

Belle Glade, Florida

TREE CANOPY REPORT

An Analysis of Urban Forest Cover and Tree Equity Strategies



APRIL 2023



community
GREENING

Prepared by the
Green Infrastructure Center Inc.



Green Infrastructure Center

Project Overview and Executive Summary



Trees are the city's 'green infrastructure.' Just as we manage our grey infrastructure (roads, sidewalks, bridges and pipes), we also need to manage our 'green infrastructure' (trees and other vegetation). The city's green infrastructure provides many values that support a vibrant, safe and healthful community. Trees add to a city's historic character and enhance livability by filtering storm water and reducing runoff, cleaning the air, providing oxygen, shade, natural beauty and enhanced property values. Planting a tree to shade a home can save 50% of annual air conditioning costs and can soak up thousands of gallons of stormwater each year to reduce street flooding.

This report describes the tree canopy and associated benefits for the community of Belle Glade, Florida in Palm Beach County. The tree canopy assessment was created by the Green Infrastructure Center Inc. (GIC) and funded by Community Greening, a nonprofit grassroots tree planting and tree advocacy organization. GIC analyzed the city's tree canopy extent and plantable open spaces along with a ranking scheme to prioritize the most equitable planting areas first. Next, the environmental benefits including air quality improvements and shade benefits provided by the city's trees were analyzed.



There are plenty of planting areas in the community where trees can be grown to mitigate environmental harms such as increased heat or air pollution.

The following report and analysis were funded by Community Greening.
April 2023

Belle Glade

Fast Facts

- County:** Palm Beach
- Population:** 16,718 people*
- Median Household Income (MHHI):** \$42,722*
- Total City Area:** 7.06 sq. miles
- Land Area:** 6.74 sq. miles
- Lakes/ponds:** 190.6 acres
- Wetlands:** 11.9 acres
- Tree canopy:** 162.8 acres

*(U.S. Census 2021 estimate)



Belle Glade's Tree Canopy

Belle Glade's residential living area has a tree canopy of 6%. This does not include the rural agricultural lands that fall within the city's jurisdiction. Fortunately, Belle Glade has room to add significantly more tree cover that can provide many benefits to the city for shade, air quality, urban cooling and habitat and natural beauty. These benefits trees provide for

Belle Glade's residents are called 'ecosystem services' or benefits nature provides relatively for free. In fact, the city could achieve a far greater canopy coverage with a maximum of 25% tree cover, thereby providing even more benefits to the community.



6%

Current tree canopy of the city's living area



339

Acres of potential plantable areas



14,175

more small trees (20 ft diameter crowns) can be planted



18,694

more large trees (40 ft diameter crowns) can be planted



25%

Potential tree canopy of the city's living area

Belle Glade's Tree Canopy Benefits

Air Quality

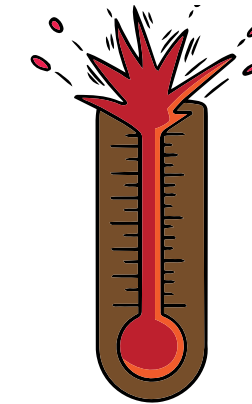
Trees play a critical role in providing oxygen, and cleaning the air of particulate matter and ground level ozone (O₃), which can harm human health. Trees also sequester greenhouse gases such as sulfur dioxide and carbon dioxide, and as these gases are trapped by trees, the severity of climate change is reduced. Trees also store carbon and prevent its release, further helping to ameliorate possible climate change impacts. Each year, the tree canopy of Belle Glade removes 107 lbs. of CO, 2,126 lbs. of ground-level ozone (O₃) and 890 lbs. of airborne particulate matter that can cause respiratory distress.

Heat Island

Similar to most southern communities, Belle Glade suffers from urban heating and stormwater runoff impacts caused by too much impervious surface coupled with a lack of vegetative cover. Excessive pavement and lack of shade lead to increased temperatures known as *urban heat islands*. The lower the tree canopy cover, the higher the surface temperatures and the hotter the city.



The Belle Glade tree canopy helps reduce respiratory distress by removing 890 lbs. of airborne particulates each year.



