SHIFTING THE NARRATIVE: TOOLS AND APPLIED APPROACHES TO MAINSTREAM GREEN INFRASTRUCTURE

Eban Bean, Ph.D., P.E.

Associate Professor and Extension Specialist

University of Florida/IFAS

Kierstyn Cox

Sustainable Communities Project Manager

The Nature Conservancy

Claire Lewis, MLA

Program Director, Florida Friendly Landscapes & State Specialized Extension Agent

University of Florida/IFAS

Christianah Oyenuga, Ph.D.

Sustainable Cities Manager

The Nature Conservancy

Corridor Compatible Communities Guidelines

Connecting Landscapes for People and Nature

Christianah Oyenuga, Ph.D.
The Nature Conservancy

Image Credits (L to R): Christianah Oyenuga, Roberto Gonzalez

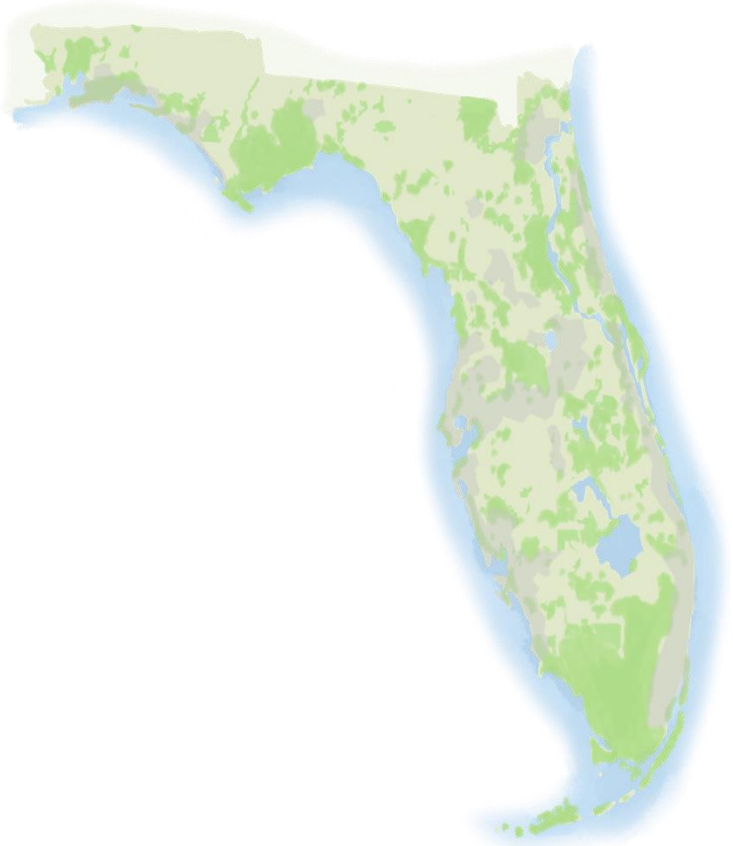
Corridor Compatible Communities (CCC) Guidelines

CCC Guidelines are a design tool that focuses on biodiversity, resilience and connection as the three pillars of excellent land development strategies to help inform how and where development can occur

Corridor Compatible Communities Guidelines

Intent of the CCC Design Guidelines

1. To establish a new standard of practices for wildlife-friendly development
2. To provide educational guidance for decision-makers, professionals, and communities interested in wildlife-friendly design strategies
3. To offer a resource for advocates seeking to incorporate wildlife-friendly development practices into local ordinances



CCC Design Guidelines

Building on Best Practices

1. Florida's history of conservation practices as a Springboard for the Future
2. Landscape Ecology as a guide for Development
3. Right Location, Right Team

CCC Design Guidelines

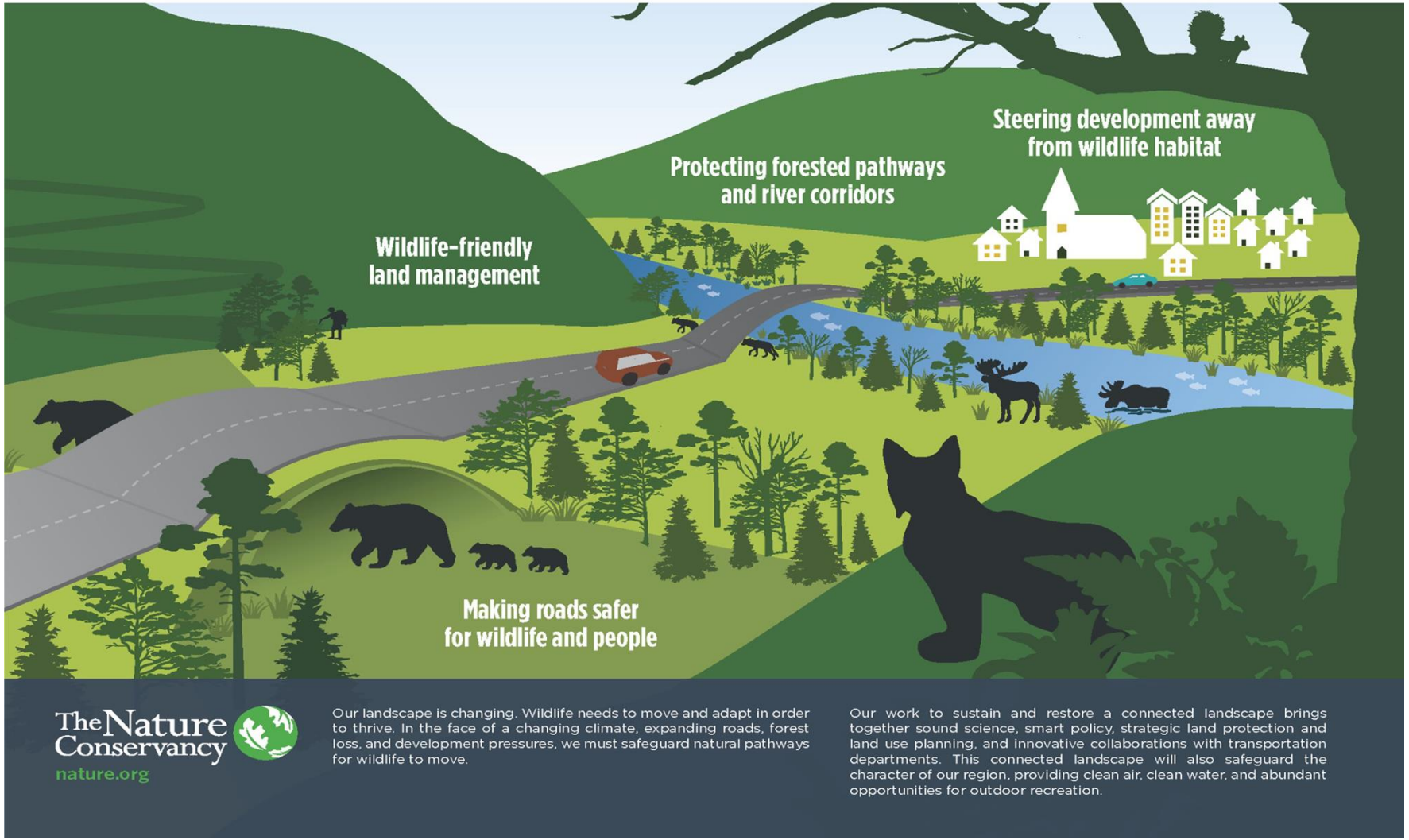
Planning and Design Qualities

Corridor Compatible Communities Guidelines

Key Takeaways

- Useful tool to assist landowners, county planners, regional planning councils, developers, private consulting firms, elected officials and others make decisions about where and how we grow
- Not Overly Technical
- Flexible, rather than prescriptive, and can be adopted based on the local context, surrounding environment and project needs/constraints
- Collaborative effort, developed with input from a broad range of stakeholders representing various public and private sectors and interests

Connecting the Landscape So Wildlife and People Can Thrive



Thank you!

Learn More about Corridor Compatible Communities

UF|IFAS
UNIVERSITY of FLORIDA

Intro to GSI & Code Audits

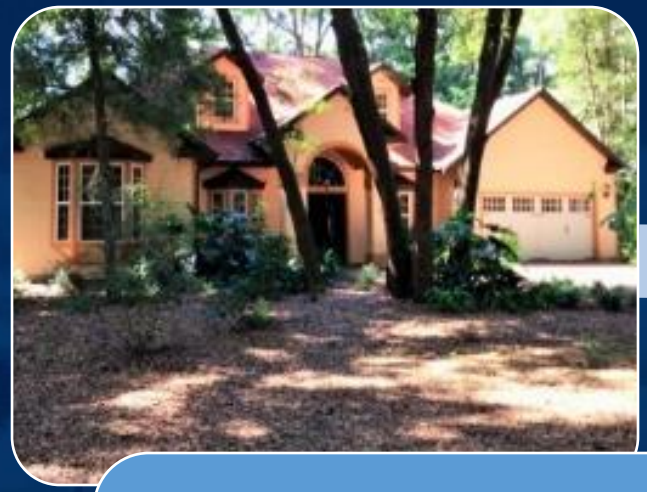
FOR THE
#GATORGOOD

Eban Z. Bean, PhD, PE
Assoc. Professor & Ext. Specialist
Urban Water Resources Engineering
Agricultural & Biological Engineering, UF|IFAS

LID vs. GSI/NBS: Regulations & Incentives

Avoidance (LID)

- Map natural infrastructure
- Preserve open spaces, natural areas, trees and native soils
- Retain natural hydrologic and topographic features in site plan



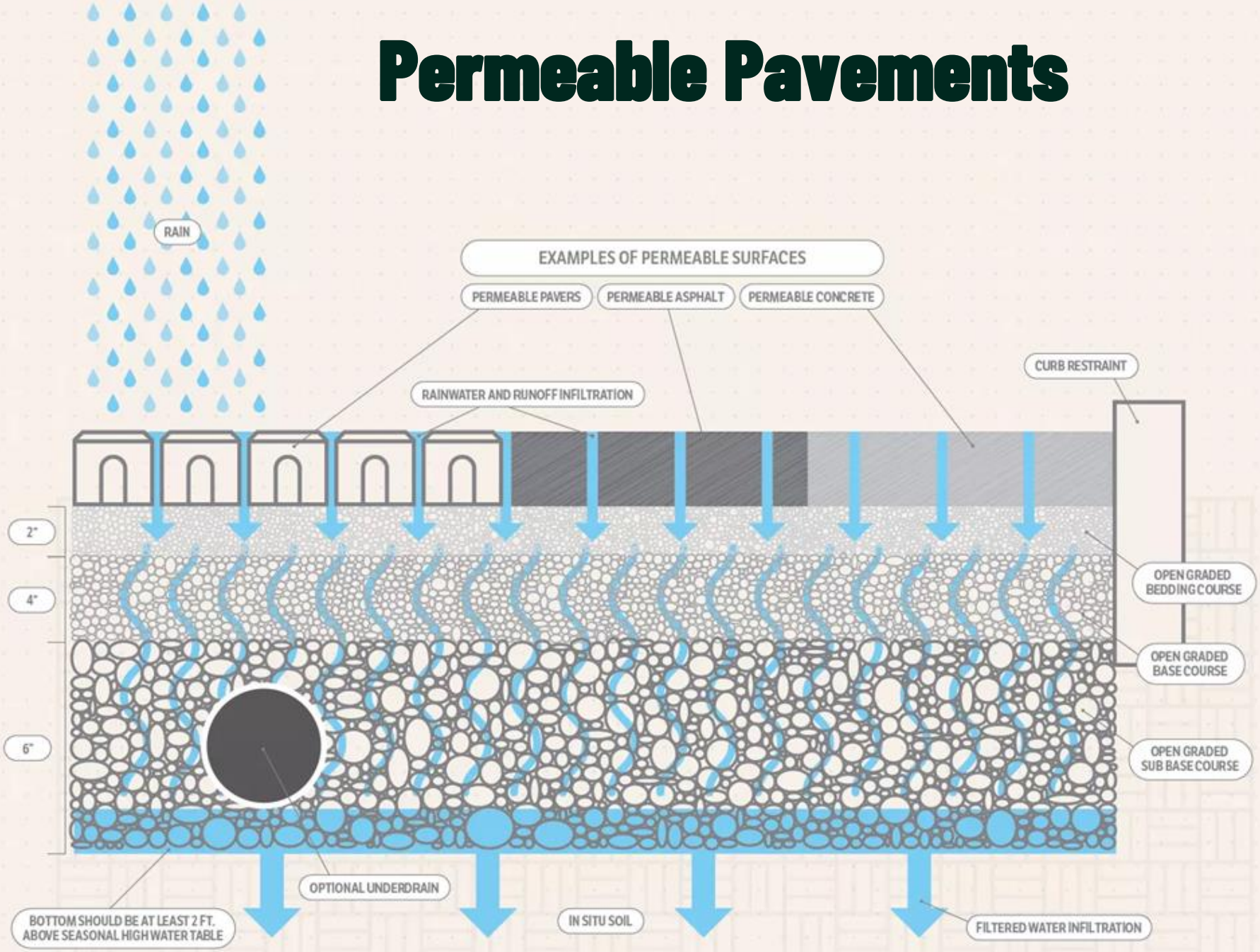
Minimization (LID)

