



Portland Region Parks: Measuring Equity in Access, 2012



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Introduction

PSU Capstone

The University Studies Senior Capstone enables students to engage in connected learning experiences that provide a foundation for intellectual development beyond the classroom. Through community projects that range from designing afterschool programs for ESL students, to creating a Public Relations strategy for local nonprofits, the Capstone program allows students to better understand how the skills they acquire in the classroom can be put to use in the world after graduation. The 2012 Spring term Asset Mapping Capstone project was designed to allow students to partner with Metro, Audubon Society of Portland (ASP) and Coalition for a Livable Future (CLF) in the completion of the second edition of the Regional Equity Atlas.

Partners

Coalition for a Livable Future is a local nonprofit that serves to connect local organizations that share common goals of “preserving affordable housing; ensuring clean water; protecting open space, wildlife habitat and farmland; creation of living wage jobs; providing real transportation choices; and ending hunger in the community” (CLF, 2007). In 2007, CLF released the first version of their Regional Equity Atlas, a document created to address questions of access and equity in the Portland Metro region. The Equity Atlas was created as a resource for the community and policy makers to

use when making decisions about future development in the region.

Audubon Society of Portland (ASP) is also a partner of the Equity Atlas project. The organization addresses environmental issues related to conserving Oregon’s natural areas and animal refuges. ASP provides information to the community about how to better protect the region’s wildlife habitat and natural areas as urban growth continues. The Equity Atlas will aid ASP’s mission to ensure that all members of the community have access to Portland’s diverse wildlife and natural spaces.

Metro has been an important partner in the development of the second Equity Atlas. Metro was created by the need to meet expansionary suburban growth with adequate services in Clackamas, Multnomah and Washington Counties. During the early 1960’s, demand grew for a cohesive regional entity that encompassed the needs and addressed equity throughout the tri-county area. Metro’s mission is to maintain the economic vitality and quality of life in the region. Its involvement is integral to the creation of the second Equity Atlas because Metro compiles and maintains the most comprehensive Geographic Information System (GIS) data for the region. The completion of the Equity Atlas will help Metro meet their goals of equitable expansion and development in the region.

Project Goals

The goal of this Capstone project is to examine equity as it applies to the Portland region. CLF defines equity as “the right of every person to have access to opportunities necessary for

satisfying essential needs and advancing their well-being” (CLF, 2007). Equity as it relates to parks is a difficult concept to define. Our project specifically focused on cataloging the amenities of ninety-three newly developed parks and making observations about park access in an effort to build a better picture of what equity looks like in the Portland region.

The Capstone started with the mission of simply assisting our partners with collecting site data about local parks. Due to the limited resources available to nonprofits, CLF relies significantly on the work of volunteers to collect data for the Equity Atlas. The collection of onsite information about parks helps answer questions about accessibility, available amenities and physical location, and can best be addressed by physically visiting the site and recording observations. After the data collection phase of the project was complete, the gathered data raised new questions about equity and access to parks. These questions encouraged the class to start looking for answers by analyzing the newly acquired data. Going beyond the original scope of work, the class attempted to look at socio-demographic variables that could be integrated into a GIS framework. Using Economic and Social Research Institute (ESRI) data, our field data and GIS, variables were mapped that could help develop a better picture of how factors like ethnicity, income, population density and a collection of other metrics and variables affect equity and access in the region.

Health Benefits of Parks and Greenspaces

Parks are a crucial public health asset, not just a venue for leisure and sports. Researchers throughout a variety of disciplines are documenting the positive health effects, both physical and mental, that access to park space provides. Parks are significant to both physical activity and public health, and provide an opportunity to engage in the physical activities that have been shown to reduce morbidity and mortality by decreasing heart disease, diabetes, high blood pressure, obesity and depression/anxiety. Several studies have shown that proximity to recreational facilities and parks is one of the most important predictors of physical activity. People who are close to parks are more likely to incorporate physical activity into their daily lives, and their presence may have a large potential health impact on a population (Bedimo-Rung, Mowen, & Cohen, 2005).

Neighborhoods with increased proximity between homes and a greater proportion of park area are associated with greater physical activity in young children. A higher percentage of park area can account for a 10% increase in physical activity of older youth. The effect nearby neighborhood parks have on young children's physical activity emphasizes the importance of designing neighborhood environments that support active lifestyles of children and their parents (Roemmich, Epstein, Raja, Yin, Robinson & Winiewicz, 2006).

Parks also generate health benefits beyond the physical realm. The positive effects of a natural view, such as the view provided by parks, are increasingly being realized in environments

where physical and emotional stress are present, such as hospitals, nursing homes, and remote military installations. Seeing nature is important and an effective means of relieving stress and improving well-being. Residents with "green" surroundings are able to pay attention more effectively and find their major life issues to be less difficult to deal with than their counterparts with "barren" surroundings (Maller, Townsend, St. Leger, Henderson-Wilson, Pryor, Prosser & Moore, 2008).

There are numerous psychological benefits to park users and to people within proximity of parks. People value the existence of parks even if they don't use them, and studies have shown that simply having a park nearby is a source of pleasure for residents. Park users report lower levels of anxiety and depression, with stress levels reducing the longer users remain in a park. Reviews of links between exercise and depression indicate that exercise can reduce depression by almost one standard deviation; a finding that when coupled with restorative benefits that simply being in a park have indicate that parks may play a very important role in improving psychological health.

Other benefits of greenspaces include the facilitation of social interactions, helping maintain community cohesion and providing an informal meeting place in which to build social capital by developing ties in a setting where healthy behavior is encouraged (Bedimo-Rung, Mowen, & Cohen, 2005). In addition to their contribution to public health and well-being through ecosystem services, parks also contribute to these areas through the provision of

settings for community engagement (Maller, Townsend, St. Leger, Henderson-Wilson, Pryor, Prosser & Moore, 2008). In Chicago, public housing development spaces that were landscaped naturally with trees were found to attract larger groups of people, who inhabited them for longer periods of time than residents of developments lacking nature (Levine, Kuo & Sullivan, 1997).

As Americans migrate from a more traditional definition of health, which was largely restricted to factors such as life expectancy and the absence of disease, to an increasingly holistic definition, which emphasizes proactive health and disease prevention strategies, greenspace is increasingly being seen an important component in the multi-dimensional construct recognized as necessary for health. A large-scale study was undertaken within Cleveland Metroparks, examining the relationship between park use and individual health among people aged 50 and older. The study showed that two-thirds of older park visitors were highly or moderately active while in these parks. Not only were these active park users physically healthier than their non-park using counterparts on a number of physiological measures; they also had a lower likelihood of being depressed and had larger social networks which increased the frequency of their contact with friends during park participation (Ho, Sasidharan, Elmendorf, Willits, Graefe & Godbey, 2005).

Some researchers believe that too much artificial stimulation and existence in purely human environments may cause exhaustion, or produce a loss of vitality and health. As societ-

ies become increasingly concentrated in urban areas and cities, park space has become an essential element in keeping citizens from becoming insulated from contact with natural settings. A growing body of evidence shows that access to, and interaction with, nature is essential to human health and well-being (Maller, R. Kaplan, 1992; Lewis 1996; Leather et al. 1998).

Research in Park Equity

Parks, like other land-based public resources, are inherently geographic and distributional. Any decision regarding them can unbalance the distribution. In other words, all policy decisions made on public parks are potentially issues concerning equity. Equity is a commonly used and intuitively understood term with a slippery and elusive definition. Speaking generally, it is an idea of distributional fairness and justice—any understanding of equity follows an understanding of social justice and its relationship to various social groups (Lucy, 1981; Talen, 1998; Crompton & West, 2008). The general conception of equity can be easily seen as useful: in a pluralistic democratic society such as ours, common ideas of fairness and justice underlie all of the many interactions with strangers that we are involved with on a daily basis. It enables those interactions far beyond where simple trust falters. But lacking a specific definition, equity remains in the realm of individuals' values and cannot be operationalized (Crompton & West, 2008). This limits the ability of public decision makers to evaluate their decisions on the basis of increasing equity.

To assist in its operationalization, researchers have generated taxonomies of equity. Within these taxonomies, specific equity procedures can be generated by taking one or more classes as the model. Lucy (1981) identified five classes of equity. Other researchers (Talen, 1998; Crompton & West, 2008) have used a taxonomy of three or four classes: equality, need, demand, and market (Nicholls, 2001). Equality-equity refers to an equal distribution of resources and includes both equality of input and of outcome. Paradoxically, these can work against each other—equal inputs can lead to unequal outcomes and vice versa (Lucy, 1981). Need-equity is based on addressing socioeconomic disadvantage. Demand-equity addresses the use of resources or political advocacy. Market-equity includes considerations for taxes paid, willingness to pay, and the expense of the distribution of services.

In the Green Visions Plan, a research project at USC created to guide parks and environmental decision-making in the greater Los Angeles region, researchers used Park Service Areas (PSA) polygons constructed such that every neighborhood is grouped with the park closest to it. This allowed them to generate a “park pressure” based on the population density within each PSA. High pressure parks suggested that there was a low level of park service relative to the demand in the area (Sister and Wolch, 2007; Sister, Wolch & Wilson, 2009). This is an example of demand-equity analysis.

When CLF set out to craft the first Regional Equity Atlas, they gathered almost 100 regional leaders for discussions on equity. Those discus-

sions lead to a tripartite definition of an equitable region: all residents having access to opportunities for meeting basic needs and advancing their health and well-being; the benefits and burdens of growth and change are fairly shared amongst our communities; and all residents and communities are fully involved as equal partners in public decision-making (CLF, 2007). Their definition involves visions of both equality- and need-equity. This report has adopted a need-equity approach to the analysis of what the equitable provision of public parks should look like from the taxonomy listed above. This approach most closely reflects the definition of equity put forward by CLF and its partners, and is the viewpoint most often adopted in the literature that was used as preparation for the report.

Equity in the Law

There has been an evolving body of legal cases surrounding equity that have contributed to the impetus for understanding equity among local public organizations across the United States. Starting with civil rights efforts in the fifties and sixties and the landmark case of *Brown v. Board of Education* (1954), a body of justice began to form around the equal provision of public services. In 1971, the case of *Hawkins v. the Town of Shaw* was decided in the Fifth Circuit Court. They ruled that Shaw, Mississippi was required to ensure that public service distribution to black residents of the town was “improved to the level enjoyed by the town’s white residents” (Lucy, 1981; Sister, Wolch & Wilson, 2009). Later cases made it more difficult to prove unequal distribution, including

the 1976 US Supreme Court case, *Washington v. Davis*, which required that intent to discriminate be proved. These limitations have moved many battles for park equity out of the realm of justice into politics. Equity has also arisen as an issue in the field of environmental justice. Communities that have the potential to be affected by environmental degradation have a motivation to prevent land uses that could cause that degradation. Numerous crises, like the toxic waste scandal of Love Canal in New York state, raised the level of awareness of the general populace as to the distributional nature of these problems (Paigen, 1982). In 1987, the United Church of Christ's Commission for Racial Justice published a groundbreaking report entitled *Toxic Wastes and Race*, demonstrating the link between the locations of hazardous waste repositories and communities of color. The issues of distributional equity in both environmental justice and equality continue to evolve in the courts and legislatures.

Low-Income and Minority Access to Parks and Greenspaces

Environmental justice involves the fair and equitable distribution of both negative environmental elements, such as hazardous waste sites, and the positive environmental elements, such as parks, open space, and recreational opportunities. Park equity becomes especially important when viewed in the perspective of environmental justice movement. Disenfranchised populations—especially people of color and the poor—have disproportionately been forced into areas that were high density, industrial, po-

tentially hazardous and have been thought to have significant disparities in the allocation of park space (Bedimo-Rung, Mowen, & Cohen, 2005; Byrne & Wolch, 2009; Maroko, Maantay, Sohler, Grady, & Arno, June 2009; Frumkin, 2005; Taylor, Floyd, Glover-Whitt, & Brooks, 2007). Since populations with a low socioeconomic status (SES), as well as racial and ethnic minorities, tend to experience worse health outcomes in the United States, access to parks and physical activity sites may be an environmental justice issue if distributions are found to be lopsided or inequitable (Frumkin, 2005; Bedimo-Rung, Mowen, & Cohen, 2005; Taylor, Floyd, Glover-Whitt, & Brooks, 2007).

The presence of parks is proven to facilitate regular physical activity for nearby residents, and while the majority of all Americans do not engage in recommended levels of physical activity, patterns of inactivity differ across varying demographic characteristics. People with lower levels of income and education, who are members of racial/ethnic minority groups, and those with disabilities are at the highest risk for under-exercise. Racial/ethnic minorities and low-income populations also bear a disproportionate health burden of chronic diseases. Research has increasingly turned to analyze environmental factors to help explain this phenomenon, assessing the extent to which the availability of physical activity-related facilities vary across neighborhoods on the basis of racial, ethnic, or SES characteristics. (Bedimo-Rung, Mowen, & Cohen, 2005; Chaumeton, Duncan, Duncan, & Strycker, 2002; Taylor, Floyd, Glover-Whitt, & Brooks, 2007).

A disparity in access to physical activity facilities and resources has been documented by some studies between low-income and minority populations and their non-Hispanic white counterparts in numerous cities across the United States. A nationwide study connected low-SES and minority populations to lower proximate access to recreational facilities than high-SES, low-minority populations (Gordon-Larsen, Nelson, Page, & Popkin, 2006). In Los Angeles, areas with high poverty or characteristics of poverty (i.e. crowded households, high neighborhood unemployment, and low levels of college-educated residents) have lower levels of physical exercise and fewer parks within one-quarter mile walking distance of residents' homes, as compared to areas of less poverty (Babey, Hastert, & Brown, 2007). Another study of Los Angeles found that parks in areas with higher concentration of minorities were lacking in amenity offerings and size (Wolch, Wilson, & Fehrenbach, 2005).

This disparity in the quality and conditions of facilities near low-income and minority populations is also found in areas where there is equitable distribution and accessibility of resources. A study of park access in a "mid-sized southwestern city in the US" found that the availability of parks itself was not a determining factor of physical activity levels in adolescents. Rather, the most important factors affecting physical activity were the characteristics of the available parks. Perception of lower-quality facilities and inability to pay fees, both associated with facilities in lower-income communities, were shown to hinder physical activity, while participation

in afterschool programs and perception of safer adults were associated with higher physical activity. The same study also found that being of a higher SES was correlated with higher physical activity (Taylor, Floyd, Glover-Whitt, & Brooks, 2007). Latinos, African-Americans and other minority groups were found in another study to be more likely to live in areas close to parks that have higher park congestion levels. Populations in close proximity to these potentially highly congested parks also tend to be low-income, with relatively higher proportions of the population below the Federal poverty threshold. On the other hand, predominantly White, high-income groups are perceived to be mostly located in low-density residential areas with larger parks, and thus faced potentially lower levels of park congestion. These apparent disparities in the quality and appeal of parks can be seen as an environmental justice issue. (Talen & Anselin, 1998; Romero, 2005; Sister & Wolch, 2007).

Not all research has produced findings consistent with those described above. A handful of studies have found what is called “unpatterned inequality” in at least three different cities. Unpatterned inequality in park access occurs when unequal park access is found but not associated with demographic or neighborhood characteristics. In a study of Tulsa, Oklahoma, playgrounds were found to be unevenly distributed throughout the city, but their placements were not predicted by any specific socio-demographic variables (Talen & Anselin, 1998). New York City parks are also unevenly distributed across the city, while this geographic distribution can-

not be specifically linked to race, ethnicity, or income (Maroko, Maantay, Sohler, Grady, & Arno, 2009). A study of rural Bryan, Texas found that less affluent neighborhoods tended to be better served by parks than more affluent areas (Nicholls, 2001).

Toward this end of the spectrum, an examination of greenways in Indianapolis found that the poor and minority populations had disproportionately high access to greenspaces. However, these populations are using the greenspaces in Indianapolis at disproportionately low frequencies relative to white and/or more affluent populations. This observed incongruence can create difficult questions if removed from a larger historical and social context. If poor and minority populations are less likely to use greenspaces, planners or government agencies might view development of new greenspaces in these communities as inefficient from a cost-benefit perspective, creating unintentional patterns of segregation and inequity (Lindsey, Maraj, & Cheon Kuan, 2001).

While most studies initially hypothesized that park access would largely be determined by race, ethnicity, and SES, the results often found otherwise. The inconsistency of research findings from cities and towns that span the nation hint at the complexity of analyzing park access. Variance of outcomes may partially be attributed to the variance of research methodologies used, but, more significantly, can be pinned to location. With each city comes a unique history that has already laid the groundwork for such disparities, or lack of disparities, to exist. As the referenced research has shown, no two cities

will have the same findings, providing reason to analyze individual cities, both in and of themselves and as part of a larger, broader context.

While park accessibility is locational, data shows that inequitable demographic access does exist here in Portland. The last iteration of the Regional Equity Atlas concludes that inequalities in access to greenspace exist, and have been generationally reproduced through “population growth and the levels and distribution of investment in urban parks that [have] ebbed and flowed since the late nineteenth century.” These inequalities are weakly correlated with racial/ethnic minority status, while strongly correlated to income. The Equity Atlas acknowledges that while not all poor communities and communities of color have low park access, and not all affluent communities have high park access, as a whole, “neighborhoods with high poverty rates or substantial populations of color tend to have worse access to both public parks... and to natural habitat” in Portland (CLF, 2007).

Visualizing Access through GIS

Access is a commonly used measure of the degree to which equity has been achieved in an existing allocation of parks and greenspaces, specifically when achieving equity requires expanding the availability of park space to specific groups. As with equity, a number of frameworks exist through which access can be assessed, and the different methods of measuring access can produce different analytical results. GIS, other physical accessibility measures, and socio-economic data can be used to provide a visual depiction with which spatial equity can be scru-

tinized (Talen, 1998; Nicholls, 2001; Maroko, Maantay, Sohler, Grady, & Arno 2009). Using GIS to analyze equity and access isn't going to be exact, and it isn't meant to be; the process is dynamic and the maps that are created are not expected to yield definitive answers. Rather, the maps are tools that allow for the visual exploration of data; they provide insight that graphs and charts alone cannot. Maps enable a visual analysis, by linking spatial data and selected qualitative and quantitative attributes, that can expose correlations and lead to inquiry into more complex relationships (Talen, 1998).

There are two fundamental questions most often asked when attempting to interpret park equity maps: are needs are getting met, and do distributional biases exist in the way these needs are being met? If there are biases, how are they being revealed through the maps (Talen, 1998)? Meeting needs in regards to park space requires having parks within a reasonable proximity of a person's home and being able to access the opportunities that those parks provide.

Many of the conclusions reached in this report come from a visual examination of both collected data and Metro data, as depicted in the maps created by the Capstone class. However, there are limitations of this mode of analysis. Since no statistical methods were used, it is difficult to determine whether the distribution of demographic data is random or meaningful. Patterns and relationships may simply reflect unanticipated changes in socio-demographic distribution. Additionally, this method does not address the underlying social and political processes that determine who benefits from and

who pays for public parks (Byrne & Wolch, 2009; Talen, 1998). Fortunately, none of these complexities detract from the impact of visually analyzing relationships between socioeconomic characteristics and distributions of park space. Rather than exploring the statistical relationships present in the data, this report focuses on the questions and observations elicited by the visual analysis of the Capstone-created maps.

Parks Custodian Survey

It is important to gain an understanding of how access to parks is affected by the master plans that communities have designed for them. Parks evolve over time as their amenities and features are implemented, amended and restored. There are a large number of custodians and owners in charge of the fate of parks around the region. These parks planners work at various levels: City, County, and State. Jim Labbe, of Audubon Society of Portland and a CLF member, assisted by students in the Capstone project, identified and contacted those individuals that would have unique insights into the Master Plan for the various levels of government. Initially, a student was tasked with identifying the proper person that could speak to the history and future plan of the tracts of land recently acquired, as well as speak to the Master Plan for the existing parks within a specific jurisdiction. The initial list included both public and nonprofit organi-

zations, including groups such as the City of Portland, Columbia Land Trust, and Yamhill County. Public nonprofits were removed and the list was pared down the original list of contacts and focused just on contacts that worked for City, County, and State governments. With guidance from Labbe, students were asked to contact custodians and those working directly under a Director of Urban works or Parks and Recreation. While this structure works for larger cities and counties, such as Portland and Multnomah county, smaller cities' and towns' Public Works and/or Parks and Recreation Directors are directly responsible for the maintenance and upkeep of the parks, as well as overseeing the implementation of the Master Plan for parks within their sphere of influence.

Once identified, the next Capstone section will send out a small survey (located in the Appendix) containing less than 10 questions designed to identify the Master Plan status for each park, and will be delivered to each city, county, or state park in the future. Labbe will work with each director of Parks and Rec or Public Works to see that the surveys are completed in time to add to the Equity Atlas. This will provide a deeper understanding, not only to the recently acquired land, but to the parks that currently exist.