81F°
The average surface temperature in Belle Glade on October 7, 2022

The data created for this plan were used as part of an analysis to locate the highest priority areas for tree plantings. This method used two key metrics, surface temperature and median household income, to identify priority planting areas. Neighborhoods with available space for tree plantings in the city that had higher than average surface temperatures and lower than average median household income were prioritized (see priority planting map). These data will aid the city and community tree planting groups such as Community Greening in identifying at-risk and greatest need neighborhoods in which to plant trees. There are 76 acres of the highest priority planting areas in Belle Glade which could be planted with more than 9,083 trees to result in cleaner air, cooler streets and natural beauty for neighborhoods.

Next Steps

The data created for this plan can help a community set a tree canopy goal, plant trees to mitigate future environmental harms such as urban heat island or air pollution, set a budget and secure funds to accomplish their objectives, while simultaneously increasing residents' quality of life.



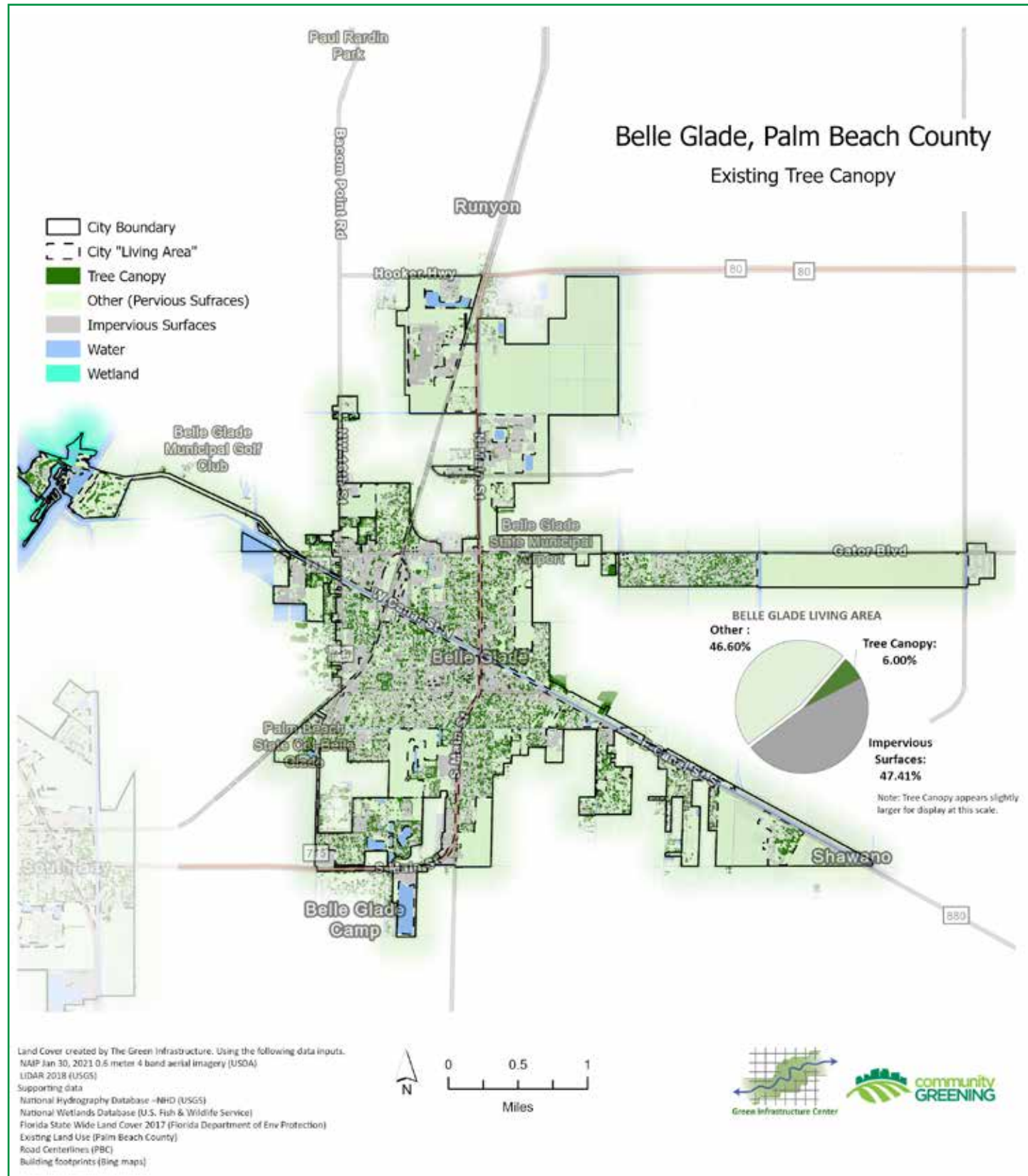
Pounds of air pollution and greenhouse gases removed annually by city trees in Belle Glade

