



LAKE WALES

ENVISIONED

OLMSTED'S CITY IN 10, 25, AND 50 YEARS

# Memorandum

Date: September 7, 2023

From: Jay H. Exum, PhD

To: City of Lakes Wales

**Re: Lake Wales Envisioned Technical Memorandum:**  
Natural Resource Conservation/The Big Green Network

## INTRODUCTION

One of the aspirations adopted by the Lake Wales City Commission in early 2023 was to “assemble an enduring green network of open spaces and conservation lands”. As a part of our comprehensive approach to envisioning appropriate growth and protection of natural resources within the municipal service area of Lake Wales, we created a large-scale conservation strategy that was named the Big Green Network. The expectation is that natural lands in the study area will connect with existing conservation lands and form a network of protected areas that would preserve biological diversity, protect wetlands and listed species, store floodwaters, provide recreation opportunities, and serve as a boundary for growth for the City. Conservation of tracts of relict scrub habitat, open spaces in parks, and native landscaping along trails and roadways will also create an internal network of green spaces that will connect humans and wildlife to the Big Green Network. This memo describes the process we used to define the Big Green Network, provides guidance for the internal green network and cites recommendations to achieve them.

## Defining the Big Green Network

### DATA COMPILATION

Various members of the Dover Kohl team compiled GIS data for a base map that depicts major roadways, the Lake Wales city boundary, the utility service area, neighboring municipal boundaries, existing conservation lands and parks, water bodies, and major roadways. This base map gave context for the series of maps created to define options for conservation planning in the utility service area, which was our study area for the project (Figure 1).

### COMPREHENSIVE SITE REVIEW

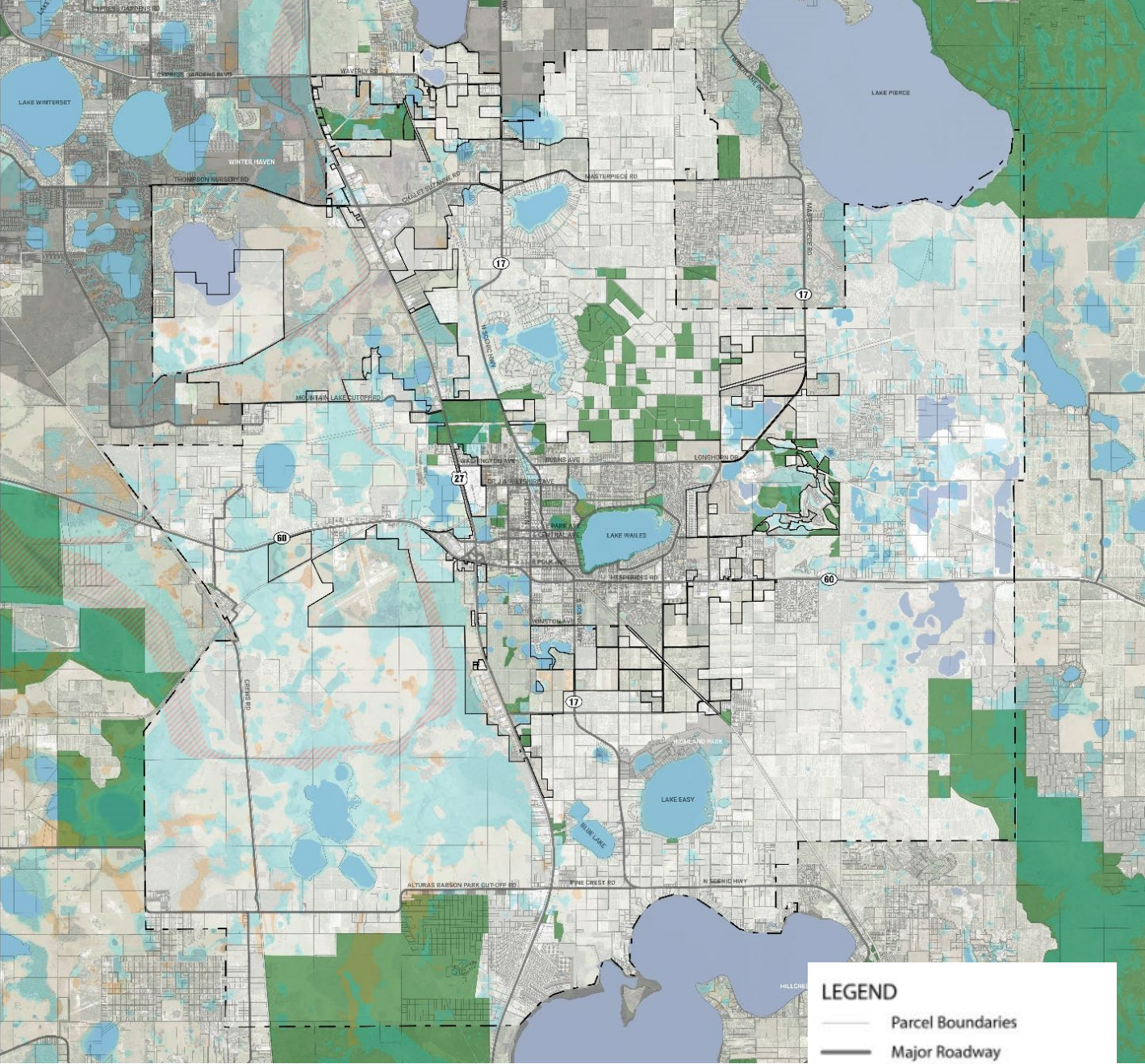
We conducted comprehensive site reviews of the study area. Much of this was done through driving surveys with the project team across the breadth of the study area. But I also spent time in the scrub habitat south of Mountain Lake Cutoff Road; with David Price in the conservation lands and easements associated with Bok Tower Gardens; with Cheryl Millett on Tiger Creek Preserve; and in the limited areas of scrub habitat scattered across the study area. We found highly valuable conservation lands associated with Tiger Creek Preserve, Allen David Broussard Catfish Creek Preserve State Park and larger tracts associated with the Kissimmee River that protect biological diversity east the study area. Similarly, there are large ranch lands in the Peace Creek watershed in the western portion of the project that connect with conservation easements associated with the Peace Creek floodplain and the Crooked Lake Wildlife and Environmental Area. Also, there are small islands of intact scrub that still have vegetation representative of this rare community and likely provide habitat for state and federally listed plants and animals.