The surveys themselves will tease out vital information such as how developed a particular park is, what amenities the park possesses, and how the park fits into the Master Plan of its jurisdiction. This data is particularly important when it comes to equity, and composing this information will help identify key areas of

inequity within the region when it comes not only park access, but to the quality of parks an individual, family, or community has access to. Several studies have shown that access to greenspaces will improve the quality of life for populations and have positive health impacts upon communities. However, deeper probing into the connections between parks and health have also shown that different populations utilize parks—and the amenities within these parks—differently. Based on this information, the completed product of this initial study may be able to highlight specific areas that lack either park access or the park amenities necessary for meeting each community member’s individual needs.

Methodology

Fieldwork Methodology

The parks surveyed in this report were identified as additions to the Portland Parks & Recreation greenspace directory. Added after the 2003 park census, there were no existing records of the site attributes. The first phase of this project was to locate each park and make a list of their given amenities. Metro and Portland Parks and Recreation provided a spreadsheet of the specific amenities addressed in this report, which include: playground, restroom, wildlife watching, nature education, interpretive signage, picnicking, camping, fishing, hiking/walking trails, horse trails, boat launch, paddling, swim beach, swimming pool, wading pool, water play

feature, golf, baseball, softball, football, soccer, basketball, tennis, track, volleyball, horseshoes, ADA parking, ADA restroom, and ADA trails/paths. The sites were mapped in Google Earth, and a visual inspection of the aerial images allowed for a preliminary assessment of their amenities. The next phase involved internet research, identifying specific park websites and their respective operators, owners, acreage, bus routes and contact telephone numbers.

After this initial screening, the parks were broken up into spatial regions and assigned to a pair of students in order to conduct field work. Each group was responsible for visiting the parks in their assigned region and documenting the aforementioned amenities of each, and photographs of each amenity were taken to support the inventory information. Also, to determine access points, the location of each park’s main entrance was noted.

Analysis and Map Creation

The collected field data and pre-site visit information were compiled into a master spreadsheet. Once completed, the data was scrubbed and formatted to match an existing GIS master shapefile created by Metro. The Capstone master spreadsheet and Metro’s park inventory tables were then joined using ArcGIS.

To provide further insight into issues of access and equity, each Capstone student was responsible for creating a summary report (located in the Appendix) on two of their assigned parks using the ESRI Community Analyst tool and American Community Survey (ACS) income and demographic data.

GIS-based maps were created using the master spreadsheet and the Regional Land Information Systems (Metro, 2012). Each map (also located in the Appendix) was individually created using specific ArcGIS tools.

Key Findings

Minority and Economically Disadvantaged Populations

- Populations of color or low socioeconomic status are not necessarily underserved by parks.
- New parks are distributed equally across the region. Low income and minority areas do not appear to have been overlooked for new park installation.

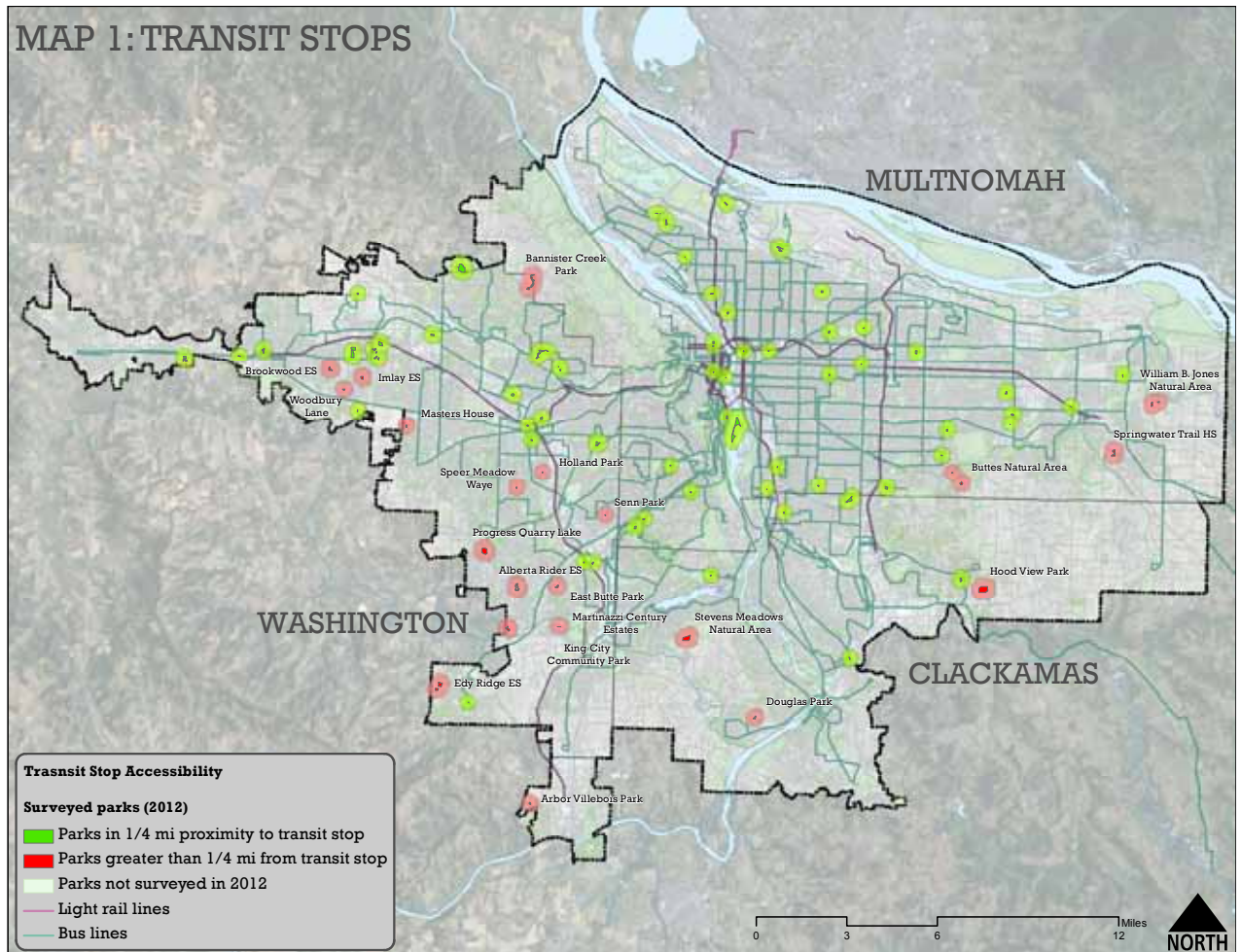
The majority of new parks are located in the suburban areas of the region. Racial and ethnic minority populations are increasingly concentrated in suburban neighborhoods, and as new parks are disproportionately located in suburban areas, this could potentially increase park accessibility for these populations. Therefore, there does not appear to be a geographically inequitable relationship between minority populations and the distribution of new park space developments.

Park Proximity to Public Transit

- 27 of the surveyed parks do not have public transit within a ¼ mile radius.
- GIS analysis identified that all but 7 of the parks are within ⅛ of a mile of a sidewalk, but some of the “parks,” like Billy Goat Island, are not accessible by sidewalks even though they reside within that range.
- Map 2.2 shows that 88 of the parks are within ¼ mile of bike routes.

Public transit access points were recorded during site visits. Park proximity to public transit was important to consider because availability of public transit is an important measure of access. Certain groups have been identified as having a high need for public transit, including children, seniors, low-income families and people with disabilities. Accessibility was measured by assessing if a park was located within a ¼ mile of a light rail or bus line. 27 of the parks surveyed did not have public transit within a ¼ mile radius. This poses significant barriers for public transit-dependent populations in accessing park spaces.

The availability of public access seems to be directly linked to the park’s proximity to downtown Portland. The parks located in the south/southwest and far-east areas of the region are the least served by bus or Max lines. Parks near the city center are far more likely to have public transit available within ¼ mile from the park. Many of the areas with sub-par public transit are not necessarily low-income. For instance, West Linn, Tualatin, and Tigard are areas with relatively high median household income, yet



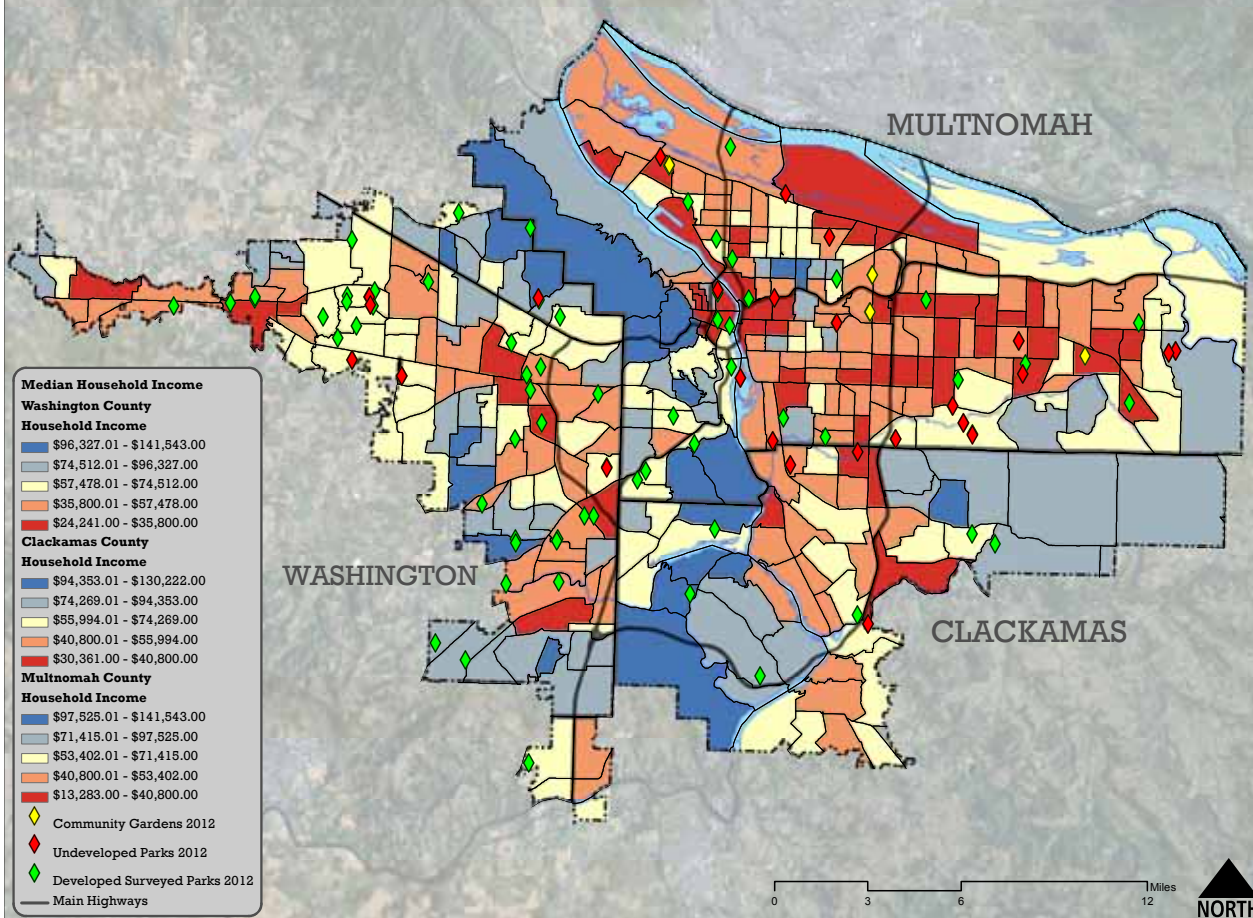
Map 1: Transit stops.

are underserved by public transit.

Parks that tend to be underserved by public transit are located in more suburban parts of the region, which might be attributed to a higher dependency on cars for families in these areas. Accessibility issues may have been consequences of the fact that many of these suburban parks were installed to serve a more car-centric population.

In an attempt to connect public transit access to a larger picture of park accessibility, changes in street or sidewalk network access were assessed to see if the diminishing transit service compounded any other access barriers. Sidewalk accessibility was measured by the availability of sidewalks in a 1-mile radius of the park. Almost every park surveyed had sidewalks within a ⅛ mile radius. However

MAP 2: ACS 2005-2009 Median Household Income by Census Tract



Map 2: Median income.

sidewalk availability was reduced in a ¼ mile radius of most parks and drastically reduced within a 1 mile radius. Lack of sidewalk availability, when paired with lack of public transit, can create a significant barrier for individuals without vehicle access to use certain parks. The inaccessibility factor of certain parks was further increased by the lack of parking in the area. Elizabeth Price Park exemplifies this, as

a park with significant public transit, sidewalk and parking accessibility issues.

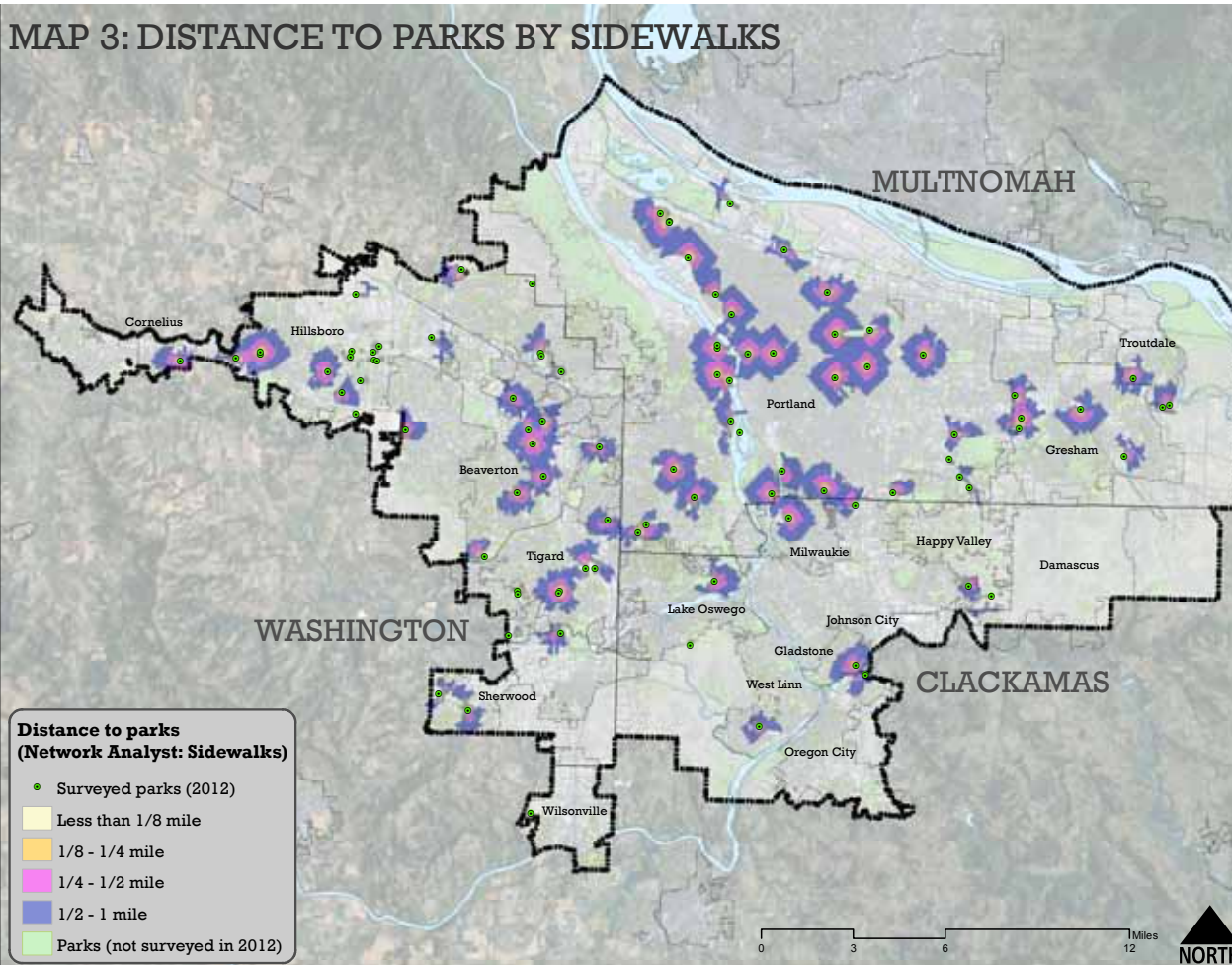
Importance of Ground Truthing

- 25 parks were identified as completely undeveloped, highlighting the importance of ground truthing.
- Parks located at elementary schools are limited access and essentially function as private parks.

Through ground truthing parks that have been developed in the region since 2003, a number of key observations were made. While determining the access points and amenity-count would normally occur through the use of satellite images and maps, physically assessing the parks resulted in crucial data gathering. As illustrated by Figure 1.1 (below), of the 95 parks surveyed, 25 were undeveloped or underdeveloped properties, representing 26 percent of the total. An additional 4 properties were community gardens, bringing the number of purpose-built, publicly accessible parks down to 66 out of 95, i.e. 70 percent of the total. As further illustrated by Map 1.2, the new parks are somewhat equally distributed throughout the 14 of the surveyed parks located at elementary and high schools.

The parks located on school grounds are of limited access and cannot be considered public parks. School districts have policies regarding larger groups that require special permission before park use. The combination of restrictions related to school hours and group size are significant access barriers to the public.

MAP 3: DISTANCE TO PARKS BY SIDEWALKS



Map 3: Distance to parks by sidewalks.

Density and Proximity Assessment

- 95 percent of parks are located in block groups with a population density of 13.8 people per acre or less.

- New parks added on the urban fringe are located in low- or very low-density areas.
- 97 percent of the parks surveyed are located within .5 miles of an existing park.
- Physical proximity to a park does not necessarily mean good park access.
- Frequently, physical access measurements alone are not sufficient to determine whether equity has been improved.

In a more equitable distribution, a higher provision of parks might be expected to be associated with higher-density housing. This is not the case with the parks analyzed for the report. Of the surveyed parks, 95% were located in block groups with a population density of 13.8 people per acre or less. Only five of the 93 parks were located in areas of that have densities greater than 20 people per acre. Block groups with 25 people per acre or greater, (commonly considered high-density) did not include a single park.

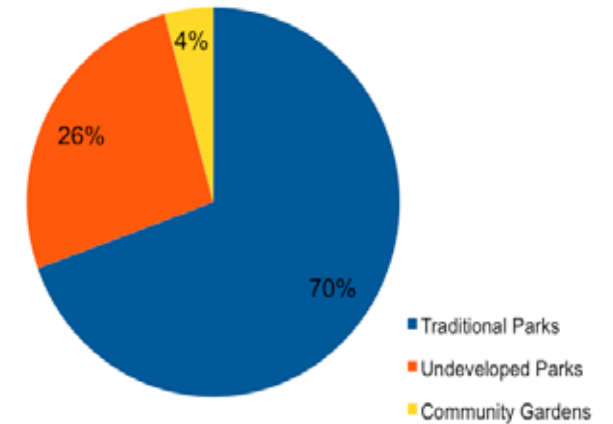
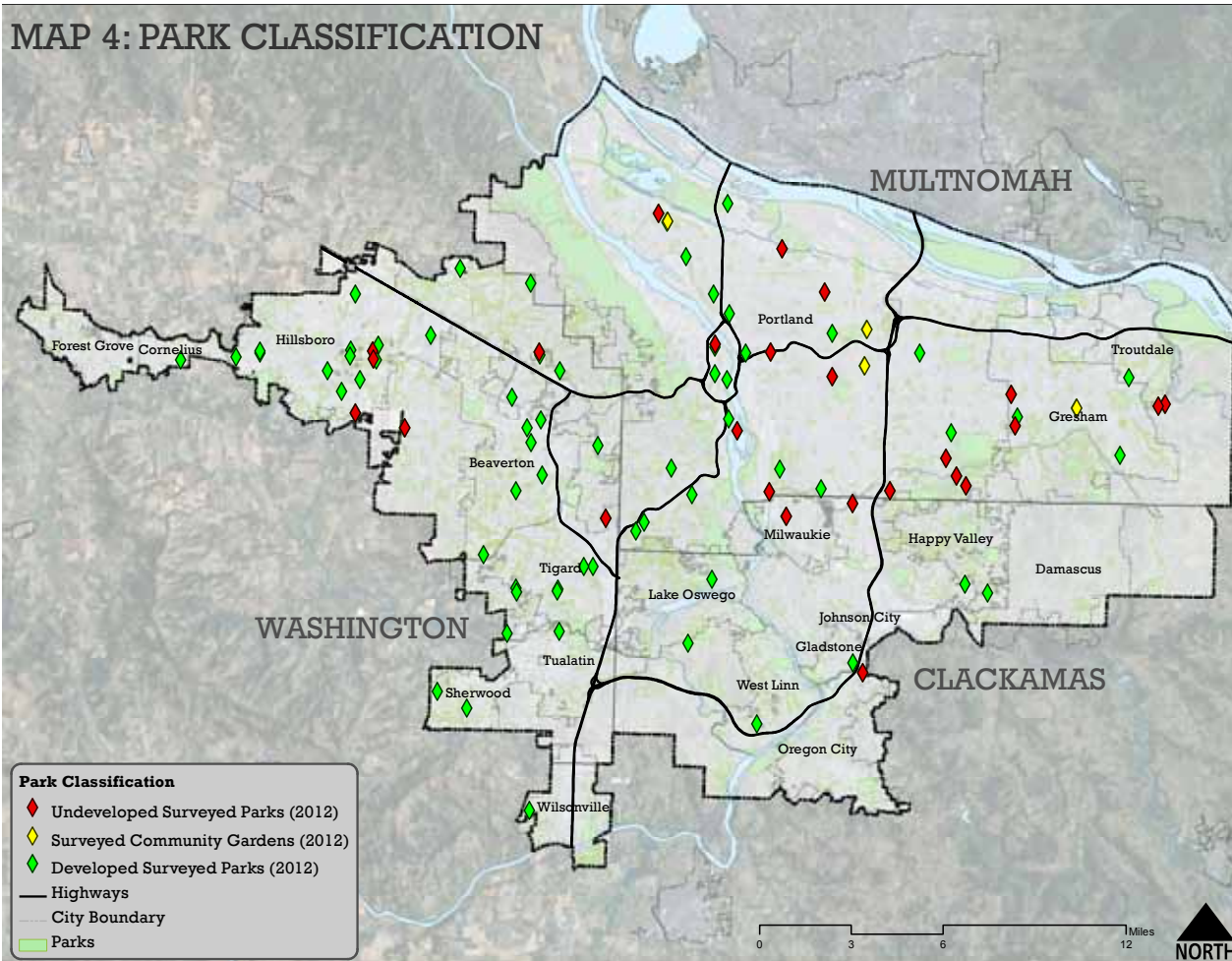


Figure 1.1: Park classification by percent.

