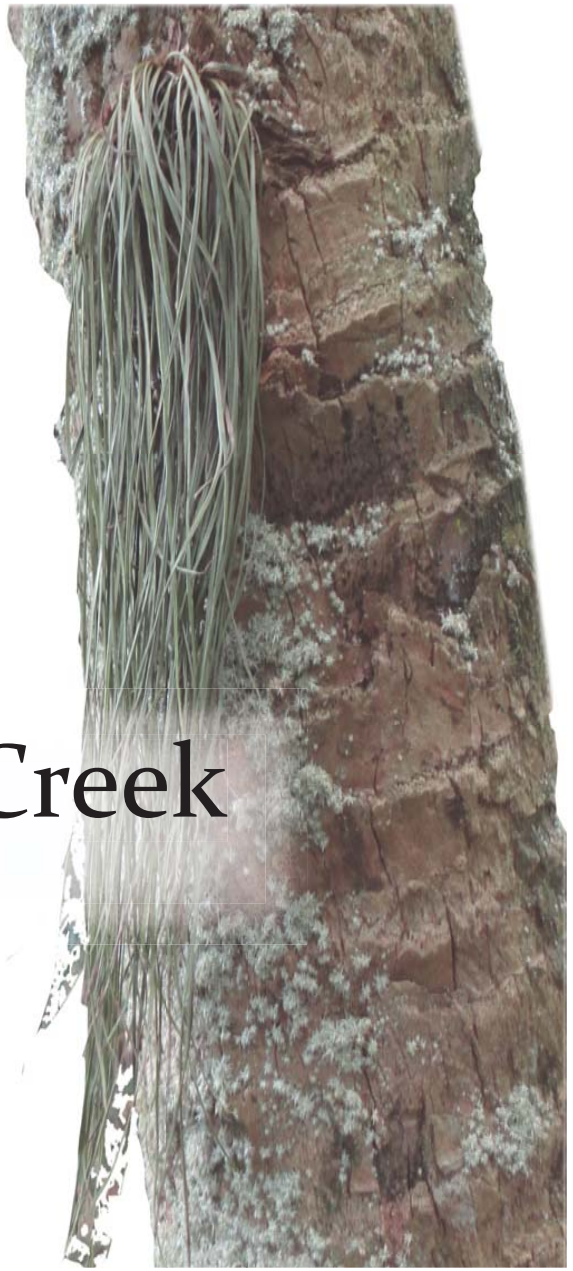

Rotary Park @ Leitner Creek

Efficient Design with Nature in Mind

Acknowledgements

Prepared by:

James Harrell Wheeler Jr.
jhwheeler11@ufl.edu

Prepared for:

UF Dept. of Landscape Architecture
City of Bonita Springs, Florida
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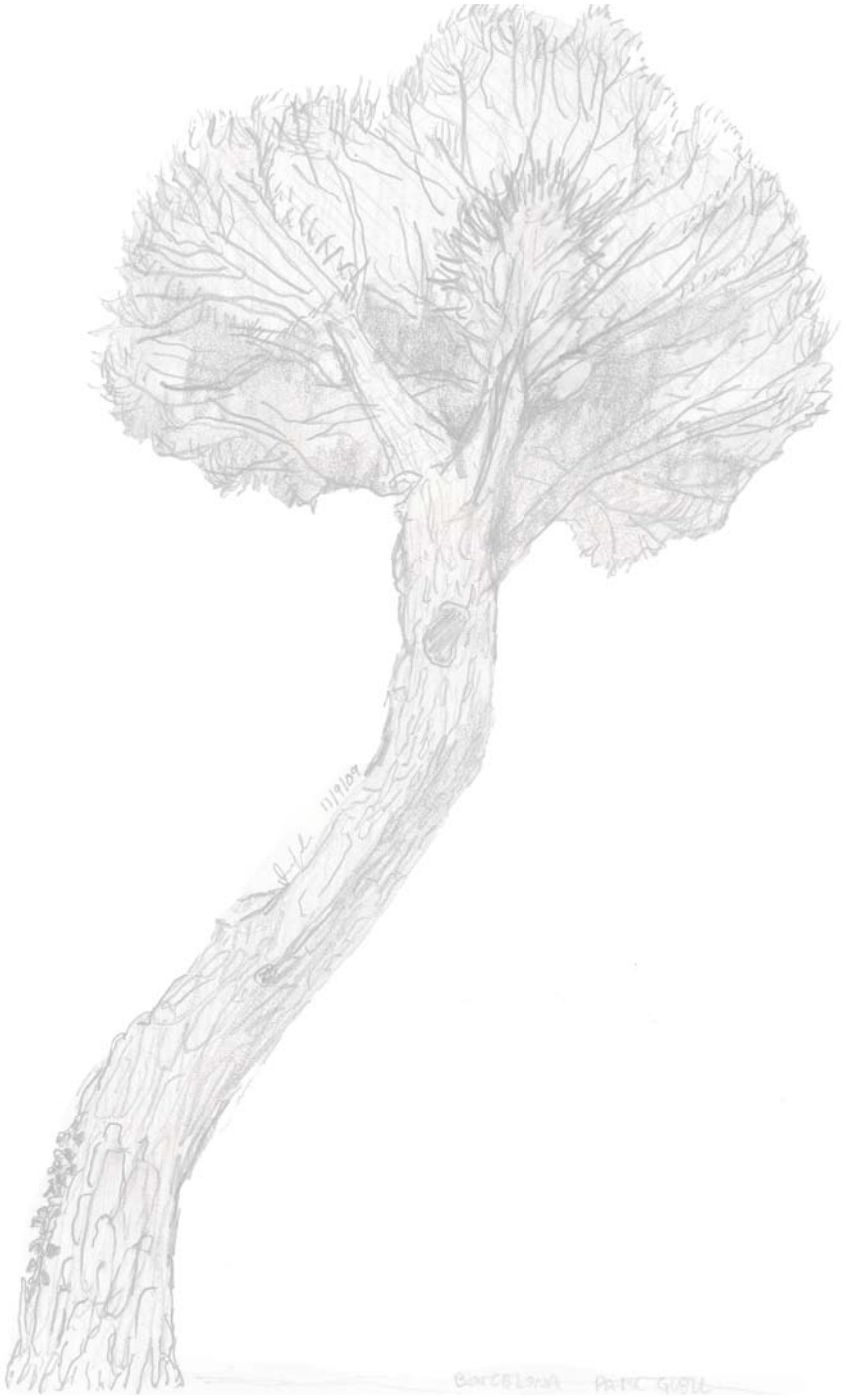
Special Thanks to:

My immediate and extended family that has supported me and unknowingly guided me towards a life of landscapes and gardens.

To my talented peers and friends who have inspired me and taught me more than what I paid for in school.

4/20/2011



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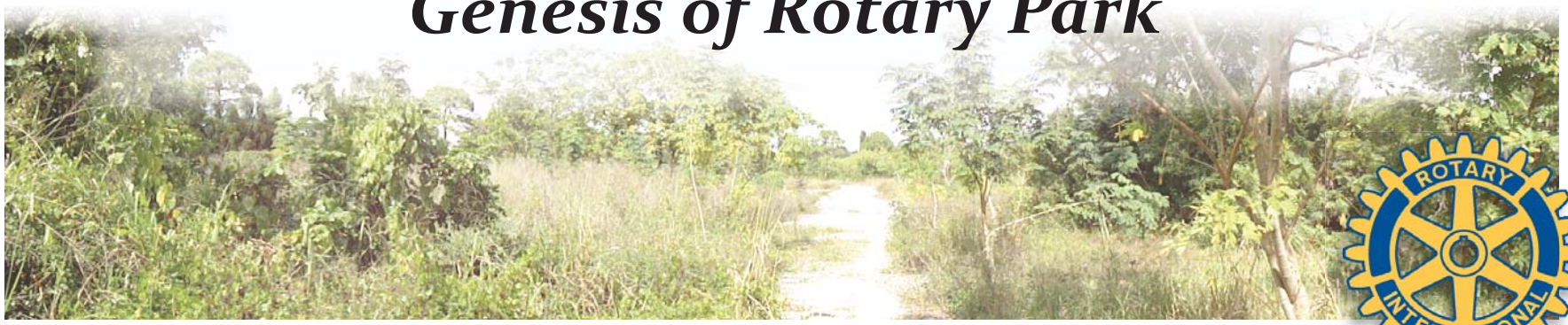
As design is specific to site, the process of development is specific to the designer. Immersion into the project begins with inquiry of the client and city history. Next, unbiased observations and desires for the community and environment are derived from geographical and social observations existing in the area. Research, analysis, snythesis and design follow in the traditional fashion. While lastly, I look into phasing and implementation of project construction.

Genesis of Rotary Park



Upon recommendation, I made a contact about a neighborhood park theorized by a group of Bonita Springs Rotary Members. The basis of this park was to provide leisure space and passive recreation for neighborhoods surrounding a 15 acre disturbed parcel. The site is owned by The City of Bonita Springs and upon acceptance from commissioners, would be a Rotary organized venture working with local citizens relying on volunteer and member labor with Rotarian organized funding.

Rotary Club International is a service base organization that encourages high ethical standards for professionals and promotes humanitarian services within their community and the world.

Is it the truth?
Is it fair to all concerned?
Will it build good will and better friendships?
Will it be beneficial to all concerned?

'Service above self'

Rotary suggested program includes: Exercise circuit, childrens playground, and nature trails. Most of the gravity was given to providing open space, play and interaction for the lower income, higher density neighborhoods north of the proposed site.

Project Abstract

Rotary Park aims to provide small communities with little money the opportunity to build and manage needed suburban green spaces while preserving the native landscapes. As human impact spreads inland, much of Florida's natural interior has been replaced by unsustainable and inefficient suburban development. To combat this, a new style of park design must weigh program needs with preservation goals. These neighborhood parks can be funded and constructed with minimal input and volunteer labor to strengthen bonds in the community and with the environment.

Rotary Park uses existing resources readily available on site to create site elements and integrate art into the landscape. Management guidelines are specific to site ecology and work with nature, rather than against it. Lowering human inputs and creating a more efficient environment for the future.

Statement of Intent

My intent for Rotary Park @ Leitner Creek is to showcase the idea of low input, efficiently operating landscapes that work *with* nature to provide beauty and programmed use for the surrounding neighborhood.

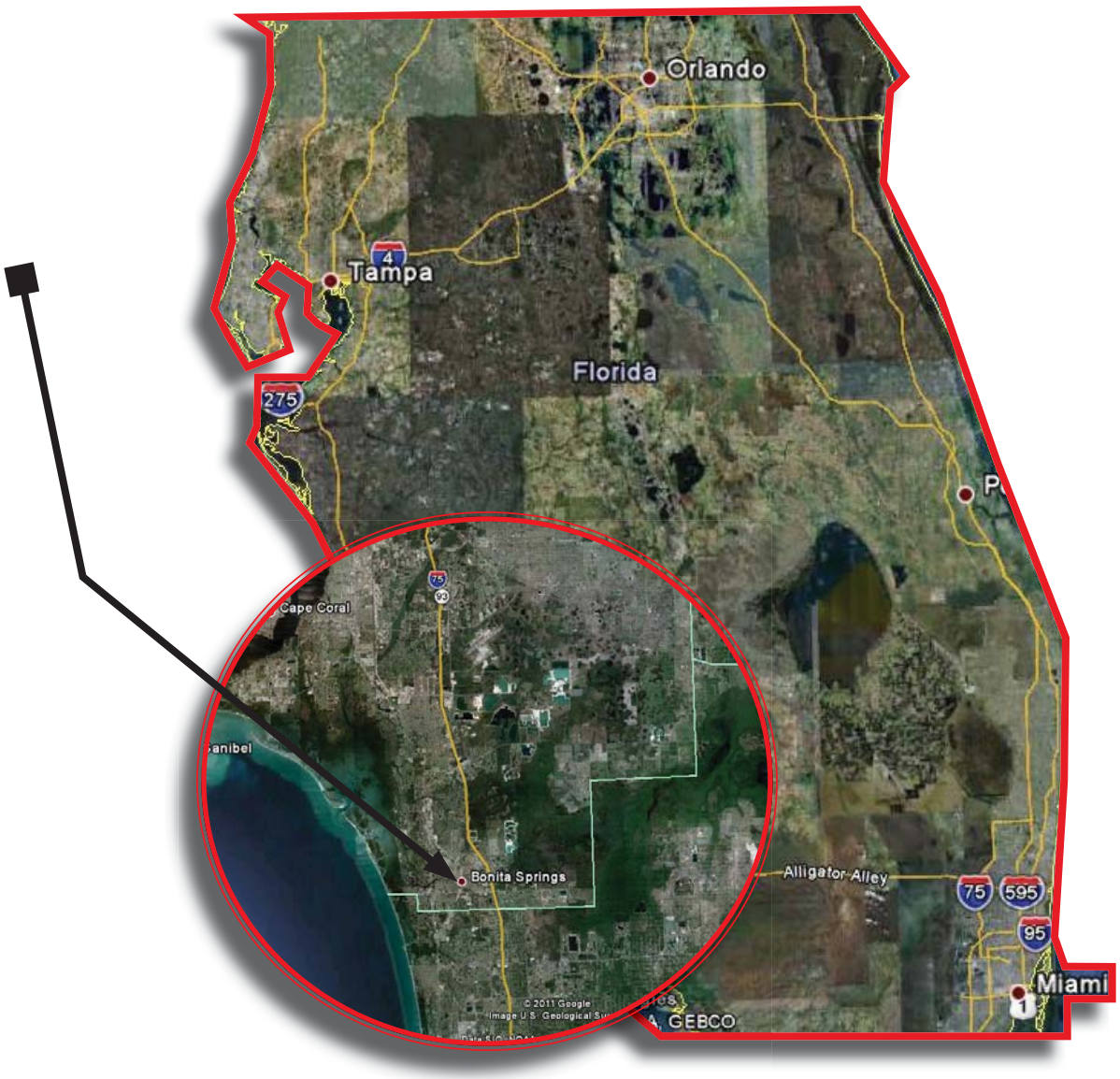
City Overview

Much has changed since the Florida Frontiersman forged their way into a land full of untapped resources, excessive water problems and wild animals.

Similar to the rest of Florida, tropical agriculture and seafood were common. In time, tourism and freeways brought the world to the land we know today.

Bonita Springs was founded in 1881 as land speculators and pioneers ventured into the region upon Florida's manifest destiny. Exploring the Caloosahatchee River and the southern tip of the Estero Bay, up Survey Creek, later coined the Imperial River.

Incorporated in 1998, it lies 15 miles south of Ft. Myers on the Lee County line. Naples lies 12 miles south of Bonita in Collier County.