### FLORIDA NATURAL AREAS INVENTORY (FNAI) DATA REQUEST

We obtained a Standard Data Report on listed species occurrences in the vicinity of the study area from the Florida Natural Areas Inventory (FNAI). The report indicated the presence of federally-listed species on or very near the study area, including Florida Scrub-Jay (*Aphelocoma coerulescens*), Sand Skink (*Plestiodon reynoldsi*), Blue-tailed Mole Skink (*Plestiodon egregius lividus*), Florida bonamia (*Bonamia grandiflora*), pygmy fringe tree (*Chionanthus pygmaeus*), scrub pigeon-wing (*Clitoria fragrans*), Britton's beargrass (*Nolina brittoniana*), scrub plum (*Prunus geniculata*), and scrub ziziphus (*Ziziphus celata*). The report referenced FNAI habitat models created through the Critical Lands and Waters Identification Project (CLIP), which indicate that additional rare species are known to occur in the vicinity.

The FNAI report also noted that portions of the site were within public areas managed for resource protection including, Crooked Lake West, managed by Polk County; Lake Wales Ridge Wildlife and Environmental Area, managed by the Florida Fish and Wildlife Conservation Commission (FWC); Bok Tower Gardens Pine Ridge Preserve, managed by Bok Tower Gardens Foundation, Inc.; Allen David Broussard Catfish Creek Preserve State Park, managed by FL Dept. of Environmental Protection, Div. of Recreation and Parks; and Tiger Creek Preserve, managed by The Nature Conservancy.

