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ENVIRONMENTAL EQUITY OF LANSING'S URBAN PARK POLICY

By

Sissi Patricia Bruch

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ABSTRACT

Studies evaluating the quantity of social and economic benefits gained by the residents who live near urban parks find that a positive correlation exists between participation and residential proximity to parks (Page, Nielsen, & Goodenough, 1994). Because of the inherent uneven distribution of benefits experienced due to spatial distance, park master plan policies should be explored from an environmental justice perspective. This research looks at both the populations that are found in the surrounding area around neighborhood parks in the City of Lansing, Michigan and the asset expenditures for these parks.

This study focused on the 5 minute walk area surrounding neighborhood parks (catchment areas). The populations that were found in these areas were analyzed and the assets in the parks were quantified. The population groups that were analyzed were Whites, Blacks, Hispanics, Above Poverty, and Below Poverty. The park assets were evaluated based on current replacement costs of only the man-made elements found in the parks. New methodology for environmental justice studies were used to get more accurate density calculations. These methods encompassed the subtraction of non-residential areas from the census data and the recalculation of densities based on the remaining acreage.

The results showed a slight indication that Lansing's neighborhood parks currently have fewer minority and the poverty populations within the study catchment areas as compared to the city wide population averages. Also, the parks that have a higher proportion of minority and poverty populations in their

catchment areas show fewer dollars spent on assets. When evaluating the park master plan for Lansing, it was apparent that there were no specific procedures in place to address either of these groups (minority and poverty populations). The recommendations of this research were for both the State and the local government to require that both the minority and poverty population groups be included and planned for within the master planning process.

Future studies looking at the relationships between people's health and their life styles in comparison to where they choose to live would give greater knowledge to planners as they make decisions regarding these public resources.

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This dissertation is dedicated to my children Christopher and Hans who sacrificed much and helped me get through this degree.

ENVIRONMENTAL EQUITY OF LANSING'S URBAN PARK POLICY

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CHAPTER 1 – INTRODUCTION

Background

"A magical alchemy occurs in the best city parks: jangled nerves relax, breathing eases and a sense of delight awakens" (Mandel, 1998). These and many other benefits of urban parks have long been confirmed by a number of studies and surveys. Parks benefit individuals, neighborhoods, cities, and metropolitan regions in measurable areas such as health, economics, and social welfare (Ferris, Norman, & Sempik, 2001; Mandel, 1998; Young, 1995). Their impact is so intrinsic to urban existence that since their first appearance in the late 1800s they have been identified as one of the most valued elements critical to a satisfactory quality of life and rate second only to safety and security (Garvin & Berens, 1997).

The quantity of benefits that the public gains through the use of urban parks has a direct positive correlation to the residential proximity (Page, Nielsen, & Goodenough, 1994) and to the assets found in that park (Humpel, Owen, & Leslie, 2002) such as aesthetics, facilities, and equipment. People living closer (i.e., having greater access to parks) benefit more from them than people living farther way. Parks with greater assets are associated with greater use. Recognizing that there is a spatial distribution of homes surrounding a park, some closer and some further away, there exists an inherent uneven gain in benefits to the surrounding populations due to park location. Because this resource's benefits are gained by proximity, both the location of these parks and the

resources spent on the assets allocated to each park have important implications for the populations surrounding these parks. This observable phenomenon (benefits gained by proximity) raises the critical questions of who currently has access to these parks, what assets do these parks have, and who benefits or is disadvantaged based on location and assets in these urban parks? Because the determination of where parks are located and what assets they have generally comes under the purview of urban planners, their actions have implications that may profoundly affect the urban population.

Studies in environmental justice investigating impacts of land uses and services show that inequities do exist between population groups based on their spatial distribution in the urban landscape. They have generally confirmed that minorities and low-income populations bear an unfair and disproportionate burden of exposure to environmental harms and suffer from higher morbidity and mortality rates (Liu, 2001; Pastor & Sadd, 2002; Pastor, Sadd, & Hipp, 2001; Schulz, Williams, & Lempert, 2002). Some recent environmental justice studies have also investigated whether these populations (minorities and low-income) have a disproportionately lower gain from beneficial land uses (Liu, 2001). Because local governments' master plans often guide the nature, location, and quality of urban parks and since these parks have been shown to affect the health and welfare of populations based on where they are sited, it is necessary to assess such park master plans and their outcomes to see what populations they are affecting.

Planners, concerned with the allocation of public resources, master planning, and the subsequent social and economic outcomes of planning, are asked to distribute these resources in an equitable manner. According to the American Planning Association,

planners strive "to expand choice and opportunity for all persons, recognizing a special responsibility to plan for the needs of disadvantaged groups and persons" (Planners, 1991). This professional responsibility to address the needs of the underserved in society is an ethical stand that urban planners have embraced.

Environmental justice studies have now begun to explore issues of equity based on a lack of a 'benefit' rather than a burden of an 'ill'. Since urban planners' land use decisions and master plans affect the quality of people's lives (Beatley, 1994), urban parks and their master plans offer a unique phenomena that can be used to examine and determine whether this beneficial public resource is being distributed in a manner that reflects the ethical stance that urban planners have taken in their professional mission. Parks, and their accompanying assets, are generally considered a beneficial land use. If minorities and low-income populations have at least the same proportion of access to these parks and their benefits as the White majority population, then urban planners are following their professional mission of "recognizing a special responsibility to plan for the needs of disadvantaged groups and persons."

Statement of Problem

The outcome of the City of Lansing's park planning efforts that will be evaluated to see whether their efforts are truly meeting the planners' professional goals and responsibilities. This study examines two of Lansing's 5-year park and recreation master plans (1995-2000 and the 2000-2005) and determines whether there exists a measurable relationship between the distribution of parks, park assets, and the racial and economical characteristics of residents within an area representing a 5 minute walk (400 meters) to

neighborhood parks. The City of Lansing's park and recreation master plans are created and administered by the Lansing Parks and Recreation Department, whose mission is to "enhance the quality of life through the preservation and maintenance of park lands, the provision of quality leisure time activities and the provision of special facilities which would otherwise not be available to Lansing residents" (Lansing Parks and Recreation Department, 2000). In carrying out this mission, this agency influences both the creation and the spatial distribution of parks throughout the city, as well as the assets that are found in these parks through their budgetary expenditures. Understanding the implications of these master plans is essential in providing equitable services for the citizens of Lansing. This is the heart of this study and two hypotheses have been identified to accomplish this goal.

Hypotheses

The following two hypotheses are derived from two distinct research theories. The first hypothesis, following positivism, will be tested using quantitative evidence and looks at the spatial distribution of parks in relationship to race and income.

Hypothesis 1: Minority and poverty populations are under-represented in the area encompassing a 5 minute walk to neighborhood parks (400 meters).

The second hypothesis belongs in the realm of ethical normative theory and requires analysis of the City of Lansing's Park and Recreational master plans' predicted outcomes and methodologies used in resource allocation to parks. This analysis will use both qualitative and quantitative methods to assess park assets in relationship to race and

income. Use of both of these theories in public policy research is considered a better overall solution than either one alone (Liu, 2001).

> Hypothesis 2: Fewer resources have been allocated to parks located in the areas encompassing a 5 minute walk to neighborhood parks (400 meters) where greater than average minority and poverty populations live.

Resources are defined as the current replacement costs of the assets found in neighborhood parks as of 2005.

Organization of Study

This study will be organized as follows:

Chapter 2 reviews the current literature on the importance of parks and their impact on the populations that used them.

Chapter 3 reviews the current theoretical literature and identifies the relevant theories applicable to this study in both areas of urban planning and environmental justice. A discussion on equity is included since this term has multiple definitions and interpretations throughout the literature.

Chapter 4 goes into detail about the City of Lansing, its demographics, its parks and assets, and its history, specifically its park history. This information is necessary to understand the population settlement patterns and the current spatial distribution of parks. This chapter also includes the specifics of both the 1995-2000 and the 2000-2005 Lansing's Park and Recreation master plans and their policies.

Chapter 5 opens with a review of various relevant methods of environmental justice analyses and a justification of the methods used in this study. This chapter addresses the access to parks, the selection of the 5 minute walk or 400 meter area, and also covers data sources and specifies the method of analysis for each hypothesis.

Chapter 6 presents the results of the study.

Chapter 7 will discuss findings, the testing of both of the hypotheses, and the implications for planning and recommendations for future studies or future actions that could be developed from this research.

Summary

The broad purpose of this dissertation is to evaluate how well Lansing's park master plans adhere to the more general urban planning values of ensuring that the needs of the underserved populations are being addressed. This type of evaluation is valuable to make sure that our current planning policies are equitable and that they follow the professional and ethical values held by the people who develop and enforce them. The planning profession and its body of literature must be aware of the implications of their actions. If this study finds that the underserved population is not being served equitably, changes may need to be made and inequities corrected, both in planning practice and in the training of professional planners.

More specifically, this dissertation will describe the distribution of neighborhood parks in Lansing and its population, and will evaluate these distributions for equity of access and park assets for minority and poverty populations. The Lansing's Park and Recreation master plans for 1995-2000 and 2000-2005 will be analyzed and their

outcomes in terms of park asset allocation will be assessed against the equity definition used by today's urban planners.

CHAPTER 2 - PARKS

This dissertation is designed to evaluate park planning efforts in terms of equity of park access and assets for disadvantaged populations. This involves the planning profession, the environmental justice movement, and the parks, which are being used as the test variable. The purpose of this chapter is to clarify the issues and implications of urban parks on the populations before they can be understood from a planning and environmental perspective. Chapter 3 will address both the urban planning and environmental theories that apply to this study.

Urban Parks

Parks have been studied widely since their inception in this country in the mid-1800s. The following literature review regarding parks is organized into four broad categories encompassing issues for both community and individuals in the areas of social, economic, health, and environmental impacts. This latter category focuses on more physical and biological aspects of parks such as pollution and storm water management. Before beginning to delve into the literature regarding parks, a very brief description follows describing what is considered a park through out this literature.

Green spaces, urban forests, city squares, zoos, riverfront trails and many other terms fit under the broad umbrella of urban parks. Urban parks can contain market places, be inside or part of building plazas, and may even be part of the transportation systems as boulevards or streetscapes. Not only are park areas for outdoor recreation, but

for shopping, strolling, exercising, driving, and many other activities. Since parks come in such various sizes and shapes, this literature review will only concentrate on the social, economic, health, and environmental impacts that parks, in general, have on cities and their residents.

Social Impacts of Parks

Historically, parks were first designed to improve the urban environment of cities by addressing both community and individual needs (Woudstra & Fieldhouse, 2000). In Britain, a report by the Select Committee on Public Walks was given to Parliament in 1833 that identified the benefits of parks. It stated that "parks would be the lungs for the city and would refresh the air; would improve people's health and provide places for exercise; would be an alternative form of recreation to the tavern; and would provide beneficial contact with nature, so elevating the spirit. Furthermore, as all members of society would use parks, social tensions would be reduced and the classes would learn from each other" (Woudstra & Fieldhouse, 2000). Not only do they help people of all classes mix and enjoy each other, but with the no alcohol laws, it was historically thought that "drinking fountains provided ideal opportunity for promoting the values of temperance" (Woudstra & Fieldhouse, 2000). In this country, those same benefits were experienced and parks were built to help the industrialized, crowded, and polluted cities in the mid-nineteenth century (Sherer, 2003). Not only did American cities understand the benefits parks gave their citizens, they also realized the value in transforming polluted industrialized cities into beautiful, culturally uplifting centers (Harnik, 2003).

Today, parks still offer places to socialize and recreate. Recreation has now been associated with lower crime rates, higher self-esteem, and increased community involvement (Land, 2001). In Stockholm, outdoor recreation is considered a fundamental and inalienable right, and no matter where you live, you are no more than half a mile from a park that is at least 2 acres in size with convenient and safe access (Kollin, 2003). In urban spaces, researchers have recommended that restorative open spaces such as urban parks should be so accessible that they should be considered part of everyday life and therefore should be placed at a density of 5 per square kilometer or at about a 5 minute walk (approximately 400 meters) (Thwaites, 2005). Recommendations and policies like these underscore the importance given to parks by places like Stockholm and London. Research done by the Trust for Public Land also supports the community benefits received from parks. They state that "urban recreation and sport programs are a proven, common sense, cost effective means of preventing crime and delinquency" (Land, 1995). Another study regarding recreation and crime was done in Fort Worth, Texas, where the crime was found to drop 28 percent when midnight basketball was offered within a 1-mile radius of the community center (Sherer, 2003).

Findings from a workshop held in 2002 by the National Recreation and Parks Association (NRPA) state that people's individual experiences in parks were very significant in developing self-confidence in children and in the value of public park departments. An individual responded that "this one department is the glue that held my community together" (Anonymous, 2002). Backing that statement, a study in Chicago found that when collective efficacy ("the cohesion among neighborhood residents combined with shared expectations for informal social control of public space") was

high, as could be seen when community involvement occured in neighborhood parks, then rates of violence and social disorder were low (Sherer, 2003).

Historical and current literatures agree. Parks do seem to have a beneficial impact on cities and residents. As stated before, the benefits of increased self-esteem, lower crime rates, and increased social cohesion can all be attributed to urban parks. Along with these social gains, parks have also benefited individuals and cities by the economic impact they have on them.

Economic Impacts of Parks

Alexander Garvin and Gayle Berens did a study for the Urban Land Institute regarding parks and they feel we have forgotten why the late nineteenth and early twentieth century cities spent public resources creating parks systems. They feel that today, as in the past, "public spending on park development stimulates widespread and sustained private investment, alters settlement patterns, encourages social interaction, and reshapes the very character of daily life" (Garvin & Berens, 1997). An excellent example of this can be seen in the economic implications experienced in Manhattan with the development of Central Park in 1857. Fifteen years after the park was completed, the real estate values surrounding the park increased by 9 times compared to the doubling found in other parts of the city (Garvin & Berens, 1997). Other research also supports this claim. John Crompton reviewed 25 studies that assessed if parks and open spaces contributed to an increase in property values and 20 of these studies supported this claim (Sherer, 2003).

Increasing property value results in increased tax revenue for cities. A study in Colorado estimated that adding a greenbelt to a Boulder neighborhood would generate $500,000 per year in potential taxes. This same study measured the average home value near the greenbelt to be 32 percent higher than houses 3,200 feet away (Sherer, 2003). This seems also to hold true in neighborhoods with poor and immigrant residents. Pincetl et al., measured an approximate increase of 1.5 percent in the expected sales price of homes within a radius of 200 to 500 feet from green space in such neighborhoods (Pincetl, 2003). These studies, along with many others, support the notion that people are willing to pay more for homes near parks. In a nationwide survey of registered voters conducted by the National Association of Realtors in 2001, 50 percent responded that they would be willing to pay 10 percent more for a home located near a park or protected open space (Realtor, 2001).

On the opposite side of the economic picture, two studies brought up interesting questions regarding equity and ethics of parks and their development. The first one asked, "Who were we fixing parks for?" The economic benefits gained from parks are not equally felt by all the members in a city. Property owners seem to benefit by such increases of home values, but lower income home renters may actually lose since property values, and therefore rents, may go up resulting in limited access to affordable housing (Harnik, 2000).

Another study in 1996 looked at the expenditure of park development and recreational activities. Where the majority of park users (44 percent) are just people enjoying a walk, 50 percent of some park budgets are used for organized sports that take up 25 percent of the park space and are used by only 6 percent of the overall park users

(Woudstra & Fieldhouse, 2000). Research also has found that the tendency is to support male activities over the activities of females and children (Woudstra & Fieldhouse, 2000). The controversy of park fees is another equity issue being addressed currently by park departments especially in this tight budget era. Since parks are considered a community public service, how fair or equitable is it to charge for its use and maintenance (Harnik, 2000)?

Although parks do seem to lead to some economic benefits, a study by John Crompton reports that an ill kept park may have the opposite effect (Sherer, 2003). Instead of assets, they become a neighborhood liability. Because a neglected environment has been shown to foster antisocial behavior (Woudstra & Fieldhouse, 2000), this means that a neglected park is prime real estate for vandalism. An example of this was Bryant Park in New York in the early 1980s, which became a haven for illicit drug use and crime. Much of the land surrounding this park was abandoned. After its renovation, the area surrounding this park had a 60 percent increase in lease activities and real estate brokers gave much of the credit to this "deal-clincher" park (Garvin & Berens, 1997). Neglect and underuse may also occur when design issues are not well addressed. Unimpeded automobile access hurts park usage. Banning or restricting cars can restore life to ailing parks (Harnik, 2000). Another study found that for some park users, the local parks failed to meet their needs. The lack of opportunity for children to encounter wild open spaces and the "institutional savanna" landscapes (lawns) and sport pitches provoked the strongest reaction to under use. Also in this study, the quality of maintenance seemed to be equated with the quality of the park (Burgess, Harrison, & Limb, 1988). Many examples of park redesigns and renovations are found in the

literature and they support the conclusion that well designed and maintained parks are economically beneficial, not only for residents and businesses, but also for cities which have used parks as a way to help attract and retain both tourism and commerce.

Health Impacts of Parks

Studies have shown that people who live closer to parks use them more often (Page et al., 1994). This access gives these citizens the opportunity to be more physically active and have greater contact with the natural environment than citizens living farther from parks. Health studies concur that increasing the physical activity of people generally lowers mortality rates and improves psychological well-being (Paffenbarger, 1996; Services, 1996), while the lack of physical activity is implicated in cardiovascular disease, cancer, chronic obstructive pulmonary disease and diabetes (Shephard, 1994). Physical inactivity was considered the third leading cause of death nationwide in 2000 (Mokdad, 2004). A study done on older adults found that "park-based leisure experiences can have a positive influence upon mood states, stress, and health of this population" (Orsega-Smith, 2004). Other studies have also suggested that health benefits may be derived directly from contact with natural elements, such as plants, animals, landscapes, and wilderness (Frumkin, 2001). In addition, qualitative studies have shown that park users place a high value on scenery and natural features (Woudstra & Fieldhouse, 2000). This scenic value has again been quantified in health studies done at hospitals. Patients with a view to green space were shown to heal faster than patients without such a view (Urlich, 1984). Thus, if people living near parks use them more (i.e.,

greater physical activity) and are exposed to greater contact with the natural elements, they may be deriving greater health benefits than people living farther away.

Although no current literature exists that has been able to determine specifically if people live longer or are healthier if they live closer to parks, there does seem to be a logical conclusion from these studies that the greater access to parks result in greater physical activity which should lead to greater health. Also missing in the literature is the correlation of naturally active people and their preference to live near parks.

Environmental Impacts of Parks

Environmentally, parks are usually considered an asset to the city. They are places to increase the biodiversity of plants and animals found in the city, improve water and air quality, have bioprocesses that improve the environment, and can be used to teach sustainable practices to park users. Also, park elements, such as trees, help to moderate the heat island effect that occurs in cities. In one study, trees were found to be able to filter up to 85 percent of the suspended particles in the air. One hectare of urban trees, shrubs, and grass can remove 600 kg. of carbon dioxide and return 600 kg. of oxygen in 12 hours (Woudstra & Fieldhouse, 2000).

A study done by the U.S. Forest Service, quantified the environmental work done by urban trees. This study showed that one tree, in its 50 year lifetime, can provide the following economic services (Sherer, 2003):

- $31,250.00 worth of oxygen
- $62,000.00 worth of air pollution control
- $37,500.00 worth of water recycling

- $31,250.00 worth of soil erosion control

By breaking up the impervious surfaces, parks and open spaces in cities also help with storm water runoff. Not only does infiltration of rainwater occur through the soil, but trees themselves manage the flow of storm water runoff more effectively and less expensively than do concrete sewers and drainage ditches. The study done by American Forests estimated that cities save approximately $400 billion in the construction cost of storm water retention facilities by their trees alone (Sherer, 2003).

Summary

Parks have long been recognized as an asset in urban spaces. They provide social and economic benefits to both individuals and communities. From an environmental perspective, they help communities with both human and ecological health and perform basic engineering functions of water management and pollution control that would otherwise be very costly to the public. With the proportion of benefits being distributed in a spatial pattern due to the location of the parks, and the distance from the residents, this resource needs to be managed in such a way as to have its benefits distributed as widely and as equitably as possible. That is where urban planners and their master plans have the greatest impact. The following chapter looks at the theories that have guided urban planners in their planning decisions, as well as environmental justice studies that look at the equity of the various land uses and their distribution.

CHAPTER 3 –URBAN PLANNING AND ENVIRONMENTAL JUSTICE REVIEW

Introduction

With an understanding of the benefits associated with parks covered previously, this chapter seeks to place theory and research at the core of this study to help set the stage for the current debate of land use planning (i.e., distribution) and policy. Urban planners and their professional efforts, along with studies of environmental justice, seek to address the issue of equity in land planning. This chapter will first delve into urban planning, its goals, objectives, and theories. This section is followed by the various definitions of equity found in the literature, as well as the one being used in this study, and will conclude with a section covering theories and studies in environmental justice. The final section covers some historical background on the environmental justice movement and contains two subsections addressing justice and locational theories as they apply to the issues of land planning decisions and land use conflict resolution.

Urban Planning

The urban planning profession in the United States formally began in the early 1900s as a response to the industrialization and degradation of our cities. Defining and understanding this profession, its purpose, and its theories is the main goal of this section. This section is organized into two main parts: goals and objectives of planning, and

planning theories that relate to equity issues of land planning and distribution. The purpose of this first section is to show all the facets of planning and how the experience of the last century, with its benefits and constraints, has led to the current stand being taken by urban planners. This includes the various definitions of planning and what some believe is the purpose of planning.

Goals and Objectives of Planning

Today, the practice of urban planning is quite diverse with developers, designers, government officials, and residents of the city all participating in the planning and the development of our cities (Campbell and Fainstein, 1996). Likewise, professional planners can be found in myriad fields, such as social science, psychology, health, architecture, political science, and economics. The encompassing nature of this profession attracts people with different skills and focuses, thus allowing specialization in a variety of combined fields of study. This broad perspective begins to explain why the practice and theory of planning are so diverse.

Planning has been defined by Michael Brooks as "the process by which we attempt to shape the future" (Brooks, 2002). Nigel Taylor describes planning in the post-war period and before to be "essentially an exercise in physical planning and design," and believes that "planning exists to improve the world." He continues by stating that "planning is a form of *social action,* or a *social practice.* It is about intervening in the world to protect or change it in some way – to make it other than it would otherwise be without planning" (Taylor, 1998). Scott Campbell and Susan Fainstein state that planning "claims to be able to predict the consequences of its actions" and that it "is

intervention with an intention to alter the existing course of events" (Campbell and Fainstein, 1996). Perhaps the most insightful definition of planning is Charles Hoch's in which he states that planning seeks "to change the physical, social, and economic patterns of settlements, especially in the rapidly growing cities, to reduce social disorder and injustice, while enhancing the efficiency and beauty of daily life" (Hoch, 1994).

Planners attempt to address urban issues, whether the issues are social, environmental or economic in nature. The need and the uses for planning often become evident when society faces some sort of crisis in one or more of these areas.

In the U.S., the urban planning profession grew as a necessary response to the difficult conditions found in the late nineteenth century (Hall, 1989). The rapid growth of cities at the turn of the century was so dramatic that "in 1905, New York's lower Manhattan district housed 742,135 people on 2,415 acres, or 195,000 people per square mile" (Marshall, 2000). Such hyperdensity has not been seen here in the U.S. before this time or since. As cities industrialized and became more crowded, poverty and crime rose, while general health deteriorated. Housing conditions and poor social services, along with the flight of the rich from our urban centers, left cities in need of planning and reform.

From an environmental point of view, the industrialization of our cities polluted our air and water, causing health, safety and welfare problems for society. Land degradation, the creation of brownfields, and the reduction of green, healthy spaces in cities also called for regulation. According to Brooks, planning considers the distributional effects of public and private action, and attempts to resolve inequities in the distribution of basic goods and services. It promotes the common or collective interests

of the community, particularly with respect to the provision of public goods, such as developing parks and ensuring clean air and water for all (Brooks, 2002).

Today our cities are still experiencing social, environmental, and economic problems. As society becomes more polarized economically and socially, planning is needed to protect the interest and quality of life of all its citizens, to protect and guide in the use of its limited and dwindling resources, and to set a course guiding the future development and growth. Hoch's explanation of why we need planning shows the comprehensiveness of the problem.

> "Professional planners in the United States take on the problems that private organizations not only avoid, but tend to aggravate or cause. These collective problems, such as congestion, pollution, land use conflict, residential displacement, and flooding, defy simple and unilateral treatment by a single agency. They are problems that the markets often create and cannot solve. The complexity and interdependence of these problems' causes and effects make even identifying them a difficult and contested task. [P]rofessional planners try to classify and analyze these messy problems and propose solutions" (Hoch, 1994).

The question of who benefits from planning efforts has led many to oppose planning on the grounds that it is unfair. Questions as to who should decide what is good for the community and the knowledge that it is only the powerful and wealthy who are imposing their views on the city and deciding how it is to function and be developed, has fueled this opposition. Not only has planning been accused of being unfair in its practices, critics such as Oren Yaiftachel contend that planning actually advances "regressive goals such as social oppression, economic inefficiency, male dominance, [and] ethnic marginalization." He adds that "planning facilitates elite domination and control of four key societal resources: space, power, wealth, and identity" (Brooks, 2002). The systematic exclusion of minority, low-income groups, women, and the

underprivileged and under-represented populations from the planning process reinforces these views.

Aaron Wildavsky's 1973 article attacked planning by questioning its effectiveness.

> "To be valid, planning must guide governmental decisions – that is, it must govern; otherwise there is no reason to do it. In reality, however, planning never governs, and thus is rarely successful or even accurate in its projections for the future. Instead of shaping reality, plans are consistently adjusted to reflect the reality that has occurred despite the plans. Planning fails, then, to carry out its basic purpose. The favorite concepts of planners – such as rationality, coordination, and efficiency – are all platitudes; none of them truly fall within the planners' range of control" (Brooks, 2002).

Overall, planners never seem to get things right, in large part because their professed role is simply impossible. Ultimately, those who continue to support planning do so as an expression of faith, not reason; accordingly, planning "is not so much a subject for the social scientist as for the theologian" (Brooks, 2002).

Most of this negative criticism of planning is based on the fact that cities are made up of a variety of individuals with distinctive needs and planning has affected all of these individuals at some point. Whether they have been hurt or helped by planning will likely determine on which side of the fence they sit regarding the usefulness and necessity of planning. Of concern then is the question of when planning should be done. How many people need to be helped by our actions before we deem that their needs should be considered in the overall city plans? By helping these people, how many others will be hampered by this new plan? Who should decide at what point we help more people than we hamper? Other issues, regarding whether to plan or not, deal with who will benefit and who decides who will benefit? Planners must use their professional expertise and

balance the benefits of planning along with the constraints that planning causes. Campbell and Fainstein point out that in making these types of decisions, planners end up placing a monetary value on the quality of human life; a value-laden task and one that diverse individuals may never agree on. They state that:

> "belief in the public interest is the foundation for a set of values that planners hold dear: equity protection and equal opportunity, public space and a sense of civic community and social responsibility. The challenge is to reconcile these benefits of a common public interest with the diversity that comes from many communities living side by side" (Campbell and Fainstein, 1996).

