EVALUATING THE ADAQUACY OF PRIVATE NEIGHBORHOOD PARKS IN ORO VALLEY, ARIZONA

by

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A Master's Report Submitted to the Faculty of the

PLANNING PROGRAM

In Partial Fulfillment of the Requirements
For the Degree of

MASTER OF SCIENCE
IN PLANNING

In the Graduate College

THE UNIVERSITY OF ARIZONA

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STATEMENT BY AUTHOR

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ACKNOWLEDGMENTS

I would like to thank the members of my Master's Report Committee at the University of Arizona's Planning Degree Program: Dr. Barbara Becker, Dr. Huntoon, and Grace Evans. Dr. Barbara Becker, as my report chair, was especially helpful with the organization of this report. Thank you all for your insight and guidance.

I would also like to thank the staff of the Town of Oro Valley's Community Development Division; Pima County's Natural Resources, Parks, and Recreation Department; as well as the Town of Oro Valley's Parks and Recreation Advisory Board. Their help was essential to the formation of this report.

Finally, I would like to thank my family and friends for their patience and support. Most importantly, I thank my partner Robb for his unconditional love and encouragement.

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ABSTRACT

Traditional public neighborhood parks have long been regarded as the building blocks of successful parks and recreation systems. They provide important recreational opportunities to nearby residents as well as numerous public health, economic, environmental, and social benefits. The widespread prevalence of new residential subdivisions developed as common-interest developments governed by homeowner associations has created the new phenomenon of the private neighborhood park, in which the park is entirely owned and maintained by the homeowners association for the use of member residents only. Municipal governments rely upon private neighborhood parks to serve the same functions as traditional public neighborhood parks, but rarely ensure that they are developed to the same standards. Even the National Recreation and Parks Association has not yet recognized the new role of the private neighborhood park in their recommended parks, open space, and pathways system. The rapidly growing suburban community of Oro Valley, Arizona, is used as a case study to analyze the adequacy of privately owned and maintained neighborhood parks. The purpose of this report is to show the importance of implementing private neighborhood park design standards to ensure that future private neighborhood parks are developed to compliment and enhance existing parks, open space, and pathways systems.

CHAPTER I. INTRODUCTION

The set aside of land for use as neighborhood parks in new residential developments based on a formula of acres per number of residential units has been in use for over two decades (Crompton, 1999). While this form of exaction has proved to be a useful tool for municipal parks and recreation departments to acquire park land, several emerging trends require that municipalities go further than land set aside requirements in order to ensure that parks and recreation systems meet the needs of their communities (Mertes, 1996).

One emerging trend requiring municipalities to go further than neighborhood park land set aside requirements is the prevalence of new residential developments being governed by homeowner associations (HOAs) and the privatization of the neighborhood park (Razzi, 2000). Municipal governments expect the private neighborhood parks, which are owned and maintained entirely by the HOA, to fulfill the same functions as traditional public neighborhood parks. Having new residential development pay for its own upkeep is favored as most local municipalities have limited funds and are forced to choose between the services provided to citizens (Crompton, 1999).

While municipalities expect private neighborhood parks to act as a substitute for traditional public neighborhood parks, they rarely require that private neighborhood parks are developed to appropriate standards. Without legally mandatory standards, developers maximize profits by scattering the neighborhood park sites in unusable locations, such as

behind house lots or on steep hillsides. These areas set aside for use as private neighborhood parks often serve little to no recreational function (Razzi, 2000). Municipalities rarely keep an inventory of private neighborhood parks and have little to no idea of how poorly they are serving the community's recreation needs (Razzi, 2000).

HOAs have disincentives to build parks on undeveloped land set aside for private park use due to the high costs of park maintenance and accident insurance. For this reason, it is important that municipalities ensure that new residential subdivisions are required to be developed with private neighborhood parks that meet the recreation needs of the neighborhood residents. In situations where private neighborhood parks are designed poorly or remain undeveloped, added strain is placed on the existing parks and recreation system by the new residents who must travel to existing parks for their recreation needs (Razzi, 2000).

The National Parks and Recreation Association (NRPA) recommends that neighborhood park design guidelines be implemented to ensure that neighborhood parks are developed properly (Mertes, 1996). Neighborhood park design guidelines include criteria requiring the development of utilities, accessibility features, and active and passive recreation amenities based upon park size. While the NRPA created the neighborhood park design guidelines for traditional public neighborhood parks, mandatory standards should be required of private neighborhood parks since municipal governments expect them to serve the same recreation functions.

1.1 History of the Parks and Recreation Movement

The United States parks movement began in the latter half of the 19th century and was hailed as a way to bring nature into the city to improve public health and relieve stress caused by urban life (Mertes, 1996; Molnar, 1986). Municipalities, with help from high-society charity organizations, were the main sponsors of the parks movement (Molnar, 1986). Frederick Law Olmsted designed grand-scale city parks, such as New York's Central Park, to bring a romanticized piece of nature into the city (Molnar, 1986; Phillips, 1996). Parks such as these were seen to bring with them fresh air, sunshine, and the spiritually transforming power of nature (Sherer, 2003). Olmsted popularized the traditional American model of a park as a carefully constructed "natural garden" for passive recreation activities such as walking, sitting, and enjoying nature as an observer (Mertes, 1996; Molnar, 1986).

The active recreation movement began around the same time and had many of the same goals as the parks movement, but instead focused on exercise and physical stimulation through team sports and organized competition (Mertes, 1996; Molnar, 1986). Municipalities and charity organizations sponsored the construction of neighborhood sandboxes for children to play in and gymnasiums for adults exercise. The first modern playground equipment was provided by Jane Addams in her open air gymnasium in the Hull House of Chicago in the late 1800's. Addams advocated for the use of auxiliary equipment because she believed, "amusement is stronger than vice," (Eriksen, 1985).

While Addams's model of open air gymnasiums were originally intended for both adults and children, the active recreation movement became almost entirely focused on children and the construction of playgrounds at the beginning of the 20th century (Mertes, 1996; Molnar, 1986). Municipalities and charity organizations saw local school districts as the logical providers of playgrounds and active recreation, and within a decade school districts across the country were expected to provide both (Molnar, 1986; Eriksen, 1985).

Construction of the grand scale city parks began to decline with the Great Depression, as municipalities and charity organizations lost money and found new causes to support. Exacerbating this trend was the growing suburbanization of the United States, which many people believed to be the new cure for problems caused by city life (Sherer, 2003). Families moving to the suburbs were living surrounded by the countryside, with pockets of the country in their own backyards. The suburb was seen to diminish the need for parks (Harnik, 2004).

In fact, Olmsted himself developed several of the first modern subdivisions, such as Riverside in Chicago, Illinois (Jackson, 1985). He, and many others, believed that suburbs such as Riverside represented a perfect synthesis between nature and access to all of the urban amenities available at the time (Jackson, 1985). Parks continued to be built and maintained by municipalities, but at a much lower level than in the beginning of the movement.

The next major event in the parks movement came in the late 1970's, when municipal parks departments faced the challenge of less reliance on their biggest financing source – tax revenue. For example, the passing of Proposition 13 in California in 1978 lowered local taxation levels by restricting increases in tax rate and the tax base and made it difficult for alternative sources of taxation to be passed at the state level (Crompton, 1999). While California is an extreme example of the tax revolt, the tax and expenditure limitation movement spread across the country. By the end of 1979, 22 states had reduced property taxes, 18 states had reduced income taxes, and 15 states had cut sales taxes (Crompton, 1999). The impact of these reductions was made worse by the economic slump of the early 1980's, and the continuing trend of fewer federal and state dollars flowing to local governments. Since purchasing land for parks in new residential developments became cost prohibitive, municipalities sought a new legal device to acquire the land (Crompton, 1999; Mertes, 1996).

Exactions requiring the dedication of streets, sewers, and utility easements had been in use long before, but became popular for acquiring park land around the same time as the tax revolt in the late 1970's (Crompton, 1999). Exactions in the form of land dedication extended the argument by municipalities that developers should provide services to the new residents without burdening the existing residents. Park land dedication became widely adopted, especially in the quickly growing South and West, and requires that developers set aside a certain amount of park land in new subdivisions and dedicate it to the government for ownership and maintenance (Crompton, 1999; Mertes, 1996).

1.2 Privatization of the Neighborhood Park

A more recent development in the parks movement has been the vast expansion of the common-interest development (CID) and the privatization of the neighborhood park (Razzi, 2000). CIDs are residential developments in which residents are bound by covenants, conventions, and restrictions (CCRs) and governed by an elected body of residents in a HOA. While some form of CIDs have existed for nearly two centuries, the recent evolution has been used as a way to have homeowners pay for their own neighborhood maintenance. HOAs maintain their own infrastructure by levying assessments from member homeowners. Developers are in favor of these developments because they are popularly thought to guarantee property values and make new homes more sellable. Municipalities are in favor of them because HOAs maintain their own infrastructure, easing the financial burden of the municipalities (Razzi, 2000).

In addition to infrastructure, such as roads and sidewalks, HOAs are responsible for private neighborhood parks that developers set aside land for and build in accordance with municipal development regulations. HOAs are responsible for maintaining these private neighborhood parks with the money they levy from their member homeowners. This trend is known as the "privatization" of the neighborhood park, since they are owned and maintained by a private entity (Razzi, 2000). Private neighborhood parks in CIDs are paid for entirely by HOA assessments and only are for the use of the homeowners belonging to that CID.

The trend of privatized neighborhood parks has become the norm among new residential subdivisions. Up to 80% of all new housing in the United States is a CID governed by an HOA (Lloyd, 2002). Virtually all new developments in fast growing areas in the South and West come with HOAs. The number of these communities has increased from 10,000 in 1970 to 230,000 in 2001 (Razzi, 2000). It is estimated that the number of people living in an HOA-governed community in the year 2004 was over 50 million (Razzi, 2000).

Municipal parks and recreation departments have, for the most part, widely accepted the privatization of the neighborhood park. Most parks and recreation departments are now expected to partially fund themselves through user and activity fees, as a result of the limited municipal service funding available. Having HOAs maintain private neighborhood parks saves the parks and recreation departments from expenses such as park maintenance and accident insurance (Tremain, 2003).

The emerging system of privatized neighborhood parks within CIDs is far from perfect. Many municipalities still rely only upon dedication regulations which require developers to set aside land for neighborhood parks (Crompton, 1999). In the past, this park land was dedicated to the municipality for ownership and maintenance, and was for the use of the entire public. In CIDs this land is privately owned and maintained by the HOA, only for the use of HOA members (Lloyd, 2002; Razzi, 2000).

In municipalities that require only the set aside of park land, the developer only has to set aside park land as part of the subdivision process and transfer the title to the HOA. Developers incrase their profits by maximizing the usable land for the placement of residential units and setting aside the unusable remaining space for the private neighborhood park (Lloyd, 2002). This unusable land is often unsuitable for neighborhood parks, as it is often on dangerous hillsides or behind homes in completely inaccessible locations.

These undeveloped or poorly developed park areas are often viewed more as a liability than an asset by HOAs, and therefore are rarely developed or constructed as originally intended (Lloyd, 2002). One reason for this is that many HOAs are relatively cash-poor entities. Developers often set assessments low to entice homebuyers into CIDs, but the actual cost of maintaining the neighborhood's infrastructure is generally much higher. One third of HOAs only have enough funds to take care of 30% of their needs (Lloyd, 2002). One half of HOAs are marginally funded, while only 20% are fully able to pay for their infrastructure (Lloyd, 2002).

Even when there may be support among HOA members for developing land set aside for private neighborhood parks, HOA rules generally require a two-thirds majority vote in favor of increasing assessments which can be difficult to secure (Lloyd, 2002). Since so many HOAs are cash-poor to start off with, raising assessments substantially to pay for insurance in the case of accidents and lawsuits, as well as neighborhood park

maintenance costs, is often politically difficult. When accident insurance is purchased on a municipal-wide level, it is affordable. On the smaller HOA level though, accident insurance costs for one private neighborhood park can be prohibitive. Taking on these accident insurance costs have been shown to be the greatest deterrent for HOAs to develop parks (Lloyd, 2002).