However, many of the added parks added lie in the periphery of higher-density areas. It is difficult to tell if this is a function of infrastructure constraints, and whether or not the higher density precludes additional park development.

Most of the new parks in the metropolitan region are built within areas that already have “walkable” coverage of parks. That means that regional park coverage will not dramatically improve as a result of new parks since 2003. In the same vein, park equity measurements

MAP 4: PARK CLASSIFICATION



Map 4: Park classification by location.

based on this metric of accessibility will not substantially improve. However, all but one of the surveyed parks is located within a half-mile of existing park space, which should help to reduce population-per-acre park pressure for the neighborhoods in which they are situated.

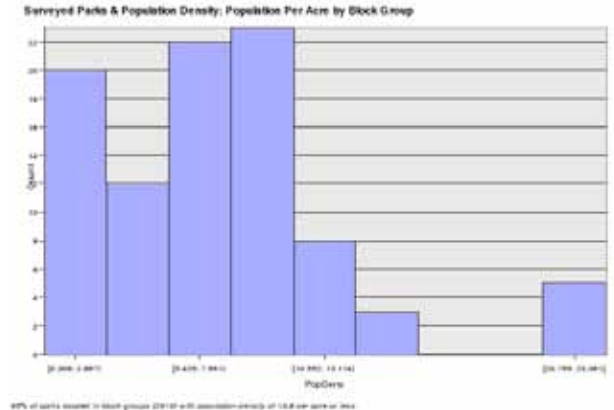
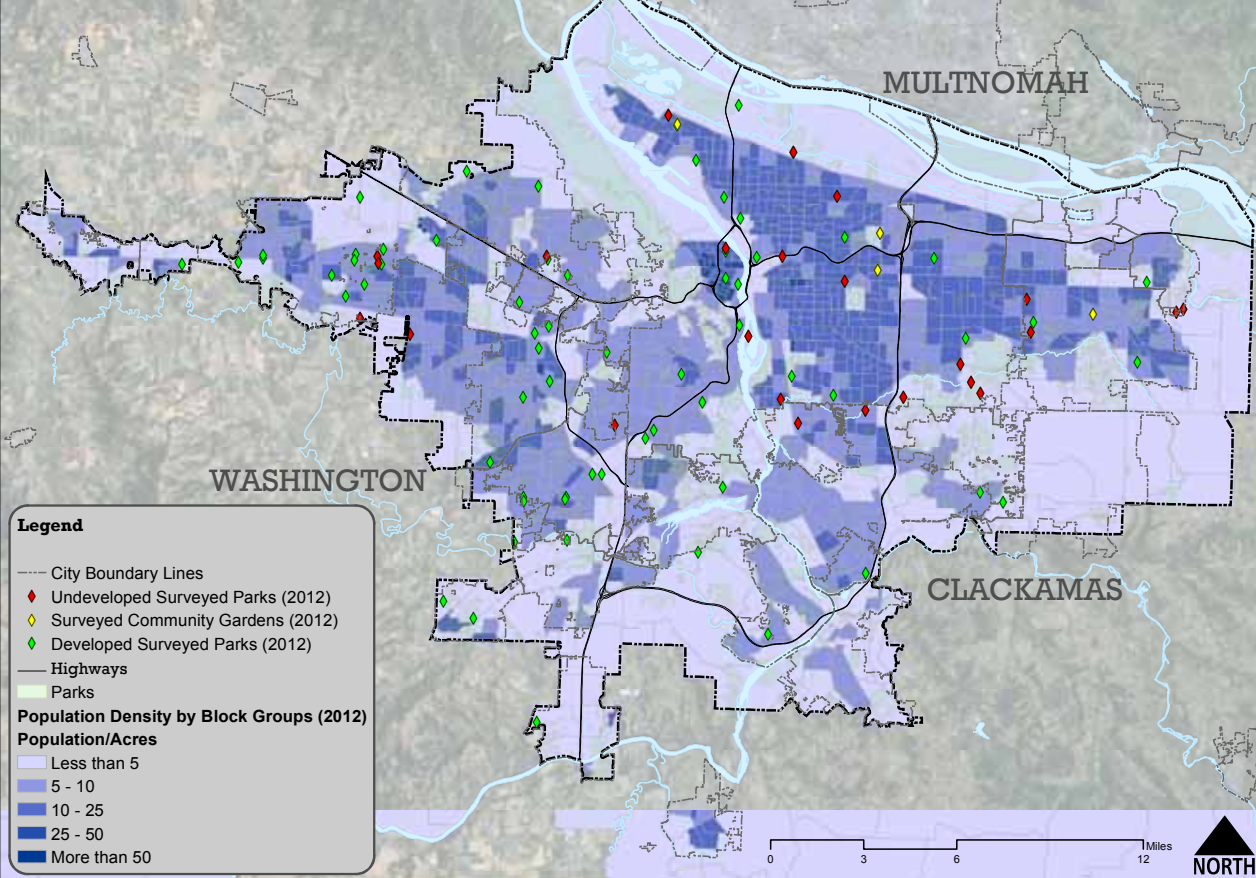


Figure 1.2: Population Per Acre by Block Group.

MAP 5: POPULATION DENSITY BY CENSUS BLOCK GROUP & SURVEYED PARKS



Map 5: Surveyed parks locations.

Conclusion

Access is not as simple as geographic proximity. Not even network analyses tell the whole picture. Many of the parks that appeared to be accessible from GIS--that had designated entrances, well-developed amenities, parking, and

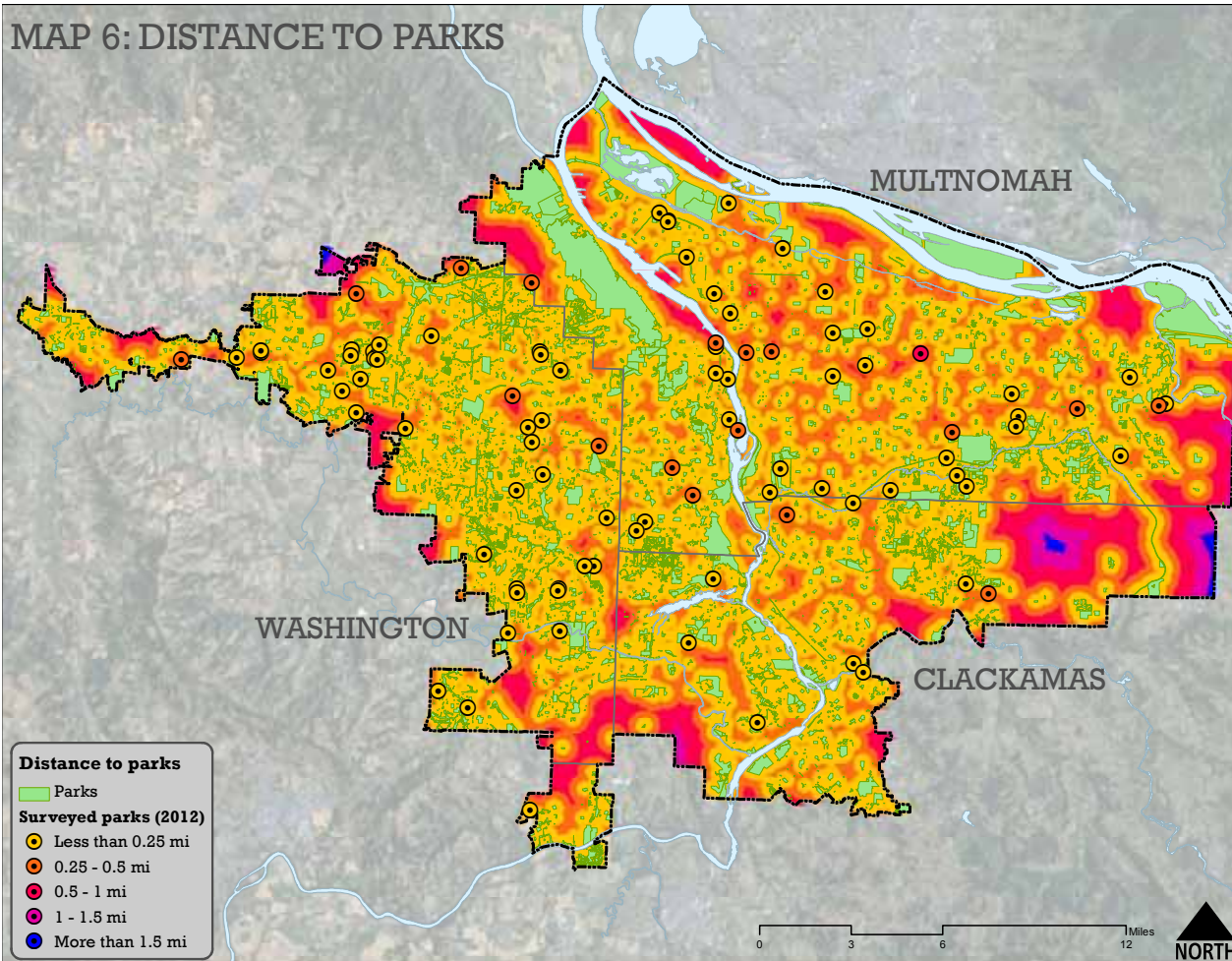
sidewalks--still suffered from a lack of use that may indicate other prevalent issues that reduce the accessibility to the people they were built for. Douglas Park in West Linn, a new park built in a new neighborhood with ADA-compliant surfaces and ramps, may perhaps be glossed over in a long list of parks or, instead, marked as exemplary of good park design with attractive features and hillside views. Yet although

the park has street access and a sign, its entrance is squeezed-in behind closely built houses along both streets. Its parking lot is extremely limited and from the road appears to be a private driveway. Bannister Creek Park, a recently-built upscale neighborhood in the West Hills area of NW Portland is not accessible to anyone but the residents of this subdivision. There is very limited parking, and no ADA paths or trails. This is active drainage for wetlands with a difficult-to-access, unmaintained trail along the creek. The highest portion of this park is completely gated off to the public. The park does provide access to the people in this neighborhood, but it is questionable, given the difficult accessibility, how much they would even use it. This points both to a limitation in GIS and to the benefits of ground truthing.

Parks like these will not be seen as inadequate from GIS. Attempts to estimate equity through geographic measures will overestimate equity for areas that may be poorly served, despite the parks built within their areas. On the other hand, GIS seems well suited to identify areas where there is an obvious lack of access. Although the lack of parks may not mean there is a lack of equity, the fact that spatial disparities can be seen from a map may raise questions that will stimulate further inquiry. In order for new parks to be built and for old parks to be amended to improve the quality of life for nearby residents, it will be necessary to develop an understanding of access and equity that can be applied to park design and construction.

Ultimately, the issues surrounding equity are complex. This Capstone group spent over

MAP 6: DISTANCE TO PARKS



Map 5: Surveyed parks locations.

two months studying the issue as it relates to the metro region's public parks, and the consensus at the end of the investigation was that the surface had barely been scratched. The delineation between the physical and cultural landscapes no longer seemed as separate as once thought. Pablo Picasso famously mused, "Are we to paint

what's on the face, what's inside the face, or what's behind it?" It turns out he could have just as easily been speaking about mapping. Creating a working definition of equity for all actors in the region constitutes an enormous challenge for everyone involved. Current perceptions mediate attitudes that manifest themselves in the

park policies and plans to come. If the group learned anything from this work, it is that GIS mapping has tremendous potential to refine our understanding, reorient our thinking, and provide the impetus to broaden our ambitions in a way that will move us toward a more complete understanding of park equity.

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Stevens Meadow Natural Area, Lake Oswego.

APPENDIX

Maps Methodology

MAP 1 Transit Stops:

Map Description:

This map shows which surveyed parks that are served by TriMet transit stops (bus and light rail) as designated by METRO within a 0.25 mile buffer.

Sources: RLIS/METRO (May 2012) - <http://rlisdiscovery.oregonmetro.gov/?action=viewDetail&layerID=996>, ESRI Online Server World Imagery

Methodology (ArcGIS 10):

1. Import bus stops shapefile and light rail stop shape file from RLIS/METRO.
2. Create a 0.25 mile buffer around all surveyed parks.
3. Select all survey park buffers that have one or more transit stops located within them by using the Select By Location tool.
4. Assign appropriate symbology, in this case, green for buffers with transit stop within and red for buffers without transit stops.

MAP 2: Median Income Map

Map Description

Median Income by Census Tract: Washington, Multnomah, and Clackamas Counties—

Sources:

ACS 2005-2009 Median Income due to its reliability rating, “Percent of Free and Reduced Lunch” obtained from Diane Besser and issued from the Oregon Department of Education 2010-2011 used for poverty level income

bracket, the Metro Boundary shapefile, and 2012 park survey shapefile from Metro’s Data Resource Center.

Methodology (ArcGIS 10)

All counties are clipped to Metro boundary. I broke county income brackets up differently due to individual county qualifying income levels associated with free and reduced lunch income restrictions. Each census tract that falls within its respective income level is symbolized as such per the legend.

MAP 3 Network Analyst - Sidewalks

Map Description:

This map shows walking distance (based on the city’s sidewalk network) from each of the surveyed parks.

Sources: RLIS/METRO (May 2012) - <http://rlisdiscovery.oregonmetro.gov/?action=viewDetail&layerID=996>, ESRI Online Server World Imagery

Methodology (ArcGIS 10):

1. Join Sidewalks dbf file to Streets shapefile, both provided by RLIS/METRO (May 2012), then export a new shapefile with sidewalks only.
2. Create a Network Dataset based on the sidewalks shapefile.

3. In Network Analyst, use the new sidewalks network dataset to create a new service area layer using the Make Service Area Layer tool. In this procedure, set break values to 0.12 mile (634 ft), 0.25 mile (1320 ft), 0.5 mile (2640 ft), and 1 mile (5280 ft).

4. Assign appropriate symbology.

MAP 4 Park Classifications

Map Description

This map shows the three classifications of the 93 surveyed parks as designated by METRO: Developed, Undeveloped, and Community Gardens.

Sources

RLIS/METRO (May 2012) - <http://www.oregonmetro.gov/index.cfm/go/by.web/id/593>, ESRI Online Server World Imagery

Methodology (ArcGIS 10)

Based on the Portland Metro boundary, the map shows existing parks in the area and the surveyed parks broken down by classification. The classification of the parks in the map are surveyed community gardens, undeveloped surveyed parks, and developed surveyed parks.

MAP 5: Population Density

Map Description

This map shows surveyed parks and population density per acres using U.S. Census Block Group data.

Source:

<http://rlisdiscovery.oregonmetro.gov/?action=viewDetail&layerID=996>, ESRI Online Server

World Imagery

Methodology (ArcGIS 10)

1. Under symbology for Census Block group, used graduated symbols and for the fields tab, used POP10 as the value and used acres as the Normalization
2. Clipped all features to Portland Metro boundary (rivers, highways, census block group) and added city boundaries and imagery.

MAP 6 Distance to Parks

Map Description

This map shows distance from each surveyed park to any of the not surveyed parks.

Sources

RLIS/METRO (May 2012) - <http://www.oregonmetro.gov/index.cfm/go/by.web/id/593>,
ESRI Online Server World Imagery

Methodology (ArcGIS 10)

1. Use Erase tool to extract surveyed parks out of the Parks shapefile provided by RLIS/METRO. Resulting shapefile includes all parks in the Portland metropolitan area except for the ones surveyed.
2. Calculate distance from each park (except the surveyed parks) by using the Euclidean Distance tool.
3. With the Euclidean Distance raster output file, classify distances into five categories
 - Less than 0.25 mile (1/4 mile)
 - 0.25 - 0.5 mile
 - 0.5 - 1 mile
 - 1 - 1.5 mile
 - More than 1.5 miles

4. A point shapefile of surveyed parks locations is layered on top of the classified Euclidean Distance master file, and with the help of the Extract Values to Points tool and appropriate symbology, the points reflect the distances from each surveyed park to any other parks.

Parks Custodian Survey Form

1. Is the particular parkland parcel an undeveloped park or lacks any planned or developed facilities for any human access and recreation? (Yes or No)

2. Was the particular parkland parcel historically developed for public use and access? (Yes or No)

3. Does the particular parkland parcel have an official and/or adopted Master Plan? (Yes or No)

a) Is the Master Plan fully completed/implemented? (Yes or No)

b) Is the Master Plan partially completed/implemented? (Yes or No)

4. Does the particular parkland contain a developed children's play area? (Yes or No)

5. Does the particular parkland parcel have active recreational facilities such as sports fields, tennis courts, basketball courts, skate parks, bicycling tracks, swimming pool, or a running track? (Yes or No)

6. Does the particular parkland parcel offer nature-based recreation such as walking trails, wildlife viewing, or environmental education and interpretation? (Yes or No)

7. Does the particular parkland include a native forest with understory, wetland, oak woodland, natural prairie or meadow, or other natural area larger than ¼ acre with predominantly native vegetation and soils? (Yes or No)

Park Equity Profiles

In order to delve more deeply into the issues of equity and access, as they relate to parks, the Senior Capstone students were asked to reflect on their fieldwork experiences in light of 2011 demographic data (particularly income, race/ethnicity, and age) that was developed by ESRI and accessed through ESRI's Community Analyst subscription service. The Community Analyst interface allows users to extract data by creating custom buffers around points of interest, in this case, the parks that were surveyed for this project. Students were asked to select two of the parks that they visited and to describe and contrast the populations that the parks serve as well as their accessibility. The reflections, included in this appendix, reveal the intersections between and the importance of high quality quantitative data and in-the-field observations (ground-truthing) to the discussion of equity and parks.

Two Park Comparison of Equity Access

by Harold Shields

The idea of equity of park access is “...rooted in the concept of social justice and the notion of socially just communities in which ‘all individuals and groups are treated fairly’ (Nicholls, 2001; p. 4). It is considered important to all residents of urban areas because “using park and recreation services has a positive relation to personal health” (Ho, et al, 2003; p. 7). For these reasons, it is of interest to community planners to know the level of access equity for parks in the Metro region. This report examines the access of two parks in the Metro region; Sylvania Park and Stevens Meadow Natural Area. Two parks in the Metro area were chosen as a study in contrast of extremes.

Sylvania Park is located at the corner of SW 53rd Avenue and Capitol Highway. It is an undeveloped block in a residential neighborhood and is under habitat rehabilitation to recover from years of dumping and neglect. Stevens Meadow is located on the southern end of the Lake Oswego city limits near the Urban Growth Boundary at 18600 Shipley Drive. It borders a residential neighborhood on its north side with rural agriculture land on the other sides. These two parks are similar in their intended purpose as publicly accessible natural areas.

Equity of access to the two parks was analyzed through the use of demographic data from ESRI Community Analyst. A quarter mile radius was used for the analysis area with its center at the park’s main entrance or address. This

distance is considered the easiest walking distance to gain access to the park. Three criteria were selected for the analysis of equity access; median household income, age, and minority population.

Analysis of the median household incomes of the two parks show vastly different statistics. Stevens Meadow radius has a median household income that is more than double that of Sylvania’s radius, \$159,693 vs. \$56,385. This statistic appears even more divergent when examining the total population. Stevens Meadow has only 74 residents within its radius and Sylvania has 728. The higher population within the Sylvania radius brings the per capita income down to \$33,534 where as the Stevens Meadow per capita income drops to \$54,766.

Age populations within the two park areas differ not only in total population but also in mode of the age population. The mode of the population in Sylvania is in the 25-34 year old age group. Stevens Meadow has a considerably older mode of age population at 55-64 years old. The percentage of residents below age 20 for Sylvania is 22.6% where as Stevens meadow is 26.3%. These percentages are surprisingly close considering the mode of the age is quite different.

