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Equitable Access to Green Space:

Management Strategies in San Diego California and

Austin Texas

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Equitable Access to Green Space:

Management Strategies in San Diego California and Austin Texas

by

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Report

Presented to the Faculty of the Graduate School
Of the University of Texas at Austin
In Partial Fulfillment
Of the Requirements
For the Degree of

Master of Science in Community and Regional Planning

University of Texas at Austin

December 2014

Acknowledgements

I am grateful to the people who supported me during my graduate studies, most especially my mother, father, and sister for their constant encouragement. I am indebted to my grandmothers; they laid the strong foundation from which I move forward. I thank my partner Simon for keeping the home fires burning while I was in the library and my friend Erin Scott who was so encouraging during my time at UT Austin.

My advisors Sarah Dooling and Katherine Lieberknecht were invaluable during my research process. Their classes were also wonderful laboratories for the incubation of ideas.

Equitable Access to Green Space:

Management Strategies in San Diego California and Austin Texas

by

Jennifer Steverson, MSCRP
The University of Texas at Austin, 2014
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ABSTRACT:

This report is focused on the implementation strategies used by municipal governments to provision communities in San Diego California and Austin Texas with public parks. Green space is an important amenity in urban areas that improves the quality of life for residents. Research suggests that low income residents who experience sustained mental fatigue may experience stress alleviation through contact with green spaces. Comprehensive planning documents, city budgets and interviews with parks department employees were used to investigate the methods used to ensure equitable access to public parks in urban areas. Digital cartography was used to measure the proximity to green space at the city and neighborhood scale. Green space was broadly defined to include public parks, conserved lands, community gardens, greenways, and school yards. This is in keeping with the comprehensive plans of both cities.

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I. Introduction

Research Question

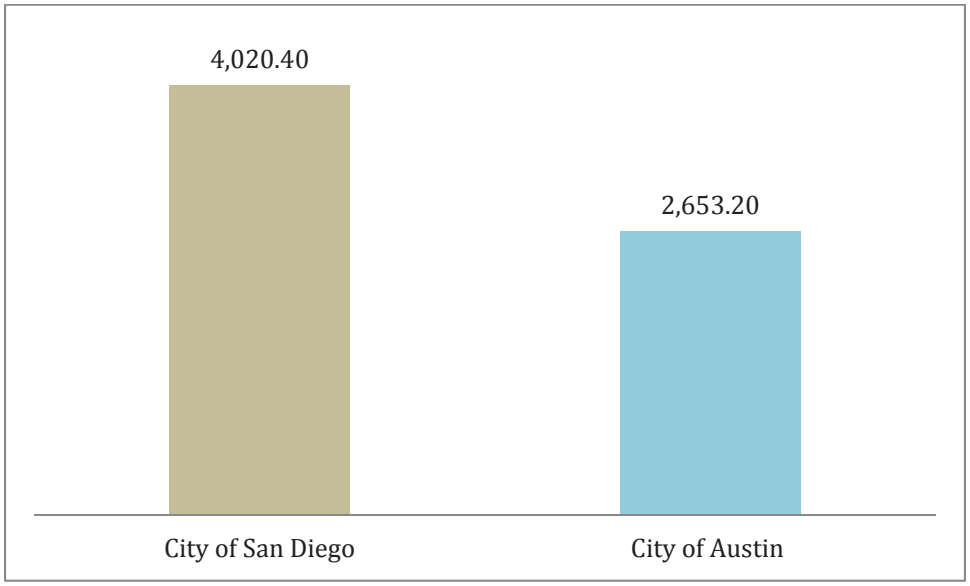
The purpose of this project is to investigate how urban planners and park professionals who are employed by municipal governments distribute resources across cities. This report will focus specifically on the funding and management of green spaces in Austin Texas and San Diego California. The main sources of information about green spaces were gathered from comprehensive plans, fiscal year 2010 budgets, and interviews with representatives from the Parks and Recreation Department in each city. The final analysis was conducted using GIS. In addition to the city wide analysis, a case study of two low income communities was conducted. The case studies reveal how cities balance the needs of individual communities with citywide goals. Access to green space at the city and neighborhood scale was measured using proximity standards that are based in part on the work of the National Recreation and Parks Association as well as the Trust for Public Land.

Research Limitations

This project will be limited to a comparison of how the equity goals expressed in comprehensive plans influence the provision of green space funding in Austin, Texas and San Diego, California. The two cities are differently situated in their size, patterns of growth, governance and economic outlook. This limits the ability to compare funding strategies and the prioritization of capital improvement projects. San Diego is both more populous and more densely settled than Austin (see Table I and Table II). However, the cities are apart of fast growing megaregions with similarities in their projected growth patterns (Regional Plan Association 2014). The comprehensive plans share similar goals

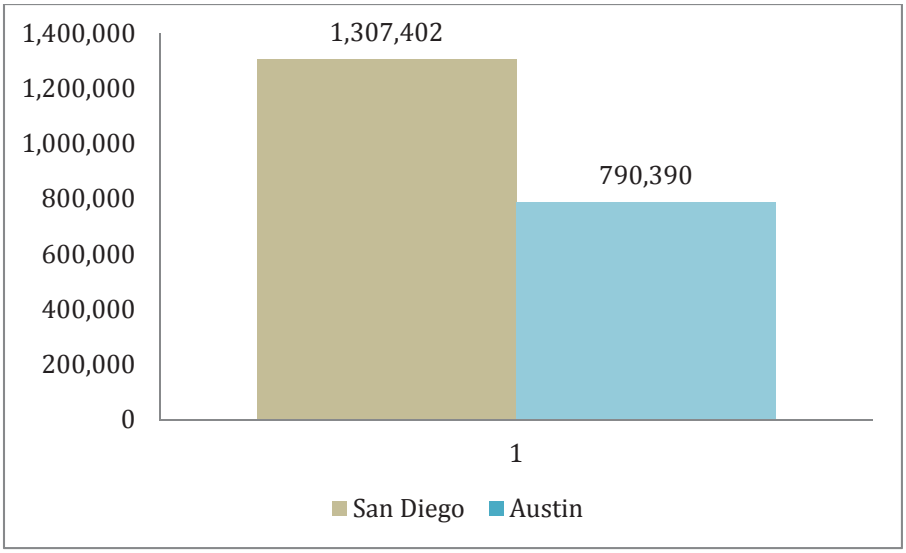
for using green space to improve the quality of life for residents, thus it is possible to compare the parks management and program implementation strategies.

Figure I: Population Density per Square Mile



Source: 2010 US Census

Figure 2: Total Population 2013



Source: 2010 US Census

II. Literature Review

This research will examine how theories of equity and social justice influence public investments in green space by city government. This literature review will outline different theories of equity before moving onto an elucidation of how equity is made actionable in the urban planning profession.

Theories of Equity

Equity is the fair treatment of people in society. Social equity is not equal treatment of all individuals, but rather may be defined as "to each according to want, need, and merit" (Lucy 1981). Equity takes into account differences in the needs, desires and abilities of individuals (Lucy 1981, Oden 2009). Equity and justice are concepts that are generated through a shared ethical framework. In *A Theory of Justice*, John Rawls imagined a scenario in which people who are unaware of their social standing agree upon principles for distributing resources fairly in order to ensure their individual well-being (Oden 2009, Fainstein 2008). Fainstein refers to this as a utilitarian conception of equality (Fainstein 2008). Utilitarianism assumes that the public has a shared singular understanding of the public good, or that the public good is the accumulation of individual interests (Fainstein 2008). Utility is defined as satisfaction or desire-fulfillment (Sen 1985). Amartya Sen proffered an alternative perspective of economic welfare. In contrast to utilitarianism, he separates well-being from advantage. This allows for a nuanced study of whether an individual or community has the opportunity to fulfill their needs or desires. Sen's Capability Approach is a useful framework for understanding access to green spaces in urban areas where the quality of public space often varies by neighborhood. Indeed, the desire of residents to enjoy green space does not correspond to the ability to access those resources.

Complex equity separates society into spheres such as social, political, and economic. A just society is one in which economic wealth would not translate into political influence

(Imbroscio 1997, Oden 2009). Complex inequality would describe a situation in which economic wealth would lead to advantages in politics and greater access to public resources like green space. The Kirwan Institute has documented the relationship between geography and inequality through the Opportunity Mapping Initiative.

Equity and Sustainability

Equity, along with economic development and environmental conservation create the triple bottom line of sustainable development a paradigm of urban planning around the world. In the context of sustainable development equity is used to describe the distribution of the costs and benefits associated with development activities. Benefits of development include resources such as green spaces, quality public schools and jobs that are created through economic growth. Example of the cost of development include waste treatment facilities, congestion and air pollution associated with an increase in commuters, as well as rising rents.

Methods for Achieving Equity

The Constitutional support for equity in urban planning is The Equal Protection Clause (1866). Within the context of urban planning equity relates to distributive justice (Lucy 1981, Talen 2007, Krumholz 2013). Equity planning advocates for the redistribution of wealth to impoverished and historically underserved communities (Krumholz 2013). Krumholz believes that equity should be a mandate for planning practitioners as they develop projects and establish benchmarks for success. Social justice is at the center of what he believes urban planners should achieve. Making equity actionable is a challenge highlighted by several equity theorists. Krumholz describes community development as an avenue for achieving equitable outcomes through planning. In particular, he recommends the use of community benefit agreements embedded within public private partnerships. Direct community investment proposals, such as land banks, that use private funds to create public goods are suggested as well. Land banks have

been used successfully in Cleveland to transition vacant land back to productive use (Cuyahoga Land Bank). Krumholz describes equity planning without addressing explicitly the displacement that may occur when neighborhoods.

Equity and Urban Planning

Achieving equitable distribution of resources requires a nuanced analysis of how urban planning goals will impact current community residents, particularly in low income communities that are rapidly gentrifying. Gentrification is a process of class stratification that occurs when middle and high income individuals move into lower income communities. A gentrified neighborhood is one where there is a high degree of differentiation between the wealthiest and the poorest households. In growing urban areas, low income communities may be selected for redevelopment by urban planners who are interested in improving services and facilities. In a study of one such community in Austin Texas, Mueller and Dooling urge planners to carefully consider the impact of future development patterns on current residents. They use the framework of vulnerability to describe how planners should assess the losses that will occur during the development process (Mueller and Dooling 2011). They're definition of vulnerability is based on the language used by natural disaster planners and they note that poverty is "an important indicator for predicting vulnerability" (Mueller and Dooling 2011).

The connection between vulnerability and urban development patterns has been researched extensively by environmental psychologists, public health advocates and geographers. Two important moments irreversibly linked the physical environment with health. The first was the publication of Silent Spring in 1972, a book that described the impact of environmental toxins on animals and humans. The second was the development of the environmental justice movement in the 1980s which revealed the extent to which race and income determined one's exposure to environmental toxins (Frumkin 2005). The environmental justice movement also increased the focus on both isolated rural communities and central urban neighborhoods, challenging the old guard

environmental advocacy groups to move beyond their focus on the conservation of wild lands to the reclamation of brown fields (Bullard 2013).

The environmental justice movement grew out of a report commissioned by United Church of Christ and Witness Ministries in 1987. The report, titled “Toxic Waste and Race”, was focused on the placement of toxic waste facilities and dumps in communities of color. The environmental justice movement coalesced in order to reveal the unequal and negative impacts of certain land uses on vulnerable ethnic communities. The Environmental Justice Principles were created at the multinational People of Color Environmental Summit in 1991. This document moves beyond the initial desire to reside in communities that are free from the undue harms of toxic waste and pollution into the articulation of the desirable communities. It marks an important moment in the move from an environmental equity that is defined according to a negative freedom into a positive freedom. It describes culturally rooted relationships of communities with the built and biotic environment. It articulates a desired future condition. Increasingly, researchers are turning their attention to the ideal ratio of green spaces in urban areas and to quantifying the impact of green space on physical and mental health. As the research reveals the positive impacts of green space, equitable access to green space has become even more important.

According to Frumkin social disparity impacts ones relationship with the built environment, specifically access, quality and quantity of housing, food and green spaces (Frumkin 2005). Frumkin describes green spaces in urban areas as the “primary venues” for physical activities; however, research has shown that the amount of green space in a community does not definitively increase the frequency of physical activity (Frumkin 2005; Groenowegen et al. 2012).

There is a study that links green school yards with an increase in the physical activity by children. In an exploratory survey of school yards in Canada Dyment and Bell found that the addition of diverse plantings (trees, flower beds, vegetable gardens) increased the

participation of children in physical activity (Dyment and Bell 2006). Their study was focused on 'green schoolyards" that were designed to provide more diverse play environments for children than the typical turf and asphalt schoolyards. Based on data from teachers, the research found that more children were likely to engage in low and moderate intensity physical activity. Furthermore, green school yards encouraged children of many different abilities to be physically active (Dyment and Bell 2006). This study is compelling given the current concerns about childhood onset diabetes and obesity. If children had more opportunities to engage in low and medium intensity activity, then there might be long term positive impacts on their health.

For adults, there is much stronger evidence for the restorative power of nearby green spaces on mental health. The correlation between the interaction with green space and the alleviation of stress is much stronger than any data related to an increase in physical activity for adults (Groenowegen et al 2006; Kuo and Sullivan 2012).

Groenowegen et al. conducted a multi-scalar research in the Netherlands of the relationship between self-assessed health and the amount of green space. In this national survey the amount of green space surrounding the homes of study participants was linked to subjective and objective health assessments. An urban level study of eighty communities in four cities compared the quality and quantity of green space to health as self-reported. The quality of green space was 'measured using indicators that included: accessibility, maintenance, variation, colorfulness, clear arrangement, shelter, and absence of litter. The local study compared the health of allotment gardeners to their non-gardening neighbors (Groenowegen et al. 2006). The study of allotment gardeners included an experiment in which participants "performed a stressful task" after which they were required to do thirty minutes of reading or gardening. Cortisol levels were monitored throughout the experiment in order to compare the impact of each restorative activity on stress. Groenowegen et al. note that a key limitation of their study is that it was conducted in the Netherlands, where the limited wilderness areas

may cause residents to overestimate the positive impact of residential green space on their physical and mental health. Researchers studying impact of the environment on behavior have found that the impoverished inner city urban residents could use green spaces as places of respite from the prolonged “attentive demands” of poverty (Kuo and Sullivan 2001).

Research has shown a positive and strong relationship between green residential areas and the mitigation of mental fatigue in urban areas (Kuo and Sullivan 2001). Kuo and Sullivan conducted a study of people residing in inner city public housing developments. The intention of their study was to investigate the extent to which mental fatigue could be linked with aggression and violence in low income communities. The research was focused on the restorative effect of green space in individuals who experience mental fatigue due to environmental stressors (such as crime) and poverty. Kuo and Sullivan associate the stress of poverty with the constant struggle to fulfill basic needs such as food and shelter (Kuo and Sullivan 2001). For people living in poverty acquiring necessities like rent and food requires constant problem solving. Kuo and Sullivan also highlight the vulnerability or susceptibility of poor people to sudden life changes. Medical emergencies can lead to financial setbacks. Adjusting to the uncertainties associated with having a dearth of resource requires constant mental focus. In addition to these household demands, crime in inner city urban areas is also a source of stress. Residents must remain vigilant in order to avoid dangerous situations and also plan responses to new threats. Lack of park space means that there are fewer opportunities for residents to recover from the heightened levels of stress associated with poverty and the impoverished surroundings. Kuo and Sullivan write, “Overtime, the ongoing and acute attentional demands of poverty, in combination with the mentally fatiguing characteristics of the inner-city environment, seem likely to yield high levels of mental fatigue” (Kuo and Sullivan 2001). Researchers recruited women residents of public housing projects to participate via door to door canvases in two public housing

developments. Women were chosen because they make up 80% of all public housing residents in Chicago where the study was conducted. For this same reason, the researchers chose to focus on intra-family violence. Kuo and Sullivan tested alternative explanations for both violence and increased attentiveness: positive mood, stress recovery and social support, although it is noted that green residential areas have been associated with reduced stress and increased social connectivity (Kuo and Sullivan 2001). Eye-level photographs of buildings were used to assess nearby nature. Buildings with more trees were assessed as having more nature than buildings that lacked trees and had more concrete/turf. Residences were assessed on a 5 point scale that ranged from “not at all green” to “very green”. There was no difference among the buildings in pedestrian or motorized traffic. The research found that residents in greener residential areas had “significantly” lower levels of aggression and violence. This is an important finding for public health professionals and urban planners. It demonstrates that green spaces could mitigate intra-family violence and aggression within inner city urban communities. The stress recovery opportunity provided by green space is an important part of its role in supporting health in urban areas. The potential positive impacts of green space in low income communities makes that the equitable distribution of parks, urban forests, and community gardens is a vital necessity.