- Limit and disconnect impervious surfaces
- Mimic and maximize pre-development hydrologic processes
- Integrate practices that provide co-benefits and multifunctional areas

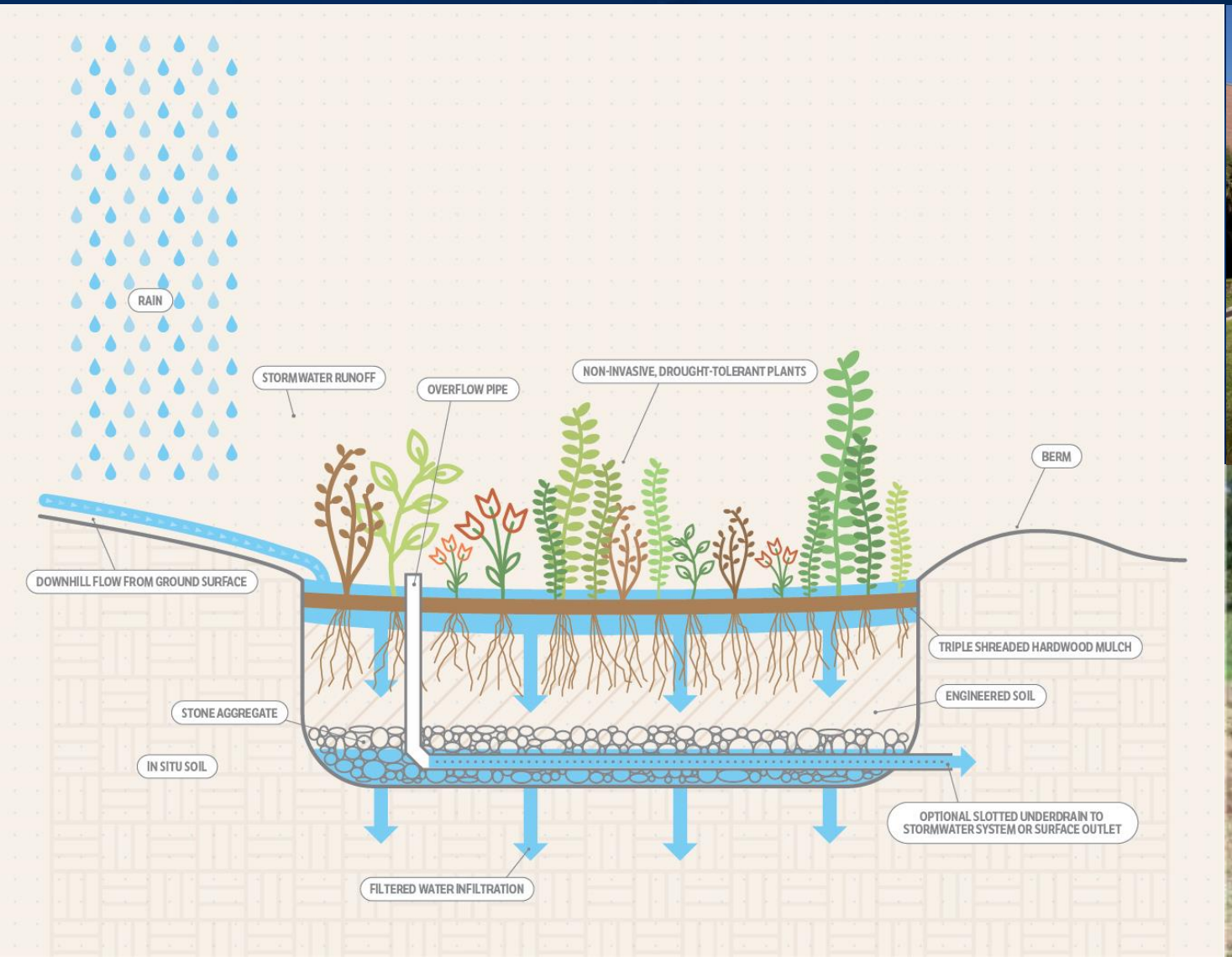
Mitigation (GSI/NBS)

- Implement runoff source control measures
- Employ natural processes to treat and retain stormwater
- Provide treatment and attenuation in multiple areas across the site

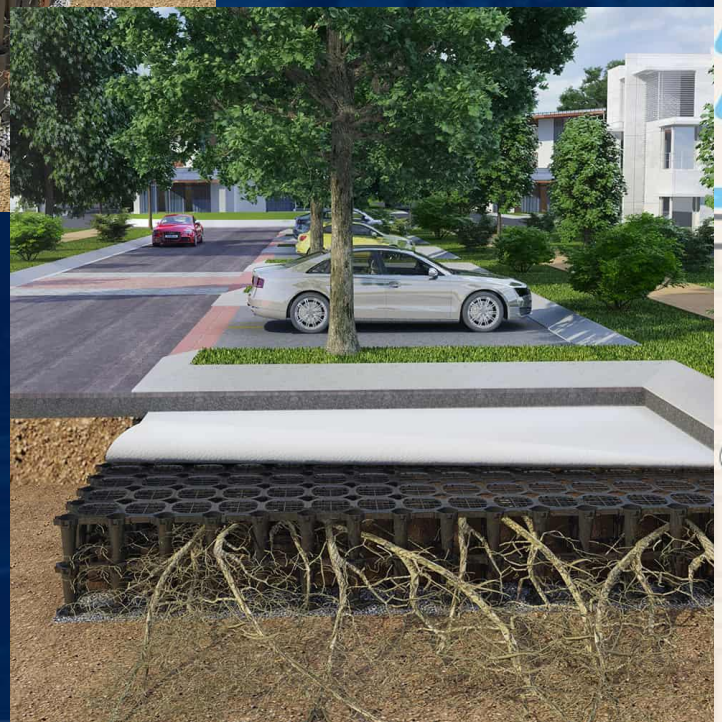
Permeable Pavements

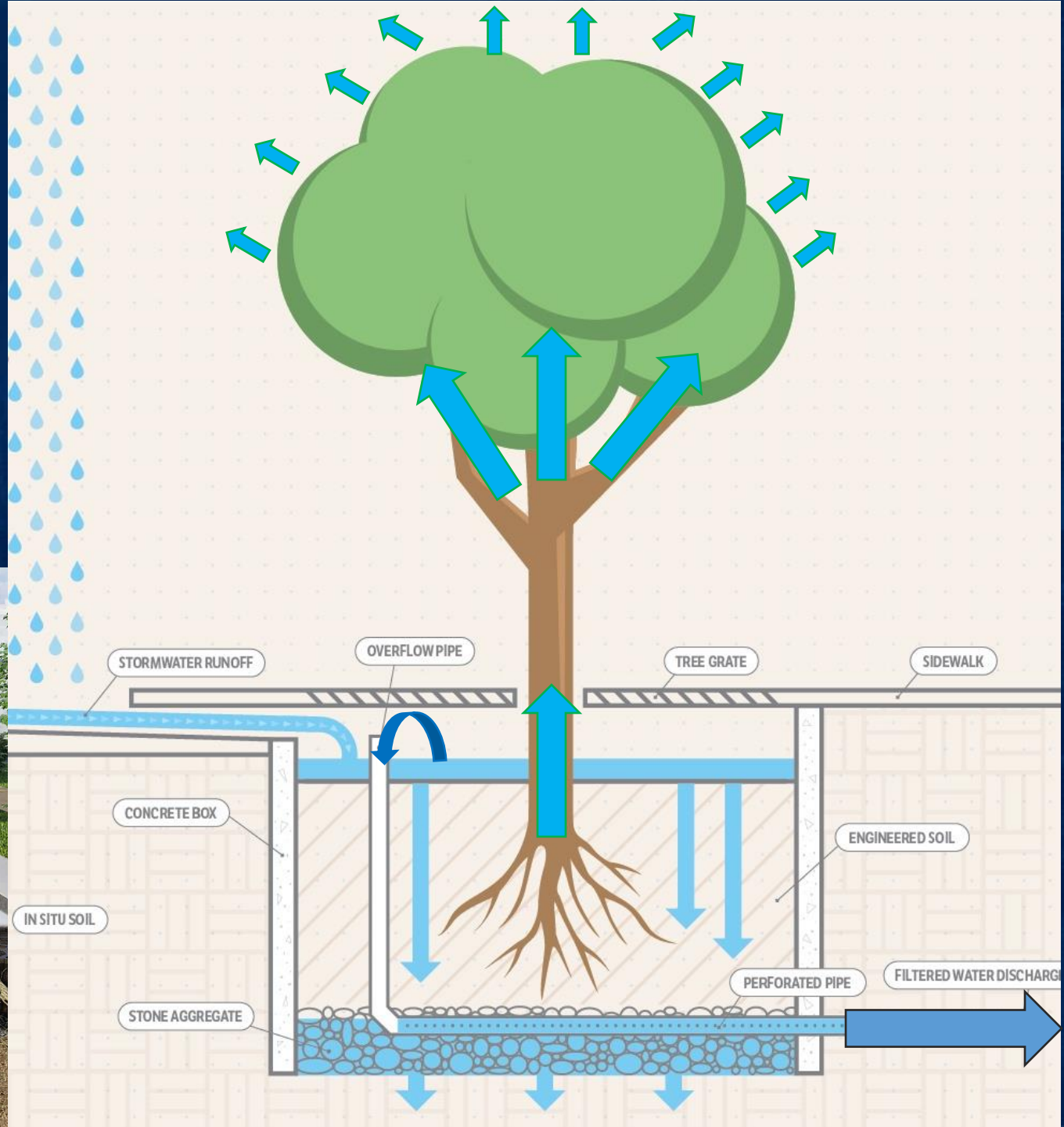


Bioretention & Rain Gardens



Tree Box or Tree Well

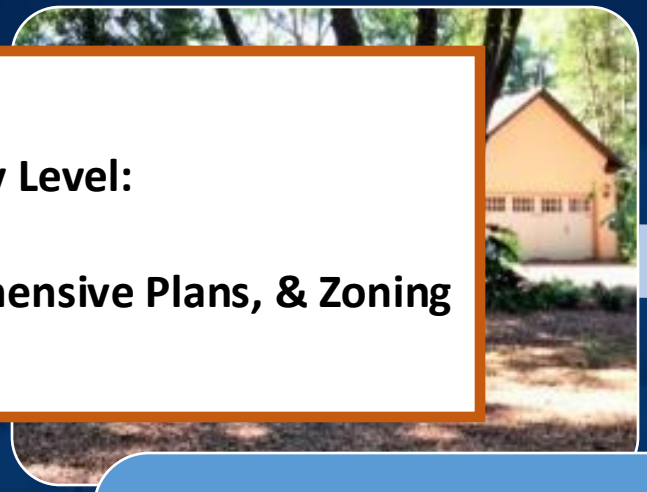


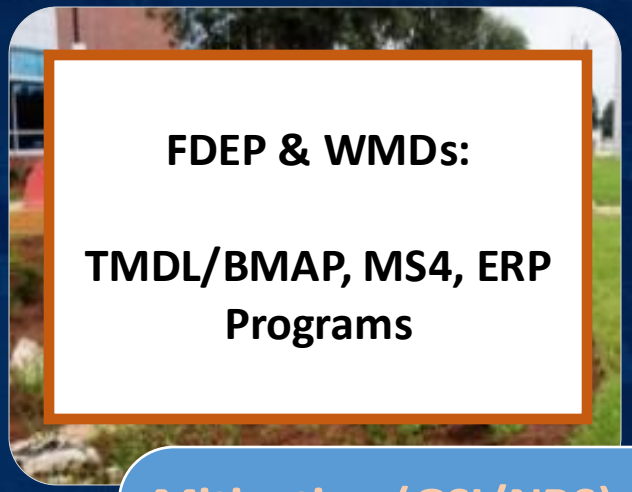


LID vs. GSI/NBS: Regulations & Incentives

City or County Level:

Codes & Ordinances, Comprehensive Plans, & Zoning





FDEP & WMDs:

TMDL/BMAP, MS4, ERP Programs

Avoidance (LID)

- Map natural infrastructure
- Preserve open spaces, natural areas, trees and native soils
- Retain natural hydrologic and topographic features in site plan

Minimization (LID)

- Limit and disconnect impervious surfaces
- Mimic and maximize pre-development hydrologic processes
- Integrate practices that provide co-benefits and multifunctional areas

Mitigation (GSI/NBS)

- Implement runoff source control measures
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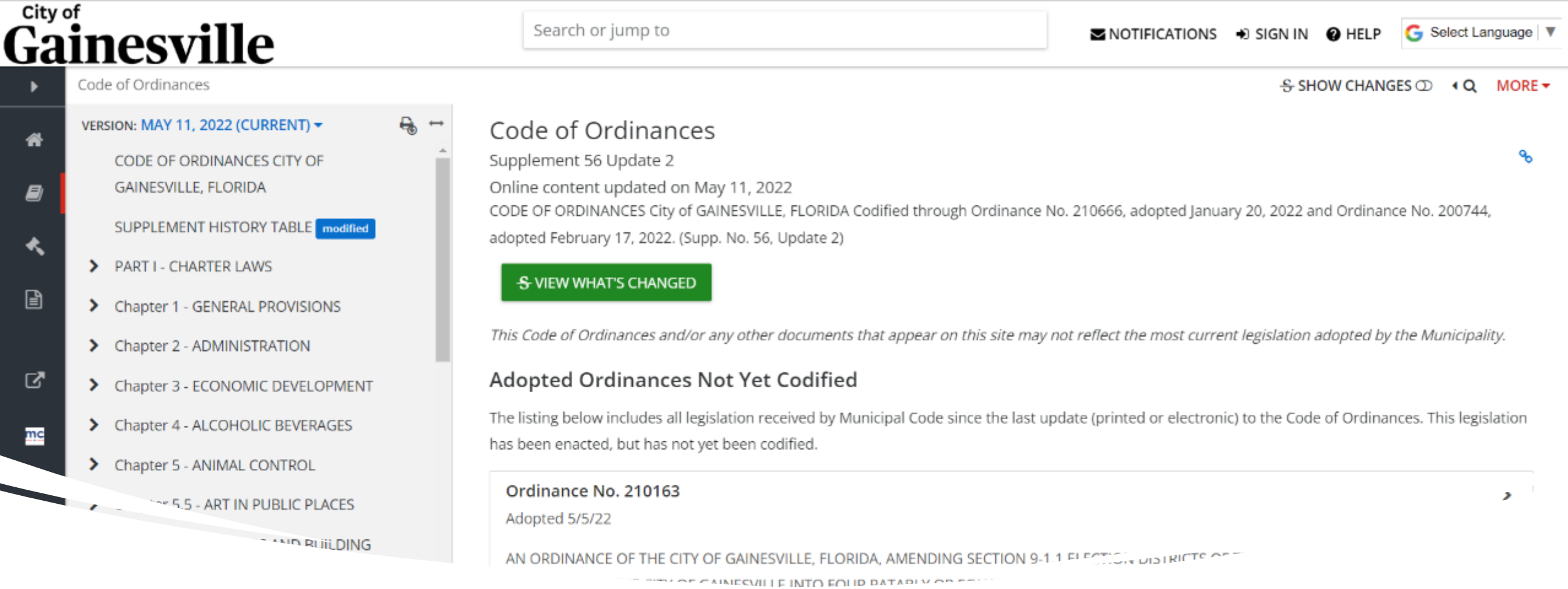
- Provide treatment and attenuation in multiple areas across the site

Curb & Gutter Requirements

Minimum Parking Requirements


BOSCH



Code Audit

- Coordinated & objective review of codes to identify unintended, unnecessary, or no longer necessary restrictions or prohibitions
- Identify weak areas of code that can be addressed currently or when opportunity arises
- *www.municode.com*

Code Audit Spreadsheet Tool (CAST)

Enabling Low Impact Development and Green Stormwater Infrastructure

A CODE AUDIT TOOL FOR FLORIDA COUNTIES AND MUNICIPALITIES

Points	Criteria	Example Code Requirement
4	Required	The practices are specifically required by the code for appropriate situations.
3.5	Incentivized	The practice is incentivized, either monetarily or through accelerated review or other benefits, but not required and no penalties if the practice is not used.
3	Encouraged	The practice is encouraged in the code, but no incentives are available.
2	Allowed	The practice is allowed in the code, but no incentives are available.
1	Not Mentioned	The practice is not mentioned in the code.
0	Prohibited	The practice is restricted or prohibited in the code.

Administrative

- About
- Definitions
- Codes Review Log
- Contact Information
- Scoring Instructions
- Score Summary

Local Government Planning and Policy

- Comprehensive Plan
- Zoning

Protecting Nature

- Natural Resources Protection and Management
- Coastal Areas
- Trees
- Sensitive Groundwater Areas

Stormwater and Water Quality

- Stormwater Management
- Pollutant Reduction

The Built Environment

- Site Plan Review
- Buildings & Landscape
- Streets
- Parking
- Permeable
- Construction
- Subdivisions & Greenfield
- Education and Demonstration

Code Audit: Scoring Examples

M6. How does code address shared parking agreements for adjacent businesses to minimize total onsite parking spaces?

Tips	Florida Community Examples	Code References	Notes, Ideas and Strategies	Score
Businesses and other establishments with different peak usage times (e.g. stores, restaurants, churches, and recreation areas) may not need dedicated parking due peak times offset from adjacent properties.	**Tampa Code of Ordinances:** Chapter 27 Article III Division 2 Subdivision 3 Section 27-184 sets forth that any parking structure or surface lot can be considered for use as shared parking and county toward meeting parking ration for multiple buildings if buildings and parking structure are under common ownership **Winter Haven ULDC:** Chapter 21 Article III Division 3 Section 21.142(c) allows for shared parking and details the requirements of and approval process for shared parking.	**Chapter 21 Article III Division 3 Sec. 21.142(c)** allows for shared parking and details the requirements of and approval process for shared parking.	The code allows shared parking but does not encourage or require it	2

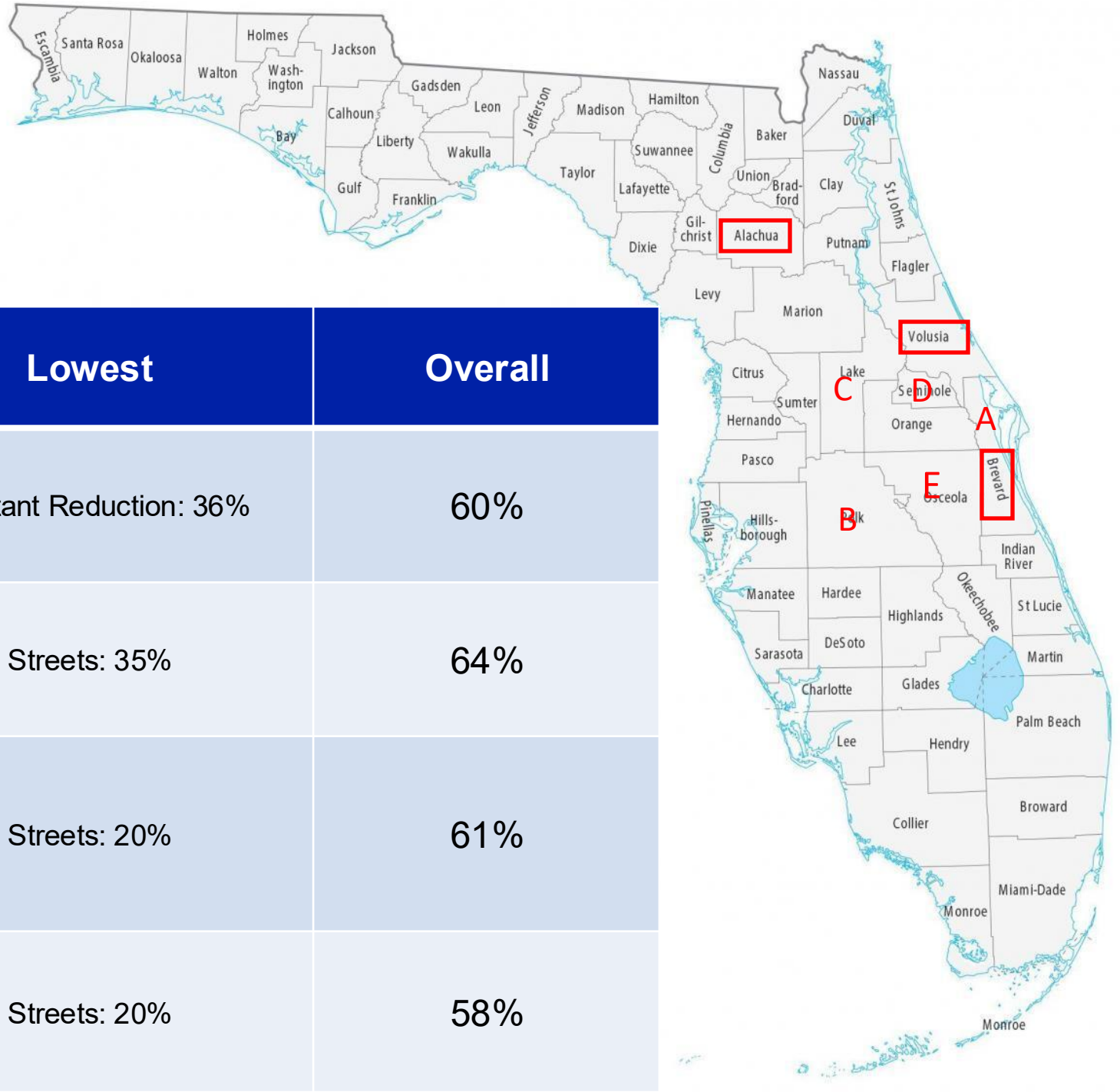
B1. How does code address protections for natural infrastructure?