CO (carbon monoxide)	NO ₂ (nitrogen dioxide)	O ₃ (ozone)	PM ₁₀ * (particulate matter 10 microns)	PM _{2.5} (particulate matter 2.5 microns)	SO ₂ (sulphur dioxide)	CO ₂ seq (carbon dioxide sequestered) in tons	CO ₂ stored** (carbon dioxide stored in tons)
107	183	2,126	759	131	92	92	8,957,587

*PM = Particulate matter

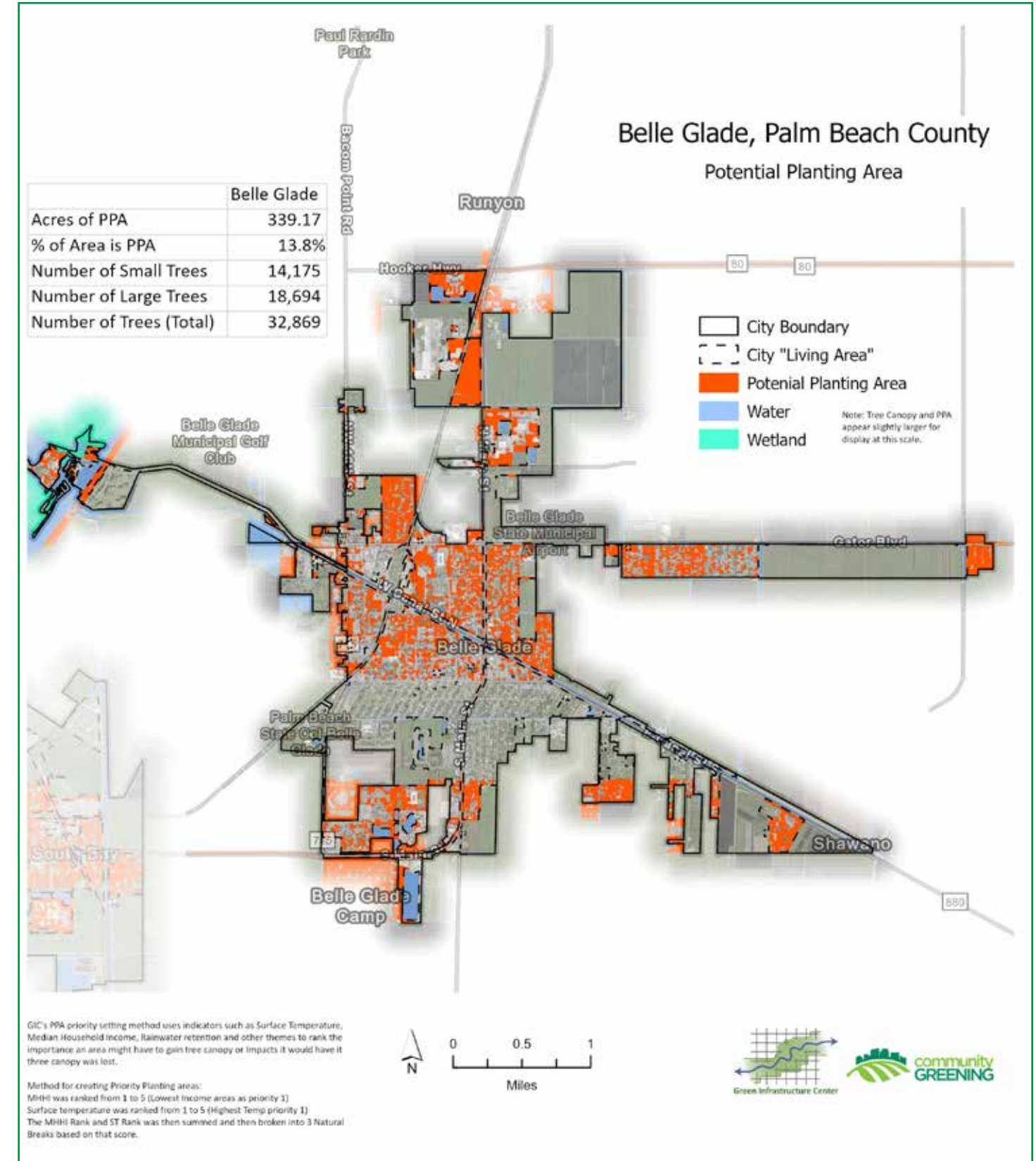
**CO₂ stored is not an annual rate but a total amount of carbon stored.