Figure 1: Natural Features Base Map

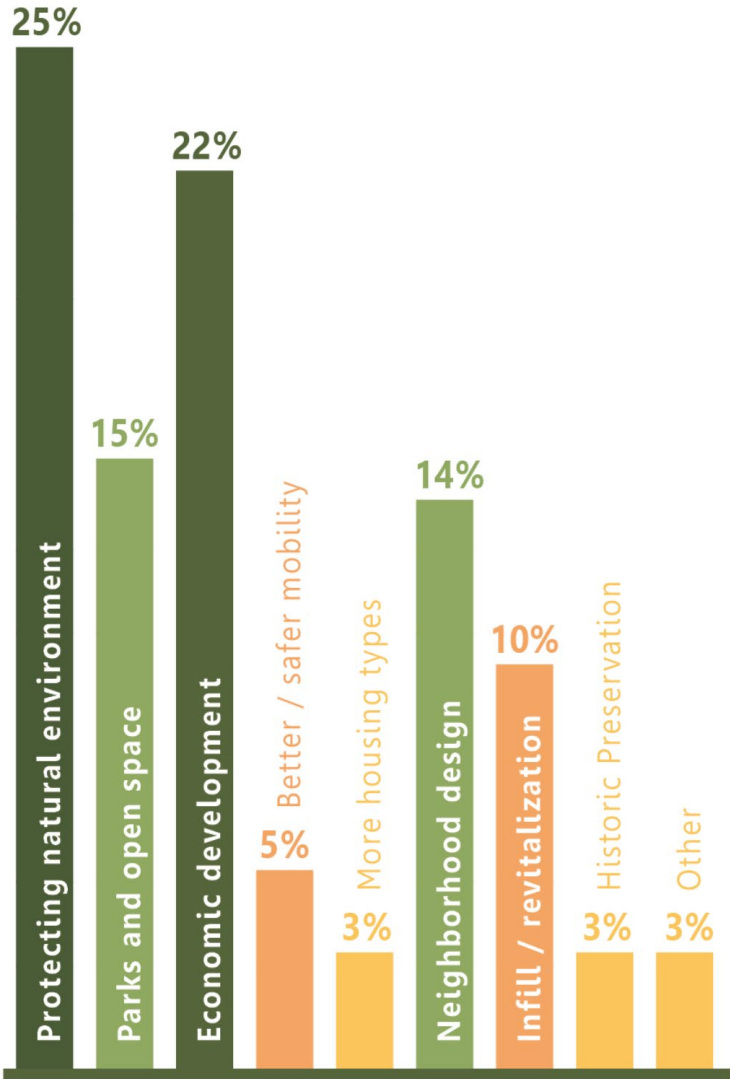


- LEGEND**
- Parcel Boundaries
  - Major Roadway
  - Lake Wales City Boundary
  - Utility Service Area
  - Neighboring Municipalities
  - Conservation Areas
  - Parks and Open Space
  - Waterbodies
  - 100-Year Flood Zone
  - 500-Year Flood Zone
  - Regulatory Floodway

STAKEHOLDER INPUT

We had numerous opportunities for stakeholder input, and an active group of Lake Wales citizens and natural resource agency personnel provided helpful input at every event. This included the project kickoff meeting, a community workshop, and a group tour of Tiger Creek Preserve that was conducted at the outset of the project. Informal polling from these sessions and others during the course of the project consistently ranked protecting the natural environment as a priority item, particularly when merged with parks and open space (Figure 2). Input from stakeholders during the course of the week-long charette, and during a work-in-progress review supported prioritizing protection of the Big Green Network. Participants provided input on data used for mapping, parcels that held specific conservation value, and the importance of using natural resource data as a planning tool.

Figure 2. Results of an informal poll taken at the Lake Wales Envisioned Kick-off Meeting (March 20, 2023)



**Which of the following is most important to you?**

(community response at Kick-off Meeting)

## GIS MAPPING

For the Big Green Network, we identified three areas where conservation of large tracts of natural lands had the greatest value to the city of Lake Wales and the region. Within the study area, we desired to: 1) connect historic scrub and sandhill habitats with the Kissimmee River corridor, 2) protect water resources and habitat in the headwaters of the Peace River, and 3) protect wetlands and water resources along the Peace Creek canal system. We accessed the CLIP statewide database for guidance on important criteria for resource protection in each of these three areas. CLIP is a collection of spatial data that identify statewide priorities for a broad range of natural resources in Florida (<https://www.fnai.org/services/clip>). These resources include biological diversity, rare species habitat, landscape linkage, floodplain, and wetlands. Along with site reviews and input from stakeholders, we used CLIP priorities to define the Big Green Network associated with the Kissimmee River corridor, the Peace Creek watershed, and the Peace Creek canal. A brief explanation of key CLIP data layers that we used for the project follows. This information was taken from Florida Forever Conservation Needs Assessment Technical Reports (2016 and 2000) and the 2016 CLIP tutorial, which were prepared by the FNAI or Jon Oetting, Tom Hctor, and Michael Volk.

### **Florida Ecological Greenway Network**

The Florida Ecological Greenways Network is a statewide system of landscape hubs, linkages, and conservation corridors that connect existing conservation areas with unprotected areas of high ecological significance. The data layer is designed to maintain landscape-scale ecological functions throughout the state. Highest priority greenways are critical for conserving viable populations of wide-ranging species such as the Florida black bear and Florida panther. They also represent the best opportunities to maintain large, connected landscapes that protect biological diversity over the long term.

### **Rare Species Habitat Conservation Priorities**

The Rare Species Habitat Conservation Priorities data layer includes occurrence-based habitat for 634 species with high conservation need including plants, invertebrates, and vertebrates. Individual species maps are weighted according to conservation need. Priority is given to landscapes that would protect both the greatest number of rare species and those species with the greatest conservation need. Highest priorities could indicate a single species with very high conservation need, or multiple species with high conservation need.

### **Biodiversity Resource Priorities**

The Biodiversity Resource Category is comprised of a collection of resource data layers related to biological diversity, rare species habitat and priority natural communities. Priorities are given to high value habitats suitable for one or more vulnerable species, species richness, and under-represented habitats.

### **Flood Zone and Floodway**

These data represent the FEMA-defined 100-year floodplain and the floodway from Polk County floodplain data.

### **Landscape Resource Priorities**

This CLIP dataset considers the Landscape Integrity Index in addition to the Florida Ecological Greenways data. The Landscape Integrity Index was created for landscape conservation planning and it considers natural land cover patch size and land use intensity. Prioritization is based on factors such as importance for wide-ranging species, maintaining a connected reserve network, and riparian corridors.