Geographers and urban planners have increasingly used digital cartography to map the distribution of resources within cities. Heynan, Perkins and Roy examined the impact of race and ethnicity on the distribution of tree canopy cover in Milwaukee, Wisconsin. The researchers used a Marxist framework to unravel the power relationships to generate inequity in urban areas. It is important to note a key assumption of this study- that the creation of urban green space is a socially bound process that involves the commodification of nature (Heynan, Perkins and Roy 2006). The study found that there were disparities in the urban tree canopy that were revealed through a spatial analysis of race and ethnicity. The research found that low income communities and

communities of color had inadequate access to trees and parks when compared with other types of neighborhoods even when there was significant public sector investment in parks and the maintenance of street trees (Heynan, Perkins and Roy 2006). The study determined that the privatization of the land utilized for urban forests was an important factor in the uneven distribution of urban green space. The researchers note that there is a lack of research in the realm of environmental justice focused on the distribution of healthful green infrastructure because the environmental justice movement has historically been focused on the distribution of toxic waste and pollution (Heynan 2006, Perkins and Roy 2006).

Standards for the Provision of Public Parks

In 1965, the American Society of Planning Officials promulgated a space standard for parks in urban areas of one acre per one hundred residents (Moeller 1965). The author drew these recommendations from an earlier report by recreation experts, and was likely drawn from the work of George Butler, who published a report in 1950 titled, *Playgrounds: Their Administration and Operation* under the auspices of the National Recreation Association. His recommendation was that there be a minimum of 10 acres of parks or open space per 1,000 residents in cities. Over time parks and recreation professionals have moved away from the ration based standard, out of fear this minimum requirement would be interpreted as a maximum or optimal standard by politicians and planning professionals (Mertes and Hall 1995).

The National Recreation and Park Association (NRPA) formed in 1965 when several professional associations merged. They advocate for fair access to open space and recreation opportunities. They have embraced a systems planning approach for open space. Rather than perpetuating the traditional park, discrete areas scattered throughout a city, this organization has taken on the challenge of imagining the entire community as a park (Mertes and Hall 1995). This new standard is another version of the mixed-use principle that has become so important for urban planning. In addition to

mixing commercial spaces with residential structures, green space is integrated into urban areas. The ‘community as park’ is similar to early utopian visions for town planning such as Ebenezer Howard’s garden-city and Patrick Geddes’ geotechnic concept. There have been more recent developments in urban planning that support the full integration of cities with open space, most notably Randall Arendt’s conservation design.

III. Methods

The first stages of the research involved a literature review focused on equity within urban planning, as well as the mental and physical health benefits associated with access to green spaces. Interviews were conducted with three representatives from the Parks and Recreation Departments in San Diego California and Austin Texas. The purpose of the interviews was to ascertain how principles of equity influence resource allocation decisions within the Parks and Recreation Departments in each city. Interview subjects were asked to speak about the resource allocation process within their city and their particular department. The purpose of the interviews was to gain more insight into the decision making process. The final stage of research involved measuring access to parks at the city and neighborhood scales. The measure for access was developed based on the standards of service that are used by the National Recreation and Parks Association and the Trust for Public Lands. Geographic information systems (GIS) were used as a method of analysis. Quarter mile and half mile buffers were created around all publicly accessible green space. In San Diego, canyons were included in the public green space category because they are managed through the parks department. Separate maps were created to document the transportation networks that connect residential areas to green space.

Interviews

Interviews were conducted with three representatives from the Parks and Recreation Departments in San Diego California and Austin Texas. The purpose of the interviews was to ascertain how principles of equity influence resource allocation decisions within the Parks and Recreation Departments in each city. Interview subjects were asked to speak about the resource allocation process within their city and their particular department.

Table 1: Interview Subjects

San Diego		Austin	
Kim Mathis Area Manage, Parks and Recreation Department		Marilyn Shashoua Senior Planner Planning and Design Parks and Recreation Department	Meredith Gray Conservation Program Coordinator, Sustainable Urban Agriculture & Community Gardens & Wildlife Austin Program Nature-Based Programs Division Parks and Recreation Department

Case Studies

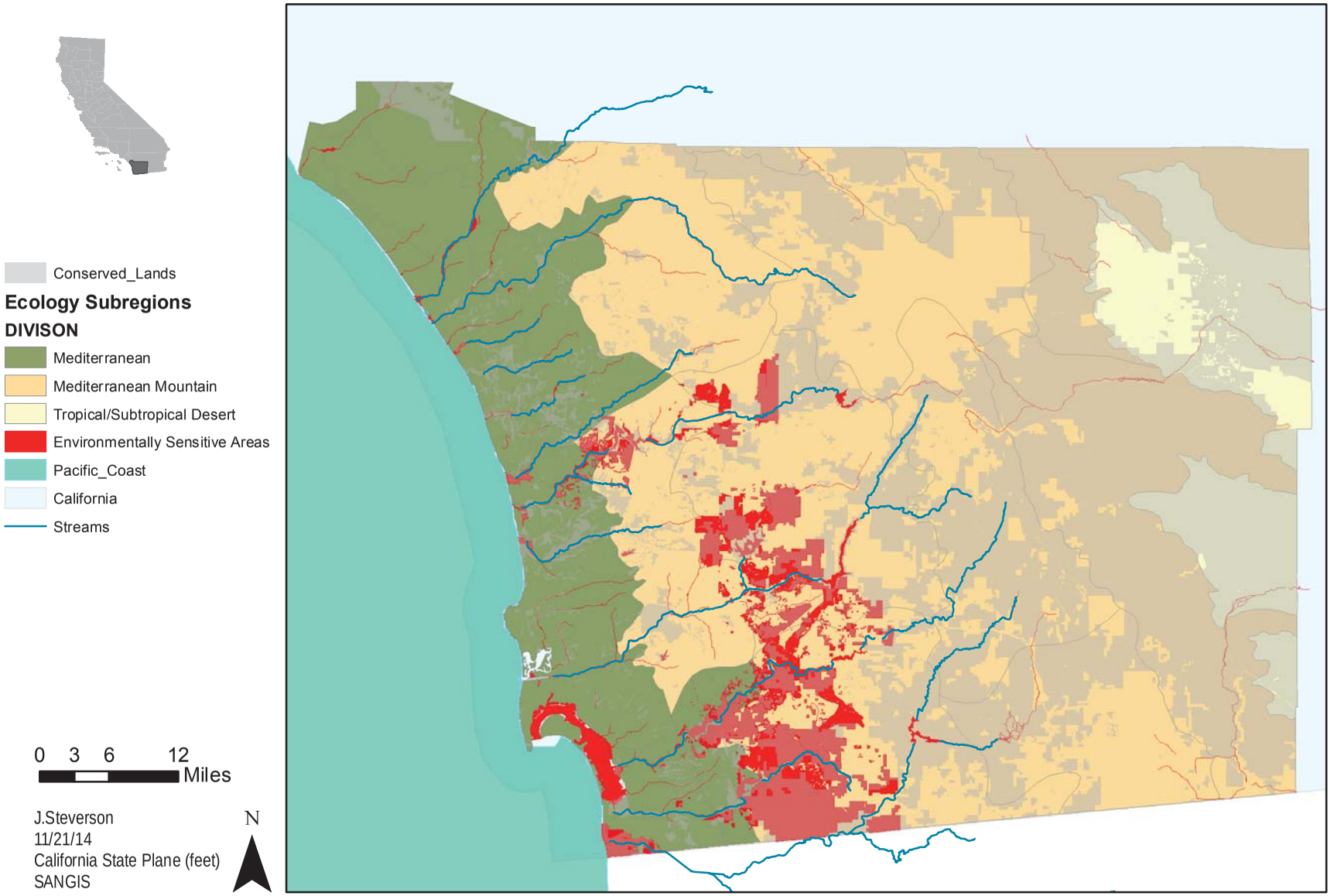
San Diego, California

San Diego County is 4,206.6 square miles in area. In 2013 the total population was 3,211,252 people. The population grew 14% between 2000 and 2013. In 2010, the population density in the county of San Diego was 735.8 people per square mile. The population is concentrated in communities that are closer to the ocean while the eastern portion of the county is considerably less dense. Population in the wider region is projected to grow. San Diego is a part of the Southern California Megaregion which includes Los Angeles, Las Vegas (Nevada).

San Diego County is located in southern California along the United States Mexico border. Imperial County is located to the east and Riverside County is located to the north. The municipal jurisdiction of the city includes the tidelands and waters of the Bay of San Diego and for one marine league into the Pacific Ocean (City of San Diego 2014).

Image 1

Land Conservation Patterns in San Diego County (California)



California is part of the Pacific Southwest and falls within the Environmental Protection Agency's Region 9 (see Image 1). The City of San Diego lies within the Tijuana River Watershed which is characterized by hilly terrain. The eastern mountains of the watershed feature conifer forests while the riparian areas are coastal sage scrub. The wetlands of the watershed include vernal pools and estuaries (Environmental Protection Agency 2014). This ecosystem constrains land use in unique way. The City of San Diego prohibits development on the steep slopes of canyons and within sensitive ecological areas. A significant proportion of conservation lands fall within these two categories (San Diego Association of Governments 2014).

Governance

The City of San Diego is situated in the western central area of the county along the coast. In 2006 the governance structure for San Diego became a strong mayoral system. The mayor assumes the authority and responsibilities that previously resided with a city manager. The additional powers conferred on the mayor include: proposing a budget to the City Council, sole authority to appoint representatives to boards, commissions, and agencies, and the sole authority to appoint and dismiss city managers (City of San Diego, Article XV, Section 265).

There are nine city council members who are elected according to represent distinct district. All city council members must reside in the district that they are representing. They forfeit their office if they move from the district. The ninth district was added after the 2010 decennial census was complete. The city is divided into districts of equal population, to the extent that is possible. Because of the requirement for districts of equal population, the boundaries of the districts are subject to change over time according to the city charter (City of Austin Article II). The charter mandates that redistricting occur once per decade in response to new demographic information released via the U.S. Census Bureau. Redistricting plans must provide effective

representation for all residents, “including ethnic, racial and language minority groups” (City of San Diego, Article II Section 5.1). Where possible, districts should incorporate the boundaries of identifiable communities of interest and be contiguous units.

Annexed territory must be added to adjacent districts (City of San Diego Article II Section 5). Because council members have a vested interest in the boundaries of city districts, a special redistricting commission establishes new boundaries. Commission members are chosen by the Presiding Judge of the Municipal Court. Individuals and organizations may nominate individuals through the City Clerk. Appointees are selected in part based on “a demonstrated capacity to serve with impartiality in a nonpartisan role” (City of San Diego Article II Section 5.1). The city charter seeks to avoid conflict of interest by prohibiting commission members from seeking public office within five years of their appointment.

A five vote majority is required to pass ordinances and resolutions. As noted in Section 270 of Article XV, the city council determines its own rules, including the process by which the mayor presents proposals for consideration. Council members are prohibited from seeking to influence city board or agency appointments. While it is the mayor’s responsibility to propose a budget, it the city council approves the budget. The council must hold a minimum of two public meetings before they can approve or seek modifications to the city budget.

Comprehensive Plan

In 2008 the City of San Diego completed a comprehensive planning process. This plan, along with individual neighborhood plans, continues to provide a guiding framework for land development in the city. The 2008 general plan references two earlier planning documents. The first, a 1908 plan described the need for a physical foundation on which to build a strong physical foundation upon which the small border town could grow. The second plan was privately funded in 1974 and co-authored by Kevin Lynch. It focused on

the need to preserve the unique ecosystems that defined the beautiful landscape of San Diego as a coastal community (City of San Diego 2008). The 2008 general plan vision statement builds on the conservation focus of the Lynch plan. It adds cultural diversity as a distinct aspect that is to be preserved.

The citizens and elected officials are called to act as stewards of the natural environment. The plan emphasizes the need to balance environmental conservation with land development. It also explicitly seeks to slow the pace of new development in open spaces by promoting dense infill development. The vision statement also describes the need to appreciate the "unique character" of communities and the need to constantly strive for equity (City of San Diego 2008). The plan seeks to strike a balance between the quality of life for residents and the conservation of open lands. The strategy used to implement this vision is the use of mixed use "villages" that are connected through multi-modal transportation and whose boundaries are determined by an open space network of conserved lands (City of San Diego 2008). The village typology is a higher density residential nodes adjacent to employment centers.

Table 2: Guiding Principles of the 2008 San Diego General Plan

1. **An open space network formed by parks, canyons, river valleys, habitats, beaches, and ocean;**
2. **Diverse residential communities formed by the open space network;**
3. Compact and walkable mixed-use villages of difference scales within communities;
4. **Employment centers for a strong economy;**
5. An integrated regional transportation network of walkways, bikeways, transit, roadways, and freeways that efficiently link communities and villages to each other and to employment centers;
6. High quality affordable, and well-maintained public facilities to serve the City's population, workers, and visitors;
7. Historic districts and sites that respect our heritage;
8. **Balanced communities that offer opportunities for all San Diegans and share citywide responsibilities;**
9. A clean and sustainable environment; and
10. A high aesthetic standard

Source: City of San Diego Comprehensive Plan (2008) The principles in bold incorporate social equity aspirations.

Social equity is embedded into the economic development and land use goals of the San Diego General Plan. The document prioritizes respect for community character, diversity and the need to ensure access to economic opportunities for all San Diegans. There is a strong nexus between the conservation and quality of life goals. They are linked through intergenerational equity, the need to protect the natural environment and to preserve access to open space for future generations.

Green Space in the Plan

In 2010, approximately 28% of all land uses in San Diego were public parks, recreation or conserved open space, see Image 2 (City of San Diego 2008). The City of Villages vision statement defines a village as a pedestrian friendly community with "inviting and

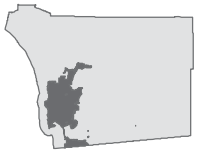
accessible public spaces". These public spaces are broadly defined as parks, plazas, community meeting spaces, outdoor gathering spaces, outdoor dining and market spaces with attractive landscape and streetscape design features (City of San Diego 2008). Embedded in the definition of public space is the standard for the amenities that create a high quality public space. This definition is aligned with the research that has been conducted about the need for different forms of public space to fulfill the needs of individual communities (Frumkin 2005). Setting aside land for new parks in existing communities is supported by the research that links the alleviation of mental fatigue with exposure to green space (Kuo and Sullivan 2001).