Belle Glade: Tree Canopy Map



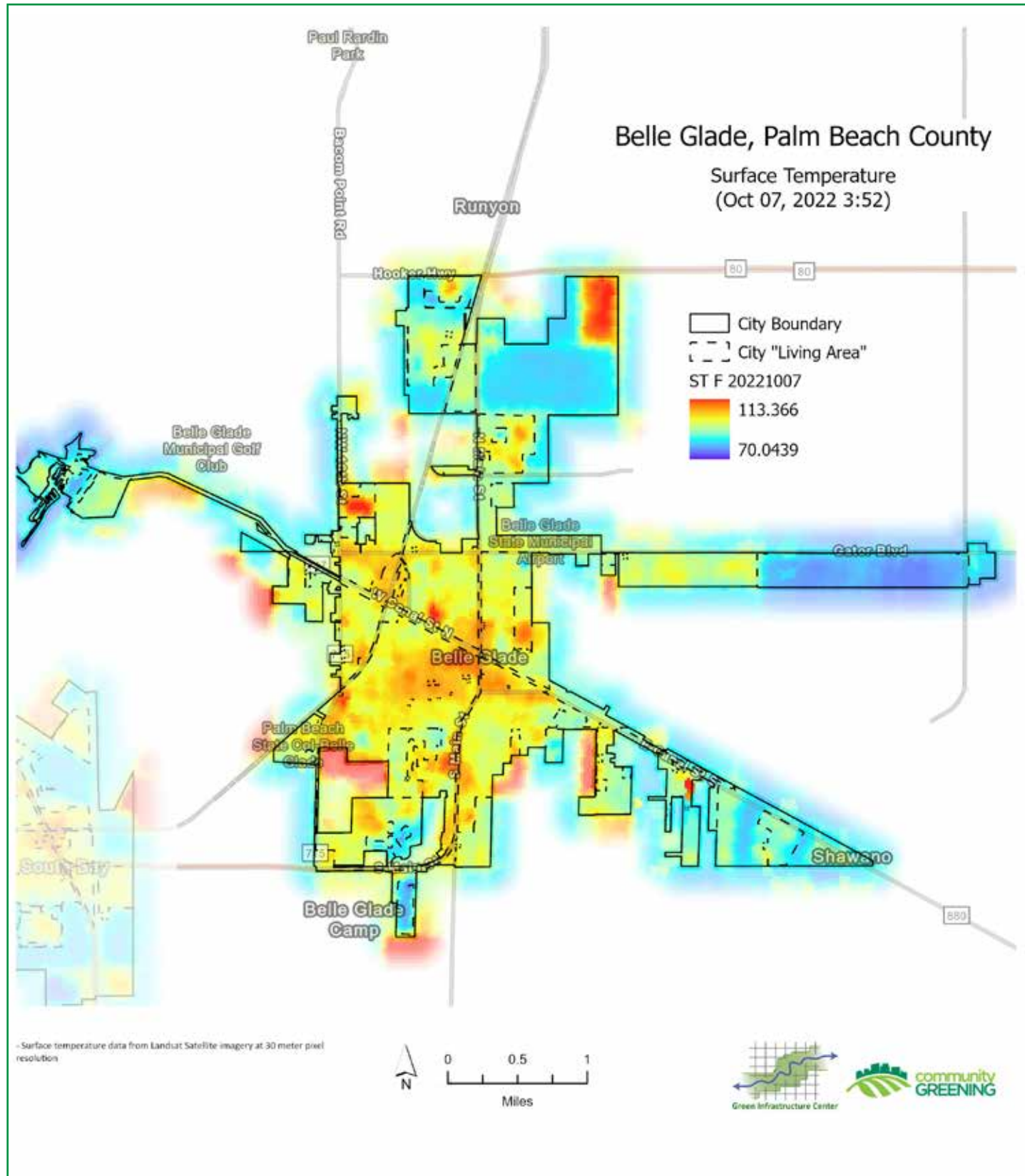
This map displays the existing tree canopy within the residential areas of Belle Glade, Florida.