Minority statistics for the two areas is consistent with income levels. Sylvania has a non-white percentage of 21% and Stevens Meadows non-white population is 7.8%. Sylvania’s high-

est minority population is Black at 8.1% where as Stevens Meadow is 5.5% Asian. Sylvania also has a high Hispanic population at 7.7%.

Stevens Meadow Natural Area has no public transit access and is only accessible by driving unless the user is with walking distance. This makes the park virtually inaccessible save for the 22 neighborhood residents with in the quarter mile radius.

When equipment and activities are taken into account, neither park has more than poorly developed trails and a bench. Variety of activities for all levels of abilities and ages are non-existent. This aspect lowers the level of equity access for the Sylvania area as compared to that of Stevens Meadow because of the higher population and lower income levels of the Sylvania area.

These statistics show that the areas around these two parks suffer a great deal of access inequity. Sylvania Park is less than one tenth the size of Stevens Meadow but serves ten times more people whose income is about half that of someone living near Stevens Meadow. If access equity is rooted in the ideals of social justice, this scenario illustrates the need to for greater attention to those in our population with greater access needs.

References

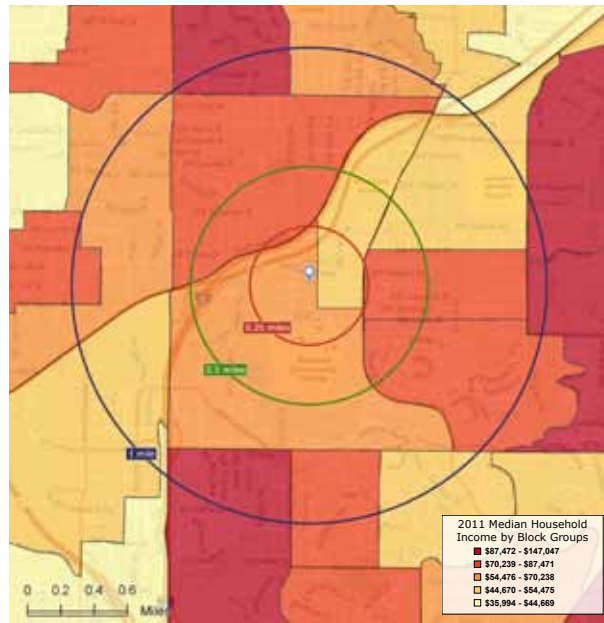
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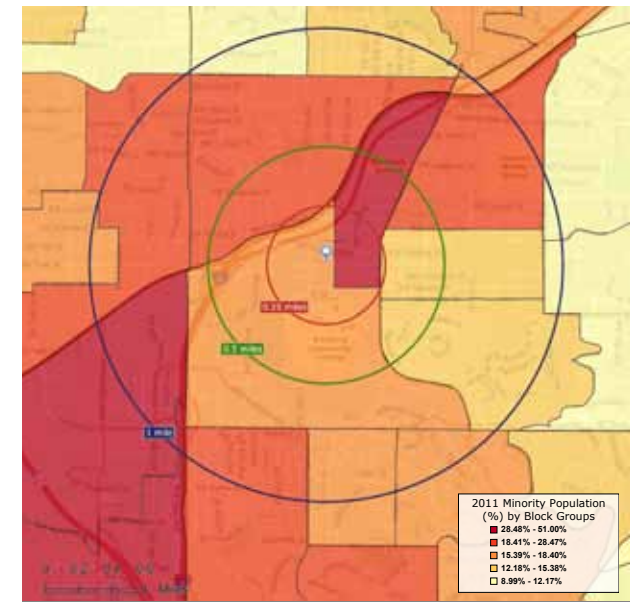
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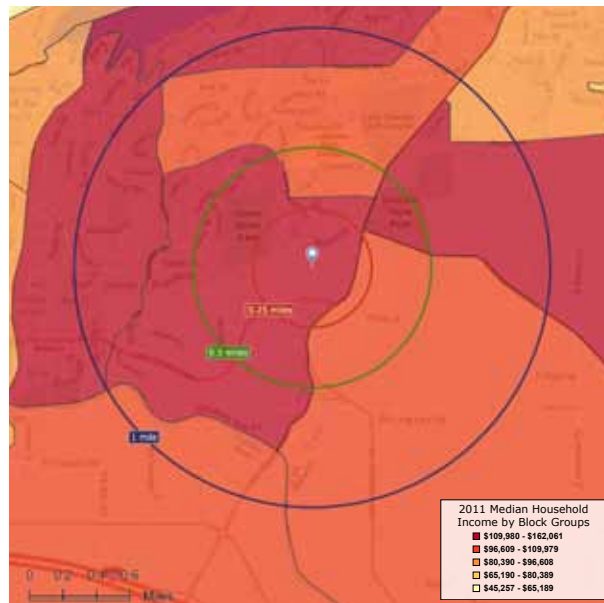
Stevens Meadow Natural Area (above) and Sylvania Park (below).



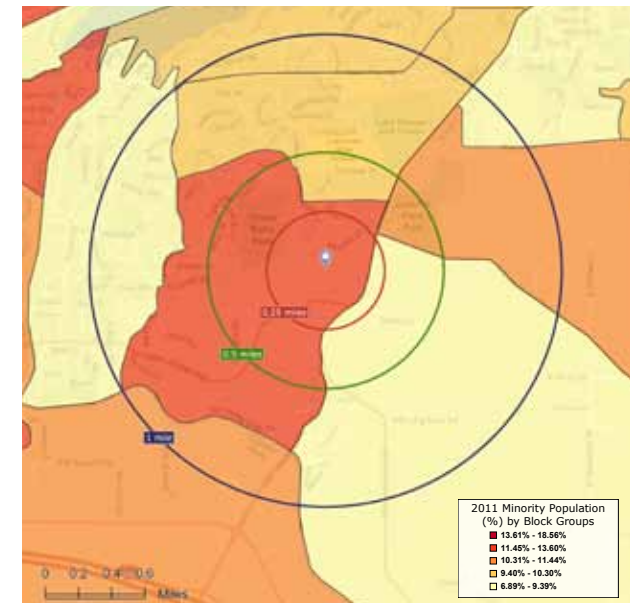
Median income map of Sylvania Park 1/4 mile radius (ESRI, 2012).



Minority Population data for Sylvania Park (ESRI, 2012).



Median income map of Stevens Meadow Natural Area 1/4 mile radius (ESRI, 2012).



Minority Population data for Stevens Meadow Natural Area (ESRI, 2012).

Park Equity Analysis

by Sindre Fredsvik

The 53rd Avenue Community Park is situated in Hillsboro, about a mile south of the semi-new Orenco Station development. The 53rd Avenue Community Park is an expansive purpose-built park, with ample space and sporting facilities. The park includes artificial turf multi-sport fields, restrooms, water fountain, tennis courts, basketball courts and a large playground, as well as abundant parking space. Not yet built, but in the master plan for the area is an indoor recreation facility, to be located directly north of the park. The surrounding area is comprised of mostly multi-family and single-family housing, and it is rapidly developing. The ESRI Community Analyst data collected shows that the immediate area (0.25-mile donut) has a relatively high median household income (\$77,094) and a significant Asian population (21.2 percent). The median HH income remains approximately similar when looking at the two outer “donuts” (0.5 and 1-mile), while the percentage of Hispanic residents increases (8.6 to 13.4 percent), and the Asian population decreases (21.2 to 11.6 percent).

As the 53rd Avenue Community Park is located in a currently developing area, the number of residents able to access the park by foot is limited. However, as both light-rail and frequent bus service is 0.5 miles or less away, accessing the park from outside of the area is fairly easy. At the time of my visit, the park was bustling and well utilized, with a diverse range of people using the space, both in terms of age, ethnic-

ity and most likely socioeconomic status. The amount of people in the park far outnumbered the car capacity in the parking lot, evidencing that a large proportion used other transportation means to access the park. Ultimately, the 53rd Avenue Community Park has good accessibility, in terms of bus, light-rail and car, and to a lesser extent by foot. The park does serve as an anchor for the developing neighborhood, and thus its pedestrian accessibility will only increase as more residents move in. The park is the only large purpose-built park in the community, but several smaller parks and green spaces are located in the surrounding community, illustrating that the community residents have good access not only to 53rd Avenue Park, but also other green spaces.

Free Orchards Elementary School, is as the name implies actually an elementary school, and rather newly built. It’s situated in a residential subdivision of single-family homes, and though located in the city of Cornelius the school is part of the Hillsboro School District, serving the extreme western portion of that district. Due to its location within a built-up subdivision of cul-de-sacs and winding roads, the school is hidden from the main roads and therefore difficult to see.

The property itself, or park if you may, has the usual equipment commonly found at elementary schools, such as a playground, a basketball court and soccer fields. There is plenty of parking, but since this is an operational school, community use is only allowed after school hours. Utilizing the ESRI Community Analyst, I created three “donuts” of 0.25,

0.50 and 1.25 miles distance from the school, and collected the demographic information for each “donut”. Perhaps the most striking demographic characteristic when comparing the three “donuts” is median household income, as it drops significantly from the inner 0.25-mile donut to the outer 1-mile donut, from \$68,779 to \$53,003. All three “donuts” feature a high Hispanic population, ranging from 42.8 to 44.3 percent, with the remaining population being overwhelmingly non-Hispanic White.

Though the median income figure illustrates, to some extent, the level of poverty in the area, I chose to take a look at the free-or-reduced lunch rates at Free Orchards, in order to get a better perspective of the level of poverty. According to NCES, Free Orchards Elementary School had 267 out of 491 students on free-or-reduced lunch programs in the 2009-2010 school year, which is approximately 55 percent of the student population (<http://nces.ed.gov/globallocator/>). What this illustrates, is a rather economically diverse student body, seeing that the median income in the area is right around \$60,000 annually, a fairly stable middle-class income. But what do these numbers ultimately say regarding equity? If this was, in fact, the only park in the community, several conclusions could have been drawn regarding household income and park proximity, but as a quick look on any satellite image of the area will tell you, is that the area has an additional four well-distributed parks within a mile of the school, making the community rather saturated with parks. Ultimately, the community has a fairly equitable access to parks, and is, according to Equity Atlas, an anomaly in terms of its high

minority share and good park access. However, the area is lacking good public transportation links, which decreases the accessibility for residents outside of the immediate community.

References

ESRI Data & Maps. (2012). Redlands, CA: Environmental Systems Research Institute

Free Orchards Elementary School (2009-2010). Washington, DC: National Center for Education Statistics (NCES).



Free Orchards neighborhood map with demographic “donuts”.



Free Orchards neighborhood map of Median Family Income by Block Group .



53rd Avenue Community Park location.



53rd Avenue Neighborhood Map of Median Family Income by Block Group.



53rd Avenue Community Park .

Demographic and Income Analysis— Bannister Creek Park

by Jonah Horn

The spring term Senior Capstone Course UNST-421 is focused on collecting public park data relative to accessibility and analyze whether these parks are serving the categorized disproportionate populations (i.e. minorities, limited education, limited or no English, and impoverished). For this analysis, I used three reports that I gathered through ESRI's Community Analyst extension. The following reports used are: the U.S. Census Bureau 2010 Summary Profile and the U.S. Census Bureau 2010 Demographic and Income Profile coupled with ESRI's 2011-2016 projections. Maps used within this report are the ACS 2005-2009 Median Household Income by Block Groups as well a site map from ESRI. All reports were broken into three geographical ringed zones that are 0.3, 0.5, and 1.0 mile surrounding the park. 2010 U.S.

Census Bureau Summary Profile (Source: ESRI Community Analyst)

This report provides first glimpse at 2010 census data and includes total population, population over the age of 18, and population by race/Hispanic origin. Key points within this profile are the following:

The 2010 Census Summary Profile reports that there is a large increase in population (nearly 10-fold) from the park to 1 mile out. Statistically the percentage of race, population by age, households with children, and household size stay relatively unchanged. Race percentages range from 48.7-58% white, 36-45.1%

Asian, 6.2-6.4% other races, 2.9-3.9% Hispanic. Relatively speaking, the population groups that consist of all minorities including Hispanic origin, children ages 0-19, and households with children have the highest percentage of access within the 0.3 mile radius out of all the three distinct radius values.

Overall, this data indicates that all groups within each demographic have higher rates of access than the same groups within the 0.31-0.5 radius and also the 0.51-1.0 radius except for the white population as it increases farther away from this particular park and its surrounding neighborhood. The argument could be made that this area is dominated by primarily Whites and Asian origin but statistically speaking the park does offer its most accessibility within the 0.3 mile radius to the highest percentage of minorities, children, and family households.

Having visited this park, I would like to note that this park is not easily accessible by vehicle due to the stringent parking and access points of this park. The park is divided into three portions: first, a natural area with wetland and a walking trail; the second, a natural drainage with native trees, a roughly maintained trail with an associated playground; the third is inaccessible as it is a protected natural site and is the head of the drainage basin that ravines through this newly developed neighborhood.

2010 U.S. Census Bureau Demographic and Income Profile

This report summarizes Census 2010, current-year estimates, and five-year forecasts of household data to reveal trends in demographics and income. After researching this report,

race and age forecasts are not much different in the five-year forecast compared to the current data above derived from the 2010 U.S. Census Bureau Summary Profile so I did not note race or age statistics within this portion of the report. What is interesting in this report is the income statistics within the three radius values of 0.3, 0.5, and 1.0 mile. As the pie charts show below (see tables 1 to 3), this area is considered upper class with most household income ranging between \$50,000 to \$200,000+ per year and over 50% of all household income within all three radius' are over \$100,000 per year. The high rate of household income only climbs for projected 2016 household income values, such as the median income value for the 0.3 mile radius around Bannister Creek Park is projected to rise from \$97,695 to \$152,711; just over \$55,000 between 2011 and 2016.

References

ESRI Data & Maps. (2012). Redlands, CA: Environmental Systems Research Institute.

0.3 mile radius around Bannister Creek Park

- 2010 population: 726 people
- % of population by age:
 - 0-19 years old: 39.8%
 - 30-49 years old: 42.4%
 - 65+ year old: 3.9%
 - Total: 86.1%
- % households w/children: 69.2 %
- Race:
 - White: 48.7%
 - Asian: 45.1%
 - Hispanic: 3.9%
 - Black, Native American Pacific Islander other, two or more: 6.2%
- Average family size: 3.98 people

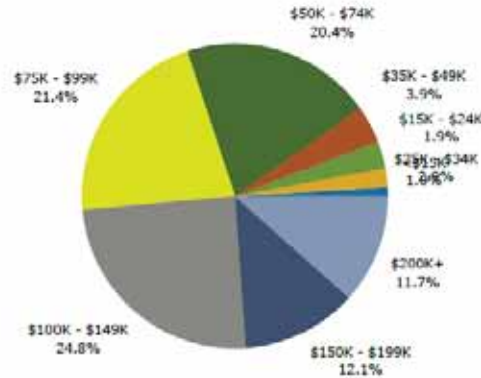
0.5 mile radius

- 2010 Population: 1,526 people
- % of population by age:
 - 0-19 years old: 39.3%
 - 30-49 years old: 41.6%
 - 65+ years old: 4.1 %
- % of household w/children: 68.6 %
- Race:
 - White: 50.1%
 - Asian: 43.6%
 - Hispanic: 3.3%
 - Black, Native American Pacific Islander other, two or more: 6.4%
- Average household size: 3.48 people

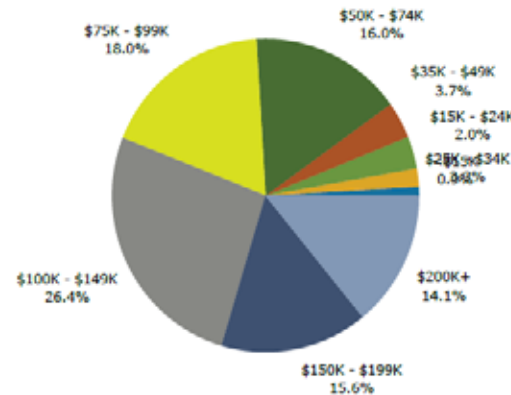
1.0 mile radius

- 2010 Population: 7,790 people
- % of population by age:
 - 0-19 years old: 38.0%
 - 30-49 years old: 39.0%
 - 65+ years old: 5.0 %
- % of household w/children: 68.6 %
- Race:
 - White: 58.0%
 - Asian: 36.0%
 - Hispanic: 2.9%
 - Black, Native American, Pacific Islander, other, two or more: 6.1%
- Average household size: 3.39 people

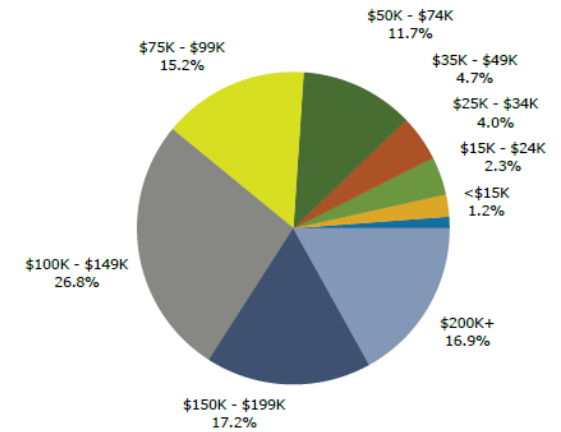
2011 Household Income by radius around Bannister Creek Park
(Source: ESRI Community Analyst, 2010 U.S. Census Bureau Demographic and Income Report).



0.3 mile radius household income values.



0.5 mile radius household income values.



1.0 mile radius household income values.



Bannister Creek Park Trail leading to a small wetland.



Median Income Map of Bannister Creek.

*2010 U.S. Census Bureau Summary Profile
(Source: ESRI Community Analyst).*

Community Analyst Report Elizabeth Caruthers Park & Helen and Simon Director Park

by Robert Kalei Miller

Parks and open spaces are essential to human and environmental health. Portland is the largest city in Oregon, and the Portland metro area is home to about 2 million people. (Portland Business Alliance) To get an understanding on how parks are related to demographics and income, two parks were chosen in the downtown Portland area. Simon and Helen Director Park, located in the heart of downtown Portland, and Elizabeth Caruthers Park, located on the South Waterfront. The statistics were based off of reports using ESRI community analyst.

Simon and Helen Director Park is located in downtown Portland. With its central location, the park receives busy traffic of people looking to enjoy some open space and also the convenient café located on the edge of the park. The park is not your typical green park; there are trees but for the most part little to no green space. The park is an urban experience with outstanding architecture, benches, and a water fountain.

The park is also adjacent to the Fox tower, a 27 story office building. The statistics for this area with a quarter mile radius are very interesting. As of the 2010 census data, there was a population of people with an average household size of 1.39 and a median age of 47.4. (ESRI, 2012)

The median household income was \$12,466 in 2011. This number for income seems really relatively low. The largest ethnic group was 79.6% White, and the second largest being 6.6% Black. The forecasts made by ESRI are that by 2016, the population will be 3,676 with the average household being the same at 1.34. The median age will have gone up at 49.8 and the median household income projects to be \$13,097. (ESRI, 2012) It seems that many one-person households live in the area that are mid-age and white.

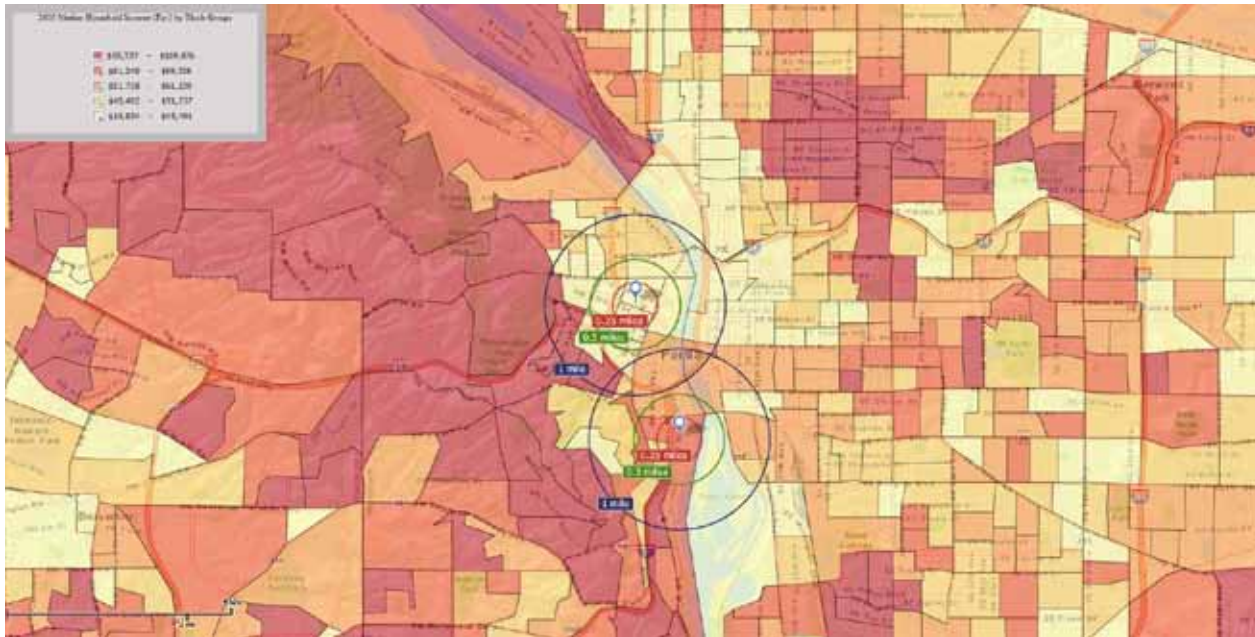
Elizabeth Caruthers Park is located on the waterfront just south of downtown Portland. The south waterfront by some is believed to have become an urban planning failure. (Mirk, 2010) The park is located in the middle of many newly developed skyscrapers. The park has an open field, paths, and picnic areas. Though there isn't much around the area besides the major large buildings, the area is accessible by streetcar and has bus routes. The projection for this area is for growth in the coming years. As of 2011, the current population was 2,298 with an average household size of 1.63 and a median age of 36.4. The median household income was \$58,247. The largest racial group of the area was 84% White, while the second largest Race was Asian at 9.2%. (ESRI, 2012)

As for future forecasts for 2016, it seems that the population will rise but the average household size will be close to the same at 1.64. Also, the median income will be higher at \$74,045 and it seems that the race and ethnicity through out this area will be similar as it is today. (ESRI, 2012)

This report covers only two of the many parks located in the Portland metro area. Attached to this report includes the demographic and income profile of the two parks within a quarter mile radius. There are also three maps of white, black, and Hispanic populations within a mile radius of both parks. A median income map is also shown within a mile radius of both Elizabeth Caruthers Park and Simon & Helen Director Park.