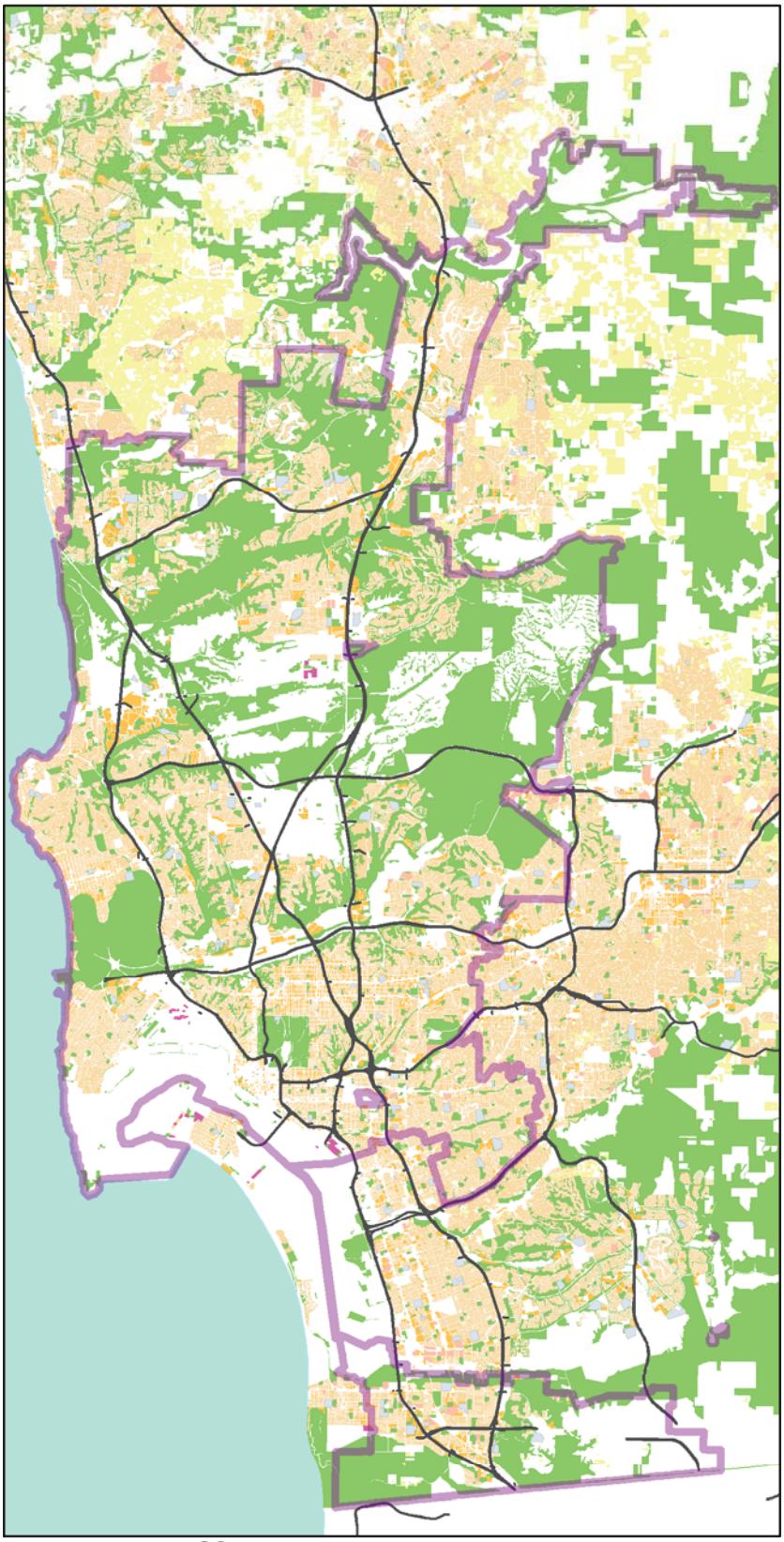
The Land Use and Community Planning Element of the San Diego General Plan describes the need for a multimodal transportation that can connect residents with local amenities. The different categories of public parks that are listed in the plan were pulled from the existing inventory of Parks and Recreation Departments. In practice open space describes both natural undeveloped land and undevelopable land such as the steep canyons that wind through many parts of the city. This category of open space is managed by the Open Space Department, a subset of the Parks and Recreation Department (Interview with K. Mathis 2014). Maintenance of these spaces includes brush management which is vital due to the prevalence of seasonal wildfires as well as the multiple species conservation program[1]. Only a portion of open space is accessible for low impact activities like hiking and bird watching. Population based parks are neighborhood parks that may include sports fields, recreation centers or playgrounds (see Table 3).

[1] The multiple species conservation program (MSCP) is focused on habitat conservation in southwestern San Diego. The purpose is to protect the habitat of federally listed endangered species and of species that are proposed candidates for listing. Additionally, MSCP ensures that all public land is in compliance with federal regulations under the endangered species act, it also seeks to decrease the cost of compliance for private land owners (City of San Diego.(2014) *Multiple Species Conservation Program Plan Summary*. http://www.sandiego.gov/planning/programs/mscp/summary/index.shtml (accessed 11/19/14)

Image 2

Distribution of Green Space in Residential Areas (San Diego, CA)





Public Green Space
Pacific Ocean
Public Schools

Residential Land Use Zones

Military Barracks
Mixed Use
Mobile Home Park
Multi-Family
Residential Under Construction
Single Family
Spaced Rural Residential
Freeways

*Public Green Space includes canyons, parks, recreation centers and joint use school sites.

Miles
0 3 6

J.Steverson
11/21/14
California State Plane (feet)
SANGIS

N

Table 3: 2008 San Diego City of Villages Green Space Types

Park Type	Definition	Purpose
Open Space	-Undeveloped land or water -Areas with low intensity land uses that respect existing environmental characteristics	-Preservation of distinctive scenic natural or cultural features -Primarily passive park and recreation use, visual relief, landform preservation
Population-based Parks/School Parks	-Notable natural or man-made features: canyons, habitat systems, lakes, historic sites, cultural facilities	Provides recreational space for the city and locally
Agriculture	-Rural in character -Very low density or areas where agricultural use is predominant Zoning: low density residential estates I dwelling unit/10 acres	-Accommodates wide range of agricultural uses -Dairies, horticultural nurseries and greenhouses, raising/harvesting crops, animal husbandry, single dwelling units
Urban Agriculture (2012 Adopted Amendment)	-Small and large scale agricultural production in central urban areas	-Increase access to fresh local food -Reduce energy used for food transportation and distribution -Increase opportunities for economic development and local enterprise

Source: City of San Diego General Plan 2008; City of San Diego Urban Agriculture Adopted Amendment (2012)

Since the publication of the 2008 plan, urban agriculture has become an important category of open space in urban areas. In 2012, the San Diego City Council adopted an amendment to the general plan that added 'Local Food' to the Conservation Element. Urban agriculture is described as a climate adaptive strategy that would have positive economic, environmental, and public health impacts. The top line goal of the Conservation Element is for San Diego to be an international model for sustainable

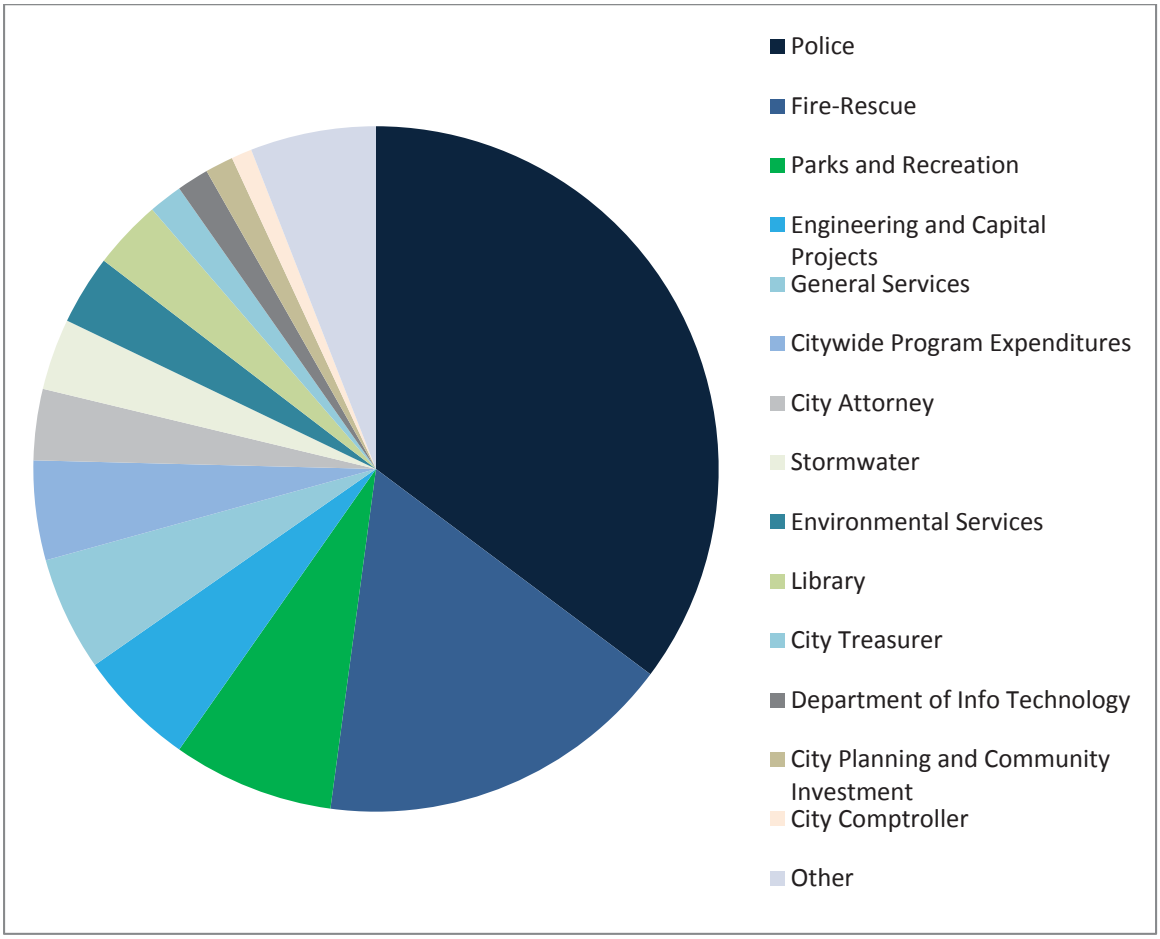
development (City of San Diego 2012). Urban agriculture fits that goal, especially given increased funding and visibility. Additionally, social equity, particularly access to healthful foods and micro-enterprise opportunities, is named as a motive to supporting subsistence and market gardens in dense, central communities (City of San Diego 2012). The expansion of urban agriculture opportunities is listed as goals within the Agriculture section of the Conservation Element.

Implementing the City of Villages Plans: Enhancing Public Parks

In Fiscal Year 2010, San Diego was still coping with the impacts of the economic recession. There was a 5.3% ($62.9 million) decline in general fund revenue (City of San Diego 2010). This revenue stream funds community services, including parks and recreation. Property tax, which is an important source of revenue also declined. Between 2005 and 2009 the median home price in San Diego County declined 38.9% (City of San Diego 2010). Home prices did begin to stabilize and recovered slightly in 2009 (City of San Diego 2010). In 2008 the city mayor revised the Five-Year Financial Outlook which provided an in depth critique of the municipalities long range fiscal health.

This document outlined eight priority areas that had been underfunded in previous years, including deferred maintenance and capital improvements (City of San Diego 2010). One of the leading capital improvement program priorities were ADA (Americans with Disabilities Act) upgrades to improve accessibility at city facilities (City of San Diego 2010). This included significant work in public parks to bring paths, parking lots, restrooms, and fishing piers up to code (City of San Diego 2010). In 2010, the total budget for the Parks and Recreation Department was $86 million or 7.6% of the municipal budget.

Figure 3: City of San Diego 2010 Budget Allocations



Source: City of San Diego 2010

Current budget priorities for the parks are maintenance equipment/safety, and watering costs. Since the 2010 fiscal year, California has experienced severe droughts. As a result the San Diego Parks and Recreation Department is working to implement native landscaping to reduce water costs and to comply with the mandatory water restrictions that were passed by the city council. The city has also begun to use artificial turf in some recreation fields (Interview with K. Mathis). Other important funding priorities include

Balboa Park[2]and the beaches; these lands require a large amount of money for maintenance but they also generate considerable revenue for the city because they are also tourist attractions (Interview with K. Mathis 2014).

The City of San Diego uses population based standards of service as a guideline for park planning (City of San Diego 2008). Unlike Austin, which imposes parkland impact fees on infill and green field[3] development, in San Diego only green field developments are subject to parkland land dedication and impact fees. Rather than depending on the acquisition of new land, the department focuses on maintaining and enhancing public parks in the dense urban core (Interview with K. Mathis 2014). Joint-Use Sites are a sub-category of population-based parks. These are open spaces of at least one acre that are owned by San Diego Unified School District but maintained by the Parks and Recreation Department through a joint contract or agreement. The vast majority of these sites are elementary schools with some participating middle schools.

Plazas are infill public spaces with virtually no vegetated ground cover; one example is an urban parcel with a concrete slab that is located in the North Park neighborhood (Interview with K. Mathis). The plaza typology is not currently included in the park standards. According to Kimberly Mathis, the District Director of San Diego Parks and Recreation, the plaza is a form that has been used on a case by case basis to enhance park land in the urban core, or to provide an amenity using existing urban land parcels (Interview with K. Mathis 2014).

[2] Balboa Park is a 1400 acre site that was set aside as park space in 1868. Many of its buildings date to the 1915 Pacific World Exposition. http://www.balboapark.org/info/history (accessed November 21, 2014)
[3] Greenfields are previously undeveloped parcels of land

Table 4: City of San Diego Park Standards

Park Type (size/service area)	Description	Purpose
Population-Based Parks (2.8 acres/1000 residents)	May include: recreation centers, sports fields, picnic areas, aquatic complex	To provision a community or neighborhood planning area
Community Parks (13 acres/25,000 residents)	Passive and active recreation facilities: multipurpose sport fields, aquatic complex, recreation center	
Neighborhood Parks (3-13 acres/5,000 residents) Within 1 mile	Accessible by bike or walking; includes picnic facilities, children's play area, multipurpose courts, kitchen and other community service facilities	Provide access to active recreation for a neighborhood
Recreation Centers (17,000 square feet/25,000 residents)	Amenities: gymnasium, indoor courts, kitchen, other community serving facilities	To provide active, indoor recreation space for 25,000 residents within 3 miles
Aquatic Complex 17,000 square meters/25,000 people)	Amenities: 25 meter x 25 yard swimming pool, children's pool, therapeutic pool, locker rooms and showers	Active recreation opportunity for residents within 6 miles

Source: City of San Diego Parks and Recreation website (2014) http://www.sandiego.gov/park-and-recreation/general-info/prstand.shtml

The comprehensive plan and current park department regulations still define public parks as vegetated spaces that serve a recreational purpose, however the water shortages are creating an incentive for new design and management strategies (Interview with K. Mathis). One example of this is the Chollas Creek Enhancement Program. It outlines the process for restoring the ecological function of a natural creek system that runs from the City of La Mesa through southeast San Diego to the San Diego Bay (City of San Diego 2002). The restored creek will become a greenway with hike/bike trails running through growing communities with limited park space, (City of San Diego

2002). The native planting scheme and naturalistic form will require less water and maintenance.

Community gardens are another relatively new program on public lands. In 1997, community gardens were added to the land development code as a separate use category under agriculture which defines community gardens as "*premises* that are used for crop cultivation by individuals or collectively, and may be divided into multiple plots" (City of San Diego 1997). Non-profit organizations and community associations have historically been the organizing force behind acquiring land and materials for the allotment type gardens (notable examples include the Barrio Logan Garden and the World Beat Center Ethnobotany Garden).

The gardens are permitted in residential areas with a Neighborhood Use Permit as well as in industrial and commercial zones (City of San Diego 1997). The sale of produce is permitted in residential areas one day per week and more frequently at community gardens that are located in commercial and industrial zones. From an environmental health perspective, industrial land uses are incompatible with community gardens due to soil contamination. However, many older low income communities of color are located in close proximity to industrial sites (Bullard 2013). In San Diego, Barrio Logan is one such community where residential areas abut a shipping yard.

Water presents another challenge in the city's efforts to expand community gardens since gardeners must abide by water restrictions and pay for the water that they use (City of San Diego 1997). Managing a community garden requires a long term commitment on the part of residents since a neglected space can become a neighborhood nuisance (Interview with K. Mathis). Partnerships between the Parks and Recreation Department and community organizations provide would-be gardeners with the information and land that they need to develop durable public spaces.

Conservation of the canyons that intersect many parts of San Diego have garnered more attention as important green spaces over the past 20 years. San Diego Canyonlands and Groundwork San Diego-Chollas Creek are two community based organizations that have partnered with the Parks and Recreation Department to protect these areas. Canyons are landmarks in San Diego communities. Their preservation ensures that an important network of open space remains intact throughout San Diego.