## **Wetlands**

This data layer was taken from the CLIP database, which includes wetland communities within the Cooperative Land Cover (CLC) maps prepared by the FWC and the FNAI.

### **COMPONENTS OF THE BIG GREEN NETWORK**

#### **River to Ridge Corridor, approx. 8,000 acres (Figure 3)**

Objective: Protect existing and relict scrub and sandhill habitat between Tiger Creek Preserve and Catfish Creek Preserve with conservation lands associated with the Kissimmee River corridor. Created from the CLIP database, including the following:

- The Florida Ecological Greenway Network
- Rare Species Priority Areas, and
- Biodiversity Priority Areas

#### **Peace River Headwaters Corridor, approx. 8,000 acres (Figure 4)**

Objective: Protect a natural landscape from Crooked Lake Prairie across agricultural lands in the watershed with Peace Creek and the Peace River. Created from the CLIP database, including the following:

- The Florida Ecological Greenway Network
- Landscape Linkage Priority Areas, and
- Biodiversity Priority Areas

#### **Peace Creek Linkage Conservation Strategy, approx. 1,500 acres (Figure 5)**

Objective: Protect wetlands and the floodway in disturbed and developed lands surrounding Peace Creek and the Peace Creek canal system. Created from the CLIP database and Polk County floodplain data including the following:

- Flood Zone and Floodway
- Wetland Priority Areas, and
- Biodiversity Priority Areas.

Combined, these proposed corridors total more than 17,500 acres (Figure 6). Protection of these resources will require a sustained, multi-faceted approach using many tools over a long period of time.

Figure 3. The Portion of the Big Green Network Referred to as the Ridge to River Corridor.