City Overview

City Demographics 2000 Census

Population and Growth
Estimated 42,268 (July 2007)
192% population change since 1990
Median age 46.7

Race Estimates

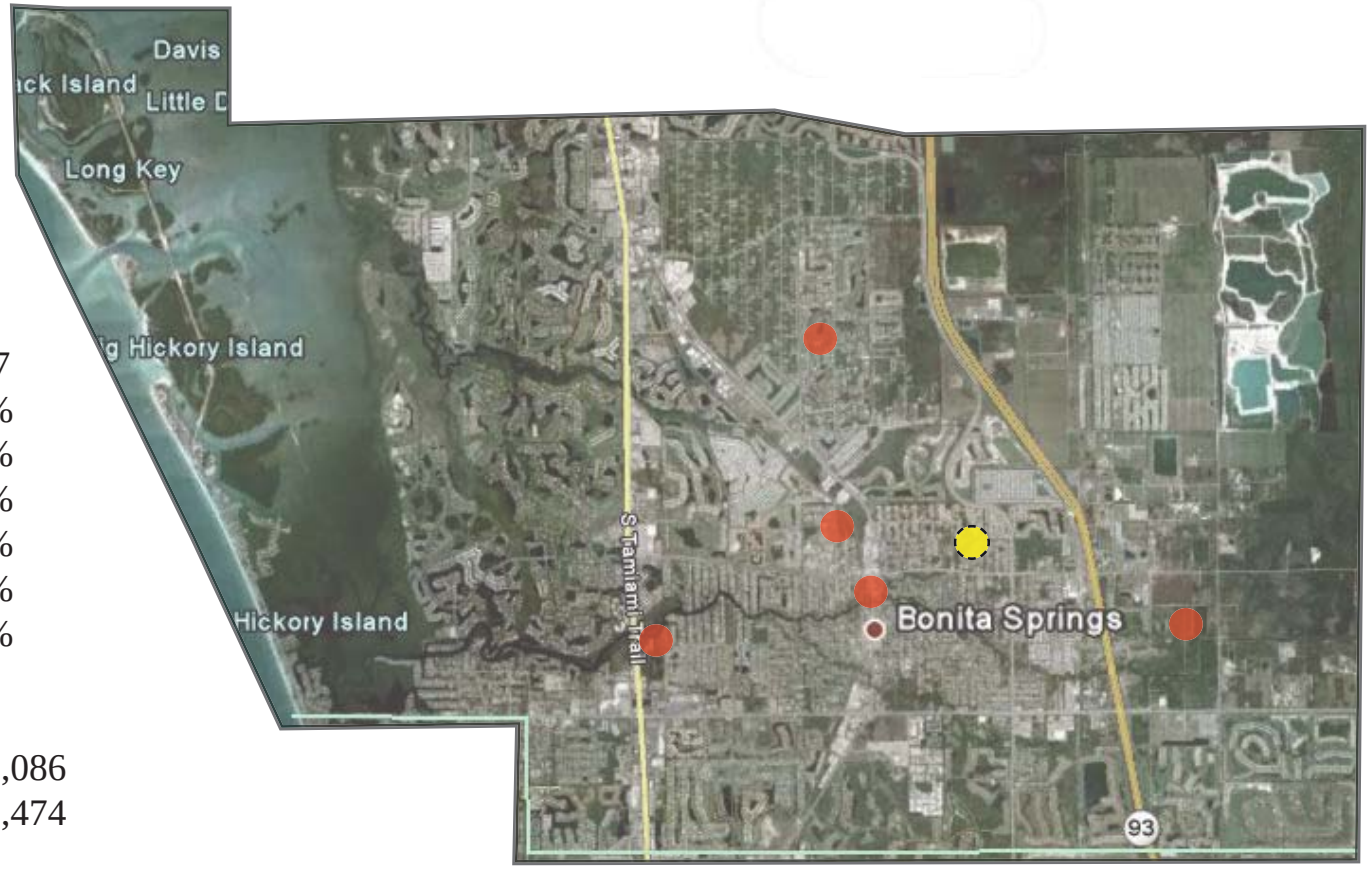
Black	2.5%
Hispanic	31%
White	66.5%

Dwelling/Occupation

Avg. Household size	2.47
Households: Family	68%
Household: Non-Fam.	31%
Household: W/ Child	20%
Household: No Chil	80%
White Collar Occup.	74%
Blue Collar Occup.	26%

Income

Median Household	$59,086
Average Household	$88,474



Informing Spaces and Parks

Rotary Neighborhood Park

City Overview

Bonita Springs is in a position many small south Florida municipalities wish they could be in. The city is afforded a condensed quite downtown sector on a secondary arterial road, an intriguing history, minimal sprawl, bordered by the peaceful gulf and interior wetland scrub, and most of all a passionate community with small town values. Golf course communities and easy beach access are constant draws for tourists and migrating residents from all over the world.

Goals and Objectives

1. Generate the most use by focusing on easy access and relevant program for the Rosemary Community.

-Meet and exceed all vacancies in surrounding open space matrix
-Community advocacy and volunteers foster awareness and ownership
-Maximize safe access locations in conjunction with CPTED principles
-Improve eye lines and view sheds

2. Improve ecology

-Let the site guide the design. Allowing select current successions to continue.
-Low impact construction
-Native/naturalized planting design via habitat type

3. Provide low maintenance design leading to a self-sustaining dynamic

-Preferably none or temporary irrigation with drought tolerant plantings
-Accessible and screened maintenance area with compost/propagation areas
-Low impact materials with longevity or on-site replacements
-Management plan with foresight

4. Design with low cost construction

-Community support and relationship building with local suppliers
-Materials from local sources
-Utilize existing resources

5. Integrate details and art tastefully to strengthen sense of place and provide an outlet for artists

-Design with existing resources aka leftovers
-Draw from surrounding aesthetic
-Incorporate interpretive signage for educational and artful experiences

Observations

Observations

Developmental Impact

Natural Inputs

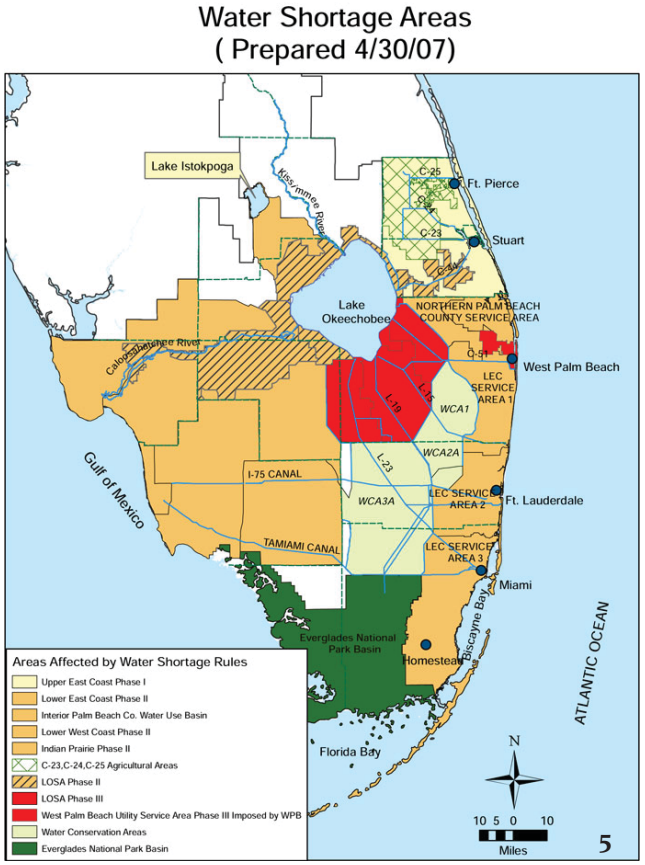
-Rainfall
-Occasional fire
-Pollinating species
-Nutrient sink (organic matter)

Human Inputs

-Labor ($)
-Capital (investment and planning)
-Materials (as expensive as you'd like)
-Electricity (drain of existing infrastructure)
-Irrigation system
-Invasive species
-Inefficient and toxic weekly maintenance plans
-Reoccurring repair costs

Observations

Water Conservation



Water will be *the* natural resource of the 21st century.

Lee County, Fl approximates 60% of potable water is used for lawn and agricultural irrigation.

Retention reservoirs, deeper aquifer drilling and filtered surficial systems are current methods for fresh water.

BSU built $38 million reverse osmosis filter system to pump brackish water for public use.

Observations
Habitat Conservation

Providing habitat for feature and threatened species

Observations

Flourishing Abandonment

Weedy rudderals strive in abandoned and forgotten lots.

Research and Discovery

Research and Discovery

Areas of Investigation

-Much of the existing open space in Bonita Springs is geared towards water activities and tourism.
Very little emphasis is put on neighborhood and community parks.

-20/20 Conservation Program
http://www.conservation2020.org

-Dog Park guidelines and precedences
Dog Park Standards & Manuals by Susyn Stecchi
DC Dep. of Rec. Dog Park Standards

-Native ecosystem types and functions
RegionalConservation.org
Coccoloboa Chapter of Florida Native Plant Society

-Playground types
ProgressiveEarlyChildrenEducation@blogspot.com
PlayScapes.blogspot.com
USA Today article 'Natural playgrounds are growing into a national trend'

-Existing vernacular

-Architecture styles in civic and private communities

Research and Discovery

Influential Projects

Crosby Arboretum, Picayune, MS - The Crosby Arboretum at the Univeristy of Mississippi serves as a natural education experience for the region. Specific design and maintenance guidelines were made to introduce the user to different ecosystems found on this 700 acre site. The mission is to preserve,protect and display native species through cultural, sientific and recreational programs.

Crosby Arboretum

Byxbee Park, Palo Alto, CA - Located in the greater suburban San Francisco area, Byxbee Park was designed by George Hargreaves as a brownfield reclamation project. This project illustrates a depth and emotions that sculptures in the landscape can posses. Environmental and industrial systems are brought together to create a sublime environment set in a serene landscape.

Byxbee Park

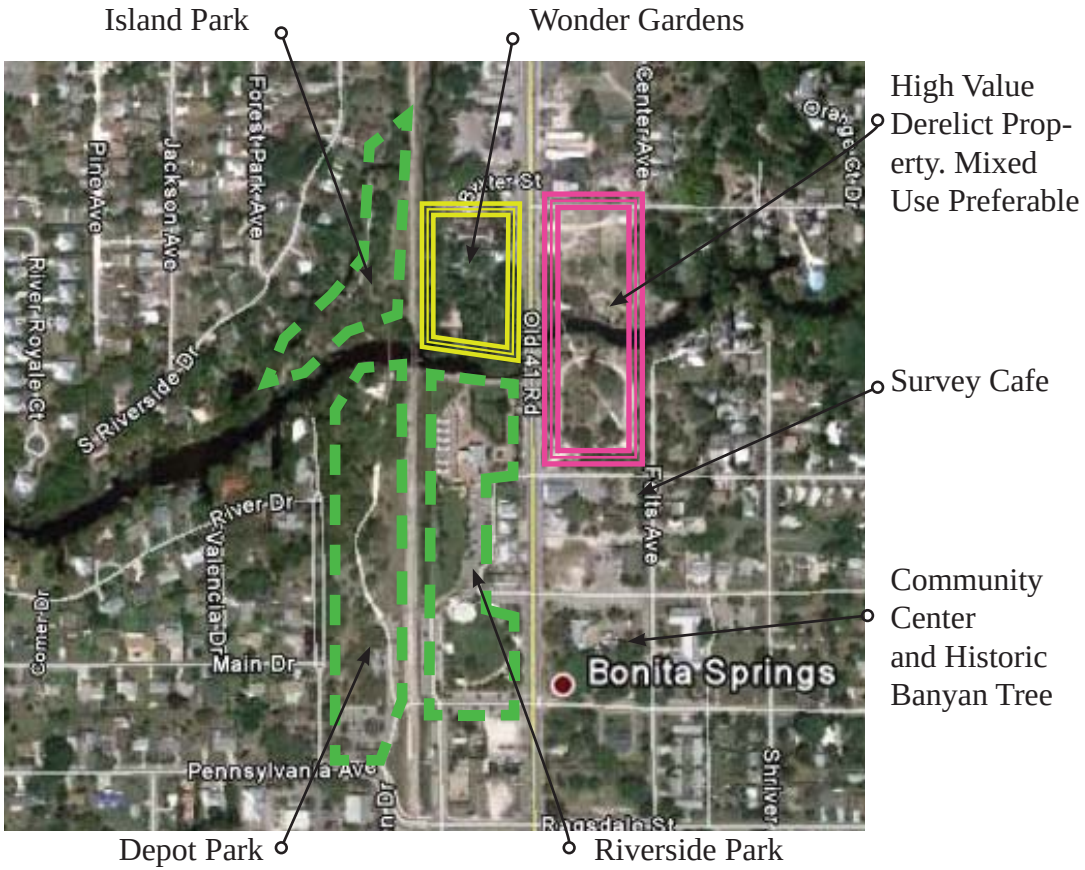
Discovery Park, Seattle, WA - This 534 acre site includes a larger scale of planning than Rotary Park, but it serves as a guide to management practices on a semi-natural site. Pathways and trails take the user to a variety of ecosystems that serve as education

Discovery Park

Influential Practitioners

-J.B. Jackson -Ian McHarg -Gilles Clement -Jens Jensen -Michael Hough -Piet Oudolf

Informing Open Spaces:
Downtown Bonita Springs



The central downtown sector has benefited most from city capital improvements. Riverside Park acts a nucleus controlling activities on both sides of Old US 41. Island Park and Depot Park are in the process of renewal and act as a corridor along the rail path. Currently they are used as dog walks, passive strolling and overflow parking for community events.

The former Bamboo Village site, outlined in pink, is being shopped by the city for investors due to its value and centrality.

Everglades Wonder Gardens, outlined in yellow, opened in 1936 and houses a diversity of wildlife and provides tours on site. A great example of early Florida conservation for tourists. Home to Florida panthers, otters and alligators. It serves as education for the community.

Informing Open Spaces:
Riverside Park

Entry Signage and Art

Lilles Hotel and Fountain

Canoe Launch and Riverside

Type: Downtown Community Park
Size: 5.5 acres (2.3 ha)
Stakeholder: City of Bonita Springs
Contributing Factors for Research: Center of civic activity of city. Located 3/4 mile from Rotary Park.
Brief Description of Place: Open aired lawn located in the heart of historic Bonita. Traditional design style with native shade trees and tropical planting beds. Amphitheater band shell surrounded by parking and commercial retail (bicycle shop and art studio).
Natural Habitat Type: Scrub pine flatwoods with second order stream. Formerly a disturbed rudderal field.
Predominant Program/Amenities: Band shell, picnic/pavilions, outdoor art, holiday gatherings, fishing dock and canoe launch, historic cottages converted to art studios and hotel.
Site Elements: Benches, drinking fountains, focal water feature, picnic tables, paving (see page x)
Lighting: Adequate in three scales
Parking: 120+
Maintenance: Sub-contracted by city
Accessibility: Location lends well to pedestrian and bicycles with easy vehicular access.
Summary and Criticisms: Traditional open lawns and walkable pathways. Community gathering place and meet up area. No play options for children.

Informing Open Spaces:
Bonita Community Recreation Center

Area Investigated

Recreation Center (Skate, Basketball, Volleyball, Fitness)

Bonita Springs Middle School

Rail Corridor

Lee County Library Annex

Bonita Community Pool

Bonita Springs Recreation Park and Center center for active rec and sports for the community. Little League baseball and softball are main attractants. Fishing competitions and taste of town events often take place here. Detailed description on following page.