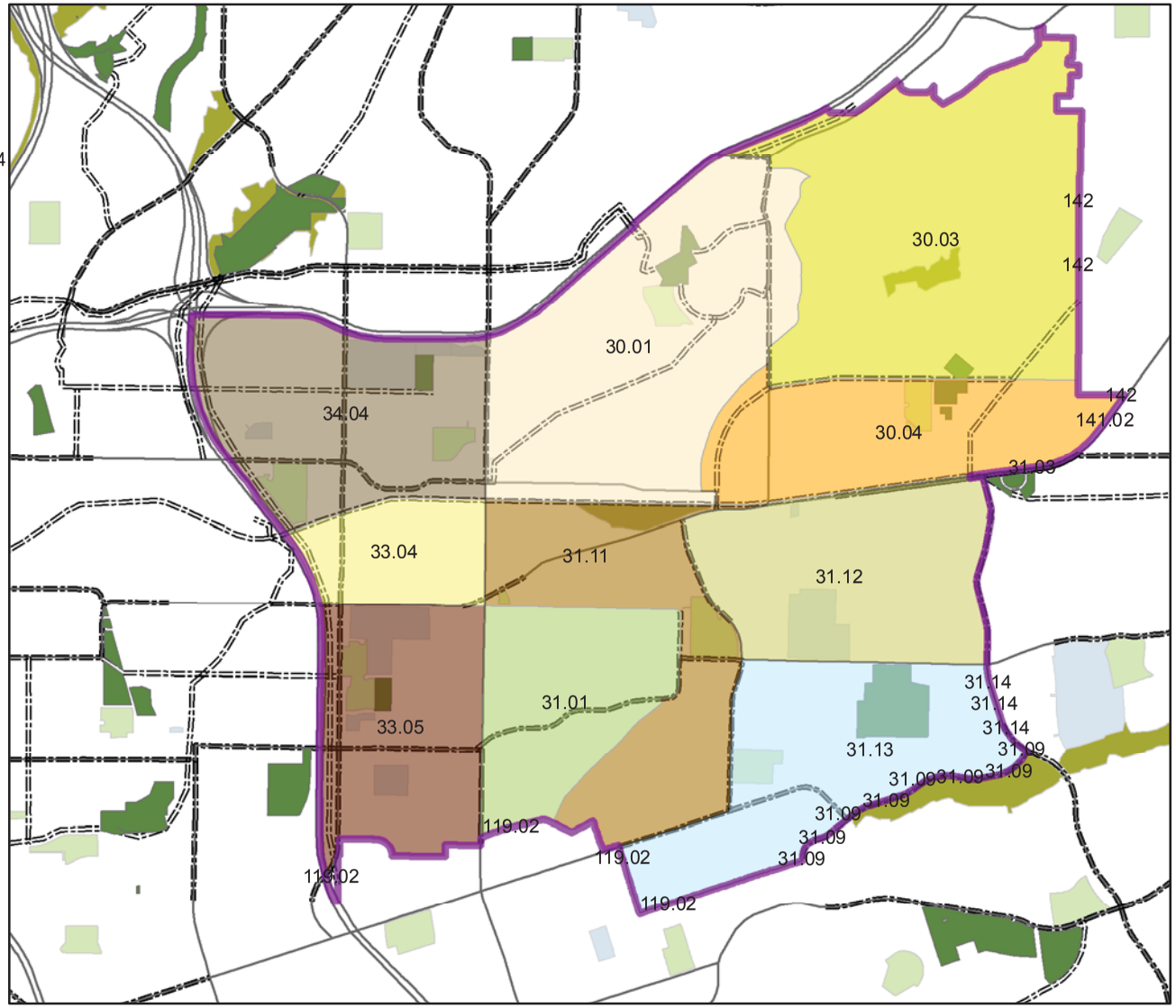
The Encanto Community

Encanto is located in southeast San Diego, a place defined by single family homes and steep canyons. The Southeast San Diego Plan was first published in 1986 and covers 4766 acres, encompassing 15 different neighborhoods. Each neighborhood in southeast San Diego has different land use patterns and demographic trends. It is difficult to find evidence of the demographic shifts that have taken place in Encanto and the larger southeast area between 1986 and 2014 in the neighborhood plan. The plan has been updated several times over the past 28 years to incorporate the new developments and planning priorities which can make it difficult to derive cohesive themes and to trace the implementation strategies for the original 1986 goals.

Many residents of southeast San Diego earn less than the average income in San Diego, as a result economic development, community revitalization, and increasing affordable housing have been persistent planning goals, see Image 3 (City of San Diego 2004). The Encanto neighborhood has benefited from two economic development initiatives between 1999 and 2004. The first is the Market Creek Plaza plan in 1999, an innovative transportation oriented developed that was largely funded by the Jacobs Family Foundation to create space for small businesses and investment opportunities for local residents.

Image 3

Proximity of Low Income Residents to Green Space in Encanto (San Diego, CA)



In 2004, Encanto was selected as one of five Pilot Village demonstration sites. The purpose of the programs was to test Smart Growth implementation strategies in support of the 'city of villages' concept that became the foundation of the general plan. The located chosen was Euclid Avenue, an important commercial main street. The Euclid and Market Pilot Village Project was built to accommodate neighborhood scale retail, and 800 residential units (City of San Diego 1986 and City of San Diego 2004).

The 1986 land use descriptions are outdated; however the plan is a rich source of information about land management practices. For example, the Chollas Creek Enhancement Program dates back to the 1986 plan. The 1986 plan recommends that the city begin to acquire land within the Chollas Creek watershed in order to provide more open space to residents. The initial plan called for the purchase of Radio Canyon, an expanse of steep hillside that lies between Emerald Hills and Encanto.

In recent years two non-profit organizations have worked to preserve canyon lands and to restore the ecological systems within these areas. San Diego Canyonlands[4] was founded with assistance from the Sierra Club and works to preserve canyons across the city and to encourage stewardship through community engagement. Groundwork San Diego-Chollas Creek[5] is dedicated exclusively to the conservation of the Chollas Creek watershed which includes Radio Canyon. The continuity between the 1986 plan and the current work of Parks and Recreation needs to be further documented. The partnerships that have developed between the parks department and Encanto community organizations have facilitated the development of new green spaces (see Image 4).

Kim Mathis, the District Manager for Parks and Recreation in San Diego, identified updating aging facilities and safety as critical improvements for parks in the Encanto community. Many of the parks date to the 1960s-1970s, consequently, the buildings

[4] San Diego Canyonlands. http://groundworksandiego.org/ (accessed November 19, 2014)
[5] Groundwork San Diego-Chollas Creek. http://groundworksandiego.org/ (accessed November 19, 2014)

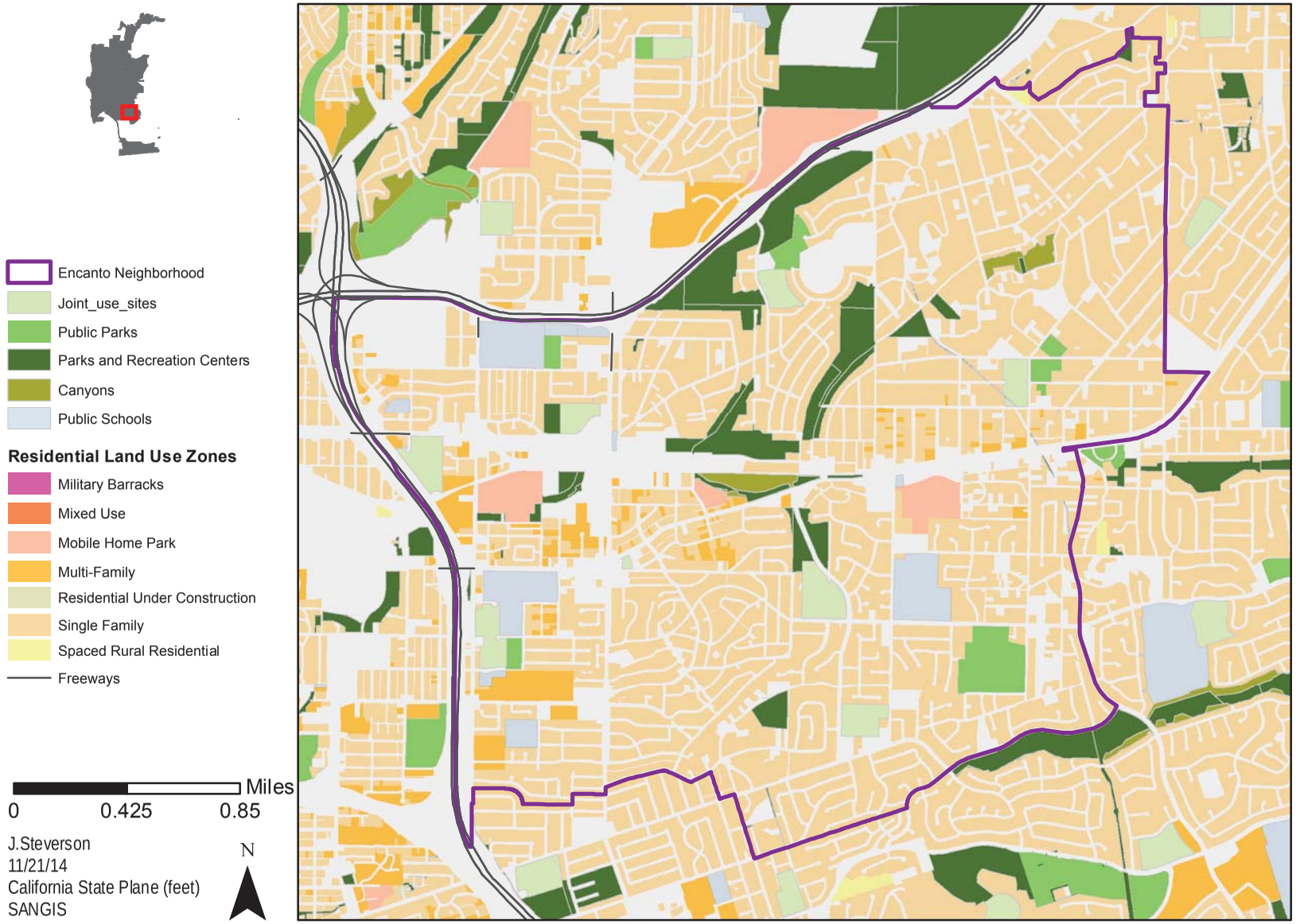
need technological updates in order to accommodate modern computers and internet connections. The demand for park space is also greater than the current capacity, particularly for recreations fields (Interview with K. Mathis 2014). The population of the Mid-City Area and Southeast San Diego is projected to grow in excess of 380,000 by 2015 (City of San Diego 2002). Providing enrichment activities at recreation centers is also a priority because of the level of gang activity in the Encanto area (Interview with K. Mathis 2014). Given the current budget, it is unclear whether the funding for these critical improvements will be available (Interview with K. Mathis 2014).

The San Diego Parks and Recreation has been focused on improving access to open space by enhancing existing but underutilized public spaces. In the face of budgetary challenges in 2010 which resulted in a decrease in revenue from property taxes, the parks department has embraced partnerships with community organizations in order to maintain standards of service (City of San Diego 2010 and Interview with K. Mathis 2014). They have begun to expand active transportation networks, community gardens, and increase available open space through joint use agreements with public schools. Moving forward, the parks department may benefit from creating a cohesive timeline of accomplishments in order to justify an increase in their budget.

This could be accomplished by partnering with the Planning Department to create discrete updates of community plans that focus only on green space. For example, the Planning Department could be begin to uncouple plan updates from the original 1986 Southeastern San Diego Community Plan which would make it easier to assess the performance of individual projects over time such as the increase in public space.

Image 4

Dispersion of Public Parks in Encanto (San Diego, CA)



The City of San Diego may also need to consider incorporating new definitions of public space into their standards of service to accurately reflect access to parks across the city. This will enable the department to track their accomplishments each year using the population based standards. The measure for access to parks might improve if the plazas and community gardens were included in the performance matrix.

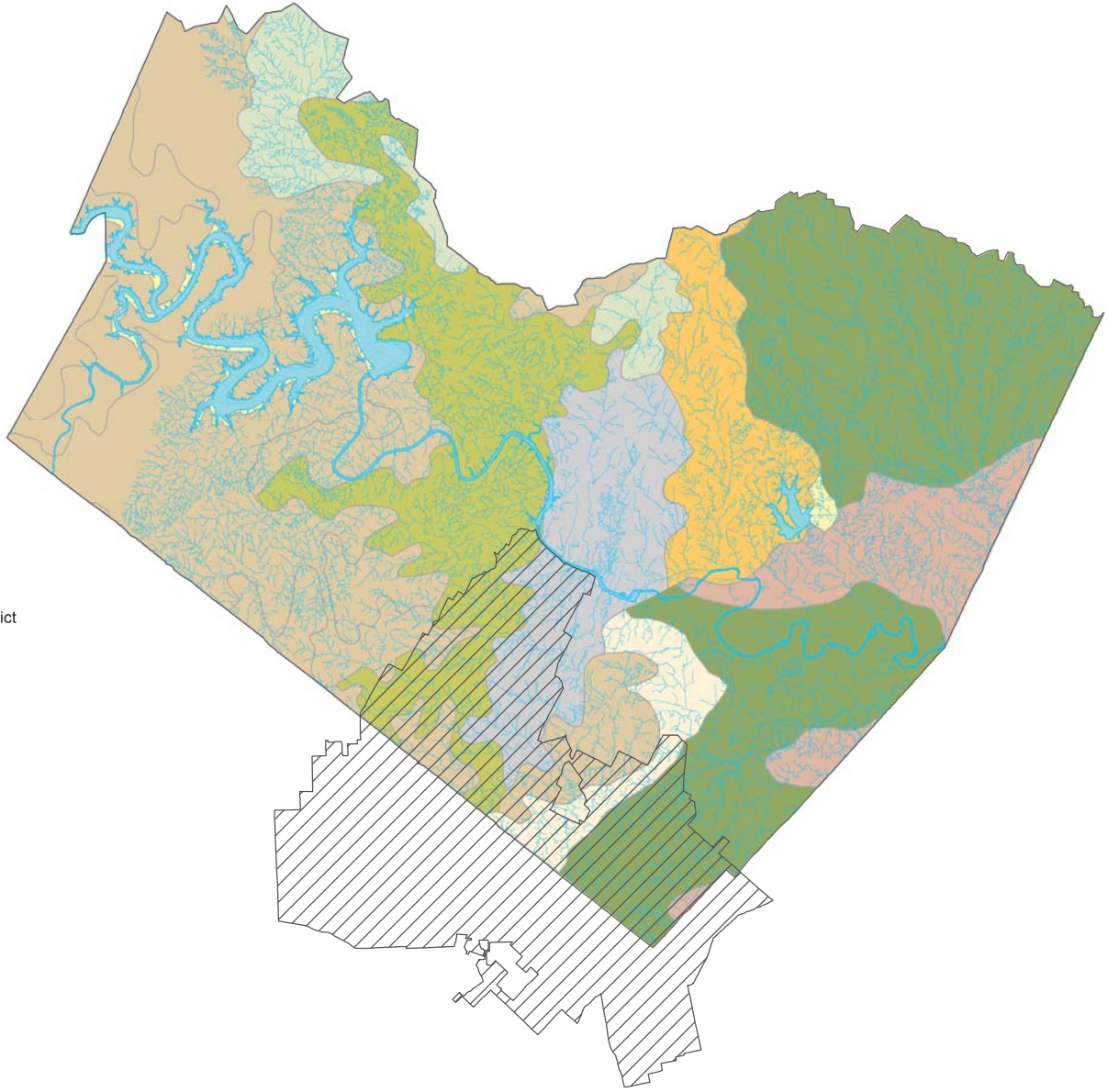
Austin, Texas

Travis County, located in central Texas, covers 990.2 square miles in area. In 2013, the total population was 1,201,954. The county population grew 38% between 2000 and 2013. This rapid growth rate is expected to continue since the employment is steady in the central Texas region (CAPGOG). It is located in the Texas Triangle which stretches between Houston, Dallas and San Antonio. According to population projections, 70% of Texans will live in this megaregion by 2050 (Regional Plan Association 2014). Diminishing water sources, prolonged drought conditions and increasing demand for transportation infrastructure are two challenges facing this area (Regional Plan Association 2014).

Travis County is situated at the intersection of three different ecoregions. To the west, the Edwards Plateau is defined by the karst (limestone) geological substructure that makes it a vital recharge zone for the Edwards Aquifer, an important source of water for central Texas. Protecting the Edward's Aquifer has driven conservation efforts in west Austin. The northwest corner falls within the Cross Timbers and Prairies region that alternates between wooded areas and grassland. The eastern portion of Travis County is located within the Blackland Prairie, a formerly expansive grassland region with rich soil that remains an important agricultural resource. The county has a humid sub-tropical climate.

Image 5

Travis Count Ecological Zones (Texas)



Vegetation Communities

- Crops
- Live Oak-Ashe Juniper Woods
- Live Oak-Mesquite-Ashe Juniper Parks
- Meredith
- Oak-Mesquite-Juniper Parks/Woods
- Other
- Post Oak Woods, Forest and Grassland Mosaic
- Silver-Bluestem-Texas Wintergrass Grassland
- Urban
- Colorado River
- Barton Springs/Edwards Aquifer Water Conservation District
- Streams

0 3.5 7 14 Miles

J.Steverson
11/11/14
NAD 83 State Plane Texas Central 4203 (feet)
Source: City of Austin & CAPCOG

Governance

It is important to note that until recently, redistricting laws in the state of Texas were subject to oversight from the Department of Justice under the 1964 Voting Rights Act. Section 5 states that:

> Any changes with respect to voting in a covered jurisdiction- or any political subunit within it- cannot legally be enforced unless and until the jurisdiction first obtains the requisite determination by the United States District Court for the District of Columbia or makes a submission to the Attorney General. This requires proof that the proposed voting change does not deny or abridge the right to vote on account of race, color, or membership in a language minority group.

