Sun City Center

Analysis of Regional Connectivity, Restoration, and Golf Course Adaptive Reuse Opportunities

Work completed by:
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Fall 2016 Environmental Planning and Design Studio BLA Students
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Project Overview

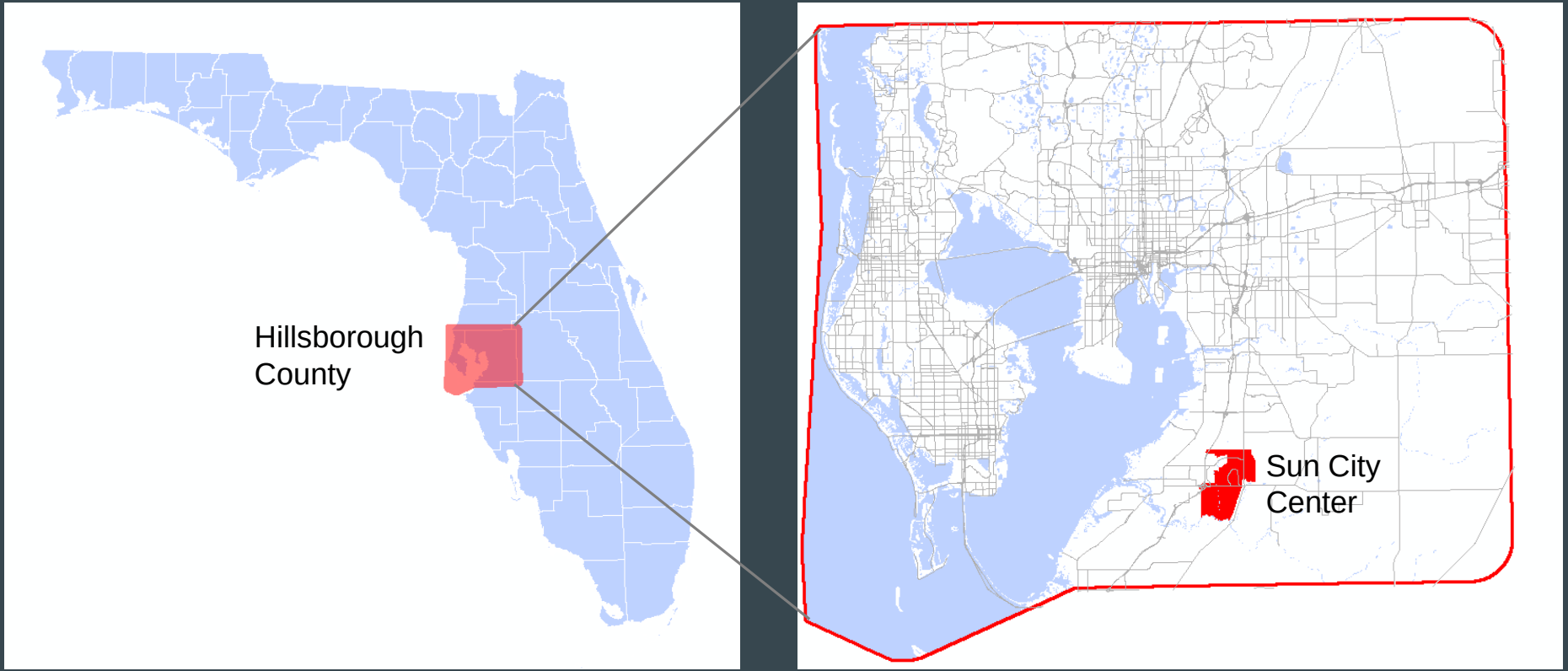
Hillsborough County

- Project Goals and Objectives
- Regional Suitability Analysis
- Regional Conflict Analysis and Future Land Use Plan

Sun City Center

- Hydrologic Analysis
- Connectivity Analysis
- Stormwater Analysis
- Golf Course Conceptual Master Plan for Adaptive Reuse

Site Location

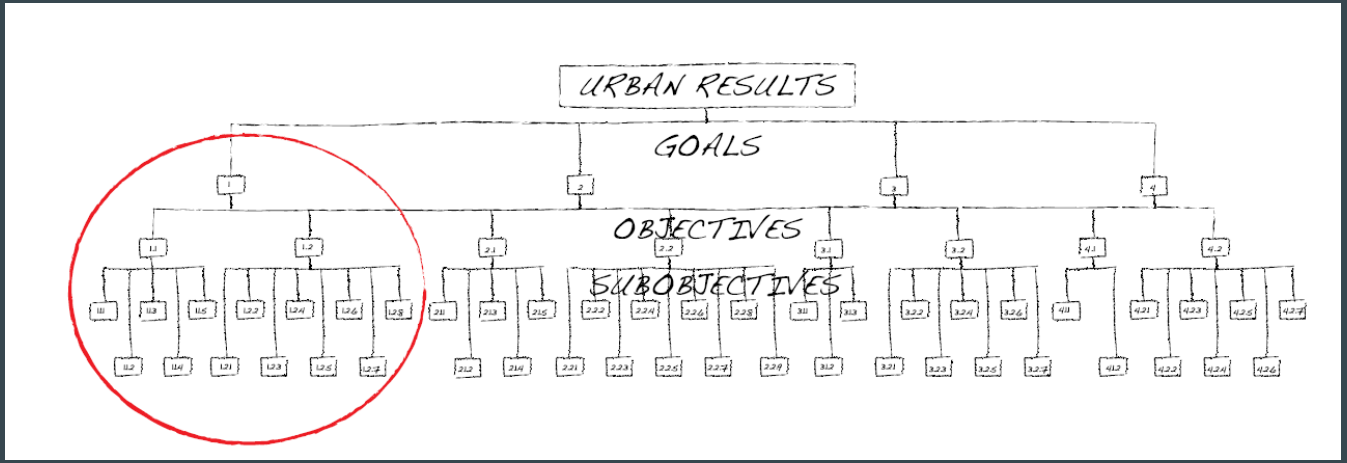


Hillsborough County

Regional Suitability Analysis

Suitability Analysis

- Character Research
- Goals and Objectives



Urban Suitability

Goal 1 Identify lands suitable for residential land use

- Objective 1.1 Identify lands physically suitable for residential land use
- Objective 1.2 Identify lands economically suitable for residential land use
- Objective 1.3 Identify lands historically and culturally suitable for residential land use

Goal 2 Identify land suitable for commercial land use

- Objective 2.1 Identify lands physically suitable for commercial land use
- Objective 2.2 Identify lands economically suitable for commercial land use
- Objective 2.3 Identify lands historically and culturally suitable for commercial land use

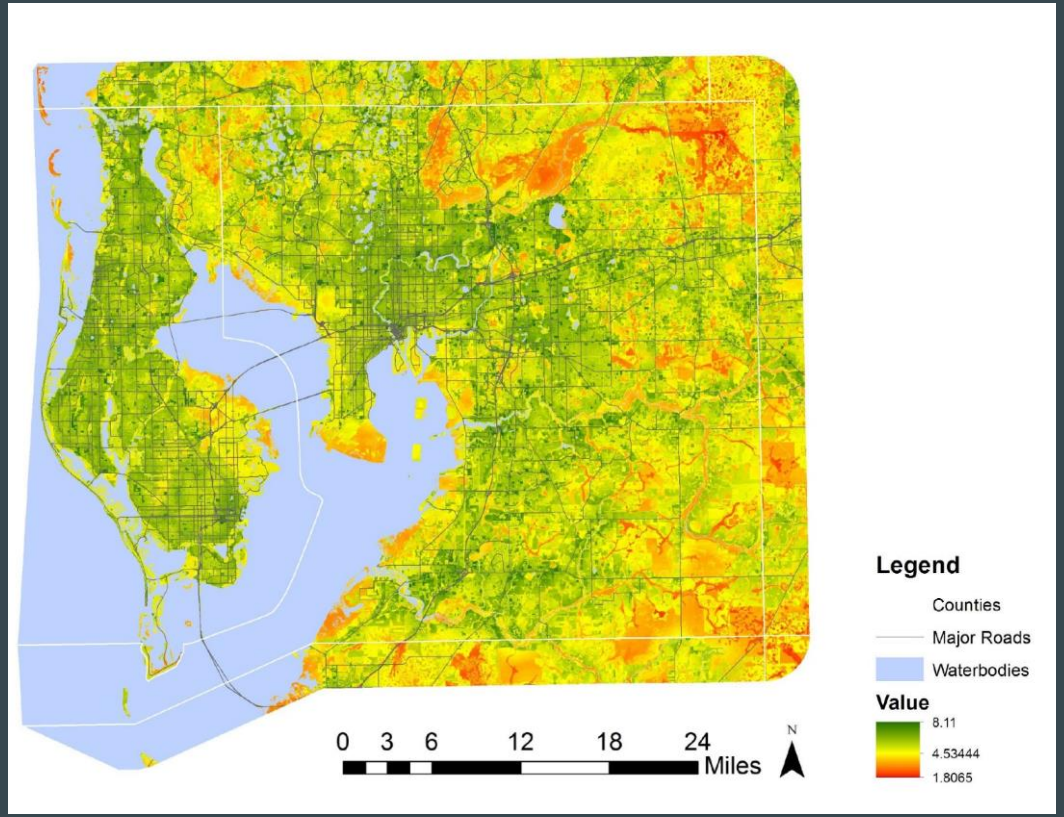
Goal 3 Identify lands suitable for industrial land use

- Objective 3.1 Identify lands physically suitable for industrial land use
- Objective 3.2 Identify lands economically suitable for industrial land use
- Objective 3.3 Identify lands historically and culturally suitable for industrial land use

Goal 4 Identify lands suitable for recreational land use

- Objective 4.1 Identify lands physically suitable for active recreational land use
- Objective 4.2 Identify lands economically suitable for active recreational land use
- Objective 4.3 Identify lands historically suitable for active recreational land use
- Objective 4.4 Identify lands culturally suitable for active recreational land use

Urban Suitability



Agricultural Suitability

Goal 1 Identify land suitable for arable crops

- Objective 1.1 Identify suitable land for arable crop production
- Objective 1.2 Find soils suitable for crop production
- Objective 1.3 Identify economically suitable land for arable crop production

Goal 2 Identify land suitable for livestock production

- Objective 2.1 Identify lands physically suitable for low intensity livestock
- Objective 2.2 Identify lands suitable for confined animal production

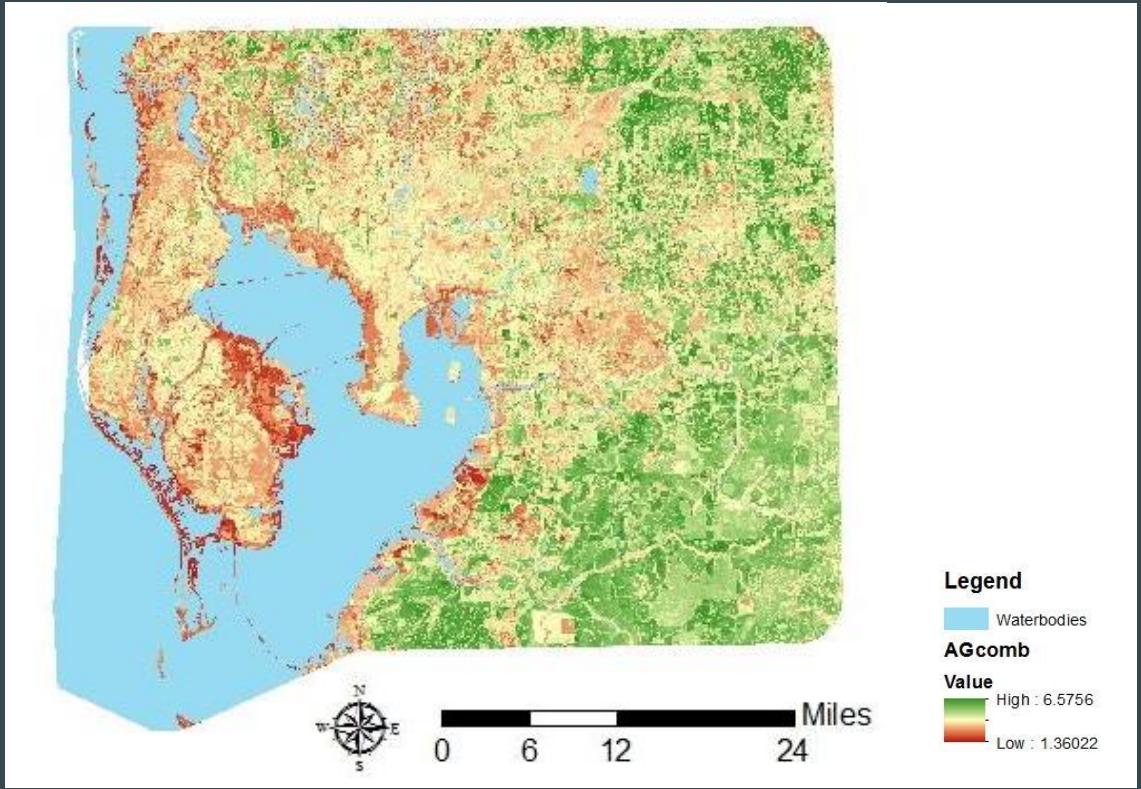
Goal 3 Identify land suitable for nurseries

- Objective 3.1 Identify lands physically suitable for nursery production
- Objective 3.2 Identify areas connected to transportation routes
- Objective 3.3 Find land with suitable natural systems

Goal 4 Identify land suitable for citrus

- Objective 4.1 Identify suitable land for citrus production
- Objective 4.2 Identify soils suitable for citrus production
- Objective 4.3 Identify economically suitable land for citrus production

Agricultural Suitability



Conservation Suitability

Goal 1 Identify areas for biodiversity protection
- Objective1.1 Identify land with biodiversity hotspots
- Objective1.2 Identify most suitable land for state listed species

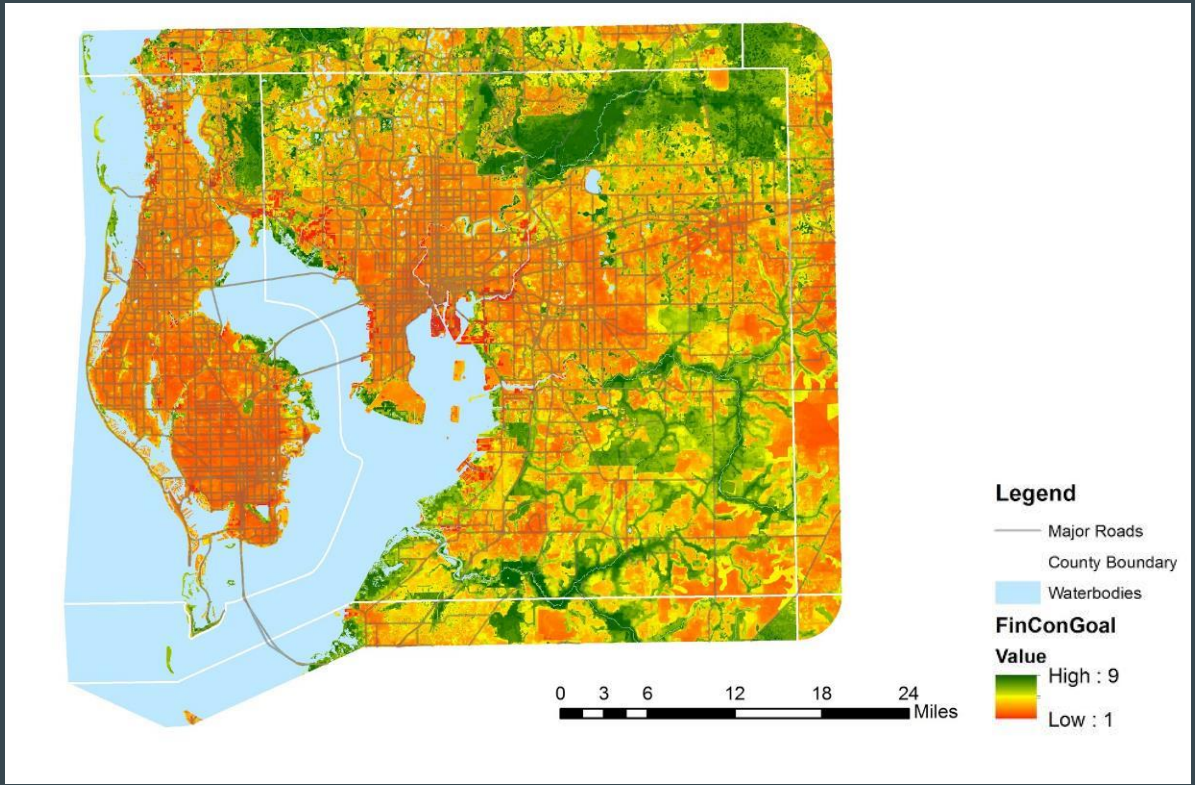
Goal 2 Identify areas important for landscape scale protection
- Objective2.1 Identify land with historic natural land cover using historic VCOM data that could potentially be restored
- Objective2.2 Identify land suitable for conservation buffers
- Objective2.3 Identify areas with high landscape integrity
- Objective2.4 Identify areas important to ecological greenways

Goal 3 Identify areas important for surface water resource protection
- Objective3.1 Identify degraded and historic wetlands that could be restored
- Objective3.2 Identify high quality wetlands to be protected
- Objective3.3 Identify land important for conserving high quality floodplains
- Objective3.4 Identify open water bodies

Goal 4 Identify areas important for groundwater aquifer recharge resource protection

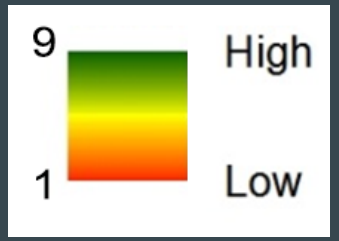
Goal 5 Identify most suitable land for resource-based recreation
- Objective5.1 Identify suitability based on location
- Objective5.2 Identify suitability based on physical data

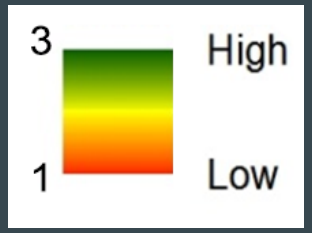
Conservation Suitability



Suitability → Conflict Analysis

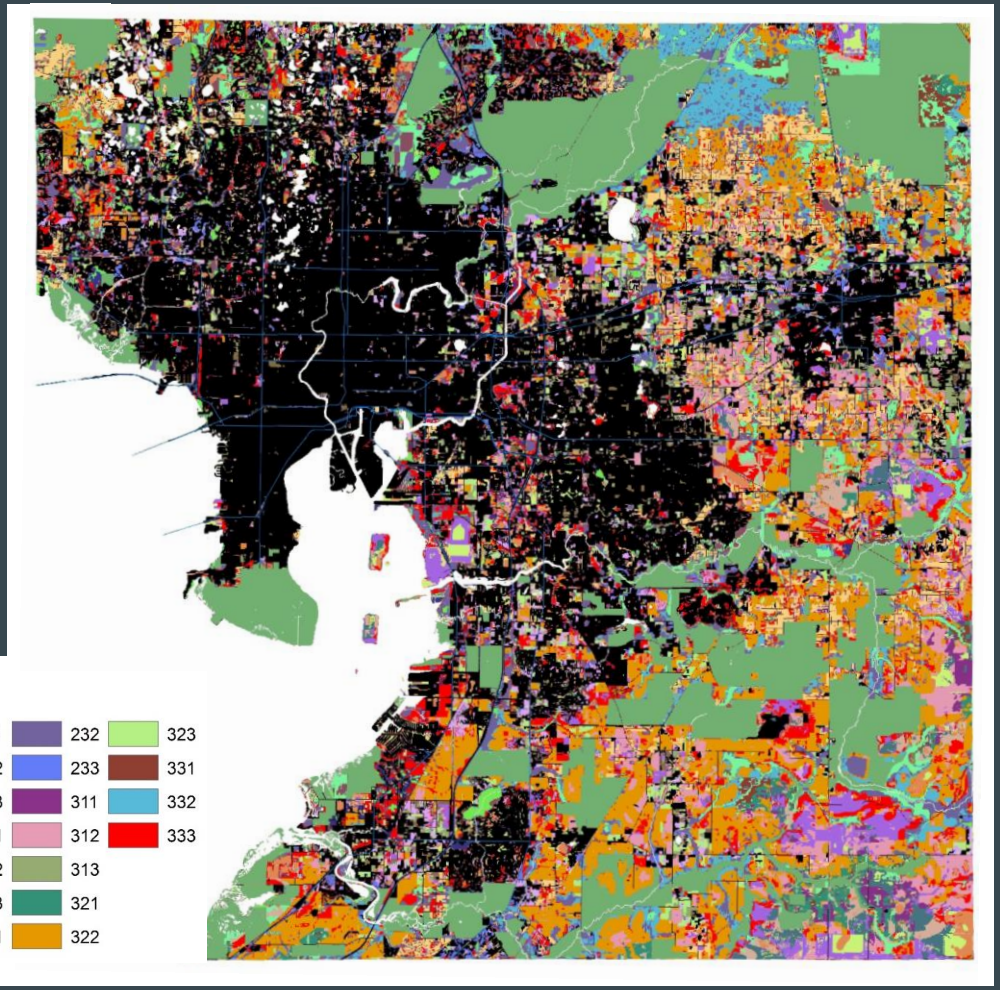
- Each group's suitability range (1 to 9) is re-grouped into values of 1, 2, or 3





- The groups are combined:
  (Agriculture * 100) + (Conservation * 10) + (Urban)