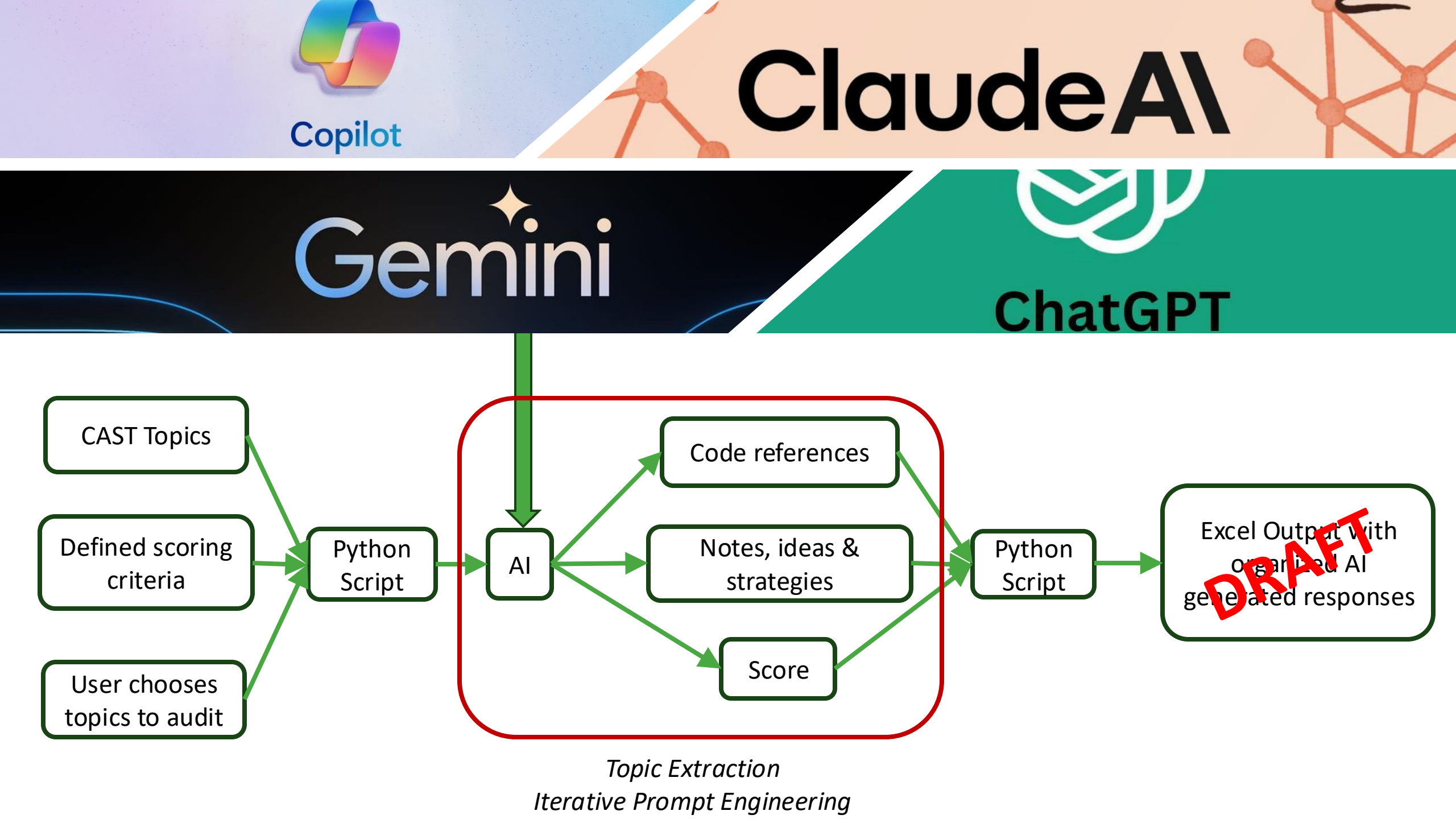
Tips	Florida Community Examples	Code References	Notes, Ideas and Strategies	Score
Preserve existing ecosystem services and benefits of natural infrastructure. E.g., code can require conservation or restoration strategies that protect natural areas	**Escambia County LID Manual**: Chapter 5.1, SP7, p. 51 establishes the protection of natural areas and associated vegetation as eligible for stormwater treatment credit as these protections help maintain natural hydrology of the site and have stormwater management functions. **Naples Code of Ordinances:** Chapter 28 Article III sets forth Conservation and Preservation of Land which includes the purpose and intent including protection of water resources and wetlands, providing water supply and flood control, and which includes significant water resources in the definition of environmentally significant land.	**Chapter 21 Article II Division 2 Zoning Districts Sec. 21-51** Conservation **(b)**The purpose of the CN, Conservation zoning district is to preserve the proper functioning of natural resources, such as wetlands, floodplains, and groundwater/aquifer recharge areas. **Article III Division 7 Sec. 21-181** The purpose of this division is to protect Winter Haven's urban forest resource, encourage tree species diversity, expand tree canopy cover, grow a sustainable and resilient urban forest, promote the use of street trees, and achieve buffering between incompatible land uses. **Article V** includes divisions for floodplain management, potable water wellhead protection areas, lakeshore protection, wetlands protection, erosion control, and conservation easements	The code protects natural infrastructure in a variety of ways. There is a whole zoning district dedicated to conservation (Sec. 21-51). Tree protection requirements are in 21-181 and Chapter 21 Article V Resource Protection covers protections for different types of resources.	4

		Completed Questions			Percentage of Points Credited	
			Total Points	Possible Points		
Section Topic	**Section**	**Questions**	**Total Points**	**Possible Points**	**Section**	**Topic**
Comprehensive Plan	Future Land Use Element	6	16	24	*67%*	
Comprehensive Plan	Conservation Element	6	20	20	*100%*	
Comprehensive Plan	Coastal Zone Management Element	3	0	0		
Comprehensive Plan	Utilities/Infrastructure Element	4	16	16	*100%*	
Comprehensive Plan	Capital Improvement Element	2	5	8	*63%*	
Comprehensive Plan	Housing Element	2	5	8	*63%*	
Comprehensive Plan	Transportation Element	3	3	12	*25%*	
	Cumulative for Comprehensive Plan	**26**	**65**	**88**		**74%**
Protecting Nature	Natural Infrastructure	6	23.5	24	*98%*	
Protecting Nature	Coastal Areas	7	0	0		
Protecting Nature	Trees	8	21	27	*78%*	
Protecting Nature	Sensitive Groundwater Areas	5	11	20	*55%*	
	Cumulative for Protecting Nature	**26**	**55.5**	**71**		**78%**
Stormwater and Water Quality	Stormwater Management	17	60	76	*79%*	
Stormwater and Water Quality	Pollutant Reduction	11	15	36	*42%*	
	Cumulative for Stormwater and Water Quality	**28**	**75**	**112**		**67%**
The Built Environment	Site Plan Review	10	28	44	*64%*	
The Built Environment	Zoning	15	34	60	*57%*	
The Built Environment	Buildings	5	7	20	*35%*	
The Built Environment	Landscaping	16	34	63.5	*54%*	
The Built Environment	Streets	5	4	20	*20%*	
The Built Environment	Parking	13	31	52	*60%*	
The Built Environment	Permeable Hardscapes	6	8	24	*33%*	
The Built Environment	Construction	5	14	32	*44%*	
The Built Environment	Education and Demonstration	10	0	0		
	Cumulative for The Built Environment	**85**	**160**	**315.5**		**51%**
Cumulative for full audit		**165**	**355.5**	**586.5**		**61%**

Completed Code Audits

Community	Highest	Lowest	Overall
Groveland	Buildings: 81%	Pollutant Reduction: 36%	60%
Kissimmee	Site Plan Review: 93%	Streets: 35%	64%
Longwood	Trees and Pollutant Reduction: 78%	Streets: 20%	61%
Winter Haven	Natural Infrastructure: 100%	Streets: 20%	58%





Topic Extraction
Iterative Prompt Engineering

Questions?

Eban Z. Bean, Ph.D., P.E.
Associate Professor & Extension Specialist
Urban Water Resources Engineering
ezbean@ufl.edu
@EbanBean

UF IFAS UNIVERSITY of FLORIDA

AGRICULTURAL & BIOLOGICAL ENGINEERING

SUSTAINABLE HUMAN AND ECOLOGICAL DEVELOPMENT

CLUE CENTER FOR LAND USE EFFICIENCY

Florida-Friendly Landscaping™

What is it?

Science-based approach to maintaining an attractive, diverse, and more sustainable landscape.

Goals:

Conserve water

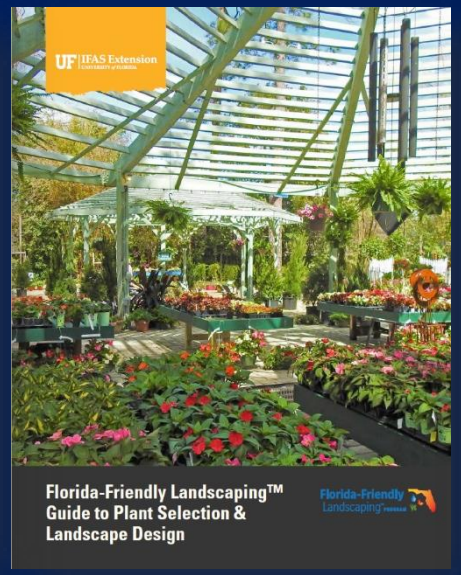
Protect water quality

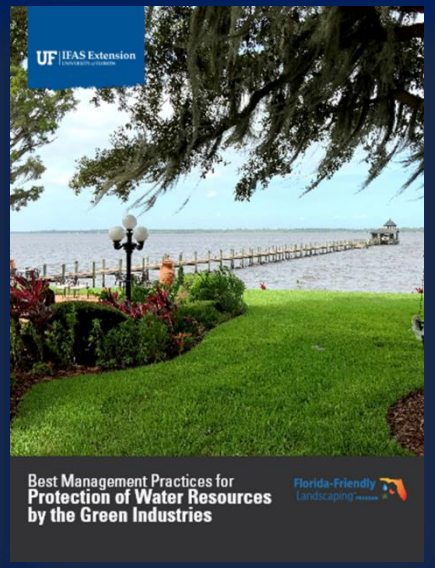
9 Principles of Florida-Friendly Landscaping™

- Right plant, right place
- Water efficiently
- Fertilize appropriately
- Mulch
- Attract wildlife
- Manage yard pests responsibly
- Recycle yard waste
- Reduce stormwater runoff
- Protect the waterfront

FFL Resources

- Online education & CEUs
- Free monthly webinars
- Free web applications
- Manuals





Webinars

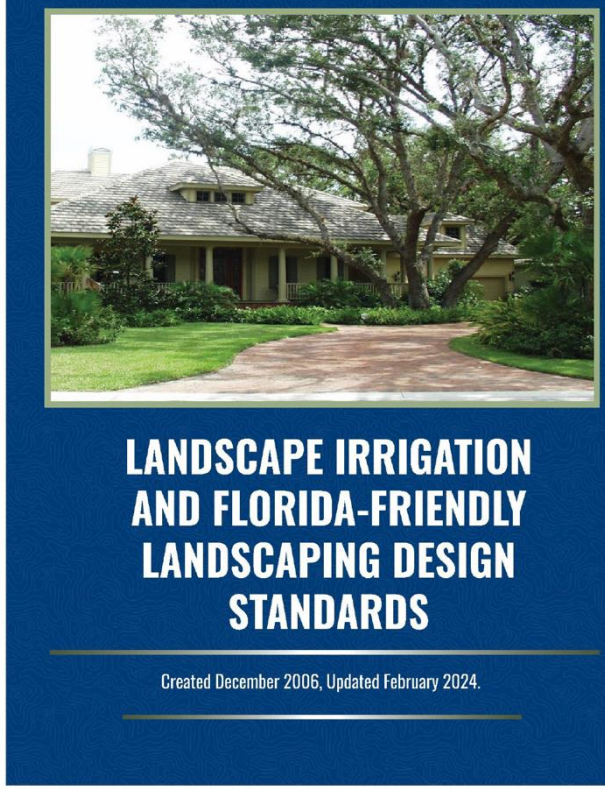
UF IFAS Extension UNIVERSITY of FLORIDA — Florida-Friendly Landscaping™ PROGRAM