Jurisdictions that were subject to Section 5 were listed in Section 4 of the Voting Rights Act., one determinant for inclusion was that less than 50% of eligible voters had voted in the 1964 presidential election. Initially, this provision was to last only five years, however, Congress extended Section 5 for an additional 5 years in recognition of the continuing need for such oversight. Congress extended the act three more times: for seven years in 1975, for 25 years in 1986, and for 25 years in 2006. Section 5 oversight ended with the 2013 Shelby County Supreme Court decision.

The City of Austin was incorporated within the limits of Travis County in Texas in 1909. The governance structure of Austin is described in the city charter as a 'council-manager government'. The elected city council enacts state legislation, adopts the city budget and appoints a city manager. As stated in Article I, Section 2 of the city charter, the city manager heads the municipal administration (City of Austin 2014). The Austin City Council is unique in that the five members are elected at-large, rather than as representatives of discrete districts. The mayor is also a member of the city council. In order to be eligible for the position, in accordance with Article 2 of the city charter, candidates must reside in the state of Texas for one year and in the city for at least six months prior to running for office (City of Austin 2014).

Following a 2012 ballot measure, the city of Austin enacted Artile 2, Section 3 of the city charter and began the transition to a district based city council structure (City of Austin 2014). One of the driving forces behind the new districting system was a desire on the part of voters for a more representative city council. The Independent Citizens Redistricting Commission was formed to oversee the creation of ten new geographically contiguous council districts. 2014 will mark the first election of the district based council. This research is focused on resource allocation in 2010, under the five member at-large city council.

City Manager

The city manager is appointed by a majority vote of the city council. Unlike city council, positions the eligibility of the city manager is determined based on their professional expertise with no residency requirement. Once hired, the manager must reside in the city for the duration of the appointment. The city manager has broad ranging powers over the administration of the city. Their purview includes the appointment and removal of officers and employees of the city except those appointed by the city council, annual budget preparation as well as end of the year fiscal reports. The city manager also presents a five year capital improvement plan to the city council. The Planning Commission responds to this plan with its own recommendations based on the neighborhood planning priorities and citywide facilities goals.

Comprehensive Plan

The City of Austin began its comprehensive planning process in 2009 by seeking input from the general public under the banner of Envision Austin. The Citizen's Comprehensive Task Force comprised of 38 individuals who were nominated by city council members. The Imagine Austin Comprehensive Plan was adopted in 2012. Social equity is central to the vision statement:

> As it approaches its 200th anniversary, Austin is a beacon of sustainability, social equity, and economic opportunity; where diversity and creativity are celebrated; where community needs and values are recognized; where leadership comes from its citizens and where the necessities of life are affordable and accessible to all (City of Austin 2012).

In contrast to San Diego's comprehensive plan, Imagine Austin is organized like a SWOT analysis, highlighting strengths and challenges. The plan discusses the positive and negative aspects of population growth and increased development. The benefits include more job opportunities, new audiences for the arts, and a revitalized downtown center The challenges associated with rapid growth include traffic congestion, an affordability crises and growing socio-economic divide. The geographic opportunity divide is listed as a continuing challenge for the city. Equity is at the heart of the vision statement. Barriers to equity are included as one of the six main challenges facing the city (City of Austin 2012). Social equity is central to four out of the five goals outlined in Imagine Austin. These goals are supported by the challenge and opportunity statements that provide supporting details about the elements needed to create a more equitable city. They also provide short descriptions of the current conditions in the city. Sustainability is central to the plan. Preservation of open space, along with the expansion of park space is a recurring theme.

Table 5: Imagine Austin- Key Challenges and Opportunities

1. **Preserving Our Livability:** expand and share natural resources, recreational amenities, economic opportunities, preserve cultural character.
2. Expanding Transportation Choices: improving roads, mass transit and active transit, incentivizing the use of alternate transportation to support sustainable development.
3. **Tackling the Ethnic Divide:** Close the historic opportunity divide that is the result of segregation and racism, improve quality of life and protect longtime East Austinites from displacement, a voice and a bright future for all residents.
4. **Protecting Our Natural Resources:** protect waterways, watersheds, agricultural lands, balancing the suburban encroachment into open space, connect communitys to natural spaces, ensure water supply for Austin of 2050 and beyond.
5. **Promoting Prosperity for All**: continue to be an innovation leader in high-tech industries, universities, local independent businesses, increase access to high-skill jobs, help wages catch up to the cost of living, close the affordability gap.
6. Collaborating Regionally: provide regional leadership, collaborate on transportation, water resources, growth.

Source: City of Austin 2012. The bolded statements directly address equity.

A hierarchy of objectives was generated through a participatory planning process. Three of the priority projects listed below draw upon the equity related challenges. They aim to increase access to resources while expanding economic, housing, and recreational opportunities. The final list of priorities that highlight the policy overlaps. Similarly to San Diego, the city of Austin has chosen to focus on sustainability as a fundamental issue in their comprehensive plan. The drive towards a sustainable development model is Austin is propelled by the need to balance growth, conservation and community vitality.

The most pressing environmental issue is the quality and quantity of water that will be available in the future given current population projections.

Table 6: Imagine Austin Priority Projects in Order of Importance

1. Invest in a compact and connected Austin
2. Sustainably manage our water resources
3. **Continue to grow Austin's economy by investigating in our workforce, education systems, entrepreneurs, and local businesses**
4. **Use green infrastructure to protect environmentally sensitive areas and integrate nature into the city.**
5. Grow and invest in Austin's creative economy
6. **Develop and maintain household affordability throughout Austin**
7. Create a Healthy Austin Program
8. Revise Austin's development regulations and processes to promote a compact and connected city.

Source: Imagine Austin (2012) The statements in bold incorporates social equity principles

The priority goals related to sustainability are not as detailed in their implementation strategy. This could be due to the participatory nature of the Imagine Austin process. The challenge inherent in this type of comprehensive plan is to distill the priorities expressed by stakeholders at a series of different meetings into cohesive goals that are linked to existing city entities. Implementation will be challenging because it balance between the conflicting goals. For example, how will the city create more open space in existing neighborhoods while promoting more dense forms of development? In some areas, decisions will have to be made about whether vacant lots are best suited to housing or open space, particularly when the plan recognizes a need for more affordable housing.

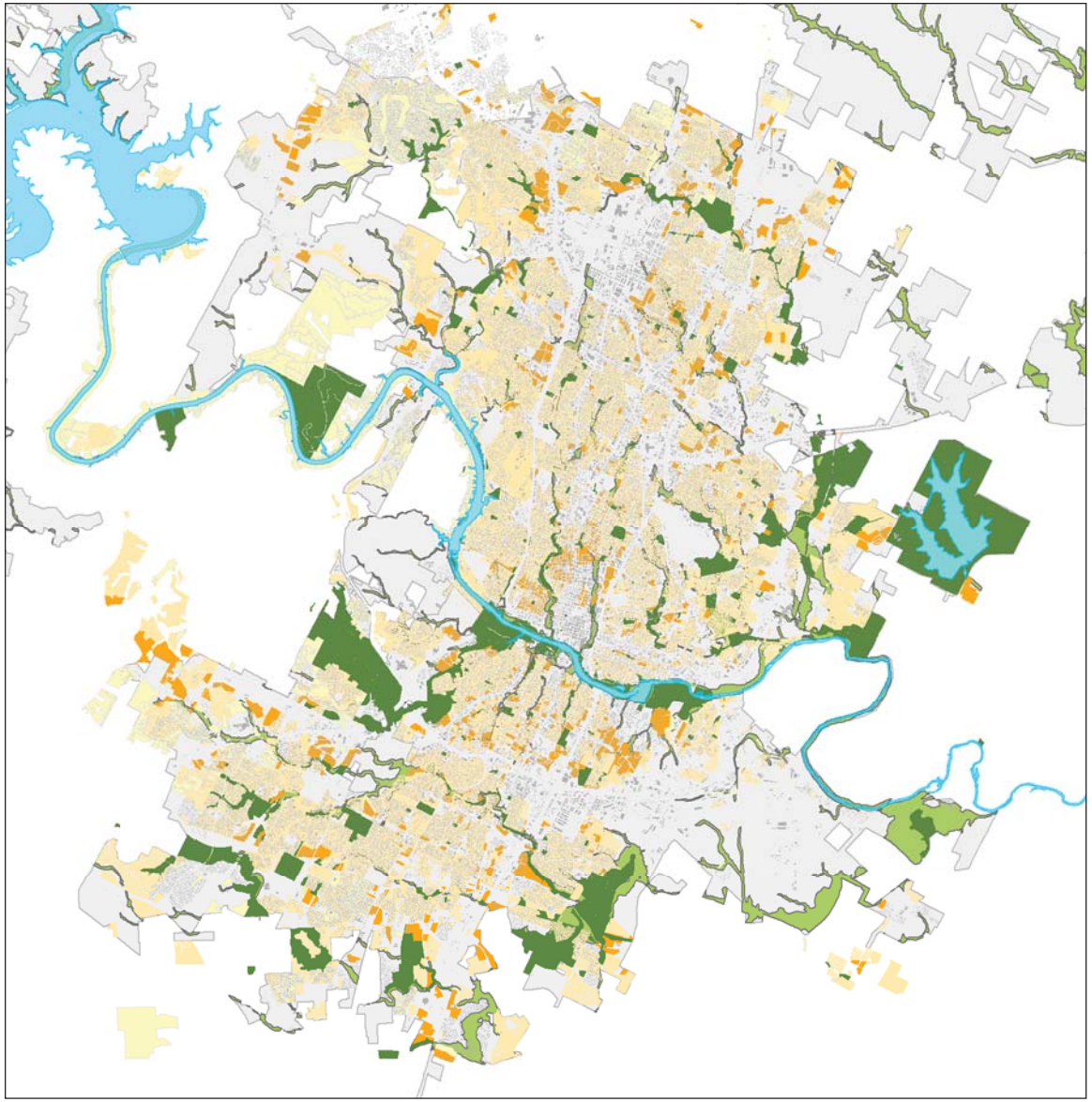
Green Space in the Comprehensive Plan

Moving towards a more sustainable city through the careful management of natural resources and energy consumption is a strong theme throughout the Imagine Austin plan. The integration of nature into the fabric of the city is meant to improve quality of life for all residents through increased access to green space. The plan also describes green space as a method of mitigating the negative impact of climate change by alleviating urban heat island effect as well as providing vegetated storm water infrastructure. The nexus between conservation and access is the facilities and services implementation plan. This section of the plan contains outlines the link between proximity to open space and health. It also states clearly that aspirations for equitable access should be supported by the distribution of public parks. The goals outlined in the conservation implementation plan are nearly are focused on the conservation of environmentally sensitive areas, the preservation or prime agricultural land in the central city, and the preservation of water resources. If realized, all of these goals would increase access to open space across the city (see Image 6).

Three different types of green space are described in the conservation element: infrastructure, open space, conservation areas, and public parks, each with its own metric (see Image 6). The improvement of tree cover in every neighborhood will be measured using maps of the tree canopy. In contrast to the San Diego plan's population based standard for parks, the city of Austin aims to measure access through proximity. This geographic measure of access is a more refined measure of accessibility. It ensures that park land is continues to be developed in close proximity to residential areas.

Image 6

Distribution of Public Parks to Residential Areas in Austin (Travis County, Texas)



Public Parks

- Public Parks
- 100 Year Flood Plain
- Rural Residential
- Single Family
- Multifamily
- Austin City Limits
- Building Footprints
- Colorado River

0 15 30 60 Miles

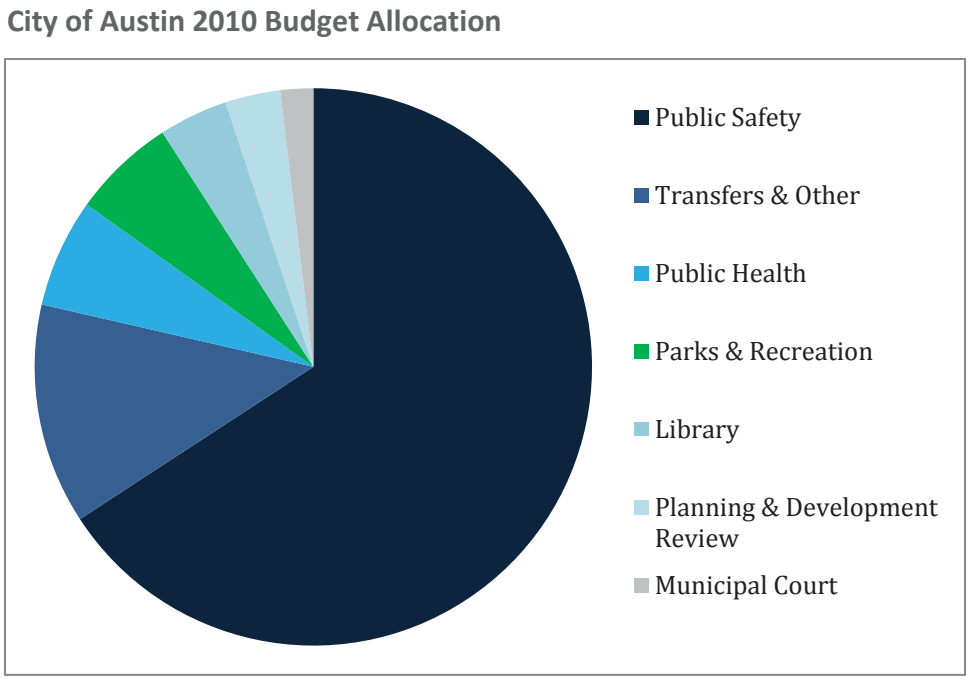
J.Steverson
11/22/14
1983 State Plan (feet)
CAPCOG and COA

N

Implementing the Imagine Austin Plan

One implementation challenge faced by individual departments is that Imagine Austin calls for an increase in green space throughout the city, but there has not been an increase in management funds for those spaces (City of Austin 2010). Per capita spending on parks was $63.25. The Trust for Public Land rated park funding in Austin 7 out of a possible 20 points for per capita spending (Trust for Public Land 2013). In 2010 the Parks and Recreation Department received $50.9 million, a reduction of almost $3 million from the previous fiscal year was made due to a decrease in city revenue. A large proportion of the cuts were made by noting hiring people to fill vvacant full time positions. Of that budget $11,113,836 was dedicated to Facilities Services, the majority of these funds were spent on maintenance. Funding for Parks and Recreation accounted for 3% of the total city budget in 2010.

Figure 4: City of Austin 2010 Budget Allocation



Source: City of Austin 2010 Budget, volume I (2010)

The comprehensive plan builds on existing programs and management structures. Three different departments manage open space in Austin: Parks and Recreation Department, Watershed Protection, and Public Works. The broad definition of parks in the comprehensive plan has required the Parks and Recreation Department to increase the variety of services offered on public space. In addition, the department is steadily acquiring more land through parkland dedication from new developments. New parks must be developed in order to provide a public amenity (Interview with M. Shashoua 2014). Imagine Austin calls for more green space but does not provide a clear strategy for how to generate more money for the maintenance of those spaces.

The creation of new categories of green space has led to ambiguity around the funding, acquisition and management of those lands. One example of this is Austin's Urban Trails Master Plan (City of Austin 2014). The purpose of the plan is to "improve the condition of walking and bicycling in Austin" through the creation of a citywide network off-street "urban trails" (City of Austin 2014). Trails and greenways will support increased connectivity in Austin and provide an important service. Urban trails do not provide the same facilities as pocket parks or neighborhood parks, so it may not be wise for the planning department to use parkland dedication and park impact fees to secure land for the new trail network (City of Austin 2014). It may be more appropriate for the city to acquire the land through transportation easements, since increasing active transportation is the main purpose of the urban train plan.

Community gardens can also pose challenges when they are located in public parks. The comprehensive plan advances community gardens as one way to increase food access, but these plots need committed gardeners to keep them active. In small parks, community gardens may be perceived as the privatization of public space because members have more access and sometimes exclusive access to the gardens. In response to these concerns, community gardens are not allowed in pocket parks (Interview with M. Gray 2014).

Another challenge for expanding community gardens is that they depend on community involvement in order to thrive. In some communities there may be a need for improved food access but not a demand for community gardens (Interview with M. Gray 2014). One example of this is the Rundberg Community Garden located at the North Austin YMCA. The design and construction of the community garden and wildlife habitat space was funded through Art in Public Places Program[6], an innovative funding mechanism. The community garden was purpose built before members had been secured. There are currently twenty open plots at the site during a time when many other community gardens maintain waiting lists for open plots. The empty plots are currently maintained as community plots where visitors may harvest produce.