Conflict Grid



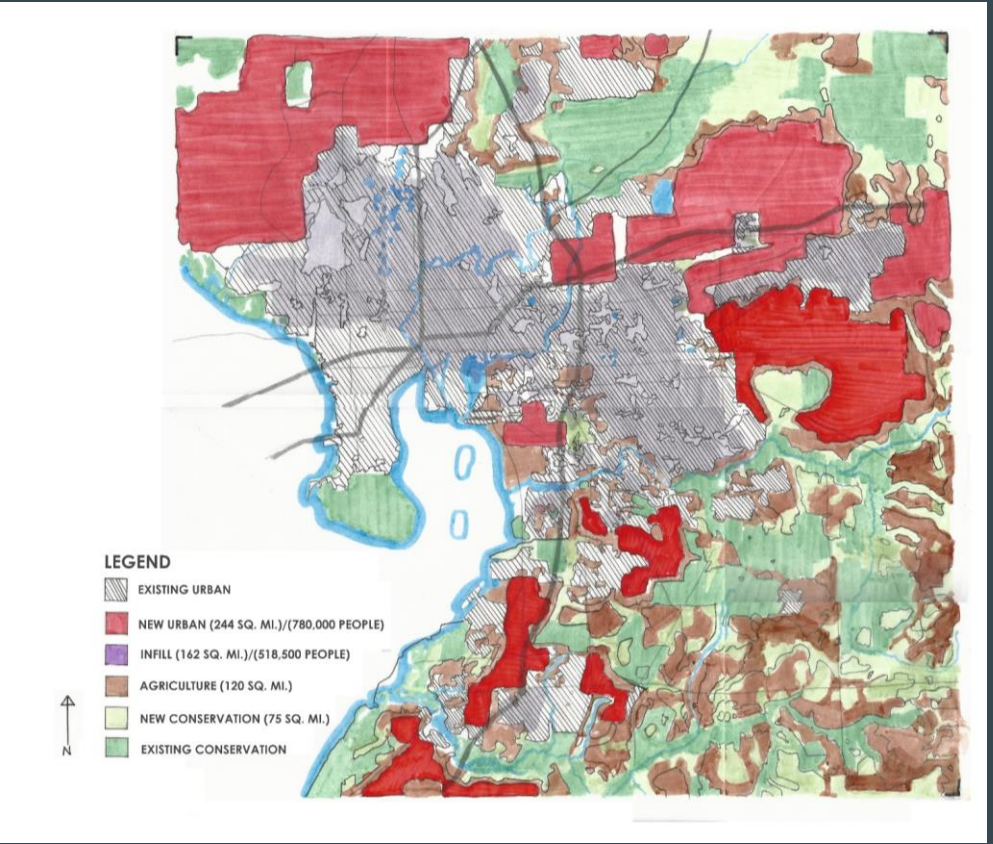
Future Land Use Plan for Hillsborough County

- Identify priority lands for agriculture, urban, conservation, and infill/redevelopment
- Allocate 1.3 million new people (40% of the new population should be allocated to infill development)
- Two groups:
  - Business as Usual Scenario (5 people/acre requiring 260,000 acres of greenfield and infill development)
  - Higher Density Scenario (7.5 people/acre requiring 175,000 acres of greenfield and infill development)

Business as Usual Scenario

Criteria:

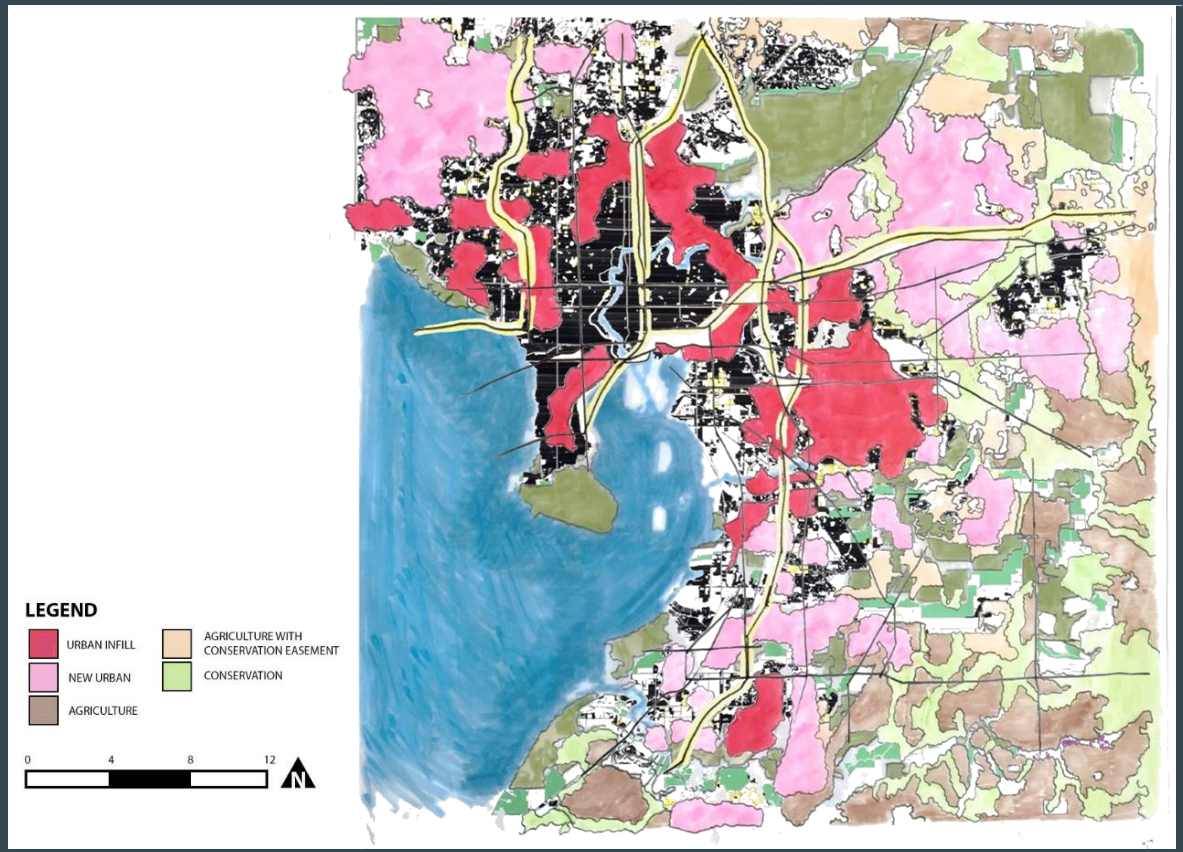
1. Biodiversity priorities
2. Conservation buffer



High Density Scenario

Criteria:

1. Coastline
2. Density of current urban
3. Conservation connection
4. Protection of most valuable agriculture and conservation



Sun City Center

Regional Hydrologic Analysis

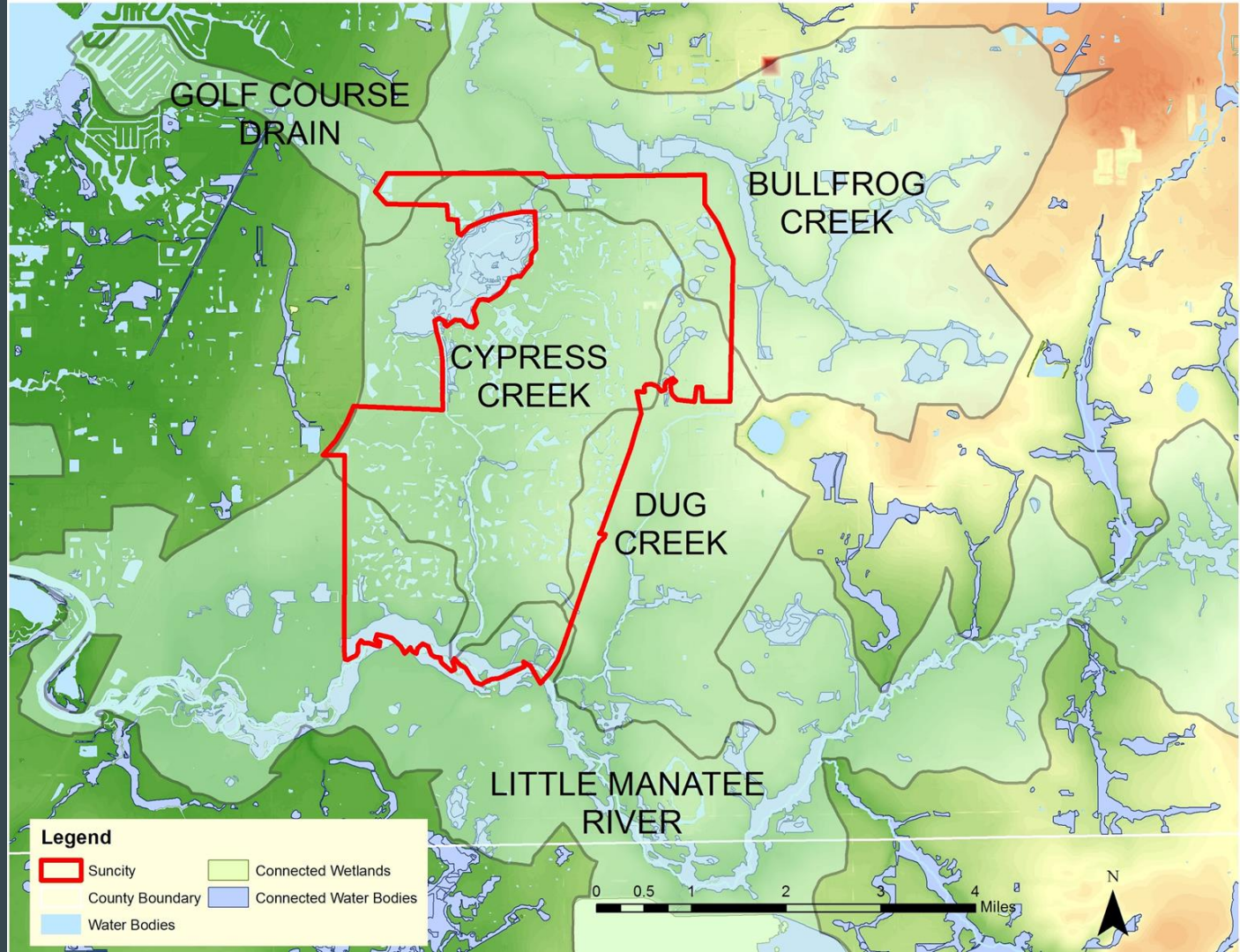
Daniel Gil and Jeffrey Haviland

Goal

To protect and restore water quality and hydrologic function related to the impact of Sun City Center on the Little Manatee River and Tampa Bay.

Sun City Center & Surrounding WaterSheds

Within the Alafia River major watershed

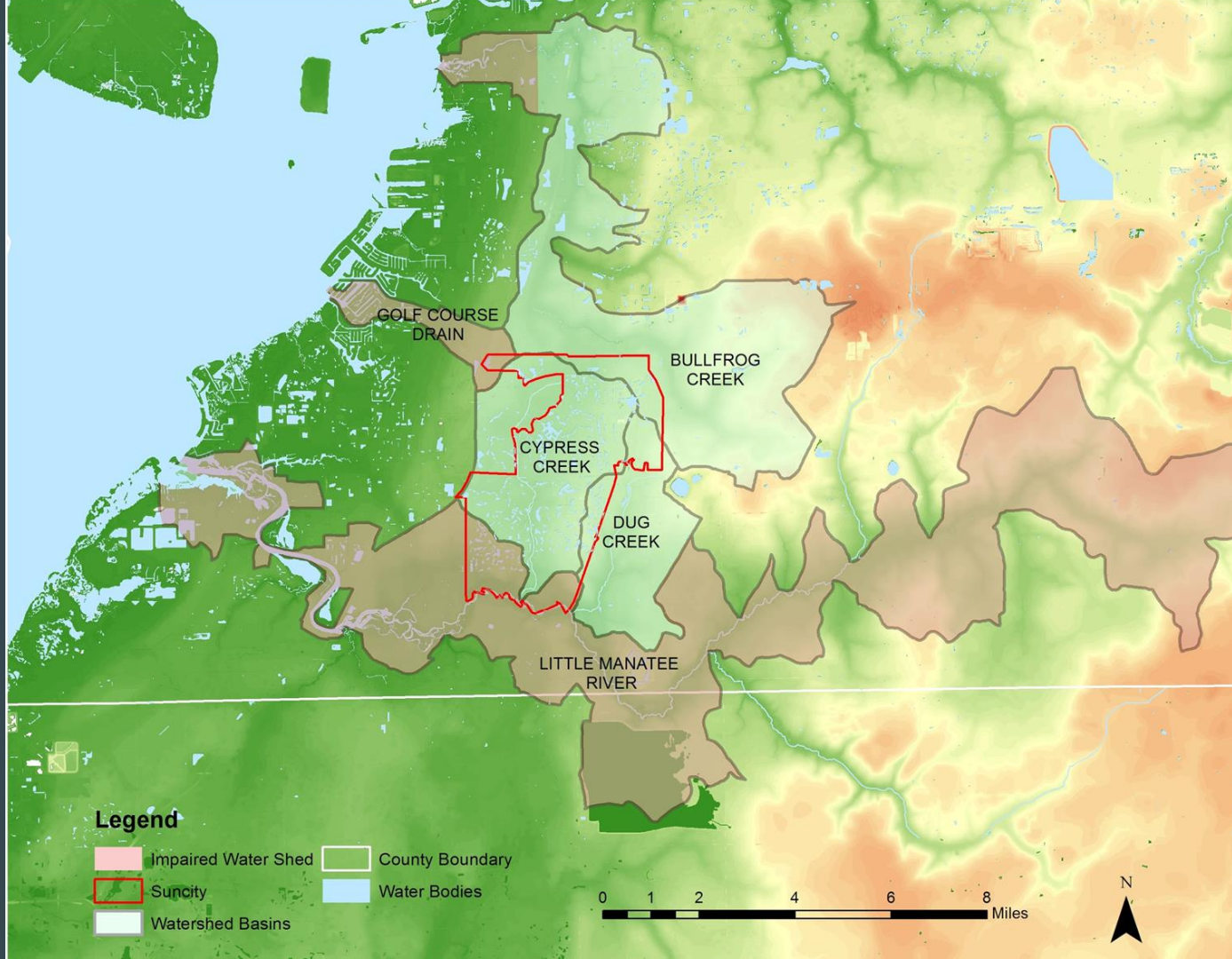


Objective 1

Identify watersheds affected by Sun City Center and identify waterbodies and wetlands that are connected to the Little Manatee River and Tampa Bay.

Objective 1

Affected watersheds



Objective 1

Water bodies and wetlands connected to the relevant surface water network

Objective 1

Water bodies and wetlands connected to the relevant surface water network

Objective 1

Water bodies and wetlands connected to the relevant surface water network

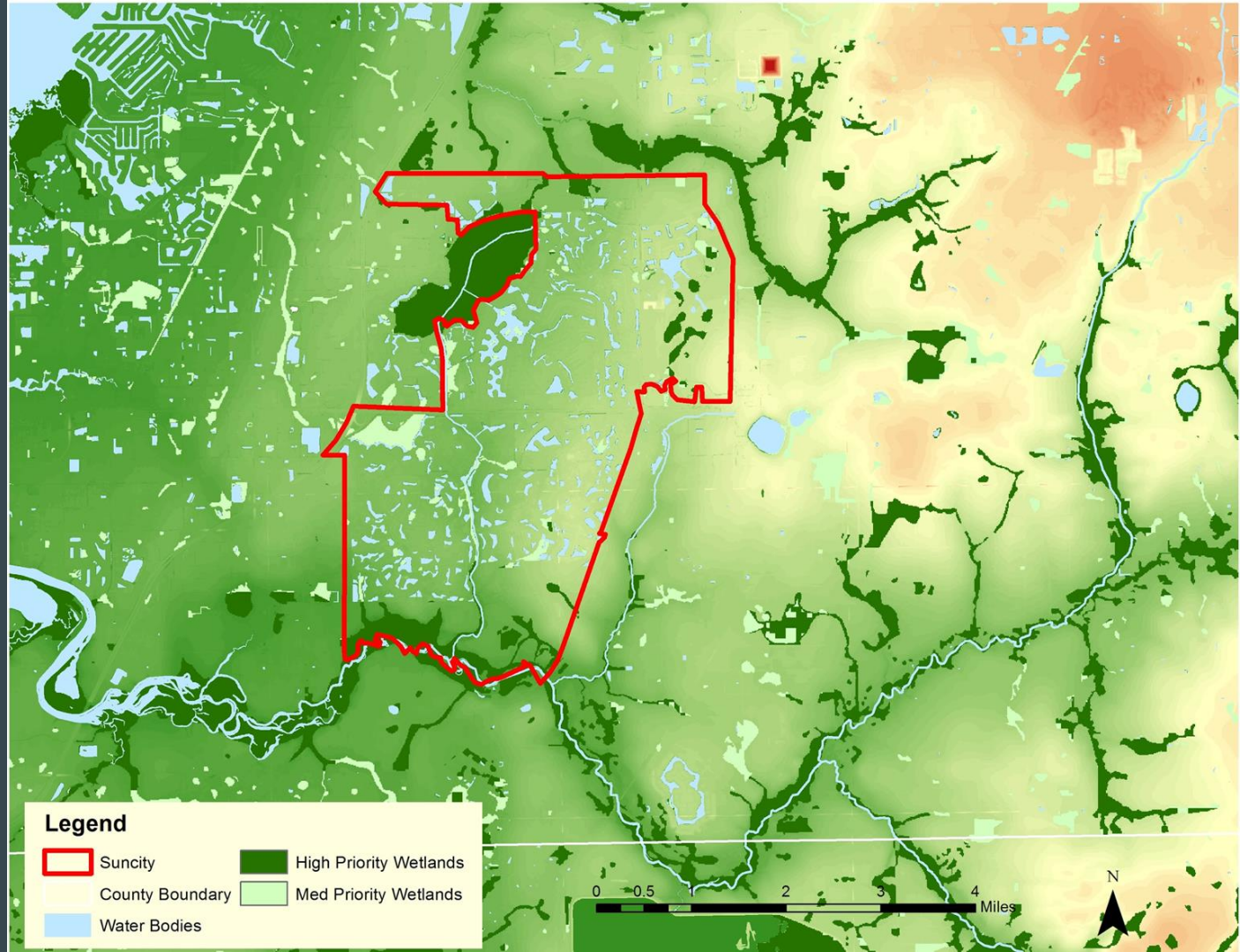
Objective 2

Identify lands for protecting high quality floodplains and wetlands

Objective 2

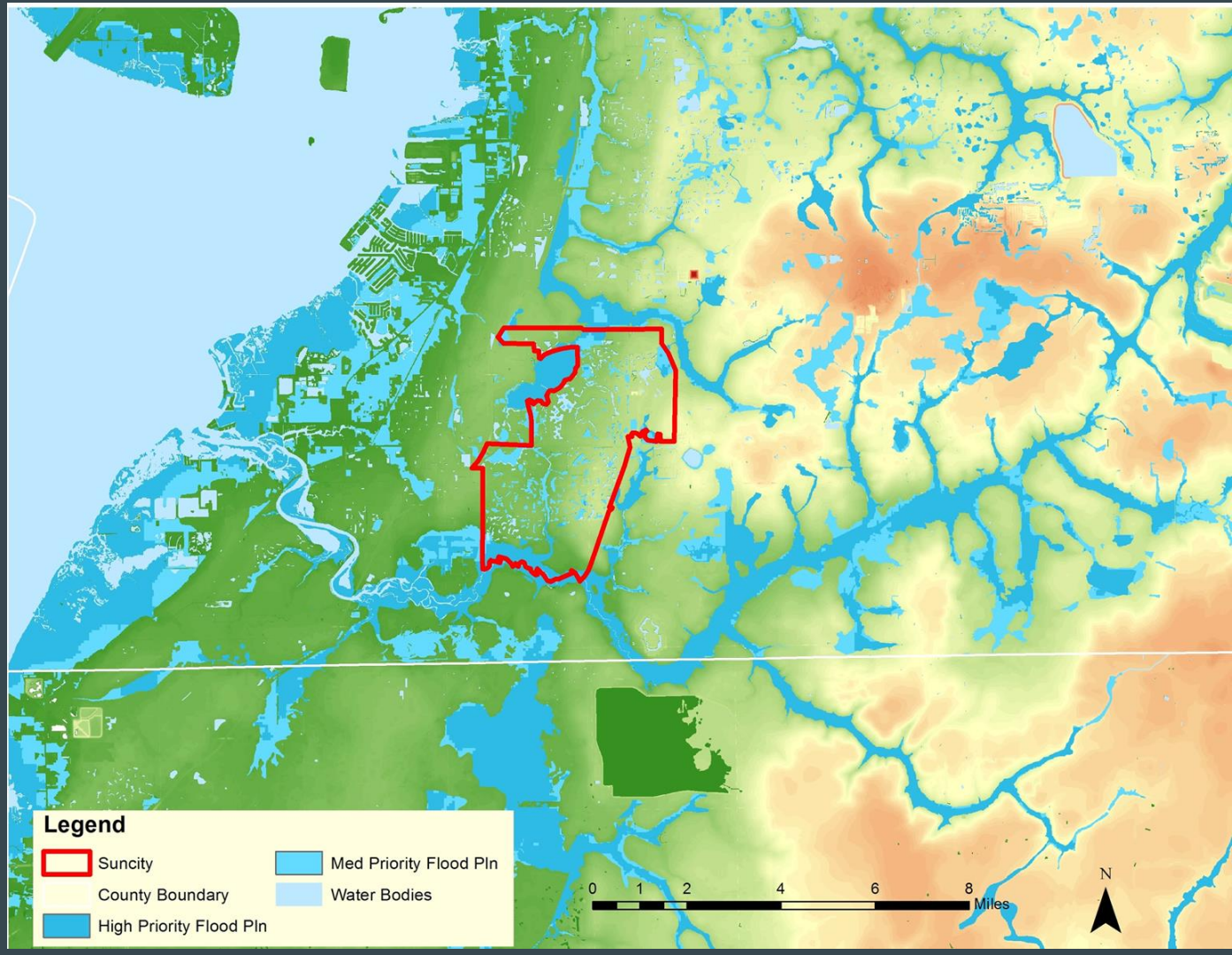
High priority wetlands

FNAI | CLIP - Florida Natural Areas Inventory's Critical Lands and Waters Identification Project (CLIP 4.0 Database)