1.3 Neighborhood Park Design Standards

The rapid growth and prevalence of the privatized neighborhood park has greatly affected the way municipal parks and recreation departments operate and deliver their services. Municipal parks and recreation departments assume that private neighborhood parks can take the place of traditional public neighborhood parks. While traditional public neighborhood parks were often designed, maintained, and improved over the years by parks and recreation departments themselves, private neighborhood parks often have no required standards and therefore inadequately meet the recreation needs of the neighborhood residents.

In 1996, the National Recreation and Parks Association (NRPA) revised their Recreation, Park, and Open Space Standards and Guidelines. While the revised guidelines were intended to provide a framework for the design of traditional public neighborhood parks, they can also be used as required standards to ensure that developers of new residential developments produce well-designed private neighborhood parks (Mertes, 1996). The

distinction between design guidelines and design standards can have important legal implications. While design guidelines generally recommend what the municipality would like to see developed, design standards legally require a designated minimum level of development (Mertes, 1996).

Parks, Open Space, and Pathways System

The NRPA's 1996 guidelines deal with an array of recreational lands, all part of a comprehensive parks, open space, and pathways system (Mertes, 1996). Within the parks classifications from smallest to largest in size are mini-parks, neighborhood parks, school parks, community parks, and large urban parks (Refer to Table 1). The units within the parks system are given broad definitions to accommodate historical, geographic, economic, and cultural differences between communities and yet still remain useful to parks and recreation planners (Mertes, 1996). While the NRPA parks, open space, and pathways system does not incorporate the new trend of private neighborhood parks, it can still be used effectively if private neighborhood parks are developed to the same standard as traditional public neighborhood parks.

Table 1. Parks, Open Space, and Pathways System

Recreation Area Designation	Size (acres)	Service Area (miles)
Pocket Park	Up to 2	½
Neighborhood Park	2-15	¾
Community Park	15-50	1-5
Regional Park	50 or more	Variable
Open Space	Variable	Variable
Pathways	Variable	Variable

Source: National Parks and Recreation Association, 1996.

Pocket parks, also known as mini-parks or tot-lots, are up to two acres in size and serve a limited recreational function where space is scarce. Neighborhood parks, from two to ten acres, are the basic unit of the park system and serve as the recreational and social focus of the neighborhood. The neighborhood park is the park unit which serves those living within its service area, at a maximum distance of ¾ mile away, and should be developed to accommodate both active and passive recreation activities (Mertes, 1996).

The school park is included because of its variable recreational usages in varying communities. Community parks, from 15-50 acres, serve a broader recreation purpose than neighborhood parks and are often the location of sponsored youth sports. Community parks have a service area of one to five miles. Regional urban parks are those parks with 50 or more acres which serve an entire urban area (Mertes, 1996).

Open space is a broad term given to natural resource areas valued and set aside for the preservation of significant natural resources, environmental habitat, or visual aesthetics. While open space serves an important function, the NRPA recognizes that its recreational functions are limited and it cannot replace developed parkland with active and passive amenities. Its size and service area depend on local conditions such as the total acreage, accessibility, and distribution of the open space within the community (Mertes, 1996).

Connecting developed parks and open space are various pathways, which the NRPA classifies as park trails, connector trails, bikeways, all-terrain bicycle trails, cross-country

ski trails, and equestrian trails. Besides having recreational value, the various pathways are also seen as an important part of encouraging and allowing alternative modes of transportation. The length and service area of pathways depend on local conditions (Mertes, 1996).

Neighborhood Park Design Criteria

In recommending guidelines and standards for recreational purposes, the NRPA acknowledges that there is a fine line between setting recreational service standards and stifling creative neighborhood park design. This holds true for both traditional neighborhood parks, owned and maintained by the government, and private neighborhood parks, owned and maintained by HOAs (Mertes, 1996). Design guidelines can be set up in a simple reference table with park design criteria on the vertical column and park acreage on the horizontal column. The criteria are indicated for the various park sizes listed in the guidelines. As the park acreage increases, so do the recommended criteria. Design standards work in a similar manner, with the main difference being that the developer would legally be required to provide the design criteria listed (Mertes, 1996).

"Wildcard criteria," allow further flexibility in neighborhood park design guidelines and standards (Mertes, 1996). Wildcard criteria are those which the developer has flexibility in choosing from, such as between various sports fields or courts. A medium sized neighborhood park may require that one of any sports fields or courts be provided, while

a large sized neighborhood park may require that three of any be provided. This allows the developer flexibility and creativity in design and amenities choice while requiring that a certain number of recreational amenities are built (Mertes, 1996).

Size Criterion

The recommended size of the neighborhood park is between one to ten acres. Neighborhood parks of five acres are accepted as the minimum size necessary to provide space for a variety of recreational amenities for neighborhood residents. Neighborhood parks from seven to ten acres are considered optimal to accommodate the largest variety of recreational activities (Mertes, 1996).

Location Criterion

The NRPA recommends that neighborhood parks be centrally located to their intended service area of ¼ to ½ miles. In larger residential developments where multiple neighborhood parks are being built, it is important to select several locations based upon the service area so that the entire neighborhood will have the appropriate recreational opportunities. Neighborhood parks should also be located with ease of access from the surrounding neighborhood in mind as well as links to any nearby pathways. Land areas that are undesirable for residential unit development are generally undesirable for use as neighborhood parks as well. Locations such as these often include hillsides, drainage basins, and floodplains (Mertes, 1996).

The relationship between neighborhood parks and the surrounding residential units is also an important location criterion. According to crime prevention through environmental design (CPTED) standards, neighborhood parks should never be placed behind houses as this makes them more difficult to observe (Mertes, 1996; Phillips, 1996). The "eyes on the street" theory states that more houses facing a neighborhood park increases the chances that the park is being watched (Mertes, 1996; Phillips, 1996). This has been shown to be to be a powerful social deterrent which helps stop crimes being committed (Mertes, 1996; Phillips, 1996).

Accessibility Criterion

Accessibility is an important factor in guaranteeing that neighborhood parks are available to nearby residents, including those with physical disabilities (Mertes, 1996). Roadway access as well as the appropriate amount of on-site parking allows park usage by those who choose or need to drive to the neighborhood park. Sidewalk connectivity, bicycle racks, and a hard path connecting amenities within the neighborhood park are also important parts of ensuring ease of accessibility for all users. In many communities, neighborhood parks must be easily accessible as they often serve as the staging areas to access larger pathway systems. Signage is also an important element of accessibility necessary to identify the park by name and the neighborhood or community that it serves. Signage should also clearly state park usage rules, as well as contact information for who is responsible for the park's maintenance (Mertes, 1996; Phillips, 1996).

Utility Criterion

Basic infrastructure includes water connections, wastewater connections, electricity connections, security lighting, water faucets, public restrooms, and telephones. All neighborhood parks should have basic water and electricity connections for maintenance and irrigation service. Security lighting of a certain level is necessary to help prevent crime and increase safety, but brightness varies in necessity depending on the size of the park. Dim lighting is generally desirable in neighborhood parks five acres or less close to many residential units, and brighter lights are reserved for only the larger neighborhood parks of five acres or more. While public restrooms and telephones are undesirable in small neighborhood parks, they are considered necessities in larger neighborhood parks (Mertes, 1996; Molnar; 1986, Phillips, 1996).

Passive Amenities Criterion

Passive recreation amenities include things such as park benches, picnic tables with benches, barbeque pits, shade structures, and shade trees. The NRPA recommends that roughly 50% of a park area be devoted to passive recreational amenities. The placement of these amenities is important in relation to the relative design of the park. Benches underneath shade trees and structures are more inviting than those in open grass areas. Picnic tables with benches may be desirable in similar locations, but barbeque pits should be placed in open areas to limit fire danger (Mertes, 1996).

Active Amenities Criterion

Active recreation amenities include fields and courts for sports such as basketball, volleyball, softball, baseball, tennis, football, and soccer. They also include walking and jogging paths, green turf areas, playground equipment, and fenced pet areas. Active recreation amenities intended for different age groups, such as playground equipment for young children and tennis courts for older children and adults, should be sufficiently buffered through the use of space and landscaping to ensure the protection of younger children. The NRPA recommends that active recreational amenities should occupy roughly 50% of the neighborhood park area. Many multi-purpose fields that can serve numerous sports have been designed for park areas with limited space. Some of these include interchangeable basketball/volleyball/tennis courts, soccer/football fields, and softball/baseball diamonds (Mertes, 1996).

1.4 Importance of Neighborhood Park Design

Well designed neighborhood parks are an important component of parks, open space, and trails systems because of they are the building blocks and most accessible components of the entire system (Mertes, 1996). Well-designed neighborhood parks have numerous public health, economic, environmental, and social benefits (Sherer, 2003).

One benefit well designed neighborhood parks can have is a positive effect on public health (Crompton, 1999; Sherer, 2003). In a well documented Center for Disease Control

study conducted in 2000, those living within walking distance to a neighborhood park were shown to be 25.6% more likely to exercise regularly (Sherer, 2003). This is particularly relevant considering the recent attention being paid to the growing obesity epidemic. Only 27% of children in the United States engage in moderate to intensive physical activity and 13% of children are now seriously overweight (Sherer, 2003). Providing accessible outdoor areas for children to safely play in encourages healthy habits early in life (Crompton, 1999).

There are also a growing number of psychological reports that show access and exposure to nature improves both mental and physical health. A study in the Netherlands in 2001 found that, "in a greener environment people had fewer health complaints, more often rate themselves as being in good health, and have better mental health," than those with no access to green areas (Sherer, 2003). The study found that all types of green areas, including forests, agricultural areas, and neighborhood parks, appeared to be equally as beneficial (Sherer, 2003). As the costs spent on health care continue to rise, the health benefits of having accessible and well designed neighborhood parks should not be ignored.

Well designed neighborhood parks also have measurable economic benefits (Crompton, 1999; Harnik, 2004; Trust for Public Land, 2004; Nicholls, 2004). A 2001 study conducted by the National Association of Realtors found that 50% of respondents would be willing to pay 10% more for a house located near a neighborhood park (Sherer, 2003).

It also found that 57% would more likely buy a home in a neighborhood that offered a neighborhood park within walking distance (Sherer, 2003).

A review of 25 studies investigating whether parks and open space contributed to property values of neighboring homes found that 20 of the studies indicated an increase in property values (Crompton, 1999). These increases in property values were found to be the most prevalent in homes closet to the parks and open spaces, with the increases in property value falling the further away the home was (Crompton, 1999; Nicholls, 2004). Higher home values are not only a benefit for the homeowner, but a benefit to the municipality which collects higher property taxes from these residents. The tax revenue increases collected by the municipalities were shown to pay off the costs of newly built neighborhood parks on an average of three years (Sherer, 2003).

Neighborhood parks designed with environmental factors in mind also have several environmental benefits (Crompton, 1999). One environmental benefit is that neighborhood parks with well maintained trees in both urban and suburban areas have an enormous effect on the air quality of the neighborhoods. The 50 year lifetime of one tree was found on average to generate $31,250 worth of oxygen, $62,000 worth of air pollution control, while recycling $37,500 worth of contaminated runoff water, and saving $31,250 in soil erosion (US Forest Service, 2000). A comprehensive study of the air quality in New York City found that the trees in neighborhood parks removed an estimated 1,821 metric tons of pollution in the year 1994 alone (Sherer, 2004).