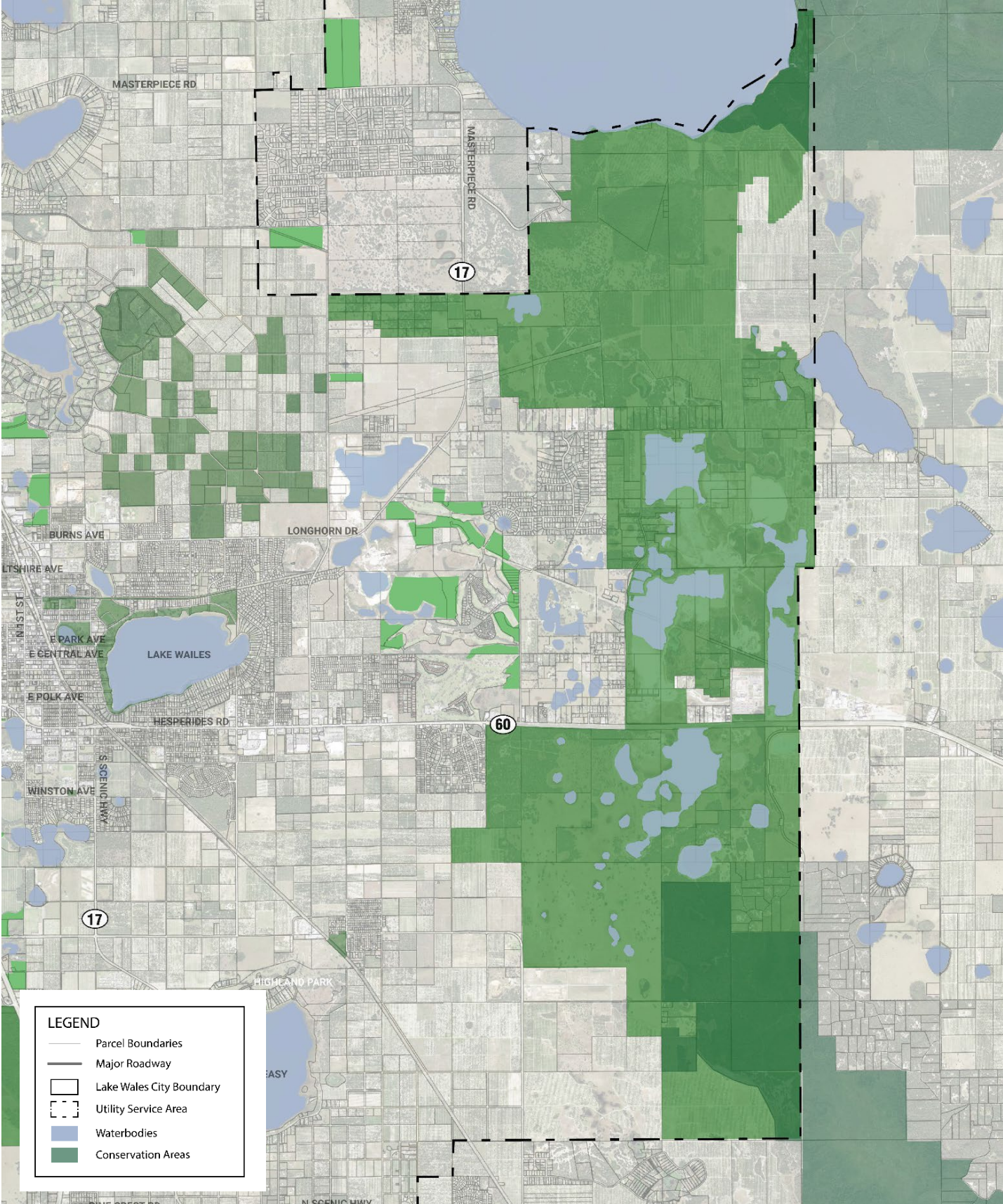


Figure 4. The Portion of the Big Green Network Referred to as the Peace River Headwaters Corridor.

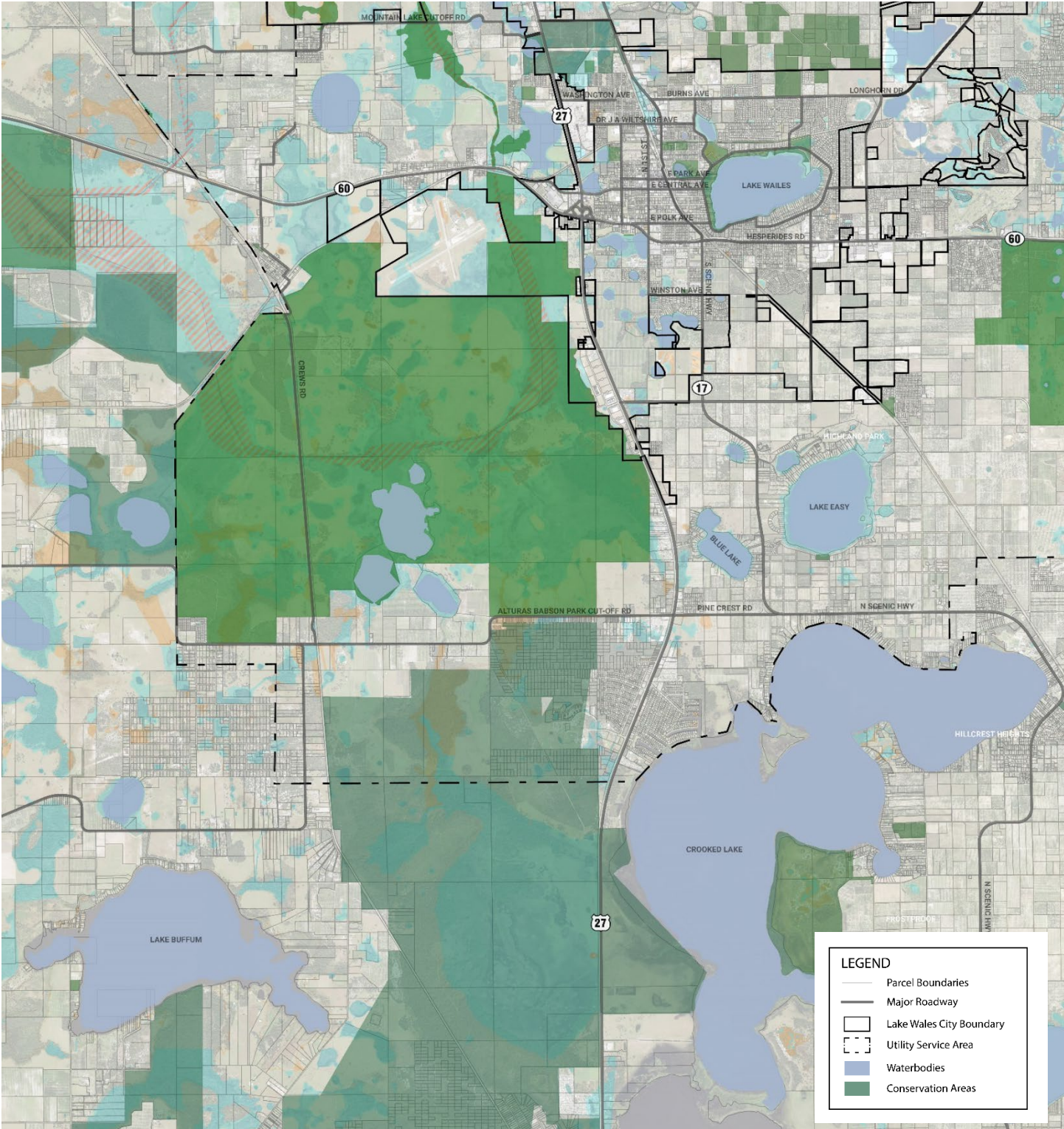




Figure 5. The Portion of the Big Green Network Referred to as the Peace Creek Linkage.