Informing Open Spaces:
Bonita Community Recreation Center

Recreation center entry and signage

Baseball fields from the parking lot

Type: Community Park and Recreation Field
Size: 42 acres (17 ha)
Stakeholder: City of Bonita Springs
Contributing Factors for Research: Located 1 mile from Rotary site. Center of active recreation for Bonita Springs.
Brief Description of Place: Open fields and parking dominate the environment. Recreation and ball fields see most use for baseball and soccer. Offers quite, free form leisure in back near retention pond. Rec facility offers fitness, basketball, indoor soccer etc.
Natural Habitat Type: Historically pine/palmetto scrub and prairie.
Predominant Program/Amenities: Tennis, skateboard plaza, disc golf, four baseball/softball fields, batting cages, children's play area. Large field double as event space for taste of the town events and fairs.
Site Elements: Benches, drinking fountains, concession stand for baseball.
Lighting: Acceptable with only two scales
Parking: More than adequate 250+.
Maintenance: ?
Accessibility: Mostly by car. Pedestrian and cyclic access is very common due to resident adjacency.
Summary and Criticisms: Lacks overall organization with piece meal construction over time.
Picnic capabilities are lacking. Overall successful due to location and variety of uses.

Playground area

Bonita Nature Place

Type: Donated preservation and educational area
Stakeholder: City of Bonita Springs
Contributing Factors for Research: Located 1.5 miles from Rotary site. Habitat preservation for wildlife and education for community.
Brief Description of Place: In its first year of development, open Sundays only. Stakeholders are in the process of converting old residence into educational and demonstration zones.
Natural Habitat Type: Sand hill scrub sloping down into hardwood floodplain forest with alluvial stream.
Predominant Program/Amenities: Education facility, gopher habitat areas, bat house, bee keep, and nature trails.
Lighting: None outside of built features
Parking: 20-30 spaces
Maintenance: ?
Accessibility: Mostly by car but accessible by foot and bicycle. Open Sunday only.
Summary and Criticism: A great learning environment for those interested in natural sciences. Located off the beaten path and being relatively new, few residents are aware and general funding is lacking.

Case Studies:

Estero Community Center and Park, Estero Fl.

Estero Community Center Aerial

Type: Regional Park with Active Rec. Center
Size: 55 acres (22.3 ha)
Stakeholder: Lee County Parks and Recreation
Contributing Factors for Research: High use suburban park that displays successful play areas for children and active recreation for adults. A 1.2 acre fenced in dog run.
Brief Description of Place: Entire park includes a 40,000 sq ft. rec center and large fields for team sports and fitness. Eastern side is 7 acres of passive amenities designed in 2006 with prefab play equipment and dog park. Walking paths meander and connect through the site.
Natural Habitat Type: Light pine canopy, mostly dry prairie with retention ponds.
Predominant Program/Amenities: (Eastern side) Two child's play zones raised and mulched, fenced in dog run (zones for small and large dogs), Picnic pavilions, and walking trails.
Site Elements: Benches, drinking fountains, grills, cap rock outcrops, bicycle racks, six-stall rest room facility.
Lighting: Adequate in four scales
Parking: Several linear zones 250+.
Maintenance: County Parks and Rec
Accessibility: Mostly by car, walking and cycle accessibilities exist with little use due to location.
Summary and Criticisms: Scale a bit large at times and open expanses need organization. High use denotes success on eastern side. Dog run a big hit for area with movable seating and wash basin.

Case Studies:

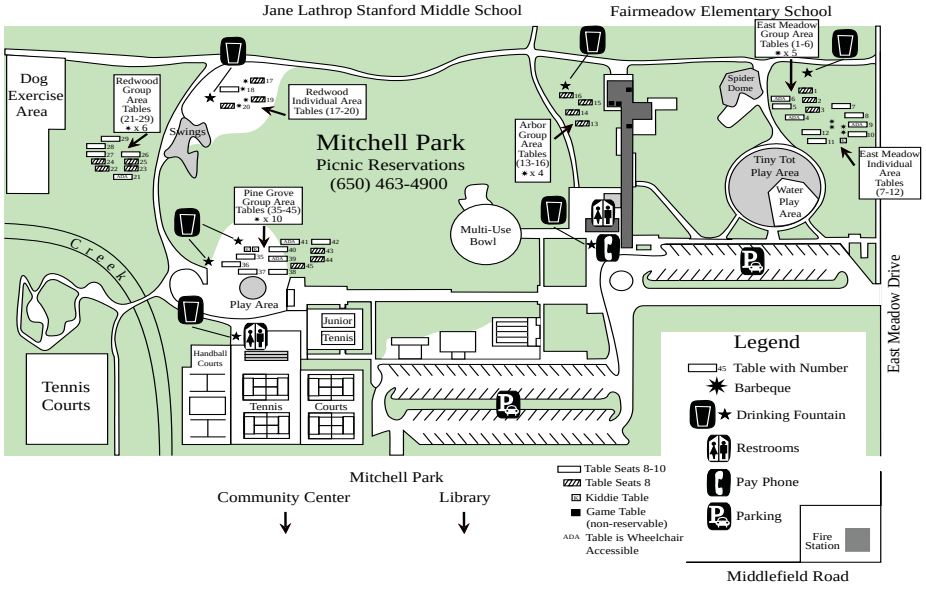
Naples Preserve, Naples Fl.

Type: City operated preserve and education
Size: 8.8 acres (3.5 ha)
Stakeholder: City of Naples
Contributing Factors for Research: Similar scale and habitat type. Entire site allocated to preserving flat-woods scrub ecosystem.
Brief Description of Place: Moderate canopy over raised boardwalk near heavy trafficked corridor. Out-door education space in semi-urban setting
Natural Habitat Type: Pine/scrub flatwoods with coastal scrub zones.
Predominant Program/Amenities: Eco-center converted from 1960's modern south Florida architecture. A .4 mile sign guided ecosystem tour limiting to boardwalk.
Site Elements: A central pavilion with signage and literature. Several seating areas spaced on boardwalk for reflection and rest.
Lighting: One scale only near parking and building.
Parking: 25+
Maintenance: Volunteer based with city referendum.
Accessibility: Mainly vehicular but being integrated into developing pedestrian/bicycle system.
Summary and Criticisms: Excellent brochure with ecology speaker events and locations. Well buffered from road. Only criticism is lack of connectivity.

Case Studies:

Mitchell J. Pierce Park, Palo Alto, CA

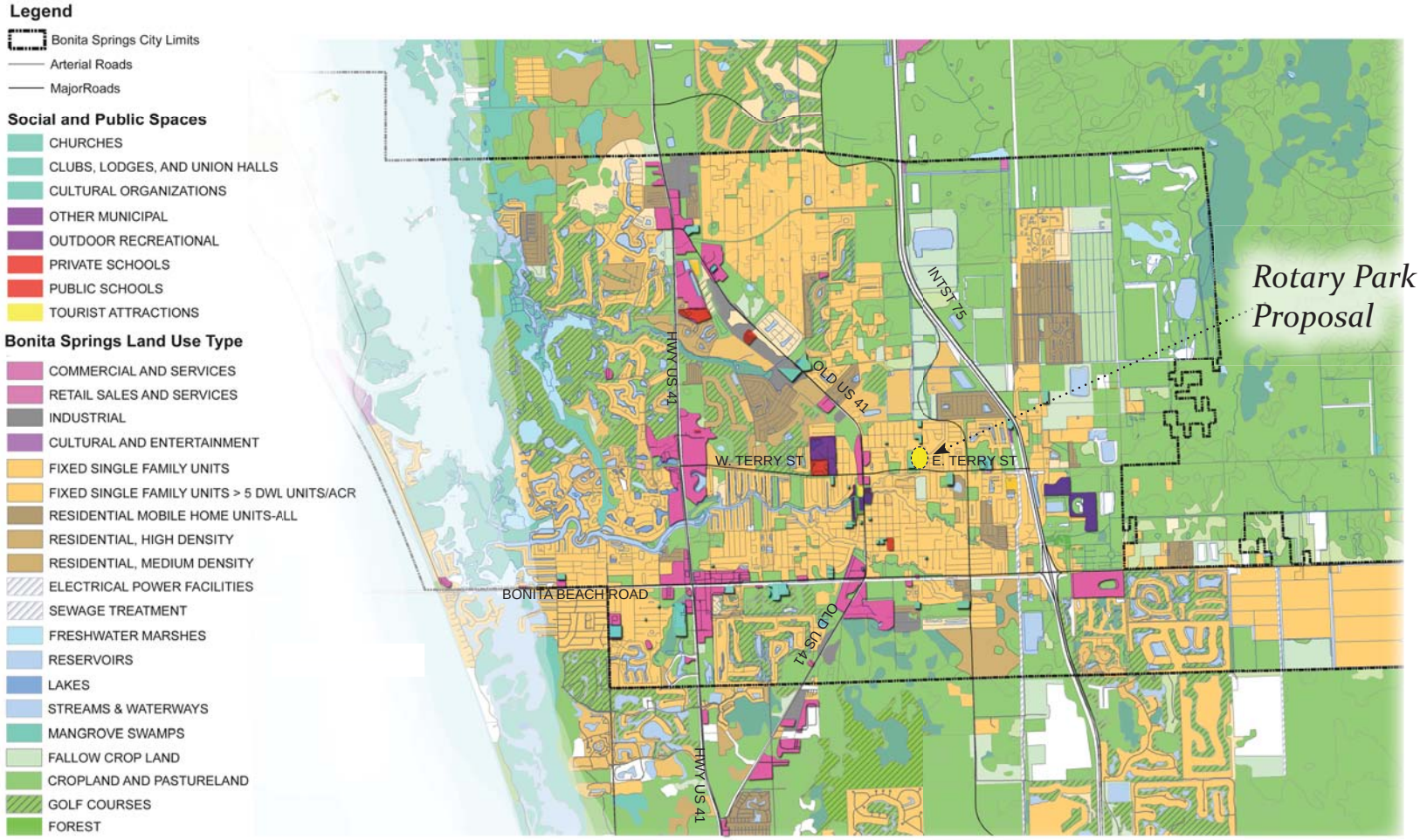
Type: Regional park active recreation
Size: 22 acres (8.9 ha)
Stakeholder: City of Palo Alto
Contributing Factors for Research: A popular city park with a variety of uses. 50+ years of use as a traditionally designed multi-use park. A successful fenced in dog park recently implemented.
Brief Description of Place: Great lawn centers active use zone for play, tennis, dog walk, picnic and rest rooms. Located adjacent to middle and elementary schools, library, and community center.
Predominant Program/Amenities: Lawn games, tennis, dog area, horseshoes, art installation.
Site Elements: Group tables, swings, drinking fountains, public rest rooms, pay phones, bbq grills.
Parking: 60-70 in urban setting
Accessibility: Good vehicular access with many bike and pedestrian entries as well as public transportation.



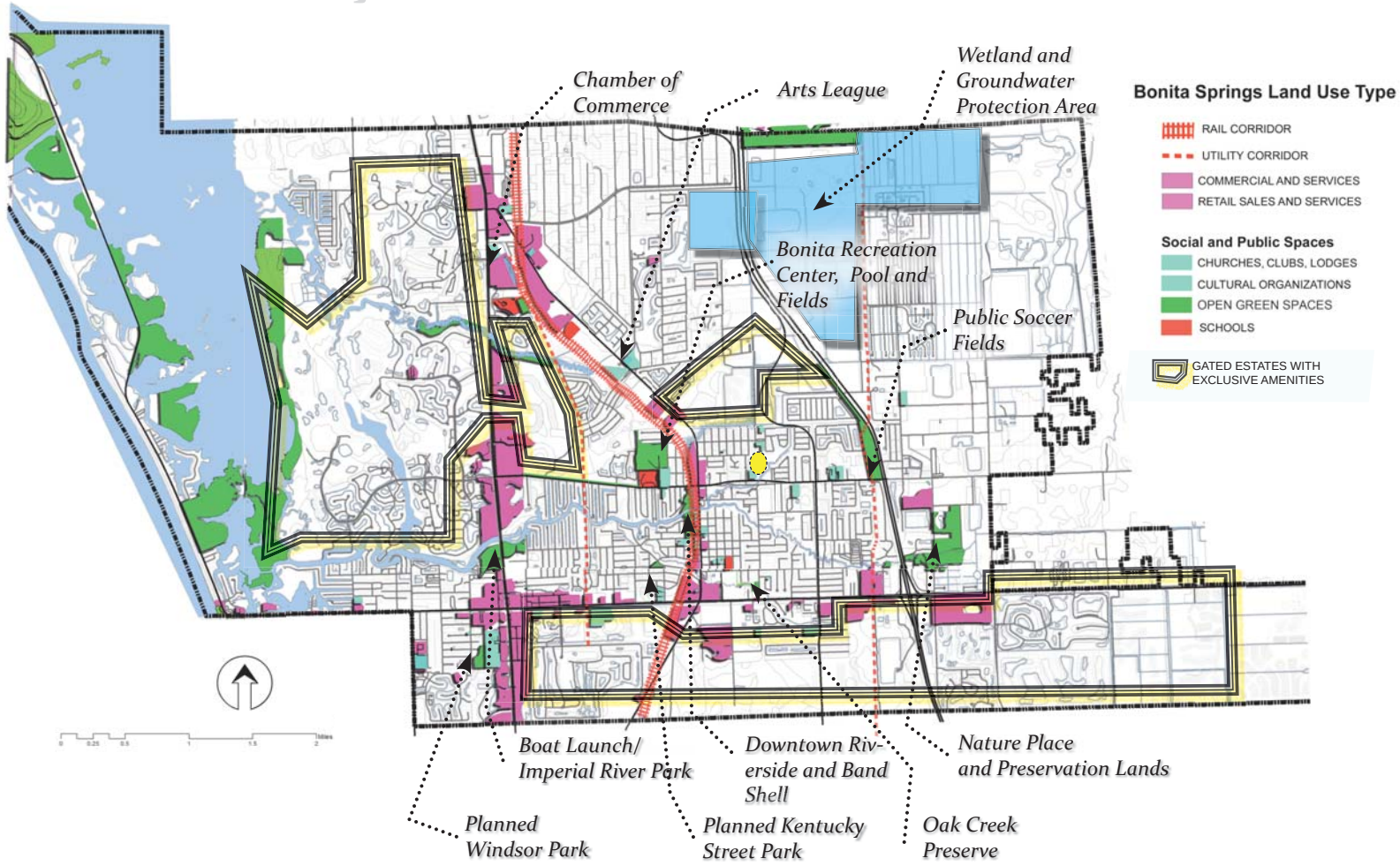
Analysis and Synthesis

Analysis and Synthesis

Land Use and Public Places



Analysis and Synthesis
Land Use Summary



Retail and Commercial lies along the main roads US 41 and Bonita Beach Rd. while residential holds the highest density along the Imperial River radiating from historic downtown along Old US 41. The city of Bonita Springs has developed a respectable downtown open space surrounding Riverside Park. Active fields and indoor recreation is used heavily just north of the downtown zone at the Bonita Recreation Center. Non-estate residences lack community open spaces nearest their homes for less crowded and passive recreation.