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2012 Median Household Income (ESRI) by Block Groups.



Children at Simon and Helen Director Park.



Park at Elizabeth Caruthers Park.

Access to Parks; Elizabeth Price Park & King City Community Park

by Cameron Hill

The parks my partner and I surveyed were all generally located the Tigard, Tualatin, King City triangle west of I-5 and South of Scholls Ferry Road (Hwy 210). The housing in the area is mainly suburban single-family homes. The whole area is actually so homogenous that it was difficult to make a decision about which two parks to highlight for this report. I decided to look at The ESRI 2011 Demographic and Income Profile of each of the parks I surveyed, then selected the two parks that were located in areas that had the greatest difference in median income. The median household income in the .25 mile ring around Elizabeth Price Park is \$96,298 per year. In the median household income in the same .25 mile ring around King City Community Park is \$55,506 per year. (an almost \$40k a year difference). The difference in the median income between the neighborhoods does not seem to have much of an effect on other demographics as illustrated in Table 1, opposite.

Both parks are located in predominantly white, middle class neighborhoods. Initially the amount of similarities between the two areas made it difficult to draw-out any differences between them. Both areas have similar median income levels, household size, and racial make-up. Some of the only features I found that were different between the two areas were amenities found at each park.

Because the median household income in the area around Elizabeth Price Park is higher than around King City Community Park, you might guess that Elizabeth Price Park would have more amenities and services. However the opposite is true, Elizabeth Price offers very few features and has some serious drawbacks. King City Community Park offers far more amenities and accessibility.

Elizabeth Price Park has a serious accessibility problem. There is absolutely no parking available for visitors at all. The park is bordered by two roads, (bull mountain rd. on the south and 132nd place on the west, Figure 1, opposite) signs along both streets clearly indicate no parking is allowed, basically eliminating the option of driving to the park. This lack of parking results in a situation where only the 207 households (ESRI 2011) in a .25 mile distance really have access to the park.

King City Community Park offers parking for about 25-30 car and multiple ADA parking spots. King City Park also offers many amenities that Elizabeth Price does not. Basketball, Tennis, ADA Trails, multiple play structures, nature trails, and covered picnicking. Because King City Park offers parking I think it is fair say it can serve more people in the area. There are 1,873 Households (ESRI) in the .75 mile ring around King City Community. Park. This really highlight what an important amenity parking can be, especially for these more suburban parks.

It's worth mentioning that looking at these two parks gives us a good example of how even higher income neighborhoods can sometimes

have inadequacies when it comes to public amenities. I think it might be interesting to look at high median income block groups and see how many others are serviced by sub-par parks.

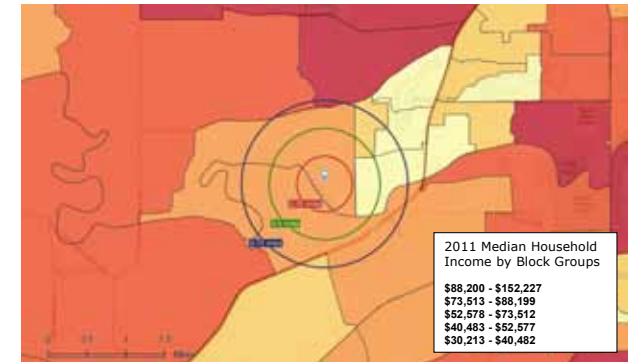
The median income map included in this report provides a visual representation of the income differences between the block groups where each park is located. The map really show how the median income can change quite a bit over a very small geographic distance. These parks are just over 2 miles away from each other and have a difference in median income of over \$40,000.

References

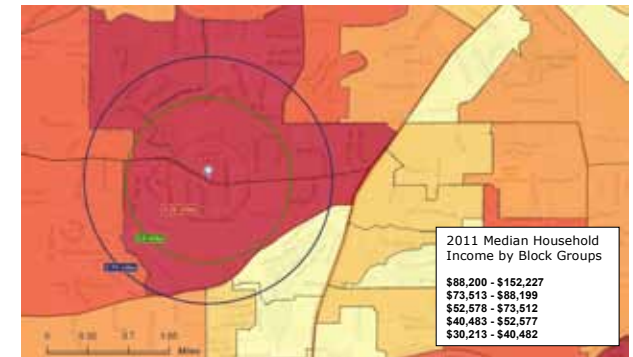
ESRI Data & Maps. (2012). Redlands, CA: Environmental Systems Research Institute



Figure 1: Elizabeth Price Park, 13001 SW Bull Mountain Road.



Median Income Map for King City Community Park.



Median Income Map for Elizabeth Price Park.

2011 Data: .25 mile radius	Elizabeth Price	King City Comm.
Median Income	\$96,298	\$55,506
Median Age	36.9	35.7
Anglo Population %	74.6%	79.6%
Black Population %	1.8%	3.8%
Asian Population %	16.3%	10.2%

Table 1: Demographics data for Elizabeth Price and King Community Parks.

Gilbert and Hazelwood HydroParks: Portland Water Bureau's Property Transformation

by Anna Petry

The Portland Water Bureau (PWB) tackled the transformation of their water facilities with several goals in mind: to create green space for public use in park-deprived neighborhoods, to involve neighbors in the site design process, to increase property aesthetics and usage and thus surrounding property values, to increase site security by creating neighborhood "ownership" of the site and caring vigilance, and by following the PWB's sustainability and conservation pledge wherever possible (Fusilier, 2008). After evaluation of their properties, the PWB determined which areas would best benefit the water system and the communities in which they were located. As of 2012, seven HydroParks have been created; their once-fenced off land redesigned and opened to the public with amenities such as benches, picnic tables, dog stations and paths (Portland Water Bureau, 2012). The additions of Hazelwood and Gilbert HydroParks (see Figure 1), both located in East Portland, to their communities have provided great examples of the benefits of park access. They have served as catalysts of improvement in their communities and have motivated the development of much-needed neighborhood infrastructure, as well as increased community involvement.

One mile east of I-205, between NE Halsey Street and NE Glisan Street, sits Hazelwood HydroPark, the first and largest HydroPark established by the PWB. This area, 3.8 acres of tree-

lined lawn, complete with a community garden, offers a welcome reprieve from the hustle and bustle of the heavily commuted roadways mentioned above.

The Hazelwood project, completed in 2006, supplied this park-deficient community with a safe area to enjoy. The HydroPark is the only park within a half-mile radius, as well as, the only accessible park within the bounds of the busy streets of NE Halsey, NE Glisan, NE 122nd and NE 102nd. By providing an open green space to this community, with a population of 5,440 people in just this half-mile radius, the PWB has encouraged the creation of a close-knit neighborhood. Within the half-mile radius of the park, 49.6% of the households have an annual income less than \$35,000, which is just \$10,000 more than living below poverty for a family of four. Racial minorities, another demographic group which has historically suffered from lack of park access, comprises 30% of the community (ESRI Community Analyst).

Since its completion, Hazelwood HydroPark has fostered community involvement by hosting many community events. In March 2009, the non-profit organization, Friends of Trees (FoT), organized a tree-planting event that involved many community members. Motivated by community members' concerns that the Northern corner of the park did not have enough shade, the combined efforts of FoT and neighbors of the park led to the planting of 44 native trees, several of which will provide fruits upon maturation. This community effort will not only benefit park visitors, but the trees will provide habitat and food for small animals and

birds.

The addition of the HydroPark has also led to improved neighborhood transportation infrastructure. In May 2008, NE 117th Ave was paved, making the road fully usable for the first time in its history (Perlman, 2007).

Located in the Powellhurst-Gilbert neighborhood, Gilbert HydroPark is the second HydroPark created by the PWB. This park includes an ADA accessible wood chip walking path that circles the park, several benches where one can relax and reflect, and shaded picnic tables that provide a community gathering place. The perimeter of the park is lined with boulders from the Bull Run watershed, which serve as barriers to motor vehicles, as well as reminders of the bounty of Oregon. Community members are in the process of raising funds for the addition of a community garden to increase the usefulness and aesthetic of the park.

Community involvement at Gilbert, like at Hazelwood, has been crucial in making the transformation of this HydroPark possible. In 2009, again with the direction and support of FoT, a community tree-planting event was held. Fifteen native trees were planted throughout the park, which will one day provide shade and habitat to visitors and animals alike.

Gilbert HydroPark is the only park within a .3 mile radius and is one of two parks in a half-mile radius. The park provides the 4,970 people living within that half-mile with a great space to relax and play. Only 32.4% of the population within that half-mile radius is categorized as minority. 28.7% of the surrounding population is under the age of 14 (ESRI Community

Analyst). This is remarkable, because the HydroPark does not have any playground or sports amenities, which are negatively correlated to childhood obesity rates.

Although the addition of a public park is not easily viewed as a bad thing, the location of Gilbert HydroPark is interesting in that just a half-mile southwest of it sits Powell Butte Natural Park, also owned by the PWB. As you go west of the Gilbert HydroPark, toward Powell Butte, property values increase, as does the median income, with combined household income climbing to \$50,973-\$91,172. Whereas as you go east of the HydroPark, household median income decreases to \$18,500-\$32,875 (ESRI, 2005-2009 ACS Median Household Income by Block Census). It could be argued that this area was not park-deficient before the HydroPark was created. This park serves as a reminder that the PWB is only transforming properties that they own into HydroParks because the water infrastructure already exists on the land. This is limiting in that if an area without existing water infrastructure is truly park-deficient, they will still not be well-served by the PWB's efforts.

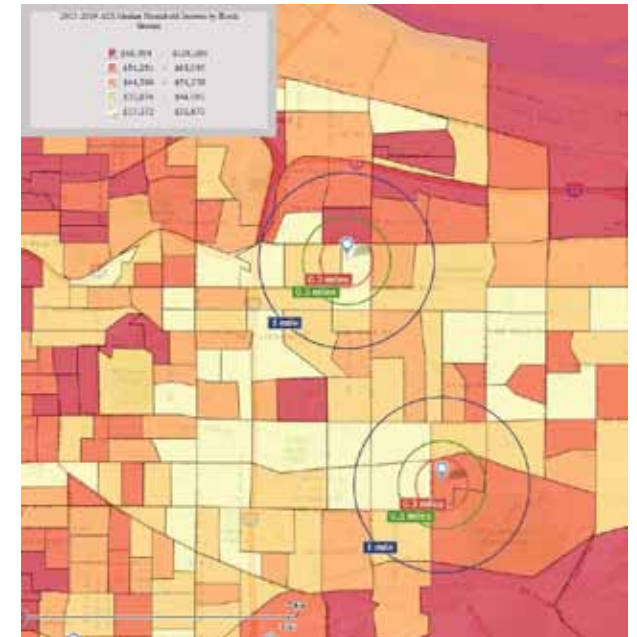
Studies have proven that access to parks and green spaces improves the quality of life, both mentally and physically. Studies show that people who live within walking distance of a public park are nearly three times more likely to get the recommended daily physical activity. With increased access to local opportunities for physical activity, the risk of obesity declines. Hazelwood and Gilbert HydroParks are located in areas with minority populations close to 30%. The addition of these parks could be especially

beneficial to this population because obesity rates are generally higher in minority than majority race/ethnicities populations (Cutts, 2009).

With the transformation of their water system properties into public green spaces, the PWB has established itself as a steward of community in Portland. Working with communities throughout the city, they have succeeded in providing support and encouragement to neighborhoods seeking to find creative solutions to address a lack of public parks and green spaces in their areas.

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Hazelwood (top) and Gilbert Hydro Parks 2005-2009 Median Income Map.

Equitable Park Access in Terms of Owner Occupied Housing Units, King City Community Park and East Butte Park

by Daniel Mogelinski

A lot of visions come to mind when one hears the word “park”. Many think of recreational facilities such as soccer fields, basketball courts and baseball diamonds. Others have thoughts of protected natural areas with streams elegantly flowing through small forests into beautiful ponds. I think we all can agree that parks are wonderful. Parks can provide peaceful getaways of self-reflection from the cacophonous environment of urban life. They can also provide areas for children and adults to engage in healthy outdoor recreational activities. Access to parks of this sort in the real world is not as ideal as our idea of what a park is. A lot of marginalized groups of people do not have the same equity of access to parks as those groups which are more privileged. Factors such as income, and race/ethnicity of an area are well known correlates to equity of park access. In the southwest reaches of the Portland, Oregon metropolitan area there are two parks that serve similar demographic areas in terms of race/ethnicity, and median household income, however, these two parks differ in their equality as parks. What else may be involved in influencing an area's equitable access to parks? I believe that the discrepancies of equity of park access can also be correlated with percent of owner occupied homes.

The two parks I selected for my analysis are King City Community Park and East Butte Heritage Park. The methods involved included internet research, a field survey and GIS analysis. The Internet research consisted of browsing the Internet to find a website or web page devoted to the park, information about the parks' owner(s) and custodian(s), acreage, and any other information about amenities. The field surveys consisted of in-person trips to the parks to note amenities and any accessibility issues. Amenities surveyed were public access, playground, restroom, wildlife watching, interpretive signage, nature education, picnicking, camping, fishing, trails, horse trails, boat launch, paddling, swim beach, swimming pool, wading pool, water play, golf, baseball, softball, football, soccer, basketball, tennis, track, volleyball, horseshoes, ADA parking, ADA restroom, ADA trails, dogs allowed, and dogs off leash. ESRI Community Analyst was used for the GIS portion of the analysis. Community Analyst provided demographic data such as percent white, percent Hispanic, median household income, and percent owner occupied housing units. The demographic data was split based on block groups. Block groups were chosen because they are the smallest grouping unit possible, and proximity of within ¼ mile and a ½ mile were used to determine access.

East Butte is 3 acres, publicly accessible, and allows dogs. Based on ESRI's Community Analyst reports the median household income within ¼ mile is \$51,762, and within ½ mile is \$53,722. The percent White within ¼ mile is 78.9%, and percent Hispanic is 15.8%. Within

½ mile, percent White is 82.5%, and 10.8% Hispanic. The percent of owner occupied housing units within ¼ mile is 47.2% and 52.0% within ½ mile.

King Community Park is substantially larger at 17 acres, and its amenities drastically outnumber those at East Butte Heritage Park. King City Community Park has the amenities of a playground, restroom, picnicking, basketball, tennis, ADA parking, ADA restroom, and ADA trails. According to ESRI's Community Analyst, the median household income within ¼ mile is \$55,273, and is \$48,676 within ½ mile. The percent White and percent Hispanic are 79.6% White and 9.9% Hispanic within ¼ mile, and 80.7% White and 16.1% Hispanic within ½ mile. The percent of owner occupied housing units within ¼ of King City Community Park is 87.6%, and is 60.2% within ½ mile.

One can easily see a large discrepancy when comparing the acreage and amenities of King City Community Park and East Butte Heritage Park. King City Community Park is over five and a half times the size, and has eight more amenity features. My experience at East Butte consisted of spending more time looking for parking than anything else. King City Community Park, on the other hand, had its own parking lot, and I spent more time walking around surveying all its features. The differences between what the two offer are as apparent as night and day, but the communities they serve seem, at first, to be quite similar. The median household incomes within ¼ mile and ½ mile of the two parks are on par with each other. Also, the percent White within ¼ mile and ½ mile are nearly

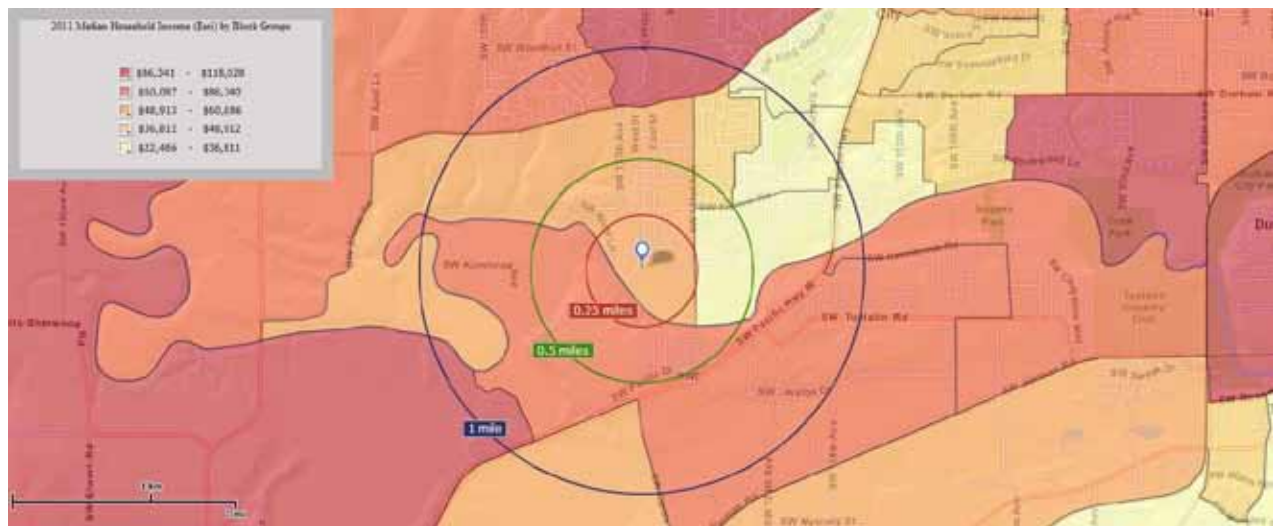
identical. The percent Hispanic of the two parks appear to mirror each other with a larger percent live within $\frac{1}{4}$ mile of East Butte than live within $\frac{1}{2}$ mile, and a larger percentage live within $\frac{1}{2}$ mile of King City than live within $\frac{1}{4}$ mile. Overall, the median income and the race/ethnic demographics are nearly the same within $\frac{1}{2}$ mile of the two parks. One piece of data, however, shows a strong correlation to equitable park access. Within $\frac{1}{4}$ mile of King City Community Park, nearly nine out of ten homes are occupied by their owner. The owner occupied housing unit percentage is not even 50% within $\frac{1}{4}$ mile of East Butte Heritage park. When two Parks that are only roughly three miles apart, have nearly the same median income, the same percent White, yet differ in their equity of access based on acreage and amount of amenities, what can be the cause?

References:

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Median Income Map for East Butte Heritage Park.



Median Income Map for King City Community Park.

Analysis of Magnolia Park

by Stephen P. Kyle

Magnolia Park is located in Hillsboro off of Cornell Road. Figure 1 shows of the household income between \$60,000-\$74,999, (ESRI Community Analyst). The figure shows the household income demographic from a range of 0.25 to 0.50 to 1.0 mile radius. According to the 2011 Household Income measured in ESRI, projected from the 2010 Census, the median household income is \$53,795, in a 0.25 mile radius. The median household income in the 0.50 mile and 1.0 mile radius is similar. In a 0.25 mile, 0.50 mile, and 1.0 mile radius, there seems to be a significant population of families with income between \$60,000 and \$74,999. The impression given from the park, it was well maintained and situated between different neighborhood blocks. The neighborhood gives the impression of a typical middle class neighborhood where the lawns are well trimmed, and the houses are in good condition. Chart 1 lists the racial profile around the park measured in ESRI, the two major racial groups that lived in a 0.25 mile radius are whites and asian-americans. The other two major racial groups measured are Hispanics and African-Americans. With the demographic profile of Magnolia park, a clear majority of each group lives within 0.25 miles of the park. Hispanics constitute nearly 9.60% of the population. However, the population of African-Americans is small relative to the population of Asians and Hispanics. The population of African-Americans in a 0.25 mile radius is 2.20%. The impression from this park was the feel of a

neighborhood park with the proper amenities. Figure 2 shows a photograph of the park on a weekend afternoon. The photograph also shows a general impression of the park. However, the park is off a major road and more accessible to the people living within the boundaries in Magnolia Park.