Belle Glade: Potential Planting Areas Map



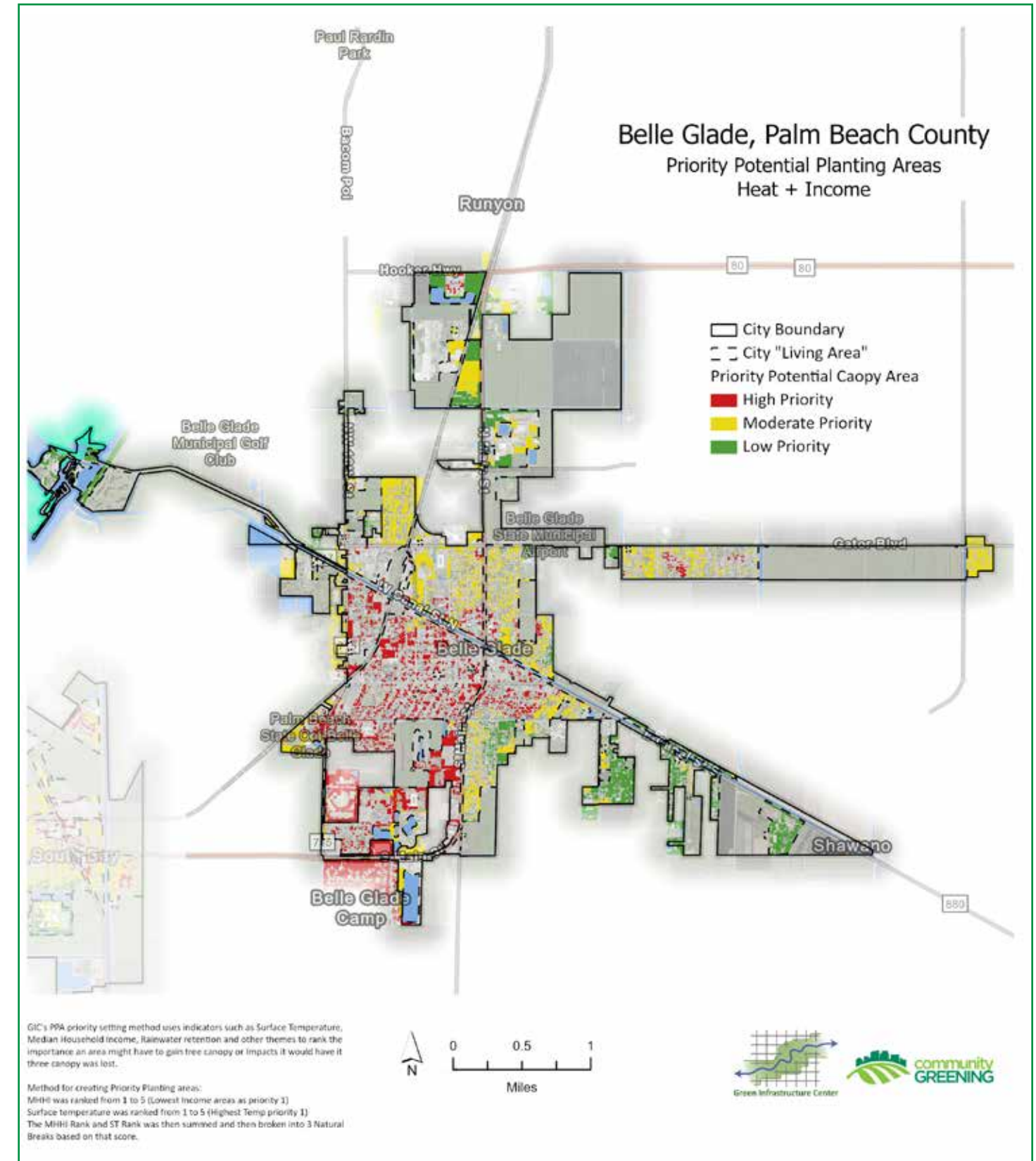
This map shows potential planting areas within the community.

Belle Glade: Urban Heat Island Map



This map shows the hottest parts (in red) to the coolest (in blue) in the city.

Belle Glade: Priority Potential Planting Areas Map



This map depicts potential planting areas to prioritize first in Belle Glade, Florida based on lower median household income (MHHI) and higher than average surface temperatures.