Analysis and Synthesis
Housing and Traffic Maps

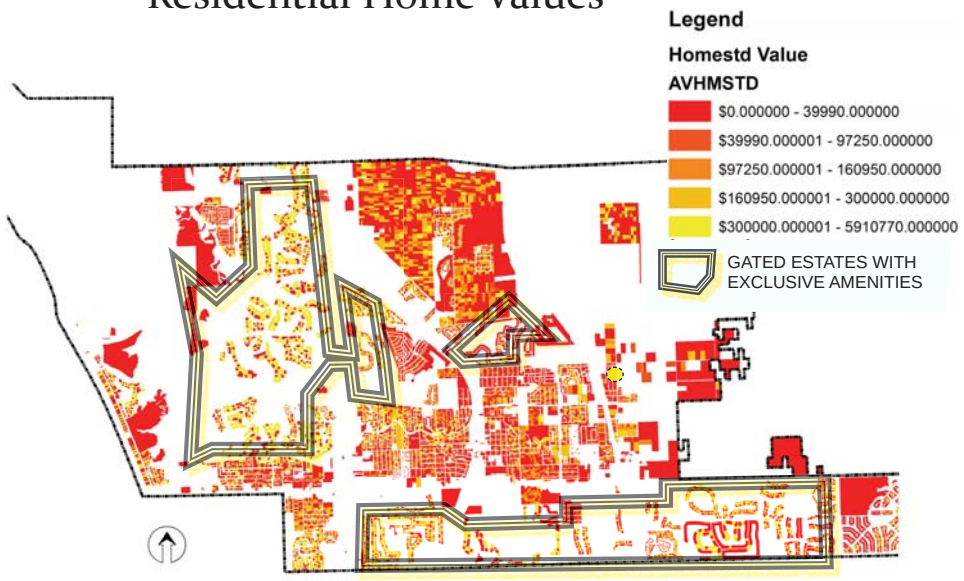
New homeowners are the key economic boosters for the city of Bonita springs as well as the SWFL area. As vacancies and foreclosures need filling. Bonita Springs can capitalize on its the small community feel, lower tax zone and smooth traffic toward Ft. Myers and Naples by creating livable communities with efficient access to gathering and green spaces.

These spaces should give nearby residents opportunities to enjoy morning or evening walks, wildlife viewing and play. Leading to happy and healthy families.

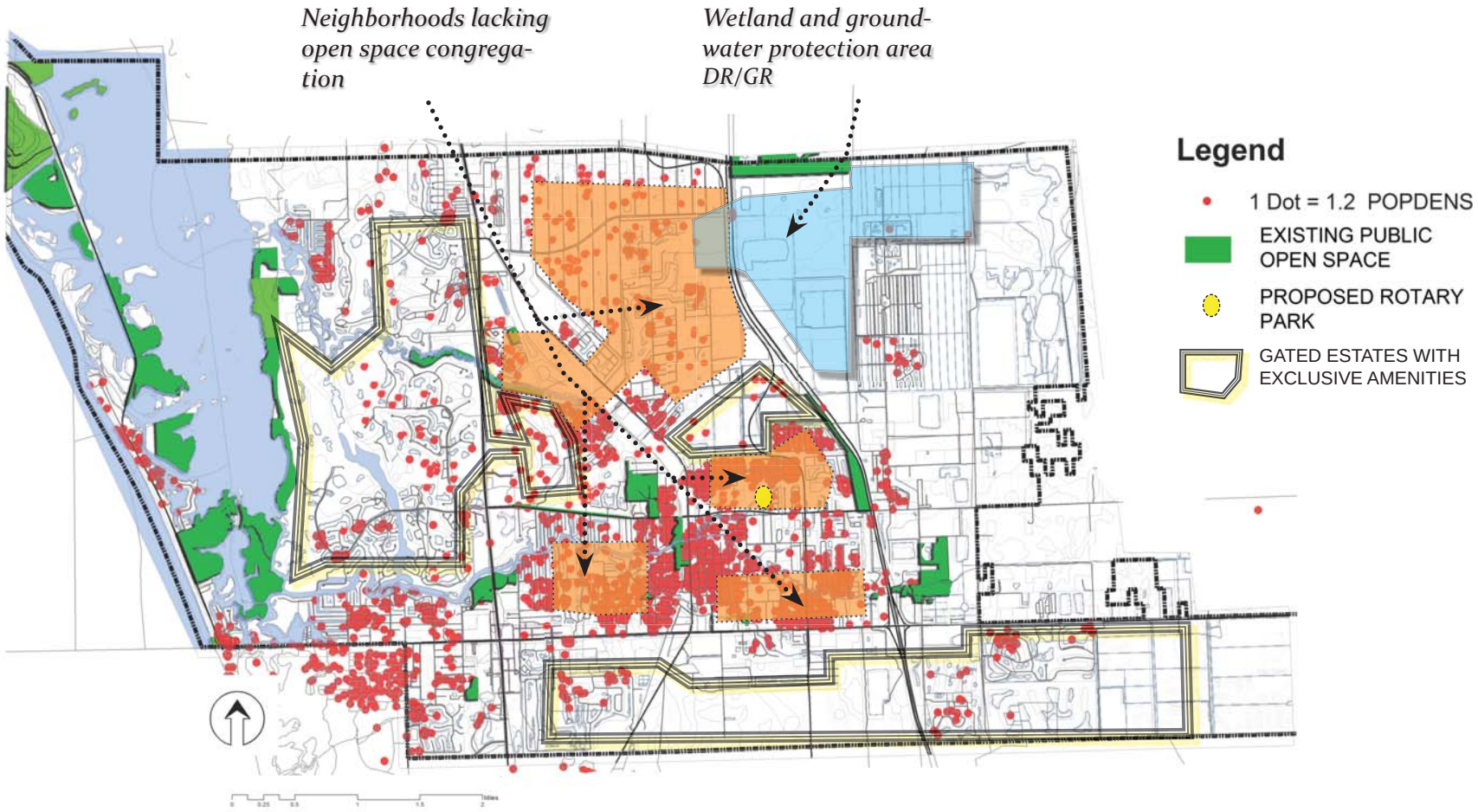
By locating zones of need and land use potentials within existing neighborhoods. Parks can begin to take shape.

Circulation Analysis

Residential Home Values

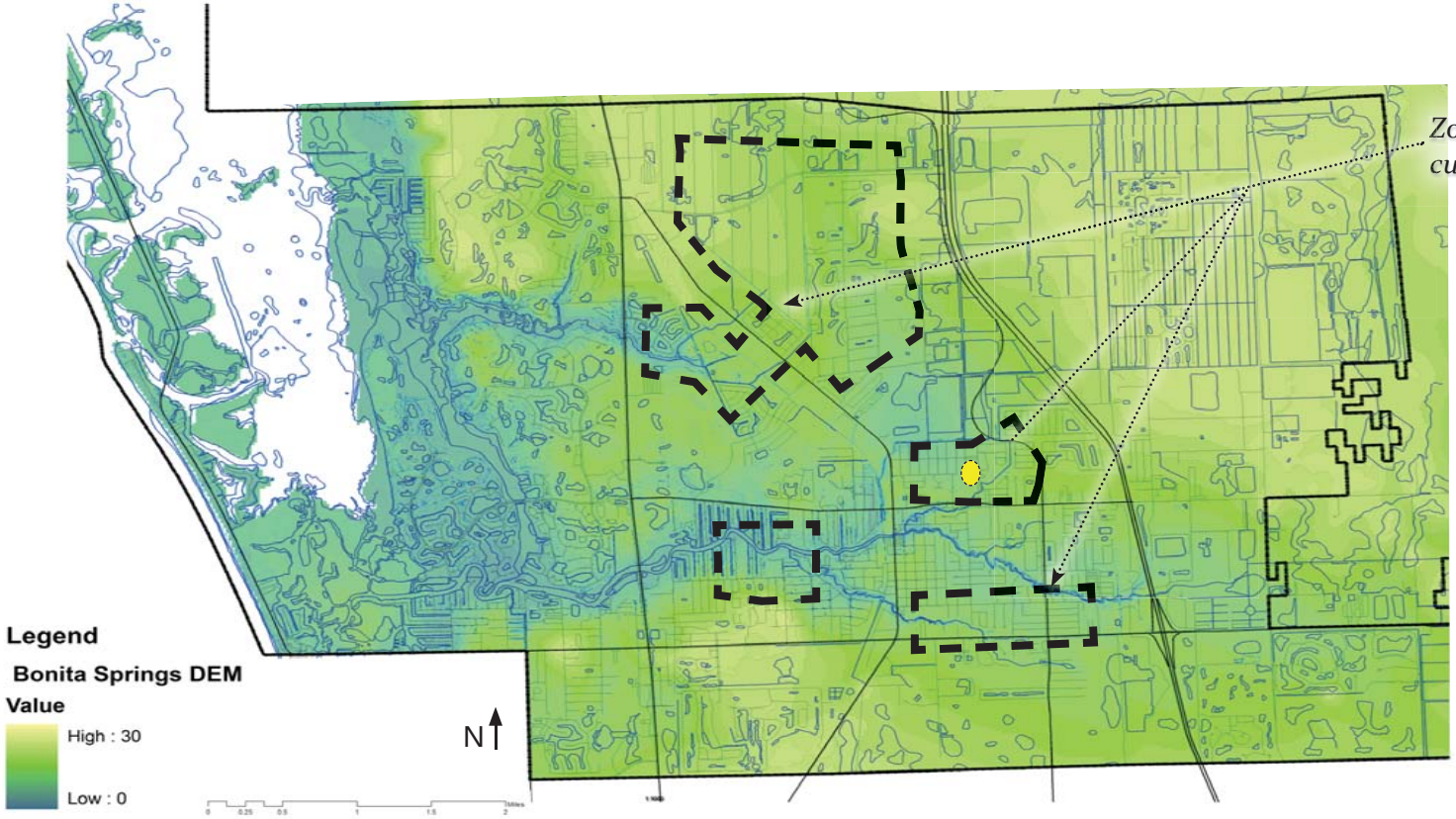


Analysis and Synthesis
Existing Open Space and Population Density



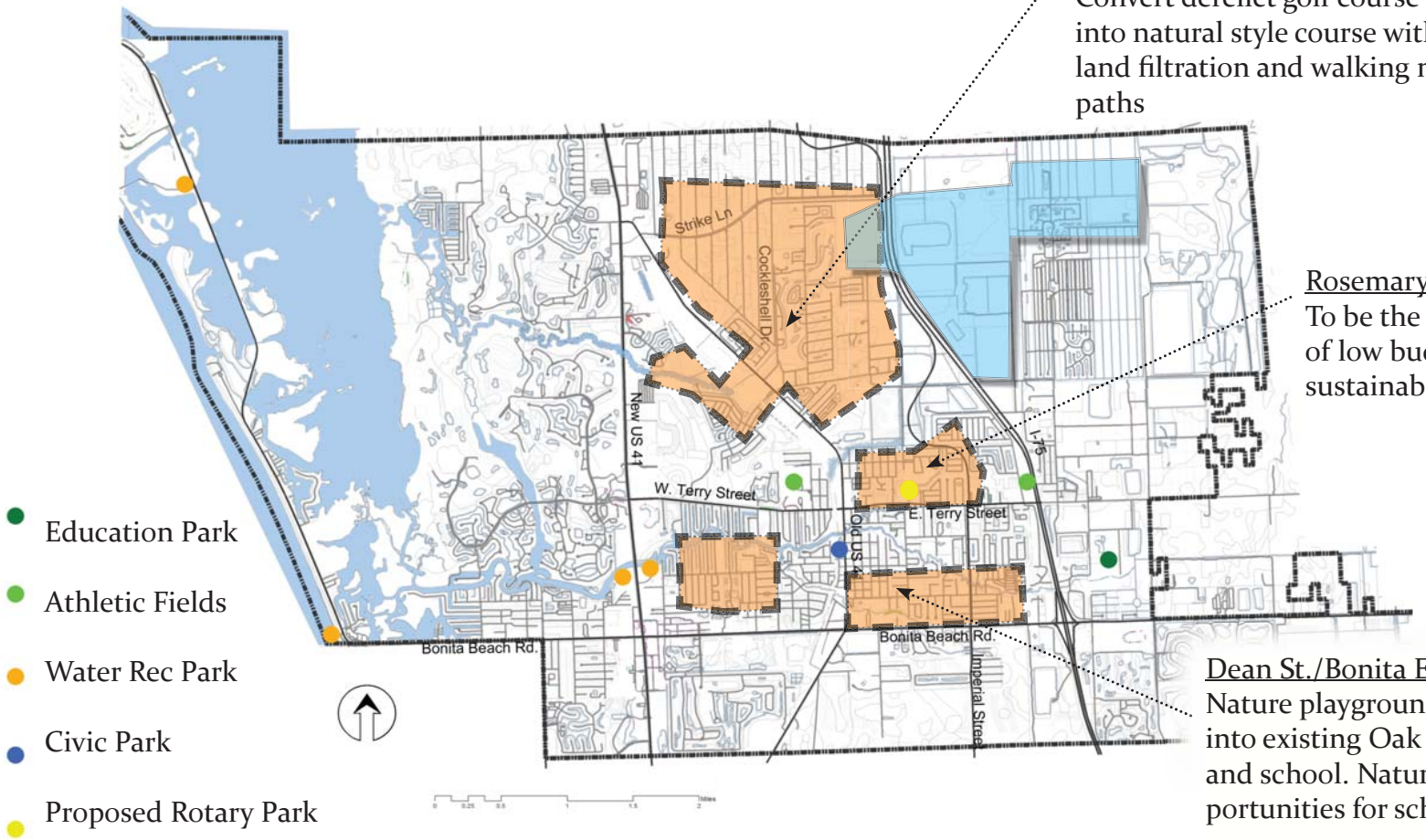
*Areas highlighted in orange note need of public open green space when related to population densities and existing open space.

Analysis and Synthesis
Watershed



The digital elevation model shows the preceding zones of need in relation to the natural watershed. Zones of higher density without open green space lie within stream and watershed corridors. This provides a wealth of opportunities to filtration and cleansing of water as well as interaction and education for users.