Environmentally sensitive neighborhood parks have also been shown to diminish the heat island effect that urban areas exhibit. The heat island effect is a phenomenon in which urban areas' concentration of concrete, asphalt, roof tiles, and pollution cause temperatures in urban areas to be up to 20 degrees Fahrenheit hotter than the surrounding countryside (Sherer, 2003). The increased temperature leads to further use of air conditioners to reduce inside heating, which releases more pollution and worsens the situation. Neighborhood parks with native trees can help diminish the heat island effect. The evaporation of a single large tree can produce the cooling effect equal to ten room-sized air conditioners operating 24 hours a day (Sherer, 2003).

Biodiversity can also be aided by neighborhood parks designed and landscaped with native plants (US Forest Service, 2000). As areas are developed for residential suburbs, native plants and the species that survive on them are often replaced with nonnative species. These nonnative species generally either do so well that they become invasive and threaten local species, or are so poorly adapted to the conditions that they require extra watering and attention (Crompton, 1999). Planting neighborhood parks with native species not only means the parks require lower maintenance, but it also makes the park an important island area for other native species to flourish. In a well-connected parks, open space, and trails system, neighborhood parks planted with native species are often the difference between the survival or disappearance of local species (Crompton, 1999).

Neighborhood parks also provide social benefits for communities (Crompton, 1999; Harnik, 2004; Trust for Public Land, 2004; Nicholls, 2004). One of the original purposes of the neighborhood park, to keep juveniles out of trouble, has been found to still hold true. Police departments report that juvenile arrests lower after accessible recreation facilities open, and also that areas with more well maintained parks have less crime (Nicholls, 2004). The police department in Fort Myers, Florida reported a 28% drop in juvenile crime after the town created a recreational program and retrofitted parks with CPTED principles (Trust for Public Land, 2004).

In addition to lowering crime, neighborhood parks also increase neighborhood cohesion and social ties. Nearby neighborhood parks allow neighbors an opportunity to know each other, interact, and take pride in their community (Rutledge, 1986). A 2003 study by the University of Missouri-St. Louis found that neighborhoods with parks were more stable than those without parks (Trust for Public Land, 2004). The city lost 50,000 residents from 1990 to 2000. Neighborhoods with parks lost only 6% of residents while those without parks lost 13% of residents (Trust for Public Land, 2004).

Neighborhood parks also provide an important opportunity for children to develop important social skills. Theorists such as Friedrich Froebel, John Dewey, Rudolph Steiner, Maria Montessori, Jean Piaget, and Susan Isaacs all agree on several basic principles which highlight the need for well designed neighborhood parks (Ericksen, 1985). Neighborhood parks allow an important place for children to interact with people

of all ages, something they may not experience in their own homes or in their schools. Interaction of this type is important for balanced socio-emotional stimulation. Parks also encourage the exploration of natural curiosity by providing a varied landscape (Ericksen, 1985).

While well designed neighborhood parks provide numerous benefits, poorly designed neighborhood parks can have the exact opposite effect. Poorly designed neighborhood parks can increase childhood accidents, encourage criminal activity, lower property values, and be harmful to the environment (Crompton, 1999).

An often cited example of the danger of poorly designed parks can be found in neighborhood parks across the nation built from the 1940's until the late 1980's (Eriksen, 1985; Phillips, 1996). Inexpensive and durable materials, such as asphalt and metal, were popular in the mid 20th Century and used in neighborhood parks across the entire United States for nearly four decades. While these parks' infrastructure was easy to maintain, it is estimated that the hard and unforgiving equipment and ground unnecessarily caused hundreds of thousands of preventable injuries a year (Eriksen, 1985). While many of these parks are slowly being retrofitted, it is estimated that there are still up to 120,000 serious accidents and about 17 deaths a year occurring from poorly designed play areas (Phillips, 1996).

Poorly designed neighborhood parks have also been shown to discourage families from visiting them as well as inviting crime and vandalism. Neighborhood parks without surveillance opportunities or proper lighting can quickly become targets for vandalism. It has been determined that up to 90% of park vandalism could be prevented with correct design (Phillips, 1996).

Neighborhood parks built in poor locations, such as behind houses, not only create poor conditions for the park itself, but also invites crimes such as theft and vandalism to the nearby houses (Eriksen, 1985). Poorly designed and maintained parks that encourage theft and vandalism have been shown to lower nearby home values by the same proportion that well designed and maintained parks can raise them (Crompton, 1999). While neighborhood parks planted with native species can increase biodiversity and help protect the native ecosystem, those planted with nonnative species can lead to the park being a staging ground for nonnative species to invade habitat. Nonnative species poorly adapted for local conditions can dramatically increase water usage and require large amounts of chemical fertilizers which can harm natural water areas. Those neighborhood parks designed without any trees and only concrete or hard ground can increase the heat island effect (Phillip, 1996; Sherer, 2003).

CHAPTER II. METHODOLOGY

The Town of Oro Valley, Arizona, is used as a case study to analyze the trend of privately owned and maintained neighborhood parks and the need for private neighborhood park design standards. Oro Valley, founded in 1974, is a prime example of a rapidly growing suburban community with limited revenue. In Oro Valley virtually all new residential developments are common-interest developments (CIDs) governed by homeowner associations (HOAs). These HOAs are entirely responsible for the ownership and maintenance of any set aside neighborhood park land.

Oro Valley's Town Code currently requires only that private neighborhood park land be set aside, but does not specify what design criteria developers must adhere to (Town of Oro Valley, 1994). While the Town Code and the Oro Valley Parks, Open Space, and Trails (POST) Master Plan recommend private neighborhood park design criteria, the Code does not legally require that any of the design criteria be followed by developers (Town of Oro Valley; 1994, Town of Oro Valley, 1999). Developers then maximize their profits by setting aside the required land and either designing substandard neighborhood parks or leaving the set aside land without any improvements. Due to the deficiencies of these private neighborhood parks, the three public community parks are used over capacity and the public's recreational needs go unmet (Town of Oro Valley, 1999).

This report presents an inventory and analysis of the adequacy of private neighborhood parks in Oro Valley to see if the Oro Valley POST Master Plan and Town Code update from 1994 have had any effect on the design of private neighborhood parks. The inventory covers private neighborhood park information such as year built, number of lots in subdivision, acreage of park land set aside, utilities, accessibility features, active and passive recreation amenities, and surveillance and shade opportunities. The private neighborhood parks inventory not only determines the effect of the POST Master Plan on private neighborhood park design, but also is an important tool which Oro Valley can use in future POST Master Plan updates.

This report does not answer the question of whether or not private neighborhood parks can act as an effective substitution for the traditional model of the public neighborhood park. These private neighborhood parks are rarely gated and rarely have signs posted that state their restricted use. Legally, private neighborhood parks can only be used by HOA members (Razzi, 2000). While research has shown that the majority of neighborhood parks users are those who live within the neighborhood of the park, the effectiveness of the private neighborhood park in a parks, open space, and pathways system is still not entirely understood (Mertes, 1996; Razzi, 2000).

This report also does not answer the question of whether or not private neighborhood parks are an equitable substitution for traditional public neighborhood parks. Members of HOAs pay for their own private neighborhood park maintenance and accident

insurance costs through assessments, but they also pay taxes for the upkeep of traditional public neighborhood parks in preexisting neighborhoods that they will likely never use (Mertes, 1996; Razzi 2000). Issues such as the segregation of classes due to the privatization of public spaces are out of the scope of this report to answer.

CHAPTER III. CASE STUDY – ORO VALLEY, ARIZONA

The Town of Oro Valley, Arizona, is a rapidly growing community founded in 1974. Oro Valley lies to the north of Tucson, Arizona, with a population increase from 7,000 in 1990 to 40,000 in 2004. It is estimated that by 2020, the population will increase up to 125,000. The majority of households in Oro Valley are family households, at 76.6%, with only 19.4% being single householders. Almost 30% of family households in Oro Valley have children 18 years old or younger living at home (Pima Association of Governments, 2002).

Bordered by the City of Tucson on the south, the Town of Marana on the west, the Tortilita State Mountain Park to the north and the Catalina State Park to the east, it is estimated that the growth will reach the ultimate boundaries of the town long before 2020, and that much of the increase in population will be due to the densification of existing developments through infill and division of larger residential lots (Town of Oro Valley, 1996). This densification and population growth will place an even greater burden on the existing recreation areas.

In response to this rapid grow-out scenario, the Town of Oro Valley published the Parks, Open Space, and Trails (POST) Master Plan in 1994. The POST Master Plan was the result of numerous highly attended public forums in which the public and town officials agreed that Oro Valley's natural assets must be protected and its recreational

opportunities must be enhanced. "Recognizing that it is the setting rather than structures that contributes most to Oro Valley's character, spatial relationships derived from community design principles underscore the importance of natural and recreational open areas in framing the community's character," (Town of Oro Valley, 1996).

3.1 Oro Valley's Parks, Open Space, and Trails Master Plan

Updated once in 1996 and again in 1999, the POST Master Plan clearly defines Oro Valley's collaborative vision of parks, open space, and trails which closely follows the National Recreation and Parks Association (NRPA) 1996 recommendations. The NRPA recommends that parks and recreation departments focus on providing recreational opportunities to the public by maintaining a comprehensive parks, open space, and trails system as well as the provision of recreational activities (Mertes, 1996). In Oro Valley's parks and recreation model, municipal sponsored activities would take place in public community parks, with private neighborhood parks serving the recreational needs of only HOA members (Town of Oro Valley, 1994).

Table 2. Comparison of NRPA and Oro Valley Parks Systems

Recreation Area Designation	NRPA		Oro Valley	
	Size (acres)	Service Area (miles)	Size (acres)	Service Area (miles)
Pocket Park	Up to 2	½	Not Recognized	Not Recognized
Neighborhood Park	2-15	¾	Up to 15	¾
Community Park	15-50	1-5	15-200	3
Regional Park	50 or more	Variable	Not recognized	Not Recognized
Open Space	Variable	Variable	Variable	Variable
Pathways	Variable	Variable	Variable	Variable

Source: National Parks and Recreation Association, 1996; Town of Oro Valley POST Master Plan, 1999.

Oro Valley's POST Master Plan laid out the vision for a parks and recreation model very similar to that of the NRPA (Refer to Table 2). Following the NRPA 1996 recommendations, the neighborhood park would be the building block of the entire system (Mertes, 1996; Town of Oro Valley, 1999). While the NRPA does not specify whether or not these neighborhood parks should be public or private, the neighborhood parks in Oro Valley were explicitly intended to be privately owned and maintained (Town of Oro Valley, 1994).

In the POST Master Plan, the pocket park from the NRPA parks system is considered part of the neighborhood park designation. Private neighborhood parks would be up to fifteen acres in size and serve an area of ¾ mile. Oro Valley's park system similarly combines the community park with the regional park from the NRPA parks system, designating it to be from 15-200 acres in size, serving an area of three miles. A community park in Oro Valley is a traditional public park, owned and maintained by the government. Recreational activities, paid for by user fees or sponsored by Oro Valley, take place in the public community parks. Public community parks are also the areas designated for youth sports and community gatherings (Town of Oro Valley, 1999).

The trails in the Oro Valley parks system are similar to the pathways in the NRPA parks system, and provide an alternate route of transportation for bicyclists, equestrians and pedestrians by interconnecting residential areas with shopping centers, open spaces, and the larger public community parks. Open spaces, defined by Oro Valley as natural

undeveloped and protected desert land, are designated in areas that had high value of natural habitat, watershed, or visual resources. These are protected from development when possible and serve important environmental functions, but inherently have limited recreational value (Town of Oro Valley, 1999).

While the Oro Valley POST Master Plan from 1994 and its updates made the community's vision and role of the private neighborhood park clear, the Town Code was never updated with required design criteria. Instead, the Town Code was updated with several "recommended" private neighborhood park design criteria that developers could consider (Town of Oro Valley, 1994). Table 3 shows the relationship between the design criteria required by the Code, the design criteria recommended by the Town Code, and the design criteria recommended by the POST Master Plan (Town of Oro Valley, 1994; Town of Oro Valley, 1999).