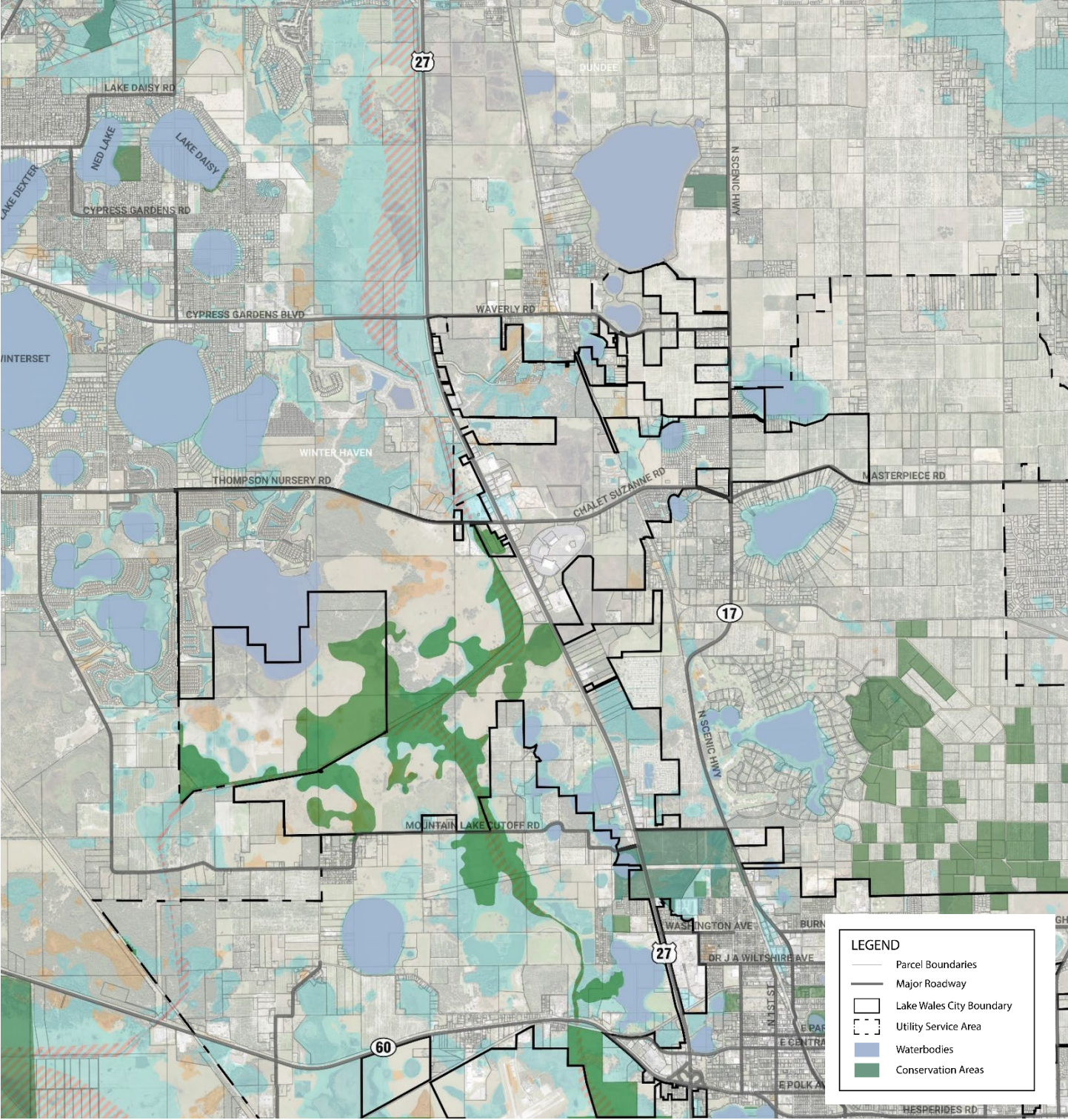
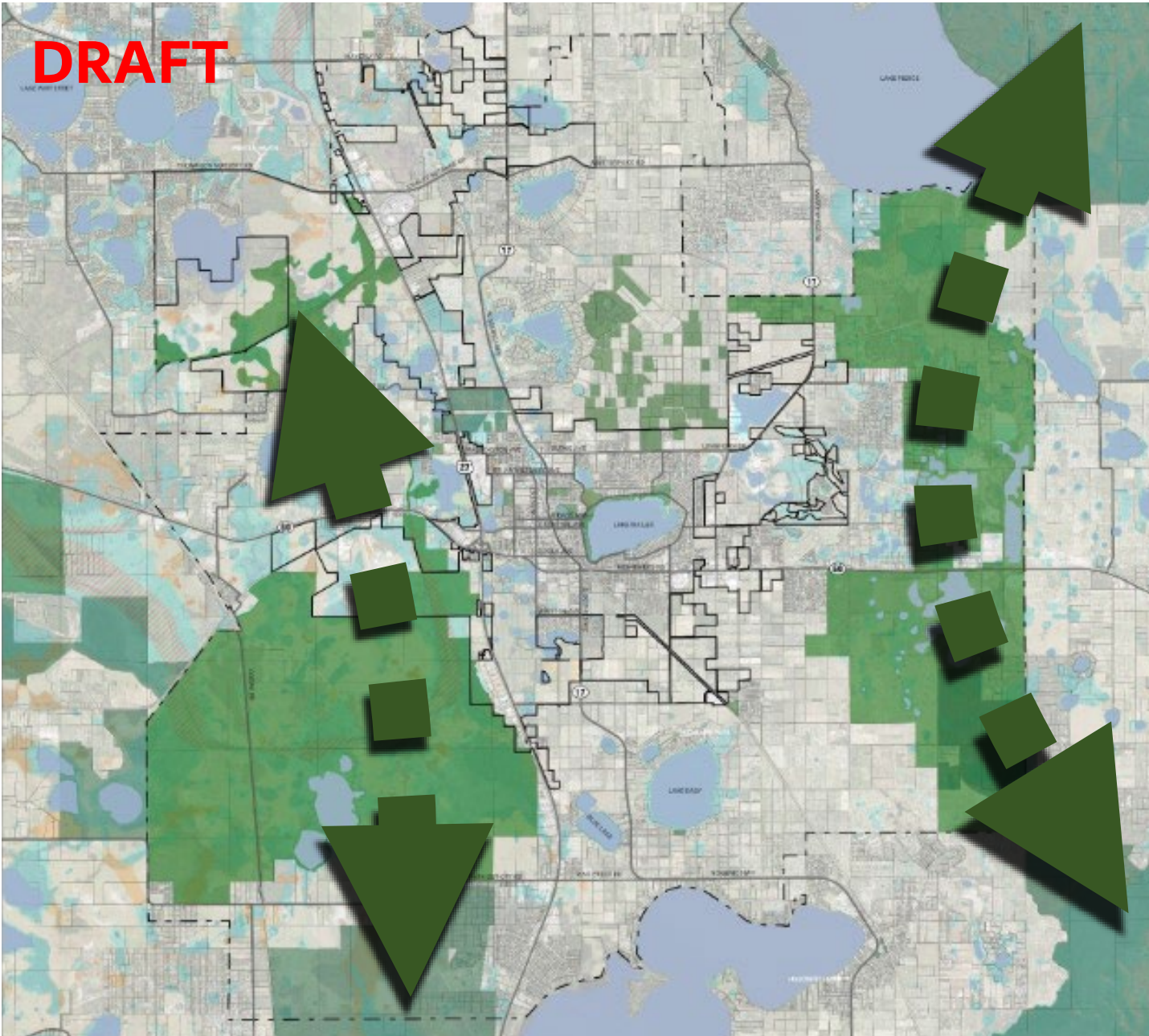