Analysis of Orenco Elementary School

The analysis of the Orenco Elementary School located in Hillsboro shows similar results to Magnolia Park. In a 0.25 mile radius of the school the median family income was determined to be \$71,740. Figure 3 shows that demographically there is a significant concentration of families with household incomes between \$60,000 to \$74,999. The park is situated in an older neighborhood but is actually blocks from a homeowner association community. The community itself is well maintained with its own private residential parks and so is the park for the elementary school. Chart 2 lists the racial profile of the park within a 0.25 mile radius. The two major racial groups in a 0.25 mile radius are whites and Asian-Americans. The population of Whites account for 74.30% while for Asian they account 16% of the population living in a 0.25 mile radius of Orenco Elementary School. The two other racial groups which are Hispanics and African-Americans have similar population numbers to that of Magnolia Park. It would seem that they would have access to the park if they lived within 0.25 miles of the park. Although, the park is part of the Elementary School, there is only one public bus route near the school. But the park is situated behind a neighborhood hidden from the main road. Those who would have

regular access to the park would have to live within 0.25 to 1.0 miles.:

A conclusion reached from these two parks is that the household income is a factor in the quality of the parks. In the 0.25-0.50-1.0 mile radius of both parks the median household income was close to and exceeded 60,000 dollars. The two parks also had the proper amenities and looked very well maintained. However, even though the parks might be considered a public park they more functioned as residential parks. The parks were more accessible for people who live in the neighborhood. CLF and Metro wanted these parks to accessible to the public by public transportation. There are no bus stops directly near the parks, in fact the locations of these parks are well situated within the neighborhoods. From my own experience these places took nearly 20 to 30 minutes to drive to, which is problematic as direct access should be defined for people to access the park within a 0.25 miles. The parks are really owned and accessed by the neighborhood and functions as their own private park which conflicts with the very notion of public parks.

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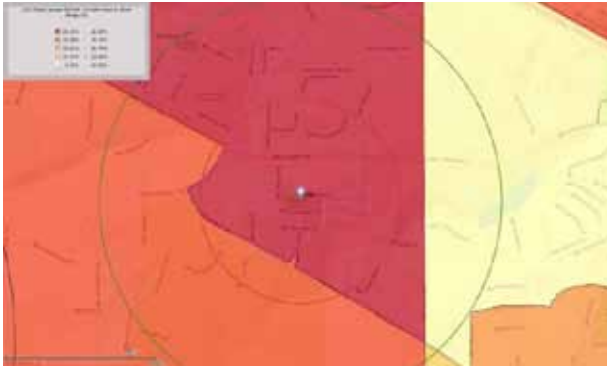


Figure 1: Median Income Map for Magnolia Park, 0.25 mile radius.



Figure 2: Median Income Map for Orenco Elementary School, 0.25 mile radius.

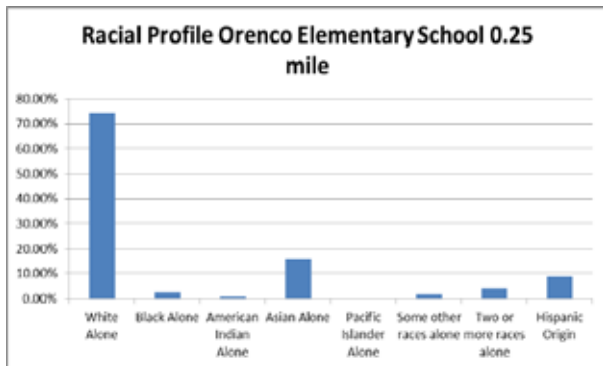


Chart 1: Racial Profile of Magnolia Park, 0.25 mile radius.

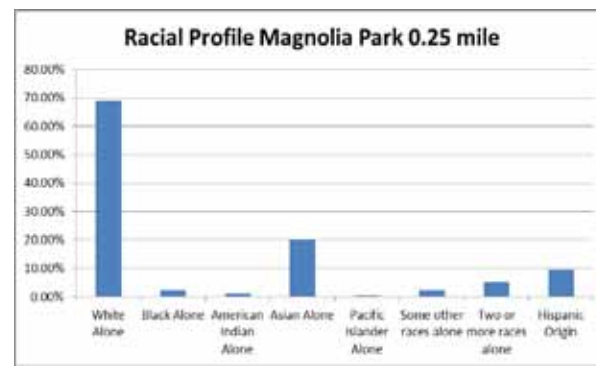


Chart 2: Racial Profile of Orenco Elementary School.



Figure 2: Magnolia Park on a weekend afternoon.



Figure 4: Orenco Elementary School on a weekend afternoon.

Parks and Equity Report: McCoy Park and Pittman HydroPark

by Jenna Knobloch

McCoy Park is in the center of the New Columbia housing development, which was built in 2006 in the Portsmouth neighborhood in north Portland. The area, formally called Columbia Villa, was originally built to house US army ship yard workers during WW II. After the war the area became low income housing, and fell into disrepair. In 1993 the Housing Authority of Portland applied for federal funding that was set aside for the reconstruction of public housing units. The project ended up totally \$151 million dollars, including completely rebuilt housing, an elementary school, a Boys and Girls club, and the reconstruction of a city-owned area community center. The park was completed in 2006 (“The history of New Columbia”).

The demographic information from ESRI Community Analyst is indicative of a close proximity to a public housing project. The population of the surrounding area is young, racial or ethnic minority, and low income.

- 46% of the population is under 25
- 50% of the population identifies as a racial minority or Hispanic
- Only 14.6% of the population has an advanced degree
- 48% of households make less than \$34,000 per year
- 73.4% make under \$50,000

The numbers show that where the housing development ends, the demographic difference between one half mile and one mile is far more substantial than the difference between one third mile and one half mile for most of the statistics examined. The site visit indicated that McCoy is notice-

ably accessible, with multiple sidewalks to the park as well as surrounding streets where the traffic is relatively slow. The park was bustling with people, which also suggests accessibility. McCoy is highly developed with many recreational features, such as basketball, a jungle gym, picnic tables and a community garden. There is one other park within one third of a mile, one park between one third and one half of a mile away, and three parks between one half mile and 1 mile away.

Interstate, located over several large water tanks that serve the Swan Island industrial area. The land area used to have apartments until the 1960’s when they were torn down. The lots above the water tanks were vacant land until the park was built. The park was planned by the Water Bureau with input from several neighborhood meetings. The park was completed in 2009.

The demographics from ESRI suggests that, compared to McCoy park, a more affluent and less diverse population surrounds Pittman HydroPark.

- The largest age group are those 25-44 at 41.7 %, the median age is 35
- 82% of the population is white
- 49.7% of the households make over \$50,000

The park is along a wall blocking the noise from the trucks going to and from Swan Island along Going street. It has a mulch path, as well as picnic tables, benches, and fruit trees. There is also a pedestrian bridge for going over the wall and Going street to the neighborhood on the other side. The park is located within a third of mile of an elementary school park, within a half mile of four other parks, and has 2 other parks between a half a mile and a mile away.

There is a surprising difference in overall crime rates between the area surrounding Pittman and the area surrounding McCoy. The New Columbia housing development has been controversial in light of gang shootings in recent years, one shooting in 2011

killed 18 year old Shalamar Edmond on the edge of McCoy park (Duin 2012). Critics argue the expensive redevelopment did nothing to address the cycle of poverty and crime (Duin 2012). However in light of the negative press surrounding the shootings New Columbia resident Di’Jhena Thomas argues that gang shootings in Portland happen in many places, not just New Columbia, and the development has had much success with its youth outreach programs (Thomas 2012). The ESRI crime map, showing relatively low crime rates in the McCoy park are, suggests that the issue is far from black and white.

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General map McCoy Park (upper left) and Pittman Hydro Park (lower right).



Percent Unemployed 2010, (ESRI Community Analyst).



McCoy Park.



Per Capita Income 2010, (ESRI Community Analyst).



Percent Hispanic 2010, (ESRI Community Analyst).



Pittman Addition HydroPark.



Percent African-American 2010, (ESRI Community Analyst).

Demographic and Income Analysis— Speer Meadow Waye

by Jonah Horn

This portion of the report is focused on the environment surrounding Speer Meadow Waye Park in the Beaverton area. I will be using all the same sources and map reports as listed in the beginning of the previous analysis on Banister Creek Park. I will once again use three surrounding rings for parameters of gauging accessibility as well as demographic and income variables within those rings.

This report provides first glimpse at 2010 census data and includes total population, population over the age of 18, and population by race/Hispanic origin. Key points within this profile are the following:

The 2010 Census Summary Profile reports that, statistically, the percentage of race, population by age, households with children, and household size stay relatively unchanged. Race percentages range from 80.1-85.4% white, 6.6-7.4% Asian, 8.0-12.5% other races, and 5.1-10.6% Hispanic. The population demographic as it is concerned is highest in White residents the closer to the park and decreases only 5.3% at the 1 mile radius mark. All other races increase slightly at 0.5 and 1-mile radius markers. Age groupings are categorized a little different in this analysis compared to the previous park because each age bracket was comparable with little change in percentages overall, for instance there is only a range difference of 3.4% between ages 0-69 years old and even lower between 0-54 years old with a difference of 1.8% in

4-year age increments. Overall, this particular report shows that all races including people of Hispanic origin have lower rates of access closest to the park except for the white population as it is highest closest to the park. This area is predominantly White with a small mix of Asian and Hispanic origin, age is evenly distributed and roughly 30% of households have children.

Having visited this park I would like to note that this park is easily accessible by vehicle due to the ease of parking from two different access points. Park access is accessible for the ADA and offers picnic sitting adjacent to the playground structure. Also on site is a soccer/football field as well as an on-site portable restroom. According to the demographic data, this park is not necessarily utilized the same as a park within a newly developed subdivision. The soccer/football field is utilized by park guests from farther distances away than a traditional neighborhood park due to sports league affiliations. According to a Tualatin Hills Parks & Recreation document dated fall of 2011 this park was part of a 2008 bond measure and was donated by Nancy and Homer Speer and the ribbon-cutting ceremony took place in August of 2008.

2010 U.S. Census Bureau Demographic and Income Profile

This report summarizes Census 2010, current-year estimates, and five-year forecasts of household data to reveal trends in demographics and income (see Tables 1 to 3 below). After researching this report, race and age forecasts are not much different in the five-year forecast compared to the current data above derived from the 2010 U.S. Census Bureau Summary

Profile so I did not note race or age statistics within this portion of the report.

The income statistics within the three radius markers of 0.3, 0.5, and 1.0 mile is stable throughout with a median household income range of 63,914 to 81,990 between all three rings. Median household income is highest within the 0.3 radius around the park and decreases outwards. Taking into consideration that there is a population change of nearly 16,000 people between the first and last radius markers (0.3-1.0 miles) the change in income is not very dynamic although this may be influenced by lower income housing and apartment dwellers.

References

ESRI Data & Maps. (2012). Redlands, CA: Environmental Systems Research Institute.

0.3 mile radius around Speer Meadow Way

- 2010 population: 2,322 people
- % of population by age:
 - 0-19 years old: 25.0%
 - 20-39 years old: 21.3%
 - 40-59 years old: 33.6%
 - 60+ year old: 19.6%
- % households w/children: 33.1%
- Race:
 - White: 85.4%
 - Asian: 6.6%
 - Hispanic: 5.1%
 - Black, Native American, Pacific Islander, other, two or more: 8.0%
- Average family size: 2.63 people

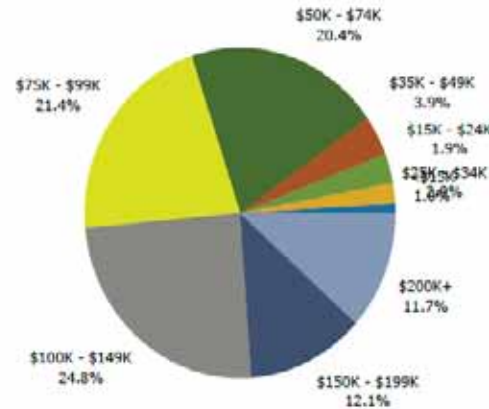
0.5 mile radius

- 2010 Population: 5,100 people
- % of population by age:
 - 0-19 years old: 23.8%
 - 20-39 years old: 25.8%
 - 40-59 years old: 31.2%
 - 60+ years old: 19.2%
- % of household w/children: 29.4%
- Race:
 - White: 82.7%
 - Asian: 6.6%
 - Hispanic: 8.5%
 - Black, Native American, Pacific Islander, other, two or more: 10.7%
- Average household size: 2.46 people

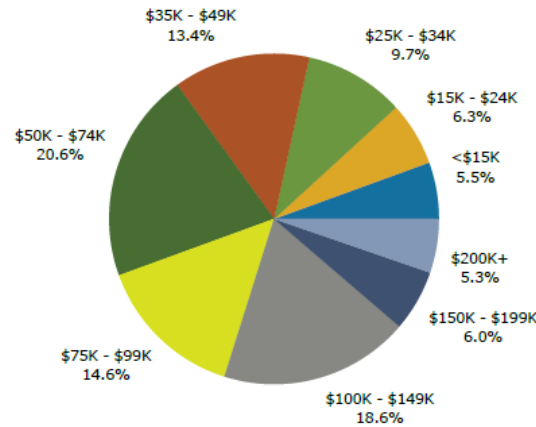
1.0 mile radius

- 2010 Population: 18,547 people
- % of population by age:
 - 0-19 years old: 24.8%
 - 20-39 years old: 26.1%
 - 40-59 years old: 29.6%
 - 60+ years old: 19.4%
- % of household w/children: 31.2%
- Race:
 - White: 80.1%
 - Asian: 7.4%
 - Hispanic: 10.6%
 - Black, Native American, Pacific Islander, other, two or more: 12.5%
- Average household size: 2.45 people

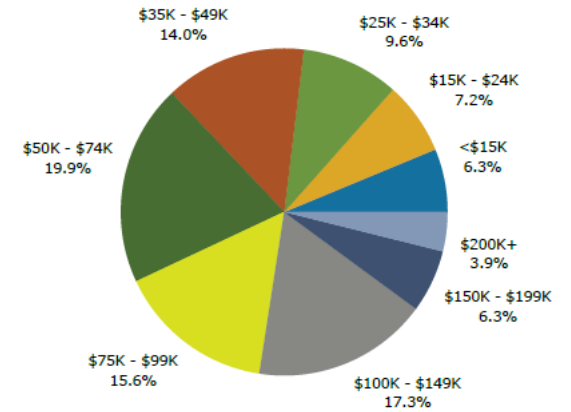
2011 Household Income by radius around Speer Meadow Way Park



0.3 mile radius household income values.



0.5 mile radius household income values.



1.0 mile radius household income values.



Playground and picnic area at Speer Meadow Way.



Median Income Map of Speer Meadow Way.

2010 U.S. Census Bureau Summary Profile.

Parks & Equity Report

by Henrich Biorn

Tanner Springs Park

NW 10th Avenue & Marshall Street

The park serves access to Whites primarily, with 83.6%. Of the minorities, Asians are the most represented with 6.2%, even more so than Hispanics at 5.2%.

Median household incomes close by the park are fairly high, however, they drop drastically the farther away from the park they get; \$39,419 in the 0.25 miles radius, \$29,496 in the 0.5 miles radius, and \$24,529 in the 1-mile radius. Per capita incomes, on the other hand, remains high; \$45,084, \$36,948, and \$29,924 for 0.25 mi, 0.5 mi, and 1 mile radii respectively.

One explanation to this might be the fact that Tanner Springs Park is located in the heart of the Pearl neighborhood of Portland, one of the most expensive places to live in entire Portland. There are a lot of young singles living here, resulting in a high per capita income.

There are very few children living close to Tanner Springs, which might be an explanation to why there is no playground in the park. In this area, every third person is between the age of 25-34, and half of the population is between 25-44. This is a park for the young, successful, fairly wealthy renters of the adjacent high-rise apartments.

Hazeltine Park

5416 SE Flavel Drive

The park serves access to whites primarily, with 80.6%. Hispanics are prevalent with 10.2% as well as Asians at 6.3%. There are very few blacks in proximity to this park.

Median incomes are fairly high and consistent throughout all radii of the park, and in fact, the median income increases the further away from the park one gets; \$40,800 in the 0.25 mi radius, \$41,436 in the 0.5 mi radius, and \$47,164 in the 1-mile radius. Per capita incomes show the opposite; \$19,915, \$20,517, and \$22,521 for 0.25 mi, 0.5 mi, and 1 mile radii respectively.

The Hazeltine Park area has an overall higher median household income, but significantly lower per capita income. Its location differs from Tanner Springs' in that it is in more of a suburban neighborhood with a homogeneous population primarily consisting of families, not singles.

Age dispersal is spread more evenly in this area around Hazeltine Park, and there are many more kids here than in Tanner Springs. Yet, there is no playground.

References

ESRI Data & Maps. (2012). Redlands, CA: Environmental Systems Research Institute



Median Age Map (ESRI, 2010)



Median Income Map (ESRI, 2010)



White Population Map (ESRI, 2010)

Werbin Property and Rose City Park Elementary School Equity Analysis

by Andrew Wyatt

The parks chosen for this analysis are the Werbin Property and Rose City Park Elementary. These two parks are both located in NE Portland a little less than a mile and half apart, with the Werbin property laying within the boundaries of the Cully neighborhood, and the elementary school park to the south in the Rose City Park neighborhood. Since our project is focused on accessibility and equity, these parks were selected both for an examination of their attributes and amenities, and for the socioeconomic makeup of their surrounding communities. The analysis and questions that arise as a result will be focused on those two issues. Although these characteristics may seem complementary, with equity perhaps even impossible to approach independently, they require a fundamentally different approach. Accessibility judgments can be made with detachment. Identifying the proximity or location of any group or individual to a resource, and determining the relative ease or difficulty with which they can interact with it may be a value-free measure. The concept of equity is subjective, as any topic dealing with fairness and justice always is, with many interpretations, any of which can compete with the others. Access can provide some measure of equity.

When judgments are made and conclusions are reached regarding the fairness of distribution of any public good--especially something with the well-recognized emotional and physi-

cal health benefits of parks--there must be some injection of political and moral intent; even if it is only the tacit understanding that the conclusions reached represent the aspirations we have for the wellbeing of different segments of a community. Our determinations involving equity make claims not only to what the world is, but what we wish it to be. It is a description of the present colored by what we consider our moral and ethical views, and a vision of the future shaped and molded by these same values. By examining not only who has access to what, but who should have access to what and why, we reveal as much about ourselves as we do about the subject matter, with our agenda and sensibilities laid bare. For the purposes of this write up, the aims of examining equity may be considered to be from the viewpoint that people are happiest in a socially just community where everyone is treated fairly, and that the role of the public sector is to find creative ways to redistribute access to public resources to those who have been traditionally denied their benefit in a compensatory manner.

Both parks discussed have characteristics that limit their current, but not necessarily future utility. The Werbin property is, as of now, undeveloped. It was obtained by the Portland Parks and Recreation department several years ago with part of the City's share of Metro's 2006 Natural Areas bond measure, and is presently under lease to its former owners. However, this lease is up in 2013, and a Project Advisory Committee has been selected to begin a master park plan to guide the development of this fu-

ture park space using input from the neighborhood. Even though it doesn't currently provide any park amenities, it is worth examining for the potential it holds to help meet the needs of the neighborhood, and to get a chance to look at some of the more unique attributes that the Cully neighborhood has. Rose City Park Elementary doesn't currently allow open access to its facilities during the day, and requires preauthorization for use by groups whenever school is not in session. This restriction and the limits it places on the parks benefits to the neighborhood will be addressed.

Questions present themselves immediately upon beginning analysis. How do you examine a single park in isolation and work towards reaching any conclusions about the fairness or justice with which different parts of its population, having varying demographic attributes, are distributed around it? How would groups that were at a distinct disadvantage and in need of additional access that could compensate for a discriminatory distribution, be identified and highlighted without direct comparison to a whole? Is a distribution equitable if the makeup of the population in the surrounding area can be ascertained to be the same as the regional population's demographic distribution? Defining equity without regard to socioeconomic status may offer equality of opportunity, but leaves in place the inequalities of the existing social structure (Talon, 2007). It is, however, a place to start.

Park congestion ratios can be examined

to try to determine what benefit people living within a reasonable proximity of a specific park could hope to get out of it regardless of what their demographic characteristics are. This concept has been used in order to try to produce a per park metric. A service area that has high levels of park pressure implies a dearth of park resources relative to the potential demand in that particular area (Sister). The measure could then be extended to comparison with other city parks to determine which parks were most congested, and if any group was subjected to higher congestion rates than others. Here, it is simply a way to try to determine if a park is meeting a substantial part of anyone's local needs.

As a baseline standard, the historical recommendation of the National Recreation and Parks Association of 6 to 10 park acres per 1,000 residents was used. This is roughly 100 to 167 persons per park acre. The number of persons who reside close to the park within certain geographic parameters was then determined using ESRI's Community Analyst tool. Three rings were created around each park location at distances of one quarter, one half and one full mile to act as buffers. These distances help define accessibility boundaries. Measuring buffer distances from a polygon that adhered to the parks boundaries would have been optimal, but since the size of both parks is small in comparison with the square acreage contained within the buffer rings, only a small percentage of buffer area was displaced by park acreage relative to its total size. A ring with a radius of quarter mile has an area of approximately 125 acres, while a ring with

a half mile radius will enclose a 500 acre area. Using rings of gradually expanding radii from a central focal point is a good measure of walkability and ease of access to the park.