Oro Valley's Town Code only legally required that one acre of private neighborhood park land be set aside for each 85 residential units and then transferred to HOA ownership (Town of Oro Valley, 1994). In addition to the one requirement, the Town Code also recommended that developers consider several design criteria. These recommended design criteria included water and electricity utilities, parking, sidewalk connections, active recreation amenities and passive recreation amenities (Town of Oro Valley, 1994; Town of Oro Valley, 1999). These recommended design criteria could easily be ignored by developers since they were not required by the Town Code.

Table 3. Required and Recommended Design Criteria

Design Criteria		Required by Code	Recommended by Code	Recommended by POST Master Plan
	Set Aside – 1 acre per 85 units	X	X	X
	CPTED Design Principles		X	X
Utilities	Water Infrastructure		X	X
	Electricity Infrastructure		X	X
	Wastewater Infrastructure			X
	Drip Irrigation		X	X
	Trashcan			X
	Unisex Restroom			X
	Water Faucet		X	X
	Security Lighting		X	X
	Telephone			X
Accessibility	Parking per Code (1 per 20 units)		X	X
	Vehicle Barriers			X
	Maintenance Vehicle Access			X
	Sidewalk Connections		X	X
	Bicycle Racks (4 bike capacity)			X
	Internal Hard Path			X
	Trail Linkages as Applicable		X	X
	Signage			X
Passive Amenities	Native Shade Trees			X
	Bench		X	X
	Picnic Table w/ Benches		X	X
	Shade Structure (20' x 28')		X	X
	BBQ Pit		X	X
Active Amenities	Green Turf			X
	Fenced Pet Area			X
	Playground Equipment		X	X
	Basketball Half-court		X	X
	Basketball Full-court		X	X
	Softball / Baseball Field		X	X
	Soccer / Football Field		X	X
	Tennis Court		X	X
	Volleyball Court		X	X
	Perimeter Walking/Jogging Path			X

Source: Town of Oro Valley Town Code, 1994; Town of Oro Valley POST Master Plan, 1999.

The POST Master Plan listed even more recommended design criteria derived from numerous public meetings and visioning sessions (Town of Oro Valley, 1994; Town of Oro Valley, 1999). Examples of the design criteria agreed upon include bicycle racks, drip irrigation, trashcans and green turf (Town of Oro Valley, 1999). Similar to the recommended design criteria in the Town Code, the POST Master Plan's recommendations could be ignored by the developers since they were not legally enforceable.

POST Master Plan Inventory

In addition to laying out Oro Valley's parks and recreation system vision and recommending design criteria, the POST Master Plan also took inventory of several parks and recreation components. The inventory included existing conditions of public community parks, open space, trails, as well as school playgrounds and the nearby State Parks.

Of the parks and recreation components inventoried, the POST Master Plan found that Oro Valley was far short of the acreage of parks it needed at that time, and projected a severe shortfall of parks as the population continued to grow rapidly (Town of Oro Valley, 1999). Based on the 1998 population, the town was short by 50 acres of parks, and will fall short by 312 acres in 2020 unless development patterns changed (Town of Oro Valley, 1999).

One crucial component that the POST Master Plan inventory failed to analyze was the existing state of private neighborhood parks, considered the "building block" of the parks system by both the NRPA and Oro Valley (Mertes, 1996; Town of Oro Valley, 1994). The recreation needs assessment overlooked the private neighborhood parks' important impact on Oro Valley's parks and recreation system. No inventory had ever been conducted to determine the number, location, or amenities provided by private neighborhood parks within Oro Valley. As 88% of those participating in the POST Master Plan process indicated, the closest park of any kind was from one to three miles away, therefore, private neighborhood parks were clearly not serving their intended recreation purposes (Town of Oro Valley, 1999).

3.2 Private Neighborhood Parks Inventory

The Oro Valley private neighborhood parks inventory was conducted to: 1) determine what differences would be found in the private neighborhood parks built after Oro Valley's POST Master Plan was adopted in 1994, and 2) provide Oro Valley with the necessary data to update the POST Master Plan and implement design standards.

The first step was to research residential subdivision plats to determine the number, location, year built, and acreage of all the private neighborhood parks. Oro Valley has plats from the year it was incorporated, 1974, and on to the present. At the date that Oro

Valley was incorporated in Pima County, Pima County records in certain circumstances were checked to verify missing information as needed.

Each residential subdivision plat was examined for the set aside of land for recreational usage. The plot of land was recorded, noting park information such as:

- Name of Park and Subdivision
- Year Built
- Number of Lots in Subdivision
- Acreage of Land Set Aside
- Location

A list of all private neighborhood parks was then created and mapped. The next step was to conduct an inventory of all private neighborhood parks. Using both the goals of the Oro Valley POST Master Plan and NRPA recommended design criteria; a private neighborhood parks inventory checklist was created (Refer to Appendix A). This checklist includes the five criteria of utilities, accessibility, passive amenities, active amenities, surveillance opportunities, and shade opportunities:

Utilities
- Trashcan
- Restroom
- Water Faucet
- Lighting
- Telephone

Accessibility
- Roadway
- Sidewalk
- Trails
- Bicycle Rack
- Parking Spaces (Total)
- Parking Spaces (Handicapped)
- Signage

Passive Amenities

- Bench
- Picnic Table
- Ramada
- BBQ Pit

Active Amenities

- Green Turf
- Pet Area
- Playground Equipment
- Basketball Half-court
- Softball Diamond
- Tennis Court
- Volleyball Court
- Pool
- Workout Equipment

For the category of surveillance opportunities, private neighborhood parks were rated on a qualitative scale of Very Poor, Poor, Adequate, and Excellent. The qualitative ratings for surveillance opportunities were based on numerous conditions specified by the NRPA, including security lighting, location in neighborhood and houses facing the park based on crime prevention through environmental design (CPTED) criteria.

Shade opportunities were rated on the same qualitative scale of Very Poor to Excellent. Shade opportunities were included in this survey because the extreme heat in the summer presents a challenge for potential users of neighborhood parks within the desert southwest. The NRPA recommends that neighborhood parks in climates such as Oro Valley have special shade covers over playground equipment and native shade trees planted in strategic locations, such as over benches, to prevent dehydration, heat

exhaustion, and sunburns (Mertes, 1996). Shade opportunities were rated based on the availability of shade cast by trees, physical shade structures, and by shade covers.

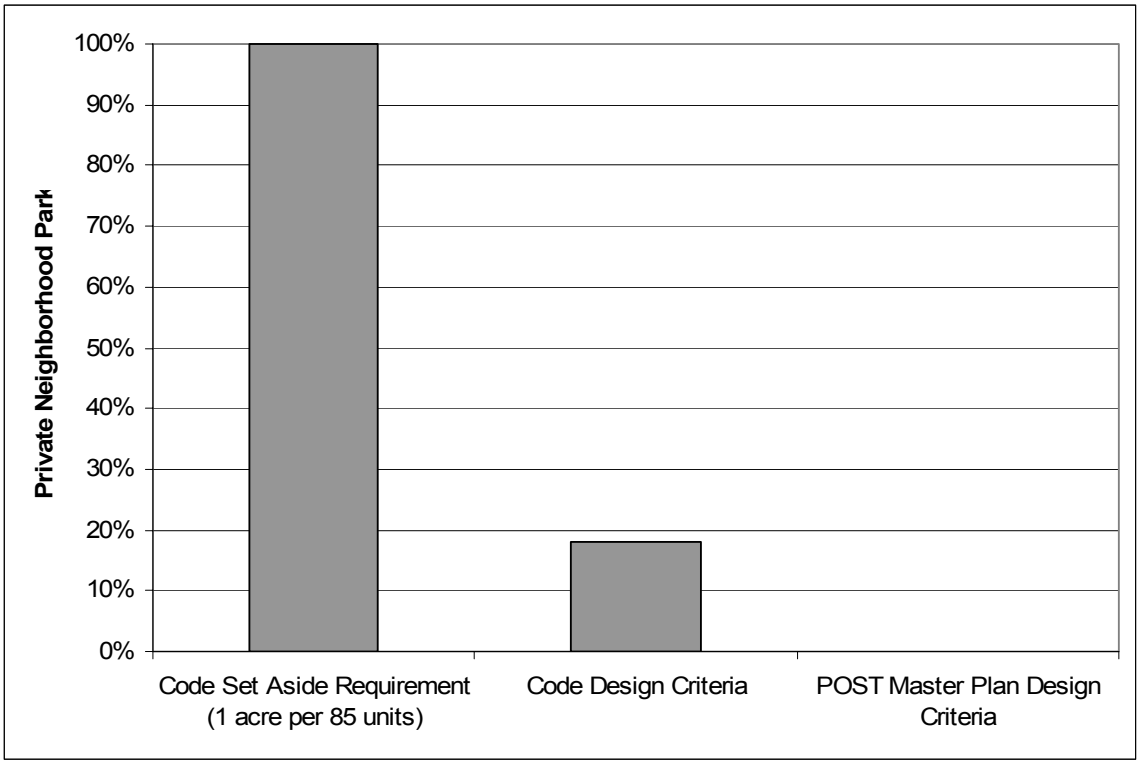
3.3 Inventory Results

An analysis of the Oro Valley private neighborhood parks inventory revealed that of the 33 areas set aside for use as private neighborhood parks, only a total of 15 had ever been developed with any physical amenities. When analyzing the influence of Oro Valley's POST Master Plan which was implemented in 1994, the parks were divided into two groups. Those built before 1994, and those built after that date. Of the nine private neighborhood parks built before 1994, only four had been developed. Of the 24 private neighborhood parks built after 1994, a total of 11 had been developed.

The percent of increase in private neighborhood parks developed since 1994 is only 2%, which is an extremely small considering that the total number of residential subdivision developed after 1994 has more than doubled. Since the number of private neighborhood parks being developed after 1994 was only 2% higher than the number developed before, the POST Master Plan and its loose recommendations had very little effect on the development of these areas (Refer to Appendix G).

As shown in Figure 1, 100% of the private neighborhood parks inventoried followed Oro Valley's Town Code requirement of having one acre of park land set aside for every 85 residential units. The Town Code recommended design criteria were only followed in 18% of the private neighborhood parks inventoried. No private neighborhood parks inventoried followed all of the design criteria recommended by Oro Valley's POST Master Plan. These results show that while developers adhered to the legally required set aside of one acre of park land for every 85 residential units, the majority did not adhere to recommended design criteria and none adhered to the POST Master Plan (Refer to Appendix G).

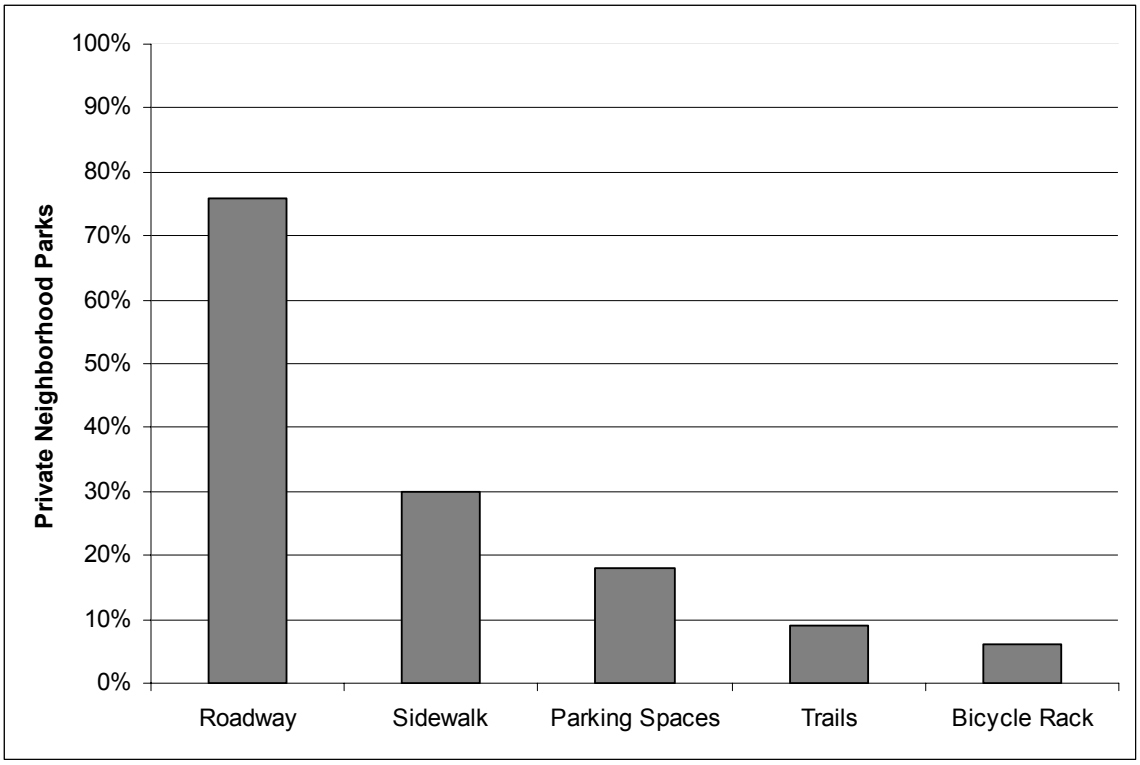
Figure 1. Parks Developed to Required and Recommended Design Criteria



Source: Oro Valley Private Neighborhood Park Inventory, 2004.