Objective 2

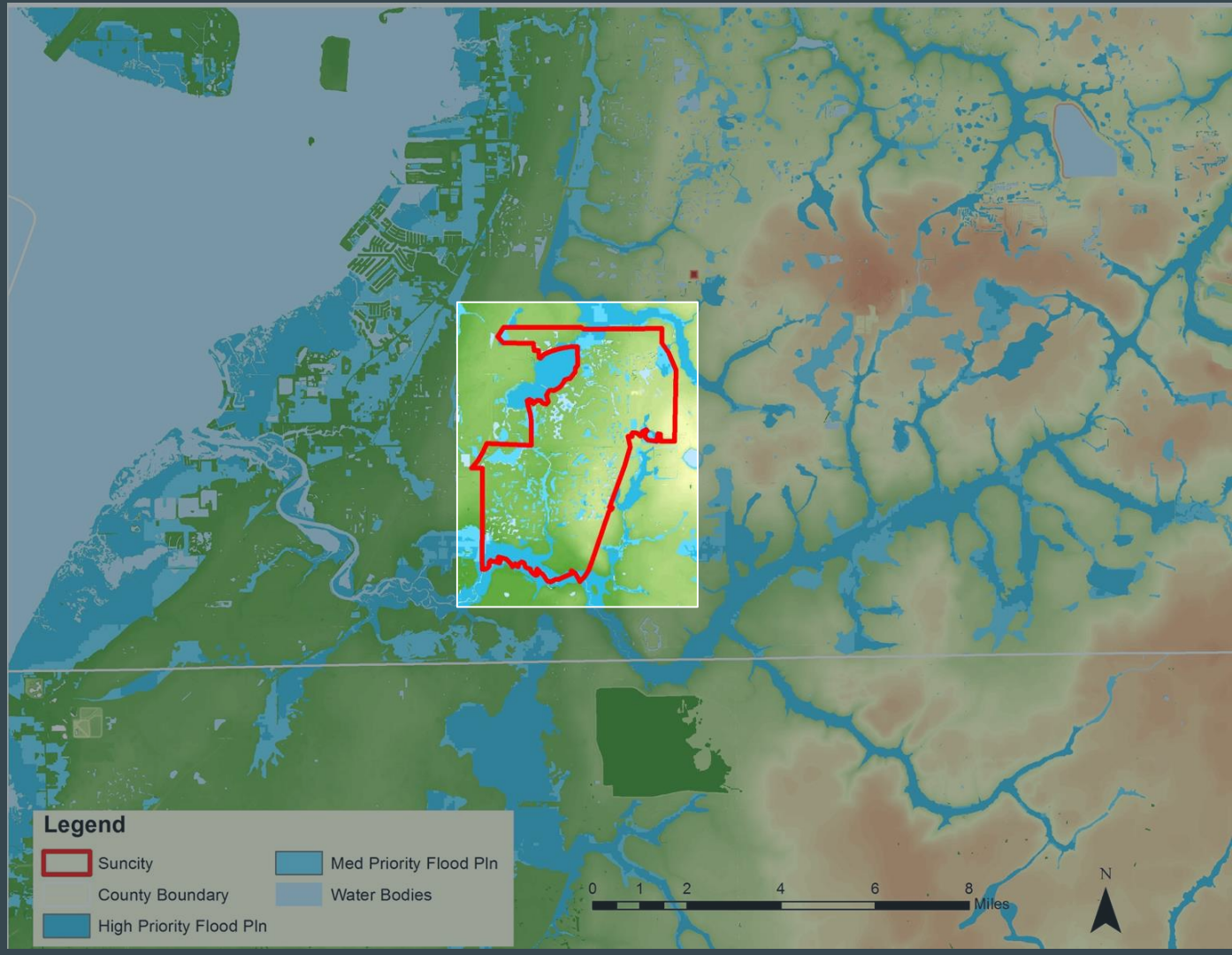
High priority floodplains



CLIP 4.0 Database

Objective 2

High priority floodplains

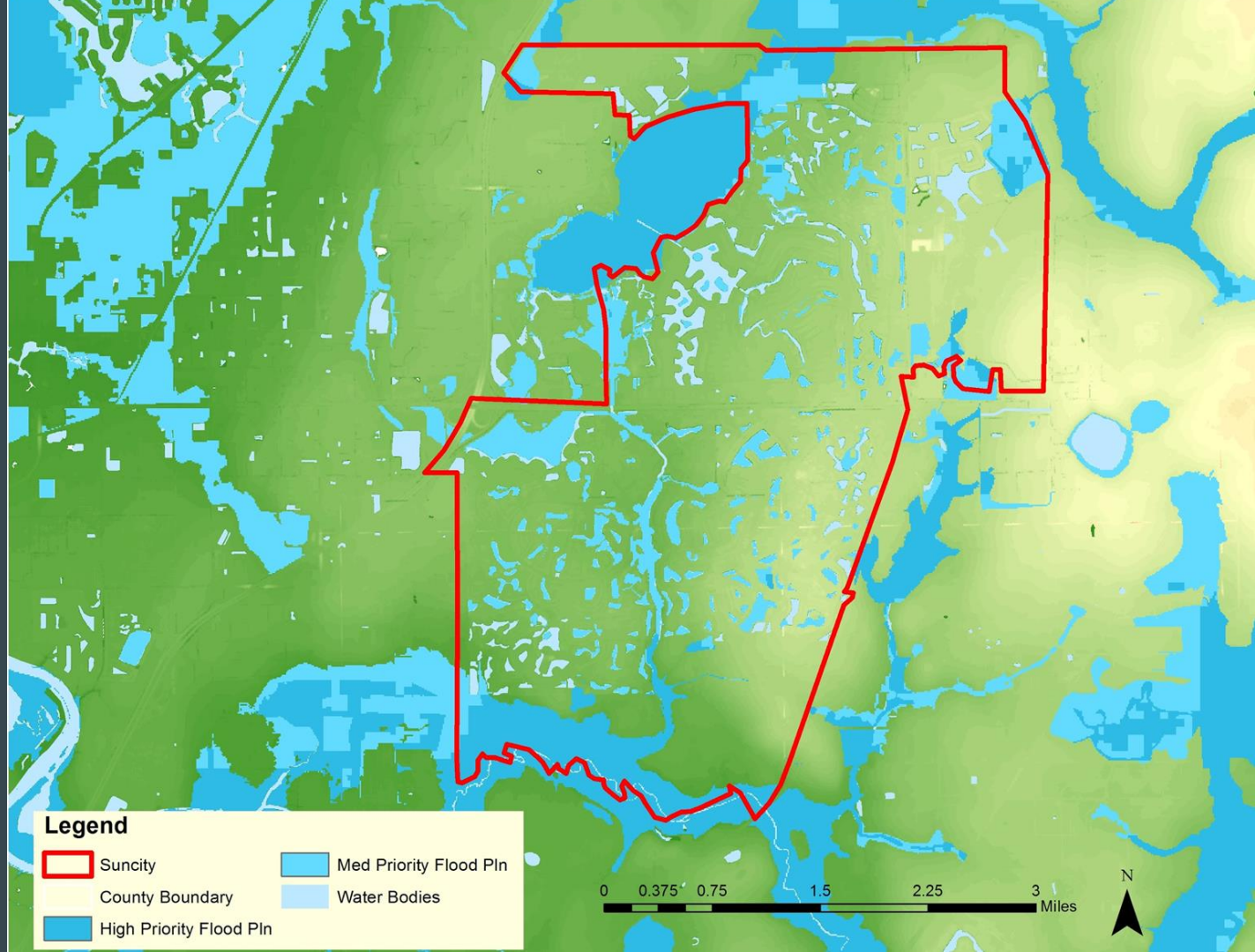


CLIP 4.0 Database

Objective 2

High priority floodplains

CLIP 4.0 Database



Objective 3

Identify lands that are high priority for restoring water quality and hydrologic function

Objective 3

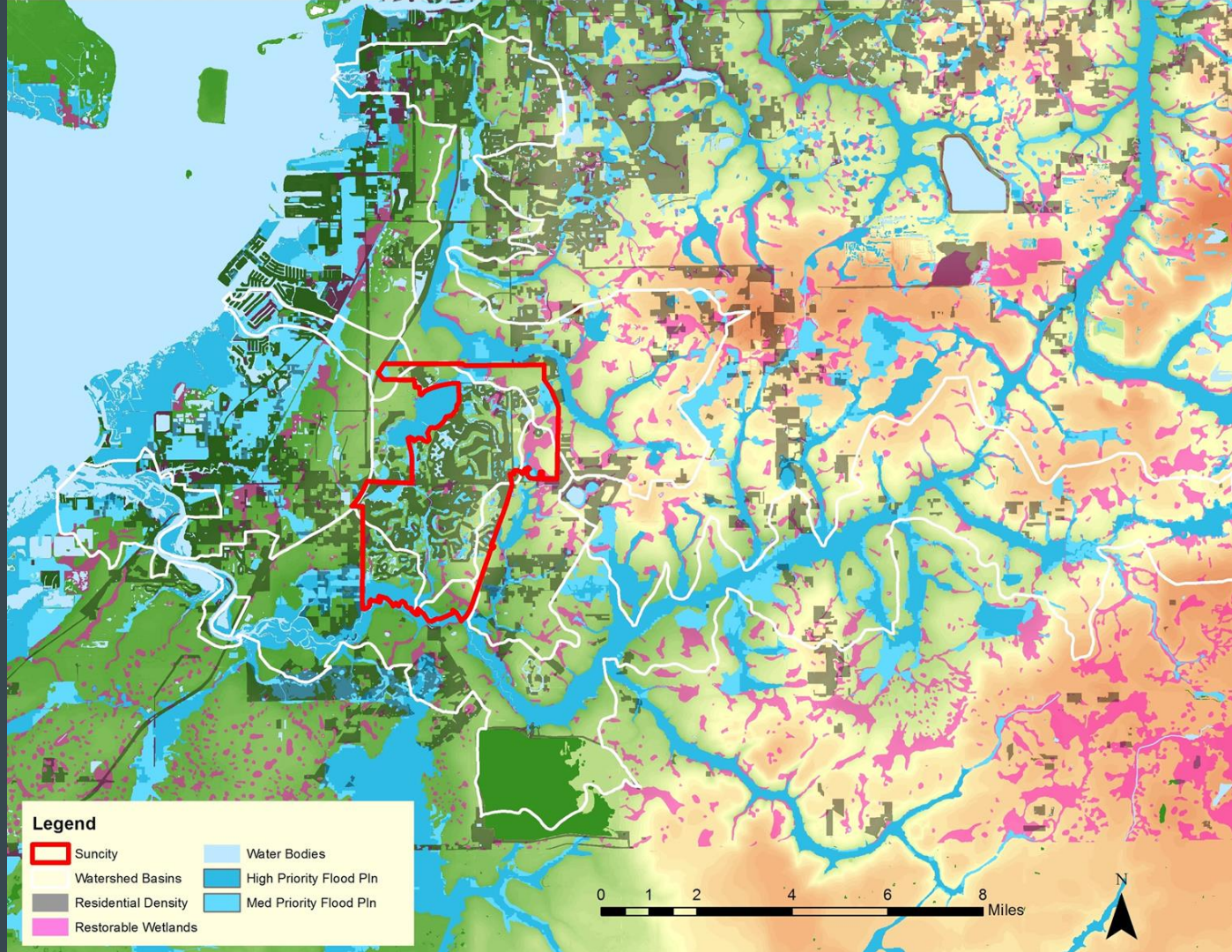
High priority lands for restoration

CLIP 4.0 Database

FDEP | FLUCCS Florida Land Use and Land Cover, Statewide

(FLUCCS Dataset)

NRCS USDA SOILS Dataset



Objective 3

High priority lands for restoration

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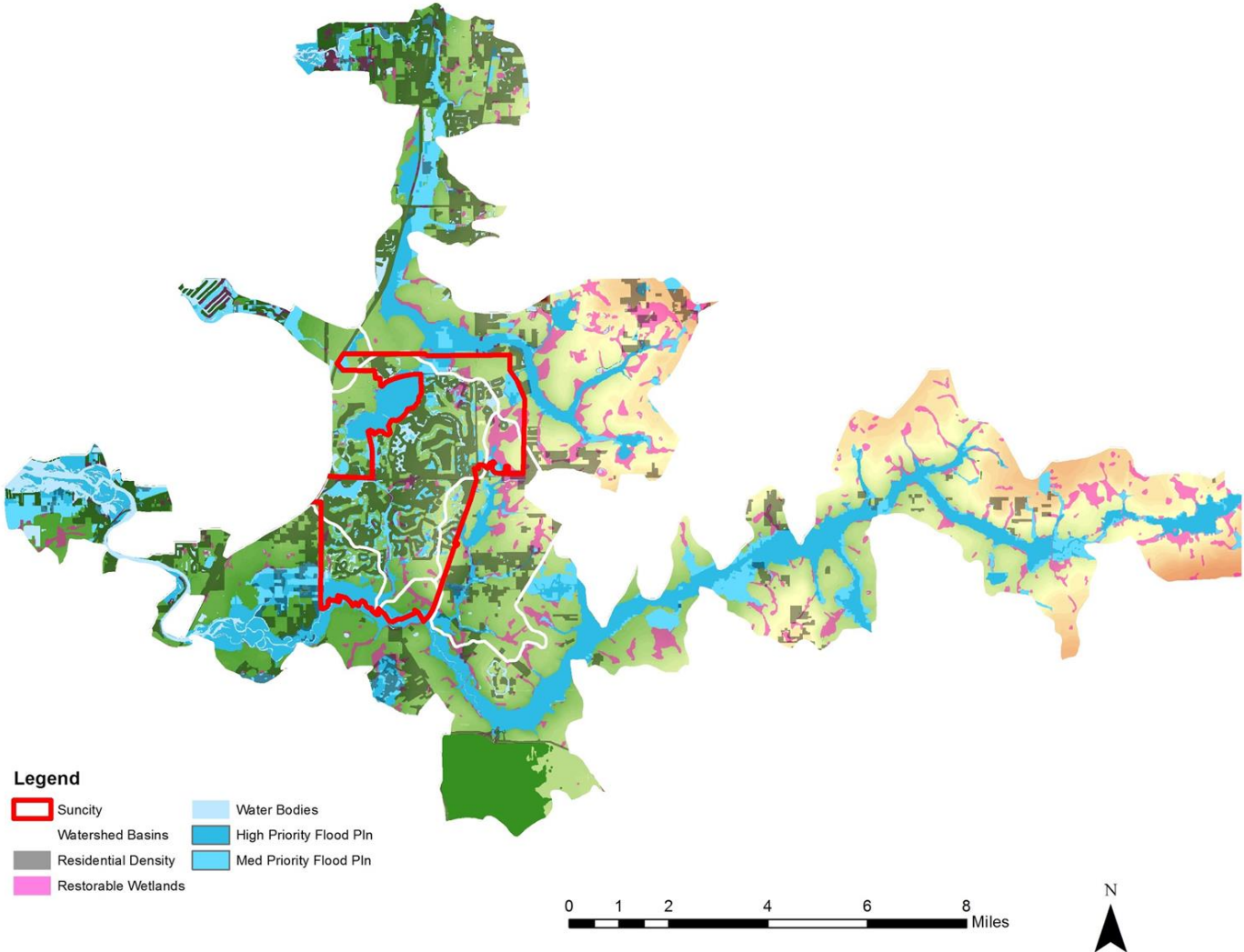

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High priority lands for restoration

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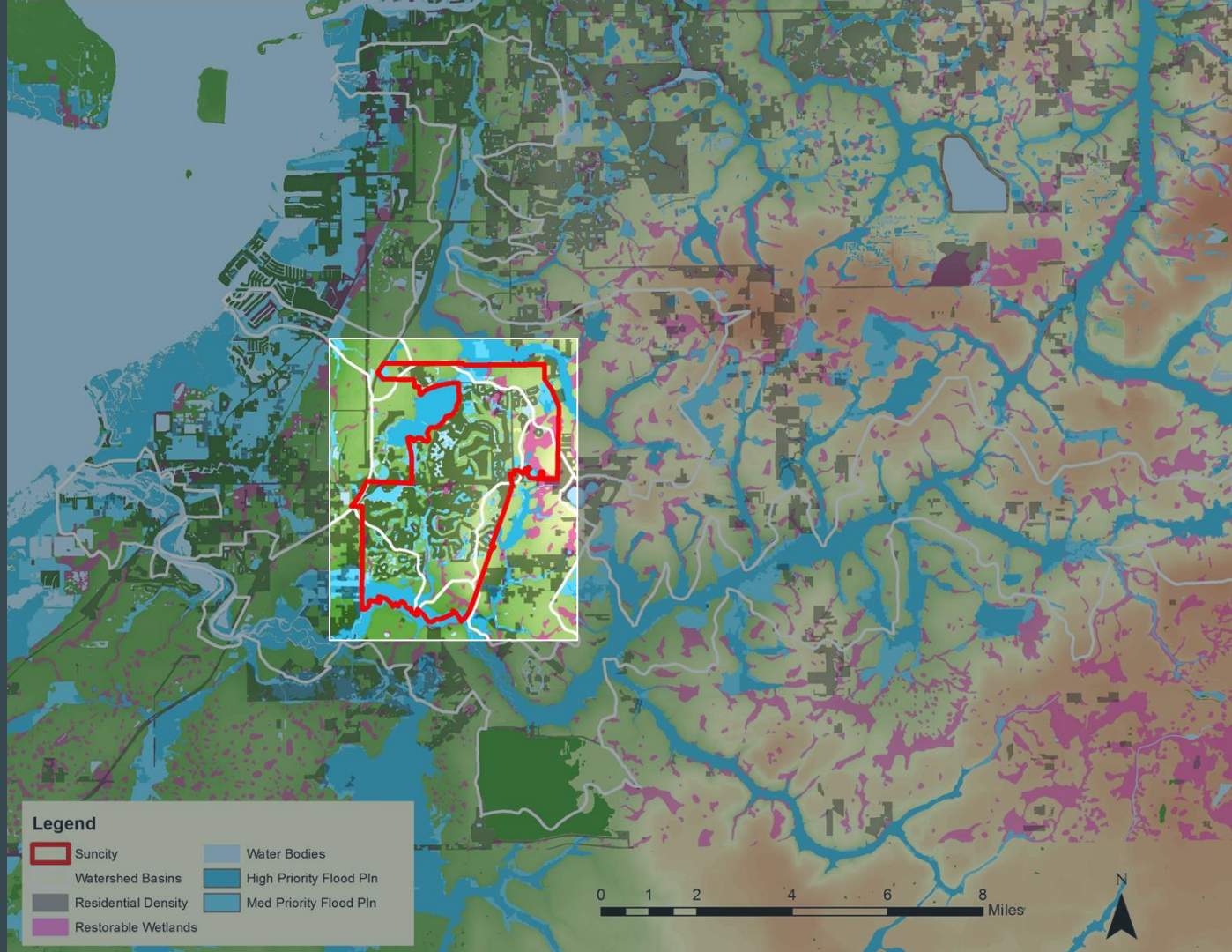

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High priority lands for restoration

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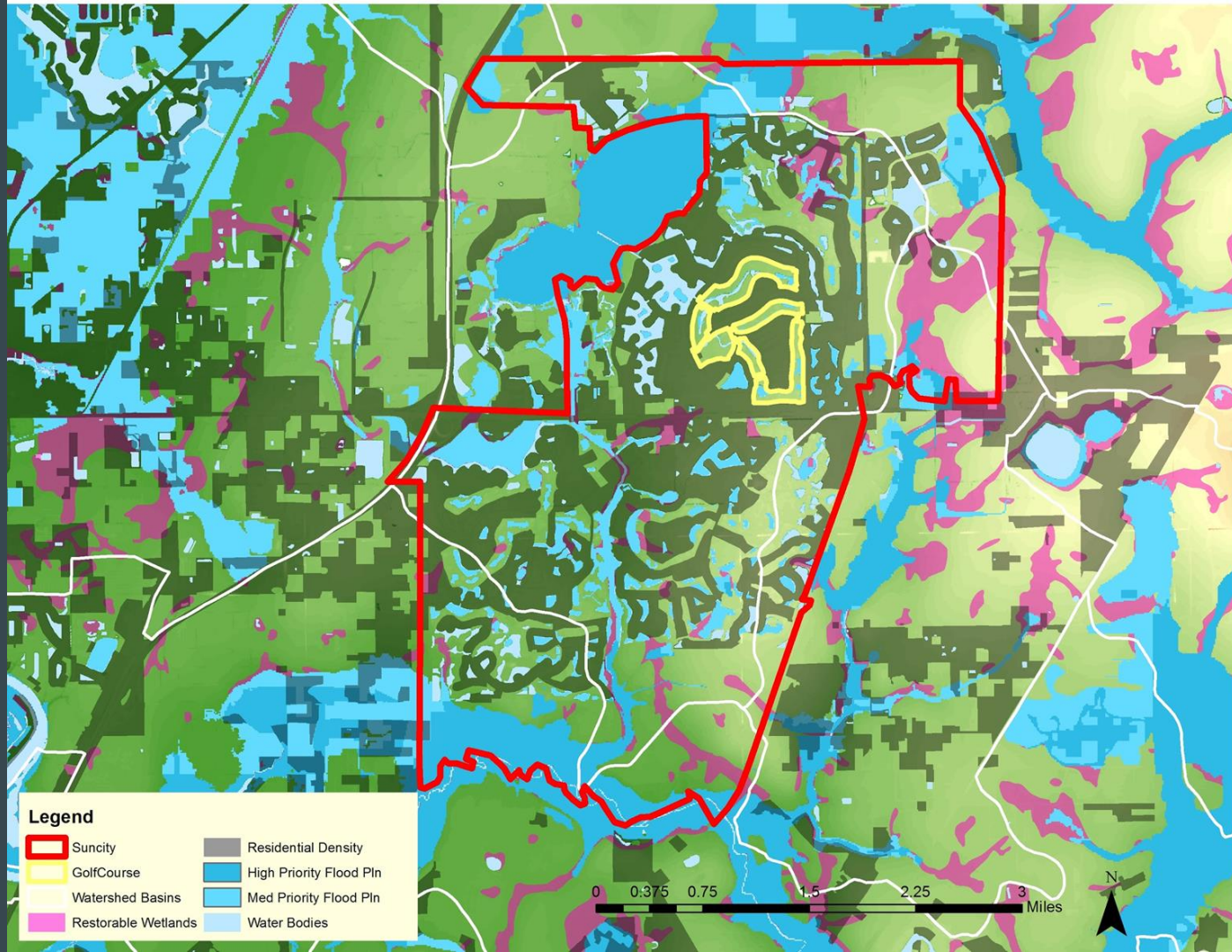