Analysis and Synthesis
Open Space Proposals



Education Park

Athletic Fields

Water Rec Park

Civic Park

Proposed Rotary Park

Strike Ln/ Bonita Golf Estates
Convert derelict golf course into natural style course with wetland filtration and walking nature paths

Rosemary/Matheson
To be the project example of low budget, low input, sustainable

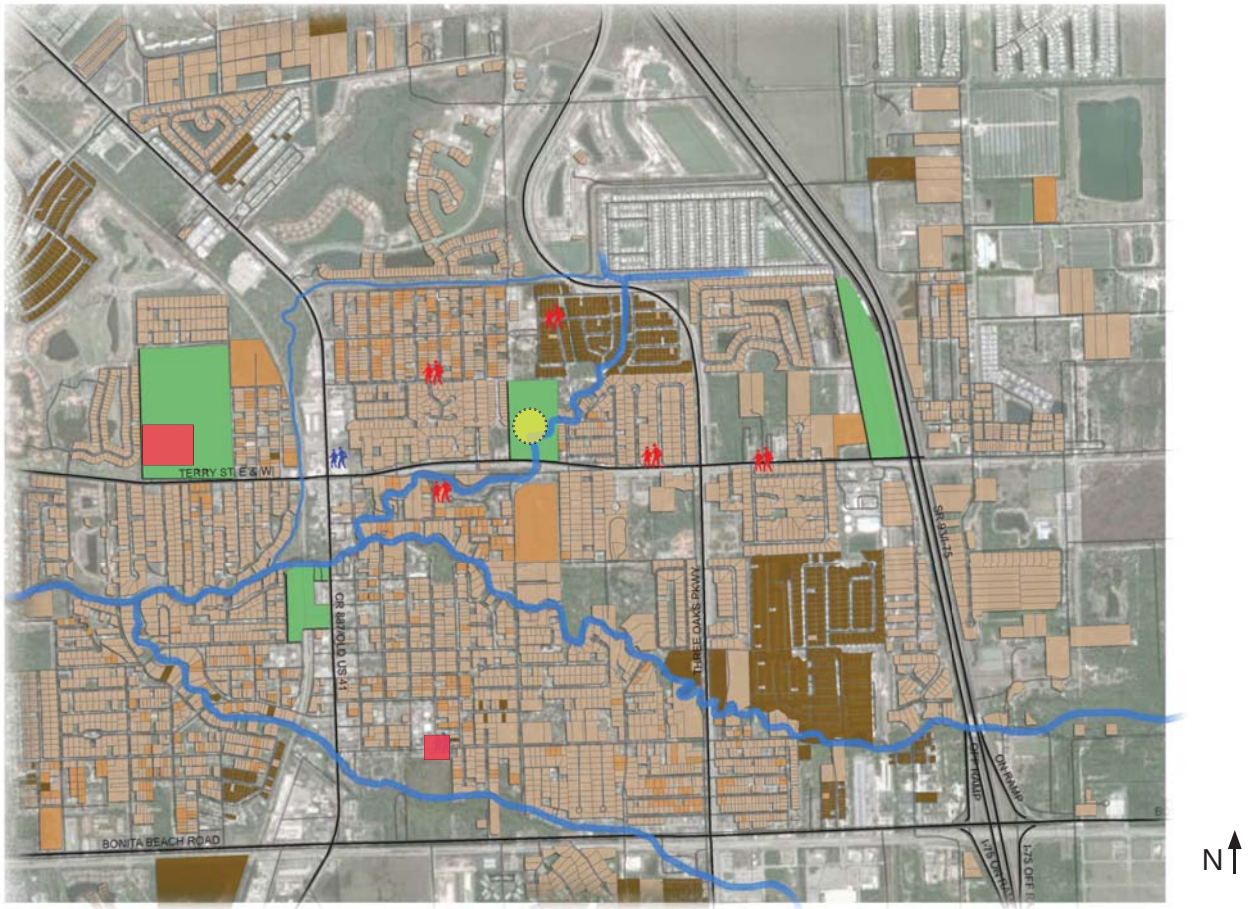
Dean St./Bonita Elementary
Nature playground incorporated into existing Oak Creek preserve and school. Nature education opportunities for school.

As the city grows, conservation and open space activities must be allocated for neighborhood parks. Parks should be designed around existing sense of place, specific neighborhood user groups, on-site resources, and natural water regimes. Program should continually find a balance human and natural systems

Analysis and Synthesis

Site Specific Context

Area Investigated

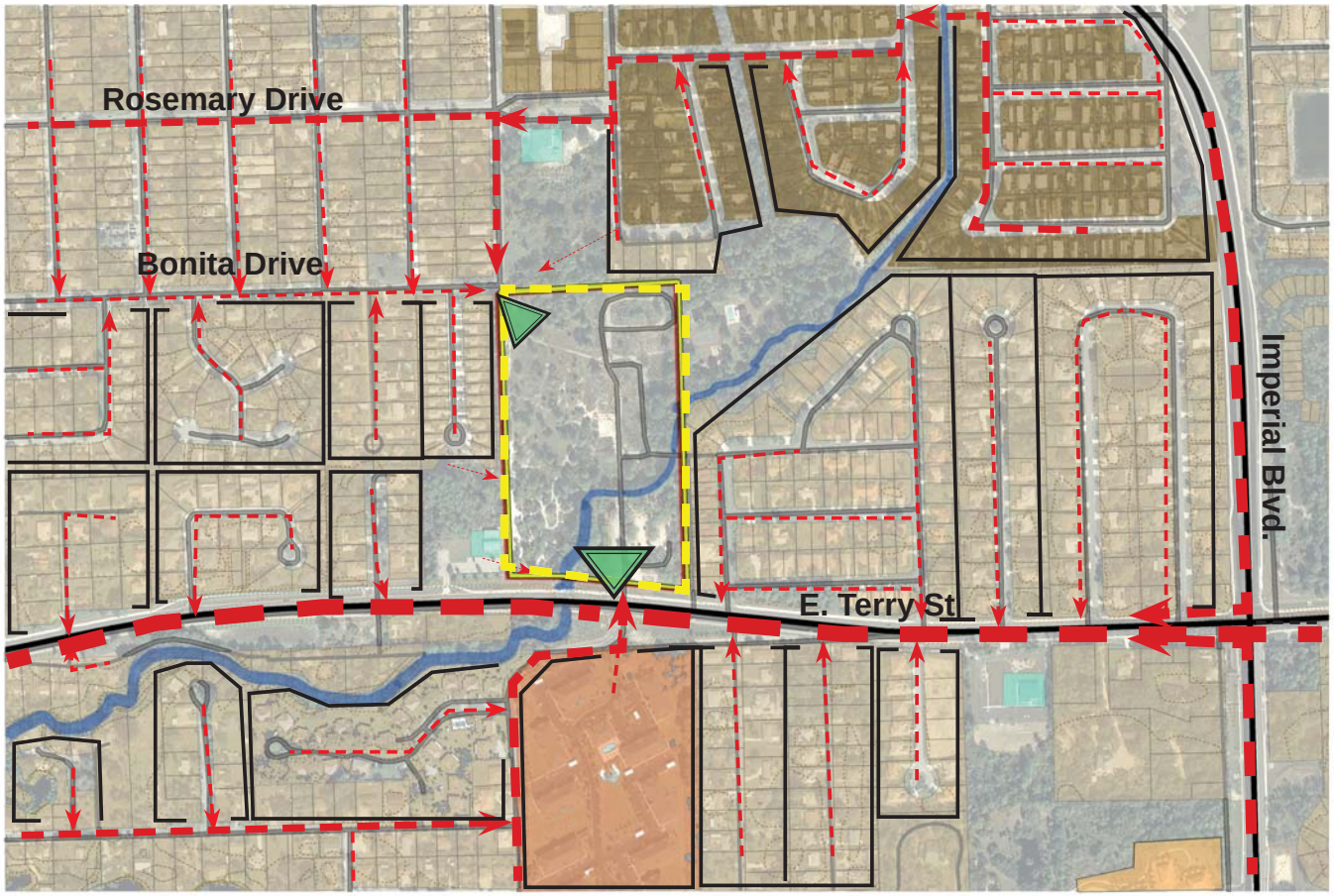


N

OPEN SPACE
PUBLIC SCHOOLS
MOBILE HOMES
MULTI FAMILY HOMES
SINGLE FAMILY HOMES
SCHOOL BUS STOP
COUNTY TRANSIT STOP
ROTARY PARK

Analysis and Synthesis

Adjacent Site Circulation



Site Boundaries

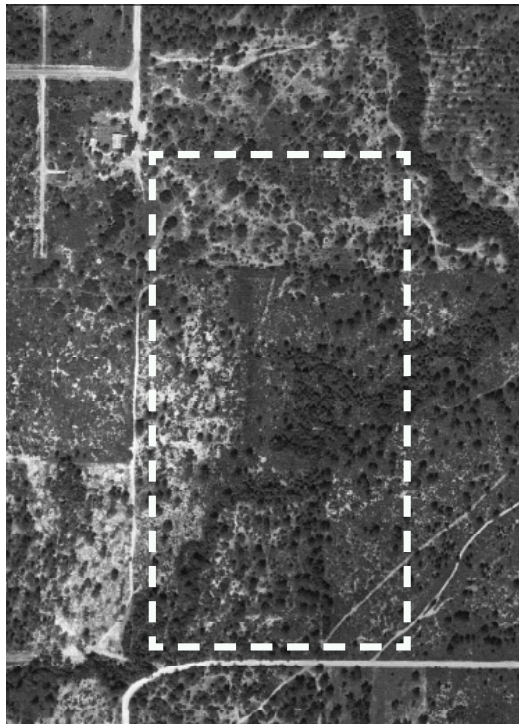
Access Points

-Access from the north is prone to higher density of use from pedestrians and bicycles. Most being lower class status.

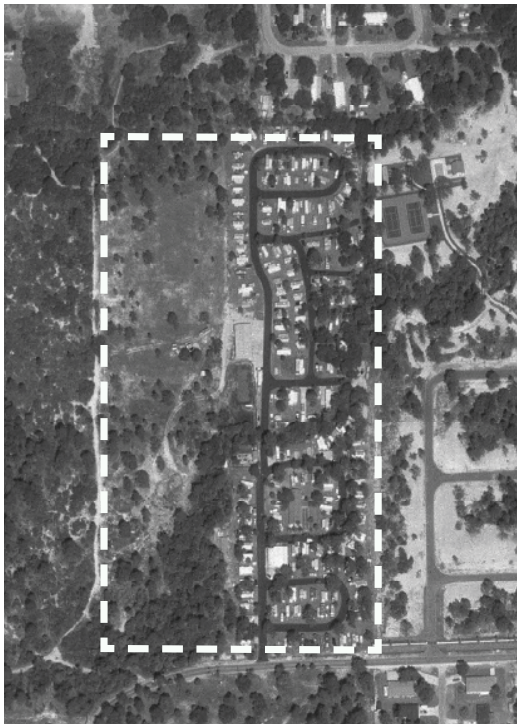
-Access from the south will receive higher vehicular entries from middle to upper class users.

-Approximately 900 housing units within 1/2 mile distance to park entry.

Analysis and Synthesis
Site History



1968



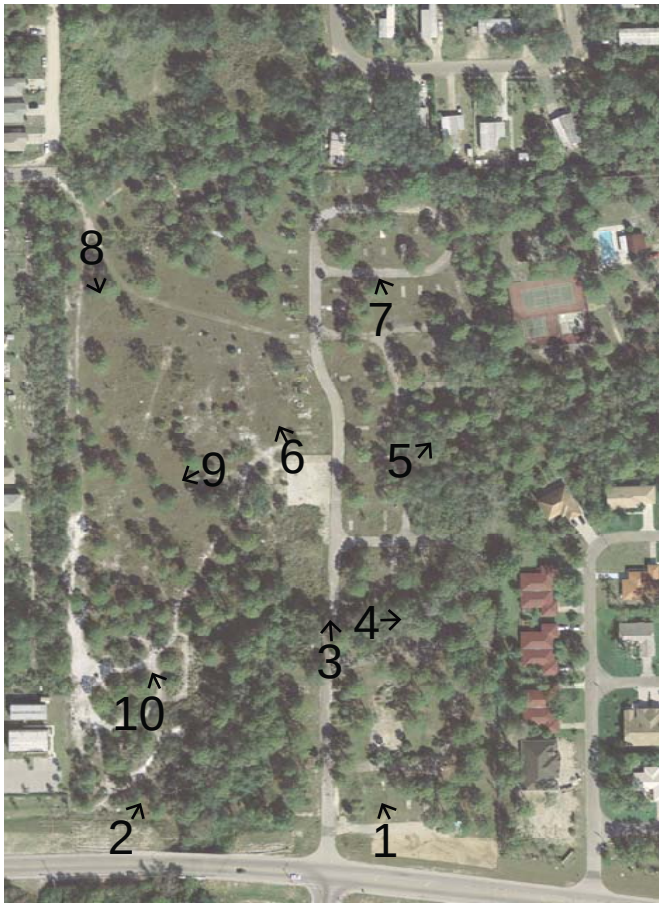
1985

2006

These historic aerials show the properties past transformations. The first notes the original land prior to development. The second image displays the former mobile home park on site. While the east half of the site has been heavily disturbed, the western area has been left undeveloped and only slightly disturbed as a thoroughfare for pedestrians. This western parcel has high suitability for habitat preservation. No residences have been on site since a clean up in 2005. Small campsites remain as vagrancies and gang related groups. The majority of use comes from pedestrians or bicycles connecting Terry St. and Rosemary St neighborhood.

Analysis and Synthesis

Existing Conditions



Analysis and Synthesis
Inventory

–Located at 26` 20' N 81`46'W

–USDA Zone 10A

–Hallandale Fine Soil
well drained, poor in nutrients

–Existing Site Resources

#1- 10'x10'x8' CMU roofless structure
#3- 8'x6'x5' septic housing with cover slabs
#1- fenced in derelict pump house

#1- 2 cubic yards of concrete demo
#1- 10 cubic yards of fill dirt
#6- Concrete barriers

#27- Multiple 110v hookups and water
#15- Concrete mobile home pads
#1- ~6450 sq ft large concret pads (90'x70')

–Native Plants

–Invasive Plants

Analysis and Synthesis

Existing Systems and Circulation

For 8 years the site has served as a bypass for both sides of the community. Zones of vagrancy, graffiti, loitering, recreation and dumping have been noted throughout. Despite the general disconcern for the property, wildlife flourishes compared to traditionally managed parks.

Primary Circulation

Secondary Circulation

Areas of Homelessness

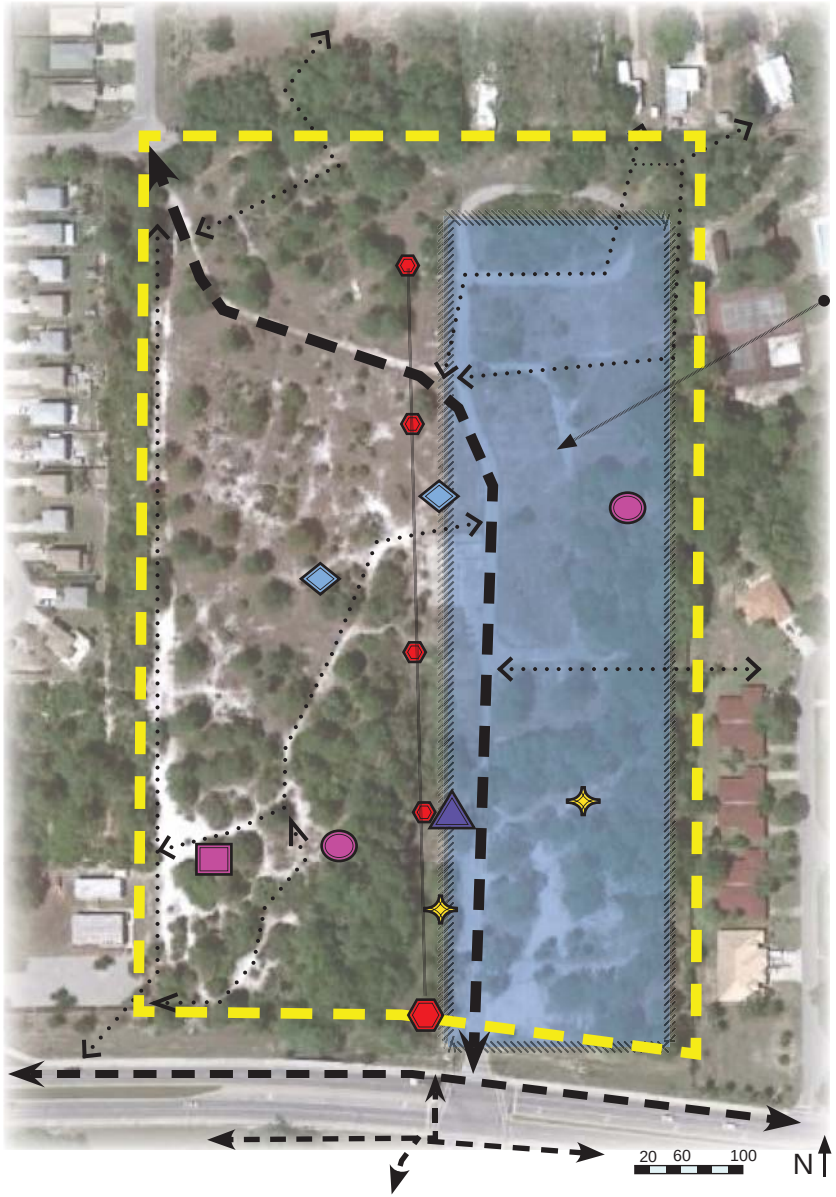
Abandoned Structure

Derelict Water Pump House

Utility Lines Overhead

Septic Housing

Dump and Fill Zones



Analysis and Synthesis
Natural Habitat Types

Scrub habitat dominates the site. Scrub lands are the most rapidly-declining ecosystem type in Florida and should be protected accordingly.