A new model of edible landscaping on public land is the food forest, which includes many different species of fruit and nut trees. This model is being implemented at Holly Shores/Fiesta Gardens master plan. Resident stakeholders have formed tree guilds which will each specialize in the care of a particular species (Interview with M. Gray 2014). These types of maintenance agreements are an important implementation strategy for the city moving forward. Edible landscapes can require more maintenance, particularly in the beginning of their life cycle. When the parks department plants a tree, they are committed to watering that tree for the first three years of its life in order to ensure its longevity (Interview with M. Gray 2014). Partnerships with community stakeholders will help the city to maintain more developed park space.

It has also required a more precise interpretation of the parkland impact fees in the dense urban core. If a developer includes community garden space, then that space is not wholly public since it would be open only to member-gardeners and not to the general public. For this reason, the parks department does not currently allow community gardens built by developers to count towards parkland dedication fees or land dedications. Similarly, other types of membership focused recreational facilities

[6] 2% of the project budge was dedicated to public art. This was used to hire professional designers for the community garden space.

such as fitness centers and pools do not count towards parkland dedication for new developments. Lastly, community gardens require residents to take on the task of caring for the space and recruiting members. Gardeners sign license agreements with the city for the use of the land. The agreement requires the garden association to take responsibility for maintenance. For this reason, the city establishes these spaces only where there is demand (Interview with M. Gray 2014).

Rundberg, Dove Springs and Colony Park have been designated as areas of priorities by the city of Austin (Interview with M. Gray 2014). Meredith Gray, the Conservation Program Coordinator, Sustainable Urban Agriculture and Community Gardens works to advance conservation programs across the city, but has been tasked with focusing on these three communities in particular. Colony Park is undergoing a community planning process, the new park space will be designed to accommodate a community garden in the future if residents decide to establish one. This flexibility is the best way to increase opportunities for urban food production in the future.

Table 7: Standards of Service for Parks in Austin Texas

Park Type	Definition	Purpose
Pocket Parks (1/4 mile service area)	Up to 1.99 acres; intense activity or passive activity; Maintenance needs: playgrounds, water features, irrigation	Provide community space, Provide access for residents in the urban core, used for infill park development
Neighborhood Parks/School Parks (1 mile service area)	2-30 acres, accessible by foot or bicycle, Recreational facilities, wildflowers, native plants,	Provide access within a neighborhood by foot or bike, school parks provide same services in smaller space
District Parks (2 mile service area)	31-200 acres; accessible by public transit or car, regulation sport courts, playfields, reservation picnic facilities, trails	
Metropolitan Parks (citywide service area)	Greater than 200 acres, located along waterways or roads; accessed mainly by car; Includes internal roads, restrooms,	Greatest variety of recreational activities; environmental education; design depends on demographic and cultural characteristics of the neighborhood
Greenways (service area varies based on width and length)	Width: 50'-200'; align creeks, rivers, ravines, encompass 100 year flood plain and water quality zones	Passive recreational uses; active transportation;
Special Parks (citywide service area)	Size varies, museum, art centers, plazas, athletic complexes, scenic viewpoints	

Source: Long Range Plan for Land, Facilities and Programs

As the city works with communities to establish new community gardens, they should continue work to formalize best management practices. There is some tension between the urban agriculture ordinance and integration of community gardens into public parks. The ordinance clearly defines the role of community gardens in providing access to fresh produce and also provides guidance on the licensing of public land to gardeners. Austin Parks and Recreation Department employees have worked to integrate new mandates (including the Urban Trails Master Plan) with existing land acquisition and management practices. Their experience should guide the implementation of other new categories of open space such as green infrastructure.

The Parks and Recreation Department uses a geographic analysis to determine which communities need parks. The measure maps the proximity to all types of green infrastructure, but is mostly used to track distance to pocket parks and neighborhood parks. The city is using pocket parks to provide service in the urban core while neighborhood parks are used to measure access in suburban neighborhoods. The underlying assumption is that residents in more dense neighborhoods will be farther from green space amenities while suburban residents might be closer to other types of open space such as home owner's association playgrounds or fitness centers.

> Park standards are guidelines for the acquisition and development of parks. **Standards assist the Parks and Recreation Department (PARD) in measuring its progress toward the equitable distribution of recreation resources**, and in guiding policy decisions on future resource allocation. Standards also serve as a basis for determining and prioritizing needed park construction projects and the Capital Improvements Program (CIP) bond funding necessary for their execution.
>
> Source: Austin Parks and Recreation Department Long Range Plan (2013) Emphasis added

Equitable access to green space is central to the standards of service for the parks department, perhaps in response to the historic inequities that have long divided the city along an east-west corridor. The measure of access is based on geographic proximity and not the levels of poverty or ethnic composition of an area. Park deficient areas tend to be east of IH-35; as a result the city is more likely to request parkland from

developers in lieu of fees to increase the amount of accessible open space in those areas (Interview with M. Shashoa2014). Affordable housing developments are exempt from some land dedications, including the parkland dedication. Only developments that are 100% affordable are completely exempt from the parkland dedications and park impact fees (Interview with M. Shashoa 2014). Mixed income developments are subject to impact to fees based on their market rate units. It is important to incentivize affordable housing; however, the city wants to maintain standards of service for all residents (Interview with M.Shashoa 2014).

The Montopolis Community

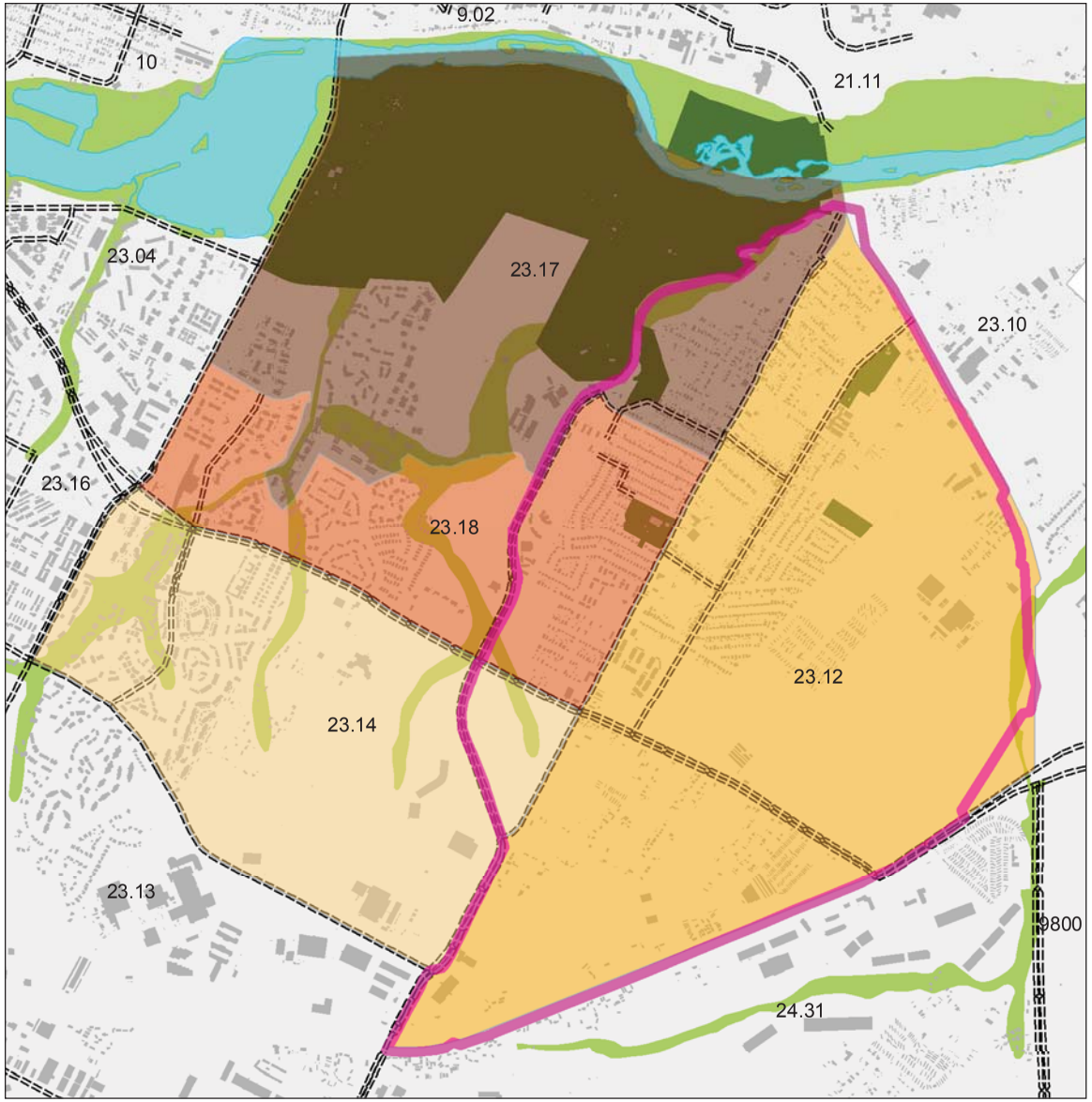
Montopolis is located just south of East Riverside Drive. The community is largely residential with strips of commercial and industrial development along the perimeter of the neighborhood. A neighborhood plan was completed for this area in 2001 through a process that included city planners, residents (both renters and home owners), businesses, schools and non-profit organizations (City of Austin 2001). While access to green space is not listed as a priority, three of the seven land use planning goals depend upon developing new public space or enhancing existing public facilities through landscaping. For example, the first goal is to improve quality of life in the community. One of the supporting action steps calls for enhancing public facilities along Montopolis Drive from Riverside Drive to the Colorado River through the establishment of a "Mercado, open air plaza, or public market or other outdoor space" (City of Austin 2001).

Image 7

Proximity of Low Income Residents to Green Space in Montopolis (Austin, Texas)

Census Tract Number and % of 18-64 Year Olds Living in Poverty

- 23.17 68.18%
- 23.18 28.98%
- 23.12 27.65%
- 23.14 25.92%
- Colorado River
- ===== Bike Routes
- Building Footprints
- 100 Year Flood Plain



0 15 30 60 Miles

J.Steverson
11/22/14
1983 State Plan (feet)
CAPCOG & COA

N

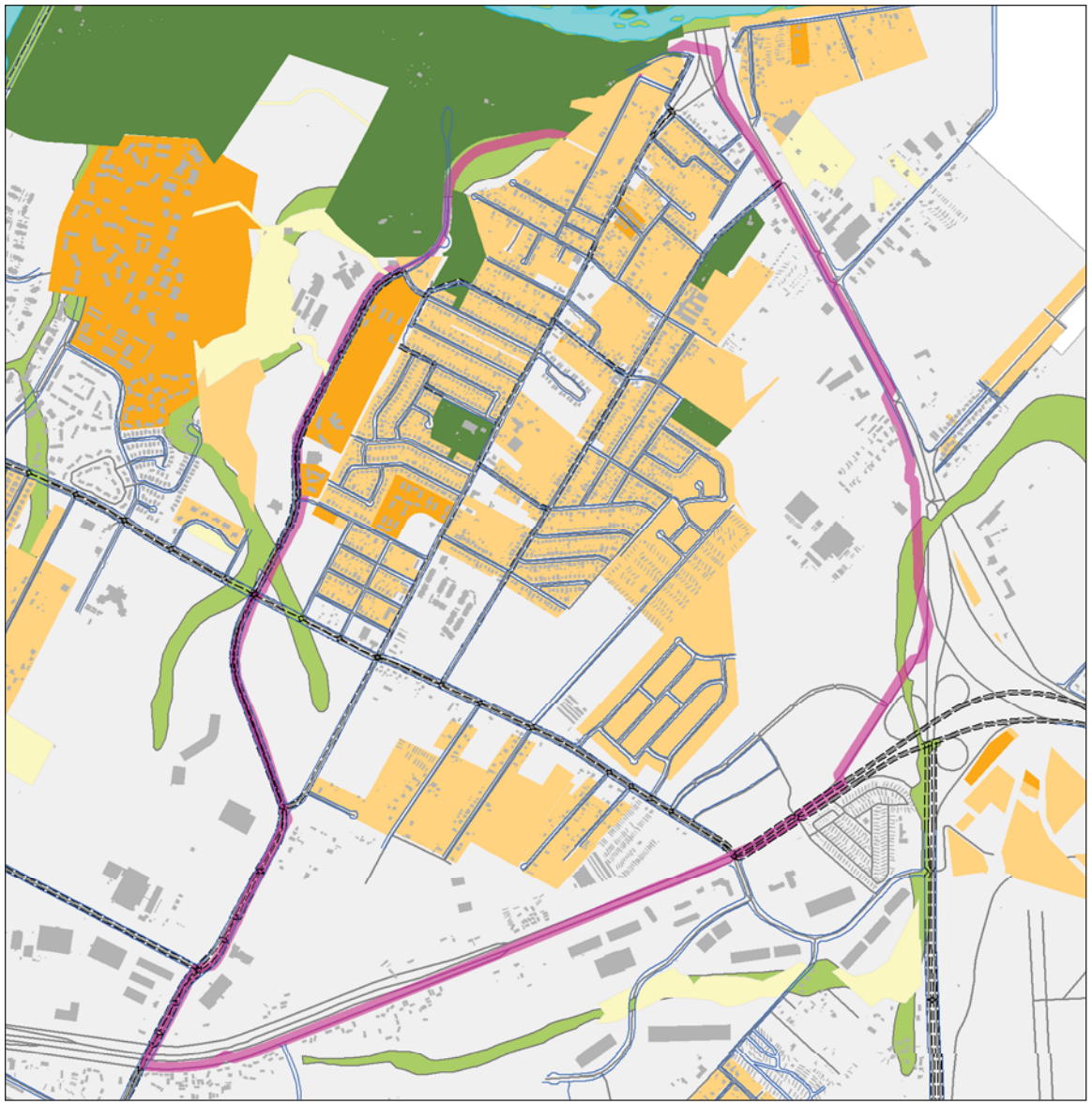
Meredith Gray, the Conservation Program Coordinator for the Parks Department, believes that connectivity for residents and wildlife is one of the critical improvements needed in Montopolis. Residents need more multimodal safe routes in order to access existing green spaces. The plan also calls for improving connectivity for residents through connecting disconnected streets in order to improve quality of life. Marilyn Shashoa, Senior Planner in the Planning and Design Division of the Austin Parks and Recreation Department, determined that the community is currently not a park deficient area. This due in large part to the acquisition of 362 acres in East Austin that has been developed into the Roy G. Guerrero Colorado River Park, a metropolitan scale public park in 2004. The park's facilities include 12 softball fields, a picnic shelter, 3 volleyball courts, a playground, 4 baseball fields and 25 picnic tables along with shaded hiking trails along the Colorado River (see Image 8).

Montopolis residents who live north of East Riverside Drive have sufficient access to public space based on the standards used by the Parks Department (see Image 8). The service areas used by the city (¼ mile and ½ mile) do not bisect major roads, as a result, the southern section of the community does not have adequate access to parks (Interview with M. Shashoa 2014). This will change over the next few years as East Riverside Drive undergoes redevelopment. One of the new developments will be required to dedicate a portion of their parcel for park land.

The city of Austin has been able to distribute resources for public parks according to need, which is an important part of achieving equitable access to green spaces. The employees of the city have been careful to develop parkland impact fees for both infill and greenfield developments which is essential to maintaining the standards of service as the city grows and becomes more dense. The City of Austin has also embraced an ecological approach to managing parks so that they serve multiple functions: as public space, storm water infiltration zones, wildlife corridors, community gardens, and greenways. Another strength of the Austin park system is that the parcels have been

Image 8

Transportation Networks that Connect to Parks in Montopolis (Travis County, Texas)



Public Parks

- Public Parks
- 100 Year Flood Plain
- ===== Bike Routes
- sidewalks
- Single Family
- Multifamily
- Rural Residential
- Colorado River
- Building Footprints

0 15 30 60 Miles

J.Steverson
11/22/14
1983 State Plan (feet)
CAPCOG and COA

N

developed gradually over time using drought tolerant native plants. GIS (digital cartography) helps them to keep track of how public land is dispersed across the city. The next step in evaluating the quality of park space would require the city to track the proportion of developed to undeveloped parkland (Interview with M. Shashoa 2014). This information would be especially useful given the scale of Austin's park system.