The Florida-Friendly Landscaping™ Program Professional Webinar

DATE	WEBINAR TOPIC	FFLCP, FNGLA	LA, CAM (DBPR)	ISA	LIAF	FDACS LF, LCLM, LLO, CLO	AICP
Jan 14	*The UF/IFAS H_2O SAV Program: Optimizing Water Conservation - Dr. Nick Taylor*	✓	✓		✓	✓	
Feb 11	*Florida-Friendly "Sea"scapes: Living Shorelines for a Sustainable and Resilient Coastal Florida - Dr. Vincent Encomio*	✓	✓		✓	✓	
Feb 19	*SPECIAL WEBINAR - SoilKit Update: An Innovative UF/IFAS Soil Testing Tool - Christina McInnis*						
Mar 11	*The New Era of Ornamental Perennial Peanut - Dr. Leynar Leyton*	✓	✓		✓	✓	
Apr 8	*New Turfgrass and Mixed Species Update - Kevin Kenworthy*	✓	✓		✓	✓	
May 13	*Invasive Plants: Explaining the Predictive and Assessment Tools - Dr. Seokmin Kim*	✓	✓		✓	✓	
Jun 10	*High Performing Landscapes and the Metrics and Standards to Create Sustainable Landscapes - Dr. Gail Hansen*	✓	✓		✓	✓	✓
Jul 8	*Microclimates: Mitigating the Heat in Florida's Cities - Dr. Yi Luo*	✓	✓		✓	✓	✓
Aug 12	*Wildflowers and Weeds: Exploring Nativeness - Marc Frank*	✓	✓		✓	✓	
Sep 9	**What's New in Tree Selection and Care** - *Dr. Andrew Koeser*	✓	✓	✓	✓	✓	
Oct 14	**Public Perception of Sustainable Landscaping Practices** - *Dr. Jaiyang Li*	✓	✓		✓	✓	✓
Nov 4	**Creating Habitat Connectivity in the Urban Landscape** - *Isabella Guttuso Browne*	✓	✓		✓	✓	✓
Dec 9	**The UF Coleus Breeding Program** - *Dave Clark*	✓	✓		✓	✓	

Landscape Irrigation and Florida-Friendly Landscaping Design Standards

Manual



LANDSCAPE IRRIGATION AND FLORIDA-FRIENDLY LANDSCAPING DESIGN STANDARDS

Created December 2006, Updated February 2024.

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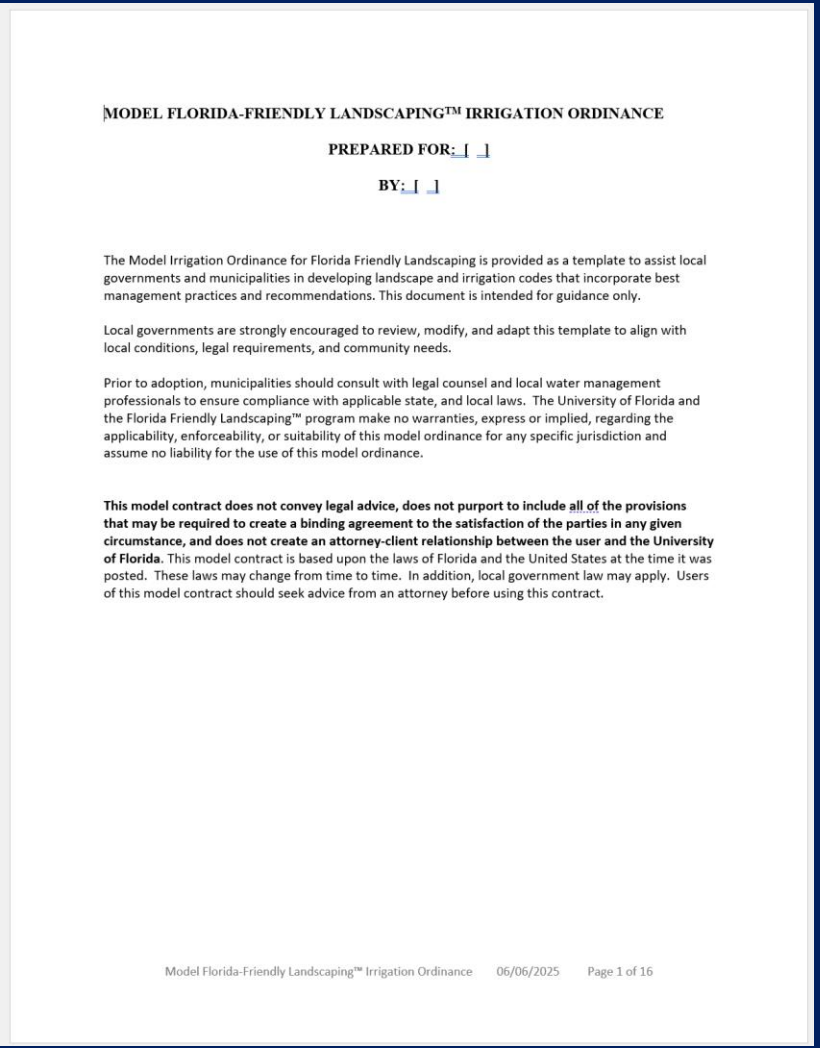
Model Irrigation Ordinance



MODEL FLORIDA-FRIENDLY LANDSCAPING™ IRRIGATION ORDINANCE

PREPARED FOR: [ ]

BY: [ ]

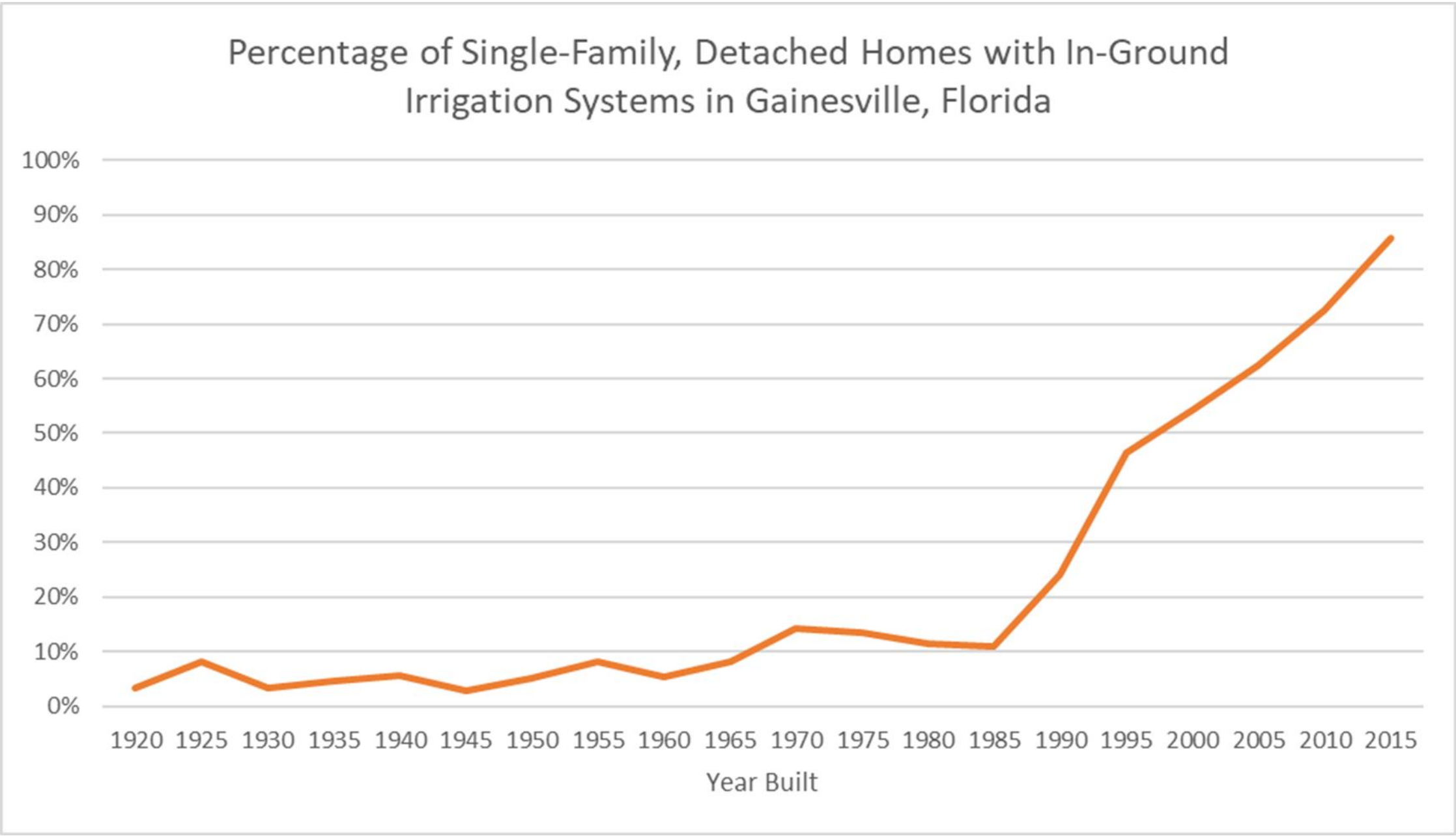
The Model Irrigation Ordinance for Florida Friendly Landscaping is provided as a template to assist local governments and municipalities in developing landscape and irrigation codes that incorporate best management practices and recommendations. This document is intended for guidance only.

Local governments are strongly encouraged to review, modify, and adapt this template to align with local conditions, legal requirements, and community needs.

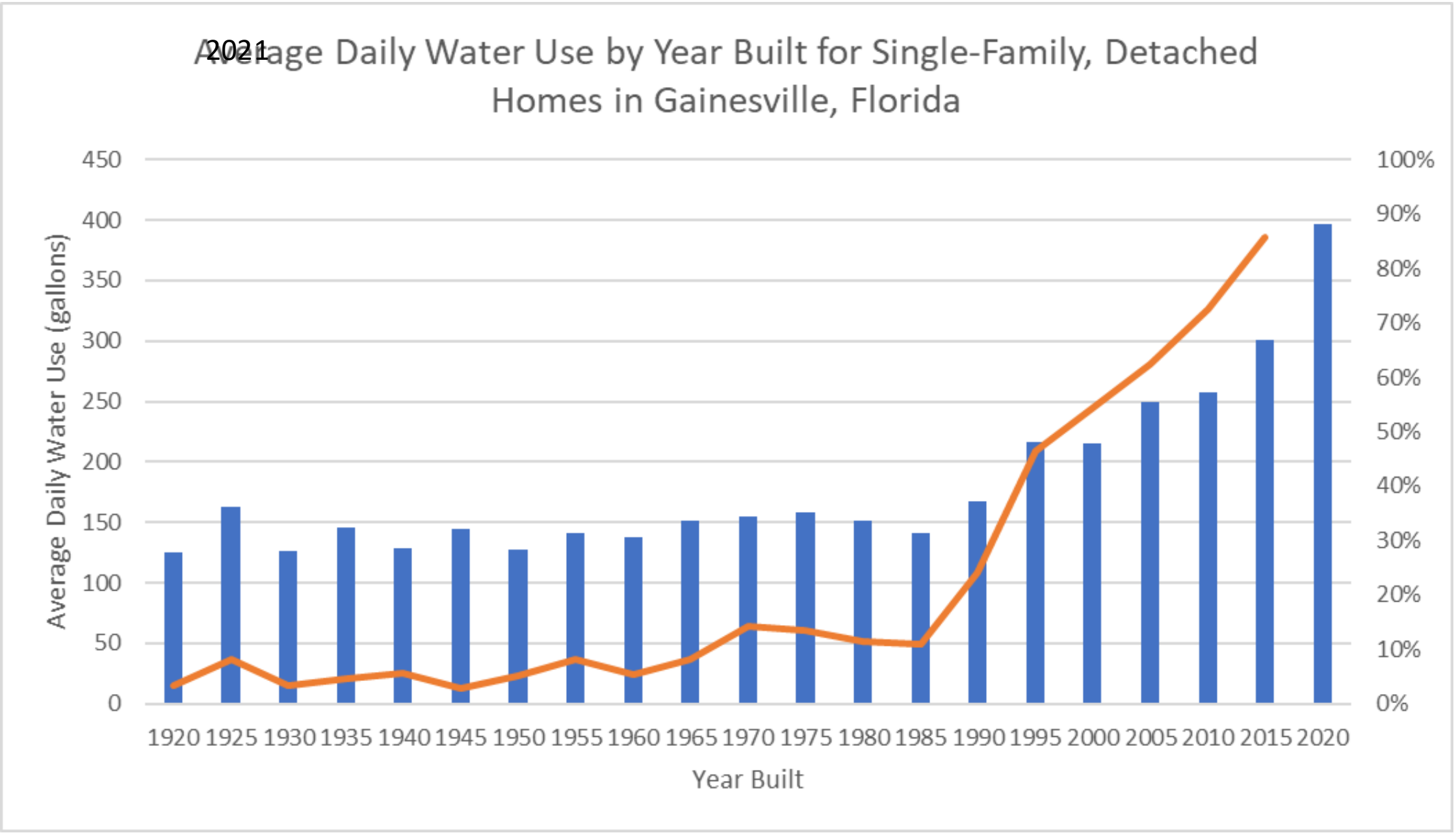
Prior to adoption, municipalities should consult with legal counsel and local water management professionals to ensure compliance with applicable state, and local laws. The University of Florida and the Florida Friendly Landscaping™ program make no warranties, express or implied, regarding the applicability, enforceability, or suitability of this model ordinance for any specific jurisdiction and assume no liability for the use of this model ordinance.