Rotary Park is unique in that a feeder creek offers habitat for aquatic species and mesic plants within the scrub ecosystem. The gift of water also attracts birds of many species. Blue Jays, Cardinals, Red Shouldered Hawks, Ospreys, and Kites spend active time here.

Nature trails should be planned to educate users on both environments and transition zones

Upland Scrub

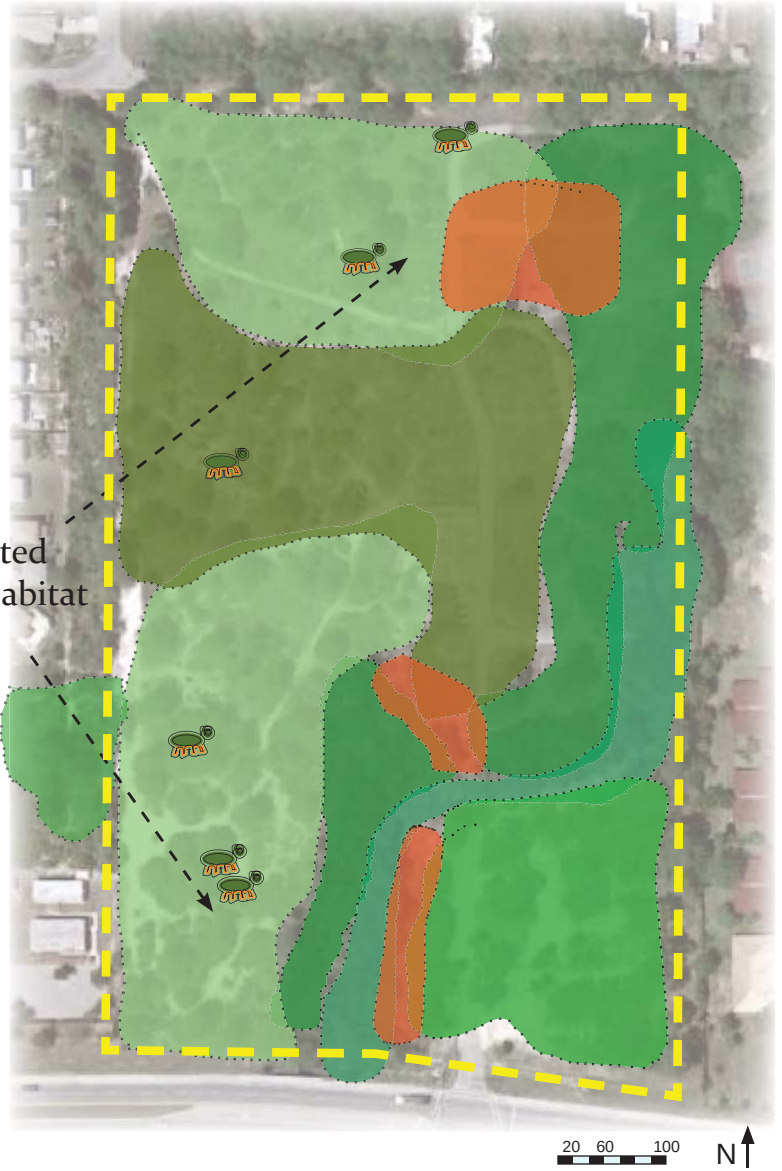
Hardwood Canopy

Open Scrub Prairie

Weedy Invasives

Palm/Mesic Hammock

Slash Pine



Analysis and Synthesis

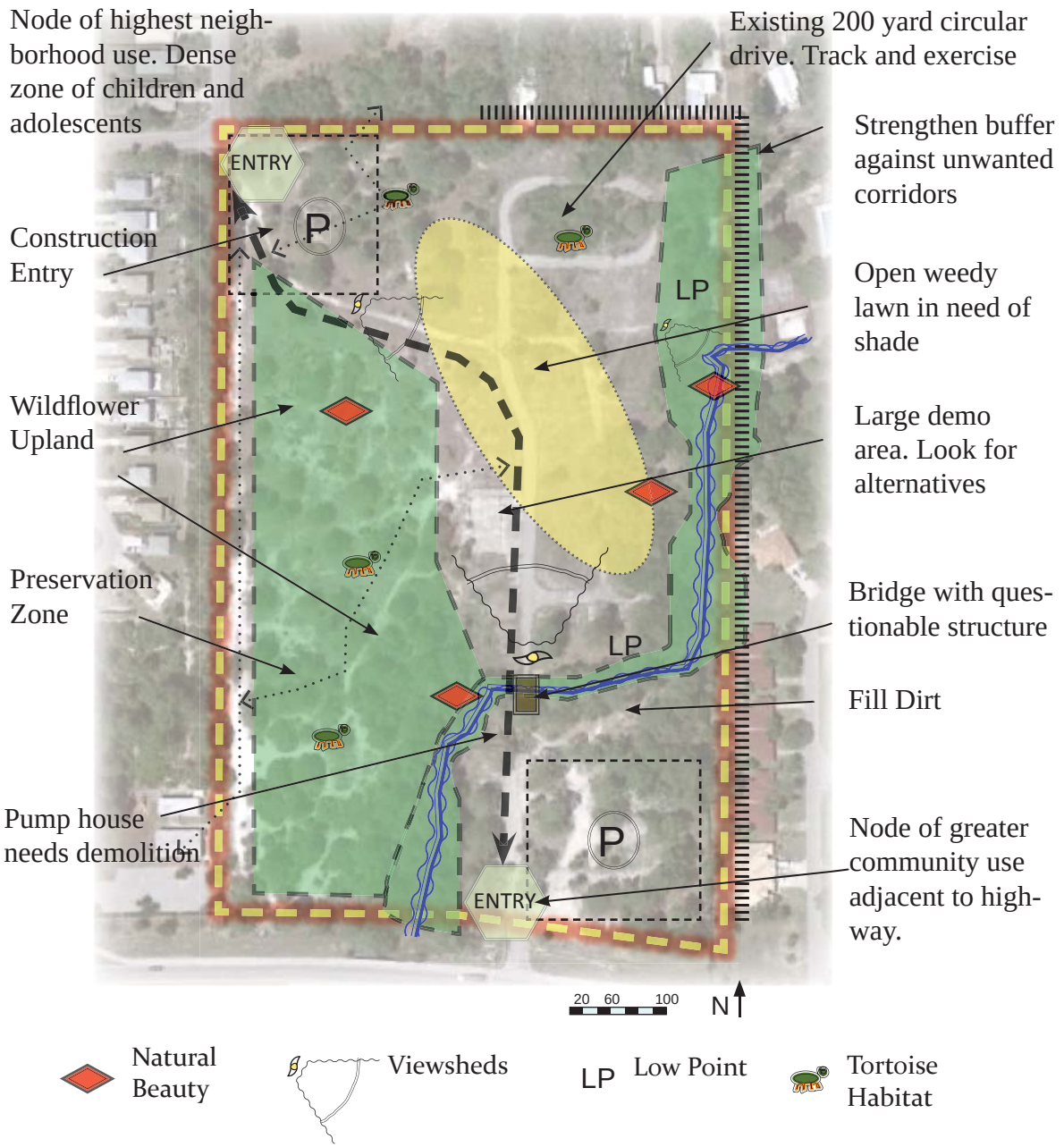
Site Synthesis

Issues and Constraints

-Wildlife crossing from western preserve to eastern habitat.
-Xeric habitat areas
-Poorly engineered creek edge
-Program goals of:
    -No irrigation/fertilizer
    -Preservation zone
    -Low budget

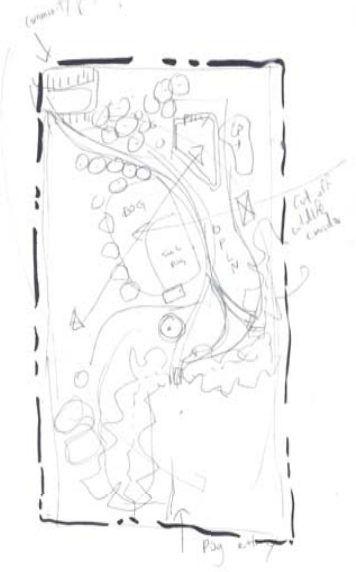
Opportunities

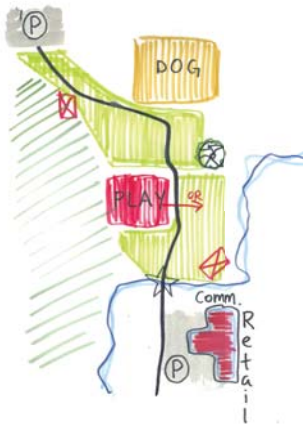
-Existing wildlife viewing
-Existing needs in neighborhood
-Pedestrian connection between neighborhoods
-Nature education
-Existing resources (leftovers)
-Adjacency to semi-urban community within walking and bicycling distance

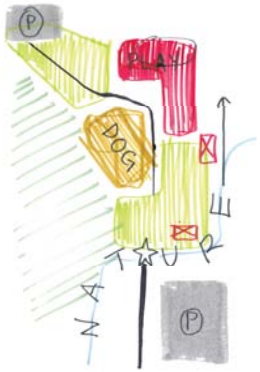


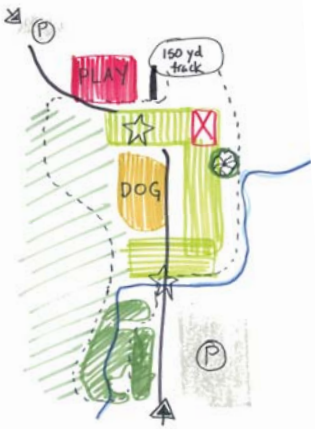
Design Development

Concept Development









Program Development

Initial recommendations made by the client include:

1. Childrens Playground 2. Exercise Circuit 3. Nature and Walking Trails

Florida's SCORP analysis for SWFL notes relative need in this order:

1.Picnicking 2. RV Trailer/Camping 3. Saltwater Activities 4. Swimming Pool 5. Football 6. Nature Study

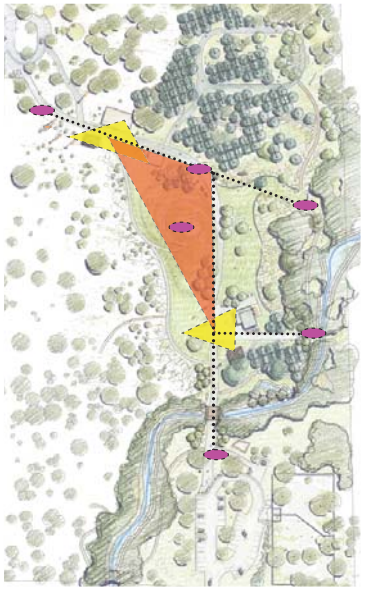
Rotary Park Adjacent Open Space Matrix	Bonita Springs Recreation Center	Marin Fields	Riverside Park	Imperial River Park	YMCA	Bonita Nature Place
Sidewalk Entry	■	■	■		■	
Sitting Areas	■		■			
Pavilion			■		■	
Grill/Picnic Area						
Night Entry	■	■	■			
Public Restrooms	■		■			
Water Fountains	■		■			
Art/Sculpture			■			
Athletic Fields	■	■				
Children Playground	■					
Exercise Circuit w/ Equipment						
Open Field Play	■	■	■		■	
Nature Trails						■
Environmental Education	■					■
Amphitheatre			■			
Open Community Center	■		■			
Boating/Kayak/Canoe				■		
Fenced Dog Run						

Final program to include: Children's play, picnic area, exercise circuit, nature study, art/sculpture, and dog park

Illustrative Plan

1 North Entry Gateway and Place marker
2 Childrens Play Area
3 Shelter and Picnic Use
4 Tot Lot
5 Parc Ventana Sculpture
6 Pine Row Nature Play and Harvesting
7 Exercise Circuit and Track
8 Prairie Trails and Play
9 Open Lawn and Mound
10 Concession/Restrooms/Equipment Storage (Shown with expansion)
11 Rotary Themed Seating Circle
12 Scrub Trail and Preservation
13 Art Wall
14 South Entry Gate
15 Fenced Dog Run (Large/Small)
16 Preservation Lands

Area Totals:
-1.9 acres of open space lawn
-44% of 15.1 acres reserved as preservation
-3/4 miles of nature trails