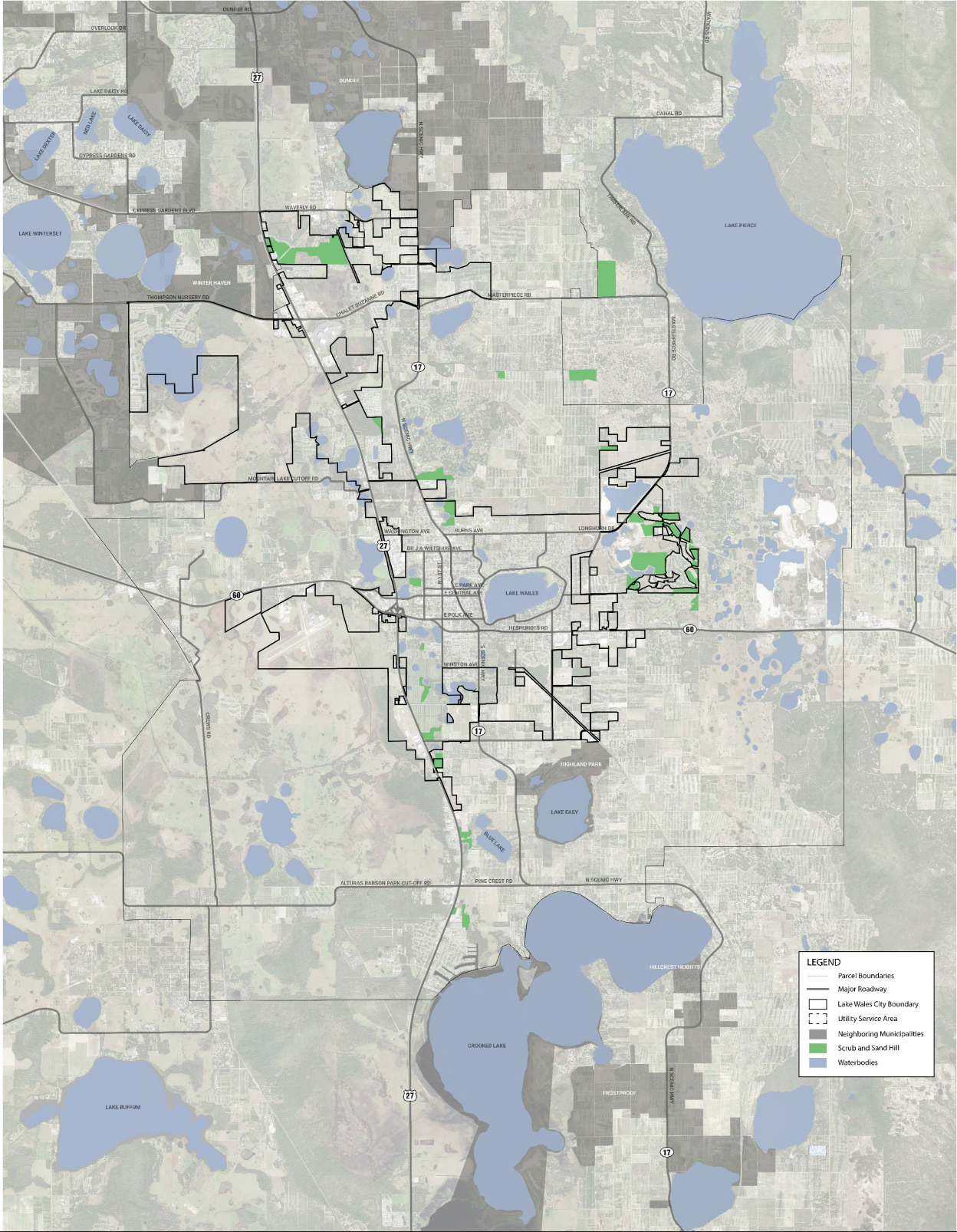
Figure 6. The Big Green Network of Lake Wales