That task requires knowledge of each community's interests, the ability to define equity in terms that all will agree on, and the ability to define and develop civic community and social responsibility.

Speaking directly to this concern, the planning profession has set guidelines for its practice in their code of ethics. As stated in the beginning of this document, planners strive "to expand choice and opportunity for all persons, recognizing a special responsibility to plan for the needs of disadvantaged groups and persons" (Planners, 1991). This professional responsibility to address the needs of the underserved in society is an ethical and value stand that urban planners have embraced. This stance emerged from the problems and issues stated above and the theories that have evolved during the evolution of the urban planning profession. The following section will review only the relevant theories that helped this profession arrive at this code of ethics.

Urban Planning Theories

Since urban planning is concerned with the health, safety, and welfare of city dwellers, many theories that guide this practice abound. Earlier theories concentrated on

the physical layout of cities, while more contemporary theories took on a more ethical stand regarding urban dwellers. These contemporary theories are important to understand as they guide the current stance that urban planners are taking in planning and designing our cities, which in turn guides policies that aid or discourage unfair land use practices. Of the many theories that exist, only the following theories and practices are covered in this section since they are most related to the ethical stand currently taken by planners or are highly significant in current urban planning practice: (1) the comprehensive rational theory, (2) critical planning theory, (3) advocacy planning theory, (4) feminist planning theory, (5) postmodern planning theory, (6) citizen and the communicative model, and (7) just city theory.

1. The Comprehensive Rational Theory

In an attempt to address all the needs of its citizens and avoid fixing one problem and causing another, planners came up with the 'comprehensive rational theory.' This theory combines two other theories, systems theory and the rational process. Systems theory is based on the assumptions that the city is made up of various sets of interconnected systems and that these systems can be defined and understood and thus would lead to a solution to urban problems (Taylor, 1998). The rational process is based on the assumptions that urban problems are solvable and that they can be analyzed in a logical and rational manner. This process allowed for the quantification of solutions being applied to social problems with the belief that plans and policies could be studied and analyzed for their merits, equities, or shortcomings. The combination of both of these theories allowed for an overall comprehensive look at the city. No longer would

one solution be proposed without an attempt at understanding the effect it would have on the whole system. The assumptions of this theory are that by analyzing all the elements and interactions of a system, and by using the rational process, one can resolve all the problems found in all parts of the cities. In other words, a whole system approach of addressing urban problems is better than a piece-meal one. Problems can be studied and resolved in the context of the whole city.

Many criticisms are levied on this theory. Critics take issue with the assumption that we can ever come close to defining and understanding the complexity of urban systems. The definition of systems becomes problematic because not everyone would define them the same way. Also, which systems are defined and who defines them become points of contention. Understanding the interactions between systems that we have defined may also not lead to a true understanding of these interactions as we might have misidentified a system or overlooked a critical one in our identification of the systems that were analyzed. Further, the assumption that urban problems are solvable and that they can be analyzed in a logical and rational manner is questionable. Since human behavior is not always rational or logical, this process ignores basic human nature. In addition to the whims of humans is the problem of their various and greatly varying views. What seems to be a logical and rational process for one person may be considered the opposite by others.

If systems theory is correct that all parts of the city are connected and interrelated, then a solution suggested through use of the rational process for one part of the city, may in fact, cause problems for other parts. Also, what may solve the problem for a specific population group may actually cause problems for another population group. This brings

into question the validity of one of this theory's assumptions. Are all urban problems solvable?

An additional criticism is that a plan can never be comprehensive because reality is always more complex (Benveniste, 1989). Since we can't know it all, our analysis will never really be truly comprehensive. For instance, a solution that took place in New Jersey that seemed to correct problems of congestion and slum housing turned out not to take social needs into sufficient account and was considered by some to be unethical or inequitable. The construction of the highway and the removal of slum housing resulted in peoples' social fabric being torn apart and resulted in a much lower quality of life for some urban residents. What was thought to be a poor, degenerated housing area, actually had a well-integrated and healthy social system (Marshall, 2000). Our inability to know and incorporate all issues in our analysis and solutions has created much opposition and criticism of planning.

This theory attempts to get to the issue of equity by trying to view the city in a systematic and comprehensive manner. Because it attempts to understand the connection between parts, the equity issue comes into play in the definition of the problem and the weight being placed on the various parts and sections of the equation. The ethics of equity are not well developed in this theory, but this theory is important because it forces the understanding of all the parts and their interactions. It is the comprehensive ideal that has made many cities attempt to create master plans to guide development. The park master plans that will be reviewed in the next chapter owe their existence to this ideal that a comprehensive view can make for good planning.

2. Critical Planning Theory

"Critical planning theory is concerned with the distribution of power in society and the extent to which planning reflects this distribution of power" (Benveniste, 1989). Unlike strategic planning that identifies critical trends, critical planning theory is not about critical issues, but more about criticizing current planning efforts. The philosophy that guides this theory is that planning should benefit all of society equally, not just the powerful. The assumptions that this is based on are that the powerful currently benefit more from planning than the general public, and that the planners have the power to change this status quo. A second philosophical point of this theory is that if planners had a greater understanding of the current differences and needs found in society today, their planning would result in an improvement of quality of life for the majority of the population. The assumptions of this philosophical point are that planners have the capacity to understand differing cultures and needs, and that planners can adjust the way they currently plan in response to this understanding. This includes underprivileged populations and attempts to correct inequalities of the current plan.

Critical planning theory is important in its critical examination of the profession and its goals. It forces the comparison of actual planning with the general planning philosophy of protecting the interests and quality of life of all citizens with the added emphasis on the underserved populations. Although this theory has been criticized for pushing Marxist and Communist ideals, critical planning theory's contribution of forcing introspection and reevaluation of planning goals by the profession is invaluable.

3. Advocacy Planning Theory

Like critical planning theory, advocacy planning theory states that there is a definite difference in the way that the powerful and the underprivileged have been served by planning. While critical planning is more general in its equity goal, advocacy planners concentrate mainly on the underprivileged. The powerful and wealthy have no problem in making their concerns heard and addressed by current planning practices. The system works for them. It is the poor, minority, and uneducated public that spend their time concentrating on survival and find themselves facing bureaucracy and regulations that hamper their efforts to improve their situation. Banking policies and district red-lining were just two practices that aimed at protecting the privileged and kept many minorities and poor from owning their own home. Examples like these forced planners to reevaluate their practice, explore their own assumptions, and redefine their goals.

Advocacy theory is based on the assumptions that the underprivileged have no voice in the current planning process and that planners can truly make a change in their quality of life. Advocacy philosophy is centered on the belief that because this population has generally been ignored by planners, planners have a responsibility to represent and advocate for a change in the quality of life of this population. Although a noble and worthy cause, advocacy planning doesn't usually generate the attention it requires. These planners generally have little influence and power over the system, and their clients have little in the way of resources (Benveniste, 1989). Since the planners want to change the quality of life of the underprivileged, they must gain the required knowledge of the existing social and economic systems. Manipulation of these systems

places planners directly into the political dimensions of planning and provides them the opportunity to participate in shaping the political climate that can influence their goals.

It is this theory that currently guides the stance that the American Planning Association takes regarding the professional attitudes and values held by planners. This theory, based on egalitarianism, seeks to eliminate inequalities.

4. Feminist Theory of Planning

The feminist movement is rooted in the following three general assumptions: "(1) the position that women are exploited, oppressed or devalued by society; (2) an interest on the part of the feminist thinker in changing the condition of women's lives; and (3) the assertion that traditional, still dominant theory, research, and practice ignore or justify inappropriate and/or exploitative treatment of women" (Campbell and Fainstein, 1996). In planning, feminists assert that women's issues have been ignored and are sometimes not even acknowledged. Women and men use space differently, yet women's needs are not being addressed. While the central business district meets men's needs, the residential district, which is generally associated with women, lacks daycare facilities and convenient public transportation to work, schools, and shopping. Zoning has effectively separated these uses and created a hardship for women.

Changes need to reflect that although women and men are different, they must be treated equally. This poses the problem of determining how the equality is to be defined when real differences exist. Take for instance the idea of justice. Feminists would like to mete out justice based on contextual understanding and use the ethics of caring vs. the

current ethics of judgment in which individuals' actions are determined to be either right or wrong.

The issue of equality for feminists revolves around the idea that women are not just counterparts to men, but they themselves are a whole entity. Feminist planners are really advocacy planners for women since, in the current system, women find themselves outside of the decision-making process. Where feminists and advocacy planners diverge is in the wholesale changes that feminists want to create. They would like to see a world where there are more "alternative images of the good life," and where instead of competition with winners and losers, there could be more team-building and communal fostering (Campbell and Fainstein, 1989). Knowledge could come not just from rigorous scientific methodologies, but also from intuitive approaches, oral traditions, and symbolic representations. Logic could sometimes give way to non-rational solutions and sentiment would be valued. Planning in this new way of thinking would make adjustments for multiple cultures and help acknowledge and celebrate these differences (Campbell and Fainstein, 1989).

No theory is without its critics, and feminism is no different in this regard. The two main criticisms of this theory are that feminism excludes men or doesn't embrace them fully, and secondly, that women have many voices, not just the one heard from the feminists. Another criticism of feminism concerns its definition of knowledge to include unscientific and intuitive information. This theory is valuable in that here is a group defining themselves as underserved and thus, with the current planning stance of addressing the needs of the underserved, requiring a complete change in planning and policy. This theory, and its implications, illustrates the complex nature of trying to meet

the needs of the underserved and the difficulty in mixing the needs of various groups at once.

5. Postmodern Planning Theory

Postmodernism at its core is the rejection of all that is modern (Knox, 1991). Paul Delany has defined it as "everything that [other] systems [have] devalued: the aleatory and the unmotivated, representation in the visual arts, surface decoration in architecture, small-scale innovation, the superstructure, market forces, popular culture. Everyone can make their own list." His last statement captures the essence of postmodernism. Everybody's interpretation is equally valid. This also means that since everyone's views are equal, then contradictions and inconsistencies are valid and can stand simultaneously (Delany, 1994).

Postmodern planning theory can therefore be extrapolated from the definition of postmodernism, and at its basic philosophical core, this theory maintains that everything in urban environments is equally valid while all modern theories are rejected. In other words, since modernity has failed, therefore, all the other voices are right. The basic assumptions for this theory are that modernity has failed, all have a right to a voice, and all voices are equal.

Rosenau's description of postmodern urban planning states that "[t]he city is a text, constituted of different interpretations by various readers. Postmodern planning dissolves space as a knowable, manageable constraint and replaces it with hyper-space, which conceives of space as fragmented and disorganized, as manifesting gaps of undecidability" (Rosenau, 1992). Ted Relph states that "postmodern is not a style, but a

frame of mind – [a] confluence of many trends" (Dear & Flusty, 1998). Michael Dear, a postmodern urbanist and professor of urban planning, describes postmodern planning as "a pastiche, a hodgepodge, crazy-quilt composition" (Dear, 1986). No longer is the generally accepted Chicago school's view of an orderly centric city with segregated land uses and ring-like growth patterns valid (Dear & Flusty, 1998). A new school of thought, the Los Angeles school, begins to emerge out of postmodern thinking.

Los Angeles is seen as the epitome of postmodern urban planning. This is because it was not planned and it has sprawled out of control. Precisely because one would not plan a city like Los Angeles is why it is postmodern in nature. Criticisms of postmodernism are many, but since all voices are considered valid under this theory each criticism is just another voice expressing its (valid) view. This theory is difficult to assimulate with the current planning stance, yet it seems to present a solution to the issues raised by the feminists and attempts to mix all needs into one. All solutions work as long as it doesn't negate anyones voice. What is interesting in this theory is the removing of rules and guidelines to try to accommodate all, yet that is also its weakest point. The underserved may have an equal voice, yet they are still powerless to make a change.

6. Citizen Participation and the Communicative Model

Citizen participation theory addresses the need for the public to be involved in planning decision making. This simple theory's philosophy is that the more people who participate in the planning process, the better the solution. This is based on the assumptions that the general public knows the issues that affect it better than the planners, that each person holds different views, and that people want to participate in

planning decisions. The communicative model's philosophy is very similar and states that "public policy needs to draw upon and make widely available a broad range of knowledge and reasoning drawn from different sources" (Fainstein, 2000). Its assumptions are: "(1) all forms of knowledge are socially constructed; (2) knowledge and reasoning may take many different forms, including storytelling and subjective statements; (3) individuals develop their views through social interaction; (4) people have diverse interests and expectations and these are social and symbolic as well as material" (Fainstein, 2000).

Planners have often been criticized for making decisions that will affect many people without consulting them about the problem or the solution. The justification for this has been the belief that "the layman simply cannot understand and responsibly judge complex technological issues" (Campbell and Fainstein, 1989). Although there is some truth to this statement, planning issues need not be ensconced in technical language. People can react to plans or ideas that may make a real change in their environment and evaluate them according to how useful they find them. Fainstein adds that "within communicative theory, the planner's primary function is to listen to people's stories and assist in forging a consensus among differing viewpoints. Rather than providing technocratic leadership, the planner is an experiential learner, at most providing information to participants but primarily being sensitive to points of convergence. Leadership consists not in bringing stakeholders around to a particular planning content but in getting people to agree and in ensuring that whatever the position of participants within the socioeconomic hierarchy, no group's interest will dominate" (Fainstein, 2000).

The use of this technique has given planners two major benefits. First, citizen participation in the planning process has helped identify problems or conflicts that may have been missed by the planners, and secondly, having the public participate in the decision process helps to build both credibility and acceptance for the decision (Campbell and Fainstein, 1989).

Reaching an acceptable decision can be a problem, especially since the population holds a variety of values and beliefs. Politics and diplomacy are involved in this process, as different groups may require different solutions to a single problem. Educating the public about all views and coming to a consensus can result in greater tolerance and understanding between peoples. The opposite can lead to the "assumptions that if only people were reasonable, deep structural conflict would melt away" (Fainstein, 2000). A planner is put in the position of being neutral, a position he/she might not hold, and also of finding a common solution, which may or may not be possible. Other problems with these theories are the length of time they add to the planning process, and the gap that exists between the theory and the practice of using the communication model and/or citizen participation in actual practice. The diversity and selection of the participating population may also be a problem, especially if the issue involves diversity and the population is not diverse in its makeup.

7. Just City Theory

Similar to the feminists and the postmodernists, just city theorists call for a dramatic change in the status quo. They, like the communicative planning theorist, believe that the public should participate, not just in planning decisions, but in all aspects

of local government. Their philosophy is based on the belief that "progressive social change results only from the exercise of power by those who previously have been excluded from power" (Fainstein, 2000). This assumes that governments are not neutral or benevolent, that planners have protected the interests of businesses, that there are conflicting views of society, and that the public has been excluded from the planning process.

Just theorists have two expressions, the radical democrat and the political economist. The radical democrat would like to see governance being turned over to the people. They understand that there will always be conflicting views and that it is in the participation of the public that power is exerted. Political economists are concerned mainly with the distribution of social benefits and the unfairness related to this distribution. Although both types of theorists have different viewpoints, their main purpose is to mobilize the public to bring about change. Prescribing what those changes will be is not their concern so much as having the public (especially the relatively powerless groups) participate in governance and in coming up with equitable solutions.

The just city theory is much like socialized democracy and thus shares the criticisms of both. Socialist criticism related to economic vitality and democratic problems related to the deprivation of minority needs are both levied at just city theory.

Summary

Although no one theory or method has been developed that addresses all the issues that planners deal with, an overall ethical stance has been agreed to by the American Planning Association. This stance, to be responsible for planning specifically

for the needs of the underserved populations, can be seen through different iterations in the previous theories. While some theories will question who are the underserved in society, planners do have an ethical stance that guides them in their professional work. Ensuring that current planning efforts continue to address the needs of the underserved populations is the focus of this dissertation. When planning efforts fail, or population shifts occur, the result may be that an excess burden ends up being carried by one population group over another. It is this issue of equity and imbalance that are addressed in environmental justice studies.

From all the different theories reviewed, this dissertation will use the advocacy theory because it is most closely aligned to the ethical stance taken by the planning profession. This theory supports the idea that the underserved population needs to be aided in having their voice heard regarding planning issues since their position in society is such that without this intervention, their needs would not be heard. This theory is also at the heart of the environmental justice movement that tries to advocate for the populations least likely to defend themselves from unfair development and planning practices.

Introduction to Equity and Environmental Justice

Since the appearance of the first case in the early 1980s, environmental justice studies and the issues surrounding these cases have been the subject of much debate. Specifically, what theory or principles should guide the equitable planning and distribution of various land uses in relationship to the urban population? This section covers various studies and theories that have a direct focus on environmental equity

issues and begins by first clarifying the meaning of equity used in the literature and in this study.

Equity

Equity, fairness, and justice are terms used interchangeably to mean the impartial, evenhanded treatment of others (Garner, 2001). This study uses the term equity. The use of this term in relationship to land use distribution usually means that one measures the disproportionate level or inequitable distribution of impacts caused by a noxious land use on individual populations. Policy makers, minority advocates, and the various population groups do not always interpret equity in the same manner. The term "evenhanded treatment" especially in the distribution of land uses, has many interpretations depending on which distribution theory you hold. There are three general distribution theories that, if applied, may have completely different policy outcomes (Liu, 2001). They are egalitarian distribution, input-based distribution, and need-based distribution.

Egalitarian distribution is based on the theory that fair distribution of an item means that the item is divided into equal proportions and everyone in the group receives an equal number or portion. In terms of land use distribution, all population groups would be equally affected, both in a positive or negative manner, by the various land uses (noxious or beneficial). This is the definition of fair treatment used by the Environmental Protection Agency (EPA) that states that no group of people, including racial, ethnic, or socioeconomic, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies (Liu, 2001).

The second distribution theory is based on input. This theory states that the distribution of an item depends on the amount of input that each population puts into the specific item. In terms of land use, those populations that pay higher taxes, could earn a great portion of the public land use or a greater benefit from public policy outcome, such as the reduction of exposure to noxious land uses and/or the increased exposure to beneficial land uses such as parks.

This distribution theory has been the basis for most of city planning in that each city collects its own taxes and uses them to help its citizens. A city with higher tax revenues would not share with other cities with lower revenues. This can also be seen in specific neighborhoods. School districts with higher tax revenues have greater budgets for their students than lower tax generating school districts.

The third type of distribution is based on need. This theory states that those individuals or groups that have a greater need of an item get a larger proportion of that item. In terms of land use distribution, this can be interpreted by stating that populations having greater needs of benefits gained from a land use, or greater need to reduce an impact from a noxious land use, will be given priority over other population groups. Therefore, groups such as minorities, which the research shows as having a decreased quality of life and health status, should have greater access to beneficial land uses such as parks, and have a reduction in their exposure to noxious land uses. This is precisely the distribution theory that is suggested by the Urban Planners code of ethics. By stating that they recognize a special responsibility to plan for the needs of disadvantaged groups and persons, they are supporting the distribution of land use based on need. It is this type of distribution that this study uses to measure the equitable distribution of park access and

assets. With these definitions of equity explained, the following sections use these definitions through out the description of the environmental justice literature.

Environmental Justice Studies

Environmental justice studies concern themselves with the equitable distribution of burdens created as an outcome of human activity, on all populations (Liu, 2001). These studies, which generally use proportional distribution as an equity definition, have generally confirmed that minorities and low-income populations bear a disproportionate burden of exposure to environmental toxins, and that they suffer from higher morbidity and mortality rates (Liu, 2001; Pastor & Sadd, 2002; Pastor et al., 2001; Schulz et al., 2002). The federal government's response to these recognized injustices is found in President Clinton's 1994 Executive Order 12898 directing all federal agencies to identify and address any effects caused by their policies that would result in highly disproportionate and adverse conditions specifically affecting these vulnerable populations (Maantay, 2002). EPA's definition of environmental justice is in line with Executive Order 12898, and both emphasize that resulting actions of policies must be viewed from their impact on all populations.

Concerning the impact of various land uses on all populations, the laws that were put into effect in 1994 attempt to mitigate some of the hazardous and noxious land uses. Sadly enough, they only concentrate on the noxious exposure, rather than also balancing the beneficial effects of some land uses through the use of federal policy. Advocacy planning, which has its roots in need-based distribution, attempts to move the debate further along the continuum and give disadvantaged populations a say and a chance to

address their needs. The failure of planning was the impetus for the grass roots movement by minorities to address the inequities that they found in the land use distribution of noxious land uses.

Case after case have been documented that highlight the struggles by these groups in fighting inequitable land use distributions. The first case in East Los Angeles in the late 1980s dealt with a hazardous-waste incinerator that was to be located in a predominantly Hispanic neighborhood. The grassroots movement succeeded in defeating the state's plan to locate the first hazardous-waste incinerator in this neighborhood. This case was followed by one in south-central Los Angeles that dealt with a garbage incinerator that was to be sited in a predominantly African American neighborhood. Since then, many cases, usually emerging from grassroots activism, have pointed out the continuing inequities in land use distribution. The one believed to be "the seminal event" for environmental justice was done in 1987 by the United Church of Christ Commission for Racial Justice. This report found that race was the most significant variable associated with the location of hazardous waste facilities and that the poor and minorities do bear a disproportionate burden of these waste facilities (Liu, 2001).

That all these cases exist and continue to be brought up, points to a number of complex issues. These are some of the problems with planning as they were discussed in the previous sections: the diversity in the definition of equity, politics and policies, and land values, just to name a few. In addition, population shifts and economic downturns can also affect land patterns and land use distributions. Due to the complexity of existing inequalities in land use distribution, environmental justice studies measure these inequalities to help point out the problems in our planning and policies.

Equity and justice of land use distributions are at the heart of these cases. In the following sections, justice theories, economic theories, and locational theories will be discussed to give a broad view of the impact of various points of view, and how they can affect land use distribution.

Justice Theories

This section looks at theories regarding broad issues related to justice. In our current capitalist society and our efforts to plan our cities, not one specific theory dominates. Instead, current land planning and environmental justice studies use a variety of theories to best describe the needs and views of the current time and political view-point. Although many more theories exist, the following are highlighted because of their diversity in value systems and wide variation of results that can occur from their application. In addition, where applicable, the economic implications related to people and land uses will be discussed. These theories are (1) consequentialism or teleological vs. deontological, (2) utilitarianism, (3) pareto optimality and efficiency of the market economy, (4) contractarian, (5) egalitarian, and (6) libertarianism (including the free market and externalities/spill over effects).

1. Consequentialism or teleological vs. deontological

Consequentialism or teleological theory states that the "correct land-use policy or action is the one that generates the greatest quantity of value" (Beatley, 1994). In other words, the correct action is the one that maximizes what is good. In contrast, the

deontological theory focuses on what is morally right. It argues that what may maximize the greatest good, may not be the morally correct action.

These two philosophical points of view are at the heart of the environmental justice debate. If building a nuclear plant in a poor neighborhood will maximize the land values in other neighborhoods, and if this nuclear plant results in the greatest good for the community, should this be done when some find this morally reprehensible? Planners with their master plans attempt to bring about the greatest benefits to a city and its citizens, but these decisions are sometimes based on the greatest good even when some find the results morally suspect. The example covered under the planning section illustrates this well. The tearing down of neighborhoods to build a highway, though good for the overall city, completely tore a neighborhood apart (Marshall, 2000). In this example it was debated that relocating these poor populations would be best for them, yet in retrospect, that was not the case. The idea of who defines what is good for a population, how is "maximum good" defined, for whom, and whose moral values will be addressed, complicates the issue even further. Because of the wide variations of answers to the previous questions, the debate rages on.

From an economic and spatial perspective, the maximum good for an individual vs. the maximum good for a community may result in two completely different outcomes. Sprawl, the current result of many policies, has been blamed for wasting land resources, yet because it maximizes the profits of businesses and corporations, instead of communities, it has been dominating the current land use pattern. The same can be said of big box developments like Wal-Mart that maximize profit at the expense of social services and employees.

For urban planners, doing the morally correct action of addressing the issues of the underserved population may come under attack from businesses, individuals and communities that are trying to maximize the greatest good.

2. Utilitarianism

This teleologically based theory has been the driving force of most contemporary land use policies (Beatley, 1994). It states that "goods and services should be produced and distributed so as to maximize the total welfare or aggregate social utility. The goal is to achieve the greatest possible balance of good over bad for society as a whole" (Liu, 2001). Although very similar to consequentialism, this theory addresses not just the good, but it mixes the bad with the good to look at the net effect. Using the previous example, the nuclear plant siting would have to be balanced with, for example, the health costs incurred by the neighborhood and the loss of productivity due to health reasons from this neighborhood. Although this theory doesn't totally disregard harms done since this is weighed in the equation, if the net gain is positive, then harms done are acceptable, no matter how this harm is distributed. This means that benefit-cost analysis is done and human lives, health, and happiness are given a monetary value and treated as just another factor. Land is treated as a means to an end (Beatley, 1994) and current inequities may be exacerbated if a greater good is achieved at the expense of a few. Questions of value and how much factors like health and clean air are worth, keep the debate going.

3. Pareto Optimality and Efficiency of Markets

Trying to address the harms done, pareto optimality is the "condition in which, through mutually agreeable economic transactions, a point is reached at which no further transactions can be undertaken that would make at least one person better off without making anyone else worse off" (Beatley, 1994). Thus, in equity terms, no one would lose, and at least one person would gain. Theoretically, this prevents greater harm, yet inequities may still be exacerbated. In reality, this concept is nearly impossible to practice so the modification of potential compensation of harms (Kaldor-Hicks optimality) adds practicality to this theory. Thus, Pareto efficiency states that those that gain will reimburse those that lose, yet still come out ahead. With an economic focus, this theory encompasses the idea that all those who may lose can get together and compensate the potential winner so that the action can be avoided. From the nuclear plant example, the poor neighborhood could potentially buy the land from the city to compensate for the relocation of the power plant and its output and thus compensating the rest of the city for the loss of energy. Or, the rest of the city would compensate the poor neighborhood for putting up with the nuclear plant and all the health issues that arise from it.

In land use and economic terms, an economy is pareto efficient if there are "no unexploited gains to trade, no unexploited ways of increasing output with the same level of inputs, and no mix of products that do not reflect the preferences of consumers" (Liu, 2001). This assumes that the participants are rational, that there is perfect information, that one knows what and how the maximization of profit or utility is, and that no market failure conditions exist (Liu, 2001). Criticisms to this arise in the assessment and

evaluation of the worth of the land, the harms being done, and the impact on public health, safety, and welfare. In addition, the assumption that people are the best judges of what they want, can do something about it, and thus are able to guide the allocation of resources, is a flawed concept. As markets do not exist in a failure-free condition, this also invalidates this theory. Again, this principle does not address equity issues and does not improve the economic position of underprivileged groups.

This theory is important as a guiding principle in the part of planning that helps with land use distribution issues and decision making. It is incorporated in various planning theories such as community input and just city where citizens are asked to participate with the assumption that the solution will reflect the preferences of the people. What would be a fair exchange for placing the beneficial or the noxious land use in a neighborhood? If a neighborhood already has low housing values, can the neighborhood be compensated with a park in exchange for having a nuclear plant located near by? Would health and land values be held at the same level as before? Since all issues cannot be weighed, one will not reach pareto efficiency, but compensating for the harms done attempts to make things more equitable.