Objective 3

High priority lands for restoration

CLIP 4.0 Database

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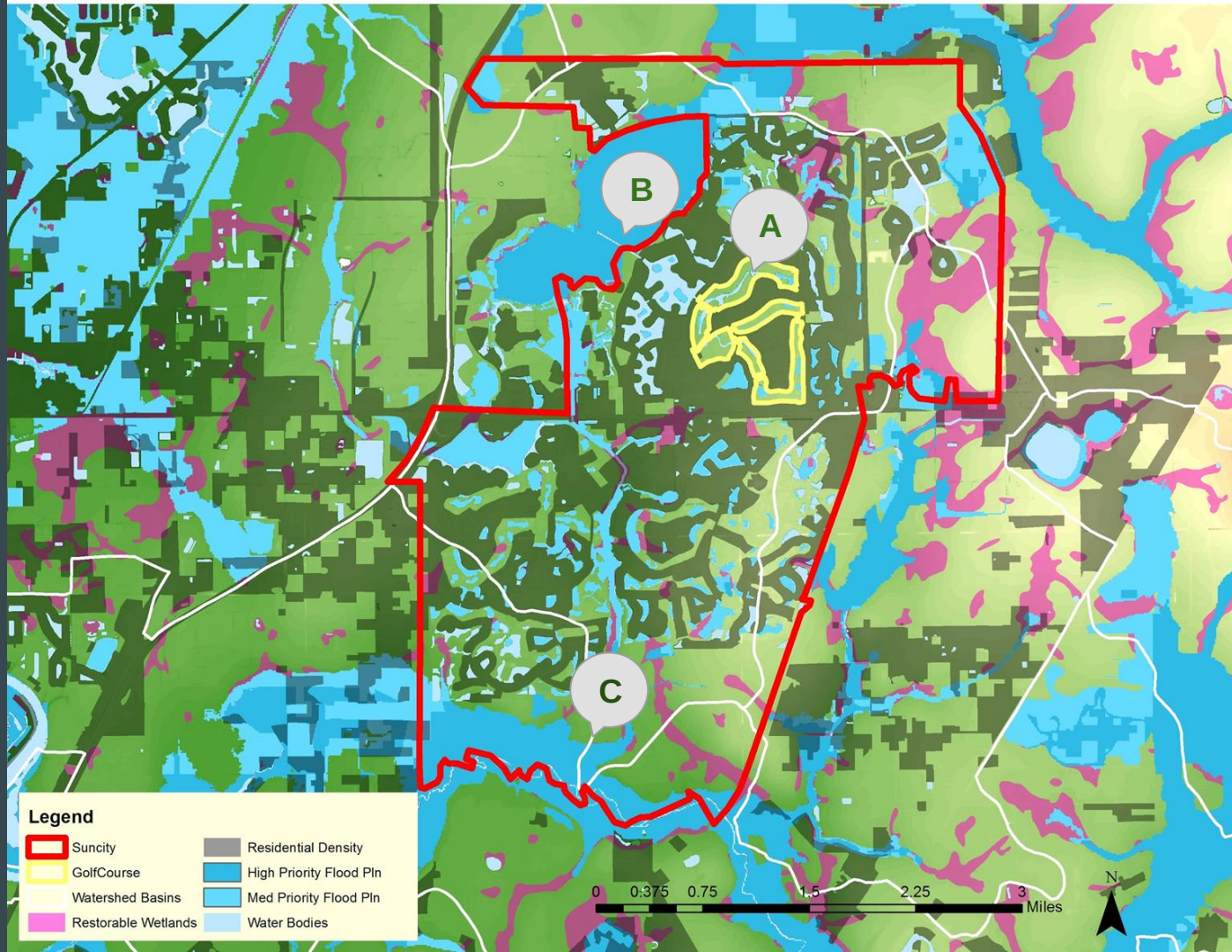


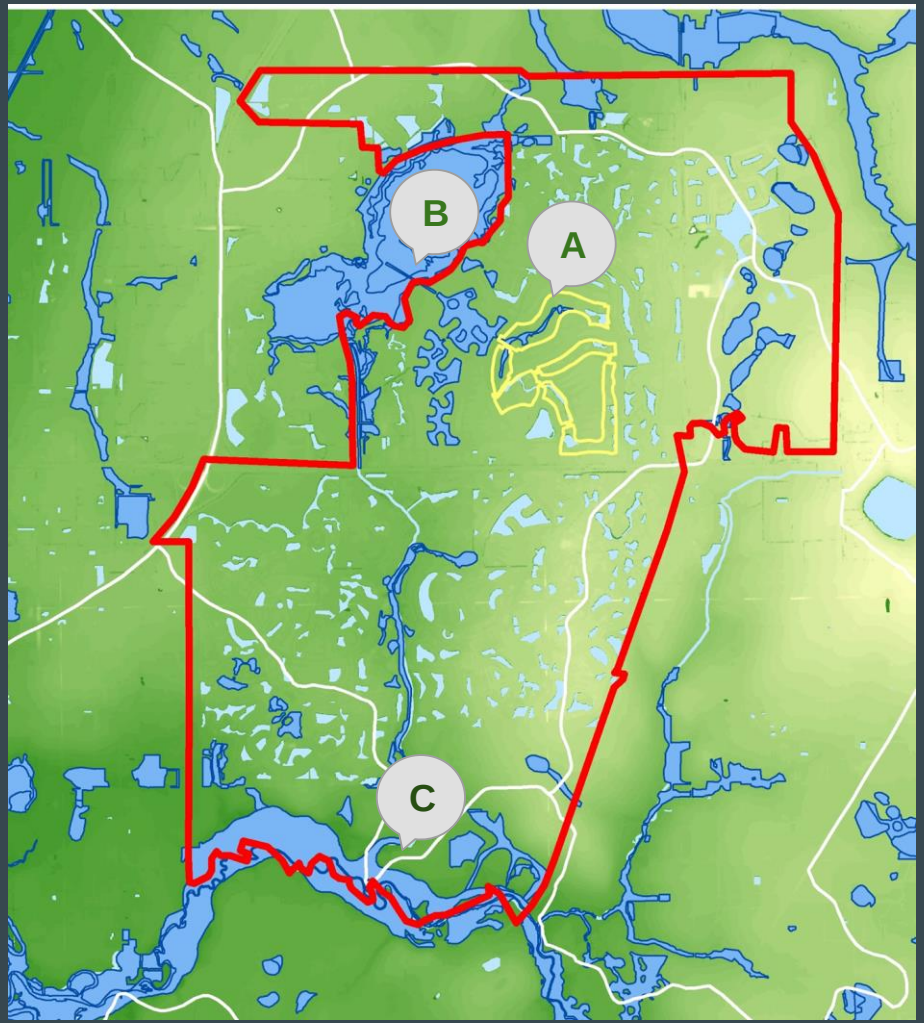
Recommendations

Low Impact Design LID: Systems and practices that use or mimic natural processes that result in the infiltration, evapotranspiration or use of stormwater in order to protect water quality and associated aquatic habitat to Improve the quality of water in the habitats, watersheds and aquifer recharge.

A: Capture First Flush into Bioswales and Improved Pond Banks (LID)

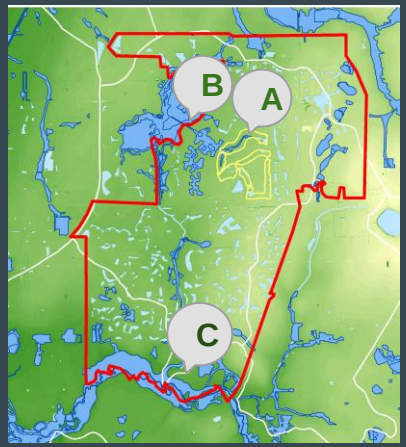
B: Create better Sheet flow from Sun City Center and Remove Canals Creating a Natural System with Better Filtration

C: Restoring and or Improving Cypress Creek as it enters Little Manatee River



Recommendations

A: Capture first flush into bioswales and improved pond banks (LID)

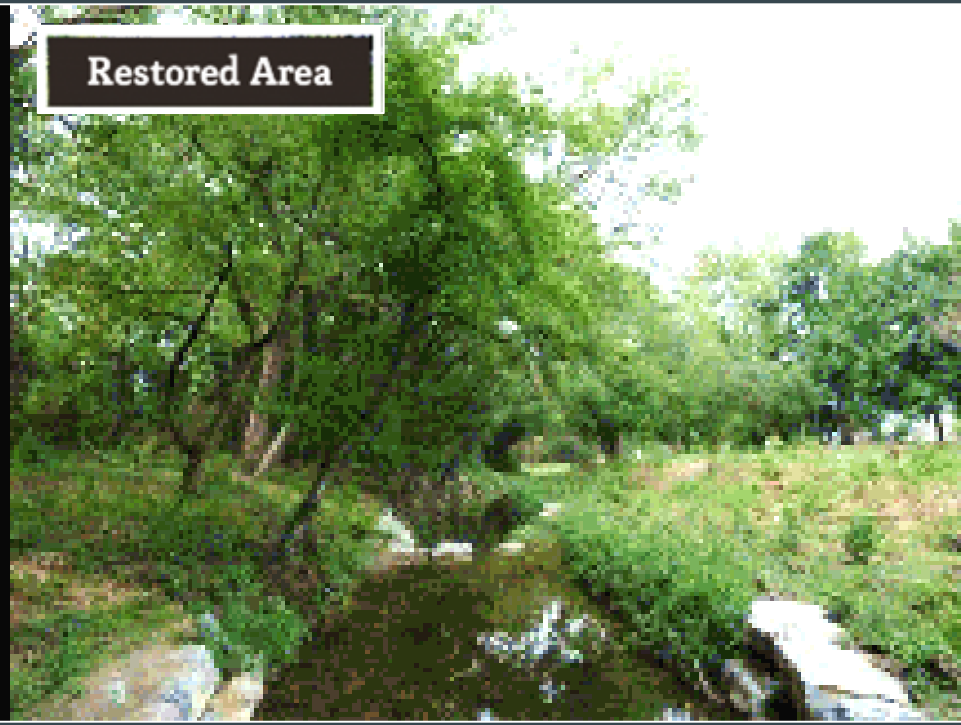


Impacted Area

Restored Area

Recommendations

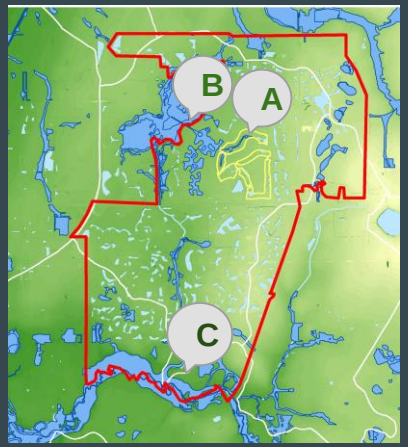
B: Create better sheet flow from Sun City Center and remove canals creating a natural system with better filtration



Paynes Prairie Wetlands Preserve

Recommendations

C: Restoring and or improving Cypress Creek as it enters Little Manatee River



Conclusions

Through Low Impact Design (LID) and the restoration/improvements of wetlands:

A: Wildlife habitat improvement

B: On-site standing water quality and aesthetics

C: Improving the water quality and increasing aquifer recharge within the watersheds, Little Manatee River, and Tampa Bay.

Sun City Center

Regional Connectivity Analysis

Laura Collazos and Jennifer Brunner

Introduction and Overview

Part A

Conduct a regional analysis to identify recreational and ecological corridor connections to areas outside of Sun City Center, which could be created, enhanced or protected to increase regional connectivity.

Part B

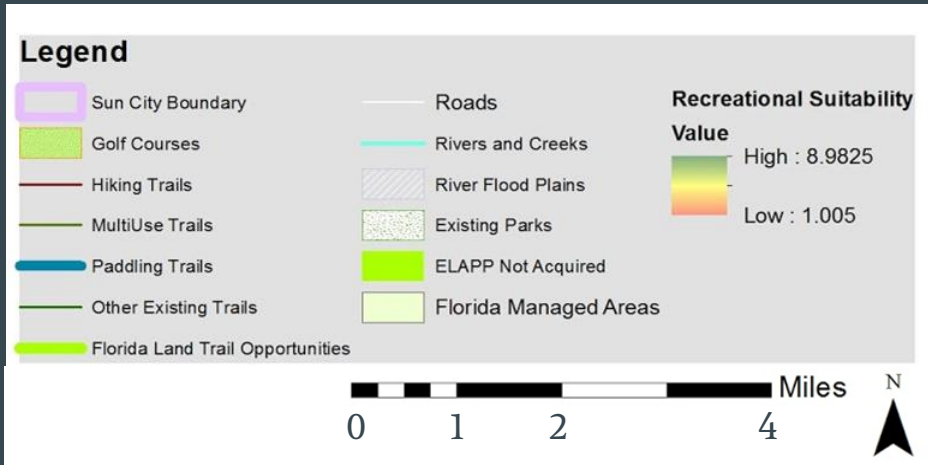
Identify specific programmatic or design recommendations for each major corridor, which can be used to improve recreational and/or ecological services. An example is the connection between the Little Manatee River State Park and Sun City Center, including how to provide a connection and how that connection would be designed.

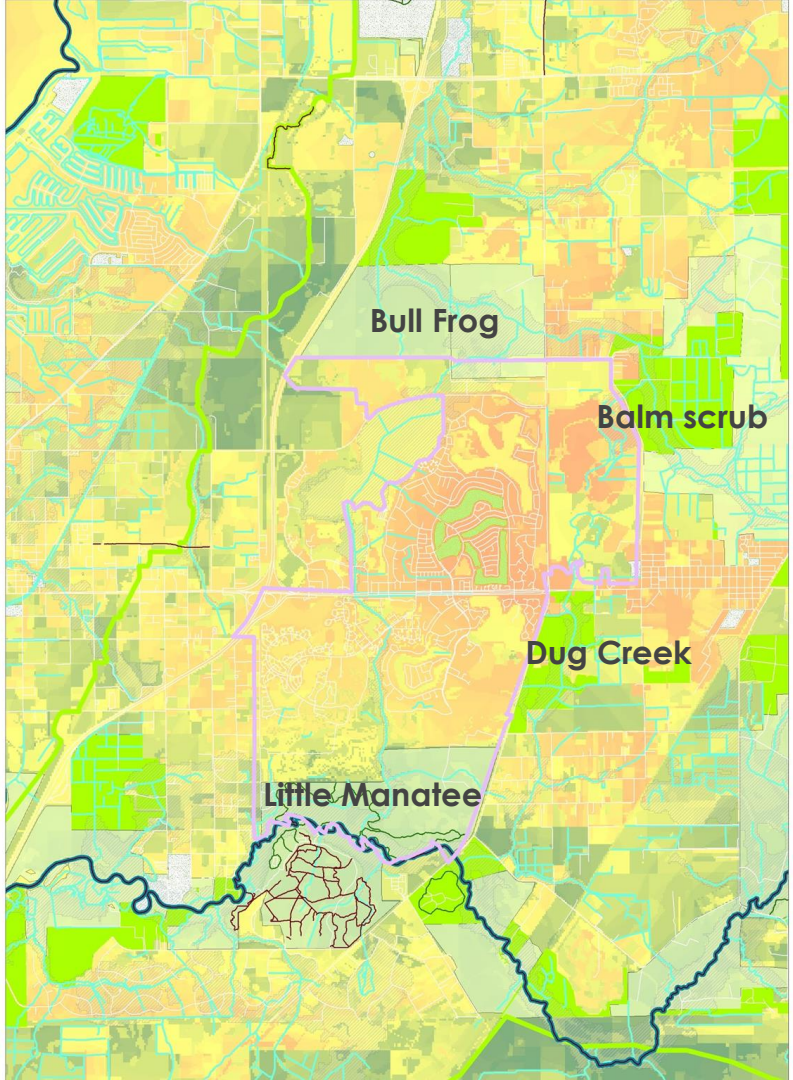
Inventory
&
Analysis

Activity Nodes Map

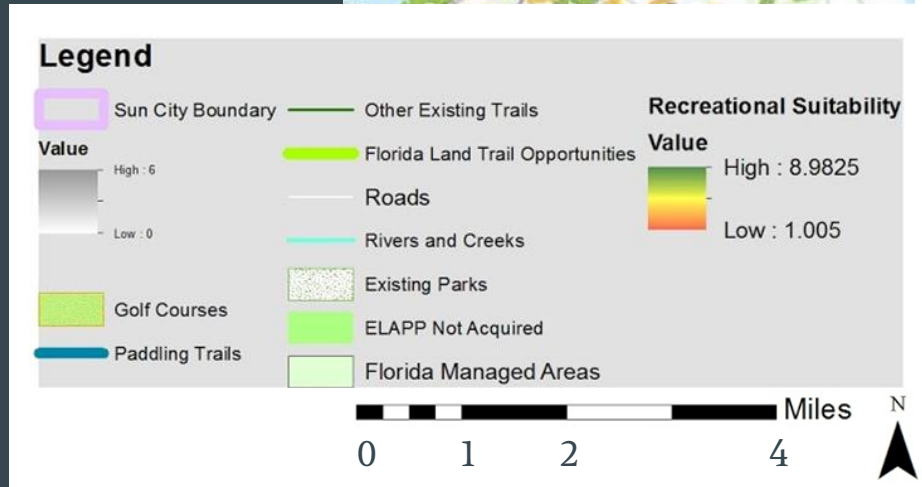
- Commercial Areas
- Medical Areas
- Markets
- Medical Facilities
- Theaters
- Churches
- Libraries
- Government Facilities
- Recreational Areas

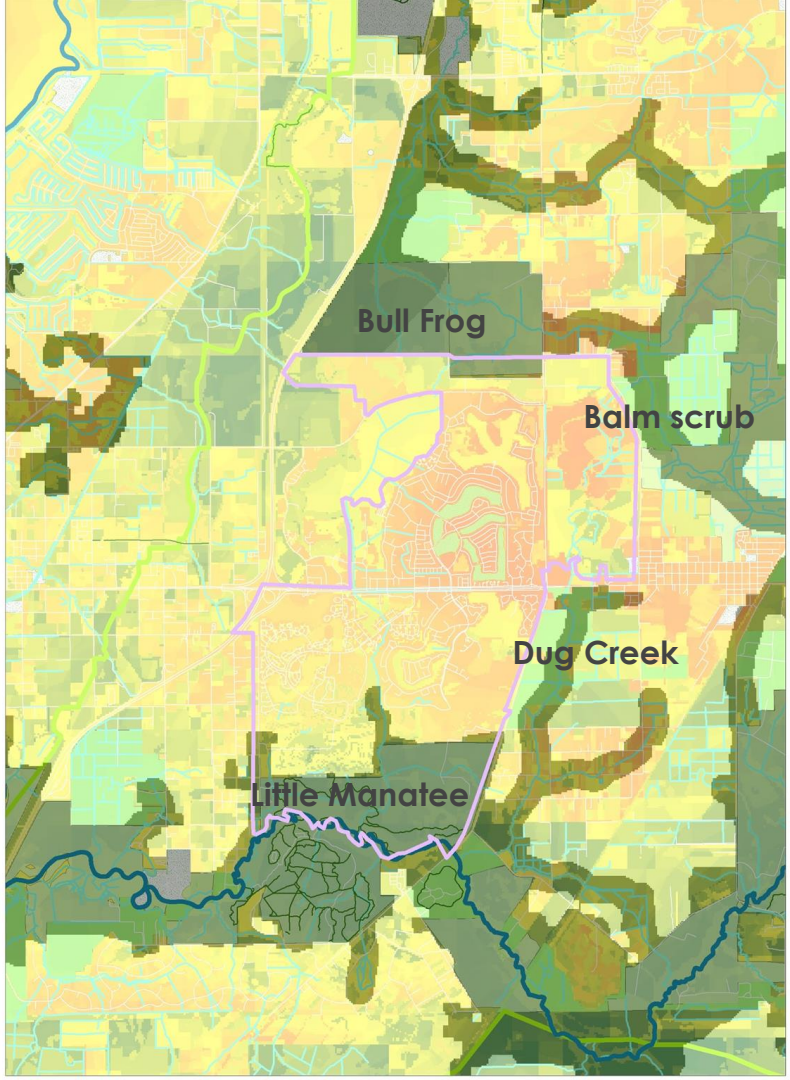
Recreational Suitability Map





Proposed Florida Ecological Greenway Network (FEGN) Priorities





Natural Community Types around Sun City Center

Pine Flatwoods and Dry Prairie

Flat pine woodland or shrubland

Sandy (dry) or limestone (wet) substrate

Upland / Mesic Hammock

Flatland with sand/organic soil

Closed evergreen canopy

Hydric Hammock

Lowland with clay/organic soil over limestone; stays wetter

Dense tree canopy

Scrub

Upland with deep sand substrate

Dense shrubs without pine canopy

Forested Freshwater Wetlands

Floodplains or depressions dominated by trees adapted to wet conditions

Includes types of:

- Cypress swamps
- Hardwood swamps

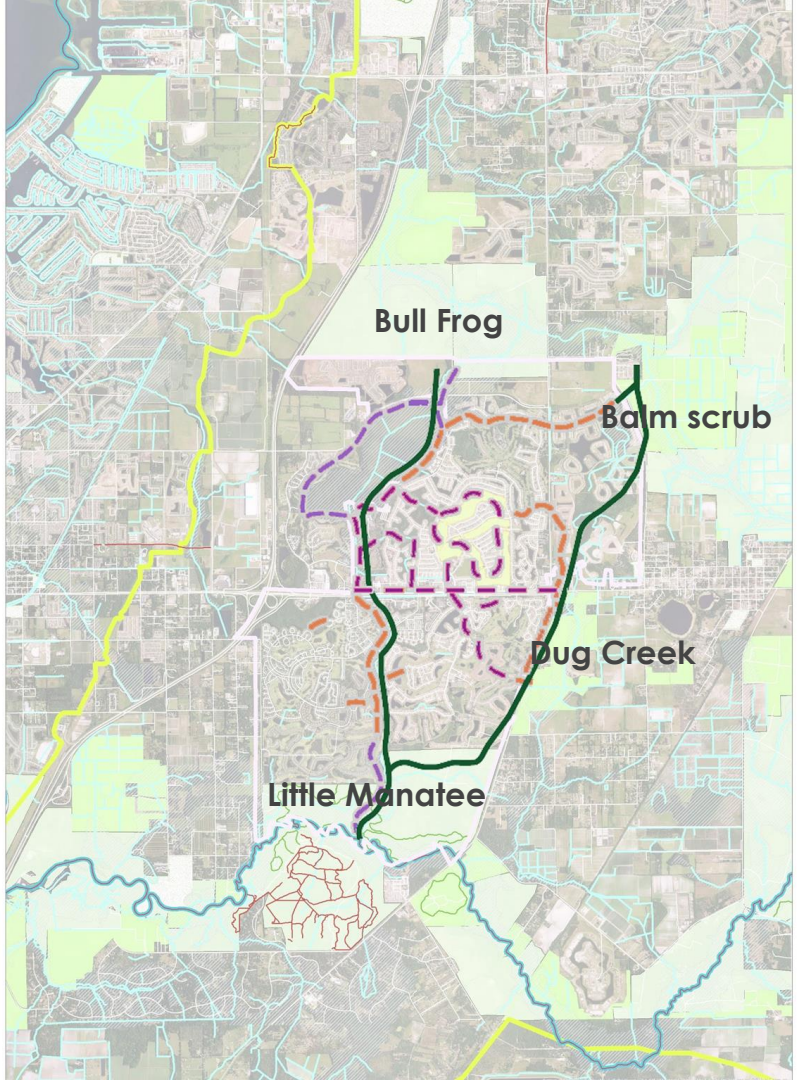
Wet Prairie / Marsh

Wet soils or standing water

Dominated by grasses, sedges, shrubs and aquatics

Proposed Connections

Final Analysis Map



Ecological Corridors

Phase 1 Recreational Trails

Phase 2 Recreational Trails

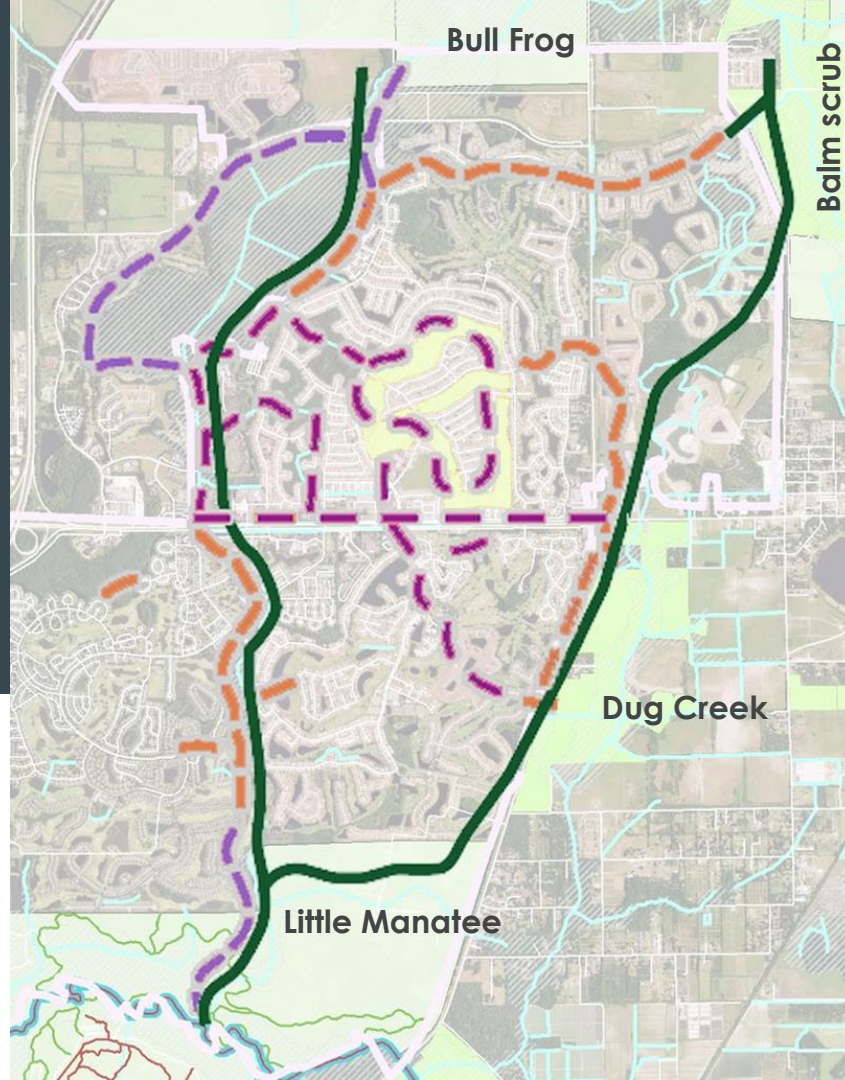
Phase 3 Recreational Trails

Miles

0 1 2 4

N

Proposed Trails + Corridors



Ecological Corridors

Phase 1 Recreational Trails

Phase 2 Recreational Trails

Phase 3 Recreational Trails

Section Views and Site Plans of Trail

Trail Types

5 Types of Trails Proposed

- Boardwalk Recreational Trail
- Recreational Trail and Ecological Corridor Together
- Ecological Corridor Only
- Paved Recreational Trail (Multi-Use)
- Road Crossings

Need for Recreational Trails

Promotes an active lifestyle with alternative modes of transportation

Revitalizes the economy through an improved circulation system

May connect people to nature through more ecological exposure

Enhances sense of community through a cohesive design

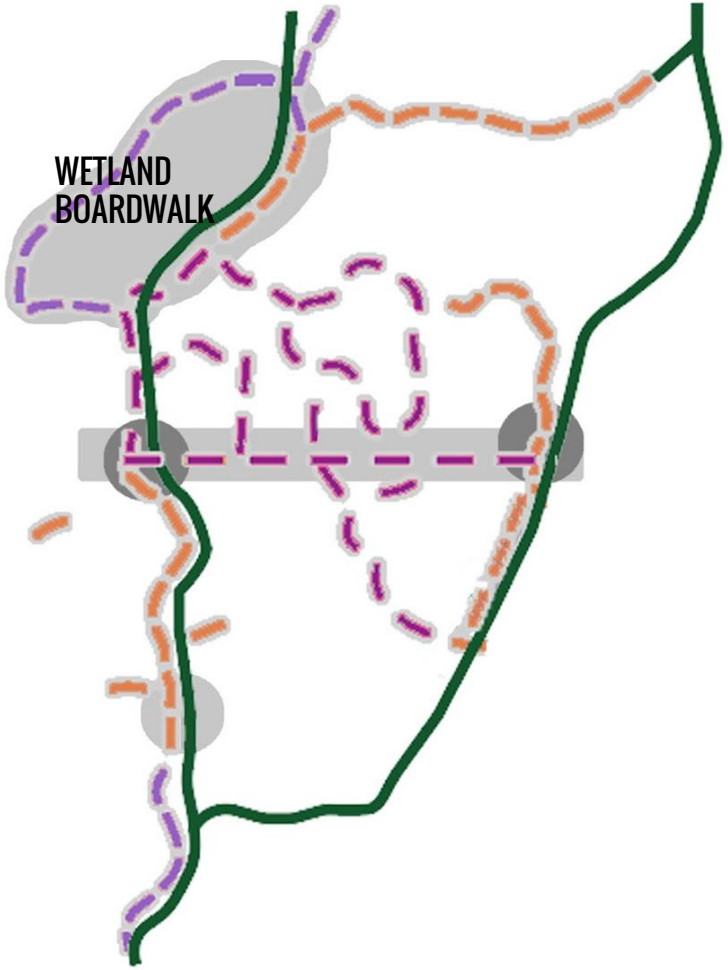
Need for Ecological Corridors

Connects areas of ecological importance

Enhances wildlife habitat

Helps protect wildlife and vegetation

Wetland Boardwalk Recreational Trail Site Plan

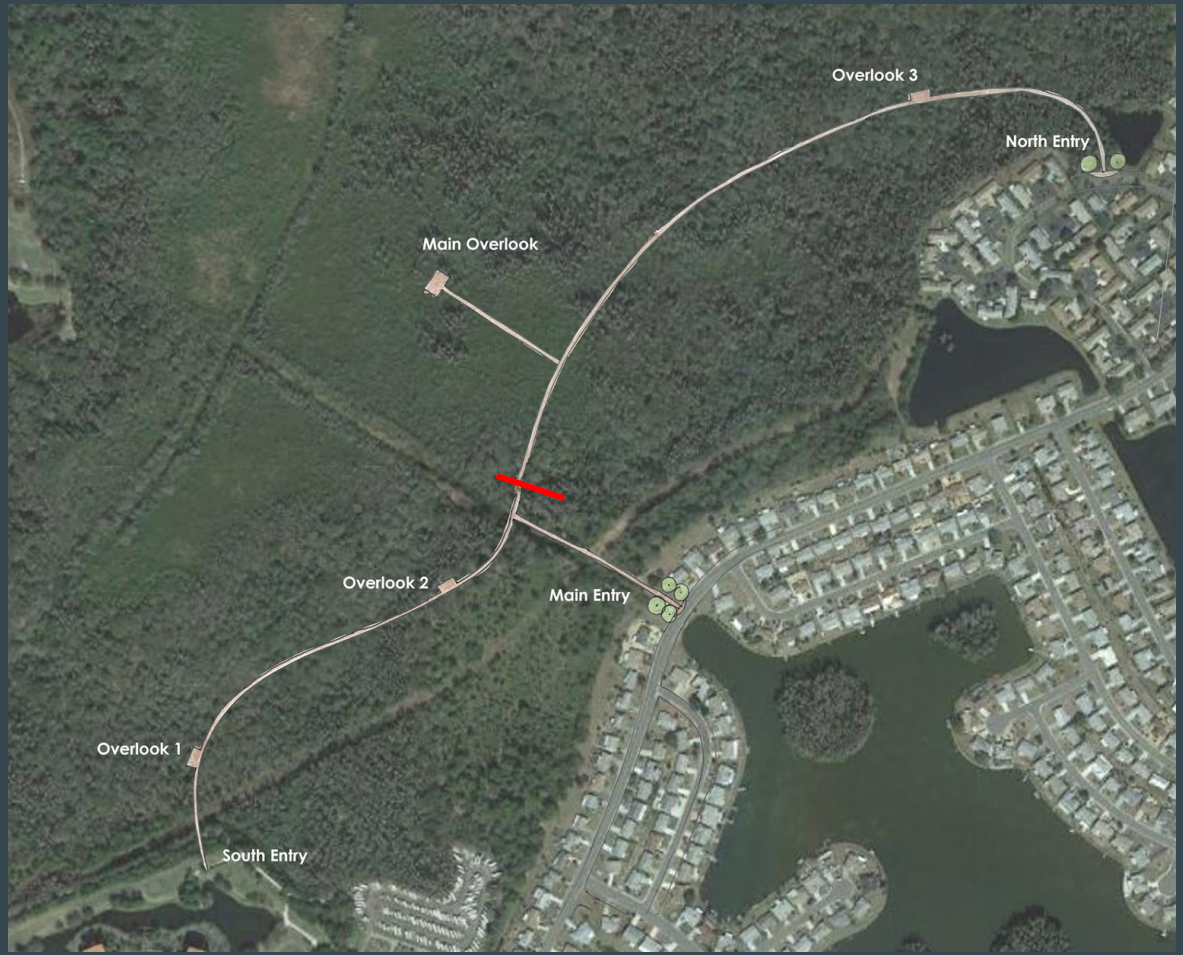


Wetland Boardwalk Recreational Trail Site Plan

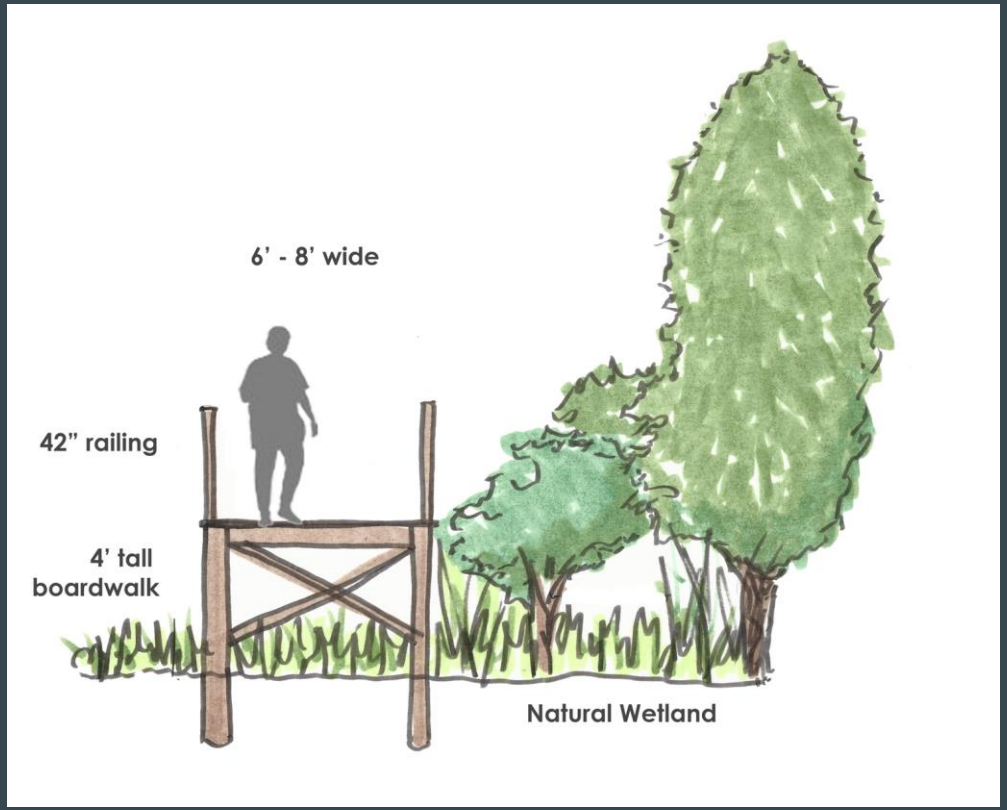
3 entries in convenient locations.

1 spur overlook

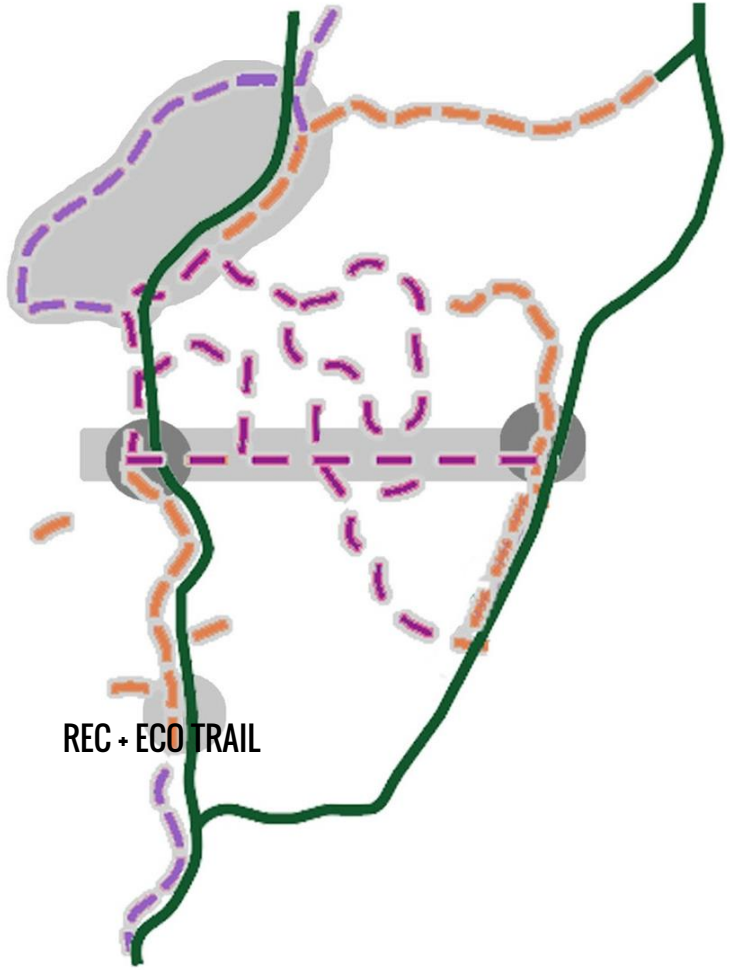
3 minor overlook/seating areas



Wetland Boardwalk Recreational Trail Section



Recreational Trail and Ecological Corridor along Cypress Creek Site Plan



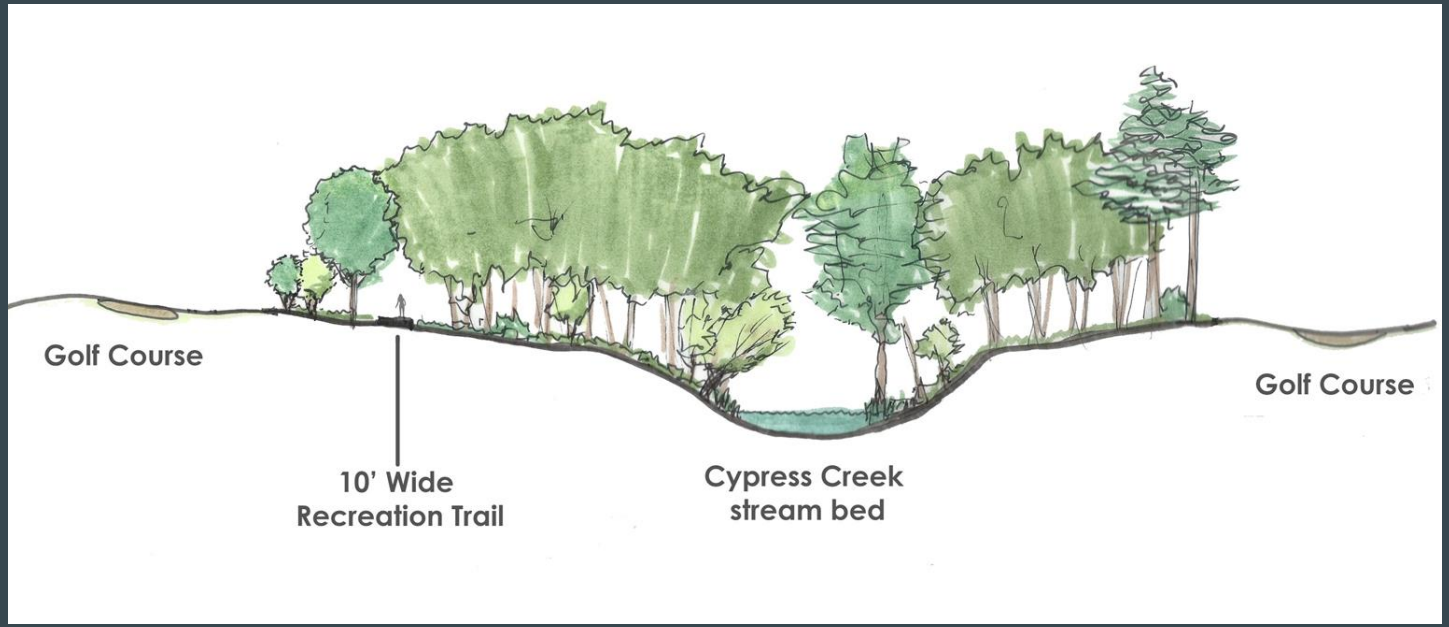
Recreational Trail and Ecological Corridor Along Cypress Creek Site Plan

Cypress Creek has plenty of buffer room against the golf courses to allow for a generous eco corridor and recreational trail in most sections.

