables there," or, from a local jogger, "I wish there was a map of the jogging trails." These comments were made by well-educated, informed and long-time residents of adjacent communities. If these people are unaware of the most basic of park resources, it is easy to imagine that many others, particularly newer community members and visitors, are even less informed.

Similarly, it seems the programs run out of the Trowbridge Environmental Center are known to only a few. The very existence of the center comes as a surprise to many people in the area. The naturalist who works there twice a week suggested that the majority of casual visitors actually find the place by accident. In fact, two of our colleagues left in defeat the first time they tried to locate the center. The signs on the building displaying hours of service are also confusing. The real shame is that inside the center is a warm, inviting space full of valuable educational materials, and a knowledgeable and enthusiastic naturalist, whom most of the visitors to East Rock Park never meet. The programs run out of the center, all of which are free, are extremely exciting. However, they are advertised primarily in the local paper and by an email list, meaning only a certain subset of the population ever hear about them.

Security

Safety and security was one of the chief concerns of residents in their neighborhoods, and was cited as one of the most serious deterrents of park use. There can certainly be more efforts to increase safety in the park, but one of our hypotheses is that providing information that affects perceptions is just as important as increasing police patrols or lighting. Notably, we have found that some neighborhoods that use East Rock Park more regularly seem to have fewer concerns about safety. This may be simply a factor of familiarity with the park. It seemed clear from our conversations that residents in the East Rock neighborhoods are aware of and comfortable with the limits on security in the park; they are clear about what times of day and in whose company they feel safe to visit. Judging by the data obtained both in the park and in the neighborhood, use of East Rock Park has become a cultural norm in that neighborhood, increasing the perception of security among the population at large. On the other hand, we found that some residents, primarily from areas where park use was more limited (such as the State Street neighborhoods in Hamden), actually had an overblown perception of crime in the park. The police sergeant responsible for the district that includes East Rock and Cedar Hill neighborhoods reported that the last criminal incident in the park was actually more than six months ago, making it safer than most of the neighborhoods surrounding it. It is also worth noting that there is a positive feedback loop between safety and park visitation. Not only does park visitation increase as safety increases, but a well-populated park deters crime.