4. Contractarianism

This theory belongs under the deontological philosophy. It is morally based and provides guidance pertaining to the dignity and autonomy of human beings (Liu, 2001). At it's core, contractarianism states that "each person is to have an equal right to the most extensive basic liberty compatible with a similar liberty for others [and that] social and economic inequalities are to be arranged so that they are both to the greatest benefit of the

least advantaged [and that] offices and positions [be] opened to all under conditions of fair equality of opportunity" (Liu, 2001). Rawls, who developed this theory, felt that if everyone was involved in reaching a consensus without knowing theirs' and other's economic and social positions, they would pick what was best for the poor and thus minimize pain. Although this does not increase harm done to the disadvantaged, and they may get the greatest gain, it also does not necessarily reduce inequalities or work towards the elimination of these inequalities (Liu, 2001).

Contractarianism can be found in a combination of planning theories. Post modernism and advocacy theories can be matched up to illustrate the equal voice and the addressing of the least advantaged. As a decision tool, it seems very hard to apply since one does know one's social and economic position, but from a planning perspective, it does address the underserved population's need, but it doesn't necessarily address the core issues that allowed an underserved population to exisit.

5. Egalitarianism

Similar to contractarianism, egalitarianism does work towards the elimination of inequalities. This theory holds that:

- "All social inequalities are unnecessary and unjustifiable, and ought to be eliminated
- "All men are equal – now and forever – in intrinsic value, inherent worth, and essential nature
- "The concept of justice involves that of equality

- "Social equalities need no special justification, whereas social inequalities always do
- "All persons are to be treated alike, except where circumstances require different treatment" (Liu, 2001).

Planning theories such as advocacy and just city are based on the principles of egalitarianism. Criticisms to this theory are usually levied based on efficiency. The greatest gain may not be achieved by the disadvantaged, yet inequity would be reduced. The moral stance of this theory has been embraced by many environmental movements. Not only do they want to prevent injustices by addressing "not in my back yard" issues, but they go farther and push for the idea of "not in anyone's back yard" (Liu, 2001).

6. Libertarianism

Similar to the two previous theories, libertarianism, based on Kant's humanity principle that you treat others as an end, not as a means, states that everyone is equal, yet it emphasizes the freedom of action. This means that people may do as they wish, just as long as they respect the rights of others to do as they wish. Harm occurs if your freedoms are curtailed by others. The government would then take action in case of aggression or fraud. In terms of land use harms, this philosophy, of minimizing harms is really the basis for the practice of zoning and other land use controls (Beatley, 1994). Since disputes will occur as to what a harm is and what restrains freedom, nuisance laws and land use ordinances establish the criteria for defining a harm. This raises conflicts when issues, such as environmental pollution, are difficult to assess in terms of value lost, affected health, or harm done. According to Beatley, many philosophers view that the

existence of public harm by private actions is the reason for government; the intervention and social constraints on private actions. Libertarianism is also the foundation for free markets and the conflicts of externalities.

Free markets are based on the hypothetical ideology listed below and thus do not really exist. They are supposed to bring about efficient allocation of resources and assume the following (Beatley, 1994):

- No one can increase or decrease the price of a good due to their control of the available share by restricting supply or demand.
- All have full information regarding quality of goods and value worth of the exchanges.
- All are self interested actors that are assumed to be rational wealth-maximizers.
- All goods and services have no externalities or spill over effects on others.
- The costs of the transactions are all either equal or cost free.

Critics of free markets point to the externalities ignored, the unaddressed equity issues, and the impossible valuation of resources such as clean air. Adam Smith's invisible hand explaining free markets is refuted by Alex Marshall, who contends that for this to happen, there is an invisible arm of government that has set all the infrastructures such as roads, in place (Marshall, 2000).

The issue of externalities and spill over effects can occur when free market costs don't take into account public expenditures such as health costs due to industrial pollution, water filtration systems to clean up industrial residue, acid rain effects, etc.

These unintentional impacts are not taken into account into the original cost of the free market goods and thus the public ends up picking up the tab.

Summary

These 6 philosophical theories show the various points of view regarding justice and equity and how they can affect the decisions to be made regarding land use. Depending on the one used, the results can vary significantly and yet be considered equitable by some portion of the population. Since decisions regarding land use generally result in the building of permanent structures and uses in specific locations in the urban landscape, it is important to understand how populations are affected. Since populations have greater mobility than the land use, how does that affect their final relationship to the land use in the urban environment? In other words, who can or cannot move away from the noxious land use, and is it an issue of population shifting due to land use development, or is it land use development that determines what populations live there? The following section covers briefly theories and literature on the spatial distribution of land uses and population.

Locational Theories (Also known as spatial economics, regional science, urban and regional studies, urban economic theory, location theory and economic geography.)

This section looks at the spatial distribution of land uses and population and how they arrived at the place they are today. These theories and effects try to explain past and current land use patterns. They are (1) Von Thunen's theory, (2) externalities, and (3) population location.

1. Von Thunen – theory of agricultural land use. Although this theory was originally used to explain agricultural land uses, it is applicable to current urban land uses. It states that land within an urban area is allocated according to the rent that the competing users are able and willing to pay (Liu, 2001). This theory explains why the monocentric theory of city growth shows spatial patterns with class divisions. It is the competing users who are unwilling to pay the same amount for neighborhoods with higher minority and poor populations, thus the segregated neighborhoods emerge.
2. Externalities – both in land use and social
    a. Land use – if industry increases pollution, this can drive the population away from that site. This effect can occur over time, and although it can be changed or reversed due to a cleanup effort or new technology, this increases social cost.
    b. Social – if racial discrimination exists, once there is a predominant race that has moved into a neighborhood, it can quickly change the entire neighborhood. This is known as neighborhood tipping.
3. Population location

Population location or distribution has been described by the Tiebout model. This model predicts that people choose a place to live based on it satisfying his/her preference pattern for public goods. This means that individuals have freedom to live where they want to and thus choose their living environments. This assumes that an individual has perfect knowledge of the community, free mobility, no restrictions, and no externalities exist. This model was supported by

empirical data and the study showed that a better package of goods (i.e., neighborhoods with parks rather than industry) increases housing costs even if race is taken into account (Liu, 2001).

Another study that looked specifically at population settlement patterns in response to toxic facilities, found that the disproportionate siting of toxic facilities mattered more than minority move-in (Pastor et al., 2001). This brings back the question raised earlier regarding parks and population shift. Although no studies substantiated this, the question was made, "who are we fixing our parks for" (Harnik, 2000). Since a better package increases housing costs, does this force a minority move-out?

Conclusion

As Liu and other authors have stated, there does not seem to be a consensus on a single specific theory, but many of the theories reviewed, can offer some explanations for the current state of our land use patterns and for the continual controversies raised by environmental justice cases (Liu, 2001). Depending on which theories of planning one picks, what decision-making philosophies and definitions of equity and justice one holds, and which locational theories apply to the current urban environment, these combinations will result in different policies and have widely varying consequences for each population.

In relation to park and park policies, the theories reviewed attempt to establish guidelines for planners to arrive at the most equitable and best solution. In the realm of

positivism, the comprehensive rational theory and the critical planning theory try to use scientific orderly thinking to guide the solution. To challenge this century-dominating paradigm (positivism), phenomenological perspectives can be seen in the theories of advocacy, feminism, postmodernism, communicative, and the just city and try to bring the individual perspective into the park planning solutions. In addition, the question of what or how one defines equity is complicated with how one goes about bringing an equitable solution for all. The review of the justice theories gets specifically into this debate. Consequentialism, utilitarianism, and pareto optimality go for the greatest good while minimizing the harms done. Minorities and the disadvantaged are not well represented in these theories. Contractarianism, egalitarianism, and libertarianism take into account the issue of equity and begin to question actions that harm anyone, regardless of gain.

With the diversity of theories that contain differing concepts of justice that are in conflict with one another, someone will always feel that there has been an injustice being made. Because of this disparity in views and guiding principles, today's planners need to rely on their professional's ethical stance, though there are still many unspecified values and undefined terms that result in differing outcomes. Studies like this dissertation attempt to understand if injustices exist, what type of injustice exists, and why it might exist. The theories and principles reviewed are valuable in shedding light on a very complex and value laden issue.

The review of these theories was instrumental in selecting and shaping this study. The hypotheses evolved from a desire to understand how current planning documents such as the park master plans influence the community that they serve. Understanding

the various definitions and views of equity helped shape the data collection so that it would follow the needs-based definition that aligns itself well with the advocacy theory. The values implied by the Planners' ethical stance were substantiated by the deontological justice theories, and in lieu of the population location theories, force the review of current planning practices to insure the desired outcomes. Although this study will only look at a specific outcome of the park planning policy, it is hoped that through the understanding of resource expenditure, awareness of the inequities that may exist can be corrected.

CHAPTER 4 – LANSING'S DEMOGRAPHICS AND PARKS

Introduction

The purpose of this chapter is to better understand the current state of Lansing's demographics and its park system. This is critical since this dissertation will use specific population groups in the city of Lansing and selected parks from the overall park system as a case study. In addition, two parks master plans (1995-2000 and the 2000-2005) are being reviewed and analyzed in this study. This chapter is divided into two main sections, the first one being the description of Lansing's demographics and the second one concentrates on its parks. While the demographic section generally illustrates population trends, the park section will review the park history and the Department of Parks and Recreation's master plans that have helped to shape the park system that is in place today. Throughout these sections, the variables used in this study are defined. These include race, ethnicity, income, neighborhood parks, park assets, and catchment area of these parks.

Demographics

Introduction

This section shows the overall population trends that are taking place specifically in the City of Lansing with selected comparisons to Michigan and the nation. Overall population counts, racial and ethnic profiles, and poverty levels are explained. This

section also defines the following population variables used in this study: race, ethnicity, and income.

Population Counts, Race, and Ethnicity

Figure 1 shows that Lansing experienced a sustained population growth between the early 1900s and the1970s. Since then, the population has been slowly declining and has dropped from an all time high of 131,506 people in 1970 to an estimated 116,941 persons in 2004.

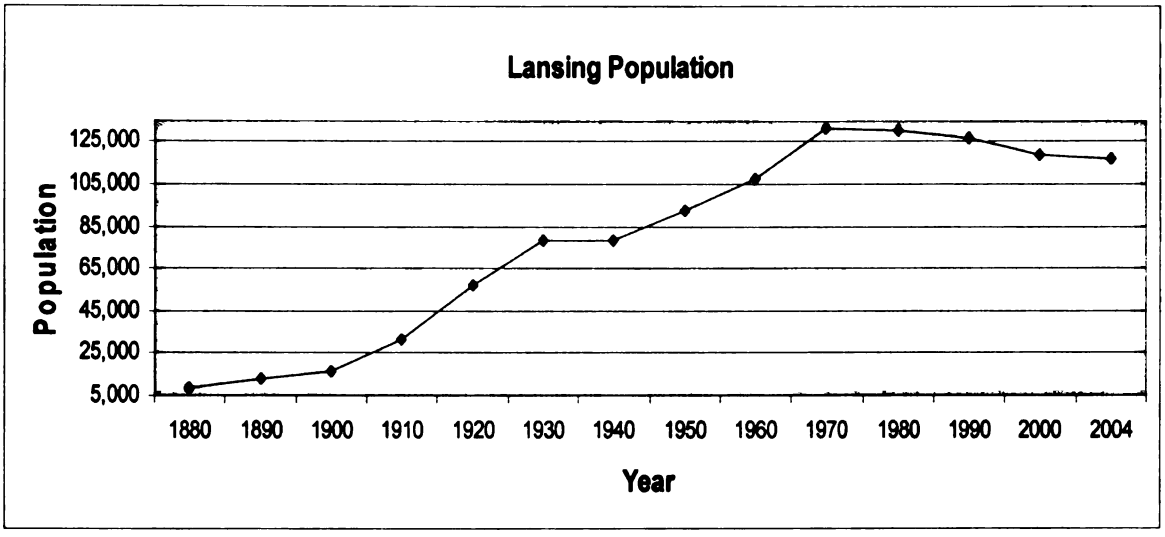

Figure 1 – Lansing Population (Commission, 1954), (Development, 2000), (Bureau, 2005).

This decline in population is not unique to Lansing. Between 1990 and 2000 only three cities in the state of Michigan with populations over 100,000 saw an increase (Grand Rapids, Sterling Heights, and Ann Arbor) (Bureau, 2006). The remaining five cities with populations over 100,000 (Detroit, Lansing, Flint, Warren, and Livonia) experienced an average decline in population of 6 percent. During this period, the overall state

population increase was only 7 percent (Thornton & Weissert, 2002) compared to the nationwide growth of 13.1 percent (http://quickfacts.census.gov/qfd/index.html).

Although the overall population in Lansing is decreasing, its diversity is increasing. Figure 2 shows the steady growth of the Black and Hispanic populations (as a percentage) since the 1970s. Information on the Hispanic population collected by the census bureau was not available in a separate format before this date.

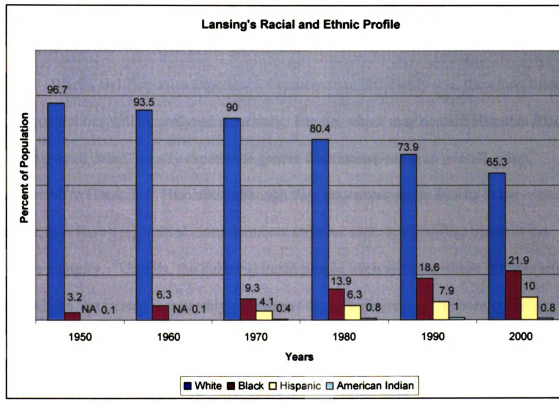

Figure 2 – Lansing Demographic Profile (Bureau, 2005).

Lansing experienced a 28 percent growth of Hispanics between 1990 and 2000, but in the mid-Michigan area (includes the metropolitan areas of Ann Arbor, Benton Harbor, Detroit, Flint, Grand Rapids-Muskegon-Holland, Jackson, Kalamazoo-Battle Creek, Lansing-East Lansing, and Saginaw-Bay City-Midland), the growth of this group varied from 18 percent to 153 percent. Grand Rapids (153 percent) and Benton Harbor (113

percent) have seen the overall greatest growth in this population group, with Saginaw only showing a growth of 18 percent (Thornton & Weissert, 2002). The Black population is also experiencing growth in Lansing. Between 1970 and 1990, the Black population doubled in size (from 9.3 percent to 18.6). In the 2000 census, the Lansing Black population grew to 21.9 percent. Because of the significant changes in both of these two dominant minority populations, this study will use Whites, Blacks, and Hispanics as population variables. The Asian and the American Indian minorities comprise less than 3 percent of the population.

Blacks and Hispanics experience discrimination differently and, therefore, these two populations will be analyzed separately. Blacks, which may contain Hispanic Blacks in the overall count, usually experience greater discrimination, as an overall group, compared to Hispanics. Hispanics, although they may also contain Blacks in the overall count, also have very light skinned members and thus seem to assimilate better in the White majority. "Usually, the lighter-skinned people, such as those whose features most like whites, are treated less harshly and receive less discrimination" (Thornton & Weissert, 2002).

Poverty / Income

Although Lansing's population is experiencing an increase in racial and ethnic diversity, the percentage of individuals who are living below the poverty line is on the decline (see Figure 3).

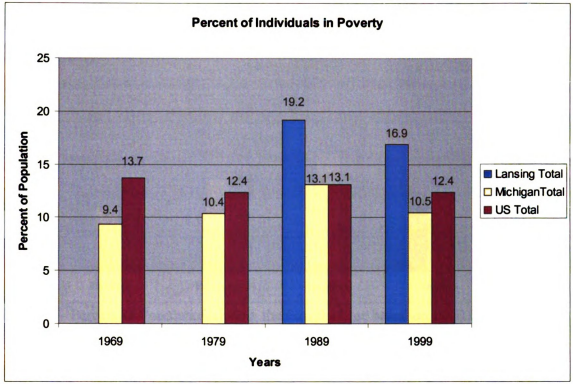

Figure 3 – Percent of Individuals in Poverty (Bureau, 2005; Wikipedia) (Lansing data came from the Census Bureau 1990 and 2000 SF3 Poverty tables).

While this decline in poverty is a positive trend, the fact that almost 17 percent of the population is living below the poverty level makes for a large percentage of the population that is in need of public services. According to the 2000 census (see Figure 4), families in Lansing falling below the poverty line encompass 13.2 percent of all families, compared to 16.9 percent of individuals. Individuals under the age of 18 and living in poverty make up 23.2 percent of that population group, while 9.0 percent of the people who are 65 and older are living below the poverty line.

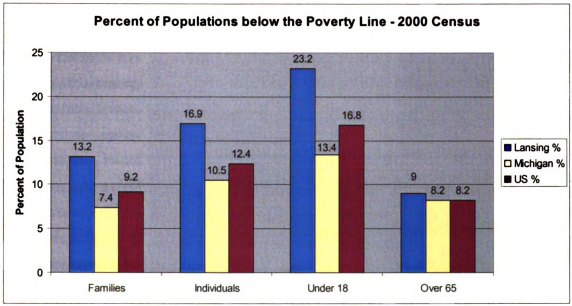

Figure 4 – Percent of Populations below the Poverty Line based on 2000 Census.

This poverty information is based on the poverty levels set by the national Office of Management and Budget, which in turn, is based on complicated formulas that take into consideration, income, individuals, families, the Consumer Price Index, sex, food prices, and nutritional diet recommendations. With these guidelines, the census bureau uses the population information and 48 poverty thresholds to determine the number of individuals and families in poverty (Bureau, 2006). This leads to multiple income numbers representing poverty. Poverty varies by population type (age, household, individual, etc.) and it is not defined specifically by household income. Figure 5 shows the overall household income for both Lansing and Michigan.

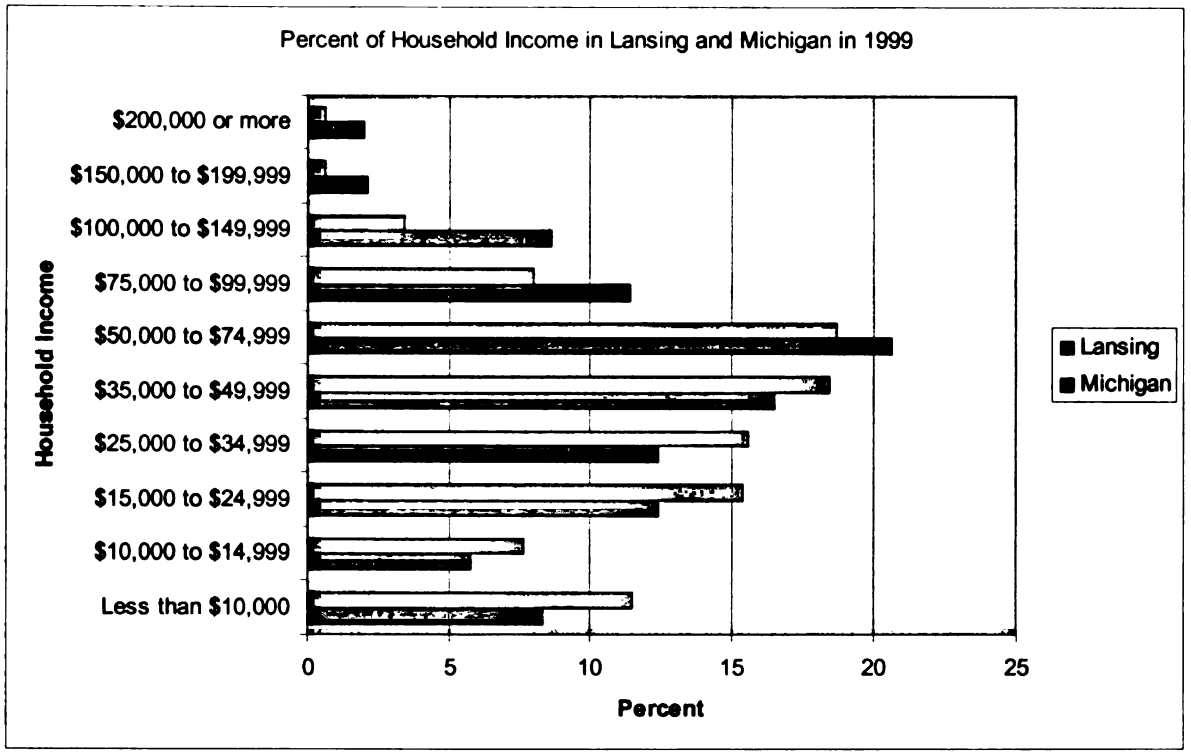

Figure 5 – Percent of Household Income in Lansing 1999. Data source: Census Bureau 2000 census, SF3 – DP3 Profile of Selected Economic Characteristics.

Overall, Lansing has a higher percentage of its population earning under $50,000 and a lower percentage of its population earning over $50,000 than the state percentages. Of the households in Lansing, 19.1 percent earn less than $15,000. This economic picture of Lansing shows a city with a significantly lower median household income than the rest of the state. The median household income in Michigan is $44,667, while the median income in Lansing is $34,833. Recognizing that populations of lower socioeconomic status need and use more social services, and that people in poverty are considered underserved populations, this study will use poverty levels as a determinant to place people into the underserved population category. The two population groups will be Above Poverty level and Below Poverty level.

Demographic Summary

This section established the race and ethnicity variables in this study as Whites, Blacks, and Hispanics and the income variables were set at Above Poverty level and Below Poverty levels. The population of Lansing was very homogeneous before the 1970s. Today, there is a greater disparity in incomes and a greater diversity in race and ethnicity. This population shift creates different needs and expectations due to the nature of the emerging population groups. With this information, the following review of the park system and its policies will help to give a good, broad understanding of the issues facing the Park Department in their efforts to address the needs of the current shifting population.

Parks

Introduction

This section covers issues that concern the City of Lansing's park system. It encompasses the history of Lansing parks, the parks master plans, and then it focuses directly on the neighborhood parks. Under the neighborhood park section, discussions of assets and catchment area are undertaken and all park related study variables are defined.

History of Lansing Parks

Lansing was first settled in 1837 and became incorporated in 1859. By 1889, only two parks existed and one of them was formed from an abandoned cemetery. Only one additional park would be added by the time the first master plan for the City of Lansing was created in 1922. Previous to that, home-rule was established in Lansing in

1912 and a City Planning Commission was formed in 1920 with one of its active members being both the Superintendent of Parks and the City Forester. This commission requested a comprehensive city plan to be done that year by Harland Bartholomew, a city planning engineer from St. Louis, Missouri, and by 1922, the final report was completed. This report was very critical to the existing conditions of Lansing in the 1920s (Bartholomew, 1922).

The report stated that the planning of the city was deficient in the reservation of space for a central square that contained the capitol.

> "There was not generous provision of open spaces for state buildings, no placing of streets for impressiveness, no reservations of native woodland, and no appreciation whatever of the value of the river and riversides as public property. As a consequence of this unfortunate lack of vision Lansing is now a most ordinary city (Bartholomew, 1922)."

Although Bartholomew was highly critical of the development of Lansing, he felt that the park system at the time was "of more than ordinary distinction." This was due to the amount of lands donated toward the park system, although not yet developed.

The recommendations of the 1922 master plan related specifically to parks were as follows:

Table 1 - 1922 Master Plan Recommendations

1. Develop facilities for organized play. This included maintaining and adding playgrounds, community centers, and playfields.
2. Extend the park system to serve more people. High-use neighborhood parks of about 20 acres in size need to be acquired within the city. Extended outlying parks of a more naturalistic nature should be reserved along the riverfront. Riverfront property also needs to be added in as large a quantity as possible in the center of town and kept for scenic purposes.
3. Connect all parks with scenic drives. This was expected to occur specifically along the river edges, but existing streets were to be updated that connected interior neighborhood parks.
4. Develop small parcels throughout the city to add dignity and character to the capitol city.
5. Create cooperation between social agencies to help in the location of community activities.

Figure 6 shows a plan of the proposed neighborhood districts that Bartholomew felt needed additional park lands. Figure 7 shows the proposed parks and the connecting "pleasure driveways" that were envisioned for the Lansing park system in 1922.

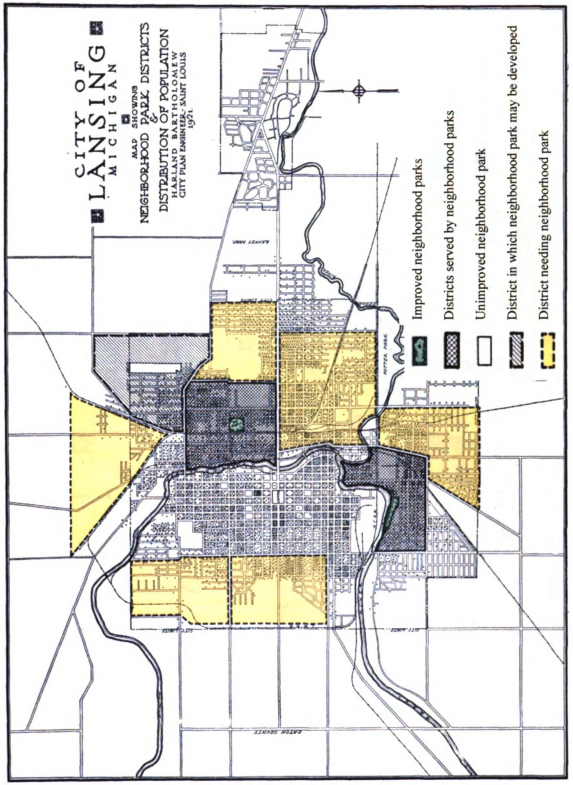

Figure 6 - 1922 Neighborhood Park Districts – Bartholomew

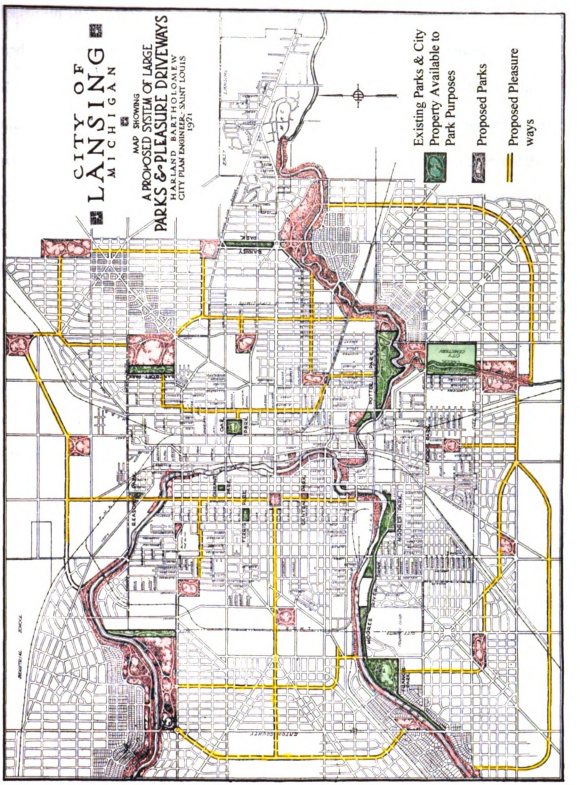

Figure 7 - 1922 Proposed Park System – Bartholomew

In 1938, based on a request from City Council, Bartholomew was asked to do an updated Comprehensive City Plan for Lansing (see Figure 8). In this report, Bartholomew reports that the city has made most of its improvements following the master plan, and that most of the park development recommendations listed in the 1922 report are now a reality (Bartholomew, 1938). This early city planning effort and the subsequent master plans that have followed, have left Lansing with the distinction of having "more parks per capita than any other city of its size" according to Eric Reickel, Lansing's past director of Parks and Recreation (Andrejevic, 1995).