An analysis of the inventory showed that 76% of the 33 private neighborhood parks inventoried had roadway access (Refer to Figure 2). Only 30% of private neighborhood parks had sidewalk access, 18% had parking spaces available, and 6% had bicycle racks. One of the goals of the POST Master Plan was to have private neighborhood parks built next to trails, but the inventory revealed that only three of the 20 private neighborhood parks built after 1994 were built to connect to existing trails (Refer to Appendix C).

Figure 2. Park Accessibility



Source: Oro Valley Private Neighborhood Park Inventory, 2004.

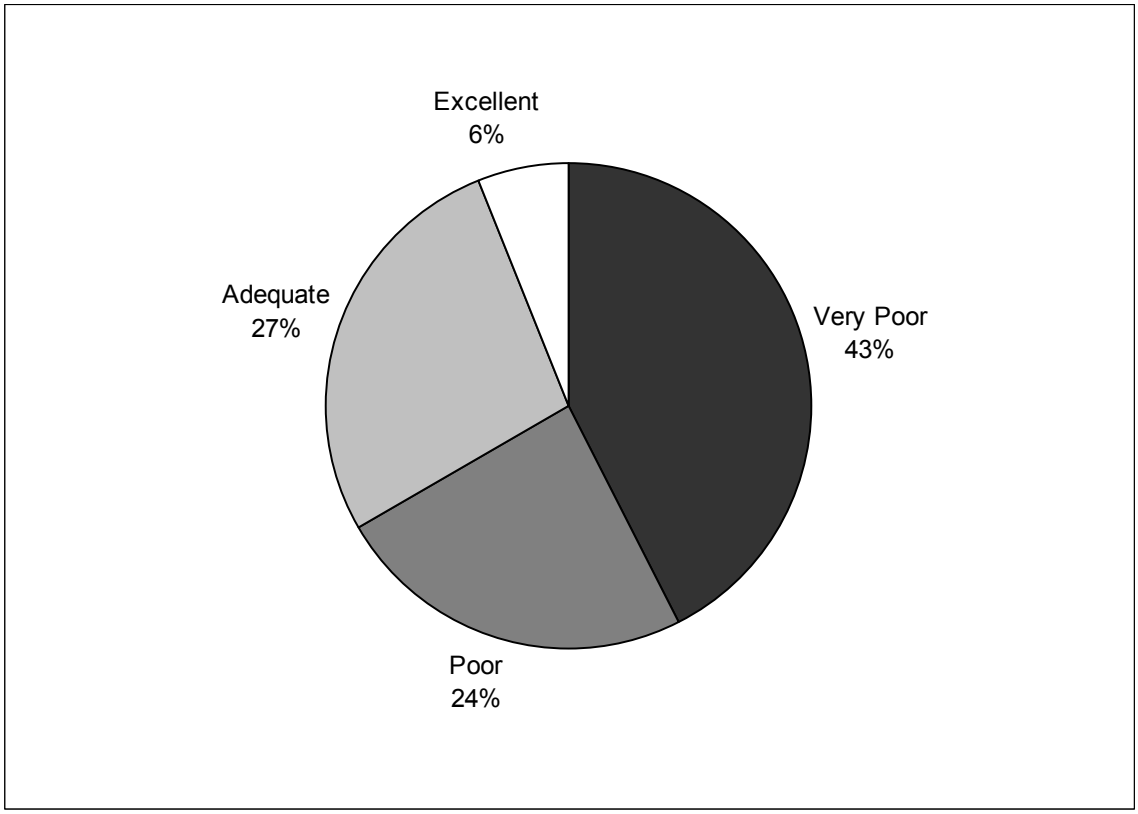
The lack of accessibility revealed by the private neighborhood parks inventory further compounds the recreational function of these private neighborhood park areas. With only

30% of the areas accessible by sidewalk, the majority are completely inaccessible to residents with physical disabilities that limit mobility. As neighborhood parks are generally accessed by pedestrians who live in close proximity, the lack of sidewalk accessibility acts as an impediment for their use (Mertes, 1996). Another important measure of accessibility, signage, was only available in six of the private neighborhood parks. This is particularly important since private neighborhood parks legally restrict usage to HOA member residents. Without these rules clearly posted, potential park users cannot know whether the area is a traditional public neighborhood park or a private neighborhood park.

While 15 of the 33 private neighborhood parks are considered "developed" because they include some type of physical improvement, only six had the amount of active and passive amenities recommended by the NRPA to serve the nearby residents effectively (Mertes, 1996). Only seven of the 15 had playground equipment for young children, and even fewer had sports courts or fields. Five of the fifteen had basketball half-courts, while only three had volleyball courts and one had a softball diamond. The majority of the remaining 15 developed private neighborhood parks merely included passive recreation amenities such as benches or picnic tables. Only six private neighborhood parks had green turf areas, and three had ramada shade structures. (Refer to Appendix D and E).

An analysis of the private neighborhood parks for surveillance opportunities shows that over half scored either Very Poor or Poor (Refer to Figure 3). Only six of the 33 private neighborhood parks had any kind of lighting provided (Refer to Appendix F). Many were located in unobservable areas behind houses or in washes. According to CPTED principles, these are the least desirable locations for neighborhood parks as the lack of observation opportunities increases the propensity for crime to be committed (Mertes, 1996).

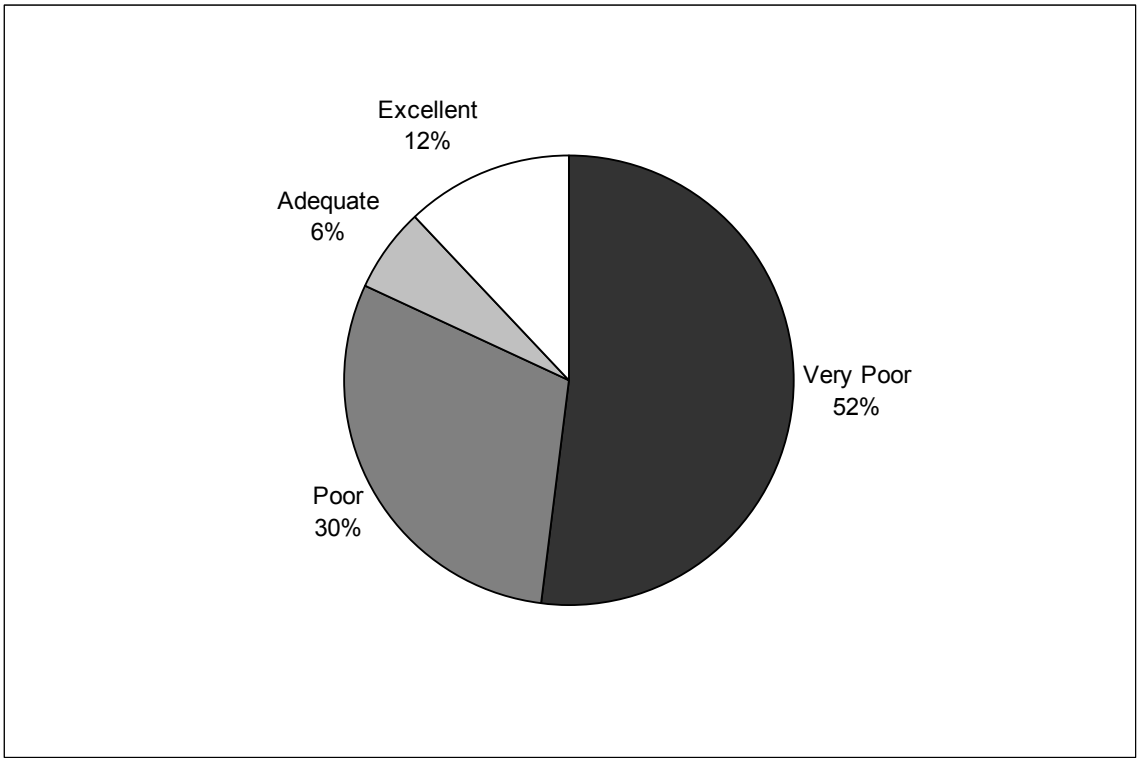
Figure 3. Park Surveillance Opportunities



Source: Oro Valley Private Neighborhood Park Inventory, 2004.

The private neighborhood parks scored even worse when rated for shade opportunities (Refer to Figure 4). Over 80% had Very Poor or Poor shade opportunities, while only 20% were rated as either Adequate or Excellent (Refer to Appendix F). This is because the majority of private neighborhood parks were undeveloped with natural desert scrub and no shade trees of any kind. Even the majority of developed private neighborhood parks lacked special shade screening over playground equipment to protect children or shade trees over benches.

Figure 4. Park Shade Opportunities



Source: Oro Valley Private Neighborhood Park Inventory, 2004.

3.4 Private Neighborhood Park Design Standards

The private neighborhood park design standards recommended by this report are based on the goals stated in the Oro Valley POST Master Plan 1999 update as well as research on the latest design guideline recommendations by the NRPA (Mertes, 1996; Town of Oro Valley, 1999). The design criteria have been selected specifically for Oro Valley to ensure that the community's recreational needs are met. These include provisions for connecting private neighborhood parks to the existing trails system, as well as ensuring that adequate on-site shade is provided for playground equipment and benches through the use of shade covers and native trees.

In order to ensure that private neighborhood parks are developed to meet the community's recreational needs with safety and accessibility principles, private neighborhood park design standards were created (Refer to Table 4). While the use of design guidelines is recommended by the NRPA in the development of traditional public neighborhood parks, stricter design standards must be adopted to hold developers to design criteria determined by the community. In addition to requiring strict design criteria, the standards must also allow flexibility to tailor each park according to its neighborhood's character. The size of development, number of residential units, density of units, topography, and nearby existing recreational opportunities all influence what should be taken into consideration for the design of private neighborhood parks.