Recreational Trail and Ecological Corridor Along Cypress Creek Section

Cypress Creek ecological corridor and recreational trail - co-located

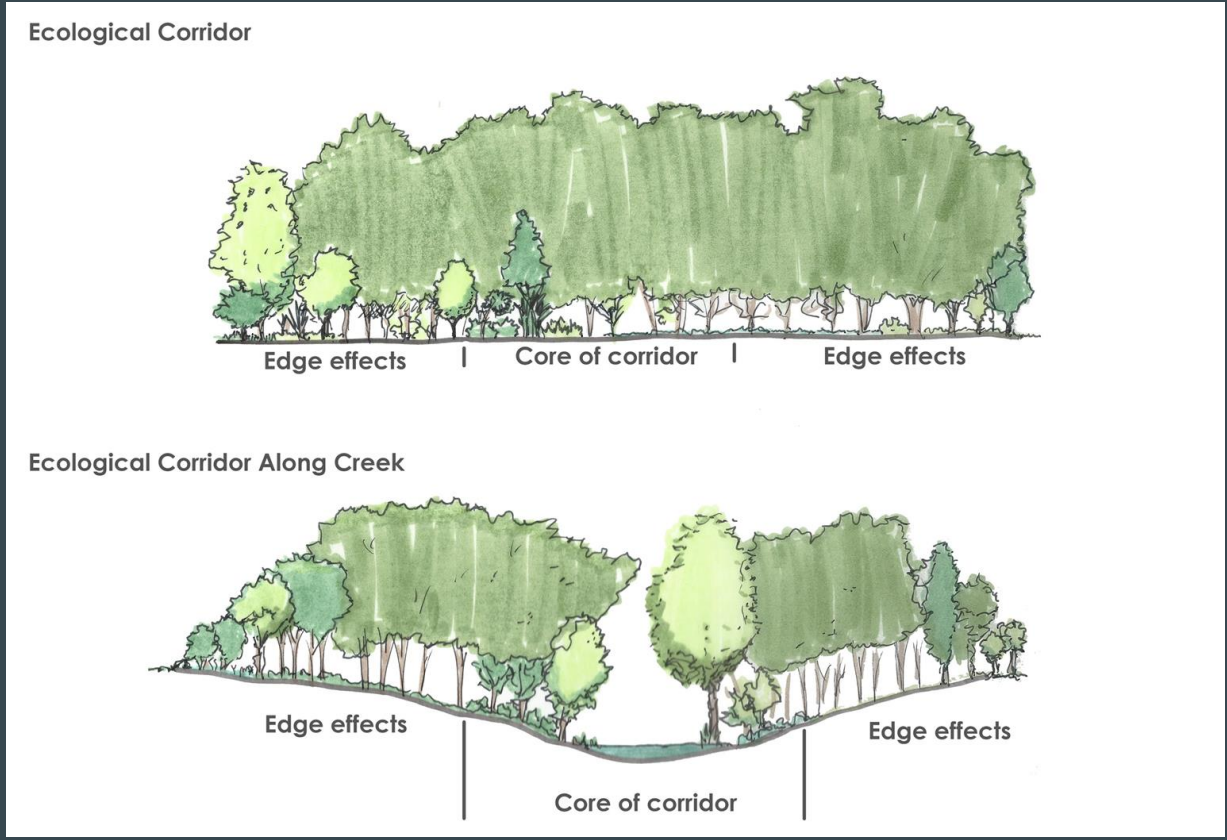
335’ maximum width



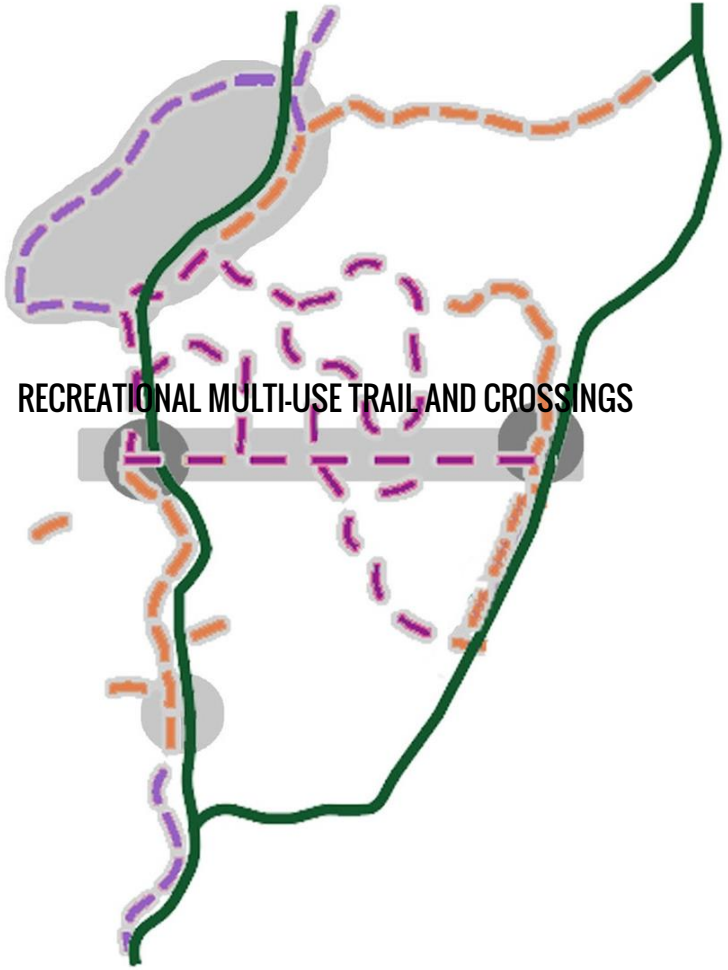
Ecological Corridor Only

Should encompass the 100 year floodplain and take into account edge effects.

Should be 300’ minimum

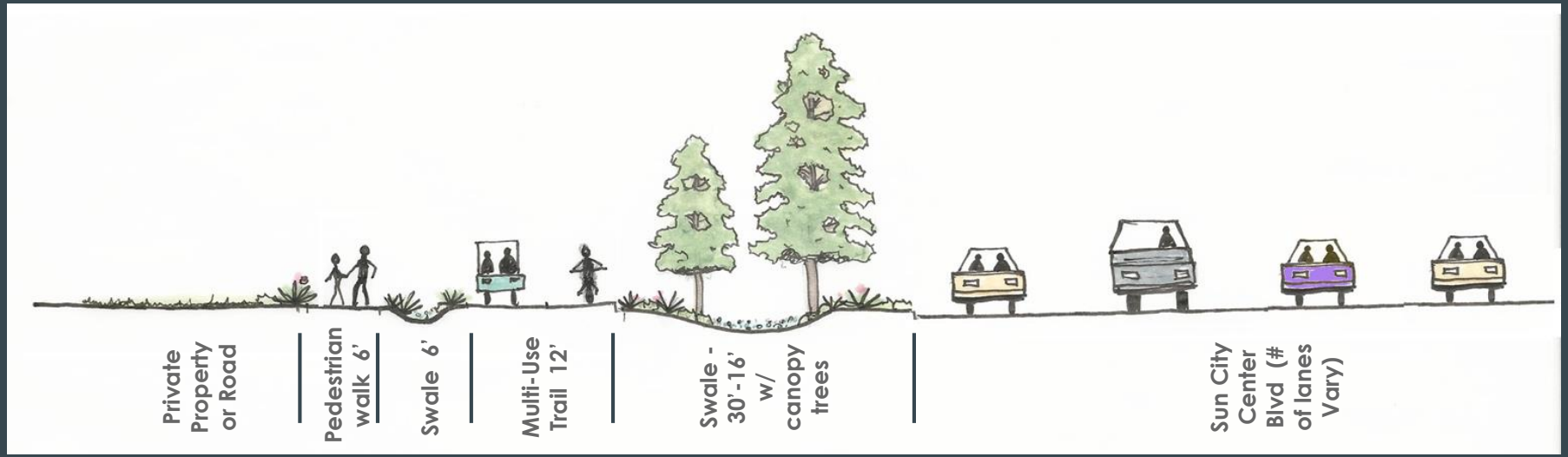


Paved Recreational Trail (Multi-Use) and Crossings



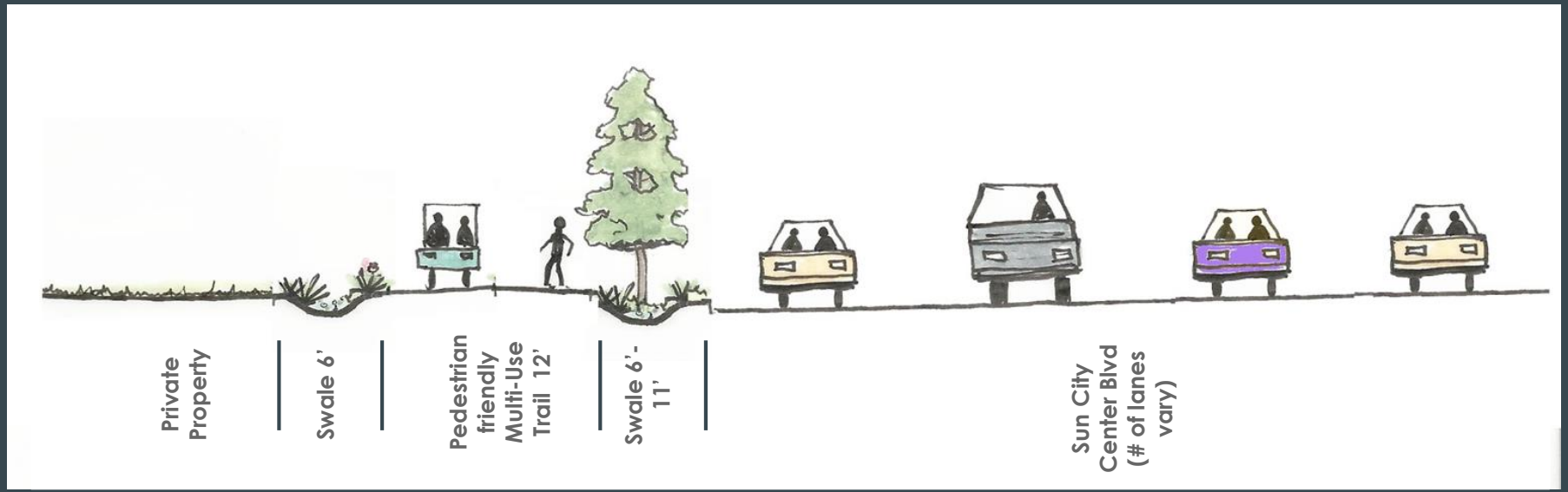
Paved Recreation Trail (Multi-Use)

Right of Way Areas (60’ - 30’ wide)

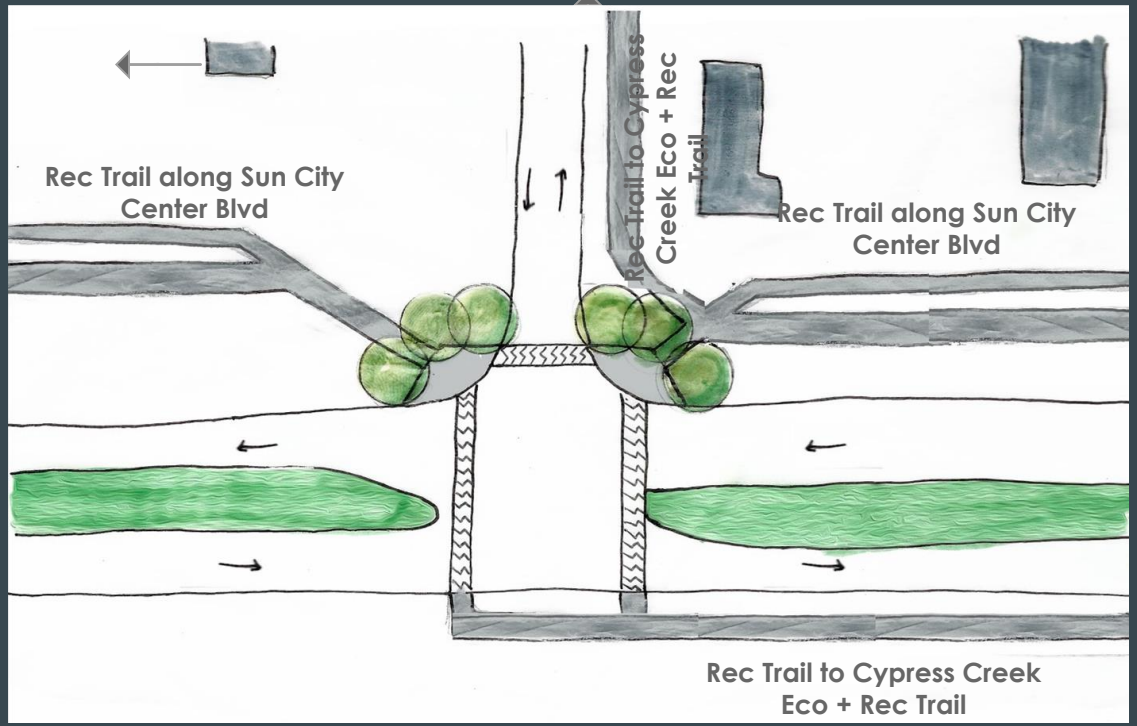


Paved Recreation Trail (Single-Use)

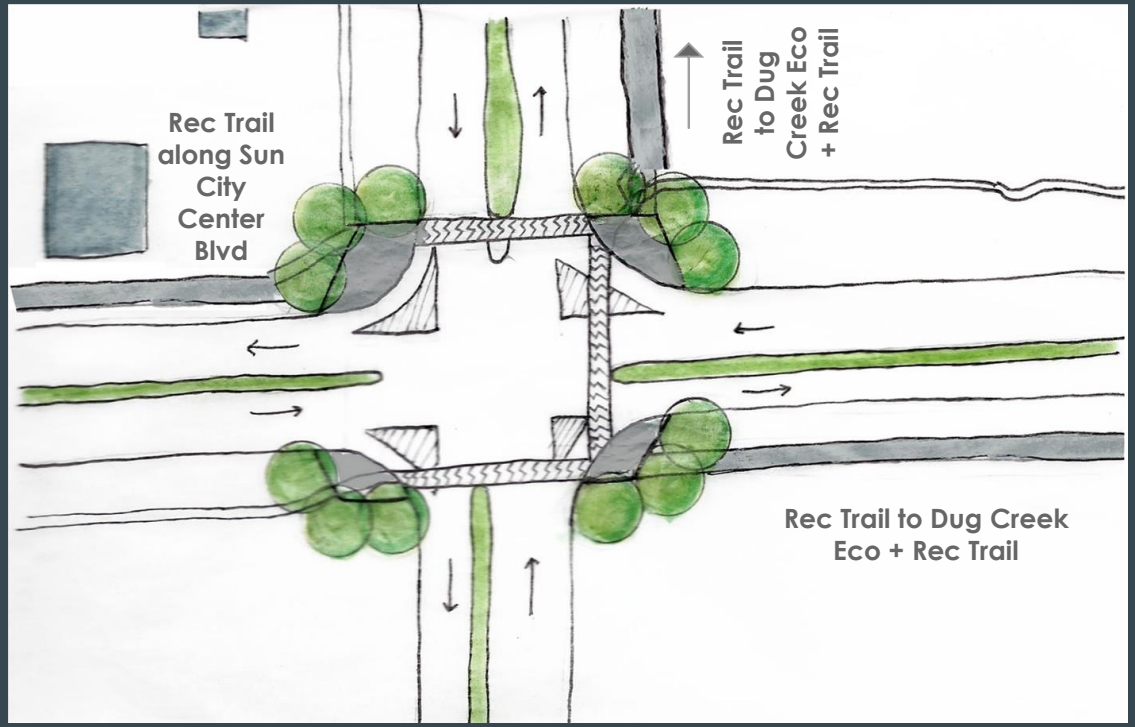
Right of Way Areas (29’ - 24’ wide)



Road Crossing (Rec and Eco Crossing along Cypress Creek)



Road Crossing (Rec and Eco Crossing along Dug Creek)



Wildlife Crossings

Provide a minimum 3’ wide corridor on both edges for small, terrestrial wildlife

Provide a minimum 5’ wide riparian corridor for aquatic wildlife

Sun City Center

Stormwater Improvements

James Mahoney and Andrea Penuela

Major Issues

1. Inefficient stormwater structures
2. Short residence time
3. Residential nutrient inputs
4. Lack of littoral planting

1. Inefficient Stormwater Structures

2. Short Residence Time

3. Residential Nutrient Inputs

4. Lack of Littoral Zone

Best Practices

Florida Friendly Yards

Principles

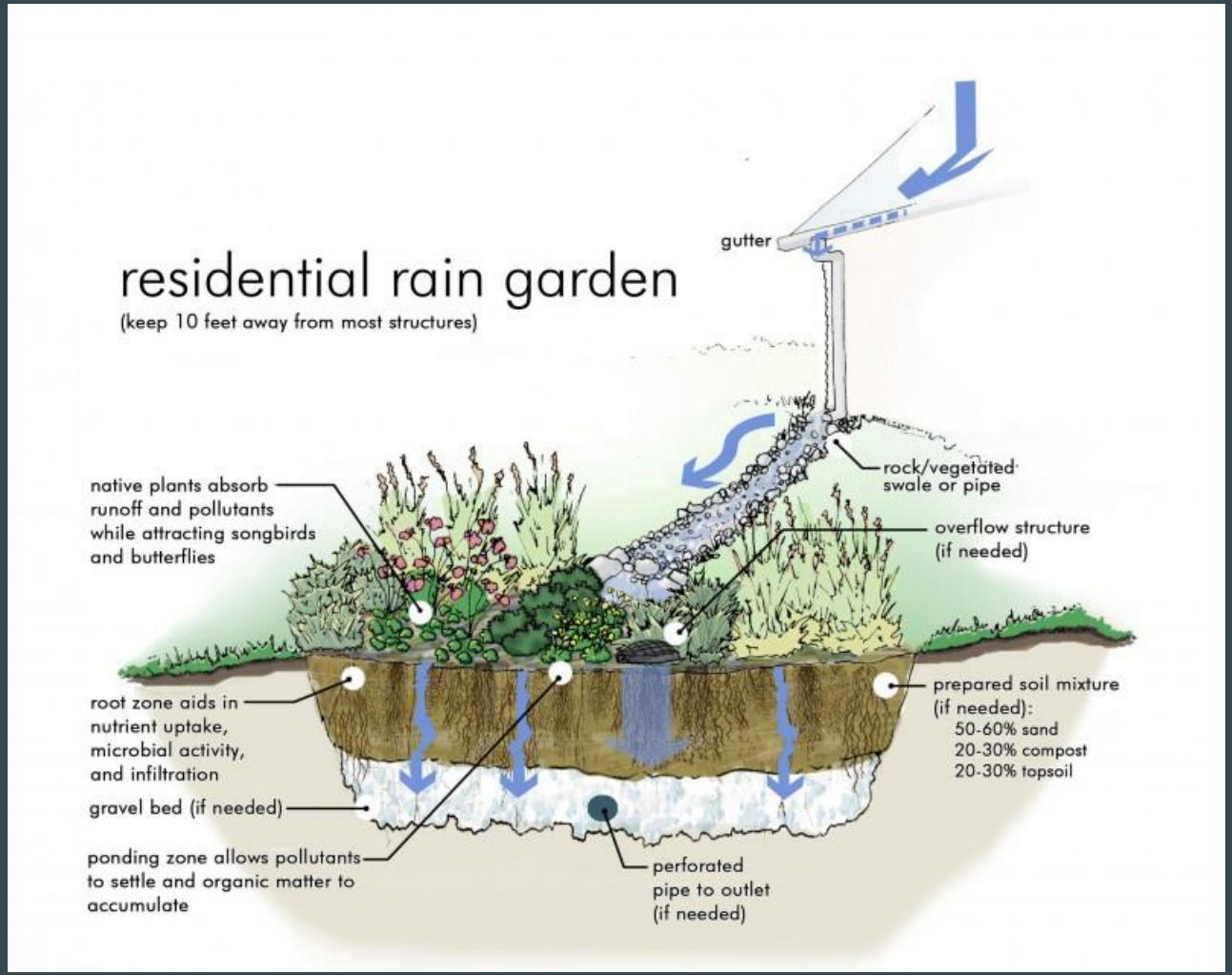
1. Right Plant, Right Place
2. Water Efficiently
3. Fertilize Appropriately
4. Mulch
5. Attract Wildlife
6. Manage Yard Pests Responsibly
7. Recycle
8. Manage Stormwater Runoff
9. Protect the Waterfront

www.floridayards.org

Rain Gardens

Benefits

1. Filters out additional pollutants before they enter the water system
2. Slow down water during a storm surge
3. Provide aesthetic appeal



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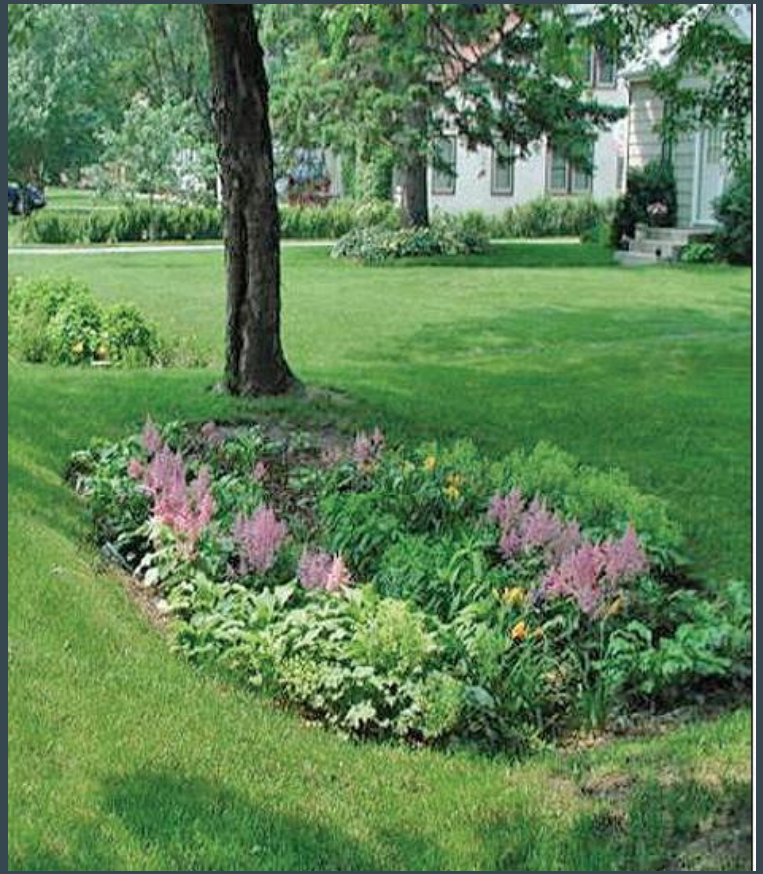
http://www.grantsgardens.com/blog/wordpress/wp-content/uploads/2013/04/dry-rain-garden.jpg



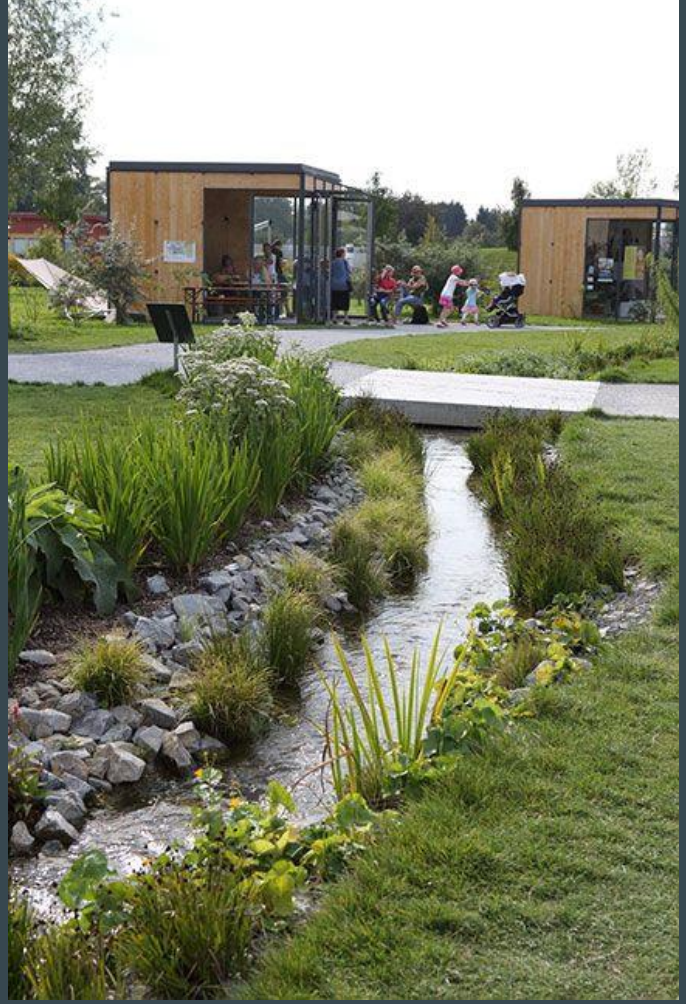
https://www.washtenawcd.org/uploads/5/9/2/0/59207889/5673174_orig.jpg