In 1944, the Park Board, a citizen-based advisory board that assists the Parks and Recreation Department, was officially established. Its members serve a four-year term and are appointed by the Mayor and approved by City Council. There are many boards and clubs today that also advise, support, and participate in various ways within the Parks Department. Some of them are: baseball advisory board, friends of Cooley gardens, Gier center advisory board, and the river and waterfront development boards. Input from all of these boards is gathered by the Parks and Recreation Department in its effort to continue to maintain and develop the Lansing's park system.

Lansing currently has a park system containing cemeteries, golf courses, and three different types of parks. There are 106 parks in the system and 60 of them are classified as neighborhood parks. In 2000 the total park acreage in Lansing was 1,765.19 acres with an average park size of 16.3 acres (Lansing Parks and Recreation Department, 2000). This gives Lansing a park density of 14.8 acres per 1,000 residents (using the 2000 population count of 119,128). In a study done by the Trust for Public Land, park

densities were determined for the 50 largest cities in the country using 2002 data. The closest cities in population to Lansing are shown in Table 2.

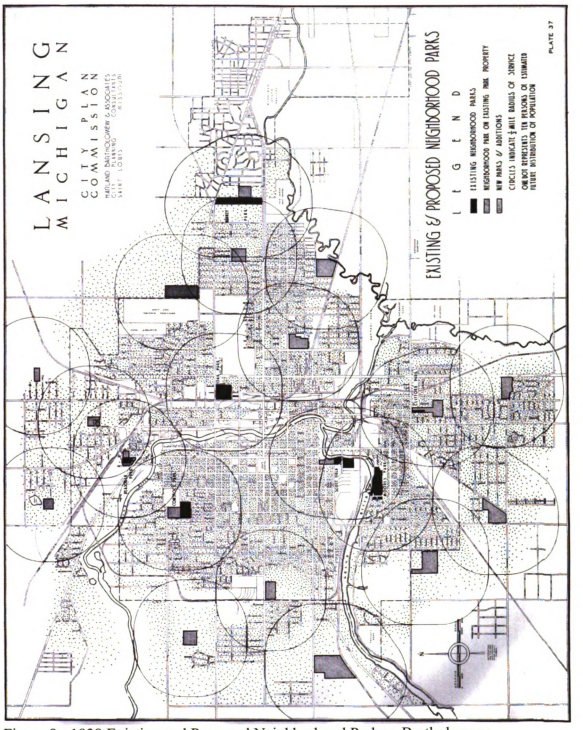

Figure 8 - 1938 Existing and Proposed Neighborhood Parks – Bartholomew

Table 2 - Representative Park Densities

City	Park Density (Acres per 1000 Residents)	Population
Toledo, Ohio	7.1	309,000
Tampa, Florida	16.7	315,000
Cincinatti, Ohio	21.6	324,000
Pittsburgh	8.3	328,000
Wichita, Kansas	22.2	355,000
Colorado Springs	30.9	371,000

The average park density in these cities was 17.0 acres per 1000 residents. No study has been done for cities with population numbers that are closer to Lansing's, but from the numbers, Lansing is not too far off from the average park density of these larger cities. If the acreage of golf courses and cemeteries are included, Lansing's park density increases to 19.4 acres per 1,000 residents.

Figure 9 shows a map of all the current parks in Lansing and Figure 10 shows the number of neighborhood parks acquired by year. The chart shows a steady progression of park system growth through the 1970s. The decline in park growth seems to correlate well with the first signs of population decline experienced by the City of Lansing in the 1970s.

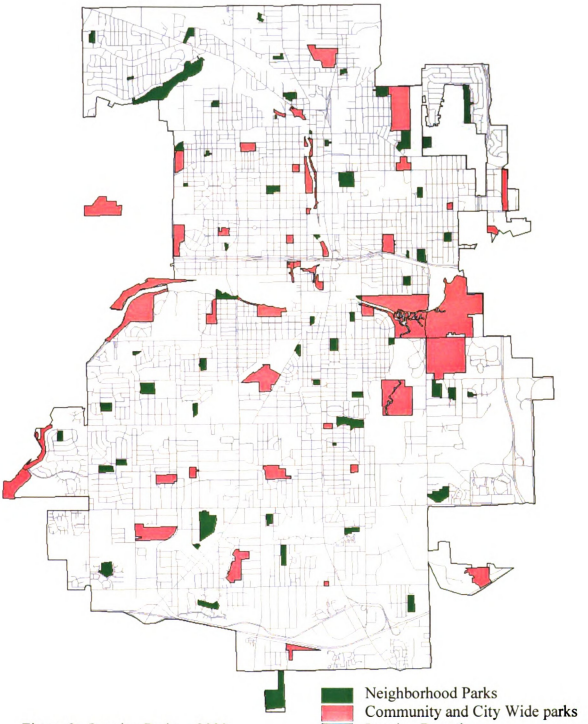

Figure 9 - Lansing Parks – 2000.

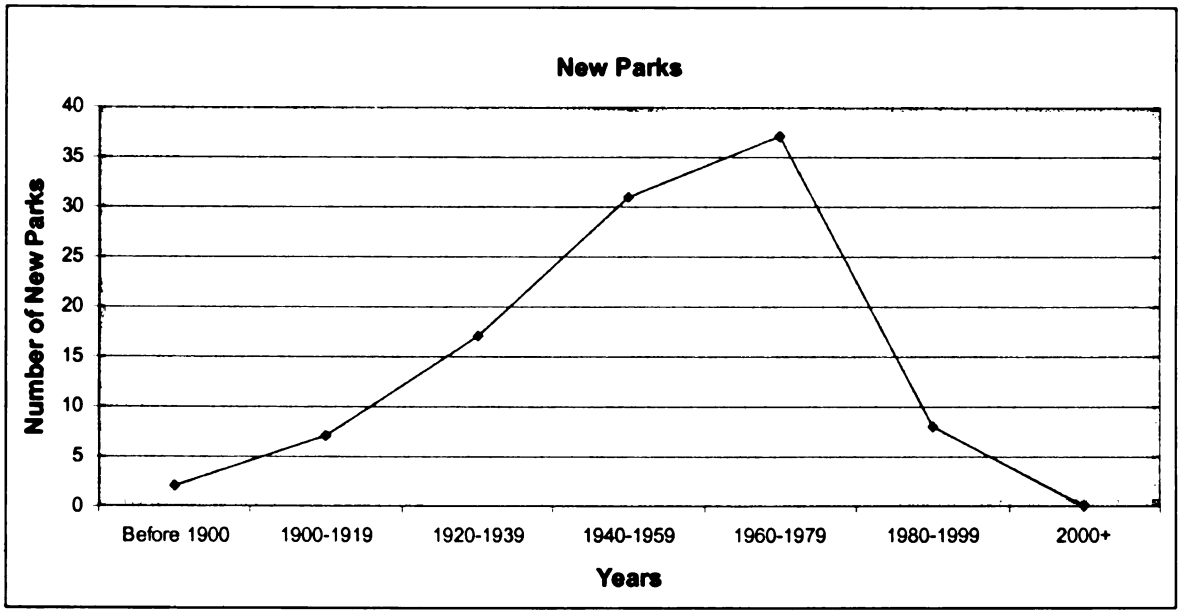

Figure 10– Rate of Park Acquisition. (Recreation, 2003). Note: 8 parks totaling 54 acres, did not have acquisition dates.

Although no new neighborhood parks have been added since 2000, acquisition of land to increase existing parks continues today by the city. This effort is mainly being concentrated in the large city-wide and community parks such as the River Front Park and Graves Park. It is with activities like acquiring parklands that the Parks and Recreation Department uses its many advisory bodies to help determining the priorities and goals for the park system. These guidelines can be found in the Parks and Recreation Master Plan.

Lansing's Parks and Recreation Master Plan

The Parks and Recreation Department is in charge of creating the Parks and Recreation Master Plan. The mission of this department is:

> "to enhance the quality of life through the preservation and maintenance of park lands, the provision of quality leisure time activities and the provision of special facilities which would otherwise not be available to Lansing residents" (Lansing Parks and Recreation Department, 1995).

To achieve this mission, the various master plans were created. The overarching goal of the 1995-2000 master plan was to:

> "provide guidance for the city's park and recreation planning and development efforts into the new century. This document is a comprehensive plan developed to assist the city in providing quality recreation and leisure experiences to its citizens" (Lansing Parks and Recreation Department, 1995).

The 2000-2005 master plan has the same goal, but is more specific by stating that it is "providing quality parks, forestry, cemetery, golf, zoo, recreation and leisure time programs for its citizens" (Lansing Parks and Recreation Department, 2000).

The Parks and Recreation Department submits a master plan every 5 years to the State of Michigan's Department of Natural Resources (DNR) in order to "qualify for grant approval allowing funding for the costs of capital improvements and land acquisitions" (Lansing Parks and Recreation Department, 2000). The format of this master plan was established by DNR's Grants and Management Section and has 5 basic sections: (1) community descriptions, (2) description of community administrative structure, (3) description of the planning process, (4) recreation inventory, and (5) action program, capital improvement schedule and rationale.

All of these 5 sections can be found in both the 1995-2000 and 2000-2005 master plans. These two master plans will be reviewed below with specific emphasis on the planning process (3) and action program (5) sections. These two sections are highlighted because they describe the planning process that leads to the action program, which in turn drives the capital improvement schedule. The selection process that leads to the action program is critical since this study is specifically looking at the underserved populations

and evaluating if this planning document follows the American Planning Association guidelines of "recognizing a special responsibility to plan for the needs of disadvantaged groups and persons" (Planners, 1991).

Since the master plans guide the actions and procedures of the Parks and Recreation Department (PRD), their creation and the subsequent action plans that come from them guide the expenditure of resources and the priorities for park development. It is these results from budget expenditures that are the central core of this dissertation which will review and analyze their equity treatment of the various population groups in the City of Lansing. The following sections go into detail and give a description of the master plan contents, which is required by the DNR, and the information supplied by the Parks and Recreation Department (PRD).

(1) Community Descriptions

This section is divided into two areas. The first one deals with the social characteristics of the population, while the second section is a description of the physical characteristics of the City of Lansing. In the first part, data and discussion are specifically requested about age, employment trends, households, persons with disabilities, population, race and ethnic groups, gender, and senior citizens. To that end, the PRD hired a consultant to use the 1990 census and map the census tracts over the city parks to better understand the population encompassed within the parks influence areas. Both the 1995-2000 and the 2000-2005 master plans use the same 1990 study since the 2000 census was not available at the time the 2000-2005 master plan was being compiled. These data are only analyzed per census track and are very general overall.

The complete synopsis of the study is presented in Appendix A. The main highlights of this study show a diverse population with a median age of 29.7 years. One in 10 residents of Lansing is a college student and 27.4 percent of the population is under age 18. In describing the labor force, the study showed that retail employs 19.1 percent of the workers, followed by manufacturing at 11.6 percent, and closely behind that is public administration with 11.4 percent of the work force (page 1.9, 2000-2005 Master Plan).

The second part of the community descriptions section concentrates on the physical characteristics of Lansing and requires information on land use patterns and zoning, topography, water resources, fish and wildlife, soils and vegetation, transportation systems, and climate. All this information is described in very brief paragraphs and shown with the same maps in both master plans. The highlights of this section are:

- Lansing is a fairly flat city that is affected more by floodplains than grade changes
- The Grand River, the Red Cedar River, and the Sycamore Creek afford much waterfront for park development along with sizable lake properties around the city
- There are 3 contaminated sites in park lands. These are the Barb Dean Tot Lot, Paulson, and Crego Park (page 1.26, 2000-2005 Master Plan).

(2) Description of Community Administrative Structure

This section includes the operating budget, organizational chart, standard operation procedures, commission or advisory board, relationship(s) with other agencies,

and staff description. The operating budget for the PRD is divided into four areas: the General fund, the Potter Park Zoo fund, the Cemetery fund, and the Golf fund (see Appendix B). Budgets for the neighborhood parks come from the General fund. The monies for this fund come from grants (both Federal and State), the State of Michigan Equity Funds, minor trust funds, land sales, donations, tax dollars, and a special parks millage for renovations and development of park facilities.

The organizational chart (see Figure 11) shows that the PRD reports directly to the Mayor and then to the City Council. It has the Parks Board as an advisory body and the Director of the PRD supervises three specific divisions: Administrative, Potter Park Zoo, and Golf / Washington Ice. It is the Administrative division that is in charge of park design and research. The deputy director supervises the Field Services, Business Management, and Leisure Services divisions. The ground and landscape maintenance of all neighborhood parks is conducted by the Field Services Division.

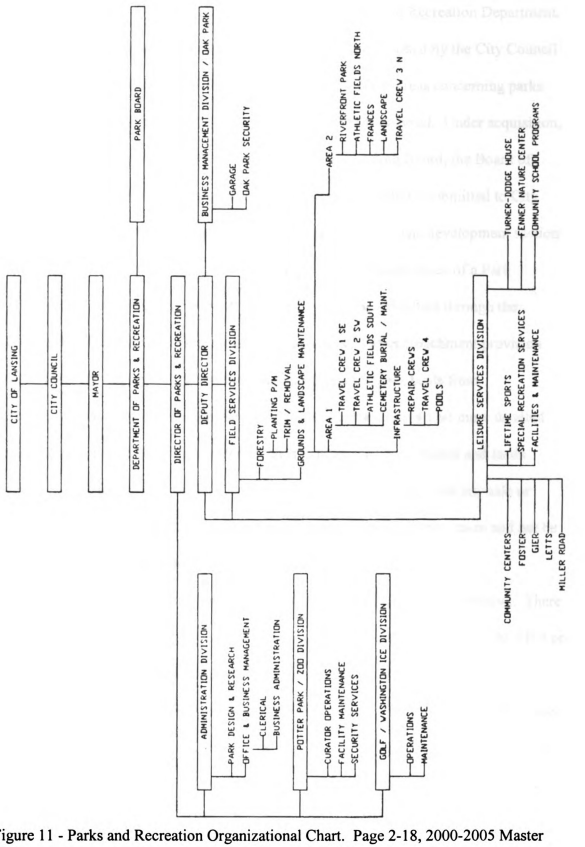

Figure 11 - Parks and Recreation Organizational Chart. Page 2-18, 2000-2005 Master Plan.

The standard operational procedures (Lansing Parks and Recreation Department, 2000) for the PDR are stated clearly in the Park Land Policy passed by the City Council in 1979, which states that the PDR will deal with four specific areas concerning parks: (1) acquisition, (2) development, (3) encroachment, and (4) disposal. Under acquisition, it states that the PDR, along with the Parks Board, the Planning Board, the Board of Education, and interested citizen groups may prepare a report to be submitted to City Council for consideration in the budget allocation procedures. The development section places PRD squarely responsible for the development and maintenance of a Park Development Capital Improvement Plan. This plan will be submitted through the Planning Board to the Mayor for budget considerations. The encroachment provision assigns PRD the responsibility of preserving and defending park lands from encroachment by public or private uses. The last area, Disposal, is a bit more detailed, since it deals with the possible transfer of lands to other city departments and lands unsuitable for park development. The main goal of this provision is that any sale or transfer of lands should occur with the purpose of improving the park system and not be used to benefit private interests.

The PRD's relationship with other agencies and boards is fairly extensive. There are over twenty different boards, commissions, and citizen groups that advise the PRD on various issues such as historical preservation, river front property cleanups and acquisitions, and softball sport programs. The PRD is staffed by full time and part-time employees, seasonal laborers, part-time contract employees, and hundreds of volunteers. In 1992, an early retirement program was offered to city employees. Since then, City Council has been reluctant to add new staff.

(3) Description of the Planning Process

Three specific requests are made by the DNR in this section. The first one is a discussion of the plan development process, followed by the description of the key persons involved in the process, and finally the description of the public involvement process used in the development of the plan. This final section contains an overall description of the public input process and a description of the methods used.

The planning process for the 1995-2000 master plan lasted nine months and was implemented by a consultant. The 2000-2005 master planning process lasted a whole year and was done internally by staff. The same general steps were taken in both plans (see Figure 12). The base information gathered from the 1995-2000 plan was incorporated into the 2000-2005 plan.

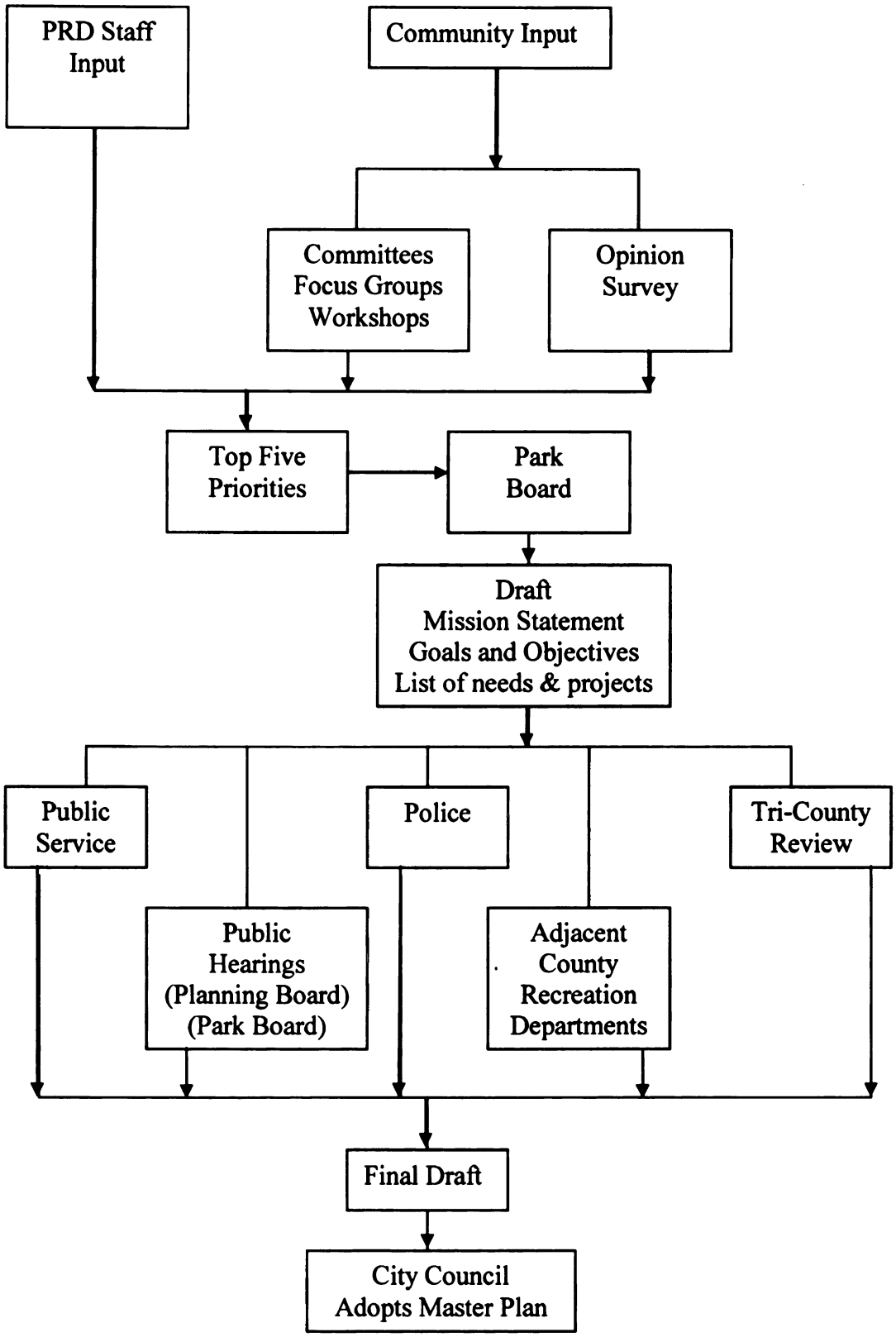

Figure 12 – Flowchart of the Planning Process to create the Parks and Recreation Master Plan.

The staff of PRD was instrumental in giving feedback regarding the current state of parks and their needs. For the 2000-2005 master plan, the staff developed a checklist to help identify deficiencies and needs of parks. Community involvement was sought in the form of 18 or more committees, focus groups, and workshops that were chaired by a staff person and were made up of solicited members of the staff and the community that had knowledge, interest, and desire to participate (see Table 3).

Table 3 - Committees and Focus Groups from both the 1995-2000 and 2000-2005 Master Plans

Committees for 1995-2000 master plan (page 2.4).	**Focus groups for 2000-2005 master plan (page 3.4).**
Cultural Arts and Historical	Access
Lansing Municipal Golf Operations	Aquatics
Natural Areas	Athletic Facilities (Park/School) and Programs
Senior Citizen Programs	Cemeteries (Lansing Municipal)
Athletics	Community Centers and Senior Citizens
Handicapper Concern	Cultural Arts and Historical
Downtown Coalition	Downtown Parks
Community Centers	Forestry (Street & Parks)
Special Events	Golf Operations (Lansing Municipal)
Oak Park Complex	Infrastructure (Parks & Recreation System)
Street & Public Trees	Natural Areas
Lansing Municipal Cemeteries	Neighborhood and City Wide Parks
Potter Park & Zoo	Neighborhood Park Programs
Neighborhood Park Programs	Oak Park Maintenance Complex
Scott Art & Garden Center	Potter Park and Zoo
Riverfront Development	Regional Recreation Issues
City Wide Infrastructure	Scott Art & Garden
Regional Recreation Issues	Washington Park Ice Skating Complex
Old Town District	

The goal of these groups was to come up with the top five priorities, which were then made part of the master plan as supporting documents. An additional method of public involvement included an opinion survey done by the Neighborhood Park

committee that was sent to members of that committee and other interested citizens (see Table 4).

Table 4 - Park Survey

Questions and Summary of Neighborhood Park Committee - 2000		
Question	Number of Respondents	Top 3 answers (number of respondents)
What city park(s) do you use?	93	Frances Park (19), Potter Park (10), Riverfront (6). All three are city wide parks.
What are the three most critical problems with neighborhood parks?	72	Security/Safety (19), Maintenance/General Upkeep (13), Facilities (11)
What new playground equipment or support amenities (restrooms, drinking fountains, bike racks, etc.) do you see as a need and in which park?	85	None (8), Frances needs restrooms, needs more easily accessible w/better lighting (4), 3 other parks = 2 restrooms and 1 bike path (2 each). All other answers were specific to one park and one item.
What new programs do you think we need on our city parks?	55	None (8), tennis lessons, help increase use of courts (3), and ice skating, nature programming and more free activities (2 each).
Do you feel safe in a city park?	36	Yes (20), Daytime only (before 6:00pm (9), Not always (6)

This survey in 2000 was opened to the public through publication in the local paper (Lansing State Journal). For the 1995-2000 master plan, a newspaper article was published that encouraged people to write in their opinions on the existing park system and what they would like to see in the future five years. Table 4 represents the results of this survey by summarizing the general responses given to the 5 questions. At the end of the questionnaire, the survey asked for affiliation or name - this list only shows 26 total participants. This means that multiple responses were allowed for each question. Of all the participants, only 6 were not affiliated with some neighborhood group, community

center, or business. For question 1, out of the 93 responses, only 9 said they used neighborhood parks. The rest used either city-wide or community parks. This response makes question 2 (what are the most critical problems with neighborhood parks) somewhat suspect and less meaningful since only 9 responses to question 1 said that they use these parks out of a total of 72 responses given for question 2. Responses to question 3 (what new facilities, equipment or support amenities do you see as a need) mentioned only 2 neighborhood parks: McKinch and the 119th Armory park. As a tool to inform the policy process, this survey does not seem to have gathered much information about neighborhood parks.

Once these surveys were compiled and the top five priorities were established, the Park Board (or the consultant in 1990) created a draft of the proposed mission statement, goals and objectives, and lists of needs and projects. Once this draft was available, it was opened for public review through various venues: the Park Board held public hearings, four complete drafts were available at the community centers throughout the city (Gier, Foster, and Kingsley), and the Planning Board and City Council held public hearings as well. For the 2000-2005 draft, feedback was also sought from the Tri-County Regional Planning Commission, adjacent county recreation departments, and other Lansing agencies such as police, planning, and public service. During the final City Council meeting, the Draft Master Plan was discussed and a vote taken to adopt it (with modifications).

This process is critical in the inclusion of underserved populations. The master plan recognizes that the population has changed, but the participation of underserved populations is suspect in the process. Committees, focus groups, newspaper surveys, and

public hearings where public input is sought, generally do not effectively reach the underserved populations in policy discussions. The literature supports this and acknowledges that upper-status citizens make up a high percentage of the people in public policy participation groups. This "status" definition includes higher education, higher income, and greater social power (Alford, 1975). Another study found that lower income groups were more distrustful of local community groups and political institutions than higher income groups (Docherty, 2001).

In an effort to include minority and poverty populations, a focus group specifically formed to address the concerns and ways of reaching these growing populations could be helpful. As stated in one study, "Different methods are necessary to reach different citizen groups" (Wilson, 1975). This study mentioned newer methods such as citizen juries, visioning, and public panels as other possible methods of involving different types of populations in the public policy process. Based on the 2000 census, 30 percent of Lansing's population is either Black or Hispanic, and almost 17 percent are living below the poverty level. This is a significant group that doesn't seem to be well represented in this information gathering process.

(4) Recreation Inventory

In this part of the plan, four sections are required. The first one is a description and/or inventory of the recreational opportunities located within the community's political boundaries that include public lands, schools, and private properties and/or facilities. The second section requires the description and/or inventory of the recreational opportunities outside the community's political boundary. The third section requires

maps showing the location of facilities, and the last section requires a description of the community's barrier-free compliance status. This latter section demands (1) the evaluation of physical accessibility of existing facilities and programs, (2) the completion of a transition plan to address the identified accessibility issues, (3) the implementation of methods to address barrier-free issues in the design the planning of new facilities and programs, and lastly, (4) the addressing of the accessibility issues at existing facilities.

This section is almost identical in both master plans. The 2000-2005 shows an increase of 10.05 park acres for a total of 1765.19, and some of the lists containing recreational programs have been updated. The 2000-2005 master plan contains one added section that fulfills the barrier-free requirement by DNR. The maps required in this section are presented in Appendix C of this dissertation and include (1) public parks and recreation map – page 4.2, (2) Community and Senior Centers – page 4.13, (3) School / Park Combinations – page 4.16, (4) City Owned Golf Courses and Cemeteries – page 4.17, (5) Natural & Historical Sites and Museum – page 4.18, and (6) Regional Composite of Recreational Lands – page 4.33.