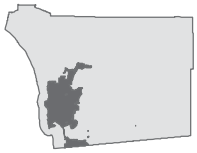
IV. Findings

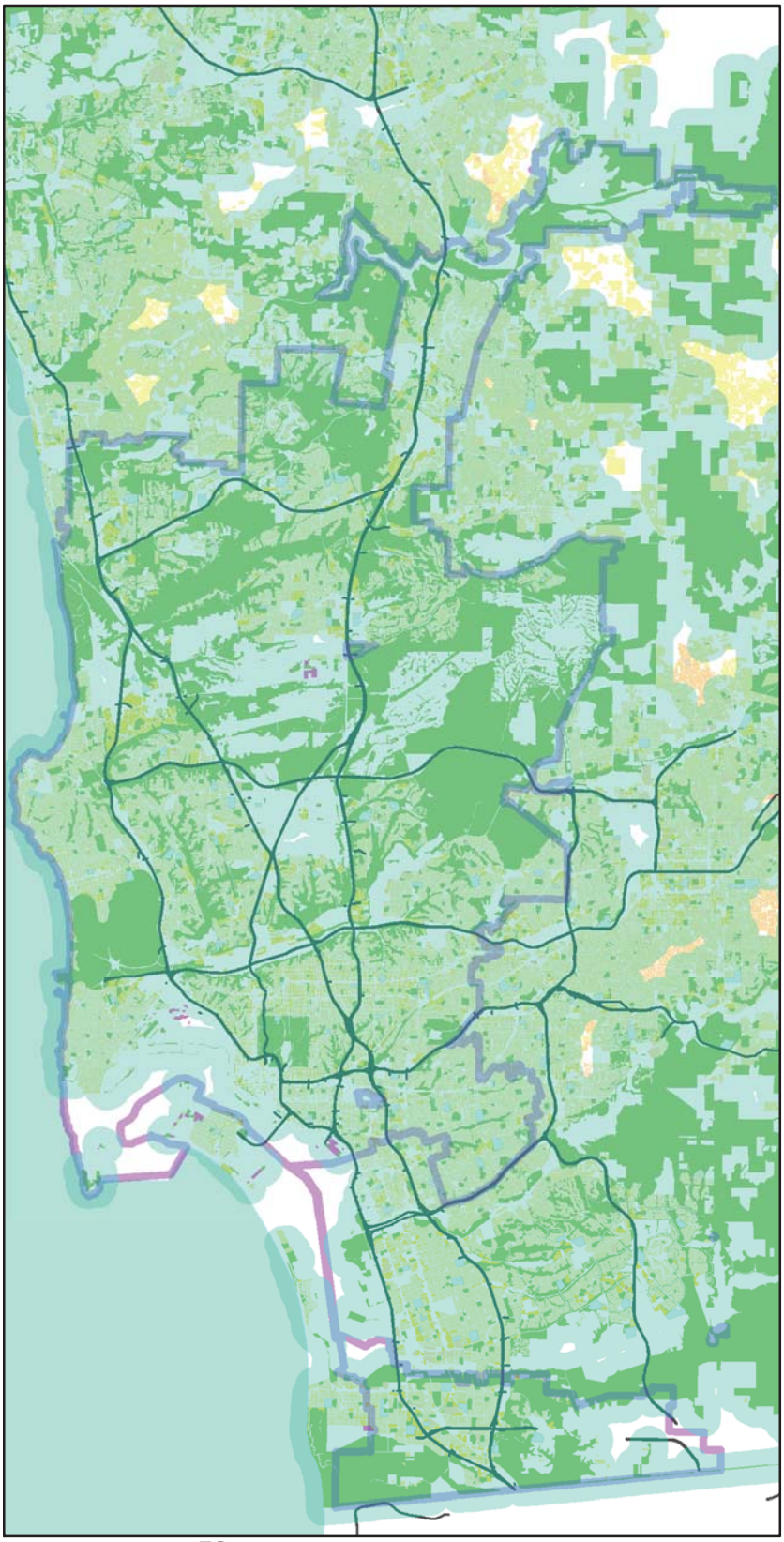
Based on citywide analysis, San Diego has a more dispersed network of public parks that provides residents with greater access to green space (see Image 1). The vast majority of San Diego city residents live within one ½ mile of green space (see Image 9). Most residents in San Diego California live within ½ mile of green space. This measure of green space incorporates all forms of public space that are mentioned in the comprehensive plan and that are being managed by the San Diego Department of Parks and Recreation. The Parks and Recreation Department maintains population based standards of service. There are more communities in Austin that are park deficient. Large pockets of the city lack access to green space within ½ mile and ¼ mile (see Image 10 and Image 12).

The San Diego Parks and Recreation Department acquires new parkland from development impact fees only in Maintenance Assessment Districts but there is no parkland dedication or impact fee assessed for infill residential developments. In Austin, the network of public parks contains larger properties that are not as evenly dispersed throughout the city (see Image 10). I predict that access to parks in Austin over time, especially in the urban core where the parks department continues to acquire land.

Image 9

1/2 Mile Buffer of Green Space (San Diego, CA)





1/2 Mile Green Space Buffer
Public Green Space
Pacific Ocean
Public Schools

Residential Land Use Zones

Military Barracks
Mixed Use
Mobile Home Park
Multi-Family
Residential Under Construction
Single Family
Spaced Rural Residential
Freeways

*Public Green Space includes canyons, parks, recreation centers and joint use school sites.

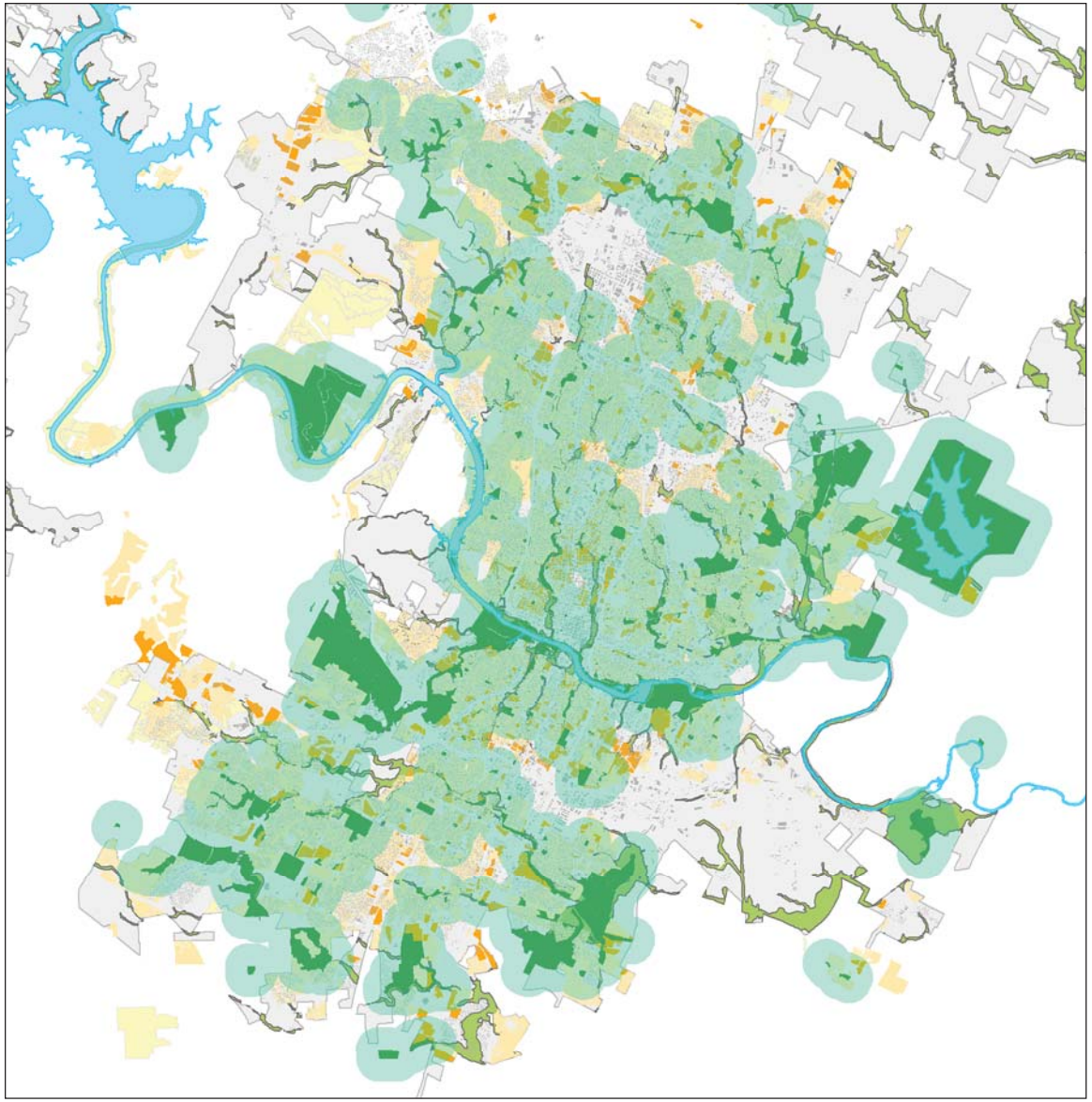
Miles
0 3 6

J.Steverson
11/21/14
California State Plane (feet)
SANGIS

N

Image 10

1/2 Mile Buffer: Proximity of Parks to Residential Zones (Travis County, Texas)



1/2 Mile Public Park Buffer

Public Parks

- Public Parks
- 100 Year Flood Plain
- Rural Residential
- Single Family
- Multifamily
- Austin City Limits
- Building Footprints
- Colorado River

0 15 30 60 Miles

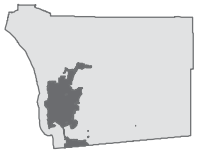
J.Steverson
11/22/14
1983 State Plan (feet)
CAPCOG and COA

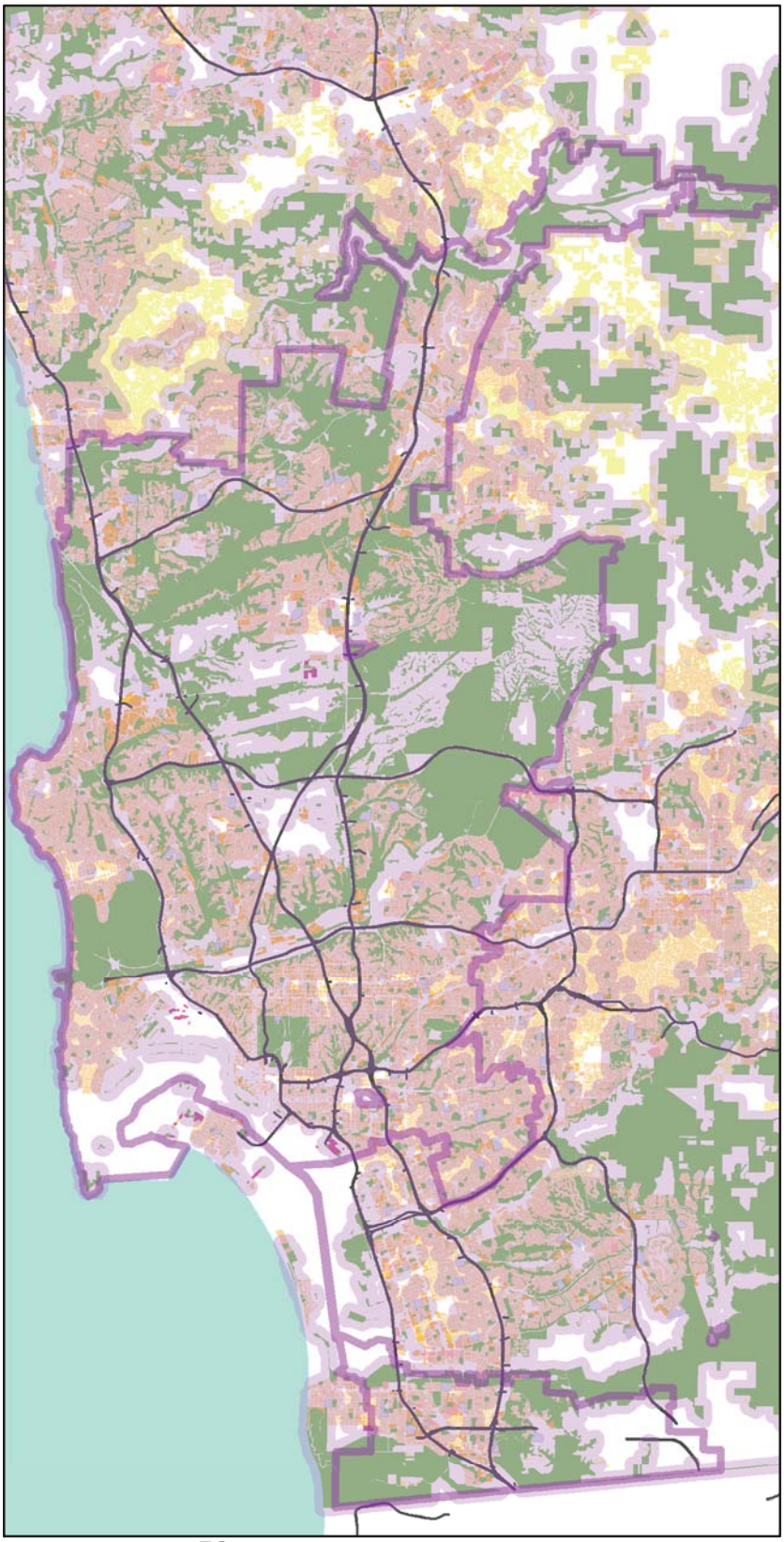
N

Both cities need to work to increase the number of small parks. There is a service gap that is apparent in Image 11 and Image 12. More San Diegans have access to green space within ¼ mile of their residence. In Austin, access to green space dissipates in communities that are further from the urban core (see Image 12). In suburban communities, the city may want to expand partnerships with public schools to ensure access to playgrounds. The ecosystem of Austin also provide opportunities to continue to develop low impact green areas in the floodplain. The parks department has chosen to prioritize the expansion of pocket parks in the urban core, however, they may want to consider establishing pocket parks in areas suburban middle and low income communities.

Image 11

1/4 Mile Buffer of Green Space (San Diego, CA)





1/4 Mile Green Space Buffer
Public Green Space
Pacific Ocean
Public Schools

Residential Land Use Zones

Military Barracks
Mixed Use
Mobile Home Park
Multi-Family
Residential Under Construction
Single Family
Spaced Rural Residential
Freeways

*Public Green Space includes canyons, parks, recreation centers and joint use school sites.