Table 4. Private Neighborhood Park Design Standards

Design Criteria		< 1 acre	1-3 acres	3-5 acres	5-7.5 acres	7.5-10 acres	10 < acres
	Service Radius	¼ mile	¼ mile	½ mile	½ mile	¾ mile	¾ mile
	CPTED Design Principles	Yes	Yes	Yes	Yes	Yes	Yes
Utilities	Water Infrastructure	Yes	Yes	Yes	Yes	Yes	Yes
	Electricity Infrastructure	Yes	Yes	Yes	Yes	Yes	Yes
	Wastewater Infrastructure	N/A	N/A	Yes	Yes	Yes	Yes
	Drip Irrigation	Yes	Yes	Yes	Yes	Yes	Yes
	Trashcan	1	2	4	6	8	10
	Unisex Restroom	N/A	N/A	1	1	2	2
	Water Faucet	1	2	3	3	4	5
	Security Lighting	Yes	Yes	Yes	Yes	Yes	Yes
	Telephone	N/A	N/A	Yes	Yes	Yes	Yes
Accessibility	Parking per Code (1 per 20 units)	Yes	Yes	Yes	Yes	Yes	Yes
	Vehicle Barriers	Yes	Yes	Yes	Yes	Yes	Yes
	Maintenance Vehicle Access	Yes	Yes	Yes	Yes	Yes	Yes
	Sidewalk Connections	Yes	Yes	Yes	Yes	Yes	Yes
	Bicycle Racks (4 bike capacity)	1	1	2	4	6	8
	Internal Hard Path	Yes	Yes	Yes	Yes	Yes	Yes
	Trail Linkages as Applicable	Yes	Yes	Yes	Yes	Yes	Yes
	Signage	Yes	Yes	Yes	Yes	Yes	Yes
Passive Amenities	Native Shade Trees	3	5	7	9	12	15
	Bench	2	4	6	8	10	12
	Picnic Table w/ Benches	N/A	2	3	4	5	6
	Shade Structure (20' x 28')	N/A	1	1	2	2	2
	BBQ Pit	N/A	N/A	3	4	5	6
Active Amenities	Green Turf	Yes 30%	Yes 30%	Yes 20%	Yes 15%	Yes 10%	Yes 10%
	Fenced Pet Area	N/A	N/A	N/A	1	1	1
	Playground Equipment	2	4	5	6	7	7
	Basketball Half-court	N/A	1	1	N/A	N/A	N/A
	Basketball Full-court	N/A	N/A	N/A	1	1	1
	Softball / Baseball Field	N/A	N/A	1 of any	2 of any different	3 of any different	1 of each
	Soccer / Football Field						
	Tennis Court						
	Volleyball Court						
	Perimeter Walking/Jogging Path	N/A	Yes	Yes	Yes	Yes	Yes

Source: Town of Oro Valley Planning & Zoning Division, Oro Valley Parks and Recreation Advisory Board, National Recreation and Parks Association, 2005.

Private Neighborhood Park Design Criteria

The first design criterion required of all private neighborhood parks is compliance with CPTED principles (Mertes, 1996). These principles lay out several criteria which should kept in mind through the site selection and design phase of the neighborhood park. The first criterion is that neighborhood parks be placed in locations with the maximum number of houses facing the park area. This allows natural surveillance opportunities from homes to decrease incidences of crime. The second criterion is that private neighborhood parks should never be placed behind homes as this limits natural surveillance opportunities as well as increases the likelihood that such homes will be put at a greater risk of crimes such as theft and vandalism. The third criterion is that adequate security lighting should be installed to prevent unwarranted nighttime activities.

Basic infrastructure is also required of all sized private neighborhood parks (Mertes, 1996). This infrastructure includes water, electricity, proper drip irrigation, security lighting, and signage. In neighborhood parks larger than three acres, basic infrastructure is expanded to include a public telephone as well as wastewater infrastructure to support unisex restrooms. Water faucets and trashcans are also required of private neighborhood parks, with the number increasing along with park acreage.

Another design criterion required of all private neighborhood parks is accessibility features (Mertes, 1996). All private neighborhood parks are required to have roadway and sidewalk access. They are also required to have parking as already required by Oro

Valley's Town Code, one space per every 20 residential units. Vehicle barriers must be installed where necessary, and private neighborhood parks should be located to connect to any existing trails within the development. A single maintenance vehicle access point is also required for basic landscaping and repair purposes. Bicycle racks of increasing number are required corresponding to the size of the neighborhood park. Also required are internal hard paths connecting all developed amenities to ensure that all portions of the neighborhood park are Americans with Disabilities Act accessible. Signage should be placed to identify the park and its neighborhood, as well as clearly stating park usage rules and maintenance contact information.

Passive amenities required of all private neighborhood parks include native shade trees and benches, increasing with the size of the park (Mertes, 1996). Native shade trees are required to be provided in increasing number of varieties as the size of the park increases to ensure that the neighborhood park maintains diversity. Numerous species of trees also decreases the chances of tree disease, which can occur when several trees of the same species are grouped closely together. Passive amenities such as shade structures of 20' x 28', picnic tables with benches, and barbeque pits are also required in increasing number corresponding to the size of the neighborhood park.

Active recreation amenities required of all private neighborhood parks include green turf and playground equipment (Mertes, 1996). Playground equipment must be covered with appropriate shade covers to ensure that they may be used for a maximum number of

hours a day, even in hot summer temperatures without endangering children. Green turf is required to take up 30% of a park's total area for parks from less than one to three acres in size. This requirement decreases as park size increases due to the required provision of other active amenities which also may require green turf, such as sports fields.

Fenced off-leash pet areas are required of private neighborhood parks five acres and larger, and must include watering areas as well as waste disposal stations (Mertes, 1996). Fencing around such areas should be 4' or higher in order to separate park uses. A perimeter walking / jogging path is required of parks from one to three acres in size, and may be incorporated into the sidewalk requirement where applicable.

Active recreation amenities such as softball / baseball fields, soccer / football fields, tennis courts, and volleyball courts are listed as "wildcard amenities," (Mertes, 1996). These amenities allow flexibility in choice depending on the size of the park. Interchangeable use courts and fields are encouraged, but must be developed at the same number and variety as single use courts and fields. Parks three to five acres are required to have one of any sports fields/courts, parks five to seven and a half acres are required to have two of any different, parks seven and a half to ten acres are required to have three of any different, and parks ten acres and above are required to have one of each.

3.5 Policy Recommendations

The Oro Valley private neighborhood parks inventory results show that the set aside of park land in new residential subdivisions is not enough to ensure that those parks are developed in accordance with the goals laid out by Oro Valley's POST Master Plan. The results show that the number of developed parks per set aside park areas has increased only by 2% since the POST Master Plan was first adopted in 1994, and that Oro Valley's park system is falling far behind in providing for recreational needs. It is recommended that Oro Valley implement design standards to ensure that private neighborhood parks are developed in accordance with the POST Master Plan, and also that Oro Valley continues its parks, open space, and trails planning process.

Implement Private Neighborhood Park Design Standards

While the POST Master Plan was an important step to gather consensus and create a community vision for parks, open space, and trails; its goals are currently not being achieved because Oro Valley's Town Code only requires developers to set aside one acre for private neighborhood park land per every 85 residential units built. The Town Code also recommends that developers provide amenities, but the final private neighborhood park design is often the result of negotiations between planners and the developers. The use of NRPA recommended design guidelines as stricter design standards required of developers is the most effective and flexible way to ensure parks of a determined quality will be built with new residential subdivisions (Mertes, 1996).

The recommended design standards are based on the goals stated in Oro Valley's 1999 update of the POST Master Plan. The design standards presented also represent research on the latest design guideline recommendations by the NRPA as well as special considerations for Oro Valley's cultural, economic, and environmental amenities. Any finalized design standards must include the necessary citizen participation and approval, which in the case of Oro Valley, means involvement by the Parks and Recreation Advisement Board as well as any other interested citizens.

In addition to the implementation of design standards, Oro Valley should also implement penalties for noncompliance with the Town Code requirements. Many communities require that development of neighborhood parks be completed by the time 50% of residential units in new developments are occupied. The developer cannot receive the final certificate of occupancy until the requirements have been met. In the case that parks are not constructed in accordance with the Town Code, many communities also require developers to pay a fine equal to the amount of funds it will take for the municipality to hire contractors to complete the neighborhood park. Municipalities also commonly require a bond from the developer which is not refunded until the park areas are completed (Mertes, 1996).

Continue POST Master Planning Process

In addition to implementing private neighborhood park design standards by amending Oro Valley's Town Code, it is vital that Oro Valley's POST Master Plan continue to be

updated. For the document to remain relevant and effectively plan for future recreational needs, it must change as population projections and financing mechanisms inevitably change.

One of the first steps in the parks planning process is to know what recreational opportunities are available to the residents (Mertes, 1996). While Oro Valley's POST Master Plan and its updates successfully inventoried public community parks, trails, and regional recreation opportunities, it did not inventory private neighborhood parks (Town of Oro Valley, 1999). As previously discussed, the neighborhood park is regarded by the NRPA as the building block of any successful parks, open space, and trails system (Mertes, 1996). Since Oro Valley relies upon the private neighborhood park in place of the traditional public neighborhood park, these parks should be included in future parks and recreation inventories in order to correctly assess the community's recreation needs.

The Oro Valley private neighborhood parks inventory has documented all private neighborhood parks with available records and should be continually updated as residential development continues to be built. Having this information readily available will help in future revisions to the POST Master Plan and help assess the impact of any amendments to the Town Code.

3.6 Oro Valley Report Appendices

Appendix A – Inventory Checklist

Oro Valley Private Neighborhood Parks Inventory

Park Name _____

Location _____

Date Surveyed _____

Park Information
____Acreage
____Year Built
____Lots in Subdivision

Utilities
____Trash Can
____Restroom
____Water Faucet
____Lighting

Passive Amenities
____Bench
____Picnic Table
____Ramada
____BBQ Pit

Accessibility
____Roadway
____Sidewalk
____Trails
____Bicycle Rack
____Parking Spaces (Total)
____Parking Spaces (Handicap)
____Signage

Active Amenities
____Green Turf
____Pet Area
____Playground Equipment
____Basketball Half-court
____Softball Diamond
____Tennis Court
____Volleyball Court
____Pool
____Workout Equipment

Safety Issues

Surveillance Opportunities
____Very Poor ____Poor ____Adequate ____Excellent

Shade (Natural and Artificial)
____Very Poor ____Poor ____Adequate ____Excellent

Source: Modified from NRPA Parks Inventory Checklist, 1996.

Appendix B – Inventory Results – Utilities

Park Name	Trashcan	Restroom	Water Faucet	Lighting	Telephone
3rd Fairway at Oro Valley Country Club					
Canada Vista					
Catalina at Canada Hills					
Copper Creek II		2	1	X	
Coyote Ridge					
Desert Vista					
Desert Willows					
Diamond Key at Copper Creek					
Ironwood Ranch					
La Cholla Estates	2				
Lambert Lane					
Mira Vista	4			X	
Moonridge					
Palisades Point					
Placita Del Oro Patio Homes					
Rams Canyon					
Rancho De Oro					
Rancho Vistoso: Big Wash Park	1		1		
Rancho Vistoso: Hohokam Park	5	2	1	X	1
Rancho Vistoso: Sunset Park	3		2	X	
Rancho Vistoso: Wildlife Ridge Park	6	2	1	X	1
Shadows of the Ridge					
Stoney Canyon I at La Reserve					
Sunnyslope Townhouses				X	
Sunstone Estates					
Sunridge II					
Valle Del Oro Townhomes					
Verde Ranch					
Villa Balboa					
Villages of La Canada - Block A					
Vista Del Oro Townhouses					
Vistoso Hills					
Vistoso Ridge					

Source: Oro Valley Private Neighborhood Parks Inventory, 2004.