This model contract does not convey legal advice, does not purport to include all of the provisions that may be required to create a binding agreement to the satisfaction of the parties in any given circumstance, and does not create an attorney-client relationship between the user and the University of Florida. This model contract is based upon the laws of Florida and the United States at the time it was posted. These laws may change from time to time. In addition, local government law may apply. Users of this model contract should seek advice from an attorney before using this contract.

Model Florida-Friendly Landscaping™ Irrigation Ordinance 06/06/2025 Page 1 of 16


Percentage of Single-Family, Detached Homes with In-Ground Irrigation Systems in Gainesville, Florida
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
1920 1925 1930 1935 1940 1945 1950 1955 1960 1965 1970 1975 1980 1985 1990 1995 2000 2005 2010 2015
Year Built

2021


Average Daily Water Use by Year Built for Single-Family, Detached Homes in Gainesville, Florida
Average Daily Water Use (gallons)
450
400
350
300
250
200
150
100
50
0
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
1920 1925 1930 1935 1940 1945 1950 1955 1960 1965 1970 1975 1980 1985 1990 1995 2000 2005 2010 2015 2020
Year Built

UF | IFAS Extension UNIVERSITY of FLORIDA

H$_2$OSAV | WATER SAVINGS, ANALYTICS & VERIFICATION

How much water am I using to irrigate my yard?

In Florida, an irrigation system uses at least **991 gallons** each time the average yard is watered. That amount of water is equal to...

Taking a WaterSense shower for **8.25 hours**

Using your HE washing machine for **37 loads** of laundry

Running the bathroom faucet for **8.25 hours**

Running your dishwasher **50 times**

Flushing a WaterSense toilet **774 times**

To learn more, visit edis.ifas.ufl.edu/AE585

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AE585

https://doi.org/10.32473/edis-AE585-2023

How much water am I using to irrigate my yard?[1]

By Nicholas Taylor, Kaitlin Robb Price, and Bradley Spatz[2]

Florida is known for its abundant springs, rivers, and lakes, but the state is facing a water crisis. By 2070, development-related water demand is projected to more than double to 6.5 billion gallons per day from the 2010 baseline of 3.1 billion gallons per day (UF Geoplan Center 2016). While the EPA estimates that outdoor water use accounts for 30% of household use nationally (Environmental Protection Agency 2022), research shows that some homes in Florida are using significantly more than this. In some counties, the highest water users spend 60–70% of their total water use for irrigation (Taylor et al. 2021; Taylor et al. 2022).

UF/IFAS research shows that common issues with irrigation systems include timers being set to water too frequently and/or for too long (Olmstead and Dukes 2020). Florida homeowners with high water use who are looking to save water and save money on their water bill should first look to see if they can reduce their outdoor water use. The goal of this publication is to help readers understand the magnitude of water used for a single irrigation event and encourage them to evaluate their outdoor water use. First, we calculated the estimated gallons of water used per irrigation cycle in Florida. Then, to help readers visualize the magnitude of that water use, we compared the water use of irrigation to other indoor behaviors.

Figure 1. In-ground irrigation at a single-family, detached home in Florida.
Credits: UF/IFAS Photo by Tyler Jones

How much water is used per irrigation cycle?

This study used county property appraisal data for 1,162,401 homes in Florida to estimate the typical irrigated landscape area. This data represents 22% of the 5,231,740 single-family, detached homes in Florida (as estimated by the United States Census Bureau).

It takes 0.62337 gallons of water to cover one square foot with one inch of water. With this constant, the following formula was used to calculate water use per irrigation cycle:

0.62337 × irrigated area × irrigation depth = water use per irrigation cycle

1. This document is AE585, one of a series of the Department of Agricultural and Biological Engineering, UF/IFAS Extension. Original publication date March 2023. Visit the EDIS website at https://edis.ifas.ufl.edu for the currently supported version of this publication.

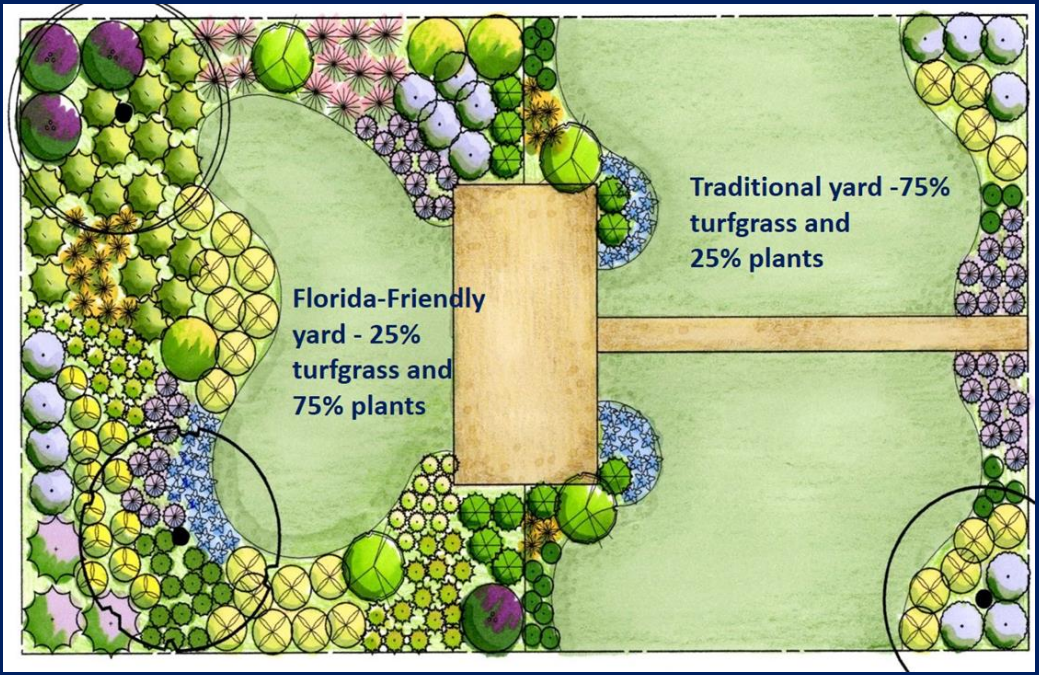
2. Nicholas Taylor, state specialized agent, Program for Resource Efficient Communities; Kaitlin Robb Price, H$_2$OSAV project manager, Program for Resource Efficient Communities, Department of Agricultural and Biological Engineering; and Bradley Spatz, data scientist, H$_2$OSAV, Program for Resource Efficient Communities; UF/IFAS Extension, Gainesville, Florida 32611.

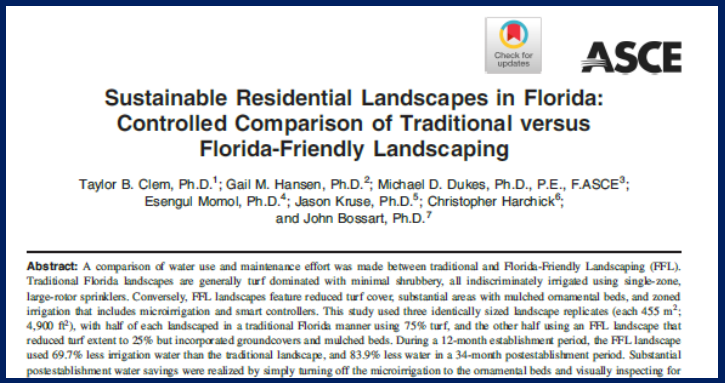
https://edis.ifas.ufl.edu/publication/AE585

623 gallons per 1000 sqft
3,179 sq feet landscape
991 gallons per ½” irrigation cycle

Florida-Friendly Landscape vs. Traditional Landscape

Saved up to 83% water



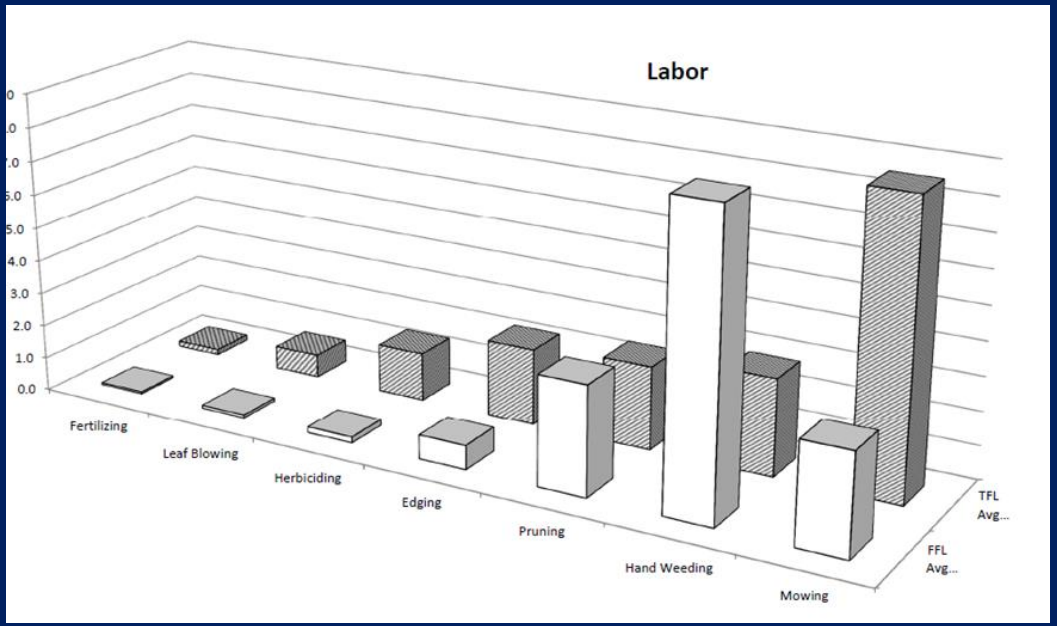


ASCE

Sustainable Residential Landscapes in Florida: Controlled Comparison of Traditional versus Florida-Friendly Landscaping