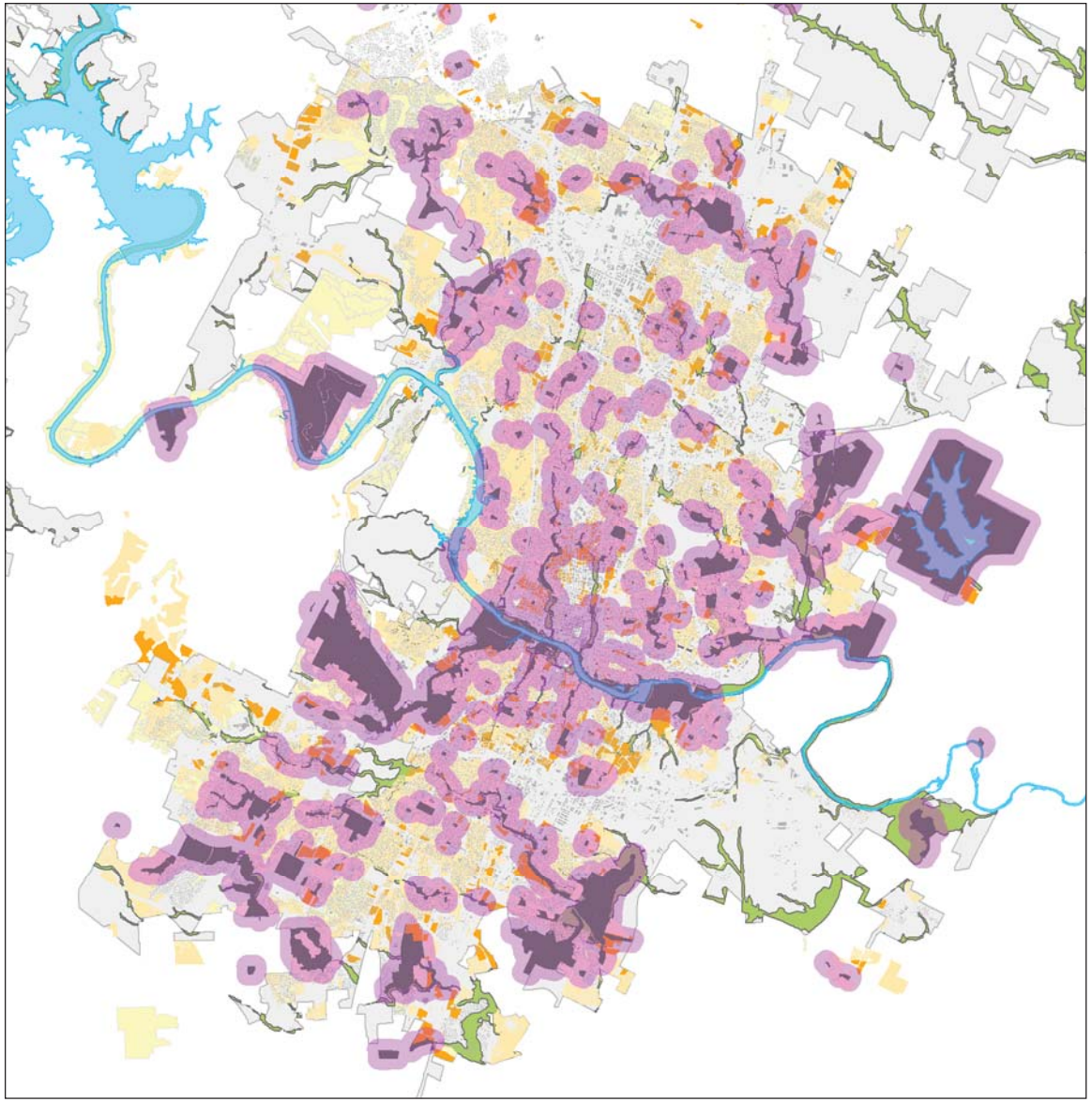
Miles
0 3 6

J.Steverson
11/21/14
California State Plane (feet)
SANGIS

N

Image 12

1/4 Mile Buffer: Proximity of Parks to Residential Zones (Travis County, Texas)



1/4 Mile Public Park Buffer

Public Parks

- Public Parks
- 100 Year Flood Plain
- Rural Residential
- Single Family
- Multifamily
- Austin City Limits
- Building Footprints
- Colorado River

0 15 30 60 Miles

J.Steverson
11/22/14
1983 State Plan (feet)
CAPCOG and COA

N

At the neighborhood scale, there are pockets within both Encanto and Montopolis that are park deficient at the scale of ¼ mile. In other words, the areas that are deficient lack access to green space within ¼ mile (see Image 13 and Image 14). The areas that are park deficient in the Encanto community are connected to parks via bike paths and sidewalks. Transportation routes are an important part of access, to both neighborhood scale parks and to the larger metropolitan parks. Both cities have worked to increase connectivity between residential zones and parks through the expansion of bike paths.

Image 13

Proximity of Low Income Residents to Green Space in Encanto (San Diego, CA)

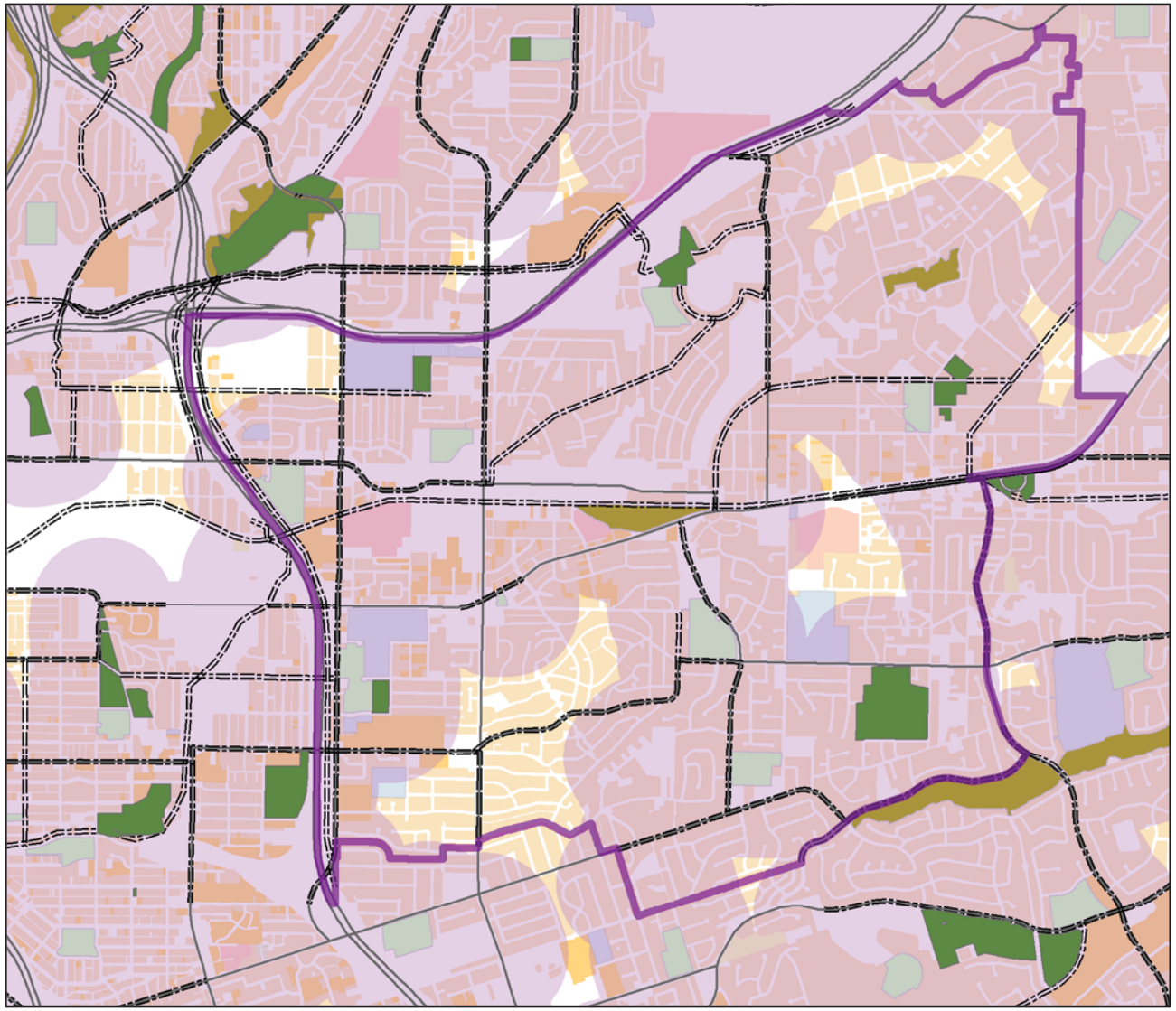


Image 14

Transportation Routes to Green Space in Montopolis (1/4 Mile Buffer) (Austin, Texas)

1/4 Mile Public Park Buffer

Public Parks

- Public Parks
- Colorado River
- 100 Year Flood Plain
- sidewalks
- ===== Bike Routes
- Building Footprints
- Rural Residential
- Single Family
- Multifamily

J.Steverson
11/22/14
1983 State Plan (feet)
CAPCOG & COA

N

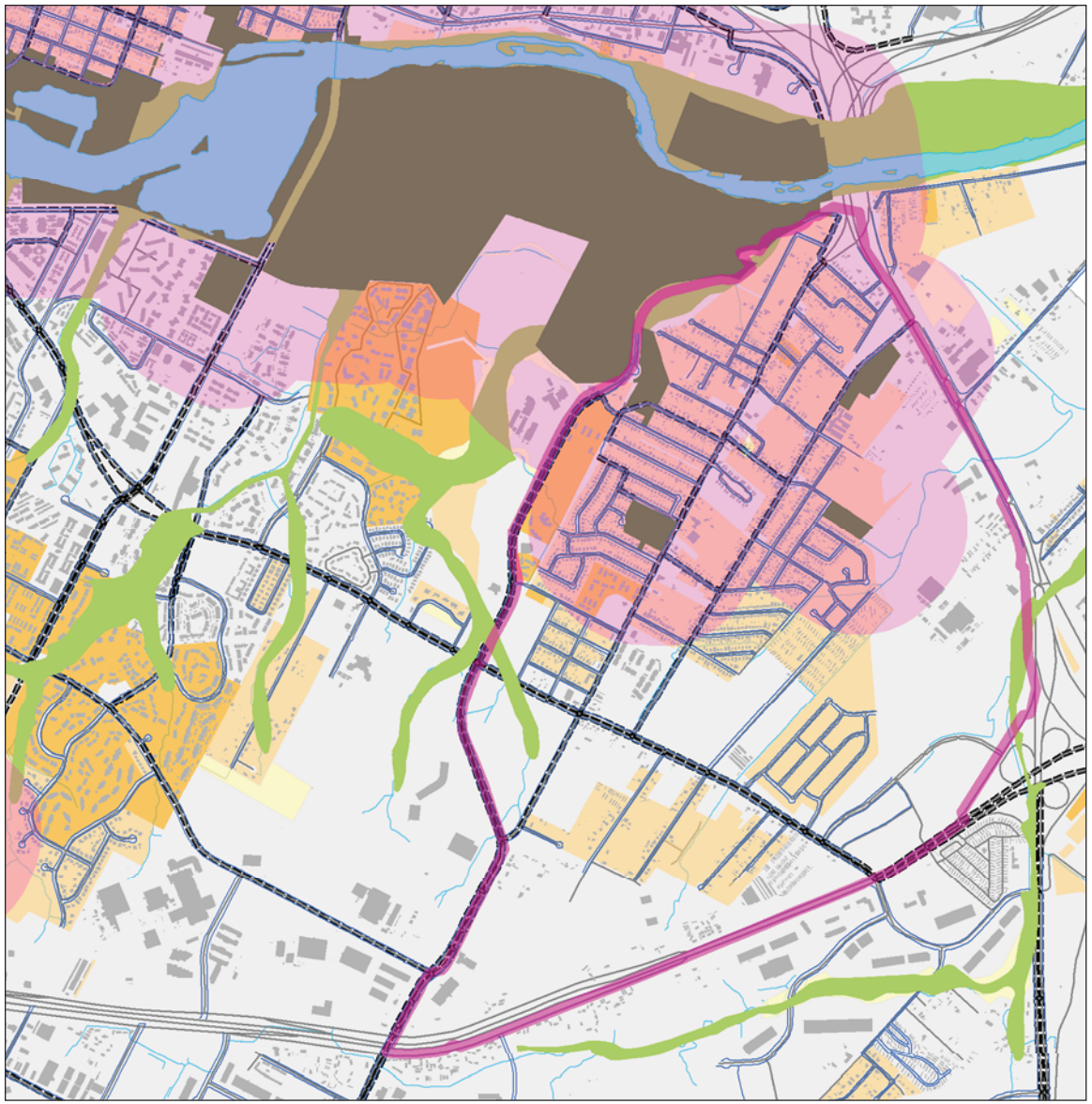


Table 8: SWOT Analysis

City	Strengths	Weaknesses	Opportunities	Threats
San Diego	Dispersed park network Multimodal transit network Management strategies incorporate	Aging Facilities No parkland dedication for infill developments	Partnerships with public schools and community organizations Conserved spaces (canyons & creeks) Habitat restoration/drought tolerant landscapes Plaza/mercado typology	Water shortages Deferred Maintenance
Austin	Parkland dedication requirement for infill developments Proximity based park standards	Undeveloped parkland in areas with high demand for green space Use of parkland dedication to increase active transport network	Interdepartmental partnerships Large tracts of lands Partner with affordable housing developers to maintain park access for low income residents	Maintenance funding not keeping pace with increase in parkland

The main challenge faced by the parks department in both cities is that there has been an increase in the types of green space that they manage, but no corresponding increase in maintenance funding (Interview with M. Shashoa 2014, Interview with K.Mathis). The Austin parks department has begun to incorporate the full cost of developing a new park into its park impact fees (Interview with M.Shashoa 2014).

Funding for the development and maintenance of parks is a concern in Austin because of the scale of the parks. For example Roy G. Guerrero is approximately 360 acres, most of which is not developed (Interview with M.Shashoa 2014). Maintaining standards of services for residents in affordable housing developments may present challenges given that affordable housing developers are exempt from parkland dedication and impact fees. In the future, Austin may want to adopt a tiered approach to these fees. For example in San Diego, affordable housing developers pay park fees based on higher density residential development. This approach may not work within the regulatory framework of Texas. An alternative solution could be to partner more closely with affordable housing developers, schools and watershed protection to identify existing open space that needs to be developed but not purchased.

In San Diego, maintenance is a concern because of the aging facilities and the increase in users as the city becomes increasingly dense. Deferred maintenance can exacerbate uneven access to high quality public spaces. For example, Encanto recreation centers need technological upgrades in order to accommodate modern computers and wireless internet access.

V. Conclusion

This report began with a review of multidisciplinary research on the positive impacts of access to green space on residents of urban communities. Geographers (Heynan, Perkins, and Roy 2006) and urban planners (Lucy 1981, Talen 1998, and Krumholz 2013) are focused on the fair distribution of public facilities across the city. Urban planning theorists also touch on the positive and negative impacts associated with revitalizing low income communities (Mueller and Dooling 2011). Public health research analyzes whether access to green space encourages healthful habits and the varied impacts of different types of green space on health (Groenwegen et al 2012, Frumkin 2005, Dyment and Bell 2006). Of particular interest was the work of Francis F.E. Kuo and William C. Sullivan on the ability of green space to mitigate mental fatigue in stress (Kuo and Sullivan 2001). This body of research supports the theory that access to green space can improve quality of life in urban communities.

Based on these findings I chose to focus on many different categories of green space which were analyzed using GIS. Two different cities, San Diego California and Austin Texas, were analyzed through a case study on the municipal funding and implementation strategies for public parks. A comparison of the comprehensive plans goals related to open space and 2010 city budgets was used to analyze how public space was prioritized. Interviews with Parks and Recreation Department employees in each city provided insight into the decision-making process that guides resource allocation at the city and neighborhood scale. The interviews also revealed that an imbalance between the capital improvement funding and funding for maintenance. The comprehensive plan for both cities added new categories of public space to be managed by the parks department (for example greenways and community gardens); however based on the interviews, there seems to have been no proportional increase in maintenance funds for these new spaces (Interview with K. Mathis). This was more

striking in San Diego where the effects of the 2009 recession resulted in a 5.3% decrease in revenue during fiscal year 2010 (City of San Diego 2010). In Austin, Texas the parks department continues to amass land through parkland dedications by developers in the urban core and the suburbs but more money is needed to develop these new properties; as a result their impact fees may increase to account for the full cost of developing park space (Interview with M. Shashoa 2014).

Standards of service for public parks have begun to shift from a population based measure[7] to proximity measure[8] (Trust for Public Land, National Recreation and Park Association). Proximity measures such as ParkScore® is a more accurate description of access because it accounts for the average distance between residential areas and public space. The proximity metric is most accurate when it is used at the neighborhood scale due to differences in density and demographics.

Both cities continue to support the expansion of community gardens by providing technical information on soil testing as well as space for new gardens and markets. This type of collaboration can help to ensure that agricultural products grown in urban areas are safe to consume. This is especially important in communities where there are legacy industrial sites in low income residential areas where the impetus to support community gardens is the desire to increase access to healthful food. Urban planners and park professionals can facilitate collaboration between land grant universities with expertise in food production and soil health and community gardens. One example of this kind of partnership is the long term collaboration of Cornell Agricultural Extension Service with community gardeners in New York City[9].

[7] Population-Based Metric: number of acres/per person
[8] Proximity Metric: number of people served within x miles of the park
[9] Urban Environment Program at Cornell University Cooperative Extension-NYC
http://nyc.cce.cornell.edu/urbanenvironment/Pages/default.aspx

Both San Diego and Austin might benefit from embracing new types of public parks in the urban core. Public plazas that feature shade structures, benches, and limited plantings could be added to parkland dedication standards in Austin. One model for urban plazas are the privately owned public spaces in New York City[10]. This model was created to accommodate the land development and legal context of Manhattan. It is an example of how cities can work to develop new models for public space in partnership with developers in order to maintain park standards in dense, urban communities.

An area for further research is the carrying capacity of public parks. The relationship between the quality of the service provided by parks based on the population density in the surrounding community. This data would be especially useful for multifunctional green spaces like conservation areas and greenways.

[10] Privately Owned Public Spaces http://www.nyc.gov/html/dcp/html/priv/priv.shtml

Appendix 1: Interview Questions

1. What are your top priorities for resource allocation citywide? How does [specific community in your city] fit into those citywide goals?

2. What are the critical improvements for [specific community in your city]?
3. What is the likelihood that they will be funded? How does equity come into discussions about capital improvements?
4. How does equity enter into discussions about capital improvement planning?

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