Appendix C – Inventory Results – Accessibility

Park Name	Roadway	Sidewalk	Trails	Bicycle Rack	Parking Spaces (Total)	Parking Spaces (Handicapped)	Signage
3rd Fairway at Oro Valley Country Club							
Canada Vista	X						
Catalina at Canada Hills	X		X				
Copper Creek II	X	X			9	1	X
Coyote Ridge							
Desert Vista			X				
Desert Willows	X						
Diamond Key at Copper Creek	X						
Ironwood Ranch	X						
La Cholla Estates			X				
Lambert Lane	X						
Mira Vista	X	X			10	1	X
Moonridge	X						
Palisades Point	X						
Placita Del Oro Patio Homes							
Rams Canyon	X	X					
Rancho De Oro	X						
Rancho Vistoso: Big Wash Park	X	X		X	13	1	X
Rancho Vistoso: Hohokam Park	X	X			36	2	X
Rancho Vistoso: Sunset Park	X	X			10	2	X
Rancho Vistoso: Wildlife Ridge Park	X	X		X	20	2	X
Shadows of the Ridge	X	X					
Stoney Canyon I at La Reserve	X						
Sunnyslope Townhouses	X	X					
Sunstone Estates	X						
Sunridge II	X						
Valle Del Oro Townhomes	X						
Verde Ranch							
Villa Balboa	X	X					
Villages of La Canada - Block A							
Vista Del Oro Townhouses	X						
Vistoso Hills							
Vistoso Ridge	X						

Source: Oro Valley Private Neighborhood Parks Inventory, 2004.

Appendix D – Inventory Results – Passive Amenities

Park Name	Green Turf	BBQ Pit	Picnic Table	Bench	Ramada
3rd Fairway at Oro Valley Country Club					
Canada Vista					
Catalina at Canada Hills	X				
Copper Creek II		2	2		2
Coyote Ridge					
Desert Vista					
Desert Willows					
Diamond Key at Copper Creek					
Ironwood Ranch					
La Cholla Estates				5	
Lambert Lane					
Mira Vista		3	4	4	
Moonridge			4		
Palisades Point					
Placita Del Oro Patio Homes					
Rams Canyon				2	
Rancho De Oro			3	2	
Rancho Vistoso: Big Wash Park	X			2	
Rancho Vistoso: Hohokam Park	X	3	16	12	3
Rancho Vistoso: Sunset Park	X	2	5	3	
Rancho Vistoso: Wildlife Ridge Park	X	3	7	8	1
Shadows of the Ridge					
Stoney Canyon I at La Reserve					
Sunnyslope Townhouses					
Sunstone Estates					
Sunridge II					
Valle Del Oro Townhomes					
Verde Ranch					
Villa Balboa	X	1	1		
Villages of La Canada - Block A					
Vista Del Oro Townhouses					
Vistoso Hills					
Vistoso Ridge					

Source: Oro Valley Private Neighborhood Parks Inventory, 2004.

Appendix E – Inventory Results – Active Amenities

Park Name	Pet Area	Playground Equipment	Basketball Half-court	Softball Diamond	Tennis Court	Volleyball Court	Pool	Workout Equipment
3rd Fairway at Oro Valley Country Club								
Canada Vista								
Catalina at Canada Hills	1							
Copper Creek II		1						
Coyote Ridge								
Desert Vista		1						
Desert Willows								
Diamond Key at Copper Creek								
Ironwood Ranch								
La Cholla Estates			1					
Lambert Lane								
Mira Vista		1	1					
Moonridge								6
Palisades Point								
Placita Del Oro Patio Homes								
Rams Canyon								
Rancho De Oro								
Rancho Vistoso: Big Wash Park		1						
Rancho Vistoso: Hohokam Park	1	1	1		4	1		
Rancho Vistoso: Sunset Park		1	1			1		
Rancho Vistoso: Wildlife Ridge Park		2	1	1		1		
Shadows of the Ridge								
Stoney Canyon I at La Reserve								
Sunnyslope Townhouses							1	
Sunstone Estates								
Sunridge II								
Valle Del Oro Townhomes							1	
Verde Ranch								
Villa Balboa							1	
Villages of La Canada - Block A								
Vista Del Oro Townhouses								
Vistoso Hills								
Vistoso Ridge								

Source: Oro Valley Private Neighborhood Parks Inventory, 2004.

Appendix F – Inventory Results – Safety

Park Name	Surveillance Opportunities	Shade (Natural and Artificial)
3rd Fairway at Oro Valley Country Club	Very Poor	Very Poor
Canada Vista	Very Poor	Very Poor
Catalina at Canada Hills	Poor	Poor
Copper Creek II	Adequate	Poor
Coyote Ridge	Very Poor	Very Poor
Desert Vista	Poor	Very Poor
Desert Willows	Poor	Very Poor
Diamond Key at Copper Creek	Very Poor	Very Poor
Ironwood Ranch	Very Poor	Very Poor
La Cholla Estates	Very Poor	Very Poor
Lambert Lane	Very Poor	Very Poor
Mira Vista	Very Poor	Very Poor
Moonridge	Very Poor	Very Poor
Palisades Point	Very Poor	Poor
Placita Del Oro Patio Homes	Adequate	Poor
Rams Canyon	Excellent	Adequate
Rancho De Oro	Very Poor	Poor
Rancho Vistoso: Big Wash Park	Adequate	Excellent
Rancho Vistoso: Hohokam Park	Excellent	Excellent
Rancho Vistoso: Sunset Park	Adequate	Excellent
Rancho Vistoso: Wildlife Ridge Park	Adequate	Excellent
Shadows of the Ridge	Very Poor	Very Poor
Stoney Canyon I at La Reserve	Poor	Poor
Sunnyslope Townhouses	Adequate	Poor
Sunstone Estates	Poor	Very Poor
Sunridge II	Very Poor	Very Poor
Valle Del Oro Townhomes	Adequate	Poor
Verde Ranch	Very Poor	Very Poor
Villa Balboa	Adequate	Adequate
Villages of La Canada - Block A	Poor	Poor
Vista Del Oro Townhouses	Adequate	Poor
Vistoso Hills	Poor	Very Poor
Vistoso Ridge	Poor	Very Poor

Source: Oro Valley Private Neighborhood Parks Inventory, 2004.

Appendix G – Inventory Results – Park Information

Park Name	Year Built	Developed (Yes / No)	Acreage Set Aside	Required Acreage for Set Aside (Under 1994 Code)	Lots in Subdivision
3rd Fairway at Oro Valley Country Club	2000	No	0.501	0.177	15
Canada Vista	1994	No	4.97	0.729	62
Catalina at Canada Hills	1995	Yes	1.2539	0.718	61
Copper Creek II	1986	Yes	3.5	2.765	235
Coyote Ridge	1996	No	1.325	1.282	109
Desert Vista	1995	Yes	1.06	2.412	205
Desert Willows	1995	No	0.34	0.353	30
Diamond Key at Copper Creek	1997	No	0.855	0.718	61
Ironwood Ranch	1995	No	4.04	0.765	65
La Cholla Estates	1997	Yes	0.34	1.106	94
Lambert Lane	1987	No	7.69	1.412	120
Mira Vista	2000	Yes	1.07	0.706	60
Moonridge	1998	Yes	1.02	0.565	48
Palisades Point	1993	No	2.48	0.776	66
Placita Del Oro Patio Homes	1981	No	0.971	0.494	42
Rams Canyon	1996	Yes	2.05	0.988	84
Rancho De Oro	1994	Yes	1.362	0.506	43
Rancho Vistoso: Big Wash Park	2000	Yes	3.28	*	*
Rancho Vistoso: Hohokam Park	2001	Yes	6.36	*	*
Rancho Vistoso: Sunset Park	1998	Yes	12.63	*	*
Rancho Vistoso: Wildlife Ridge Park	1997	Yes	8.52	*	*
Shadows of the Ridge	1997	No	0.41	0.176	15
Stoney Canyon I at La Reserve	1987	No	1.263	0.447	38
Sunnyslope Townhouses	1971	Yes	0.602	1.071	91
Sunstone Estates	1994	No	0.55	0.6	51
Sunridge II	1995	No	1.31	0.765	65
Valle Del Oro Townhomes	1983	Yes	1.03	1.059	90
Verde Ranch	2003	No	2.48	1.859	158
Villa Balboa	1985	Yes	2.06	1.282	109
Villages of La Canada - Block A	1999	No	1.12	0.929	79
Vista Del Oro Townhouses	1973	No	0.432	0.388	33
Vistoso Hills	1996	No	14.51	0.976	83
Vistoso Ridge	1997	No	1.88	1.506	128

* Private neighborhood parks developed in the Rancho Vistoso Planned Area Development, acreage requirements negotiated by taking entire development and all planned future subdivisions and housing units into consideration when determining park acreage.
Source: Oro Valley Private Neighborhood Parks Inventory, 2004.

Appendix H – Private Neighborhood Parks Design Standards

Private Neighborhood Park: Up to 1 Acre

- Service Radius: up to ¼ mile
- CPTED Design Principles
    - 1. Maximum number house fronts facing park
    - 2. Minimum number house backs facing park
    - 3. Adequate dim security lighting installed
- Water Infrastructure
- Electricity Infrastructure
- Drip Irrigation
- Trashcan: 1
- Water Faucet: 1
- Security Lighting
- Parking: Oro Valley Code, 1 space per every 20 residential units
- Vehicle Barriers
- Maintenance Vehicle Access
- Sidewalk Connections
- Bicycle Racks (4 bike capacity): 1
- Internal Hard Path
- Trail Linkages as Applicable
- Signage
- Native Shade Trees: 3 (of at least 2 varieties)
- Bench: 2
- Green Turf: 30% of park acreage
- Playground Equipment: 2 (with proper overhead shading)

Private Neighborhood Park: 1-3 Acres

- Service Radius: up to ¼ mile
- CPTED Design Principles
    - 1. Maximum number house fronts facing park
    - 2. Minimum number house backs facing park
    - 3. Adequate dim security lighting installed
- Water Infrastructure
- Electricity Infrastructure
- Irrigation
- Trashcan: 2
- Water Faucet: 2
- Security Lighting
- Parking: Oro Valley Code, 1 space per every 20 residential units
- Vehicle Barriers
- Maintenance Vehicle Access

- Sidewalk Connections
- Bicycle Racks (4 bike capacity): 1
- Internal Hard Path
- Trail Linkages as Applicable
- Signage
- Native Shade Trees: 5 (of at least 2 varieties)
- Bench: 4
- Picnic Table w/ Benches: 2Green Turf: 30% of park acreage
- Shade Structure (20’ x 28’): 1
- Playground Equipment: 4 (with proper overhead shading)
- Basketball Half-court: 1
- Perimeter Walking/Jogging Path

Private Neighborhood Park: 3-5 Acres

- Service Radius: up to ½ mile.
- CPTED Design Principles
    - 1. Maximum number house fronts facing park
    - 2. Minimum number house backs facing park
    - 3. Adequate dim security lighting installed
- Water Infrastructure
- Electricity Infrastructure
- Wastewater Infrastructure
- Drip Irrigation
- Trashcan: 4
- Unisex Restroom: 1
- Water Faucet: 3
- Security Lighting
- Telephone
- Parking: Oro Valley Code, 1 space per every 20 residential units
- Vehicle Barriers
- Maintenance Vehicle Access
- Sidewalk Connections
- Bicycle Racks (4 bike capacity): 2
- Internal Hard Path
- Trail Linkages as Applicable
- Native Shade Trees: 7 (of at least 2 varieties)
- Bench: 6
- Picnic Table w/ Benches: 3
- Shade Structure (20’ x 28’): 1
- BBQ Pit: 3
- Green Turf: 20% of park acreage
- Playground Equipment: 5 (with proper overhead shading)

- Basketball Half-court: 1
- One of the following
    - Softball / Baseball Field
    - Soccer / Football Field
    - Tennis Court
    - Volleyball Court
- Perimeter Walking/Jogging Path

Private Neighborhood Park: 5-7.5 Acres

- Service Radius: up to ½ mile
- CPTED Design Principles
    - 1. Maximum number house fronts facing park
    - 2. Minimum number house backs facing park
    - 3. Adequate bright security lighting installed
- Water Infrastructure
- Electricity Infrastructure
- Wastewater Infrastructure
- Drip Irrigation
- Trashcan: 6
- Unisex Restroom: 1
- Water Faucet: 3
- Security Lighting
- Telephone
- Parking: Oro Valley Code, 1 space per every 20 residential units
- Vehicle Barriers
- Maintenance Vehicle Access
- Sidewalk Connections
- Bicycle Racks (4 Bike Capacity): 4
- Internal Hard Path
- Trail Linkages as Applicable
- Native Shade Trees: 9 (of at least 2 varieties)
- Bench: 8
- Picnic Table w/ Benches: 4
- Shade Structure (20’ x 28’): 2
- BBQ Pit: 4
- Green Turf: 15% of park acreage
- Fenced Pet Area: 1
- Playground Equipment: 6 (with proper overhead shading)
- Basketball Full-court: 1
- Two different of the following
    - Softball / Baseball Field
    - Soccer / Football Field