(5) Action Program, Capital Improvement Schedule and Rational

The three sections mentioned in the title of this section are required by the DNR in the master plan. The capital improvement schedule must include estimated costs (by action and/or project and total by year), the years that the actions will be undertaken, the funding sources, and maps showing the locations of proposed actions and/or projects.

Both the 1995-2000 and the 2000-2005 park master plan for the City of Lansing has the following list of specific goals.

1. Promote and enhance the financial stability of the Lansing Parks by generating funding through a variety of sources.
2. Maintain, assess, develop, and preserve the park lands and facilities to provide for needs of present and future generations.
3. Promote the development of new recreation programs with active sports facilities and passive leisure opportunities which are in high demand, or are innovative, unique or not presently provided by municipalities or private sectors.
4. Promote interaction, involvement, and communications between the Parks and Recreation Department, the citizens of Lansing and surrounding communities (Lansing Parks and Recreation Department, 2000).

It is these goals that drive the development of the master plan and establish the priorities for the items requested and links them to the greater purpose of fulfilling the mission of the PRD. The second and fourth goals speak closest to the needs of the population. Within the second goal there are 5 underlying objectives. These are:

1. To provide systematic and effective maintenance
2. To routinely assess park lands for acquisition/expansion, disposal and/or leasing
3. To continue with efforts of meeting accessibility requirements
4. To encourage the preservation of Lansing's natural systems/features, cultural elements, historic attractions and education interpretation opportunities
5. To continue physical development projects currently underway and new innovative projects in the future.

The second of these 5 objectives, addresses the issue of park acquisition and development. The master plan states that this objective will be met by studying "specific demographic trends that may correspond to the generation of recreation services within a geographical target area" (Lansing Parks and Recreation Department, 1995, 2000). Although Lansing's demographics have been changing since the 1970s, the only populations that are mentioned to receive special attention in the 2000-2005 master plan are seniors and persons with disabilities. No mention was found of accommodating the needs of the existing minority or impoverished populations.

The fourth goal of the master plan, which deals with promoting interaction, involvement, and communication between the PRD, the citizens of Lansing, and the surrounding communities, contains five objectives:

1. To develop partnerships/coalitions with community groups and educational institutions and churches
2. To implement quality management principles at all levels
3. To acknowledge the importance of public input and contact with community leaders
4. To improve the public image and marketing efforts of the parks system
5. To develop shared visions for regional possibilities and to implement regional solutions when feasible.

The first and third objectives address public input. None of the 5 sections of the first objective mention anything concerning the input of minorities or underserved populations. Although some churches may have minorities and poverty populations participate and thus possibly get their needs voiced, there is no indication if such groups

did meet with the parks and recreation staff, and no one from a church was listed as a focus group participant. The only section that may have covered input from minority and poverty populations is number four that states that the PRD will "continue to work with the Lansing Neighborhood Council in developing a communication network to identify and meet specific park and recreation needs, such as Neighborhood in Bloom, the Adopt-A-Park Program, and other neighborhood projects and programs" (Lansing Parks and Recreation Department, 2000). Under the third objective, only the first section addresses public input, but it is not specific as to the method nor the populations addressed. It states that the PRD will "establish a simple, yet logical communication system between the users/public, their group leaders/coaches and the city's staff/supervisors" (Lansing Parks and Recreation Department, 2000).

In the 1995-2000 plan, of all the items that made it into the Capital Improvements Needs list, only 6 of them dealt with neighborhood parks. They were (1) play equipment, (2) pavement repairs to neighborhood parks, (3) repair and maintenance of miscellaneous small projects, (4) Oak Park land acquisition to the west, (5) tennis court fence repair, and (6) a request for replacement of the picnic shelter at Reasoner Park. In the 2000-2005 master plan, the Capital Improvements Schedule for grant projects does not show a single item related to neighborhood parks, but the City Capital Improvements Schedule shows the following neighborhood parks expenses: basketball court repairs, concrete repairs, park paving, playground equipment, and repair and maintenance.

Both the 1995-2000 and the 2000-2005 plan show that the only new asset added to the neighborhood parks were playgrounds. Resources spent on maintenance and repairs are bundled together in such a way that it is not possible to assess how much was

spent on each individual neighborhood park. Appendix B shows the general budget for the PRD and the Capital Improvement Schedule for all the City Departments.

Conclusion

This chapter illustrated the current population trends in Lansing and attempted to give a broad view of the park system, and its master plans. It showed that Lansing's population is changing and that this trend leads to a more racially and ethnically diverse population. It also shows that a large percent of the population (almost 17 percent) is living below the poverty line. The review of the master plan was found that there was a lack of emphasis placed on Lansing's changing demographics.

CHAPTER 5 – METHODS

Introduction

Lansing neighborhood parks and their assets are being used to assess the outcomes of Lansing's Park and Recreation master plans in relationship to minority and poverty populations. To do this, this study set out to test the following two hypotheses:

Hypothesis 1: Minority and poverty populations are under represented in the area encompassing a 5 minute walk to neighborhood parks (400 meters).

Hypothesis 2: Fewer resources have been allocated to parks located in the areas encompassing a 5 minute walk to neighborhood parks (400 meters) where greater than average minority and poverty populations live.

This chapter will define neighborhood parks and the study variables, the sources of data and the procedures used in testing these two hypotheses. The first hypothesis will require the use of geographic information system (GIS) and statistical analysis to obtain its results, while hypothesis 2 will also require some use of GIS and statistics, but will include a more phenomenological and qualitative analysis of both the 1995-2000 and the 2000-2005 master plans, expenditures, and assets to reach a conclusion. Following the procedures, there is a section on methodology justifications and literature review of relevant studies.

Neighborhood Parks and Study Variables

Lansing began systematically building its park system after the 1922 master plan was put in place. This master plan recommended having neighborhood parks for recreation, large parks that have generous tracts of native scenery, and small open spaces, triangles, and squares to soften and modify the city (Bartholomew, 1922). Today, Lansing classifies its parks into 3 different categories; city-wide, community, and neighborhood parks. In the 2000-2005 master plan, the definition of these parks (as defined by their consultants in the 1995 park study) was based on size, equipment, facilities, and location. These parameters are unknown to the current park staff (based on staff email), but the general description of these parks according to the master plan is as follows. City-Wide parks are those that are intended to serve all the people in Lansing. All Community parks were defined to have an influence radius of ¾ of a mile and the Neighborhood parks definition states that these parks will serve residents living within 1/3 mile radius (Lansing Parks and Recreation Department, 2000). The descriptions given by the park staff vary from this and are as follows:

1. City-Wide Parks: The user base encompasses all of the city or regional area surrounding the park. A good example of this is Potter Park Zoo.
2. Community Parks: These parks have a larger radii of users (1 mile +/-), a user base that is from more than just the surrounding neighborhood, yet it's not a large enough of a draw to attract users from the entire city. These parks may have all the uses found in a neighborhood park, may have parking, may have restrooms, etc., (a community center would be a good example for this category).

3. Neighborhood Parks: The user base for these parks is mainly the surrounding neighborhood (1/4 mile radius). The typical uses are playgrounds, basketball courts, some picnic tables, maybe a drinking fountain, maybe some benches, but no parking or restrooms.

Because this study is interested in the population groups found within the 5 minute walk catchment area (400 meters or approximately ¼ mile) of parks, and because neighborhood parks influence their immediate surroundings, only parks identified as Neighborhood parks were selected for this study (see Figure 13). Along with this, the catchment area of ¼ mile will be used. This distance represents a 5 minute walk (about 400 meters) and is recommended by the literature as a good guideline for population accessibility to these restorative open spaces (Kollin, 2003).

Lansing currently has 106 parks, 60 of which are classified as neighborhood parks. The list of neighborhood parks used in this study came from the 2000-2005 Park and Recreation Master Plan (see Table 5). There were 2 parks deleted from the overall 2000-2005 list due to changing land use classification (Genesee Park) and redevelopment (Washington Mall Park) compared to the 1995-2000 Master Plan. Genesse Park was the only one being classified as a neighborhood park.

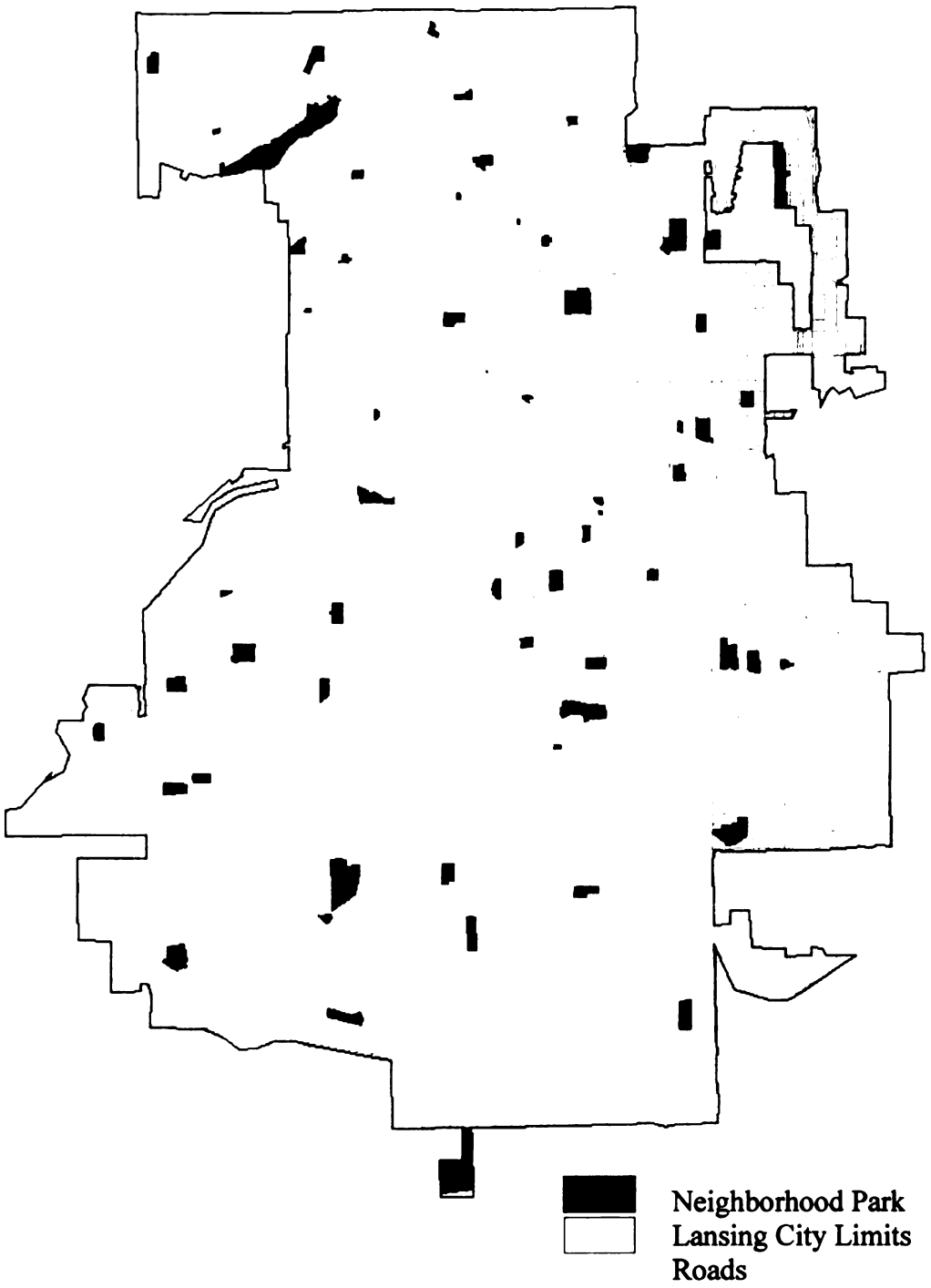

Figure 13 – Lansing's Neighborhood Parks based on 2000-2005 Master Plan

Table 5 - Lansing Neighborhood Parks and Their Acreages

NEIGHBORHOOD PARKS	ACREAGE	NEIGHBORHOOD PARKS	ACREAGE
119TH ARMORY	4.3	KIMBERLY PARK	21.2
AVERILL PARK	8.0	LARCH PARK	1.8
BARB DEAN TOT LOT	2.6	LEWTON PARK	1.7
BASSETT PARK	3.9	LYONS PARK	5.5
BECK PARK	8.9	MARSCOT PARK	9.7
BLUEBELL PARK	5.6	MCKINCH PARK	34.5
CAESAR DONORA PARK	3.4	MUNN PARK	18.2
CLIFFORD PARK	7.5	OAK PARK	18.8
DUNNEBACKE PARK	4.9	ORMOND PARK	17.5
EDMORE PARK	0.4	OSBORN PARK	1.0
ELMHURST PARK	6.2	PORTER PARK	10.7
FAIRVIEW	7.8	POXSON PARK	19.2
FERRIS PARK	8.0	REASONER PARK	7.3
FILLEY PARK	3.0	REGENT PARK	8.8
FOREST VIEW PARK	12.4	REOLA PARK	2.8
FOSTER PARK	4.9	RIVERSIDE PARK	9.7
GEORGETOWN PARK	9.7	SEVENTH PARK	2.4
GLEN EDEN PARK	7.0	STABLER PARK	1.5
GRAVES PARK	13.1	STROUD PARK	3.0
GREENCROFT PARK	4.1	SUNSET HILLS PARK	0.9
HILLBORN PARK	8.0	TAMMANY PARK	2.1
HILLSDALE PARK	1.4	TECUMSEH PARK	68.5
HOLLY PARK	5.0	TRAGER PARK	1.3
HORSEBROOK PARK	7.0	TURNER MINI PARK	0.5
HULL COURT PARK	1.6	WAINWRIGHT	4.6
INGHAM PARK	13.3	WALDO PARK	0.7
IRVING PARK	0.4	WALSH PARK	5.0
JONES LAKE PARK	2.4	WILLOUGHBY PARK	41.5
KALAMAZOO PLAZA	1.3	WILSON PARK	5.2
KAYNORTH PARK	6.3	WOODCREEK PARK	4.8
		TOTAL	**503**
		AVERAGE	**8.4**
		MEDIAN	**5.1**

The PRD does not have a set criterion for neighborhood parks, their sizes or their assets, but their goals for neighborhood parks are to provide regular routine maintenance, new playgrounds in any parks that service a young population, recreation sport facilities for causal users, picnicking facilities, trails and open space for social gatherings and

preservation of natural features. To help with this, "Program Play" was initiated in 1994 in cooperation with the Lansing school district to place play structures in parks and schools (Lansing Parks and Recreation Department, 2000).

Of the 60 neighborhood parks, 29 of them are five acres or less in size and three are over 30 acres. The average neighborhood park is 8 acres in size and the median park area is 5.1 acres (see Figure 14). Based on this information, parks will be analyzed in two categories: parks that are five acres or less and parks that are greater than five acres. These two categories will be useful to compare what size of park serves what type of population. The recommended size for a neighborhood park is 15 acres (Lancaster, 1983). Since Lansing's neighborhood parks are much smaller, it will be useful to know what populations are being served by the smaller parks versus the larger parks.

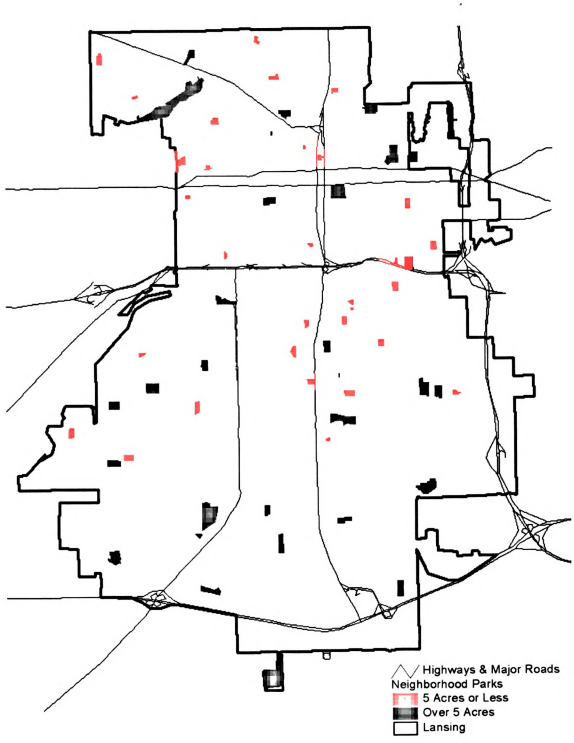

Figure 14 – Lansing's Neighborhood Parks by Size

These neighborhood parks have a variety of assets that serve the surrounding residents. In the 60 neighborhood parks, the following assets can be found: park benches, playgrounds, drinking fountains, grills, picnic tables, picnic areas, picnic shelters, ball diamonds, basketball courts, tennis courts, soccer fields, volleyball courts, natural hiking trails (dirt or woodchip surface), natural walks (paved or boardwalk surface), cross country trails, sledding hills, and boat launch areas. A summary of the assets found in the various neighborhood parks is given in Table 6. The top 5 assets are playgrounds, basketball courts, ball diamonds, picnic areas, and tennis courts. Looking at the total assets found in these parks, the average number of assets is 5 and the median is 4. For this study, assets will be divided into 2 groups; parks having less than 4 assets and those having 4 or more assets. This division selects 31 parks in the four or more category.

Table 6 – Number of Neighborhood Park Assets

Assets	Number of Parks
Benches	93
Playgrounds	47
Basketball Courts	35
Ball Diamonds	25
Picnic Areas	14
Tennis Courts	11
Picnic Tables	10
Grills	8
Picnic Shelters	7
Natural Walks	8
Drinking Fountains	6
Other (includes soccer (1), volley ball (2), hiking (1), cross-country (1), and sledding (2)	7
Total	**271**
Average	**5**
Median	**4**

Since the number of assets that a park contains has been correlated to greater park use, this study will quantify the assets in the neighborhood parks. This will be done in two ways: first, the overall number of assets will be measured and then the approximate dollar value of those assets will be calculated. This dollar value represents the expenditures made by the PRD and will be the metric used to determine whether underserved populations are being equally served. Table 7 shows the values used to

arrive at the assets expenditures. These costs were verified with PRD staff and represent current day replacement costs. Natural features like trees and acreage were not included in this determination. Although these are very important elements of expenditure and worth, quantifying them was beyond the scope of this study. Only built elements that have a direct impact on recreation were used. Table 8 lists all the neighborhood parks and shows the number of assets and their replacement cost.

Table 7 - Asset Value Based on Estimates from Park Staff

Assets	Cost per Asset
Bench	$1,850
Playground	$35,000
Basketball Court	$20,000
Ball Diamond	$3,000
Picnic Area	$2,000
Tennis Court	$45,000
Picnic Table	$1,200
Grill	$1,000
Picnic Shelter	$50,000
Nature Walk (dirt or woodchip path)	$1,000
Drinking Fountain	$2,500
Soccer Field	$3,000
Volleyball Court	$2,500
Cross-Country Skiing	$3,000
Hiking (on paved or boardwalk surface)	$150,000
Sledding Hill	$5,000

Table 8 - Parks, Assets, and Total Asset Costs

NEIGHBORHOOD PARKS	NUMBER OF ASSETS	ASSETS COST IN DOLLARS
119TH ARMORY	4	59,850
AVERILL PARK	2	38,000
BARB DEAN TOT LOT	5	42,350
BASSETT PARK	5	61,700

BECK PARK	3	38,700
BLUEBELL PARK	5	60,550
CAESAR DONORA PARK	1	35,000
CLIFFORD PARK	6	107,350
DUNNEBACKE PARK	6	135,700
EDMORE PARK	3	205,000
ELMHURST PARK	4	103,000
FAIRVIEW	9	164,800
FERRIS PARK	6	63,050
FILLEY PARK	5	60,700
FOREST VIEW PARK	17	213,450
FOSTER PARK	14	75,550
GEORGETOWN PARK	12	166,750
GLEN EDEN PARK	0	0
GRAVES PARK	7	63,700
GREENCROFT PARK	0	0
HILLBORN PARK	8	67,250
HILLSDALE PARK	3	38,700
HOLLY PARK	2	36,850
HORSEBROOK PARK	5	61,700
HULL COURT PARK	2	55,000
INGHAM PARK	7	67,200
IRVING PARK	0	0
JONES LAKE PARK	2	185,000
KALAMAZOO PLAZA	10	161,700
KAYNORTH PARK	3	38,700
KIMBERLY PARK	1	0
LARCH PARK	0	0
LEWTON PARK	1	35,000
LYONS PARK	3	100,000
MARSCOT PARK	8	92,900
MCKINCH PARK	3	58,000
MUNN PARK	3	172,000
OAK PARK	5	62,000
ORMOND PARK	2	23,000
OSBORN PARK	2	38,000
PORTER PARK	3	58,000
POXSON PARK	5	61,700
REASONER PARK	10	162,400
REGENT PARK	3	39,350
REOLA PARK	2	55,000
RIVERSIDE PARK	2	185,000
SEVENTH PARK	4	60,000
STABLER PARK	4	58,700

STROUD PARK	1	20,000
SUNSET HILLS PARK	0	0
TAMMANY PARK	4	58,700
TECUMSEH PARK	12	310,850
TRAGER PARK	3	152,850
TURNER MINI PARK	6	9,950
WAINWRIGHT	3	58,000
WALDO PARK	4	58,700
WALSH PARK	8	115,400
WILLOUGHBY PARK	0	0
WILSON PARK	8	158,700
WOODCREEK PARK	8	110,550
TOTAL	**271**	**$4,722,050**
AVERAGE	**5**	**$79,288**
MEDIAN	**4**	**$59,925**

Because budget information for these parks is not available in a format that allows individual park analysis, this insight will be extrapolated from the assets that were installed. For the dollar expenditure variable based on those assets, the average was $79,288 and the median was $59,925. The 2 categories for this variable will be parks with assets worth over $60,000 considered to have a high expenditure, and parks that have a dollar amount less than this will be put in the category of low expenditure. This selects 31 parks in the high expenditure category.

Available reports also showed the date that the assets were installed (Table 9). These data may be used to reflect the priorities given to parks by their installation date. The most complete record relates to playgrounds and is recent enough to be addressed by both the 1995-2000 and the 2000-2005 master plans. Thirteen parks have no playgrounds, and 2 playgrounds had no installation date. Therefore we have data on 45 parks

Table 9 - Number of Playgrounds in Neighborhood Parks and the Dates Installed

Number of Playgrounds	**Dates installed**
29	Before 2000
16	2000 and After
(13)	None
Total = 45	

Data Sources

Park Data

The park data used in this study come from three different sources. The outline and spatial information for each park comes from the City of Lansing's planning department and was acquired in GIS format. The individual park data comes from the City of Lansing's PRD and their consultants. These data include the acreage of parks, classification, budget expenditures, and park assets and were compiled in 2003. The park assets data were then compared and updated from a database created and field checked in 2004 by a researcher at Michigan State University (Dr. Sarah Nichols). Park acreage, number of assets, estimated asset values, and date of asset installation will be used to help determine whether minority and impoverished populations are receiving a similar share of these public resources.

City Data

Data for the City of Lansing came from various sources. The land use coverage that was used to select the residential areas in the city was obtained from the Tri-County Regional Planning Commission. These data were useful in taking the generic census block or census block group areas and removing all land uses that were not residential. With this remaining area, a true population density measure is possible. The roads, railroads, and rivers came from the Michigan Center for Geographic Information. The roads selected had four or more lanes. The pedestrian overpass information came from the City of Lansing's Engineering Department and was used to adjust the catchment area to reflect pedestrian access where a four-lane road can be traversed by pedestrians. The

last piece of city data acquired was the overall outline of the city that came from the Environmental Systems Research Institute (ESRI) Geographic Network database. All of the data used was set to the Michigan Georef, NAD 83 projection.

Demographic Data

The main source of demographic data for this study is the U.S, Census Bureau. They produce data covering a very broad spectrum of demographic information that comes in different scales, with different measures associated with each scale. The smallest geographic unit available is the census block and this is the most appropriate scale of data created by the Census Bureau for neighborhood studies (Liu, 2001). Census blocks contain only broad demographic data such as race and ethnicity. The advantage of using census block information is that there are clearly defined boundaries and thus, comparisons over time are possible (these boundaries will be obtained from the ESRI Geographic Network Database). Also, the relative homogenous units in population numbers of each of the census blocks and the fact that smaller units have fewer chances of aggregation errors makes this data source relatively stable with an even distribution and is, therefore, appropriate for this use. The next geographic level of data is the census block group, which contains the aggregate data of various census blocks.

One of the disadvantages of the census block data is that all available information gathered by the census bureau is not available at this scale due to confidentiality concerns. To include income information both the census block and census block group data will be used, but an error will be introduced since data at the census block group level is more generalized than the data at the census block level. The block group

information used in this study is population by race, ethnicity, and income (See Table 10). This will be done for the 1990 and the 2000 census. Poverty data is reported for the previous year of the census and thus the 1989 and 1999 data will be used.

Table 10 - Census Data Used in This Study

Data	Scale	Year	Range
Income	Census block group	1989, 1999	Above Poverty and Below Poverty
Race and Ethnicity	Census block group Census block	1990 2000	Whites, Blacks, and Hispanics

The census differentiates between race and ethnicity. This means that the Hispanic population may contain Black and White populations, but the White and Black counts are for "one race only." Both the 1990 and the 2000 census data will be used to get a better understanding for the population shift that is currently happening in Lansing.

Access Measures

Since this study is looking at the relationship between parks and population demographics, the issue of access to these parks is being specifically investigated. This research takes into account environmental constraints that affect access to the park by the surrounding population. This process requires two separate steps. First, park catchment areas will be created that include a ¼ mile area surrounding the parks. Then, these areas will be modified to reflect the physical barriers that may impact this catchment area, such as highways and railroads that are effective barriers to pedestrians. This study used road classification to determine which roads served as barriers. Roads classified as collectors with four or more lanes were considered barriers. Highways, railroad lines, and waterways are also included as barriers. The resulting coverage will show actual areas

that have pedestrian access to parks and that are no more than a 1/4 mile away (or a 5-minute walk). Tests for statistical significance and correlation will be done between the population characteristics found in the catchment areas and the quantitative values found within each of the parks. Table 11 shows the variables that were used in this study.