The one mile radius is included to assist in determining changes in demographic makeup for later analysis. Distances of up to half a mile from the park are most likely the outer boundary of what most people would be willing to walk to utilize it, with a quarter mile radius providing a reasonable distance for parents taking children and toddlers to a park for their everyday activity. For children a little older, a quarter mile would also seem to be the maximum distance acceptable to parents for an unsupervised trip to a play area (Wolch, Wilson, & Fehrenbach, 2002).

Rose City Park ES is 1.83 acres in size and the Werbin Property is 2.43 acres. According to data from ESRI's demographic and income profile reports, there are 1,616 and 1,454 residents within the quarter mile ring for the Werbin property and Rose City Park ES (RCPES) respectively. This means that RCPES, even if it was accessible at all hours during the day, would provide barely 20% of lower bound of the recommendation to the individuals and families most likely to use it. Werbin will eventually provide only 25.07% of the 6 acre lower bound. When the geographic boundary is extended out to a half mile RCPES contributes 4.97%, and Werbin 6.50% of the minimum recommendation. At either level, both parks fall far short of contributing a significant portion of the acreage needed for either neighborhood to qualify as be-

ing self-sufficient for accessible park space.

Werbin residents have no other option for park access within the half mile radius ring surrounding the proposed park site, and the Cully neighborhood as a whole doesn't contain another public park other than Sacajawea Park. Residents with the half mile ring surrounding RCPES fare much better. Their additional access choices include Normandale Park and Rose City Park, which together provides almost 30 additional acres. The lower bound is nearly reached when these parks are used to calculate the ratio of park acres per 1,000 population inside RCPES's half mile ring. The walkable access provided by those two additional parks brings the ratio up to over 5 acres per 1,000 population. ESRI's population trend forecasts for 2016 have RCPES's half mile radius population increasing by 512 residents, or 8.5%. Werbin is projected add 447 residents to its half mile radius, or 7.3% of its current population. This potentially increased density could further exacerbate the usage pressure on both parks if no additional acreage is added with that timeframe. The percentage of children age 19 or younger is projected to decrease slightly from 28.5% in 2010 to 27.2% in 2015 in the quarter mile surrounding Werbin. The percentage of children 19 or younger for the same radius surrounding RCPES will remain effectively the same. Fortunately, this increase in density won't be composed of a disproportionate number of young people who have fewer transportation options, and are more dependent on walking as a means

of accessing any park.

Some of the demographic and income descriptions that follow use data from the 2005-2009 American Community Survey (ACS) 5 year estimates for both median and per capita income directly, and ESRI's demographic and income reports, as well as their trend projections. The ACS Data that includes all levels of geography down to block groups is only available as a five-year average. The small ACS sample sizes affect data reporting and produce much larger sampling errors. The coefficient of variation is a measure of relative error in the estimate. It measures the amount of sampling error in the estimate relative to the size of the estimate itself. A large error in a small estimate can discount the data. The coefficient of variation of the ACS data for the block groups surrounding both parks was of a sufficiently high enough quality to qualify for use in analysis. No block group exceeded 30% for either measure. The data for per capita income was better quality than the median income estimates, but many groups still exceeded the 12% CV threshold ESRI has set to categorize high quality data. They advise using caution when including this data in any analysis. ESRI's forecasts are developed from Census 2000 and 2010 counts and geography, ACS data, and a mixture of administrative records such as US Postal Service deliveries, and various private sources.

The Werbin property is located in one of Portland's most diverse neighborhoods, and one of the few in Portland not dominated by whites. It is also one of its least advantaged. The

ethnic and income profile paint a picture of an area that contains groups that have traditionally faced discrimination, environmental injustice and social marginalization. The white population within the quarter mile radius is less than 60%, and African Americans constitute 18.7% of the population, with the next largest group being Hispanics at 15.8%, followed by Asians at 8%. 7.8% of the population identified as some other race. The property lies along what could be considered a transitional boundary for income groups, but is certainly low income. The block groups to the north that lie within the half mile radius ring have median household incomes of \$7,386 - \$35,599 by ACS estimates. ACS per capita income falls within the \$10,041 - \$20,527 range. Just to the southeast, the block groups median household income rises to \$52,956 - \$71,118 and per capita incomes increase to \$20,528 - \$24,274 and \$10,041 - \$20,527. Per capita income numbers indicate that more than two people may be working in many households in order to achieve the median household (HH) income numbers. ESRI reports that the median household income for the half mile radius is \$42,760, with 14.9% of that population having a median HH income below \$15,000, which is just a few hundred dollars away for the Census Bureau's measure of the poverty level for a two person family. 40% of the half mile population is below \$35,000 in median income. The Census Bureau reports that the percentage of persons below poverty level in Oregon for 2006-2010 is 14.0%. So, although this is a low income neighborhood, this number

is not significantly above the state average for the worst levels of poverty. The poverty threshold does seem to be exceedingly low, and trying to run a household in Portland on less than \$40,000 can easily be considered challenging.

The projection for the ethnic mix of the population within all three area rings in ESRI's trend analysis is slated to remain essentially the same in 2016. But, park space and natural areas generally drive up property values over the long run. It remains to be seen if the development of the Werbin property into a park will lure higher income residents who will be willing to pay more and increase prices, possibly displacing some of the low income residents and people of color for whose benefit this park site was selected. There are several other privately owned parcels of open space in fairly close proximity to this one that could potentially be acquired and converted to park space. This might provide enough additional area for the city to consider bringing on partners for a higher density low income housing development in the area that could help prevent real estate price inflation, and future displacement.

The Werbin Planning Committee has welcomed neighborhood input on what the parks amenity makeup should be, and the demographic makeup of the surrounding community is being taken into account during the design process. Part of park equity is having a park designed for the way people in the neighborhood wish to utilize it. For instance, the percentage of children under 18 is 5% higher than the state average of 22%, so there may be a call for an emphasis on

playgrounds. Since this is a low income area, residents may not have an opportunity to eat out very much, and might want additional picnic tables so they can enjoy meals outside during the summer months. There is a great opportunity here to provide a supply of capital improvements that will meet actual determined demand.

The Rose City Park neighborhood seems to be lacking in socioeconomic and demographic diversity. It is a low density, middle to upper middle class neighborhood, consisting overwhelmingly of whites who own their homes. The area becomes whiter and wealthier as proximity to the school increases. The population within the one mile buffer is 83.4% white with a median income of \$50,561, according to ESRI data, and both numbers increase to 86.5% and \$61,479 respectively as the area around the school is whittled down to a quarter mile range. The change in median HH income represents what could be considered a substantial increase of 21.6%. It would difficult to ascertain what part of that rise represents an expansion of willingness to pay for an increase in proximity to an educational facility, and what part is an additional willingness to pay for whatever endowment of park services RCPES provides.

There are issues that occur in the area that may possibly color the proposed treatment that any inequity issues in the neighborhood might receive. ESRI trend forecasts predict that median HH income for the quarter mile boundary will increase at an annual percentage rate of just over 4.5% between 2011 and 2016, resulting in a cumulative change of 25.6%. The U.S. on the whole will see increases for this metric of

roughly only 2.8% a year. When all residents within the one mile boundary are included, the cumulative predicted increase falls to 19.4%, indicating that residents closer to the school will see higher increases in their income than residents further out. The lack of any significant representation of people or groups that have traditionally face discrimination or marginalization and the disparity in income are only exacerbated over time. Additionally, the Rose City Park neighborhood took the number nine spot on a 2008 Forbes list of America's most overpriced zip codes. Forbes examined what residents were paying to own a home relative to what they could pay to rent a similar property in the area. Comparing mortgage payments to the value of a similar home on the rental market revealed the price to buy was 26.6 times higher for the Rose City Park zip code (Woolsey, 2008). This number is used in a similar fashion to the way a price to earnings ratio is used to gain insight into a stock valuation. A high ratio signifies an expectation of outsized returns and the possibility of the asset being overvalued, since the owner is currently getting a low return based on the costs, and paying a huge premium to live in an area relative to the cost of renting a similar property. Granted this was at the height of the housing boom, and that ratio may now be smaller. It still provides some insight into how the area is perceived outside of an academic context, and to what extent people view it as an attractive place to make a home without any further endowment of park space.

The question arises: does the demographic and financial composition of this community warrant any intervention from public agencies in order to ameliorate any existing inequities in park access, or do they already have the social capital find a way to make progress on that front without assistance? What priority should be given to finding a way to increase the current resident's ability to access and utilize the schools park space?

The equity analysis here could focus on the inequity that is created by the amenities offered at the school park area, and the hours of its availability to the nearby residents. Since this space is part of an elementary school, it has been built to cater to children. It's difficult to imagine single adults or couples without children choosing to spend too much of their recreational time here without feeling they are infringing or out of place in an area obviously meant for young people or families. Since the residents in the surrounding quarter and half mile rings don't have any particular disparity in the ratio of children to adults, this characteristic implies that the majority of the residents it serves probably wouldn't use it even if it was open to them at all times during the day. Assuming that this would be an attractive space for children age 14 and under, and using ESRI's data for the percentage of total residents within a half mile radius, we see that this park is really a major asset to perhaps 997 of 6,093 community members who reside within that boundary. The park is set up to serve essentially 16% of the population within the accessible radius. If it were decided

that this school—or any of the other elementary schools on the project list— should find a way to increase its accessibility to the neighborhood, should there be changes to the prevailing amenity structure as well?

No matter how large a park is or what set of amenities it has, nobody wants to visit a park that they don't feel safe in. The ESRI 2010 crime index contains statistics about major categories of personal and property crime. It includes information about murder, rape, robbery, assault, burglary, and motor vehicle theft. Their total crime index establishes that the Werbin property is in one of the lowest crime areas in Northeast Portland, even though it is both low income and home to large ethnic populations, which are two characteristics that people often associate with higher crime levels. Anecdotally, when this site was visited, it had a very peaceful friendly feel to it, and seemed like the ideal location to install a park. It remains to be seen whether or not the new park space will be a draw for some of the higher level of criminal activity that exists to the East along part of the NE 33rd Avenue corridor. The block group housing RCPES is in a higher total crime index range of 163-271, and four of the surrounding block groups fall into the highest index range provided of 408-536. On the ground the park area feels very safe, and there is no outward sign of any suspicious or dangerous activity that might cause anyone to feel fearful accessing it. Both parks seem to offer an equitable opportunity for access when as-

sessed from a safety viewpoint.

Neither park has any natural or artificial barriers that would force anyone to take a winding route that would skew the travel measurement egregiously, or otherwise prevent access from any particular direction. Both are, or will be, reliant on street parking within their adjacent neighborhoods for users traveling by car. Both parks are surrounded by streets that can accommodate additional parked vehicles in addition to local residents who either choose or must park on the street.

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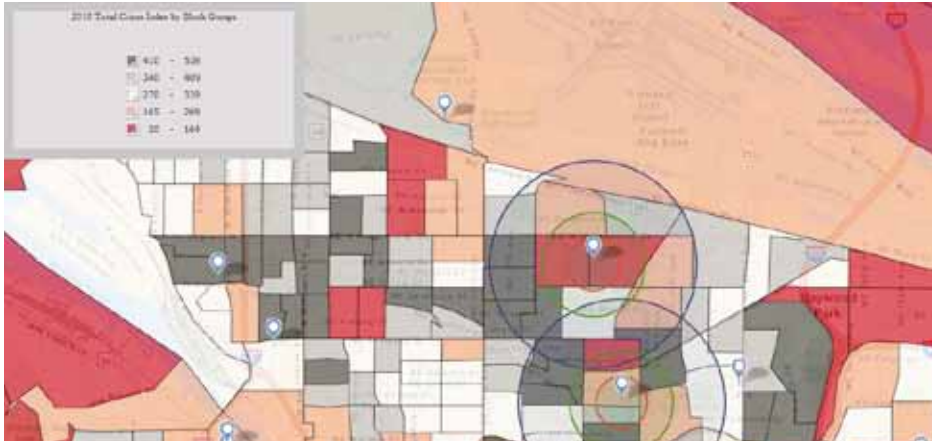
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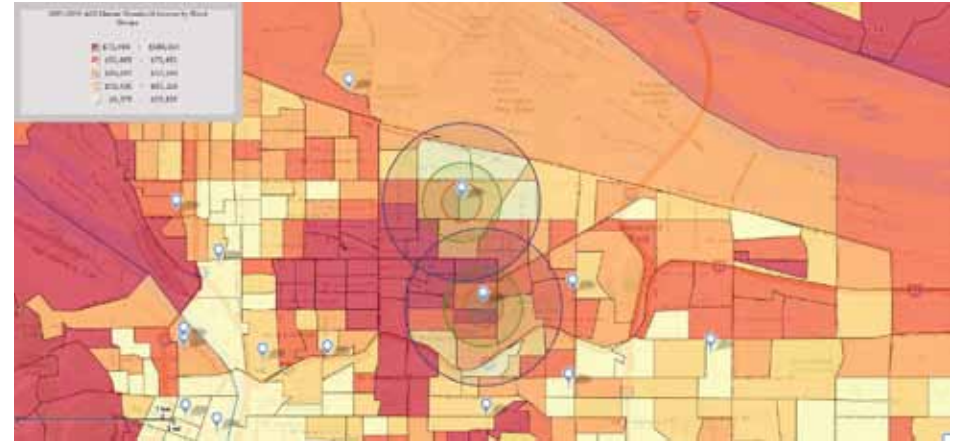
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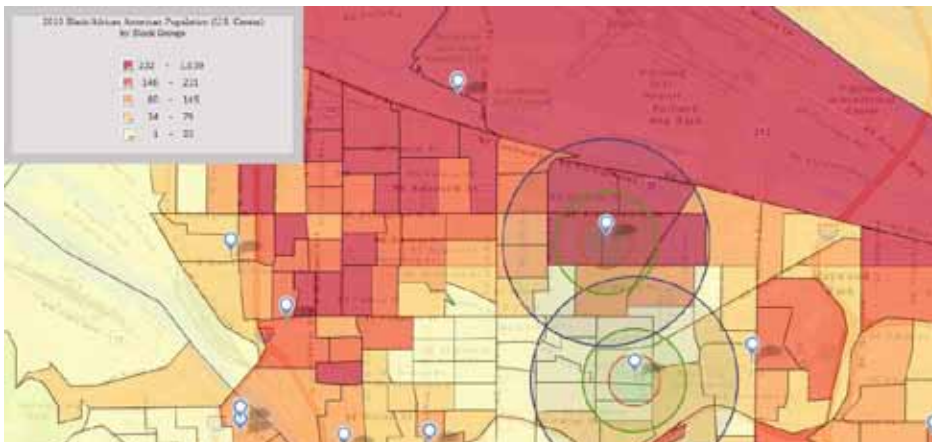
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Total Crime Index Map (ESRI, 2010)



Median Household Income Map (ESRI, 2010)



African American Population Map (ESRI, 2010)



Per Capita Income Map (ESRI, 2010)

Characteristics of West Entry Park, Washington County Courthouse Park, and Hillsboro Civic Center and Surrounding Community

by James Bedell

The Three parks that will be discussed in this paper are the Hillsboro Civic Center, Washington County Courthouse, and West Entry. The reasoning behind three parks being discussed is that the Hillsboro Civic Center and the Washington County Courthouse are right across the street from each other. This causes the community to use the two parks as one park. The other reason is that the West Entry is not a park but rather a green space that is between two high traffic roads, with the main purpose of the space to hold a sign denoting the entrance to the city of Hillsboro.

Hillsboro Civic Center on the other hand has an open space that is outside for public events with built in auditorium style seating that also function as steps. The park also has a water play feature which is active during summer months and public restrooms. Washington County Courthouse is an open green space with walk ways and picnic benches. The walk ways have benches for sitting throughout the park. In the early spring running through the fall Hillsboro Civic Center and Washington County Courthouse hold the Hillsboro farms market on Saturdays.

As discussed in the first paragraph West entry is surrounded by two busy roads Baseline St. and Oak St. These two roads have a traffic count profile of 31,000 vehicles daily (Market Plan-

ning Solutions, 2011) then the roads surrounding Oak St. and Baseline St. quickly drop off into the thousands instead of tens of thousands.

The lowest traffic count being 1,133 vehicles per day this occurs only 0.04 miles away which shows that the area quickly changes into a residential or low density area. These counts then show that the roads surrounding the park are major arteries for traffic in the Hillsboro region (Market Planning Solutions, 2011).

For Washington County Courthouse and Hillsboro Civic center the traffic profile within a 0.25 miles is the inverse of west enter with lower traffic counts near these recreation centers being lower though on the south side of the Hillsboro Civic center backs up to Baseline St. which is the highest traffic road in the area. The next highest is just to the north with a traffic count of approximately 10,000 per day. The other roads that butt up to these areas though have traffic daily counts in the 5,000 to 6,000 range. This shows that these parks are in a less dangerous area for pedestrians (Market Planning Solutions, 2011).

The population surrounding the park in a radius of 0.25 miles shows that there are only 165 individuals living in this area, but this data comes from the American Community Survey 2005-2009 and has a low reliability rating. From my observations of the area though I find that it is predominantly business or industrial and can be seen in the map a large portion of that radius is taken up with a cemetery. This low density within a 0.3 miles shows that there is no access to this green space since there is only a small community that could utilize this green

space and those beyond 0.25 miles are considered not to have accesses because to have access the community would need to be within a .25 miles (Wolch, et al. 2002). Though there is a bus line that runs by this park with a stop less than a block away this though does not count as credible access. For Washington County Courthouse and Hillsboro Civic center the population is higher with a combined population of 3,426 (American Community Survey, 2005) that live within the 0.25 mile radius. This shows that these parks are more in a residential area, but from observations that I have made it is a mixture of commercial and government builds with the northern sections being the residential areas. This means that there is a least a good sized portion of the downtown Hillsboro population that can utilize these recreation structures.

The median value for a home in this region in 2010 was \$196,875 and the median rent is \$544 in this 0.3 mile radius. The median house hold income was 53,506. This data shows that the housing market is not priced beyond what community member could afford, especially since housing prices and income have not changed that much from the 2000 census data. The median age for this area though is higher at 33.5 with only 19.5% being the age below the age of 15 (US Census, 2010). So the vast majority of the population is above the age in which they could drive or get maximum enjoyment out of the park. Vast majority of the population is above the age in which they could get maximum enjoyment out of the park.

The median age for Washington County Courthouse and Hillsboro Civic center is 32.5

with 16.8% being below the age of 15. This makes the community to be older with fewer children that would use these structures for recreation, and is on the decline from 2000 where the percentage of children below the age of 15 was 17.1% (US Census, 2010). The median value for a home is \$204,878 and the median household income is \$50,329. These show that the population is not being moved out since income is staying right with property value and has not changed drastically from the 2000 census data.

This area is a more diverse community than the outlying areas that surround it just a mile away. Figure 5 shows that a portion of the 0.5 mile radii intersects highest diverse blocks and the vast majority of the 0.25 mile radius is covered by the next highest block. This means that these parks could be a highly diverse gathering area for the community and that there is a lot of equality in the parks when it comes to ethnicity.

Further breakdown of the population by race shows that at the 0.25 mile for the Washington County courthouse and the Hillsboro Civic Center the population is predominately Caucasian at 73% but that every race except for Pacific Islander is in this area. The next highest race is denoted by some other race which is most likely what the Hispanic community put for their race is 17%. The breakdown then shows that other races are in the single digits for percentage of community. While this is still puts other races in the minority it does show that this community does have a good diversity index (US Census, 2010).

The same can be said for West Entry at 0.25 mile radius. The breakdown is almost identical with only minor differences. Caucasians are still the majority but their percentage went down one percent and the category of some other race went up by a percentage point. This shows that the diversity for this area is becoming more even but slowly (US Census, 2010).

From these findings I conclude that West Entry is not a park but rather a green space that holds a sign denoting that you are now in Hillsboro. This green space has no public access since the roads surrounding it are too busy to cross safely and where you could enter you would have to cross private property. Also the surrounding zoning is more commercial and only has a small residential population, but does add to the surround landscape breaking up the commercial landscape.

Washington County Courthouse and Hillsboro Civic Center could be counted as one park because of how close they are in relation to each other. Both are half in commercial zoned property and the other half is in residential zoned property. Because of this the population of the community that has access is small but is very diverse.

In general being next to these parks is not pricing community members out due to the fact that housing prices have not changed largely over the last decade and median income and home values seem to align together.

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See figure and maps on following page.