Bioswales

Benefits

1. Collect water and move it to stormwater basins
2. Reduce speed of water, allowing for treatment and infiltration
3. Aesthetic value

Conventional Swale

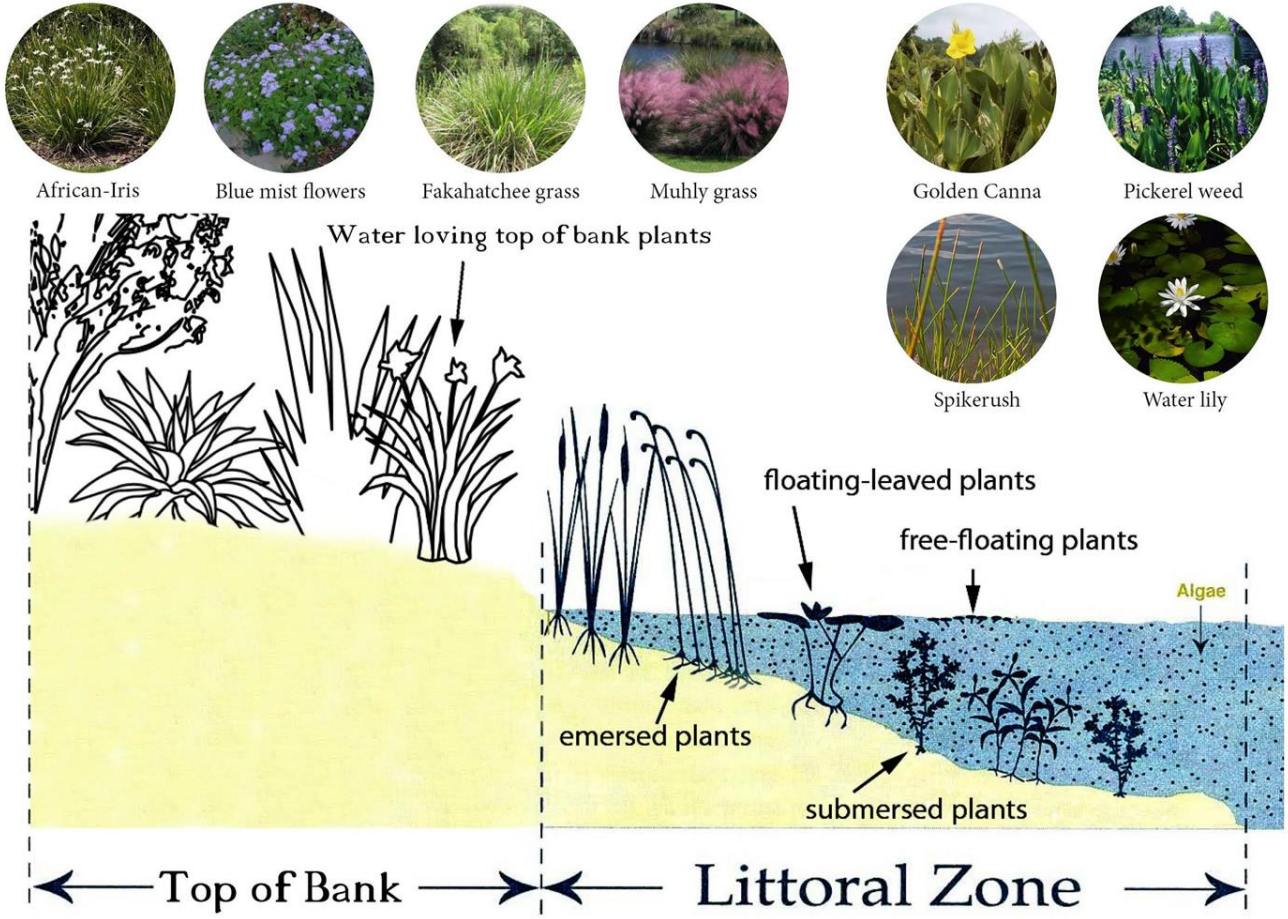


Bio-Swale

Littoral Zone

Benefits

1. Consume nutrients
2. Prevent erosion
3. Promote native species
4. Aesthetic



http://plants.ifas.ufl.edu

Sun City Center Improvements

Existing Conditions

Existing Conditions

Areas identified with high inputs of pollutants:

- Lawn runoff
- Storm drains

Improved Condition

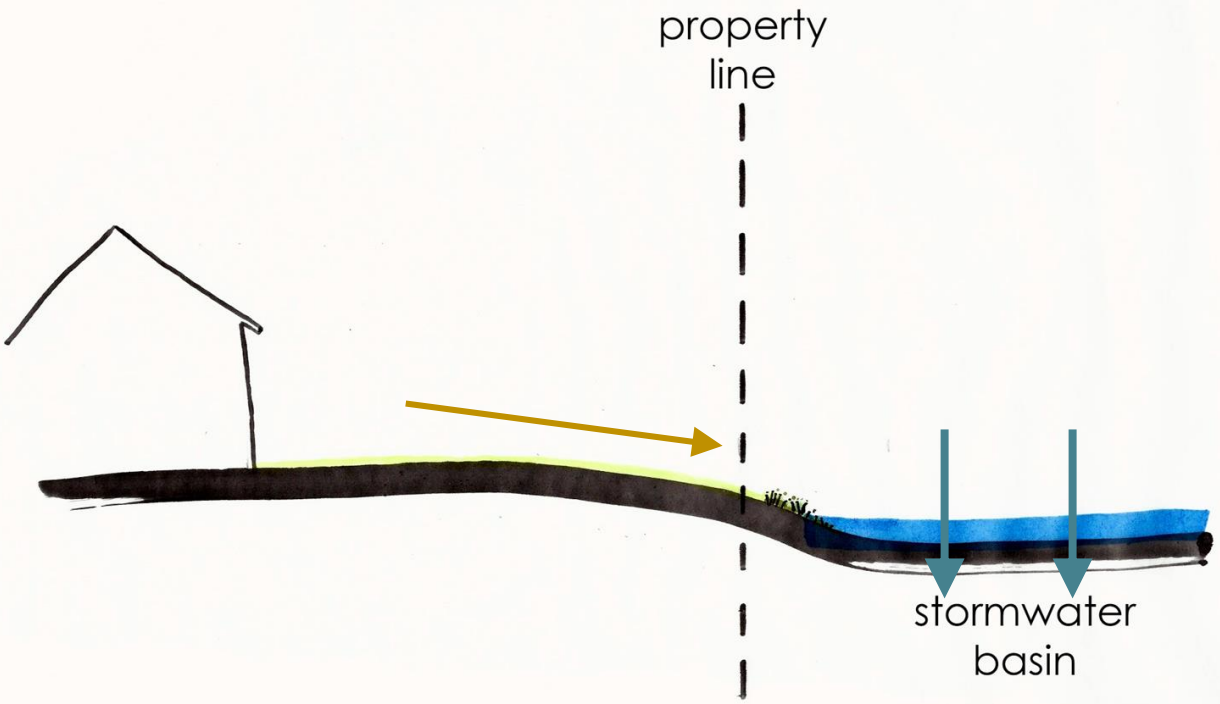
Water quality has been enhanced through rain gardens and bioswales which treat water before it enters the stormwater basins

Basins have been modified to reduce speed of water and provide longer residence time

Existing Condition

Nutrients from lawn drain directly into stormwater basin with no previous treatment

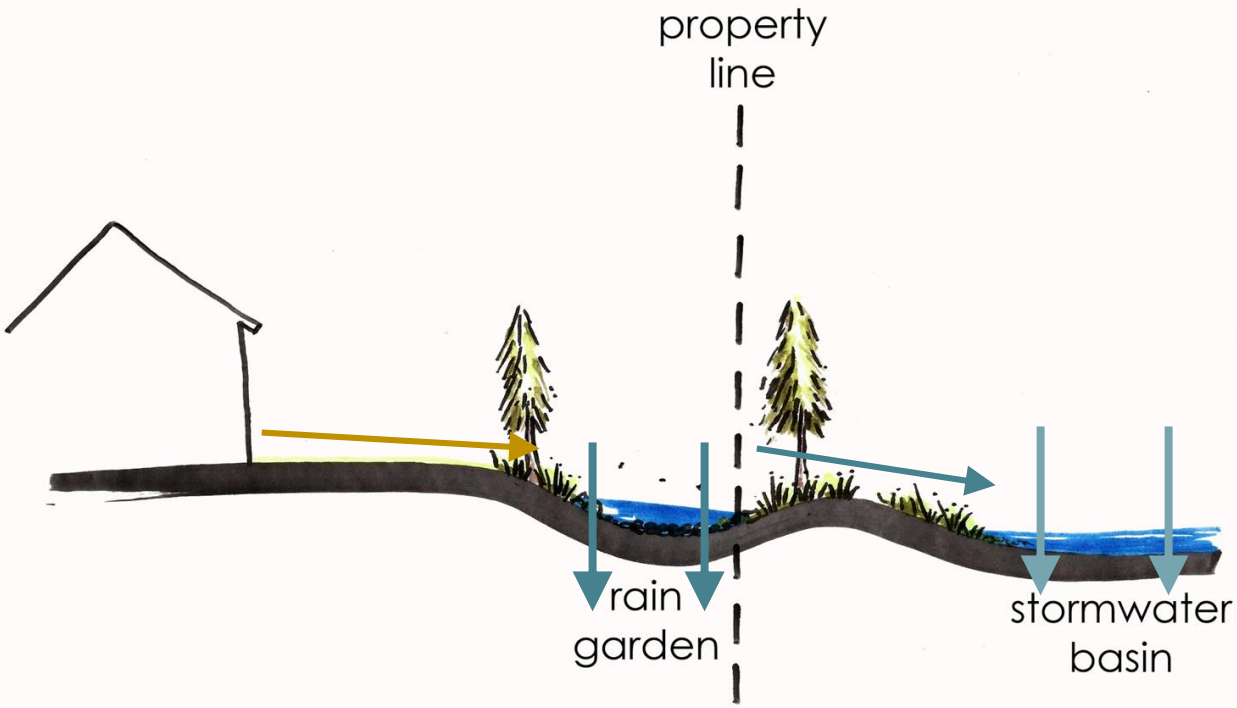
This leads to lower quality water and algae blooms



Improved Condition

Adding rain garden provides treatment for runoff from lawns improving water quality and health for stormwater basin then leading into the natural ecosystem

Rain gardens also provide aesthetic improvements and can be an asset to homeowners



Sun City Center

Schematic Design

Chris Zito , Jo Tolentino, Shelby Harden,
Chris Chovanec, Elliot Capers, and Christy Slaney

Concept Plan

Master Plan

Areas 1+6 (C. Zito +Jojo)

LEGEND

- Grass - maintained bi-monthly
- Grass - annually maintained
- Wildflower - seeded freq.
- Wet detention pond
- Dry creek bed
- Community garden
- Asphalt
- Structures / paved
- Frisbee golf
- Resting nodes with seating
- Exercise nodes
- Boardwalk

Amphitheater, BR Facility + Exercise Circuit

Community Garden, RV Parking + Bridge

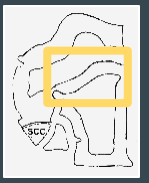
Canoe Launch, Frisbee Golf +Wildflower Walk

Area 3 (Chris Chovanec)

Entry Features

- (A) ENTRY FEATURE
- (B) BATHROOM STRUCTURE
- (C) FLOWER GARDEN
- (D) ACCENT BRIDGE
- (E) COMMUNITY GARDEN
- (F) WILDFLOWER FIELD
- (G) GOLF CART PARKING
- (H) SHADED HAMMOCK
- (I) RAIN GARDEN
- (J) ZEN GARDEN
- (K) TOPIARY GARDEN

Bathroom Facility



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Ⓑ BATHROOM STRUCTURE

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Ⓕ WILDFLOWER FIELD

Ⓖ GOLF CART PARKING

Ⓗ SHADED HAMMOCK

Ⓘ RAIN GARDEN

Ⓙ ZEN GARDEN

Ⓚ TOPIARY GARDEN

Flower Garden

- (A) ENTRY FEATURE
- (B) BATHROOM STRUCTURE
- (C) FLOWER GARDEN
- (D) ACCENT BRIDGE
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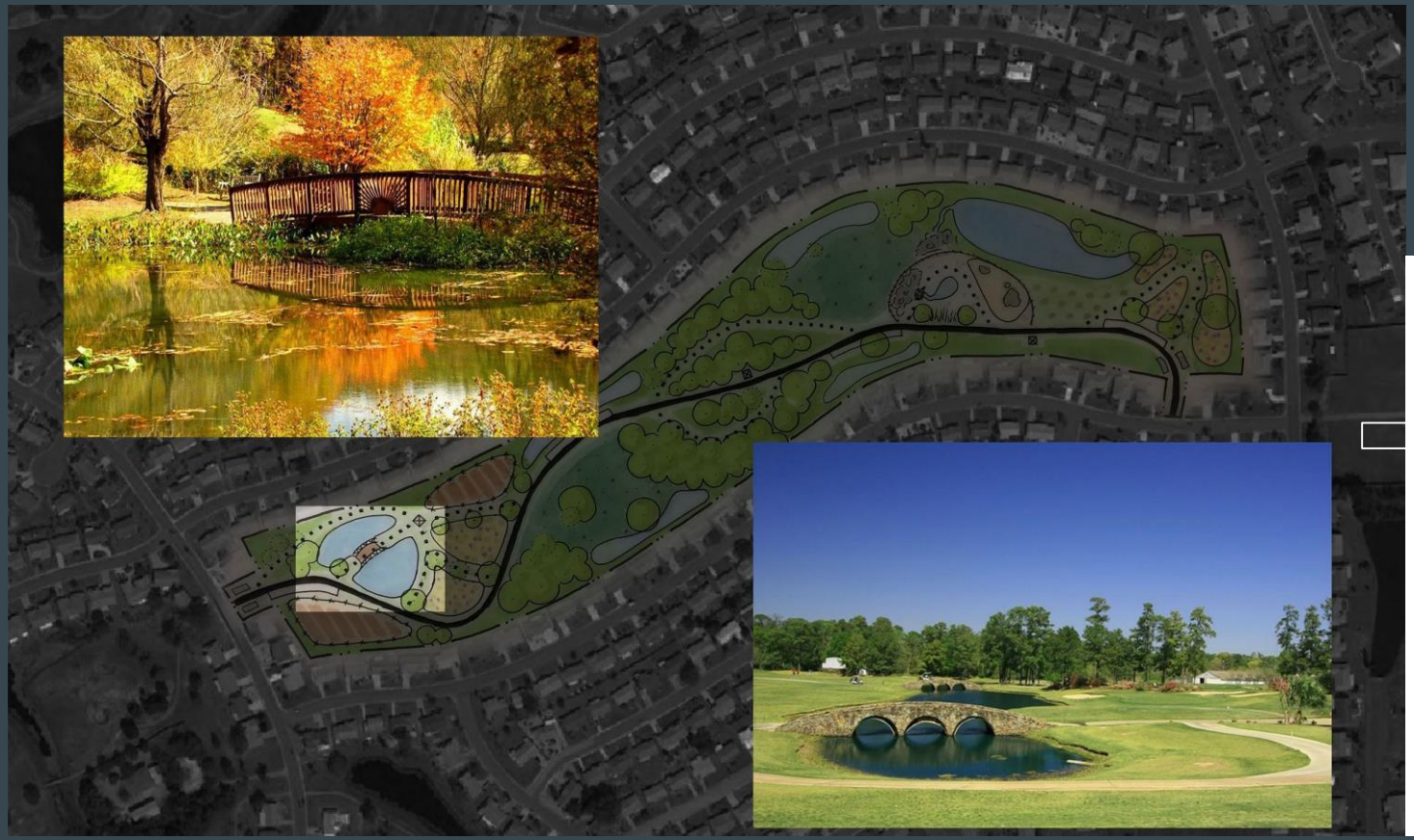
Accent Bridge



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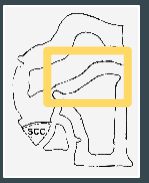
Community Garden



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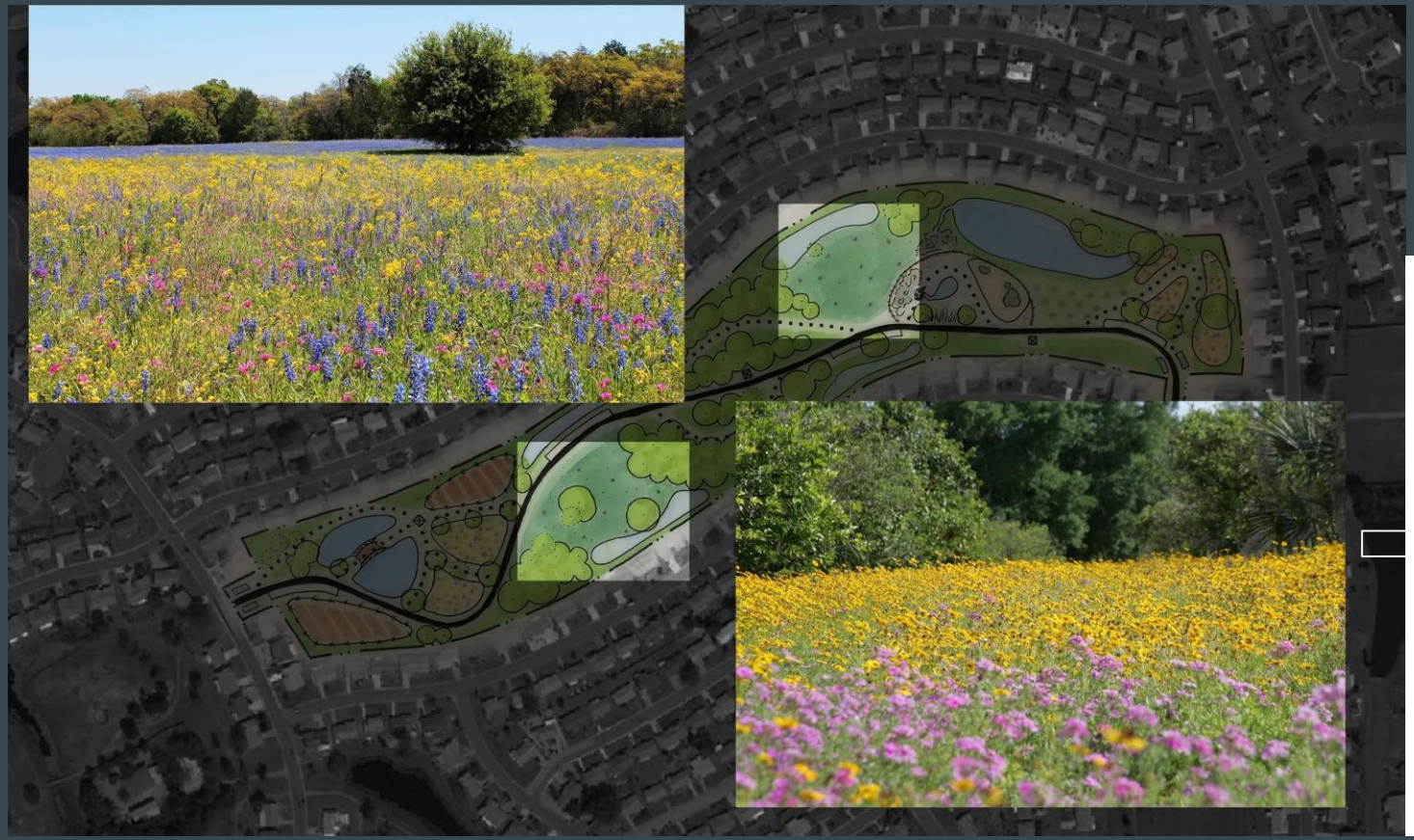
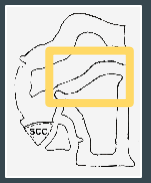
Wild Flower Fields