    - Tennis Court
    - Volleyball Court
- Perimeter Walking/Jogging Path

Private Neighborhood Park: 7.5-10 Acres

- Service Radius: up to ¾ mile
- CPTED Design Principles
    - 1. Maximum number house fronts facing park
    - 2. Minimum number house backs facing park
    - 3. Adequate bright security lighting installed
- Water Infrastructure
- Electricity Infrastructure
- Wastewater Infrastructure
- Drip Irrigation
- Trashcan: 8
- Unisex Restroom: 2
- Water Faucet: 4
- Security Lighting
- Telephone
- Parking: Oro Valley Code, 1 space per every 20 residential units
- Vehicle Barriers
- Maintenance Vehicle Access
- Sidewalk Connections
- Bicycle Racks (4 bike capacity): 6
- Internal Hard Path
- Trail Linkages as Applicable
- Native Shade Trees: 12 (of at least 3 varieties)
- Bench: 10
- Picnic Table w/ Benches: 5
- Shade Structure (20’ x 28’): 2
- BBQ Pit: 5
- Green Turf: 10% of park acreage
- Fenced Pet Area: 1
- Playground Equipment: 7 (with proper overhead shading)
- Basketball Full-court: 1
- Three different of the following
    - Softball / Baseball Field
    - Soccer / Football Field
    - Tennis Court
    - Volleyball Court
- Perimeter Walking/Jogging Path

Private Neighborhood Park: Over 10 Acres

- Service Radius: up to ¾ mile
- CPTED Design Principles
    - 1. Maximum number house fronts facing park
    - 2. Minimum number house backs facing park
    - 3. Adequate bright security lighting installed
- Water Infrastructure
- Electricity Infrastructure
- Wastewater Infrastructure
- Drip Irrigation
- Trashcan: 10
- Water Faucet: 5
- Unisex Restroom: 2
- Security Lighting
- Telephone
- Parking: Oro Valley Code, 1 space per every 20 residential units
- Vehicle Barriers
- Maintenance Vehicle Access
- Sidewalk Connections
- Bicycle Racks (4 bike capacity): 8
- Internal Hard Path
- Trail Linkages as Applicable
- Native Shade Trees: 15 (of at least 3 varieties)
- Bench: 12
- Picnic Table w/ Benches: 6
- Shade Structure (20’ x 28’): 2
- BBQ Pit: 6
- Green Turf: 10% of park acreage
- Fenced Pet Area: 1
- Playground Equipment: 7 (with proper overhead shading)
- Basketball Full-court: 1
- One each of the following
    - Softball / Baseball Field
    - Soccer / Football Field
    - Tennis Court
    - Volleyball Court
- Perimeter Walking/Jogging Path

Source: Town of Oro Valley Planning & Zoning Division, Oro Valley Parks and Recreation Advisory Board, National Recreation and Parks Association, 2005.

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CHAPTER IV. RECOMMENDATIONS AND CONCLUSION

4.1 Policy Recommendations

Based upon the research of parks and recreation planning as well as the results from the Oro Valley private neighborhood parks inventory, it is recommended that communities take the first step of conducting a comprehensive inventory of their recreation areas and maintain updated records. These records will aid parks and recreation officials and planners in conducting recreation needs analysis to determine what level of service the community is receiving (Phillips, 1996).

Public parks maintained by municipalities are relatively easy to inventory since parks and recreation departments deal with these recreation areas on a regular basis. As the traditional idea of parks and recreation system has expanded through recent years, areas once thought to provide little recreation value are now commonly included in parks and recreation inventories. Areas that have been recognized for their important recreational value include open spaces, school playgrounds, and pathways (Mertes, 1996).

Absent from the list of commonly inventoried parks and recreation areas are private neighborhood parks. As common-interest developments (CIDs) have become the norm of new residential development, it is not sufficient to assume that these private neighborhood parks are performing their intended recreation function. While these areas are not owned or maintained by municipalities, they have replaced traditional public

neighborhood parks in new residential areas and must be included in parks and recreation inventories. A parks and recreation needs analysis will be incorrect if either private neighborhood parks are excluded from the parks and recreation inventory or if the municipality simply assumes that the private neighborhood parks are fulfilling their intended recreational functions.

As shown through the literature review and the case study of Oro Valley, neighborhood parks, whether public or private, serve an important recreational purpose. In the case of Oro Valley, insufficiently designed private neighborhood parks failed to provide even the most basic recreational functions. Potential private neighborhood parks users are forced to drive to the already crowded public community parks to fulfill recreational needs that could have been met by private neighborhood parks. While the incomplete Parks, Open Space, and Trails (POST) Master Plan needs analysis, originally conducted in 1996 and updated in 1999, estimated that the town was far behind in the provision of recreation areas, the inclusion of private neighborhood parks has revealed that the system is even further behind than previously thought.

After completing a comprehensive parks and recreation inventory, communities should determine whether or not their recreational needs are being met at present and how future development will affect the parks and recreation system. When a parks and recreation system is already behind in providing recreation opportunities, action should be taken to ensure that future development does not exacerbate the problem.

In the case of Oro Valley, the public participation process that helped create the Post Master Plan revealed that the existing residents felt their nearby recreational opportunities were severely limited (Town of Oro Valley, 1996). The Oro Valley private neighborhood parks inventory confirmed the public's opinion of the recreation situation, and therefore private neighborhood park design standards were recommended. These design standards will ensure that future private neighborhood parks are developed to meet the recreational needs of the new residents without further burdening the parks and recreation system. In the end, each community must evaluate its own parks and recreation situation and make policy decisions accordingly.

4.2 Directions for Future Research

Several questions came up during the production of this report that were out of the scope of this report to research and answer. This report demonstrates the need for the implementation of private neighborhood park design standards in order for a parks, open space, and trails system to effectively meet the recreational needs of residents. Private neighborhood park design standards are especially critical in communities where CIDs and private neighborhood parks are replacing the role of traditional public neighborhood park in the parks and recreation system. Several other issues of equal importance affecting the effectiveness of a parks, open space, and trails system should also be researched.

Impact of the Privatization of Neighborhood Parks

One question that came up throughout the report is whether or not the model of the privatized neighborhood parks can truly take the place of traditional public neighborhood parks. Public neighborhood parks are lawfully open to all citizens, even those who do not reside in the neighborhood of the park. While the majority of private neighborhood parks are not gated, many have signs posted in neighborhood parks which say, "For the use of neighborhood residents only," (Mertes, 1996). The reality of the nature of these private neighborhood parks is in direct conflict with National Recreation and Parks Association (NRPA) recommendations that neighborhood parks act as staging areas and rest stops for a pathways system. This is hardly feasible if the areas are privately owned by homeowner associations (HOAs) and legally available only to HOA member residents (Mertes, 1996).

The privatization of the neighborhood park is also a departure from the original vision of parks being an equal public space for all residents to mix and socialize (Mertes, 1996; Molnar, 1986). While the segregation of the rich from the poor is nothing new, the private neighborhood park represents a further segregation between income classes as well as neighboring residents (Tremain, 2003). The prevalence of new residential subdivisions being CIDs means that residents of these areas will only legally be able to access their own private neighborhood park and the traditional public neighborhood parks located in areas of the municipality built before the adoption of the HOA system. What happens if children from one CID want to play with friends who live in another CID?

Are they legally able to play and are parents legally able to supervise their children in the private neighborhood parks of HOAs they do not belong to?

Municipalities have argued that the system of HOAs and private neighborhood parks allows new residents to pay for themselves and not burden existing residents. If this is the case, is it fair for HOA member residents to pay taxes that fund the maintenance of existing traditional public neighborhood parks that they will most likely never use? While the system of HOA may save municipalities money in the short term, there may be long term implications that have not been fully studied yet. Preliminary data shows that forcing each HOA to separately pay for private neighborhood park accident insurance and maintenance actually costs taxpayers more money than if it was funded at a municipal level (Lloyd, 2002).

Retrofit and Develop Existing Private Neighborhood Park Land

Another issue that deserves further research is regarding the uncounted number of undeveloped private neighborhood park areas across the United States which were intended to fulfill recreational purposes. In many cases, HOA member residents may not even be aware that the undeveloped land was set aside for private neighborhood park use. In communities where land is scarce and existing residents feel that their nearby recreational opportunities are limited, these undeveloped areas may present potential opportunities for improvement.

In the case of the Oro Valley private neighborhood parks inventory, over half of the land set aside for private neighborhood park use in the last several decades remains undeveloped and unused, and close to half of the developed private neighborhood parks were poorly designed and present numerous problems to their intended users. While implementing private neighborhood design standards will help ensure that future residential subdivisions are built with well-designed private neighborhood parks, the existing neighborhoods still have recreation deficiencies that force their residents to drive to public community parks for even basic recreational needs. Developing the unused land set aside for use as private neighborhood parks would increase the efficiency of the entire parks and recreation system by decreasing the burden on the public community parks.

As discussed previously, HOAs have several disincentives to develop private neighborhood parks including added accident insurance and maintenance costs (Lloyd, 2002). Exploring incentives and funding sources for the development and maintenance of these undeveloped private neighborhood parks is one possible solution to help in areas where recreational opportunities are limited. Funding sources for the initial development of the private neighborhood parks could be found from a variety of sources including grants, donations, and corporate sponsorship. Even funding the development of these areas with public funds may be appropriate if it is determined that doing so would sufficiently decrease the demand put upon public community parks. Education and information sessions could also be held, to make members of HOAs aware of the existing

undeveloped private neighborhood park land and the benefits they would derive from the existence designed neighborhood parks.

4.3 Conclusion

A review of available parks and recreation planning literature found that proper design of neighborhood parks is the key to whether or not they meet the recreational needs of their nearby neighborhood residents. Properly designed neighborhood parks present numerous benefits such as increasing land values, providing the opportunity for healthy activity, increasing social cohesion, and serving important environmental functions. Poorly designed neighborhood parks on the other hand can incite crime such as theft and vandalism and waste limited community resources.

The trend of privatized neighborhood parks maintained by HOAs is increasing and having a large impact on fast growing suburban communities. Reliance upon these private neighborhood parks has presented numerous problems to parks and recreation departments as these areas are often built to lower standards that do not meet the needs of their nearby residents. This causes existing public community parks to be burdened and creates a strain on the existing parks and recreation systems.

The NRPA recommends that municipalities conduct a parks and recreation inventory in order to effectively create a recreation needs analysis of the community. The NRPA

recommends that the inventory include recreation areas such as traditional public neighborhood parks, community parks, school playgrounds, open space, and pathways. While the NRPA does not include private neighborhood parks in their list of recreation areas to inventory, the research from this report shows that these private neighborhood parks must be inventoried in order for the needs analysis to be correct.

In the case of the Town of Oro Valley, Arizona, public participation revealed that the residents were dissatisfied with the quality of the parks and recreation system. The poorly developed and even completely undeveloped private neighborhood parks forced residents to drive miles to the nearest public community parks, which caused Oro Valley's three larger community parks to be used over-capacity. Many residents were even unaware that land had been set aside in their neighborhoods for use as private neighborhood parks. The implementation of private neighborhood park design standards is one way to ensure that future residential developments have sufficient nearby recreational opportunities to meet their needs. While this will not completely solve Oro Valley's recreational deficiencies, it is an important step to correct an obvious problem with the way private neighborhood parks are currently being developed.

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