## Defining the Internal Green Network

Based on information obtained during site reviews, stakeholder workshops and aerial photography, we mapped potential areas of relict scrub habitat within the study area (Figure 7). Most of these isolated patches of scrub are small, altered by historical land uses and surrounded by incompatible uses. Still, scrub habitat in Polk County harbors state and federally listed plants and animals that may remain in patches of isolated habitat even after significant disturbance. The distribution of these isolated patches may also serve as hubs for future trail systems or park sites and could help connect conservation areas to the Big Green Network.

Figure 7. Parcels with Relict Scrub and Sandhill Communities



Parcels with Relict Scrub and Sandhill Communities

1" = 2,000' 0 2000 4000 6000 8000 Ft. N

The design team created scenarios of interconnected neighborhoods with mature street trees connected to public open spaces vegetated with native plants that would provide shaded habitat for humans and urban wildlife (Figure 8). This green development scenario could mimic a mature forest and serve as one component of an internal green network across the study area.

**Figure 8. Internal Network of Mature Street Trees and Public Open Spaces**



Paying attention to the form of future development could also result in patches of viable habitat using the conservation subdivision design approach. Figure 9 envisions the form of a neighborhood where more than half of the area is devoted to green space, which could include habitat restoration, stormwater management, and trails. These areas would also serve as hubs to the internal green network and this web of open space would connect to the Big Green Network.

Figure 9. Internal Network of Protected Lands in a Hypothetical Conservation Village



## Achieving the Aspiration of an Enduring Green Network

Conservation of the 17,500-acre Big Green Network and connecting it to the core of the city of Lake Wales will require a long-term effort by the city, Polk County, other public agencies, the private sector, and NGOs. Protecting the values of conservation lands is more likely to be achieved using multiple tools, including:

- Acquisition
  - Fee Simple
  - Conservation Easements (including
  - Protection of Sentinel Landscapes around the Avon Park Air Force Range
  - Agricultural Easements
- Regulations
  - Wetlands
  - Floodplains
  - Listed species
- Incentives for private landowners
  - Tax Breaks (including Agriculture as a Land Use in the City)
  - Wetland mitigation banks
  - Listed species conservation banks
  - Gopher tortoise recipient sites
- Comprehensive Policy Guidance
  - Future land use
  - Urban service boundary/rural areas
- Land Development Regulations
  - Transfer of development rights
  - Wetland protection
  - Habitat protection
  - Development form
- **COLLABORATION AND PARTNERSHIPS!**

Using all these tools could result in protection of the substantial resource values embodied in the Big Green Network along with the aesthetic and experiential values associated with conservation of the internal green network as depicted in Figure 10.

**Figure 10. Connectivity of Internal Open Spaces and the Big Green Network**