Taylor B. Clem, Ph.D.[1]; Gail M. Hansen, Ph.D.[2]; Michael D. Dukes, Ph.D., P.E., F.ASCE[3]; Esengul Momol, Ph.D.[4]; Jason Kruse, Ph.D.[5]; Christopher Harchick[6]; and John Bossart, Ph.D.[7]

Abstract: A comparison of water use and maintenance effort was made between traditional and Florida-Friendly Landscaping (FFL). Traditional Florida landscapes are generally turf dominated with minimal shrubbery, all indiscriminately irrigated using single-zone, large-rotor sprinklers. Conversely, FFL landscapes feature reduced turf cover, substantial areas with mulched ornamental beds, and zoned irrigation that includes microirrigation and smart controllers. This study used three identically sized landscape replicates (each 455 m^2; 4,900 ft^2), with half of each landscaped in a traditional Florida manner using 75% turf, and the other half using an FFL landscape that reduced turf extent to 25% but incorporated groundcovers and mulched beds. During a 12-month establishment period, the FFL landscape used 69.7% less irrigation water than the traditional landscape, and 83.9% less water in a 34-month poststablishment period. Substantial poststablishment water savings were realized by simply turning off the microirrigation to the ornamental beds and visually inspecting for



Tamarind Village

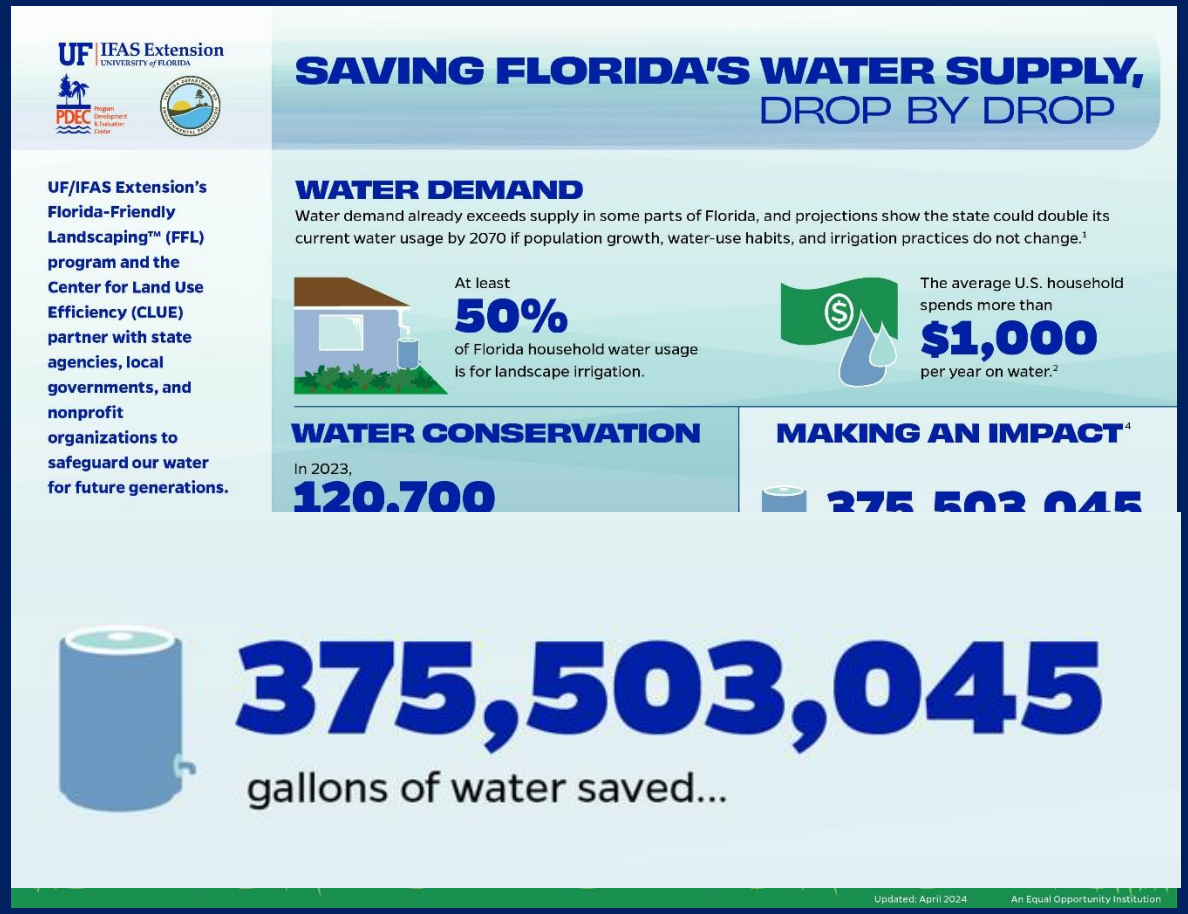
Broward County (HOA)

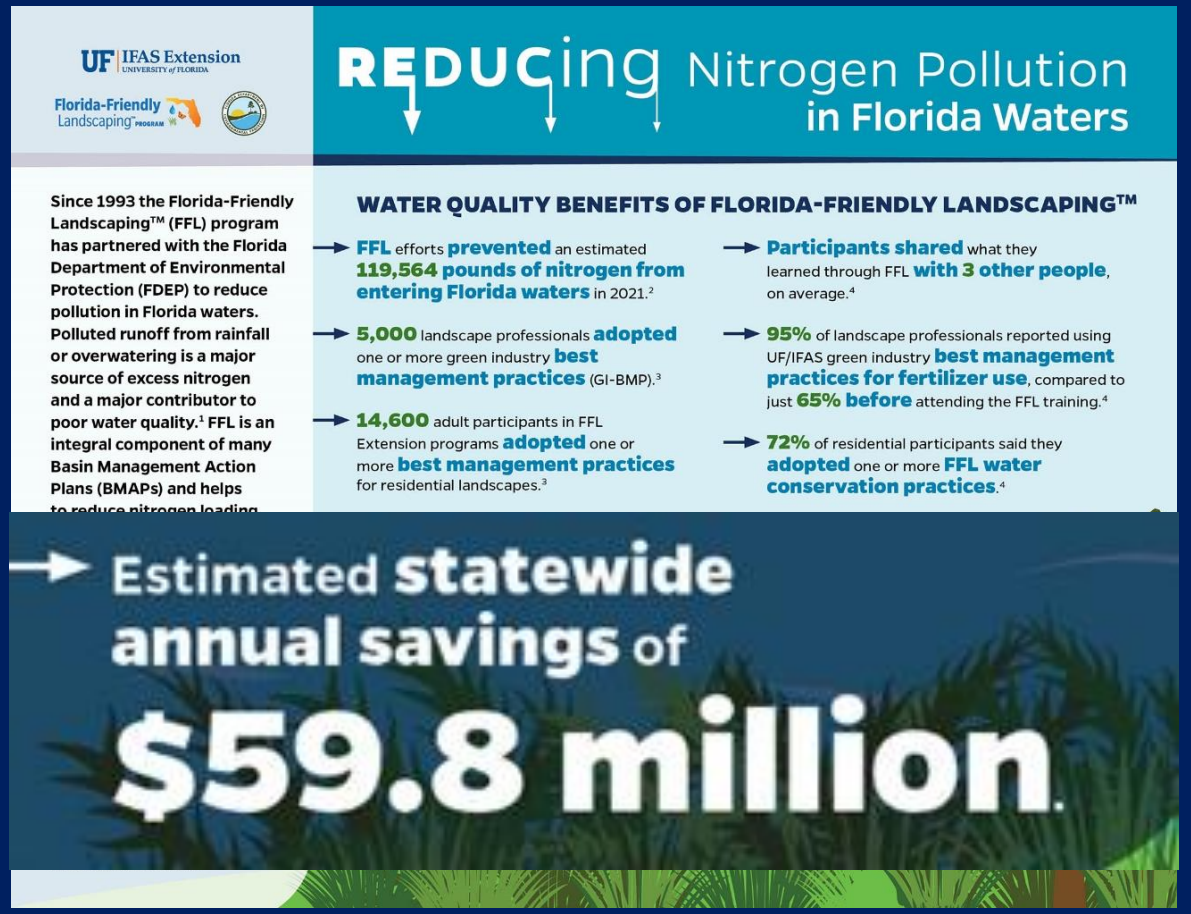
Annual Maintenance Savings

- saved $16,000 on water bill
- saves $13,000 a year on fertilizer
- saves $5,000 a year on pesticides

$33,000 annual savings

FFL - Impacts


UF IFAS Extension UNIVERSITY of FLORIDA
PDEC Program Development & Evaluation Center
SAVING FLORIDA'S WATER SUPPLY, DROP BY DROP
UF/IFAS Extension's Florida-Friendly Landscaping™ (FFL) program and the Center for Land Use Efficiency (CLUE) partner with state agencies, local governments, and nonprofit organizations to safeguard our water for future generations.
WATER DEMAND
Water demand already exceeds supply in some parts of Florida, and projections show the state could double its current water usage by 2070 if population growth, water-use habits, and irrigation practices do not change.[1]
At least 50% of Florida household water usage is for landscape irrigation.
The average U.S. household spends more than $1,000 per year on water.[2]
WATER CONSERVATION
In 2023,
120,700
MAKING AN IMPACT[4]
375,503,045
375,503,045
gallons of water saved...
Updated: April 2024
An Equal Opportunity Institution


UF IFAS Extension UNIVERSITY of FLORIDA
Florida-Friendly Landscaping™ PROGRAM
REDUCing Nitrogen Pollution in Florida Waters
Since 1993 the Florida-Friendly Landscaping™ (FFL) program has partnered with the Florida Department of Environmental Protection (FDEP) to reduce pollution in Florida waters. Polluted runoff from rainfall or overwatering is a major source of excess nitrogen and a major contributor to poor water quality.[1] FFL is an integral component of many Basin Management Action Plans (BMAPs) and helps
WATER QUALITY BENEFITS OF FLORIDA-FRIENDLY LANDSCAPING™
FFL efforts prevented an estimated 119,564 pounds of nitrogen from entering Florida waters in 2021.[2]
5,000 landscape professionals adopted one or more green industry best management practices (GI-BMP).[3]
14,600 adult participants in FFL Extension programs adopted one or more best management practices for residential landscapes.[3]
Participants shared what they learned through FFL with 3 other people, on average.[4]
95% of landscape professionals reported using UF/IFAS green industry best management practices for fertilizer use, compared to just 65% before attending the FFL training.[4]
72% of residential participants said they adopted one or more FFL water conservation practices.[4]
Estimated statewide annual savings of
$59.8 million.