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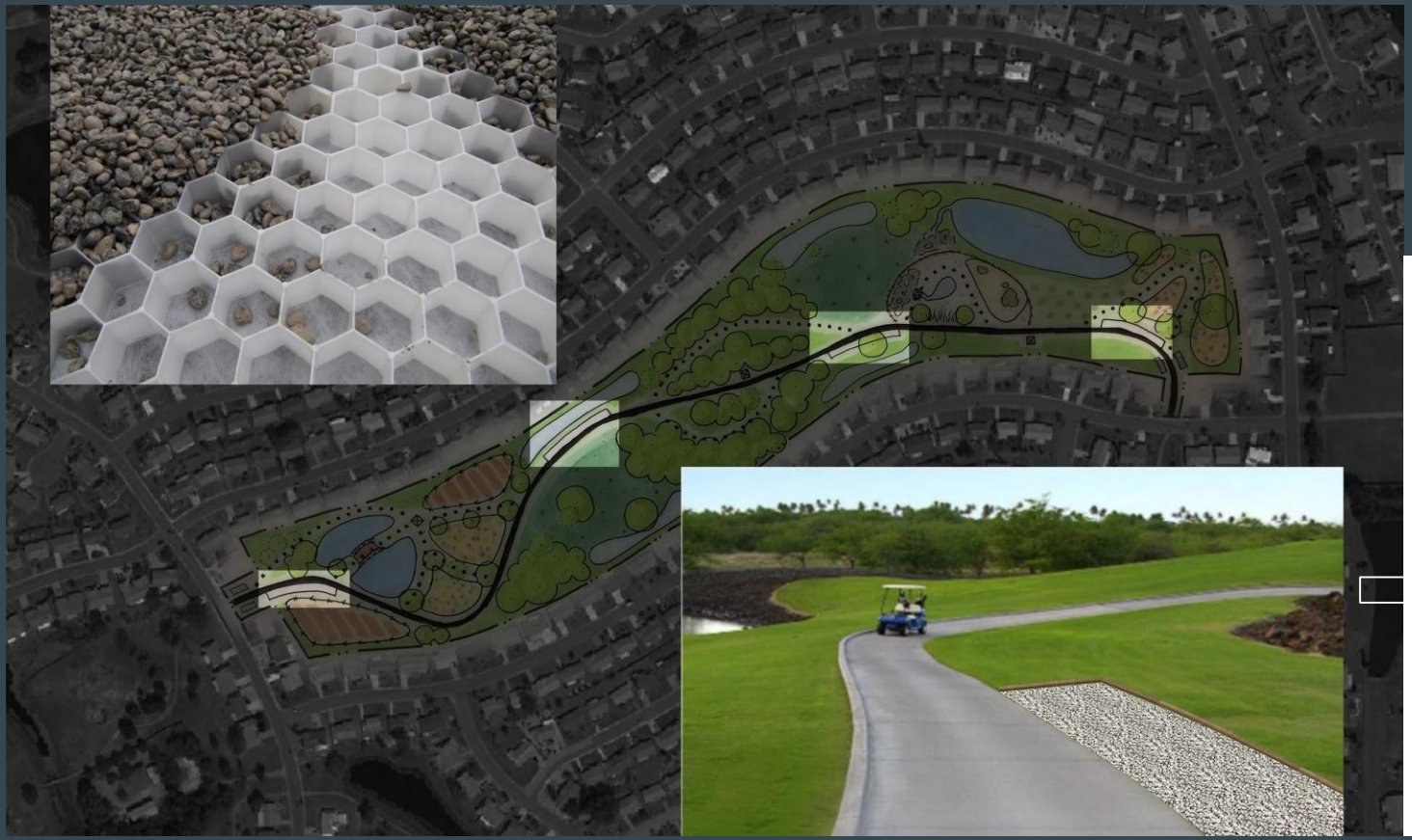
Golf Cart Parking



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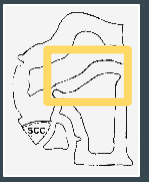
Shaded Hammock



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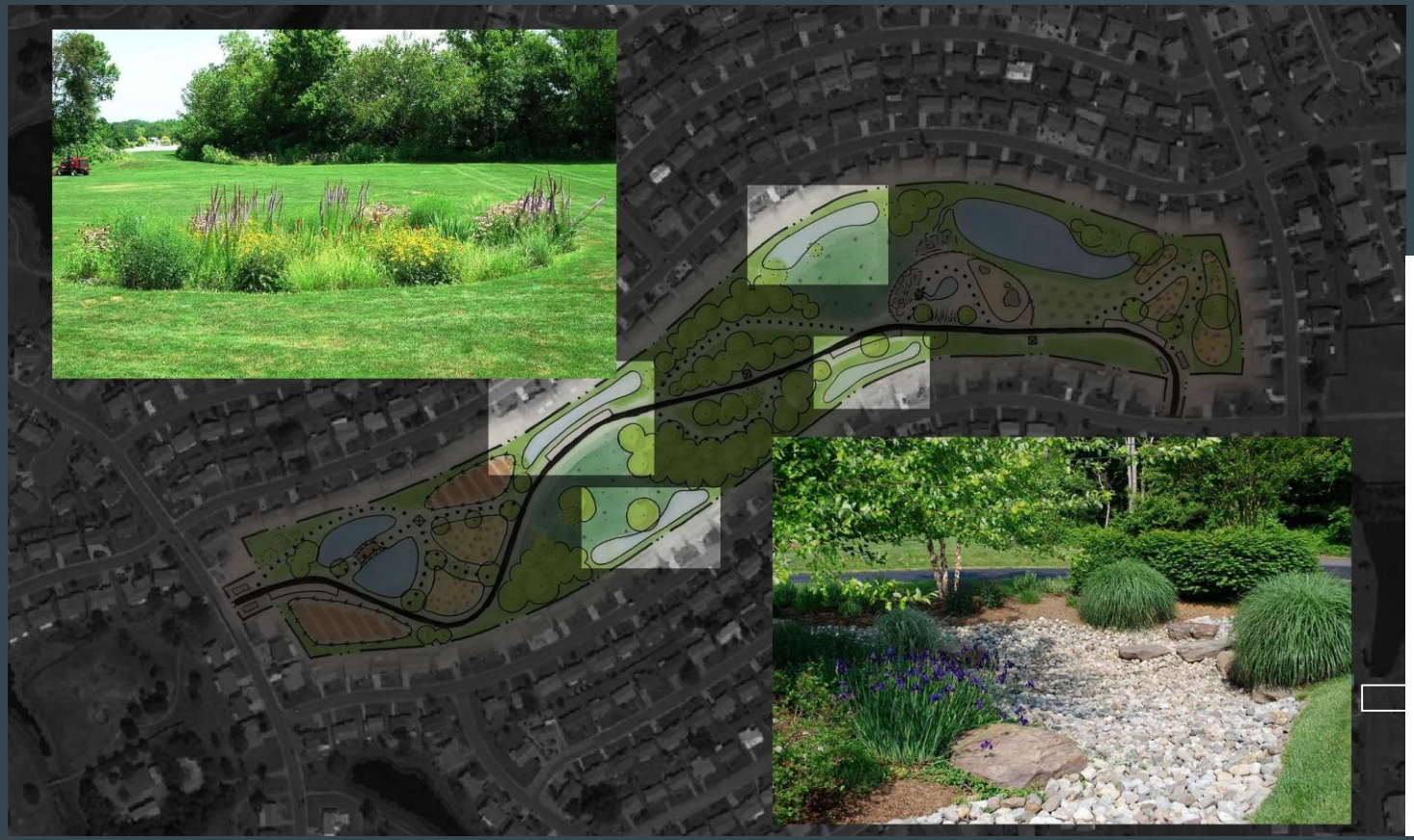
Rain Gardens



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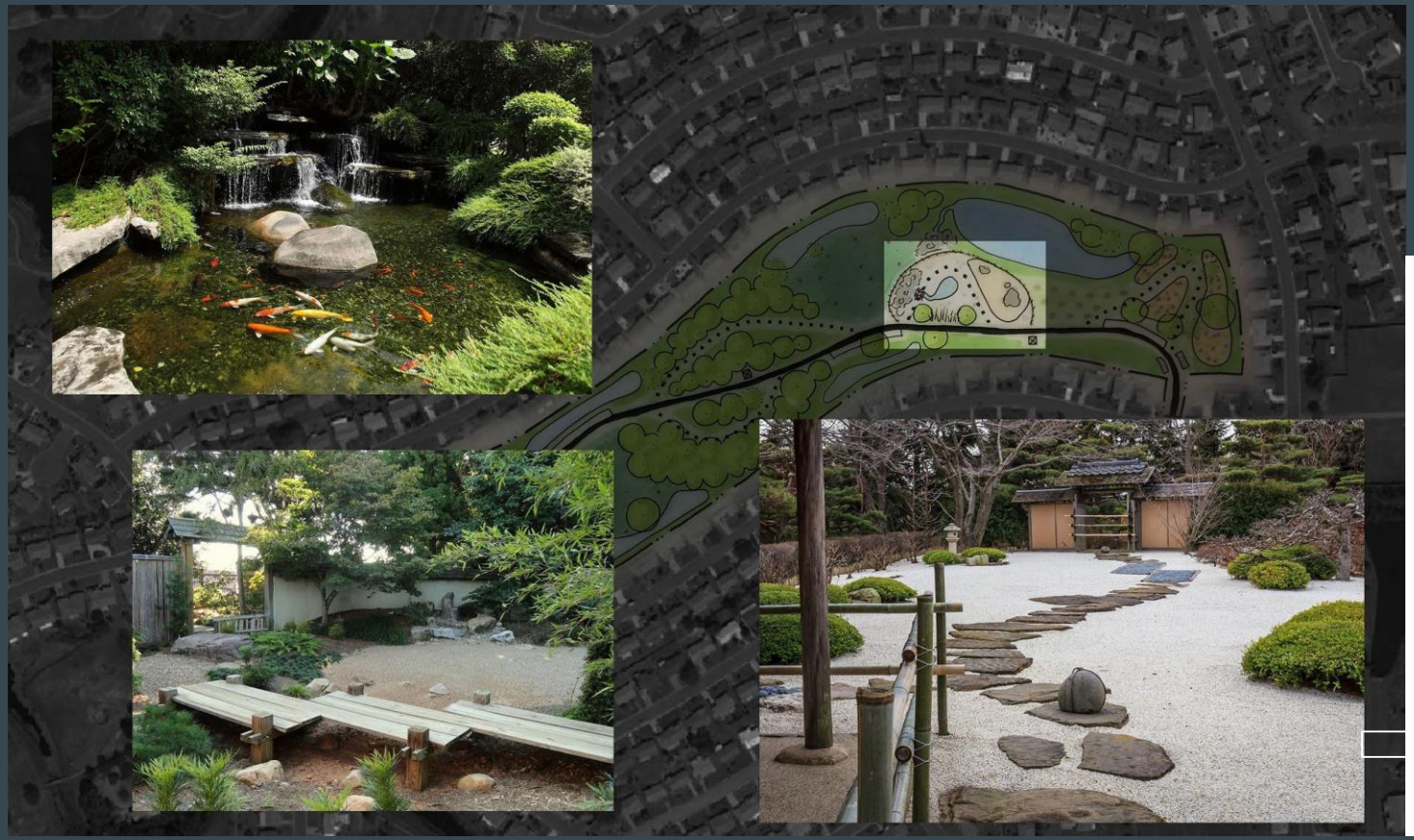
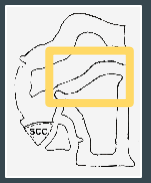
Zen Garden





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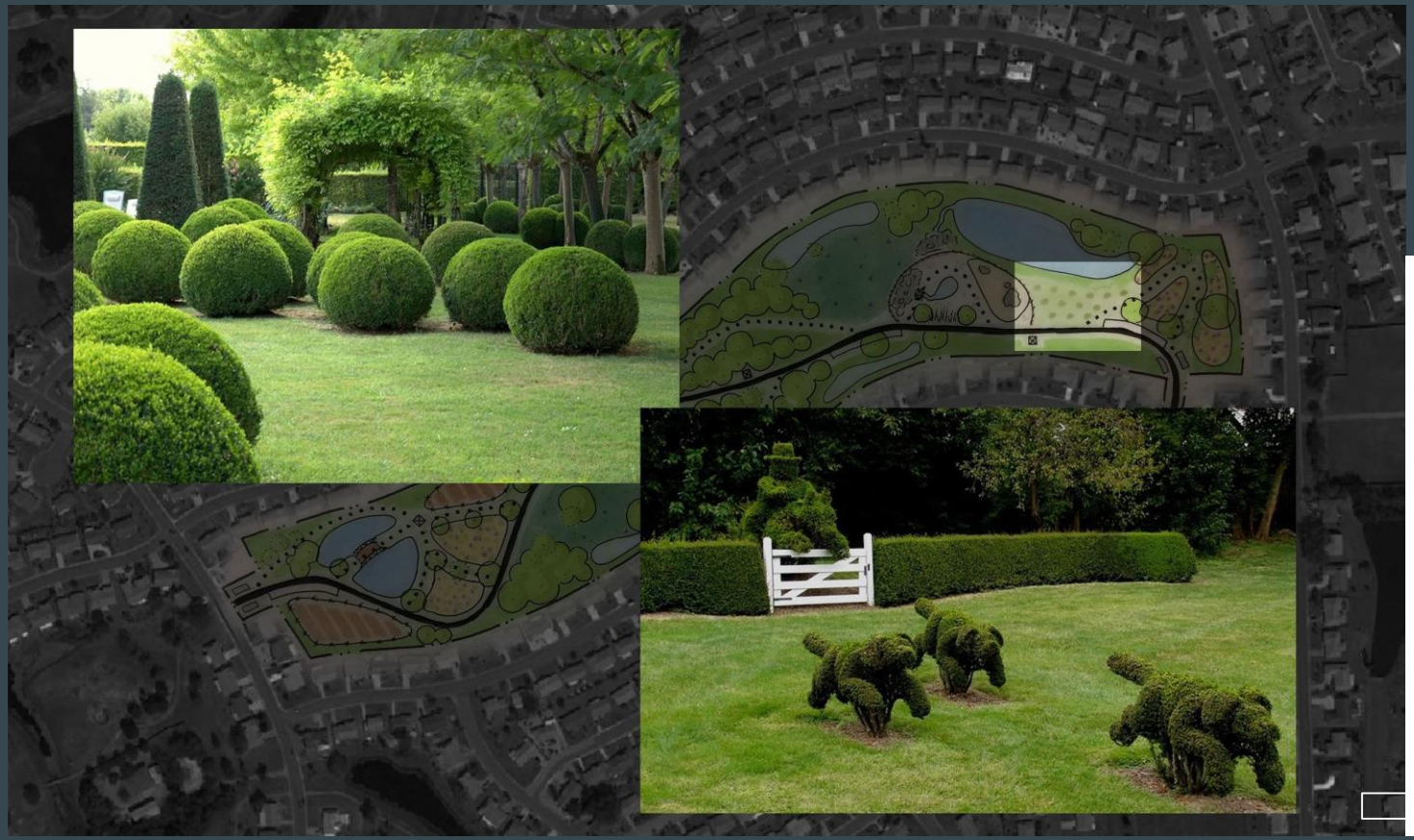
Topiary Garden



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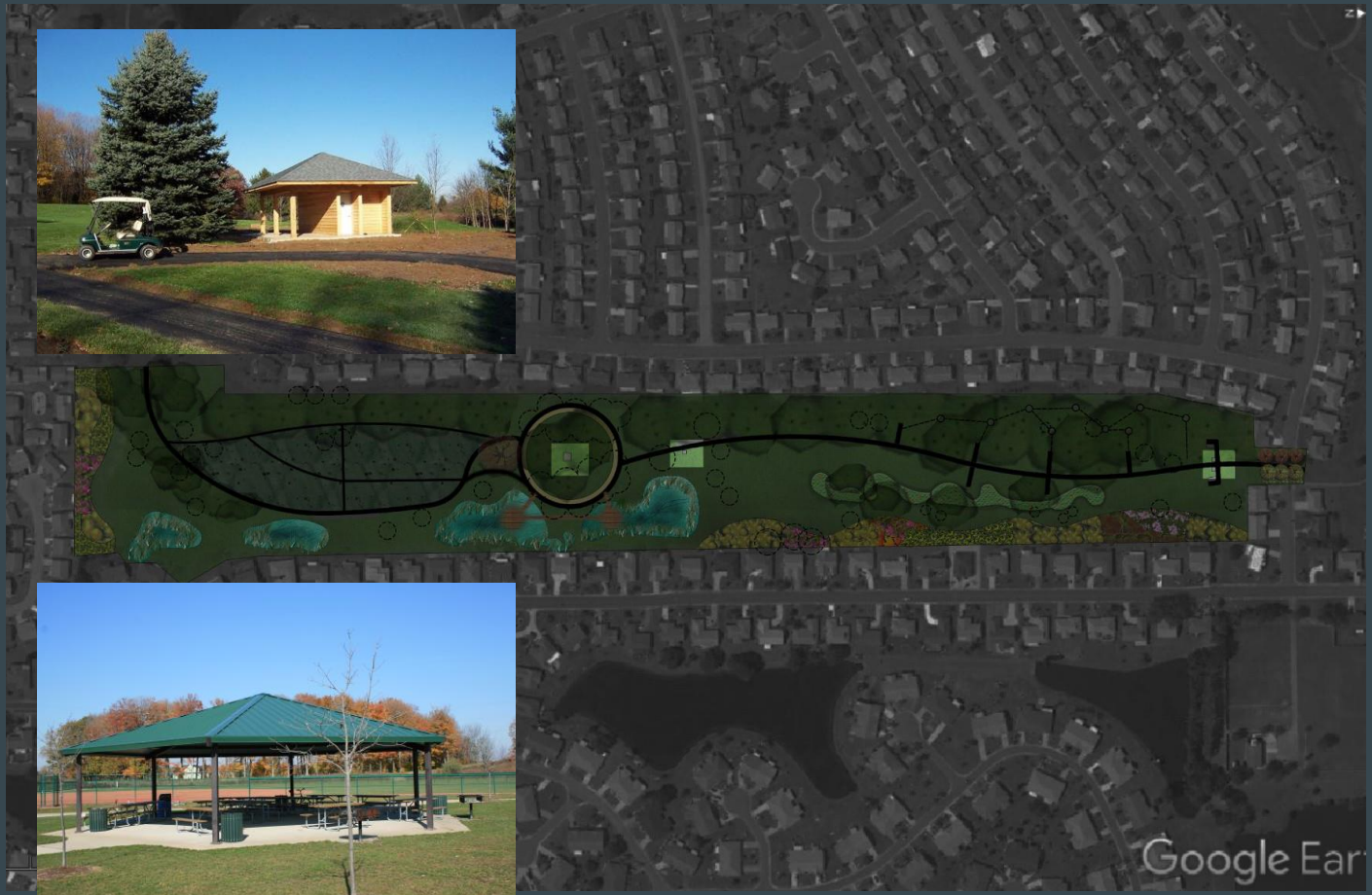
Area 4 (Elliot)

Bathrooms & Pavilion



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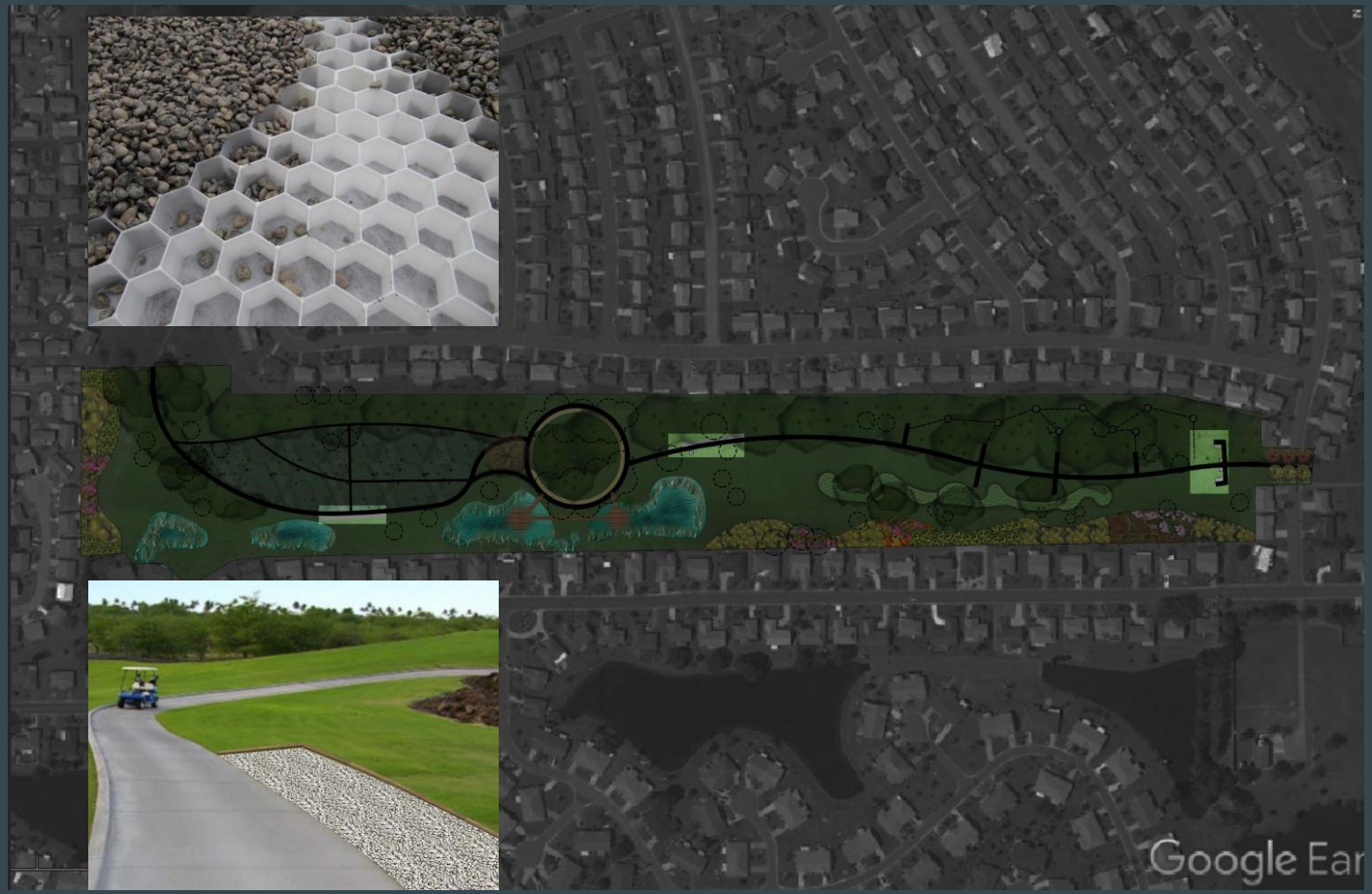


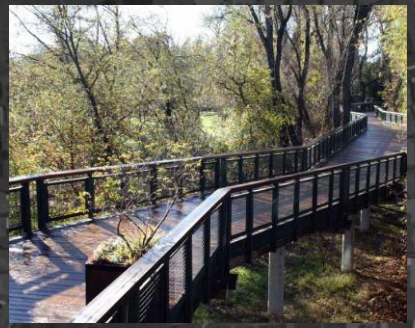
Frisbee Golf and Putt Putt Golf Course

Wildflower Area

Walking Loop & Exercise Circuit

Shrub Areas

Boardwalk & Overlook Docks



Canopy Entrance Feature

Area 4+5 (Cristy)

Area 2 (Shelby)

A - Multiuse Trail

B - Pedestrian Nature Loops

C - Canopy Grove

D - Rain Gardens + Wetlands

E - Open Lawn

F - Pavilion + Waterfront Outlook

G - Wetland Boardwalk

H - Dog Park

I - Family Play Area