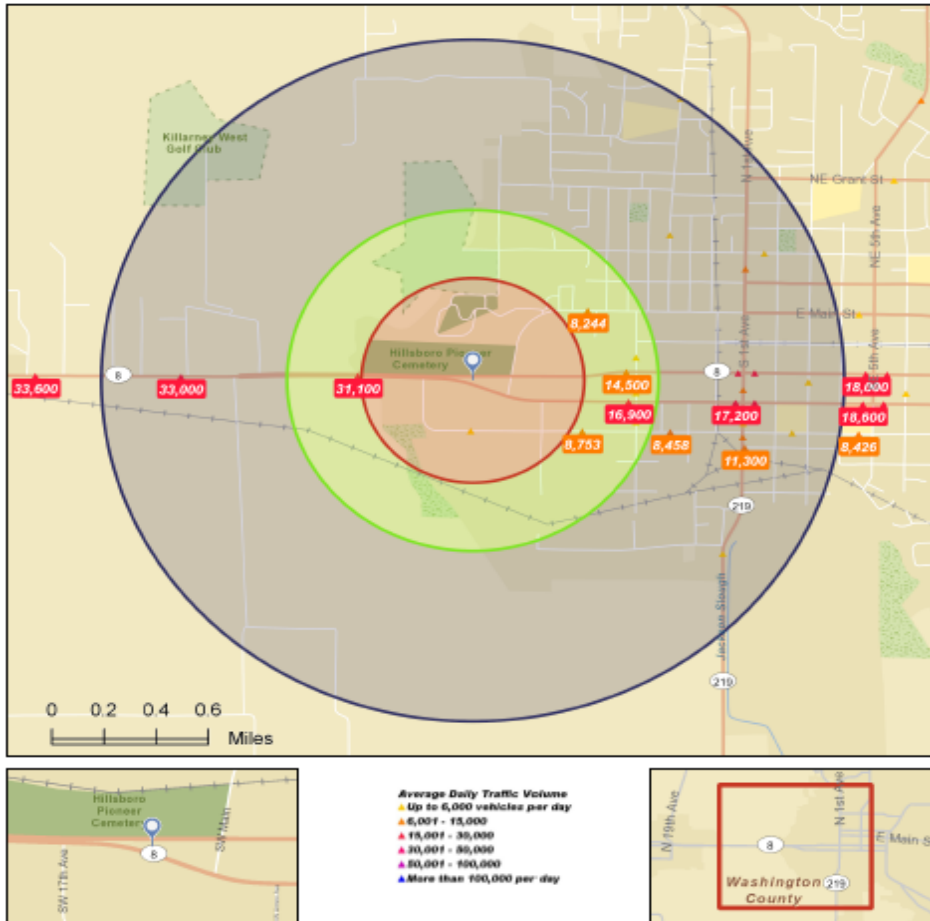


Figure 1. Map of West Entry that shows the traffic counts surrounding this park. Just to the west traffic counts go up to 30,000 and to the east drop down to about half with 14,500 and 16,900 on the diverging roads. (Market Planning Solutions. 2011)

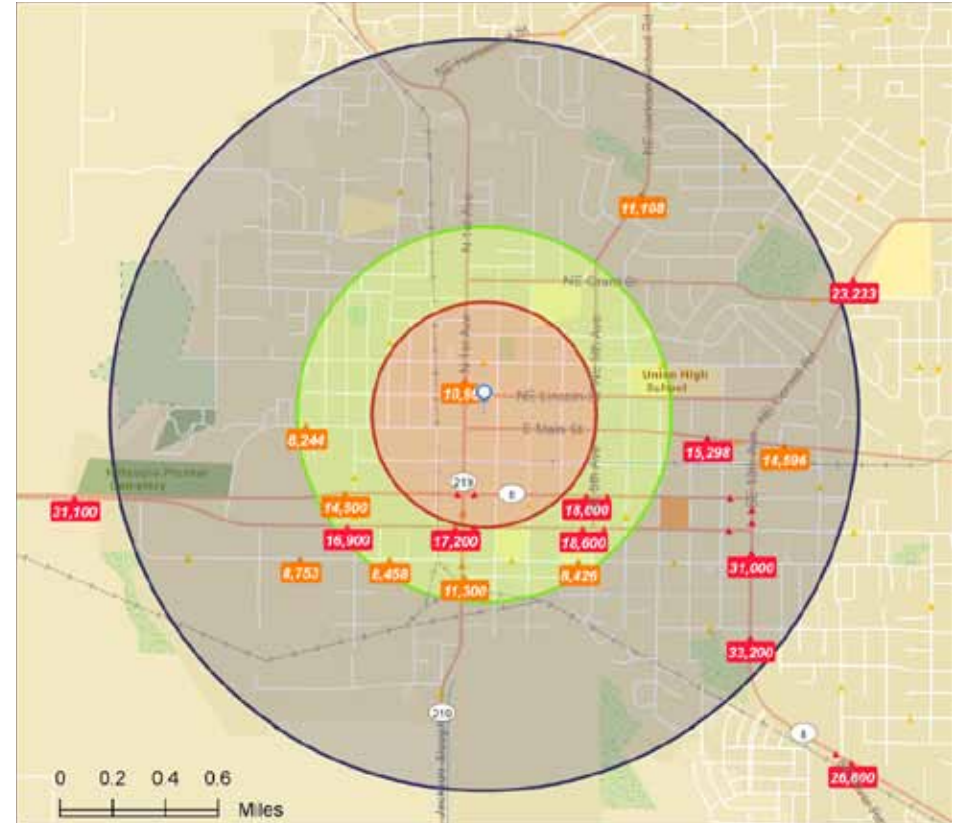


Figure 2. Map showing the traffic counts in the 0.25 mile radius surrounding Washington County Courthouse and the Hillsboro Civic Center. (Market Planning Solutions. 2011)



Figure 3. Map showing the population density. West Entry is the far right point in the lightest yellow with centric circles denoting distance the red shows 0.25 miles which shows that only part of that ring is in what could be considered a residential area. Washington County Courthouse and Hillsboro Civic Center are just to the left and their 0.25 radius shows that there is a higher population near to these recreation centers. (ESRI. 2012)



Figure 4. Showing that income levels are relatively the same between these three parks. Also showing that around these parks the income is actually lower than the surrounding area. This could be due to that these parks are located in more commercially zoned areas than residential zoned areas. (ESRI. 2012)

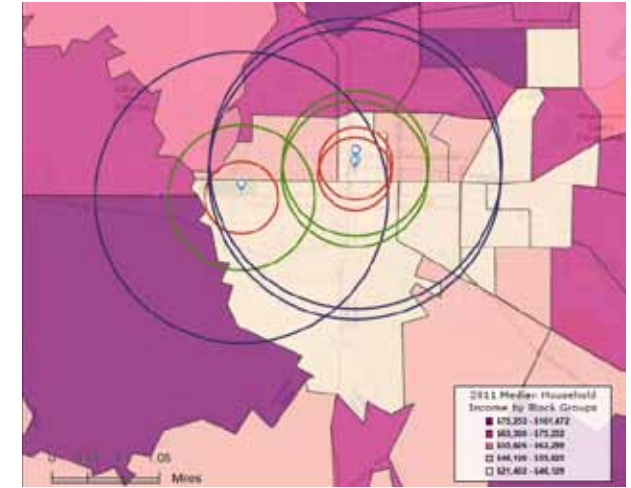


Figure 5. Map showing the diversity index of the community surrounding the three parks, Washington County Court House, Hillsboro Civic Center, and West Entry. The dark purple showing the highest diversity and the lowest being the Dark orange. (ESRI. 2012)

Two Park Equity Analysis

by Evan Kent

Hood View Park

Hood View Park is a recently completed park in Happy Valley, Oregon. It is across from Rock Creek Middle School, on a small rise surrounded by farmland and forests, with commanding views of Mount Adams and Mount Hood. It contains newly built amenities including four very large and well equipped baseball fields including stands, bullpens, and a place to sell tickets and snacks. There is additional land behind the fields, currently unoccupied, for expansion. There are also hiking trails indicated on the western portion of the park. Hood View is fundamentally not a walkable location. Happy Valley is one of the boom suburbs for the Portland metropolitan region. It is a half built city, built not for current residents but for the promise of future ones. A section SE 172nd Avenue that runs to the east of Hood View has no businesses and not more than twenty completed single-family houses along its length, yet it is a massive 5 lane boulevard with a grassy median, fully curbed, with a fairly significant roundabout. All of this new construction is on the very eastern edge of Happy Valley, a city already on the eastern edge of Metro's urban growth boundary.

The ESRI (2011) demographics illustrate clearly: there are only 43 people within the quarter-mile “walkable” limit. Most of them must live in farmhouses. Within a mile we begin to get a better sense of the demographics that

the park may be designed to serve. Six thousand two hundred people live within that range. The area is slightly more White and significantly wealthier than the region as a whole (figure 1). Over 75% of households are families. The average household size is almost three, significantly more than the Metro region average, indicating an area very focused on “traditional family” households (ESRI 2011).

At the time of the park visit, it was filled with hundreds of people there taking part in a girls' softball tournament. The parking lots were filled, and more people continued to stream in during our visit (figure 2). As a result, most of the amenities in the park were well used—even the hiking trails were filled with dog walkers. The busy nature of the park would seem to indicate that there must be some demand for the facilities. Despite this, it is likely that no matter how we define equity of access, Hood View will perform poorly. Not only is it distant and difficult to access for even the closest households, but it would appear that nearby parks are both closer and better suited for satisfying access to greenspaces and nature. In other words, Hood View may serve some public purposes—indeed, the softball fields were well used during our visit—but increasing equity is not one of them.

Peterkort Village Park

Peterkort Village Park is three disconnected lots of grass in a closely built single-developer large townhouse and condominium community. The area was very recently annexed into the city of Beaverton. It is within a mile of the Sun-

set Station MAX. On the northern piece, landscaped foliage surrounds a small gazebo. The entire lot is about the size of a single house. The middle piece is landscaped lawn, young trees and bushes surrounding a small playground, with scattered benches. The southern piece is nearby, with a short section of walkway through a hillside lawn with some benches. The parks provide the only public space in the local area, especially within the development where the street pattern does not provide much connection to the surrounding neighborhood. In that light, they could be considered “essential” for the neighborhood, because although they may be able to be improved upon, without them the place would be worse off.

There are 1,916 people within a quarter mile, in 900 households. Slightly fewer than half of them are families, which is well above regional levels. Median household income is \$66,000. At a median age of 34.9, the population is older as well as significantly whiter than Beaverton's average (ESRI 2011). This area is similar to Happy Valley in its skew towards families with children, although it is slightly less wealthy and has fewer families proportionally, which may be a result of the development type. Townhouses and condos are typically cheaper and designed as homes for young families.

As indicated by GIS studies like those in the Equity Atlas, Beaverton and most of the western suburbs are fairly well served by parks, especially north of highway 26, although this may be a result of proximity to the west hills with its extensive forests. Although Beaverton does have significant diversity in race and income,

the demographics of this area indicate that these parks will be serving mostly white, mostly affluent families. They are not going to increase the supply of parks to traditionally underserved groups. On the other hand, without these parks the neighborhood would be poorly served, no matter the socioeconomic or ethnic makeup of the area. Considering the level of parks access for the local neighborhood, given the density of the development, it could be argued that these parks do increase the park equity of the local area (CLF 2007).

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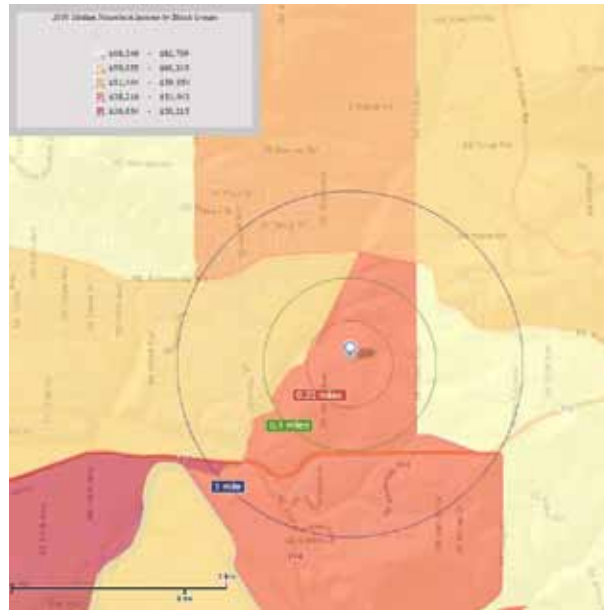


Figure 1 - Hood View Park Income map (ESRI 2011).

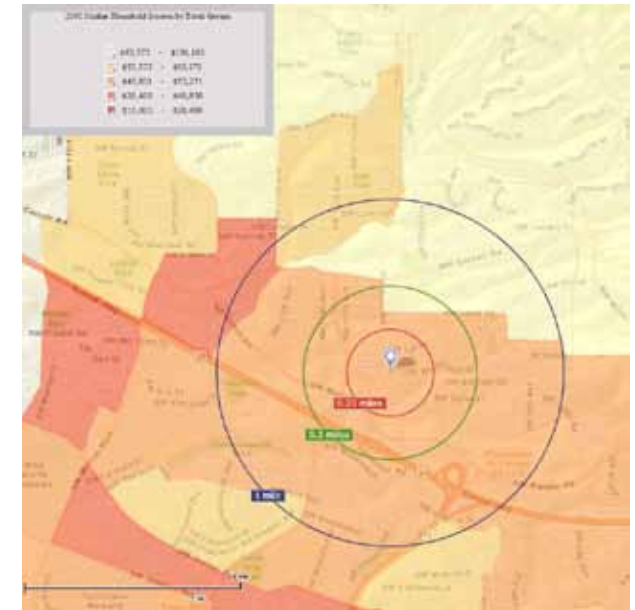


Figure 3 - Peterkort Village Park Income map (ESRI 2011).



Figure 2 - Hood View Park's busy entrance.

Vestal and Madison Community Gardens: Promoting Equitable Access to Nutrition in a Food Hinterland

by Adrien Young

Equity is “the right of every person to have access to opportunities necessary for satisfying essential needs and advancing their well-being” (CLF). However, there are large populations of people in our society and in Portland that are unable to gain these opportunities. We students in the Portland State asset mapping Capstone class set out to examine how recent park and greenspace developments in the region have contributed to more equity in access to parks and the associated health benefits of park use. To demonstrate how location largely determines access to essential needs in Portland, the surrounding areas of the neighboring Vestal Elementary and Madison High Schools have been chosen for analysis in this essay, based on their unique approach to addressing issues of public health. Both schools have recently implemented community food gardens in the midst of a food hinterland.

A quick drive along East 82nd, the street on which both of these schools are located, would call attention to the disparity between access to fast food restaurants and access to grocery stores. Because of the lack of fresh food and nutrition, areas of 82nd can arguably be considered food hinterlands, a term which can substitute for the more widely-known food desert, as the definition and terms of measurement for the latter are not unanimously agreed upon throughout research. Food hinterland corresponds with the Congress’s definition of food desert, as an

“area in the United States with limited access to affordable and nutritious food, particularly such an area composed of predominantly lower-income neighborhoods and communities” (Title VI, Sec. 7527). Similarly, food hinterland is described in a study of nutritional food access in Portland as “home to a significant share of the vulnerable population living with low food access” (Leete, Bania, & Sparks-Ibanga).

Vestal and Madison schools are both located within one mile of multiple Census tracts shown to be food hinterlands (see Figure 1). The student demographic of each school is more racially and ethnically diverse than the city’s public school average, and a majority of the students are from relatively low-income households. While park accessibility is commonly measured as being within one-quarter mile walking distance, these community gardens, being attached to schools, are special cases. As shown in Figure 2, the median income levels surrounding Madison are fairly high, while those surrounding Vestal are much lower. However, looking at the median income within one-quarter, one-half or one mile of these community gardens is not useful in understanding who benefits from them the most: the students. It would be more useful to understand the student demographic, and attendance boundaries show that students often live much further than one mile away from these schools (PPS Madison High and Vestal). According to Portland Public School (PPS) Enrollment Profiles, most of the Madison and Vestal students qualify for free or reduced lunch: 68 percent of Madison students and almost 80 percent of Vestal students qualify. Research has shown that “[t]here is increasing rec-

ognition that the built environment may affect what people eat. In poor neighborhoods where members of minority groups disproportionately live, junk food, soda, and cigarettes are readily available in small markets. Meanwhile, grocery stores that sell fresh foods are scarce and/or expensive” (Frumkin). This holds true in the many areas where Vestal and Madison students live, play, and go to school (PPS Madison High and Vestal; Figure 1).

This trend also continues into the rest of Portland, throughout which 2005-09 American Community Survey (ACS) data show a clear disparity between minority status and high income. Maps displaying this data, which can be generated using the ESRI Community Analyst tool, highlight the spacial segregation of racial/ethnic groups. On the East side of Portland, the Asian population is most dense around and east of 82nd, the Black population is most dense in North and Northeast, the Hispanic population is dense all along Portland’s periphery, and the White population is most dense in inner Southeast and Northeast. Income levels are highest in the inner areas of Portland, where the White population is densest, and lowest around the periphery, where minority groups are most prevalent (ESRI Community Analyst). Figure 1 also shows that the high minority and low-income peripheral areas, including the area Madison and Vestal are located in, are more likely to be food hinterlands, demonstrating that minority status is strongly correlated with disadvantage, both in income and in access to nutrition.

As with poor access to nutrition, underprivileged populations commonly experience fewer opportunities to enjoy public parks, which are

proven to provide numerous health advantages, such as increased physical activity and social interaction (Frumkin). The existence of either of the schools' community gardens does not increase equitable access to the most common benefits of green spaces in this community. Community gardens are small in size and serve unique and specific purposes. However, both of these schools are in close proximity to much larger parks, which can also help explain the higher income levels surrounding the schools. Nearby schools and greenspaces both contribute to higher property values (Lutzenhiser). Vestal Elementary School is located within one-tenth of a mile from Montavilla City Park, which boasts amenities such as playgrounds, picnic tables, sports fields, and ADA access. Madison High School is located directly next to Glenhaven Park, which is even bigger than Montavilla and has a similar offering of amenities to encourage exercise and public health.

Community gardens contribute to a well-rounded approach to addressing public health, through promotion of nutrition rather than exercise. Vestal and Madison Community Gardens have plots available to the public, while the rest are reserved for in-school education. While these students and residents can fulfill their need for physical activity at the neighboring parks, the Madison and Vestal community gardens provide a place for these people to learn about and grow foods that provide them nourishment. Research has shown that both the people and the neighborhood itself can benefit from a nearby community garden, through improved aesthetic, social benefits of community involvement, and higher fruit and vegetable in-

take amongst garden participants.

“[Community gardens] represent everyday landscapes that connect people to nature, require active and sustained involvement by participants, and enable participants to engage with others directly and indirectly, thereby gaining knowledge about ecological systems, the growing and preparing of food, and, more broadly, about health and wellness.” (Litt, Soobader, et al.)

The Madison and Vestal community garden, which both opened on the same day, were the result of conscious efforts to improve equitable access to green space, and the health and social benefits that come along. A nonprofit organization called Depave, which aims to create community green spaces out of paved areas deemed unnecessary, organized volunteers to uproot 15,000 square feet of pavement, working together to build the Vestal community garden that now stands in its place (Depave). Numerous other community partners, including Friends of Community Gardens, the Vision into Action program, Americorps, and the Montavilla Neighborhood Association, were able to acknowledge that current inequities exist in our region (City of Portland). These partners and the many other community members that came together to build these gardens sought to address the need of more equitable access to parks and nutrition. By weaving together community involvement, education, public health and nutrition, the development of the Vestal and Madison Community Gardens is surely a step in the right direction.

Please see maps on following page.

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Figure 1: Portland Food Hinterlands by Census Tract.

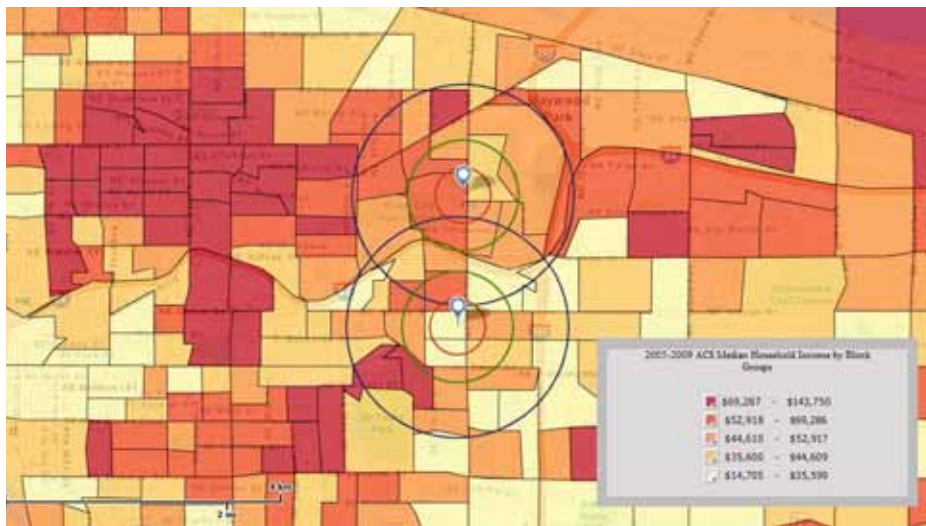


Figure 2: Portland Median Income by Census Tract, with .25, .5, and 1 miles radii around Madison (top) and Vestal (bottom) schools, generated by ESRI using ACS 2005-2009 data.