Triangulation while using focal viewpoints

South Entry Details

Upland Scrub Trail

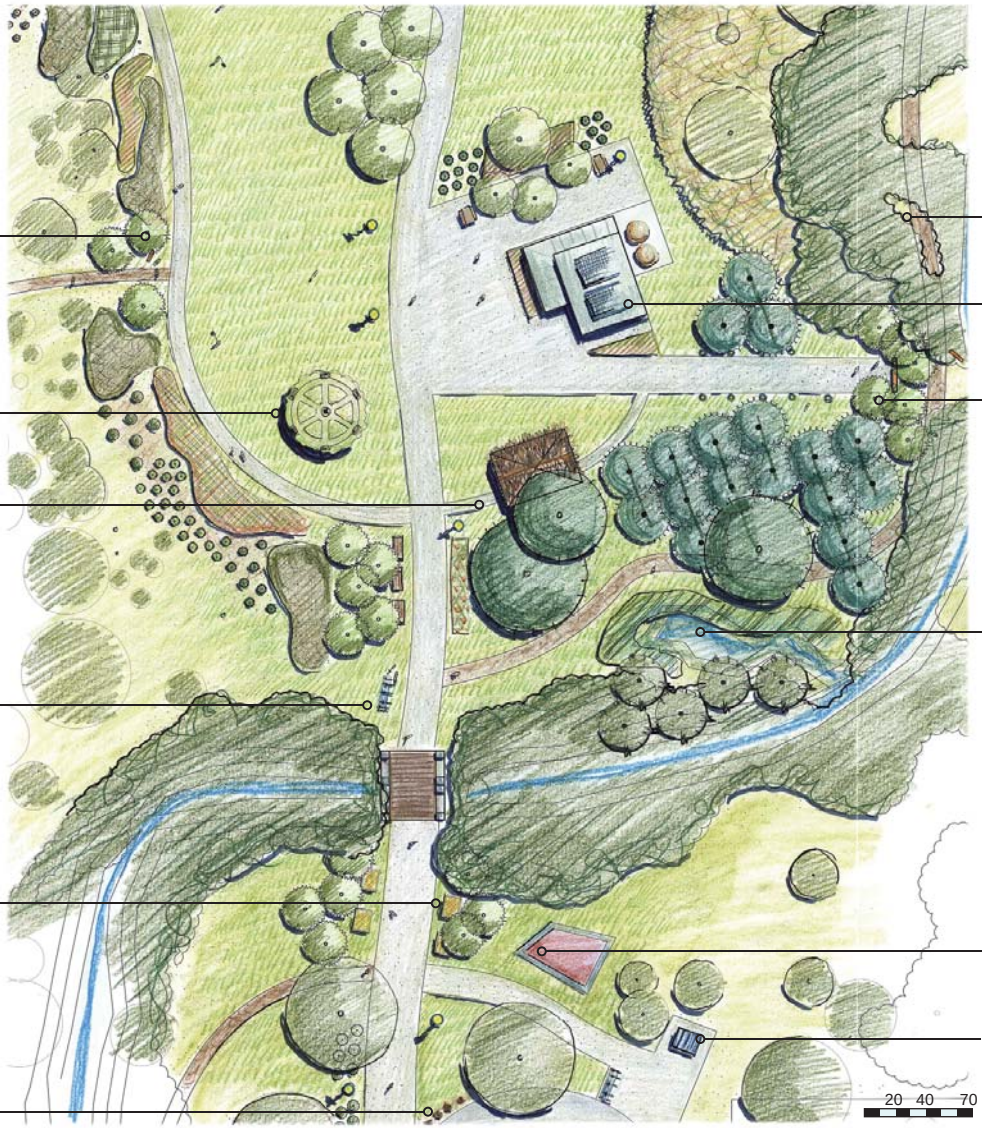
Hammock Trail

1600 ft² Park Rest rooms and Concessions

Council Ring

Art Wall

Chickee Hut constructed by local tribes



Aquatic Marsh Edge

Bicycle Rack

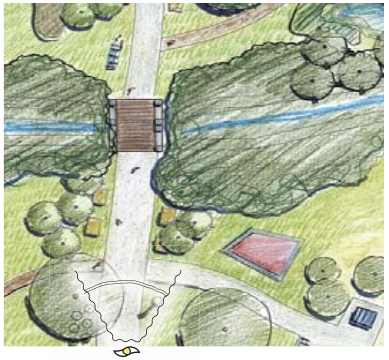
Raised Flower Planter

Work Station

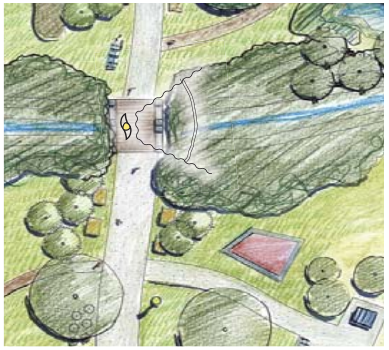
Waste Collection

Cap rock Bollards

South Entry Perspective

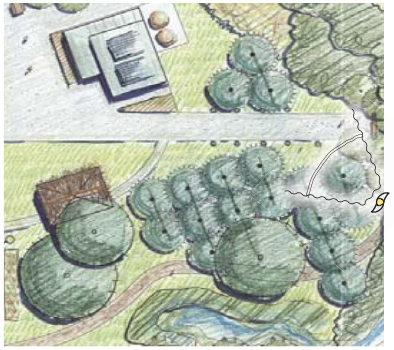


Entry Bridge Details

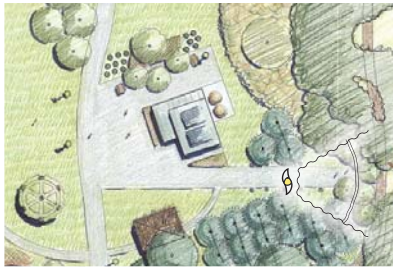


Precast columns with recycled utility pipes on existing bridge

Art Wall Perspective



Central Open Space Details



10

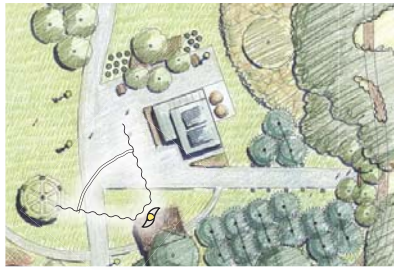
Chickee hut can be constructed by native Miccosukee Tribe for cost or with volunteer labor per engineer

11

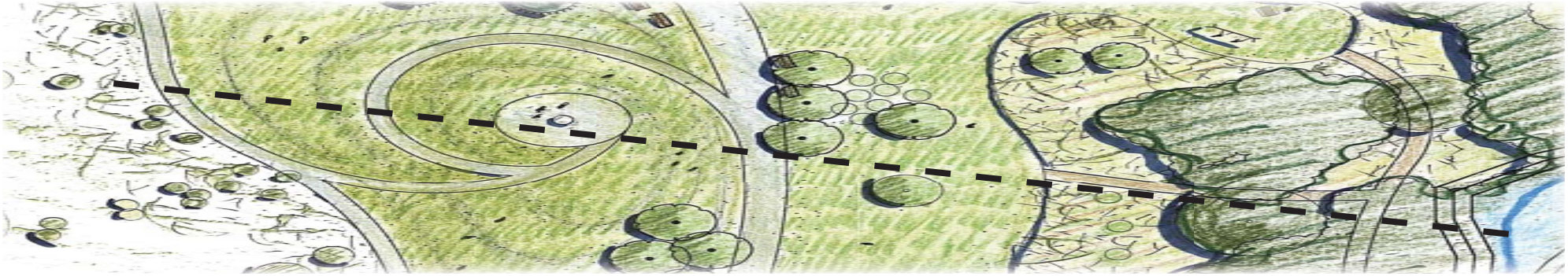
Proposed seating type

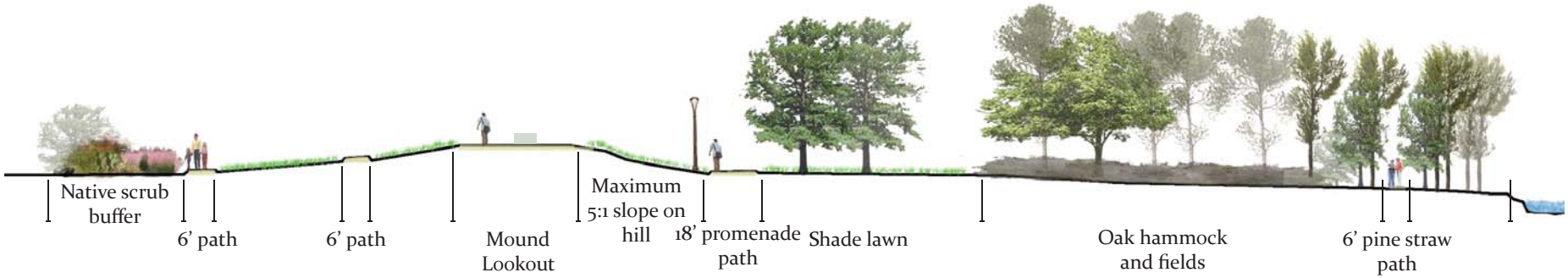
CMU block art wall provides play and creativity at a low cost

Central Open Space Perspective



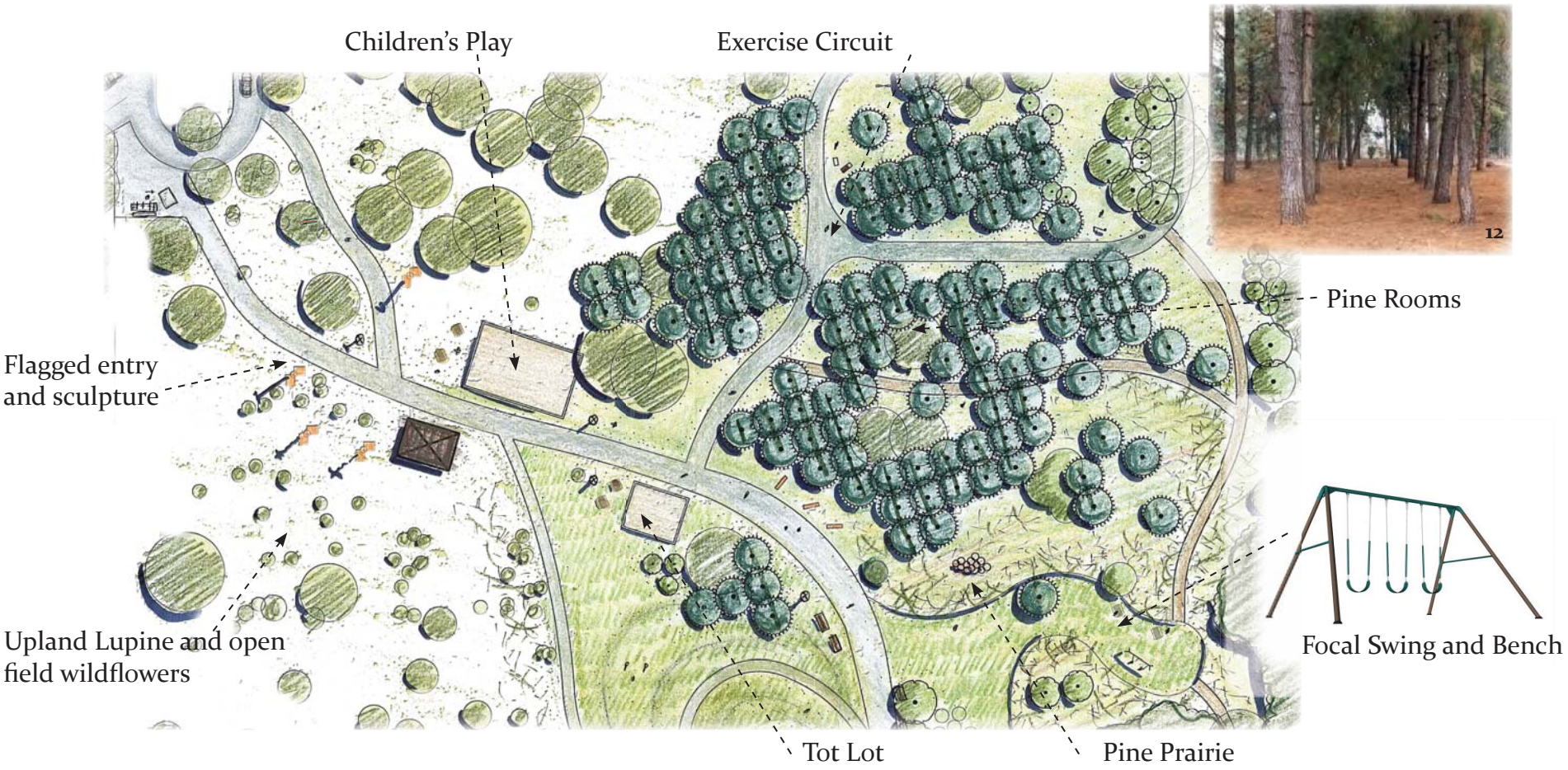
Open Lawn Detail and Section





*All paths are crushed shell and gravel paths compacted to ADA standards

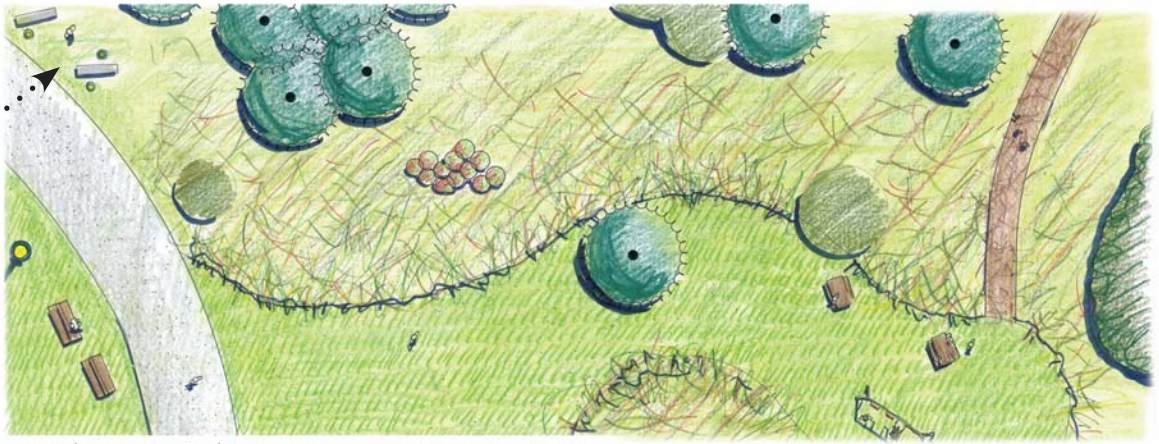
Rotary Park North Overview



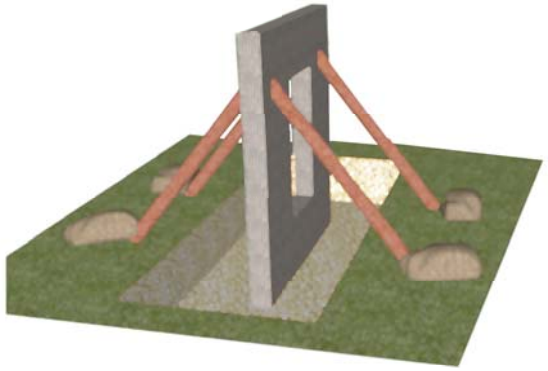
North Pine Prairie Perspective

North Pine Prairie Details

Parc Ventana sculpture set with footer



North Prairie Plan



Alternate supports for trial installation

Existing

Inspiration

North Entry Perspective

North Entry Details

Entry gate-way and flags pro-vide nature education

Upland Lupine and open field wildflowers

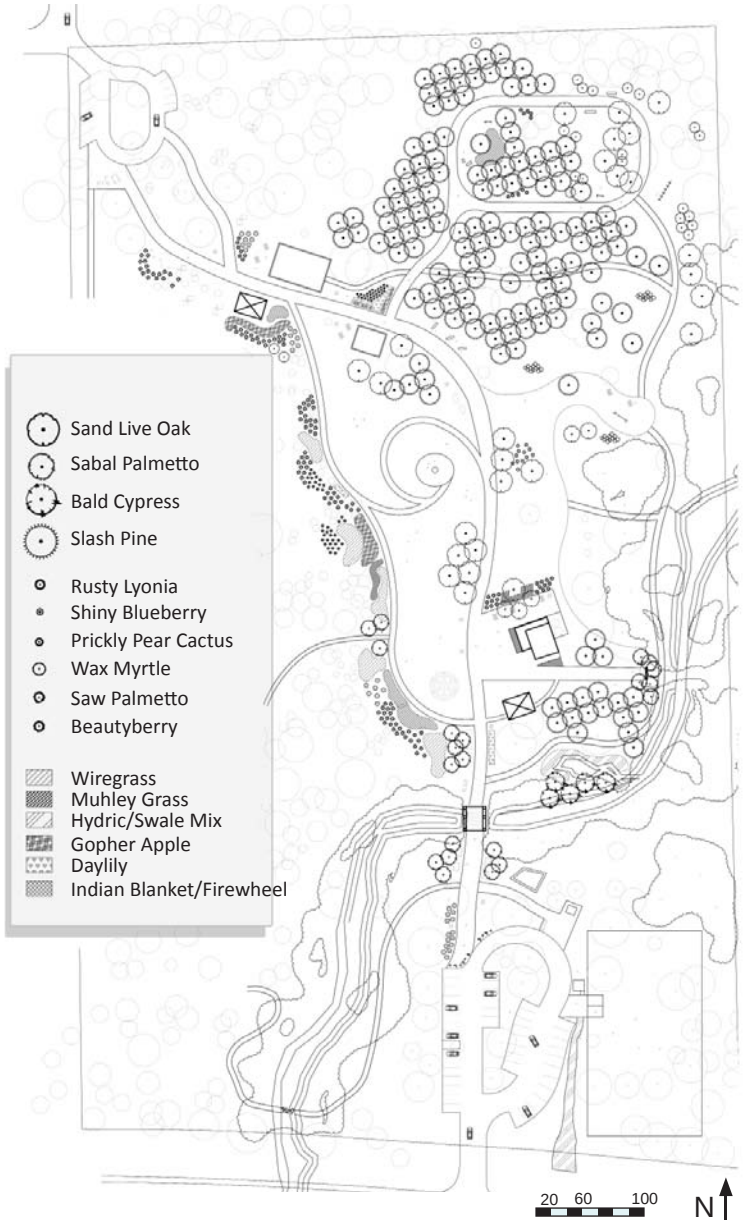
Installed hawk's nest

Solar Panels provide night lighting

Children's natural playground

Planting Specifications

Planting Plan



Rusty Lyonia . **17**

Shiny Blueberry .