Table 11 – Study Variables

Variables	Categories
Income	Above Poverty, Below Poverty (1989, 1999)
Race and Ethnicity	Whites, Blacks, Hispanics (1990, 2000)
Park size	Over 5 Acres, 5 Acres or Less
Park assets	High Number (4 or more), Low Number (less than 4)
Asset value	High Expenditure ($60,000 or more), Low Expenditure (less than $60,000)
Park access	Area within ¼ mile (400 meters) and not bisected by a barrier
Asset installation date	Before 2000, 2000 and After, None
Barriers	Roads (greater than 4 lanes), water ways, railroads, highways

Procedures

In order to test the study's hypotheses, the following procedures were followed:

1. Gather data from the ESRI web site (www.esri.com) for both Ingham county and Eaton county. These data contain the outlines of the census blocks and census block group polygons.
    a. 1990 Census block group polygons
    b. 2000 Census block polygons
    c. 2000 Census block group polygons
2. Gather data from the Census web site (www.census.org).
    a. 1999 Census block group poverty information – SF3 – P87

b. 2000 Census block race information – SF1 – P7

c. 1989 Census block group poverty information – SF3 – P117

d. 1990 Census block group race information – SF1 – P7

3. Join the census databases with the appropriate block or block group polygon files.
4. Clip all files to cover an area a little greater than Lansing to reduce file size.
5. Calculate the acreage of these polygons. Verify that the projection is set to Michigan GeoRef : NAD83.
6. Using the Land use coverage from Tri-County Regional Planning, select only the residential uses. Save this as a new coverage. Dissolve all these tiny polygons together to speed up processing.
7. Clip the Census coverage with the Land use coverage. This removes the areas that are not residential from the study.
8. The polygons in the Census coverage will contain the population numbers, but since polygons have been clipped to remove non-residential areas, these polygons will need to be measured and the population numbers will need to be modified based on the percentage of land area. Save this as the final population coverage. The steps below show how to accomplish step 8.

    a. Rename the acres field to old acres. When doing this, make sure to create this field using 3 decimal places.

    b. Recalculate the acres field for the Census coverage.

    c. Add all the new acres information found in the database that originally made up the old census area (in Excel, identify all the acres that share

the same id number and add them together). This is the new total acres value.

d. Take new acres field and multiply it by 100. Then, divide this number by the new total acre value from step 8c of each polygon. This equals the percent of each polygon to the total clipped census block area.

e. Multiply the percent times the total number of people from the census database. This equals the new total of people per census area. Note that this number is greater than if you just added the Whites, Blacks and Hispanics because other population groups are not shown.

f. Multiply the percent by the total of each of the demographic variables. For example, Whites times percent equals a new variable labeled "new total white per census."

g. Multiply the new demographic variable from step 8f and divide this by the new acres calculated in step 8b. This results in the density value of that polygon for that demographic variable .

h. Determine the density for the total population and total poverty population using the procedure in 8g.

i. Append this information to the polygon files. To do this you must convert the Excel spreadsheet with formulas into a spreadsheet that only has values. Use the paste special "values only" option. Save this as a text delimited file. Saving the file first as a comma delimited file seems to reduce errors. Once the file is in a text format, use the "Join" command to append the information to the appropriate polygon file.

9. The new coverage now contains only residential areas with population densities.
10. Get the neighborhood park coverage from the city and append the database containing the park asset numbers, asset values, and asset installation dates.
11. Using the neighborhood park coverage, create a 400 meter buffer to determine the park catchment study area (See Figure 15).
12. Create a barrier coverage that includes the roads (4 lanes or more), the waterways, highways, and railroads.
13. Using the park catchment areas coverage (from step 11), remove areas that are bisected by barriers. Save this as the final study area. The easiest way of doing this was through the use of MicroStation as a CAD engine (see Figure 16).

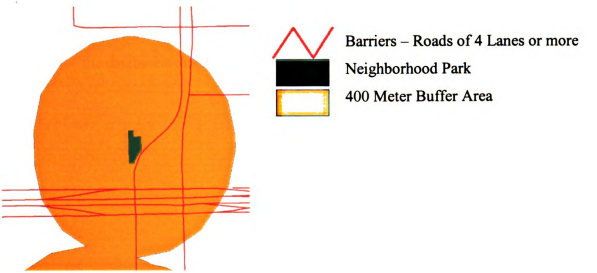

Figure 15 – 400 Meter Buffer Area

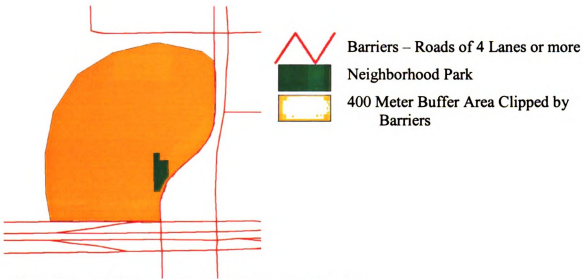

Figure 16 – 400 Meter Buffer Area Clipped by Barriers

14. Using the final modified catchment area coverage, intersect it with the final population coverage. This will create new clipped polygons. Re-calculate the area of each polygon and, using the established density, get an exact count of each population variable. Also, calculate the percentage of the total population since Lansing's percentages are used to determine if the values in the database exceed the typical city statistics (see Figure 17).

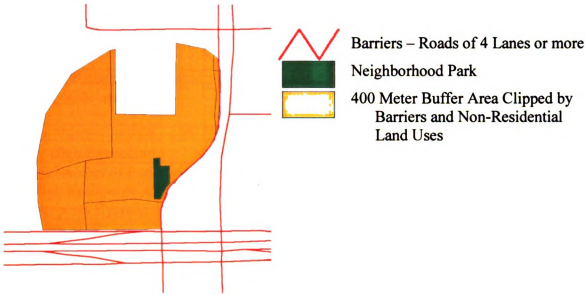

Figure 17 – 400 Meter Buffer Area Clipped by Barriers and Non-Residential Land Uses

15. Analyze the population counts using basic statistical correlation tests and T-Test for significance. The hypotheses are evaluated based on the following matrices (Tables 12-14).

Table 12 - Matrix for Hypothesis 1

Variable	Over-Representation of Whites and Above Poverty Populations	Over-Representation of Blacks, Hispanics, and Below Poverty Populations
Within the Catchment Area	Hypothesis 1 = true Equity distribution does not follow Advocacy planning	Hypothesis 1 = false Equity distribution does follow Advocacy planning

Table 13 - Matrix for Hypothesis 2

Variables	Over-Representation of Whites and Above Poverty Populations	Over-Representation of Blacks, Hispanics, and Below Poverty Populations
Asset Value above city-wide average	Hypothesis 2 = true Equity distribution does not follow Advocacy planning	Hypothesis 2 = false Equity distribution does follow Advocacy planning
High Number of Parks with High Expenditure	Equity distribution does not follow Advocacy planning	Equity distribution does follow Advocacy planning
High Number of Parks with High Number of Assets (supports Hypothesis 2)	Equity distribution does not follow Advocacy planning	Equity distribution does follow Advocacy planning

Table 14 - Matrix for Policy Implications

Variables	Over-Representation of Whites and Above Poverty Populations	Over-Representation of Blacks, Hispanics, and Below Poverty Populations
Playground Acquisition Time – None	Equity distribution is undefined	???
Playground Acquisition Time – Before 2000	Equity distribution does not follow Advocacy planning	Equity distribution does follow Advocacy planning
Playground Acquisition Time – 2000 and After	Equity distribution does follow Advocacy planning	Equity distribution does not follow Advocacy planning
Large Size of Park (supports Hypothesis 2)	Equity distribution does not follow Advocacy planning	Equity distribution does follow Advocacy planning

Methodology Justification

In environmental justice studies, the most common form of analysis is the use of census block groups being analyzed in relationship to a specific land use (Liu, 2001). This study follows the same general procedure, but increases the accuracy of the analysis. Since the census blocks and block groups cover the entire city, land uses that are non-residential such as industrial, open space, and commercial, are counted in the population density calculations. This study removed these non-residential land uses from the analysis by subtracting them from the census coverage. This means that the remaining

areas must be adjusted individually for each census block group affected. This is done by calculating the acreage of the remaining pieces (sometimes land use subtraction breaks up census blocks into more than two pieces) and using the proportion of the new overall size, new population densities are assigned. This allows later analyses to use the overall acreage, and quickly calculate the population within the remaining area. This methodology does not appear anywhere in the literature. It is more time consuming and may be impractical in studies that cover large tracts, like the city of Detroit. Lansing, because it is of a manageable size, allows for this more accurate analysis.

Once the numbers have been calculated for each group and for each specific variable, the use of a T-Test is generally done and it is considered more powerful than other tests, such as the Wilcoxon rank-sum test (Liu, 2001). It does require the assumptions that the distributions are normal and that the population standard deviation is unknown. This test is done to find whether the various numbers for each group are statistically significantly different from one another. Other basic correlation statistics and summaries will also be done to describe the results.

Conclusions

This chapter gave a detailed description of the neighborhood parks and their assets, the data used in this research, and the procedures that were followed. The neighborhood parks were found to be smaller on average than the nationally recommended size, but the park density calculation shows Lansing to have an above average score compared to the nation's largest cities.

The variables defined in this chapter included race, ethnicity, income, neighborhood parks, park size, assets, and catchment areas of these parks. For race and ethnicity, the variables are **Whites, Blacks,** and **Hispanics**. For income, the level determining the categories was poverty and the two variables are **Above Poverty** level and **Below Poverty** level. Neighborhood parks were selected from the overall park system giving this research 60 units of study, and the park size, assets, and asset values were determined. The park size limit used was five acres and this leaves 32 parks **Over Five Acres,** and 28 parks **Five Acres or Less**. The assets found in these parks were quantified in three different ways. First, parks having four or more assets were considered to be in the **High Number** asset group (31 parks) and the remaining parks having less than four assets (29 parks) were in the **Low Number** asset group. For the second asset variable, the dollar value used as a benchmark was $60,000 and this left 31 parks in the **High Expenditure** category vs. 29 parks in the **Low Expenditure** category. The third asset variable is based on date of playground installation. The variables were: **Before 2000, 2000 and After,** and **None**. Also discussed was the catchment variable that was determined to be **¼ mile** buffer zone (400 meters for analysis).

CHAPTER 6 – DATA ANALYSIS AND CONCLUSIONS

The first part of this chapter is organized around each of the two hypotheses. The data related to each hypothesis are described and analyzed and then final conclusions are drawn. The last section in this chapter looks at all the variables collected in relationship to each of the population groups, both as individual groups and as a mixed category. This evaluation and analysis is done to look for policy implications of the Lansing's Park and Recreation Master Plan.

Hypothesis 1

The first hypothesis of this study states that minorities and poverty populations are under-represented in the area encompassing a 5 minute walk to neighborhood parks (400 meters). The minorities in this study were Blacks and Hispanics and they were compared to the White majority population. The poverty population was determined from the census data of individuals living below the poverty line. The measure of under-representation was determined by using the city wide percentages for these populations. If the percentage of people was found to be lower than the city-wide average, then under-representation was said to occur. The area encompassing a 5 minute walk to the parks is referred to in this study as the catchment area. Only the populations living within the catchment areas were considered in this study. This hypothesis was tested for both the 1990 and 2000 census. Such time studies help to clarify patterns in population changes.

Once both sets of data (1990 and 2000) were established, they were compared against the city's population percentages to verify whether minorities and poverty populations are being under- or over-represented within the catchment areas. The overall results are laid out in Table 15 showing the total population numbers for each study group found within all the catchment areas, the percentage that this number represents for the overall catchment population, and how it compares to the overall city-wide population percentages.

Table 15 - Results of Population Percentages Within Catchment Areas

Population Groups	Total Population within all catchment areas	Percent of Population within all catchment areas	Overall City-wide Percentages	Under or Over Representation of Population in all catchment areas
1990 overall total for Whites, Blacks, and Hispanics	58145	100		
1990 Whites	43774	75.3	73.9	Over
1990 Blacks	10249	17.6	18.6	Under
1990 Hispanic	4346	7.5	7.9	Under
1989 overall Population	57591	100		
1989 Below Poverty	9810	17.0	19.2	Under
1989 Above Poverty	47780	83.0	80.8	Over
2000 overall total for Whites, Blacks, and Hispanics	82480	100		
2000 Whites	55700	67.5	65.3	Over
2000 Blacks	14590	17.7	21.9	Under
2000 Hispanics	7108	8.6	10.0	Under
1999 overall Population	50810	100		
1999 Below Poverty	7871	15.5	16.9	Under
1999 Above Poverty	42939	84.5	83.1	Over

The data in this table reveal a large difference between the overall population numbers (total counts) within all catchment areas in the 1990 and the 2000 data sets. This difference in population numbers may be due to the difference in scale of the data sets. The 1990 population information came from census block group data which is larger in size than the census block data used for the 2000 population information. Having the larger size population measurement area may have averaged the population numbers across this larger area resulting in more diluted density numbers. In the 1989 and 1999 data sets used to look at poverty, the numbers are closer to the 1990 than the 2000 census data set. Again, this poverty population information came from census block group data instead of the census block data that is smaller in measurement area.

These data also reveal that Whites and Above Poverty populations were over-represented (compared to the overall-city wide population distribution) in both the 1990 and the 2000 data sets. All other study groups (Blacks, Hispanics, and Below Poverty populations) were under-represented. Although, the difference between the percentage of population within the catchment area and the overall city-wide percentages were small in some cases, the changes between the decades for Blacks and Hispanics do not show a positive trend. In 1990 the proportional representation of Black in the catchment areas differed only by 0.973 from the city-wide percentage. By 2000, the difference in Black proportional representation went up to 4.2 in a negative direction (see Table 16). This trend shows a greater under-representation in 2000 compared to 1990. For Hispanics, the difference went from 0.425 to 1.382. This change was not as great as Blacks, but it again shows a greater proportional under representation in 2000 than in 1990.

Table 16 shows the percentages of each of the study groups within the catchment areas, the overall city-wide population percentages, the percent difference between the city-wide numbers and the 1990 and 2000 population groups, and what the percentage change represents. This final column (percentage of change) shows what percentage of over- or under-representation occurred. For example, if the percentage of the White population within the catchment areas is 75.283 and the city-wide percentage is 73.9, then the 1.383 percent difference is above the city-wide percentage. This can be calculated as a percentage of the overall city-wide percentage and is represented as 101.87 percent. This shows how much more above the city-wide average (in percent) the White population is within the catchment area.

Table 16 - Population Percent Difference and Index in Catchment Areas

Population	Percent of Population Within All Catchment Areas	Overall City-wide Percentages	Percent Difference	Index
1990 Whites	75.283	73.9	1.383	101.87
1990 Blacks	17.627	18.6	-0.973	94.77
1990 Hispanic	7.475	7.9	-0.425	94.60
1989 Below Poverty	17.035	19.2	-2.165	88.72
1989 Above Poverty	82.965	80.8	2.165	102.68
2000 Whites	67.532	65.3	2.232	103.42
2000 Blacks	17.690	21.9	-4.21	80.78
2000 Hispanics	8.618	10.0	-1.382	86.18
1999 Below Poverty	15.491	16.9	-1.409	91.66
1999 Above Poverty	84.509	83.1	1.409	101.70

From this table one can determine that the percent of change of the White population within the 5 minute walk area surrounding parks increased between 1990 and 2000. Although the percent of the population within all catchment areas for Whites decreased from 75.283 to 67.532, the respective city-wide percentages also decreased. Taking this decrease into consideration, the overall White proportional representation within the catchment areas actually increased from 101.87 percent to 103.42 percent. The opposite is shown for both the Black and Hispanic populations. The trend shows that under-representation within the catchment area between the 1990 and the 2000 data is increasing. The Below Poverty group is the only group that shows a decrease in the

proportional under-representation (from 2.165 to 1.409) within the catchment area, while the Above Poverty groups show the same exact decrease in over-representation. Figure 18 maps these trends, which are made up of the difference between city-wide population percentages and the catchment areas population percentages. Poverty Population results (1989 and 1999) are being reported within the same charts and figures as the other populations (1990 and 2000) for ease of representation and comparison.

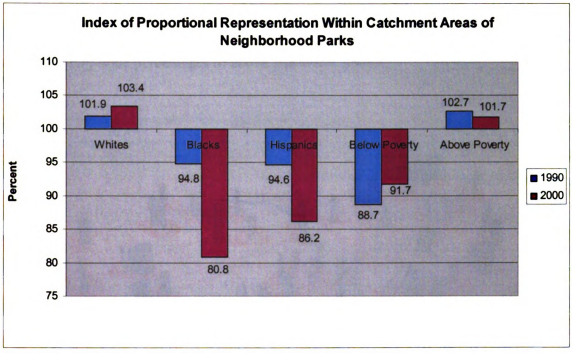

Figure 18 – Index of Proportional Representation Within Catchment Areas of Neighborhood Parks Between 1990 and 2000

Although both the Black and Hispanic groups are increasing in proportional under-representation within the catchment area, the change in rate is quite different for both of these groups. The data shows that although Blacks in 1990 were not as heavily under-represented within the catchment areas of neighborhood parks compared to the Below Poverty group, in 2000, Blacks are the most heavily under-represented group, and if trends continue, they may become significantly underserved as a population by

neighborhood parks. Of the four population groups studied, Whites and the Below Poverty group, had their respective numbers increase in the catchment areas. Where Whites increased in proportional over-representation between 1990 and 2000 (1.383 to 2.232), the Below Poverty under-representation improved from -2.165 to -1.409.

To get a better picture of the over and under-representation of populations in these neighborhood parks, Figures 19 through 26 were created to show each of the neighborhood parks color-coded based on whether they under-represent or over-represent each study population. The poverty map shows if the parks catchment areas contain more than city-wide percentages of above and below poverty.

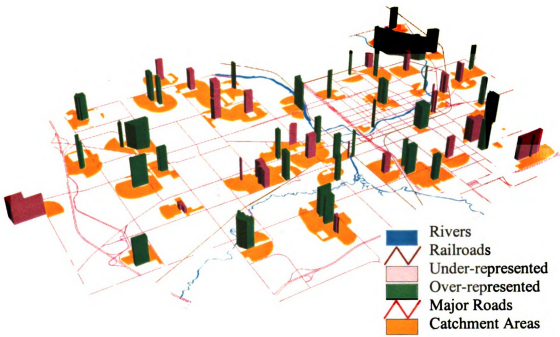

Figure 19 – White Representation – 1990.

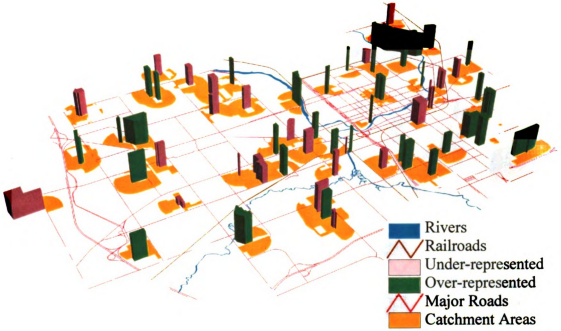

Figure 20 – White Representation – 2000.

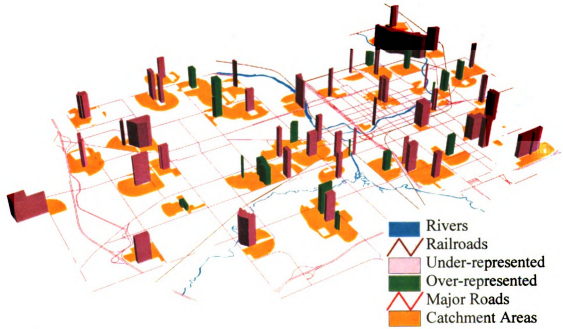

Figure 21 – Black Representation – 1990.

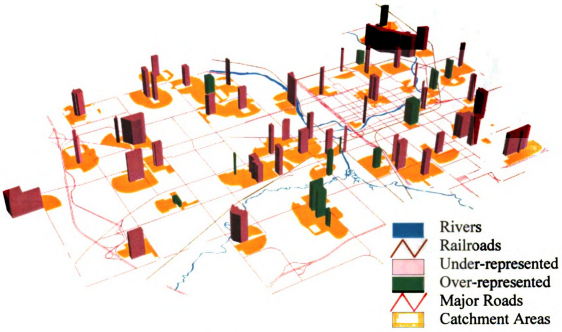

Figure 22 – Black Representation – 2000.

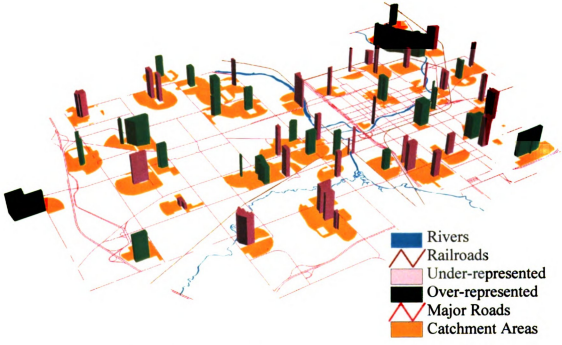

Figure 23 – Hispanic Representation – 1990.

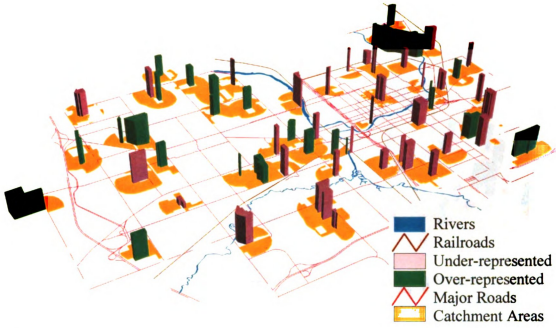

Figure 24 – Hispanic Representation – 2000.

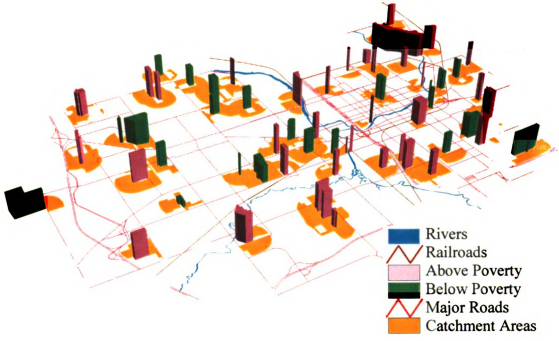

Figure 25 – Poverty Level in Park Catchment Areas– 1989.

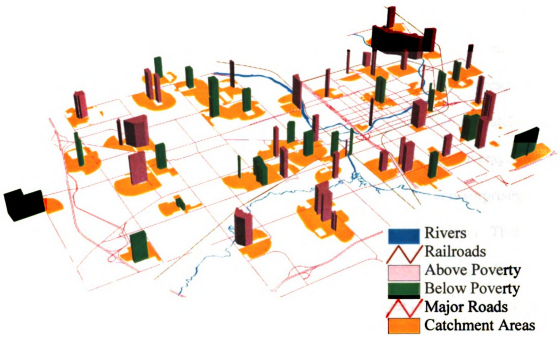

Figure 26 – Poverty Level in Park Catchment Areas– 1999.

These maps show the specific neighborhood parks, the catchment areas and if the populations were under- or over-represented within the catchment area for both the years 1990 and 2000. From the methodology section, (Table 12) the matrix used to test this hypothesis states that if over-representation of Whites and Above Poverty populations was found within the catchment area, then hypothesis 1 was considered true. It also states that if hypothesis 1 is true, then the definition of equity found is not advocacy. This means that the planning efforts do not show results that would imply that the needs of the disadvantaged were being advocated.

Hypothesis 1 – Conclusions

The confirmation of hypothesis 1 is not surprising since Black, Hispanics and Poverty populations have been found to be underserved in many park studies and other social programs. What is surprising about these results is the increase of representation of both the White population group and the Below Poverty group within the catchment areas. These groups have both shown a decrease in the overall city-wide averages between these decades and the fact that they are continuing to increase is surprising since this is in direct contrast to the existing trend in Lansing's overall population. That catchment areas show an increase in these groups does not follow this trend. Figure 27 shows the changes in the study population city-wide percentages between these decades, and it shows exactly the reverse of what the population representation trends are in the catchment areas.

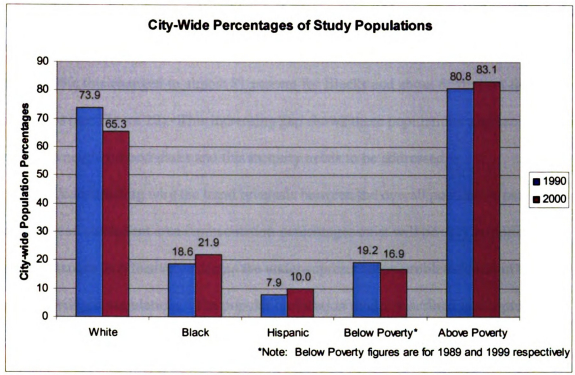

Figure 27 – City-Wide Percentages of Study Populations

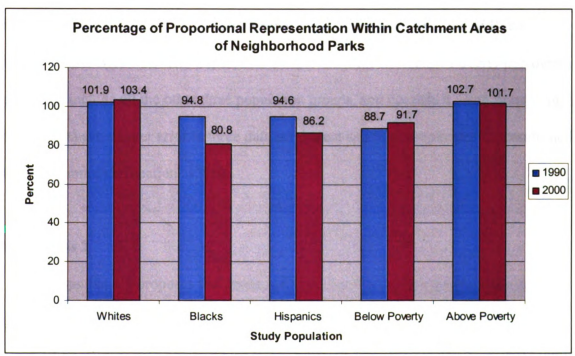

Figure 28 – Percentage of Proportional Representation Within Catchment Areas of Neighborhood Parks.

The trend that is most disturbing is the increasing under-representation of both the Black and Hispanic populations. Both groups were about 95 percent represented in 1990, but in 2000, this changed to almost 81 percent for Blacks and about 86 percent for Hispanics (see Figure 28). This increasing gap shows these populations are receiving less access to neighborhood parks and this inequity needs to be addressed.

Understanding why the trend reversals between the overall population percent changes and catchment area representation percentages exist will be very important for policy changes to effectively address the under-representation problem found in the underprivileged populations. The population location model described in Chapter 3 mentions issues such as housing costs and peoples' preference of public goods that determine where they live. Knowing that this is true regardless of race shows a need to get more information, specifically about Lansing's population and planning policy, to begin reversing the trend of increasing proportional under-representation of Black, Hispanics and Below Poverty population groups. Because the Below Poverty population group can include all the other three population groups, and because it came from a much coarser data set, greater error in these data is inherent and this complicates the results and may need more verification as well.

Hypothesis 2

Hypothesis 2 proposes that fewer resources have been allocated to parks located in the areas encompassing a 5 minute walk to neighborhood parks (400 meters) where greater than average minority and poverty populations live. The resource variable used to test this hypothesis was based on the value of the assets found in the parks. The 5 minute

walk area is the same catchment area surrounding neighborhood parks used for hypothesis 1, where both barriers and non-residential land uses were extracted. The average minority and poverty populations were also defined as in hypothesis 1 and were Blacks, Hispanics, and individuals living below the poverty line.

To test this hypothesis, the data gathered from hypothesis 1 was used. In hypothesis 1, the population was analysed and mapped to show what parks and what percentages of each population were found in the catchment areas. Figures 17-24 depict the parks, their catchment areas and the under- or over-representation of each of the study populations. With this information, Figure 29 was created to show the number of parks that have a greater than city-wide percent average for the study populations.

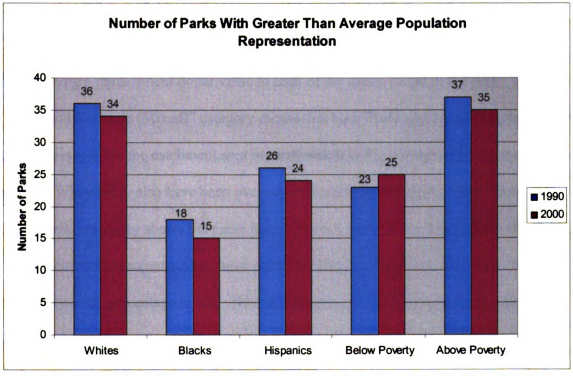

Figure 29 – Number of Parks with Catchment Areas That Have Greater Than Average Population Representation.

In 1990, there were 36 parks that had a greater than average White majority within the 5 minute catchment area surrounding them. Of the other populations in this study, the data shows that Blacks are more heavily under-represented in more park catchment areas than Hispanics or the Below Poverty population group. This is of concern because the difference between the overall percentage of the population made up by Blacks is much larger (18.6 in 1990 and 21.9 in 2000) than the Hispanic population (7.9 in 1990 and 10 in 2000) and similar to that of the Below Poverty population (19.2 in 1990 and 16.9 in 2000), yet they are not similarly represented in the number of parks that serve these populations.

Once the parks that serve higher than average Blacks, Hispanics and Below Poverty population groups were identified, the data for them were tabulated and compared to White and Above Poverty populations. Table 17 shows the average value of the assets found in the parks by population type. The Asset Value variable was obtained by assigning a replacement dollar value to each of the assets found in the park. The "Black and Hispanic (Mixed)" category means that both Black and Hispanic groups were over-represented in the catchment area in relationship to the average city-wide percentage and that Whites may also have been over-represented in this category. The "Only Black or Hispanic" category shows the parks that do not have any White populations above average city-wide percentage and have either the Black or Hispanic population at the above city-wide percentage levels. The "White (Mixed)" category means that Blacks or Hispanics could have also been present at an above average population representation. Only one park (Graves Park) in the 2000 data set did not serve either the White, Black or Hispanic population at the above the city-wide percentage level.

Table 17 - 1990 and 2000 Average Asset Value by Race and Ethnicity

	Overall Average Asset Value ($78,701)	**Black and Hispanic (Mixed)**	**Only Black or Hispanic**	**Only Whites**	**Whites (Mixed)**
Parks	60	34	24	26	36
1990 Average Asset Value		$74,432	$54,560	$84,282.69	$94,794
Percent of Overall Park Average		94.6	69.3	107.1	120.5
Parks		37	25	22	34
2000 Average Asset Value		$73,393	$67,184	$88,309.09	$87,610
Percent of Overall Park Asset Average		93.3	85.4	112.2	111.3

Table 17 shows that on average, parks that have either Black and/or Hispanic populations (either in combination or individually) have average asset values (resources) lower than the overall city wide average, and even lower than the average asset values found in parks that serve Whites. In both 1990 and 2000, the average neighborhood park that had Whites over-represented in their catchment areas had assets of higher value ($94,794 in 1990 and $87,610 in 2000) than those parks that had the Black and Hispanic populations over-represented.

Exploring this discrepancy further, the following four tables show the variables in this study that are related to the assets found in parks. These variables will be used to test hypothesis 2 as shown in the matrix in the methodology section (Table 13). These variables are High and Low Expenditure, and High and Low Number of Assets. The Expenditure variable was set to High if the total replacement value of all the assets found in the park added up to $60,000 or more, or Low, if it was below this figure. The

Number of Assets variable was set to High if all the assets added up to 4 or greater. This variable was set to Low if the number of assets was below 4. These data were tabulated by each specific population group to see whether differences between the study groups emerged.

Table 18 - 1990 Park Asset Information by Race and Ethnicity

	City Wide	1990 Black and Hispanic (Mixed)	1990 Only Black or Hispanic	1990 Only Whites	1990 Whites (Mixed)
Parks	60	34	9	26	36
Average Asset Value	$78,701	$74,432	$54,560	$84,283	$94,794
High Expenditure	31	18	10	13	21
Low Expenditure	29	16	14	13	15
Parks with High of Assets	31	22	14	9	16
Parks with Low of Assets	29	12	10	17	20

The data in Table 18 shows that the least amount of resources ($54,560) were found in parks that have a proportional over-representation of either Blacks or Hispanics. If Whites were also over-represented with Black and Hispanics, the average asset value went up to $74,432. Both of these figures are below the city-wide average of $78,701. Above this city-wide average figure are the two White Only and White Mixed categories. The High/Low Expenditure data correlates fairly well to the Asset Value variable. The Black or Hispanic Only group that has the lowest Asset Value also has proportionally fewer parks with High Expenditure and more parks with Low Expenditure. On the other

end of the scale, the White (Mixed) group that has the highest Asset Value, has proportionally a larger number of parks (21) with High Expenditure and fewer parks (15) with Low Expenditure. Looking at the Number of Assets variable, there seems to be a reverse correlation with the Asset Value variable. The Black and Hispanic population groups have a greater proportional number of parks with High Number of Assets (22 High and 12 Low for one group and 14 High and 10 Low for the other), yet these groups show the Average Asset Value to be the lowest in Table 18.

Table 19 - 2000 Park Asset Information by Race and Ethnicity

	City Wide	2000 Black and Hispanic (Mixed)	2000 Only Black and Hispanic	2000 Only Whites	2000 Whites (Mixed)
Parks	60	39	25	22	34
Average Asset Value	$78,701	$71,010	$67,184	$88,309.09	$87,610
High Expenditure	31	19	13	11	17
Low Expenditure	29	20	12	11	17
Parks with High of Assets	31	23	16	9	14
Parks with Low of Assets	29	16	9	11	20

For the 2000 data set, the trends for the Average Asset Values are the same as they were for the 1990 population groups (Table 19). Blacks and Hispanics have Asset Values below the city-wide average and Whites Only and Whites (Mixed) have Asset Values above the city-wide average. In the High / Low Expenditure variable, all groups show fairly even results. This means that the number of High Expenditure parks are the

same or almost the same as the Low Expenditure parks. Unlike the 1990 data, there is little difference between population groups in the proportions for this variable. The Number of Assets variable for this 2000 data set again follows the reverse trend seen in the 1990 data. The Black and Hispanic populations with the lower Asset Values ($67,184 and $71,010) have a Higher number of Assets (23 and 16), while the Whites Only and the Whites Mixed population groups with the higher Asset Values ($88.309 and $87,610) have a Lower number of Assets (16 and 9).

Table 20 - 1990 Park Asset Information by Race, Ethnicity, and Poverty

	City Wide	1990 Whites	1990 Blacks	1990 Hispanics	1990 Below Poverty	1990 Above Poverty
Parks	60	36	18	26	23	37
Average Asset Value	$78,701	$94,794	$65,500	$69,238	$50,198	$96,419
High Expenditure	31	21	8	14	9	22
Low Expenditure	29	15	10	12	14	15
Parks with High of Assets	31	16	12	16	12	19
Parks with Low of Assets	29	20	4	10	11	18

Table 20 shows the variables of Asset Value, Expenditure and Asset Number for each specific population group in this study. The park count reflects parks with catchment areas that have these populations groups with above average city representation regardless of what other population they may also have above city-average representation. The trend for the Asset Value variable shows that the Below Poverty group has the lowest value ($50,198), followed by Blacks ($65,500), then Hispanics

($69,238), then Whites ($94,794) and finally Above Poverty ($96,419). The High/Low Expenditure value seems to generally follow the Asset Value variable. The only exception is the Hispanic group that has a greater number of parks with High Expenditure values, yet in overall, it is one of the groups with a lower Asset Value. The Number of Assets variable does not show a clear trend in either direction. There does not seem to be any predictability with this variable.

Table 21 - 2000 Park Asset Information by Race, Ethnicity, and Poverty

	City Wide	2000 Whites	2000 Blacks	2000 Hispanics	2000 Below Poverty	2000 Above Poverty
Parks	60	34	15	24	25	33
Average Asset Value	$78,701	$87,610	$76,777	$67,406	$60,990	$93,391
High Expenditure	31	17	8	11	13	17
Low Expenditure	29	17	7	13	12	16
Parks with High of Assets	31	14	10	13	14	16
Parks with Low of Assets	29	20	5	11	11	17

Table 21 shows the 2000 information for the same categories found in Table 20. The trends in Asset Value are almost the same as the 1990 data with one exception. Instead of the order of Asset Values increasing beginning with Below Poverty, Black, Hispanics, Whites, and ending with Above Poverty, in the 2000 data, the order is Below Poverty, Hispanics, Blacks, Whites, and again ending with Above Poverty. The Blacks and Hispanics reversed order. The numbers in the High/Low Expenditure variable were again shown to have little variation in the values. The Number of Assetts variable

showed again a reverse trend with groups of high Asset Value data having a higher number of parks with a low number of assets. This holds true for the White and Above Average groups, and the reverse is true for the Blacks, Hispanic and Below Poverty groups.

Hypothesis 2 – Conclusions

Tables 17-21 supply the information for hypothesis testing to occur based on the matrix established in the methodology section. Table 13 established that hypothesis 2 is supported if the Asset Value for Whites and Above Poverty populations is above city-wide average. Hypothesis 2 would be unsupported if Blacks, Hispanics and Below Poverty populations had parks with asset values above the city-wide average. Since this latter statement is not supported by the data, hypothesis 2 is supported.

The parks with catchment areas that have higher than city-wide average percentages of Blacks, Hispanics and Below Poverty populations have assets of less worth than parks with catchment areas with higher than city-wide averages of both the White and the Above Poverty populations. In looking at the data, the Below Poverty group is over-represented in parks with lower Asset Value than any other population studied. Also, the population group with the highest Asset Value over all the rest was the Above Poverty group. From this information one may observe that socio-economic status is more likely to be related to the level of expenditure found in parks. Although Blacks and Hispanics also show a lower Asset Value than the majority Whites, the poverty line that divides the population shows a greater gap in Asset Value than any other variable (in 1990, $50,198 - $96,419 and in 2000, $60,990 - $93,391).

For the variables of High Expenditure and High Number of Assets, the results are less clear. The relationship between "High Expenditure" and "High Number of Assets" could not always predict a higher Asset Value. This was because in some instances a low number of parks that have "High Expenditure" could have values that were very high and thus could result in an overall dollar figure that was higher than a greater number of parks that have "High Expenditure." The same was true for "High Number of Assets." The number of assets was a poor predictor of resources spent since the assets varied so much in value. These two variables were not very useful in measuring or predicting the Asset Value of a park. Because these two variables are inconclusive, they neither truly support or reject the equity distribution of Advocacy planning.

Policy Implications

Besides testing each of the above hypotheses, this dissertation set out to understand the policy implications of Lansing's Parks and Recreation Master Plan. To do this, other variables were studied to see whether there were visible correlations or relationships that could be seen that would show the Park and Recreation Master Plan to be based on advocacy planning and to see whether it was equitable from the Black, Hispanic, and Below Poverty populations' perspective. The matrix used to test this Table 14.

A discussion follows for each of the following variables: (1) "Average Year of Playground", which includes the playground installation dates of "None," "Before 2000" and "After 2000," and (2) "Average Park Acre" including the number of "Large" and "Small" parks.

(1) Average Year of Playground

This variable was the only one that had current specific installation dates and it was hoped that this information would show the priorities placed by the Lansing's park and recreation master plan in terms of the populations that they served. The average for these installation dates was 1996 and this fit well within the study time frame. Table 22 shows both the years when playgrounds were installed and the three other categories that this data was divided into: "None," "Before 2000," and "After 2000." The percentage of each of the categories was calculated based on the total number of parks that had that specific population group.

Table 22 - 1990 and 2000 Information on Playgrounds

	Average Year of Play-ground	**No Play-ground (None)**	**Percent**	**Play-ground Before 2000**	**Percent**	**Play-ground After 2000**	**Percent**
City Wide	1996	15	25.0%	29	48.3%	16	26.7%
1990 Black and Hispanic (Mixed)	1996	9	26.5%	18	52.9%	7	20.6%
2000 Black and Hispanic (Mixed)	1996	12	30.8%	19	48.7%	8	20.5%
1990 Only Black or Hispanic	1997	8	33.3%	3	41.7%	6	25.0%
2000 Only Black or Hispanic	1997	8	32.0%	11	44.0%	6	24.0%
1990 Only Whites	1995.9	6	23.1%	11	42.3%	9	34.6%

2000 Only Whites	1995.9	3	13.6%	10	45.5%	9	40.9%
1990 Whites (Mixed)	1996	7	19.4%	19	52.8%	10	27.8%
2000 Whites (Mixed)	1996	7	20.6%	17	50.0%	10	29.4%
1990 Blacks (Mixed	1998	5	27.8%	8	44.4%	5	27.8%
2000 Blacks (Mixed)	1998	5	33.3%	7	46.7%	3	20.0%
1990 Hispanics (Mixed)	1996	7	26.9%	14	53.8%	5	19.2%
2000 Hispanics (Mixed)	1996	7	29.2%	12	50.0%	5	20.8%
1990 Below Poverty	1996	7	30.4%	11	47.8%	5	21.7%
2000 Below Poverty	1997	8	32.0%	12	48.0%	5	20.0%
1990 Above Poverty	1996	8	21.6%	18	48.6%	11	29.7%
2000 Above Poverty	1996	6	18.2%	16	48.5%	11	33.3%

Looking at the data, there are a couple of patterns that can be extracted from this table. All groups had a higher percentage of playgrounds installed Before 2000 than After 2000. Whether this has significant meaning is not clear. Looking at the overall data, 3 parks had playgrounds that were installed between 1970 and 1980. All the remaining playgrounds have been installed beginning in 1994. No clear message is decipherable from this information. Another pattern that seems to be much more

significant is that the Whites, White Only, and Above Poverty population groups are the only population groups that have below city-wide percentage of parks that have no playgrounds. This means that on average these three populations are clustered around parks with playgrounds compared to Blacks, Hispanics, and the Below Poverty population groups which have a greater percentage of clustering around parks without playgrounds. This pattern does speak to the priorities of building playgrounds in parks that have higher than average White and Above Poverty populations.

(2) Average Park Acre

This variable was used to see whether there was any relationship between park size and the populations that live near either large or small parks. Large parks were determined to be parks that were over 5 acres in size. Any park 5 acres or smaller was placed in the Small Parks category. The population variables labeled "(Mixed)" mean that other populations may also have above city-average population percentages that were found when the target population was extracted. For example, if the target population was Blacks, all the parks with catchment areas that show Blacks having above city-average population percentages were selected. This group of parks may also have Whites or Hispanics that may have above city-average population percentages. In the "Only" categories, all parks selected for a target population are filtered for any other population group that may have above city-wide average population percentages and then these parks are deleted from the selection group. Table 23 summarizes the findings.

Table 23 - 1990 and 2000 Information on Average Park Acres and Park Size

	Number of Parks	Average Park Acres	Number of Large Parks	Number of Small Parks
City Wide	60	8.385	31	29
1990 Blacks and Hispanics (Mixed)	34	10.751	20	14
2000 Black and Hispanics (Mixed)	39	9.906	22	17
1990 Only Black and Hispanics	24	7.904	11	13
2000 Only Blacks and Hispanics	25	7.507	13	11
1990 Only Whites	26	5.29	11	15
2000 Only Whites	22	5.085	9	13
1990 Whites (Mixed)	36	8.706	20	16
2000 Whites (Mixed)	34	8.890	17	17
1990 Blacks (Mixed)	18	5.641	7	11
2000 Blacks (Mixed)	15	6	8	7
1990 Hispanics (Mixed)	26	12	17	13
2000 Hispanics (Mixed)	24	12	14	10
1990 Below Poverty	23	10	13	10
1990 Above Poverty	37	7.5	18	19
2000 Below Poverty	25	8	14	9
2000 Above Poverty	33	8.7	16	17

Just like with the previous variables of High Expenditure and Number of Assets, the number of "Large" or "Small" parks isn't always related to the Average Park Acres variable. For example, in Table 23 the data show that Blacks in 2000 have a higher number of "Large" parks, yet their overall "Average Acres" is still below the city-wide

average. For all groups except the Poverty poluations (both Above and Below) all "Average Acre" values remained on the same side of the city-wide average for both 1990 and the 2000 data sets. That means that if Whites had Average Acre values lower than the city-wide average in 1990, then in 2000 they also showed a lower than city-wide average value. The Above and Below Poverty groups were the only group to go from having park acreage that was either above the city-wide average in 1990 to having park acreage that was below the city-wide average in 2000 or vise versa. The Above Poverty population went from 7.5 acres in 1990 to 8.7 acres in 2000. The Below Poverty population went from 10 acres in 1990 to 8 acres in 2000. Exploring the makeup of both groups (Above and Below Poverty) may clarify the reason for this. A possible explanation is that there was an increase of either Whites or Blacks in that population group between 1990 and 2000 and that would tend to reduce the "Average Acre" value since it was found that these population groups are clustered around parks with lower "Average Acre" values. A decrease in Hispanics could also cause a reduction in the "Average Acre" value since this population group was found to cluster around parks with higher "Average Acre" values.

To substantiate the previous statement, the data for "Whites Only," "Blacks (Mixed)," and "Only Black or Hispanics" populations show that these groups in general have "Average Acre" values between 5 and 7.9 acres. This is below the city-wide average value of 8.385 acres. For "Hispanics (Mixed)," these values are above this city-wide average and have an average value of 12 acres.

Besides finding that Hispanics live near larger parks, the Acreage data seems less useful than expected. Because both the White and the Black population groups seem to

live near smaller parks doesn't point to either discrimination or policy implications that would explain this data. The values shown for the variable "Large" or "Small" parks also proved to be less informative than expected and inconclusive in helping to clarify the equity definition being used.

Conclusions

The matrices that were set up to evaluate the data (Tables 10-12) attempted to organize the findings in a way to show what equity distribution can be interpreted from the outcomes of the Lansing's park and recreation master plan policy. If the advocacy planning distribution of equity was used, then one would expect that Blacks, Hispanics, and Below Poverty populations would be at the same or higher levels than the city-wide averages. This study found that this is not the case for all the variables analyzed. Below are the matrices from the methodology chapter with the final findings inserted.

Table 24 – Matrix for Hypothesis 1 with Final Findings

Variable	Over-representation of Whites and Above Poverty Populations	Over-representation of Blacks, Hispanics, and Below Poverty Populations
Within the Catchment Area	Hypothesis 1 = true Equity distribution does not follow Advocacy planning	

The data used to test hypothesis 1 (Minority and poverty populations are under-represented in the area encompassing a 5 minute walk to neighborhood parks (400 meters) supports the conclusion that Blacks, Hispanics, and the Below Poverty

populations are under-represented in the catchment areas of neighborhood parks. Table 24 summarizes the findings that show this information.

Table 25 - Matrix for Hypothesis 2 with Final Findings

Variables	Over-representation of Whites and Above Poverty Populations	Over-representation of Blacks, Hispanics, and Below Poverty Populations
Asset Value above city-wide average	Hypothesis 2 = true Equity distribution does not follow Advocacy planning	
High Number of Parks with High Expenditure	Inconclusive	Inconclusive
High Number of Parks with High Number of Assets (supports Hypothesis 2)	Inconclusive	Inconclusive

Hypothesis 2 stated that fewer resources have been allocated to parks located in the areas encompassing a 5 minute walk to neighborhood parks (400 meters) where greater than average minority and poverty populations live. This hypothesis was supported and shown in Tables 17-21. Whites and Above Poverty populations had above city-wide averages for Asset Values found in the parks where they were over-represented. In parks were Blacks, Hispanics and Below poverty populations were over-represented, the Asset Value variable was below the city-wide average. These results also support the statement that the equity distribution that describes these results is not advocacy. The other two variables (High Number of Parks with High Expenditure and High Number of Parks with High Number of Assets) were determined to be inconclusive. The data did not support or deny whether Whites and Above Poverty populations benefited from this or not. No inference could be made from the data in these variables to determine what equity distribution was used.

Table 26 - Matrix for Policy Implications with Final Findings

Variables	Over-representation of Whites and Above Poverty Populations	Over-representation of Blacks, Hispanics, and Below Poverty Populations
Playground Acquisition Time – None		Equity distribution does not follow Advocacy planning
Playground Acquisition Time – Before 2000	Inconclusive	Inconclusive
Playground Acquisition Time – 2000 and After	Inconclusive	Inconclusive
Large Size of Park (supports Hypothesis 2)	Inconclusive	Inconclusive

This final table (Table 26) only shows one of the four variables studied to be conclusive. The Playground Acquisition Time – None refers to parks that have no playgrounds. The study found that Whites and Above Poverty populations have fewer parks without playgrounds than Blacks, Hispanics, and Below Poverty populations. The other three variables (Playground Acquisition – Before 2000, Playground Acquisition – After 2000, and Large Size of Park) were determined to be inconclusive. No real pattern emerged and the data did not support or deny whether Whites and Above Poverty populations benefited from this or not. The equity distribution could not be determined.

CHAPTER 7 – POLICY RECOMMENDATIONS AND FUTURE STUDIES

This chapter is organized into four main sections. The first one discusses the limits of the study. This is followed by a discussion regarding the variables used and how well they worked. The third section deals with policy recommendations for Lansing's Parks and Recreation Master Plan and specifically addresses the inequities and trends found in this study. The final section discusses future studies and gaps in the literature that could help in further understanding some of the trends and results in this dissertation.

Limits of Study

This study set out to answer two main specific hypothesis. Along the way, decisions were made that limited the study to the current data and procedures that were followed. The greatest limiting factor in this study was the available data. Since this study looked at resources being spent on parks, the measurement of these resources was critical to this study. No detailed budget for each park was available from the Parks and Recreation Department and, therefore, using the existing assets in a park as a measurement of resources became the way to quantify resources. This decision has many inherent limitations. Only man-made items that had a replacement value were counted. This leaves out many natural features and elements that cost resources and are valid assets that have been left out of the study equation. For example, trees and ponds are

features that may or may not have cost the Parks and Recreation Department resources to plant and build. Because some parks had naturally existing trees while others had trees planted, it became difficult to know which trees should be counted. Not only that, but if trees were counted, what value would they be given knowing that trees come in such diverse types and sizes. Because of the difficulty in quantifying trees and natural features, the natural assets were not included in this study.

Another decision regarding assets was the decision to quantify them with replacement costs and not their actual value. Actual value became problematic in determining the cost of each asset. Questions like how much value does a playground structure lose in 2 years vs. 7 years became an issue. If an asset is in good shape after 10 years should it be counted the same as if that same 10 year-old asset was falling apart? Condition and age change the value of assets. Because of the difficulty in assessing the value of each asset, replacement costs were assigned and this may skew the results somewhat since some of the structures may no longer be considered an asset due to their condition.

The issue of the condition of an asset may be due to the amount of maintenance it receives from the Parks and Recreation Department. Because no specific budgets exist showing how much maintenance goes into each specific park, it was impossible to add this as a variable. This is a real shortcoming of this study because maintenance does make a difference in how much a park is used or not by its surrounding population.

Determining the makeup of the surrounding populations near neighborhood parks was the main task of this dissertation. To do this, census data was used. This data source comes with its own set of limitations. The two that need mentioning are population

undercounts and scale. The error of undercounts seems to be specifically inherent in minority populations. This undercount is something to be aware of and to acknowledge that the minority population counts may actually be greater than those reported. The issue of scale was demonstrated in the population counts found in the catchment areas where census block data showed more people (82,479.523 in 1990) than census block group data (58,144.979 in 1990). This makes comparison between decades more suspect.

Variables

The variables used in this study were Whites, Blacks, Hispanics, Above Poverty, Below Poverty, park size, asset number, asset value, number of high or low expenditure parks, and playground installation dates. All of these variables have some issue that needs to be discussed. Beginning with Whites, this population group may include Caucasian Hispanics. Having Black Hispanics in the population count is also true for Blacks. Thus, the Hispanic group includes both Whites and Blacks in its count. This causes some double counting of people in the calculations. The Poverty population is a complete population set on its own and includes all populations found in the City of Lansing. The Poverty variable selected was individuals. This variable could have been selected based on age or family status.

The next set of variables that deal with parks relate to the size and assets found in the parks. Park size was a variable that upon analysis yielded small amounts of data. The only interesting measurement to come out of it was that, in general, the Hispanic population was over-represented in the catchment areas of larger parks. Both the asset number and number of high or low expenditure park variables were not found to be very

useful. It had been hoped that these variables would be able to help predict and clarify if the outcomes of planning supported the advocacy theory, but this was not the case. There was not clear direction from the analysis of both of these variables. Asset value and playground installation dates were the two most informative variables in this study. These two variables were able to support both hypotheses and corroborate that advocacy planning is not being shown in the park planning outcomes.

On a general note regarding the use of park assets, studies have found that expensive assets like basketball courts are used less often and by fewer people than assets that support walking such as benches and natural paths. Also, higher resource allocation to parks doesn't necessarily translate into more usage of parks. Although one study found that more assets have been correlated with more park use, our data has shown that asset numbers are not good predictors of resource expenditures.

Further knowledge of how each of these points regarding assets and park resources is necessary to guide policy decisions on how to best allocate the dwindling park resources available to neighborhood parks.

Policy Recommendations

This study found both hypotheses to be corroborated by the available park and population data. In addition, trends of increasing under representation of Blacks and Hispanics shows a bias for addressing the needs of the White populations ahead of the Black, Hispanic, and Below Poverty populations. One of the main goals of this dissertation is to highlight areas where policy changes could be made if inequities were

found. Since these inequities were found in specific areas that were tested, policy recommendations have been made.

The areas where inequities were found include (1) the below city-wide average representation of Blacks, Hispanics and Below Poverty populations in the neighborhood park catchment areas, (2) less than city-wide average asset values in parks that have an over-representation of Black, Hispanic and Below Poverty populations, (3) Below Poverty populations have parks that have the least amount of asset values, (4) Blacks have the least number of parks where they were over-represented more than any other population, (5) the installation of playgrounds generally occurred earlier in parks serving Whites, and (6) less number of parks with no playgrounds were found for the White population.

Addressing this under-representation of the underprivileged populations is a complicated issue. Because these catchment areas were reduced in size by barriers, such as 4 lane roads, increasing pedestrian overpasses would change the catchment areas. That alone could make a significant difference in the makeup of the populations having access to parks. Other factors such as housing, education, and cultural preferences may have a much greater influence in why people live in certain locations. To better understand the issue of under-representation and the needs of the Blacks, Hispanics, and the Below Poverty populations, the park master plan process needs to specifically address these populations. Currently, seniors are the only population that is being specifically targeted in the master plan. This needs to be expanded to include Blacks, Hispanics and especially the Below Poverty populations. Committees, like the one created for seniors, need to be formed to insure that the master plan process considers the needs and wants of

these three population groups. The Below Poverty group needs special attention since it was shown that this group had the parks with the lowest asset values of all the groups.

The resources issue becomes a matter of priorities. Priorities are formed and arranged based on values and ethical stands. The planners' stand, to help address the issues of the underprivileged, is a guiding principle rooted in the advocacy theory that is not being reflected in the data collected. More resources need to be spent on parks that serve the underprivileged if the planners' definition of equity distribution is to be based on the advocacy theory. Determining the allocation and distribution of resources should be done with direct guidance from these populations. Communication with these population groups will need to be sought out and specifically planned for in ways that fit the population characteristics and increases the potential for a positive exchange of information. Research on how best to communicate and formulate these contacts needs to be done to maximize the benefit to these underserved populations.