Sunshine Mimosa

Many of the species presented are selected to thrive under neglect if planted within their natural habitat zone. All are found readily at native plant nurseries or harvested on site. Tree and shrub plantings are all native to the site and should be planted in saturated soils July-September. Relying on temporary irrigation only if necessary. Grasses and edge species need only 2-3 maintenance clearings a year upon further research. Lawn maintenance kept to monthly or bi-monthly mowings.

Southern Slash Pine

Gopher Apple

Prickly Pear

Planting List

*Prairie Seed/ Liner Tray/ **1** Gallon List*

Pine Prairie and Edge Mix			*Non -Native
Andropogon sp.	Bushy Bluestem, Broomsedge	Golden brown showy inflorescense in fall.	To 5'. Self seeding
Aristida stricta	Wiregrass		
*Ascelpias curassavica**	Scarlett Milkweed	Orange to red flowers on thin erect stems. Monarch attr.	To 4'. Tolerant of wet and dry sandy soil w/o supplemental water
Bidens sp.	Spanish Bayonet	Small year round white or yellow flowers	To 3'. Semi-showy, self seeding
Coreopsis sp. leavenworthii, lanceolata	Tickseed	Yellow sunflower in mid spring	To 2'. Mesic to moist depending on species
Chamaecrista nictitans	Sensitive Pea	Yellow pea flowers. Attr. for doves and quails.	To 3' on drier site. Scarification needed
Conoclinum coelestinum	Blue Mistflower	Pale blue clusters summer-fall. Butterfly attr.	To 3' in moister regions
Eragrostis spectabilis	Purple Love Grass	Purple-red grass flowers late summer to fall	1-3' on dry site
Ipomopsis rubra	Standing Cypress	Red inflorescence and great wildlife attractant	2-4 ' Tall
Liatris spicata	Dense Blazing Star	Purple tubular on stalks summer-fall	1-5' tall, plant in moister regions
Liatris gracilis	Slender Blazing Star	Purple tubular on stalks summer-fall	Similar to dense liatris but on drier sites
Monarda punctata	Spotted Beebalm	White-purple lamiaceae flowers in summer-fall	Full sun on drier sites to 3'
Piloblephis rigida	Pennyroyal	Small fragrant flowers. Buttfly attr.	To 24" Native to open pine sand soil fields. Drought tolerant
Vernonia sp. gigantea,angustifolia	Ironweed	Perennial w/ purple aster flowers. Butterfly attr.	To 3' for both species. Drier site for *sp. angustifolia*, moister regions for *gigantea*

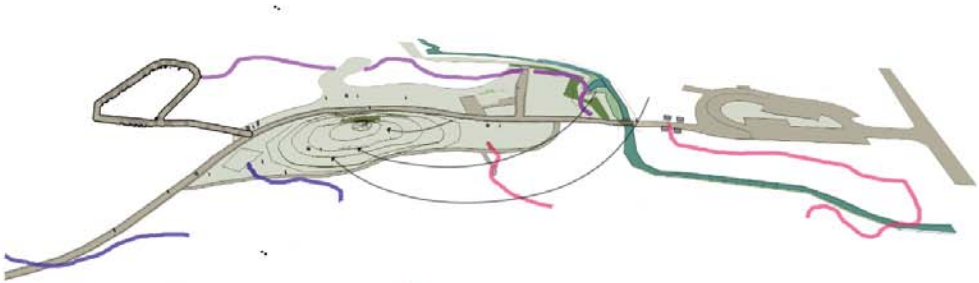
Planting List
Open Lawn Mix

Lawn Mix			*Non -Native
*Perennial Rye**	Rye grass	Used as overseeding and perennial if possible.	Common grass spread in fall or incorporated into mixture.
Erigeron quercifolius	Flea bane	Showy white ray flowers with yellow centers	To 2' in flowers. Moist to dry sites
Mimosa strigillosa	Powderpuff Senstitive GC	Pale pink flowers spring and fall. Nitrogen fixing legume	To 8". Spreading but not overpowering
Hydrocotyle sp.	Dollarweed	Flat peltate leaves.	To 6". Suited for moist sand
Oxalis sp.	Clover	Small yellow flowers on clover leaves	To 8". Small filler ground cover
*Paspalum notatum**	Bahia - Argentine grass	Common grass mix used to fill and cover	Very drought tolerant and low maintenance. Seed heads cut in summer
Phylla nodiflora	Matchstick weed	Ground cover with small 'matchstick' flowers	Mounding to 10". Very drought tolerant
*Richardia grandiflora**	Mexican Clover	Ground cover with small white tubular flowers. butterfly attr,	Mounding to 6". Drought tolerant with well-drained soils
Sisyrinchium atlanticum	Blue eyed grass	Pale blue flowers spring-summer.	To 20". Prefers moister site but drought tolerant
Taraxacum officinale	Dandelion	Yellow flowers with airy white seed pods	To 24" in flower. Flowers and seeds are well known
*Trifolium refluxum**	Buffalo Clover	Pinkish, red blooms in springs. Nitrogen fixing legume	4-10", Annual reseeder. Scarification needed.

Phasing and Implementation

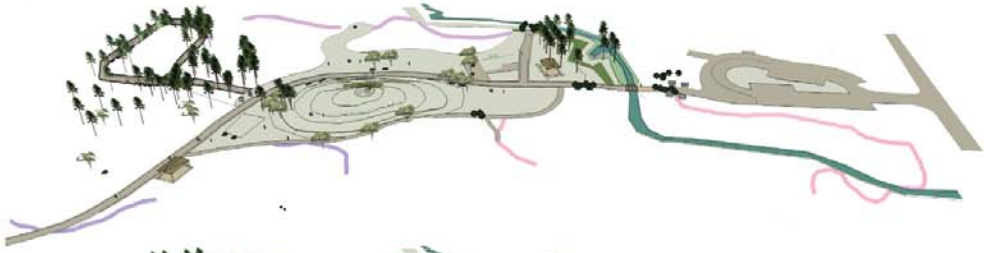
Phasing

Phase I



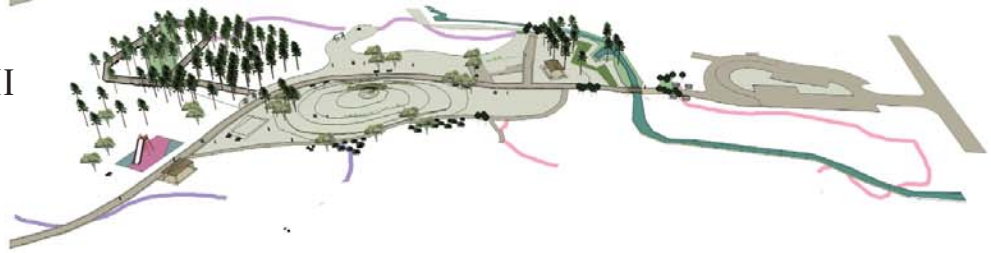
-Displaced fill and concrete creates a landform mound
-Pathways, nature trails sculptures

Phase II



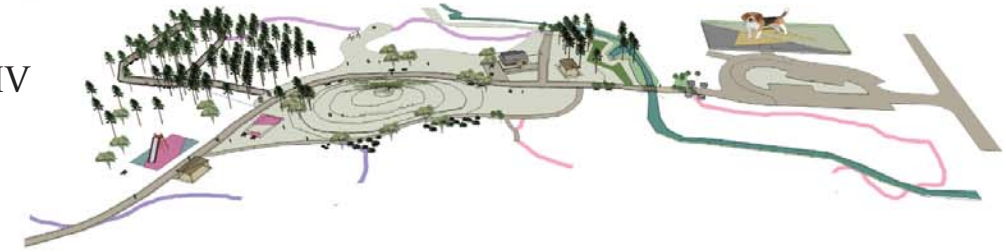
-Install pine rows and shade trees
-Pavilions and seating
-Exercise circuit and 2nd phase of sculptures

Phase III



-Play structures implemented according to capital
-Final round of planting completed.

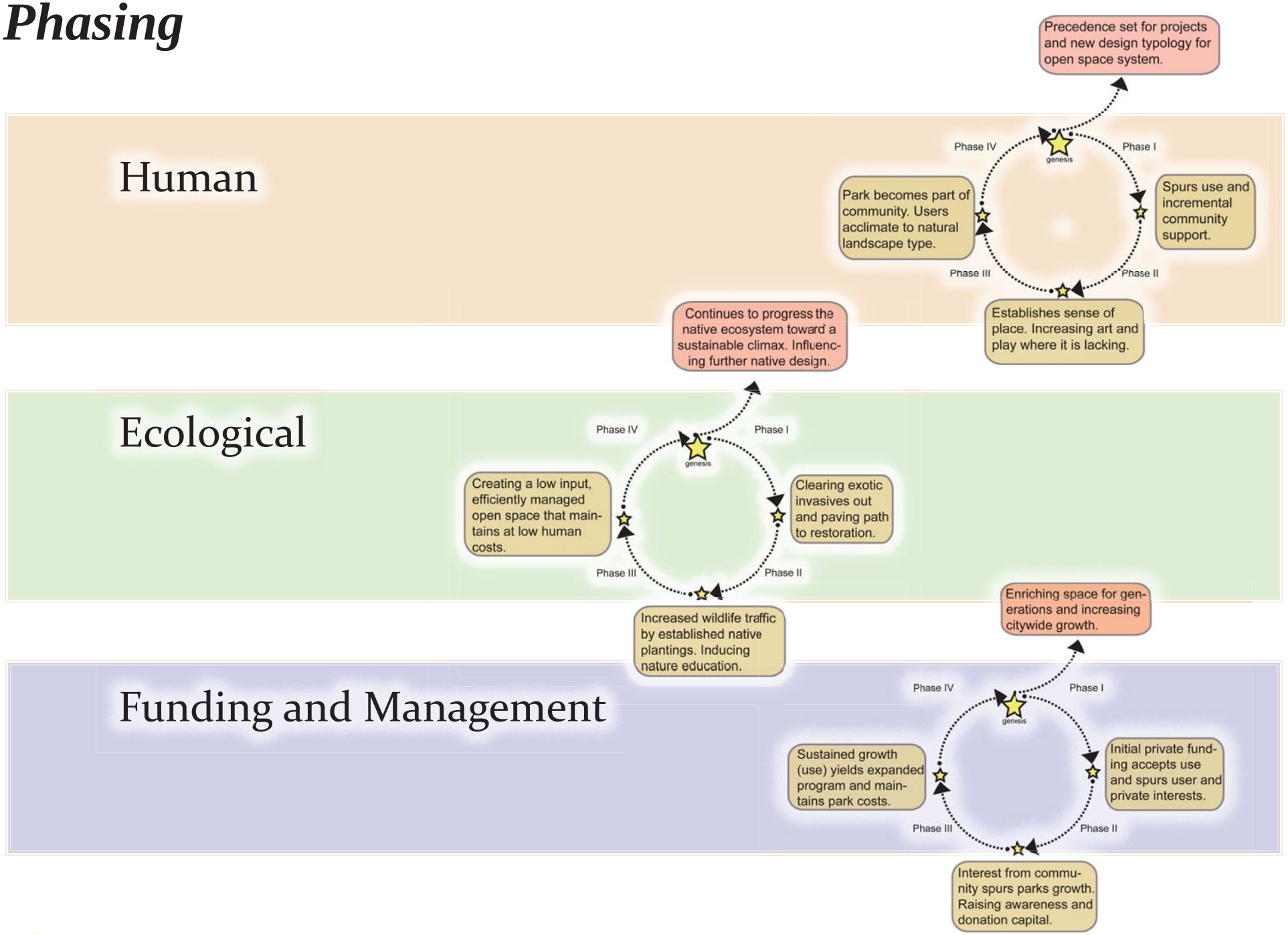
Phase IV



-Central rest room, equipment, and vending facility
-Fenced in dog park installed with signage per spec.

Park phasing goals for longevity include re-engineering creek basins, timber harvesting for site upgrades and dog waste composting or digestor,

Phasing


Human
Precedence set for projects and new design typology for open space system.
Phase IV
genesis
Phase I
Park becomes part of community. Users acclimate to natural landscape type.
Spurs use and incremental community support.
Phase III
Phase II
Establishes sense of place. Increasing art and play where it is lacking.
Ecological
Continues to progress the native ecosystem toward a sustainable climax. Influencing further native design.
Phase IV
genesis
Phase I
Creating a low input, efficiently managed open space that maintains at low human costs.
Clearing exotic invasives out and paving path to restoration.
Phase III
Phase II
Increased wildlife traffic by established native plantings. Inducing nature education.
Funding and Management
Enriching space for generations and increasing citywide growth.
Phase IV
genesis
Phase I
Sustained growth (use) yields expanded program and maintains park costs.
Initial private funding accepts use and spurs user and private interests.
Phase III
Phase II
Interest from community spurs parks growth. Raising awareness and donation capital.

Implementation and Management

Infrastructure Implementation

-As solar panel technology offers cheaper solutions. The north portion of the site can exclude FPL utilities. Solar energy can be installed in aesthetic fashion to operate pedestrian lighting and water fountains below grade.

-Alternatively, utility lines should run along easternmost walkway shielded by planting buffer.

-Wifi routers running off charged battery can accommodate outdoor study.

Program Management

-Sculptures should be built for permanence but with simple deconstruction in mind. This will allow temporary installments exhibiting local art.

Habitat Management and Materials

-Prairie and open lawn mowing to be scheduled seasonally upon further research.

-Timber harvesting maintained at intervals for a variety of functions

-Field selected cap rock to be used in seating areas and pathways as bollards

-Pine needle and cone bedding for tree protection in dog area.

-Decomposed granite or similar native crushed shell and stone will comprise the fenced in dog park. Depending on field tests.

Conclusions

While many of the design elements presented at Rotary Park may embellish my goals and objectives. Most of them personify the overall concept of a more efficient and *simply* sustainable solution that heightens both human use and ecological preservation.

Bibliography and Photography Credits

Contacts

Bonita Springs Historical Society
David Green - FGCU Dept of Biology. Assistant at Bonita Nature place
Gary Price - City Manager, Bonita Springs City Hall
Mike Liggins - Director of Engineering at Bonita Springs Utilities, Inc. Rotary member

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