Blacks make up a large part of this underserved and underprivileged population. They seem to be the population having less access to neighborhood parks. Because the makeup of the underprivileged population contains different cultural needs and wants, separate committees need to be formed to address each of the underprivileged populations' needs. Because Blacks usually experience greater discrimination and currently have less access to neighborhood parks as compared to other populations, their needs should be given greater priority until this trend is reversed. Hispanics were shown to live nearer larger parks. Is this a cultural phenomenon? How can policy reflect this preference?

The trend that shows the White population benefiting from having their playgrounds earlier than other populations and from having more parks with playgrounds needs to be reversed. Diverting resources to correct this can be done by identifying the parks that in their catchment area currently have a greater than average proportion of Blacks, Hispanics and Below Poverty populations and currently have no playgrounds. This solution may quickly correct the inequities in playgrounds. Nothing can be done today to change the fact that the White population received their playgrounds earlier than other populations, but this knowledge does point to past biases. When future initiatives that will be done through out the entire neighborhood park system are put in place, knowing that such a bias existed in the playground initiative should force a change in policy. The prioritization of parks receiving the installation of assets should consider the population that these parks have within their catchment areas and thus prioritize the parks so that these underprivileged populations receive these assets. This recommendation should not just occur at the local level, but at the State level as well. If the state mandates that underprivileged populations' needs be addressed in the park and recreation master plan process, all cities, not just Lansing would be required to do this.

One final general policy suggestion comes to mind when reviewing this study. Since it has been documented that parks have positive health, economic, and social implications for the city's populations, increasing this valuable resource may help to reduce the current trend showing a decline in overall city population. According to the National and Parks Association's park criteria, 29 of the 60 neighborhood parks are undersized. Prioritizing the budget to try to increase the size of these parks may help reverse this population declining trend.

Future Studies

This section looks at the gaps of information found while doing this study and the future studies that would help to better clarify and understand the results of this dissertation. The study of parks, and its implications for the populations that they serve, covers a wide range of issues that involve many fields of study. The psychology and cultural needs of the population along with the ecological health of the urban city are just two diverse points of view pertaining to neighborhood parks. Such diversity of fields forces reliability on other professions to help understand the overall picture depicted in the data collected and to better understand the results. It is at this juncture of planning with fields such as sociology, anthropology, and health that some gaps in the literature were encountered.

The first missing piece of information dealt with being able to determine specifically whether people live longer or are healthier if they live closer to parks. Currently, the literature leads you to this possible logical conclusion from studies that show that the greater access to parks results in greater physical activity, which in turn should lead to greater health. Nothing was found that verified the first statement and having this piece of information would make a stronger case for investing in public parks.

Also missing in the literature is the correlation of naturally active people having a preference to live near parks. This information is vital since it may just be a personal preference that keeps these naturally active people healthy and therefore parks really are just not having the health benefit that we currently assess to them.

Health benefits are just one of the many advantages of parks. This study encountered three trends regarding parks and the populations within their catchment areas

that require more research to understand why not all populations have the same access to parks and how this situation came to exist. These trends are (1) the increasing under-representation of Blacks and Hispanics in park catchment areas, (2) the dramatic difference in the rate of this under-representation trend between Blacks and Hispanics, and (3) the trend showing Blacks being served by fewer parks than any other population group.

Along with a better understanding of these trends, more studies need to be done that help compare one city's park policy and outcome to another, as well as suburban park policy vs. urban park policy. For cities such as Lansing, no studies were done that could help gage how well Lansing was doing regarding their park density in comparison to other similar sized cities. Such comparisons are valuable and help with policy formulation and justification. Along these same lines, the way in which one quantifies the assets and makes comparisons needs further study. In this study only the man-made elements that had a direct impact on recreation were used. Assets such as trees and wetlands that also have an impact on recreation are much harder to quantify and compare.

Early in this dissertation the question came up as to "who are we fixing our parks for?" This is another area that needs further study. By fixing and improving parks, economic and social changes occur around the park and may actually force the underprivileged away from parks due to the new economic burden of the rise of housing values. This needs further study along with the type of policy that could protect the underprivileged from being forced to lose access to the improved parks.

The relationship between the various underprivileged populations also calls for more study. In this study, there was a strong correlation between the Black only

population and the Below Poverty. Understanding the makeup of the underprivileged populations in each case study such as this one may help to explain some of the patterns that were experienced here. Another pattern that was confusing was the one that showed the increasing under-representation of both the Black and Hispanic groups, yet the Below Poverty population actually improved. Along with that, is the interesting pattern showing Whites only and Blacks (Mixed) groups having access to smaller parks while Hispanics have access to larger parks. Is this a cultural phenomenon? What social theory might explain this? Answers to these questions would help clarify the results to this study.

Conclusions

Parks and their benefits have long been studied by planners and other professions. Policies that manage and distribute this public resource need to be evaluated for both fairness and effectiveness. Studies that look at the uses, users, and their interaction will benefit the city and its planners to best utilize this valuable public resource. Public expenditures in public resources must be scrutinized for equitable distribution among all populations. This research evaluated the City of Lansing's Park and Recreation Master Plans and found that there seems to be a beginning trend of disparity in this resource distribution. Policy adjustments to prevent further disparity needs to occur to maintain a fair and equitable distribution and expenditures in neighborhood parks.

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Appendix A. Parks and Recreation Master Plan (pages 1.7 - 1.9).

CITY-WIDE BASELINE STATISTICS

The following is a synopsis of the Lansing City census data* against which all the data of the tracts and parks were compared:

1. POPULATION – 5.2% more females than males

2. HOUSEHOLDS – median age 29.7

Married couples households	42.0%
Non-family households	37.9%
Single-parent households	20.1%

3. RACIAL MIX – whites/blacks 92.5%

White	73.9%
Black	18.6%
All other	7.5%
Hispanic origin	7.9%

4. HOUSING – Overall Housing Utilization

Vacant housing	6.1%
Occupied housing	93.9%
Owner occupied	51.4%

Single-family housing is 66.8% of total

Occupancy by Race:

Whites	2.36 persons/household
Blacks	2.92
American Indian/Aleut	3.15
Asian/Pacific Isl.	4.12
Other	3.59
Hispanic	3.60

*Complete city-wide census profile statistics are found at Tab 4

4. HOUSING - continued

Structures

Average units constructed during decade 1940-1980: 8,618
Units constructed during 1980's: 4,957

Neighborhood Stability

56% of residents moved into their home since 1985
69% of residents moved into their home since 1980
(The movement rate since 1985 is the equivalent of everyone moving approximately once every 9 years)

Miscellaneous

5.7% of households have no phone
13.3% of households have no car
1/3 of homeowners have no mortgage

Housing costs as % of household income

14.7% of homeowners pay more than 30% of household income
41.2% of renters pay more than 30% of household income

5. EDUCATION

29.7% of residents are in school – and 34.7% of *those* are in college. This means that 1 in 10 residents of Lansing is a college student.

27% of residents age 25+ never graduated from high school: 18.4% graduated from college with a BA or advanced degree

6. DISABILITIES – (non-institutionalized persons)

Age 1-64: 1 in 18 (5.5%) with personal disability
Age 16-64: 1 in 10 (10.7) with work disability
Age 65+: 3 in 13 (23.0%) with personal disability
Age 65+: 2 in 11 (18.1%) have mobility disability

7. PLACE OF BIRTH

Only 3.1% born outside of U.S., but of those, 41.2% came to Lansing during the 1980's

8. CHILDREN

City has 34,912 children under age 18 – (27.4% of total population)

Children under age six: 60.3% of mothers are in the labor force. In 57.2% of families with children under six, all parent work.

For children between six and seventeen: 75.3% of mothers are int eh labor force. In 67.4% of these families, all parent work.

Teenagers: city-wide, 548 (8.3%) of all persons 16-19 are not in school, have not graduated, and are unemployed (or are not in the labor force)

Children and poverty: See section 10 below

9. LABOR FORCE

2/3 white collar workers; 1/3 blue collar

Rank of employers by % of workers

Retail trade	19.1%
Manufacturing (durable goods)	11.6%
Public administration	11.4%
Educational services	10.0%
Health occupation	7.7%
	59.8%

Overall 69% of persons age 16+ are in the labor force and 31% are not. For men a little higher; women a little lower.

10. INCOME / POVERTY

Per Capita Income: $12,232

Percentage in poverty:

All ages:	19.4%
Age 65+	11.4%
Children age 5-17	25.2%
Children under 5	29.9%

w/Female head of household:

Children age 5-17	53.2%
Children under 5	66.0%

Appendix B. Operating Budget for the Parks and Recreation Department 2000 (pages 2.12-2.17).

PARKS AND RECREATION DEPARTMENT

I. Department Appropriation (Memo Detail)	FY 1997-88 Actual	FY 1998-99 Net Budget 12/31/99	FY99-2000 Mayor's Recommended Budget	% change FY99 to FY2000
Personnel	$4,014,040	$4,507,694	$4,554,789	1.04%
Operating Expenses	1,279,240	1,331,398	1,220,760	-8.31%
Capital Items	307,116	327,942	267,255	-18.51%
Debt Service	0	0	0	
Operating Transfers (1)				
Department Appropriation	$5,600,396	$6,167,034	$6,042,804	-2.01%
Estimated Benefits (General Administration)	$2,224,048	$2,465,974	$6,042,804	
Estimated Total Department Budget	$7,824,444	$8,633,008	$8,578,88	

II. Summary of Changes

A. Added after-school pilot program at Gardner Middle School M-Th 2:30 – 6:00 pm
B. Deleted Natural Ice skating service.
C. Donation-supported programs shown as zero revenues, zero expense; to be appropriated as donations and any related fees come in.

III. Position Summary (Memo Detail)	FY98 Actual	FY99 Budget	FY2000 Proposed
A. Full Time			
1. Executive	1.00	1.00	1.00
2. Exempt	2.00	2.00	2.00
3. Teamster 214	2.30	2.30	2.30
4. Teamster 580	34.90	35.90	35.90
5. UAW	55.80	54.80	54.80
TOTAL	96.00	96.00	95.00
B. Part-Time			
1. UAW Seasonal	37	37	37
2. UAW Part-Time	3	3	3
3. Teamster Part-Time	2	2	2

(1) Operating Transfers shown as revenues in the Enterprise Fund Fiscal Summaries (following pages).

Potter Park Zoo Fund

I. Appropriation (Memo Detail)	FY 1997-88 Actual 06/30/98	FY 1998-99 Net Budget 12/31/99	FY99-2000 Mayor's Recommended Budget	% change FY99 to FY2000
Personnel	$586,843	$628,660	$656,119	4.37%
Employee Benefits	415,412	441,485	452,724	2.55%
Capital Expenses	306,331	286,557	142,744	-50.19%
Debt Service	0	0	0	
Other	655,034	629,028	646,870	2.84%
Operating Transfers	0	0	0	
Total Fund Appropriation	$1,963,620	$1,985,730	$1,898,457	-4.40%

II. Funding Sources (Memo Detail)				
From Working Capital Reserve			$249,312	
Sales, Fees, & Misc.	$426,579	$514,167	595,281	15.78%
General Fund subsidy	1,512,684	1,454,592	1,053,864	-27.55%
Total Funding Sources	$1,939,263	$1,968,759	$1,898,457	

III. Summary of Changes

Reduction of subsidy reflects use of accumulated working capital.

IV. Position Summary (Memo Detail)	FY98 Actual	FY99 Budget	FY2000 Recommended
A. Full Time			
1. Teamster 580	2	2	2
2. UAW	16	16	16
Total	18	18	18
B. Other			
1. UAW Seasonal	3	3	3
2. UAW Part-Time	1	1	1

Cemetery Fund

I. Appropriation (Memo Detail)	FY 1997-88 Actual 06/30/98	FY 1998-99 Net Budget 12/31/99	FY99-2000 Mayor's Recommended Budget	% change FY99 to FY2000
Personnel	$245,953	$255,510	$269,866	5.62%
Employee Benefits	169,210	177,207	185,708	4.80%
Capital Expenses	42,753	21,600	44,600	106.48%
Debt Service	0	0	0	
Other	255,850	276,021	224,609	-18.63%
Operating Transfers	13,730	0	0	
Total Fund Appropriation	$727,496	$730,338	$724,783	-0.76%

II. Funding Sources (Memo Detail)			
Sales, Fees, & Misc.	$263,974	$246,900	$250,745
From Perpetual Care Fund	82,589	80,000	70,000
From Working Capital		245,331	216,553
General Fund subsidy	465,731	158,107	187,485
Total Funding Sources	$812,294	$730,338	$724,783

III. Summary of Changes

A. Add $20,000 for development of a columbarium at Evergreen Cemetary

IV. Position Summary (Memo Detail)	FY98 Actual	FY99 Budget	FY2000 Recommended
A. Full Time			
1. Teamster 580	1	1	1
2. UAW	5	5	5
Total	6	6	6
B. Other			
1. UAW Seasonal	9	9	9

Golf Fund

I. Appropriation (Memo Detail)	FY 1997-88 Actual 06/30/98	FY 1998-99 Net Budget 12/31/99	FY99-2000 Mayor's Recommended Budget	% change FY99 to FY2000
Personnel	$415,601	$469,962	$491,345	4.55%
Employee Benefits	185,035	216,129	234,640	8,56%
Capital Expenses	128,502	78,544	131,500	67.42%
Debt Service	66,865	100,183	103,615	3.43%
Other	527,599	640,683	650,882	1.59%
Operating Transfers	0	0	0	
Total Fund Appropriation	$1,323,602	$1,505,501	$1,611,982	7.07%

II. Funding Sources (Memo Detail)			
Sales, Fees, & Misc.	$854,304	$1,372,101	$1,475,925
Ingham County contribution	97,500	0	0
General Fund subsidy	260,662	120,621	136,057
Total Funding Sources	$1,212,466	$1,492,722	$1,611,982

III. Summary of Changes

Fee change on cart rentals, and increase in number of carts to rent, supports increase of two seasonal positions for course maintenance

IV. Position Summary (Memo Detail)	FY98 Actual	FY99 Budget	FY2000 Recommended
A. Full Time			
1. Teamster 214	0.7	0.7	0.7
2. Teamster 580	2.1	2.1	2.1
3. UAW	4.2	4.2	4.2
Total	7.0	7.0	7.0
B. Other			
1. UAW Seasonal	10	8	10

Adopted
Budget

Parks Millage Fund

For the Fiscal Year ending June 30, 2000

Estimated Revenue	$1,748,403
Operating Transfer – General Fund	$1,748,403

Appropriations

				Parks Millage Capital Projects	
412	933890	743000	46042	Design Consultant	$62,498
412	933890	743000	46026	Repair & Maintenance City-wide	21,170
412	933890	971000	46077	Fenner Land Acquisition	150,000
412	933890	971000	46095	Oak Park Acquisition	128,882
412	933890	971000	46096	Poyet Acquisition	144,000
412	933890	974000	46097	Washington Ice Rink Dasher Boards	100,000
412	933890	974000	46098	Skate Board – BMX Facility	56,000
412	933890	974000	46086	Rivertrail – Clippert to Harrison	8,733
412	933890	974000	46089	Frances Park Shoreline	109,120
412	933890	975000	46066	Foster Center Repairs	308,000
412	933890	977000	46049	Park Playground Equip	60,000
412	933890	992000	46020	Contingency	600,000
				Parks Millage Capital Projects	$1,748,403

CIP Schedule for all City Departments
For Fiscal Year Ending June 30, 2000

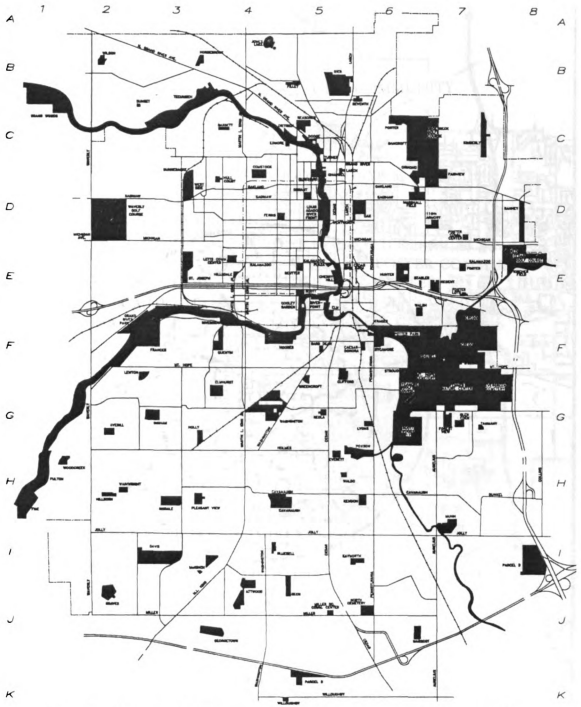
Adopted
Budget

Appropriations

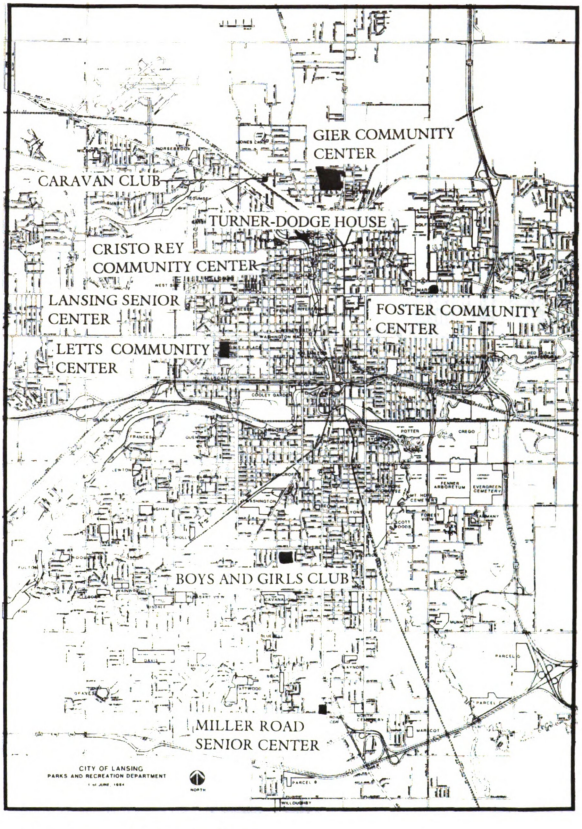
				Capital Projects – Infrastructure Fund	
410	932690	743000	43861	Master Planning	$100,000
410	933290	974100	43856	Prudden Access Rd	12,500
410	933290	977008	43815	Communications Systems	1,400,000
410	933590	977000	43862	Toning System	60,000
410	933690	973101	13077	City Share Storm Sewers	390,000
410	933690	743000	43863	Two Way Traffic Study	300,000
410	933690	974100	43864	Dwight/Capital Intersec.	31,6000
410	933690	974100	43865	2000 Roads	1,255,400
410	933690	974100	43866	Alley Repair	50,000
410	933690	974200	13071	Sidewalks	450,000
410	933690	974100	43867	Aurelius/Paulson	500,000
410	933690	974100	43868	Diamond Reo Pap	50,000
410	933690	975000	43869	City Hall Alarms	210,000
410	933690	975000	43870	ADA Entrance-City Hall	94,000

410	933690	975000	43871	Architect/Maintenance	100,000
410	933690	977000	43812	Mainframe Computer Upgrades	1,208,000
410	933690	970000	113023	Ballfield Development	16,970
410	933690	970000	43839	Parks Bldg Use Equip Replacement	6,200
				Capital Projects – Infrastructure Fund	$6,234,670

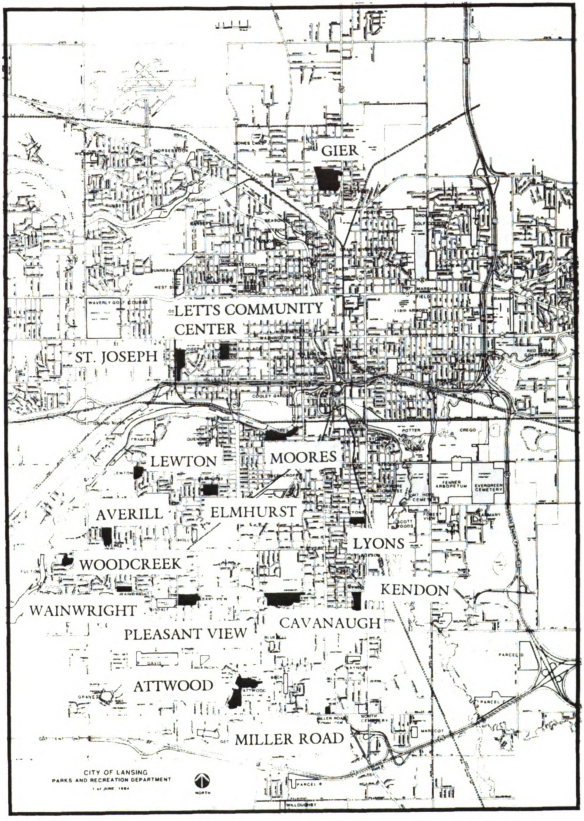
Appendix C. Recreation Maps.



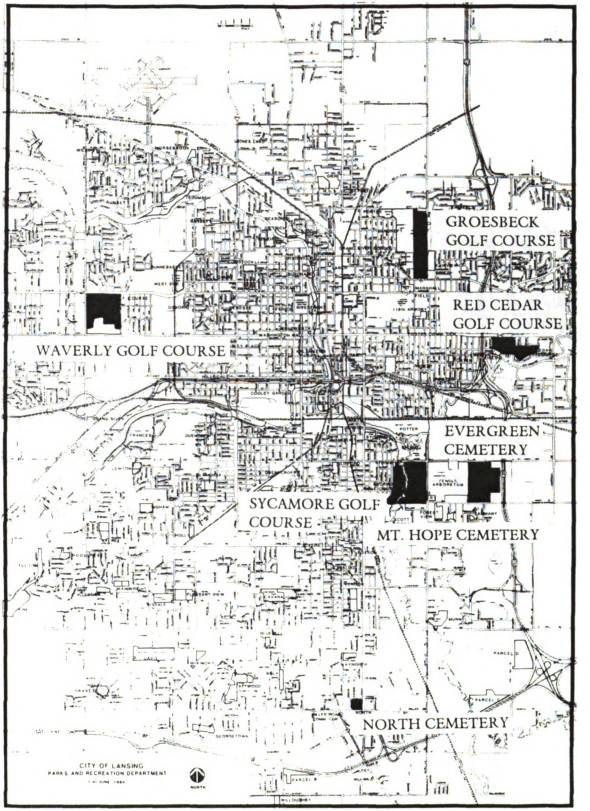
C-1. Public Parks and Recreation Map.



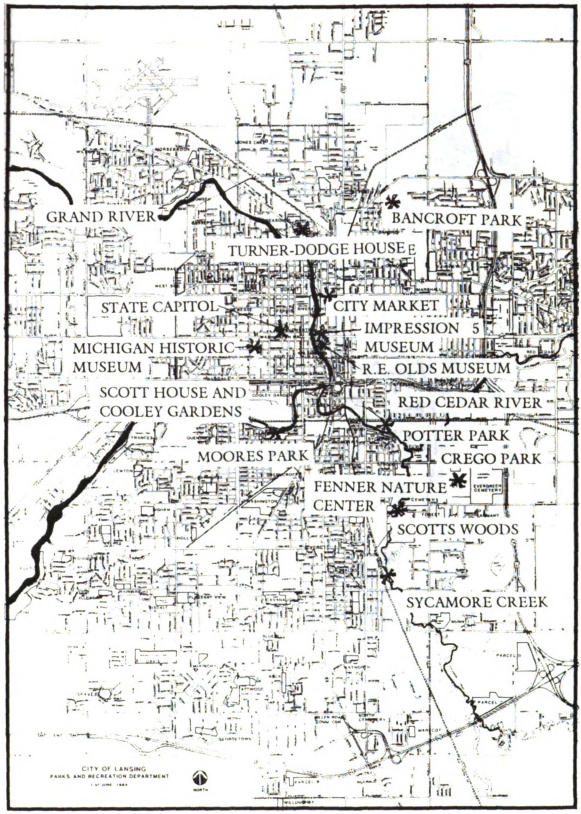
C-2. Community and Senior Centers.



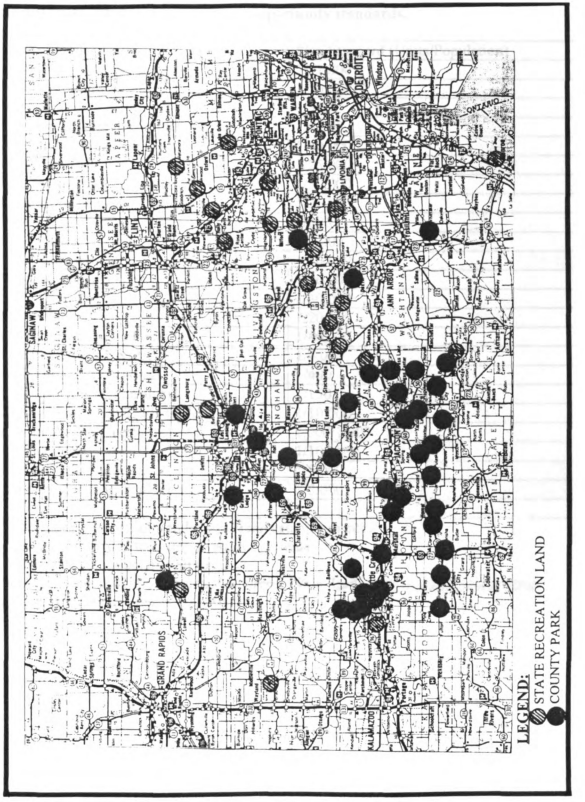
C-3. School / Park Combinations.



C-4. City Owned Golf Courses and Cemeteries.



C-5. Natural and Historical Sites and Museums.



C-6. Regional Composite of Recreational Lands.

Appendix D. Michigan's recreation opportunity standards.

Type of Opportunity	Plan Standard (Units/Population)
Local Park Land (acres)	10/1,000
Archery Ranges[1]	1/50,000
Ballfields2	1/3,000
Outdoor Basketball Courts2	1/5,000
Bicycle Trails (miles)	1/40,000
Golf Cources2	1/25,000
Indoor Ice Rinks	1/50,000
Outdoor Ice Rinks – Artificial	1/20,000
Picnic areas (tables)	1/200
Playgrounds2	1/3,000
Rifle Rangesl	1/50,000
Shotgun Rnagesl	1/50,000
Sledding Hills2	1/40,000
Soccer Fields2	1/20,000
Outdoor Swimming Pools	1/40,000
Outdoor Tennis Courts2	1/4,000
Boat Launches (Parking)	1/400
Campgrounds (Campsites)3	1/150
Cross-Country Ski Trails (miles)	1/10,000
Fishing Access (feet)	1,000/1,000
Fishing Peers	1/100,000
Hiking Trails (miles)	1/5,000
Horseback Riding Trails (miles)	1/5,000

[1] – Includes private clubs and commercial establishments.
[2] – Does not include facilities on school grounds.
[3] – Includes commercial facilities.
Michigan Department of Natural Resources. 1986. Building Michigan's Recreation Future, Appendix B, pages 100-101