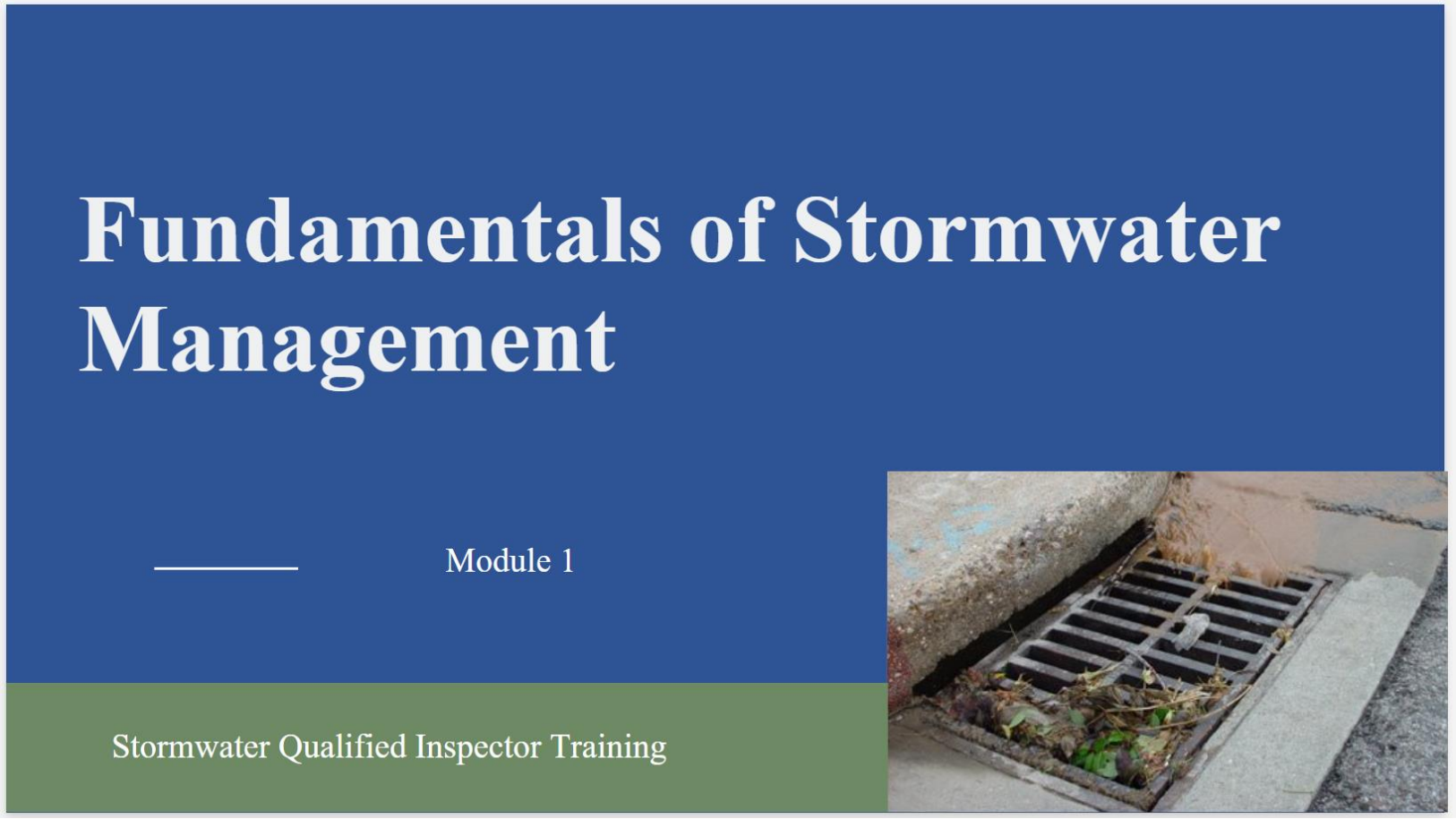
FFL Professional Certification Programs

- Green Industries Best Management Practices (GI-BMP)
- FFL Certified Professional
- Florida-Friendly Ponds Certification
- Qualified Stormwater Inspector Certification

Green Industry Professionals are leaders in protecting Florida's water resources.
What you do every day matters!

Stormwater Qualified Inspector Certification

- Online certification
- 10 recorded modules with interactive activities and field videos
- Cost –$100
- Certified individuals have the option to be listed on our website
- Valid for 5 years



Groundcover

June 28, 2023

Scientific Name	Stachytarpheta jamaicensis
Common Name	Blue Porterweed
Native	Native
Planting Zone	Bank Top
Plant spacing	4-5 ft. apart
Hardiness Zone	9A-11
Growth Form	Groundcover
GSI Type	Bioretention, Stormwater Pond, Tree Box, Infiltration Basin, Swale, Green Roof, Wetlands

Light Requirement	Full Sun/Part Shade	**Native Habitat**	Coastal Strand, Open areas in dry mesic hardwood forests, Nestled under trees along sandy roadsides
Evergreen/Deciduous	Evergreen	**Growth Rate**	High
Height	4' - 8'	**Spread**	4' - 8'
Flood Tolerance	None	**Drought Tolerance**	Moderate
Soil pH	Tolerates Any Soil pH (4.5-8.0)	**Salt Tolerance**	High
Soil Moisture	Well Drained	**Soil Texture**	Any Texture
Color	Green with Blue or Purple (Flower)	**Longevity**	Short-Lived Perennial/Annual

Bank Stabilization/ Erosion Control	
Wildlife Benefit	Butterflies
Notes	
Planting Guidelines	Locate porterweed in a Sunny location in any soil. Provide irrigation during establishment and then in extended drought in the summer. Fertilize about twice each year to maintain foliage color and provide for continuous growth. Tolerant of soil compaction.
Maintenance	Provide irrigation during establishment and in periods of extended drought during summer. Plants that survive the winter but die back to the ground should be cut back just before new spring growth resumes. Plants that become leggy can be pruned back any time. Deadheading of flowers is not necessary. Lifespan is about 5 years, but it readily self-seeds.

Florida-Friendly Landscaping™ Program

Green Stormwater Infrastructure (GSI)

Managing stormwater runoff at a community level can require an engineered solution. Green stormwater infrastructure (GSI), also known as Low Impact Development (LID), is a cost-effective, resilient approach to managing wet weather impacts that provides many community benefits.

GSI includes the range of structural and non-structural, retention and detention measures that infiltrate, evaporate, detain, filter, or store stormwater runoff closer to the source. The goal of GSI is to mitigate the runoff produced from site development.

The Florida Department of Environmental Protection has an extensive **Green Infrastructure Website**, including how to get started, technical guidance and funding opportunities.

The Florida-Friendly Landscaping™ Program has developed a **plant guide specifically for GSI use**, and offers online certification training in GSI maintenance. The new **Stormwater Qualified Inspector Training (SQuInT)** meets the certification requirements to perform stormwater system inspection under the 2024 Florida stormwater regulations that took effect 6/28/2025.

Training & Certification

- **Stormwater Qualified Inspector Training**

GSI Maintenance Materials

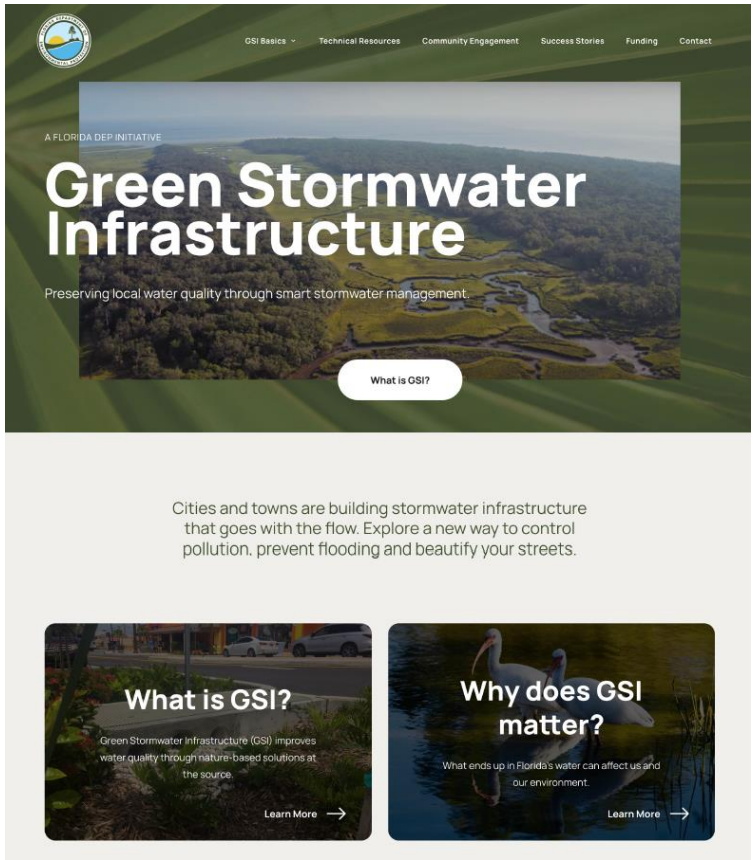
- **GSI Maintenance Resources**
- **GSI Maintenance & Planting Manual**
- **GSI Plant Guide**

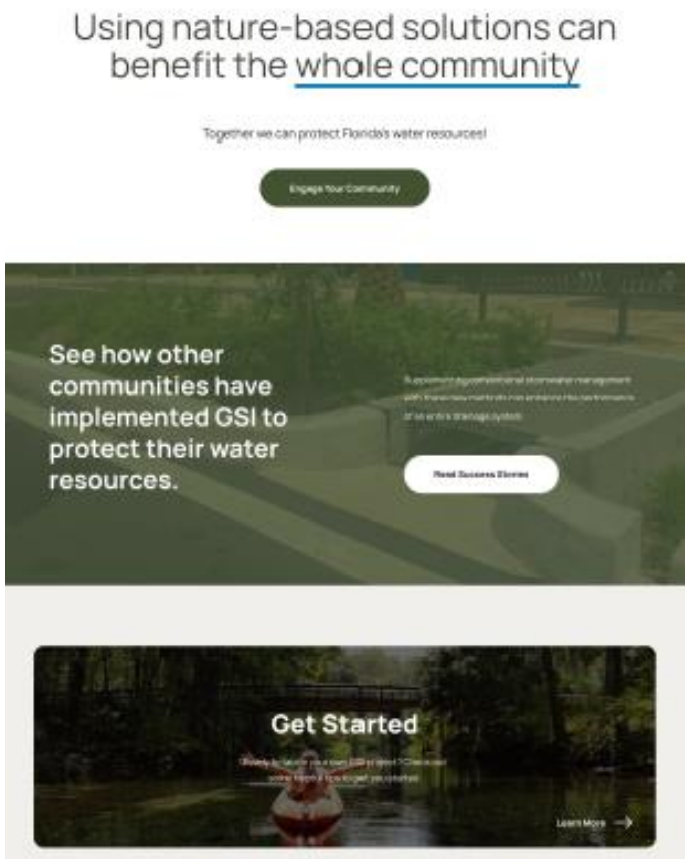
More GSI Resources

- **Florida DEP Green Stormwater Infrastructure website**
- **Green Infrastructure in Florida Video Series**
- **GSI Webinar Series**
- **The Nature Conservancy & UF/IFAS GSI Photo Library**

Florida Green Stormwater Infrastructure Website

- Community Engagement
  - GSI Brochure
  - GSI Presentation
- GSI Technical Manual
- GSI Plant Guide
- Case Studies

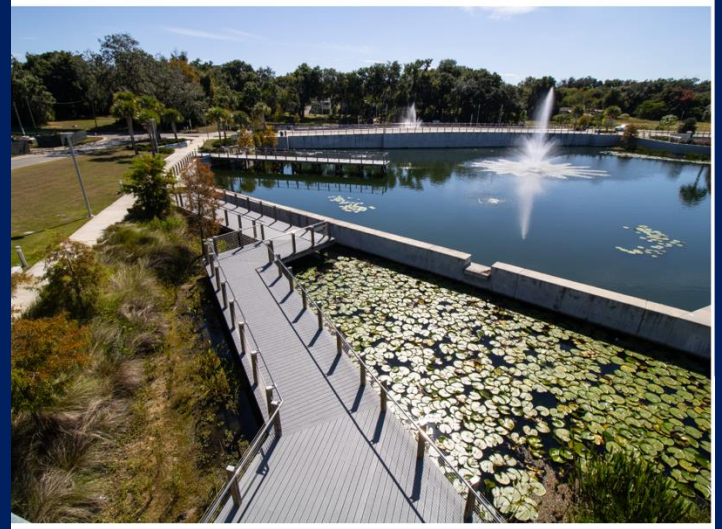




GSI Photo Library

DONALD WISHART
DIRECTOR, COMMUNITY SOLUTIONS GROUP

Biofiltration, Birds, City Streets, Downtown, Landscaping, Park, Pond, Stormwater, Wetland, Wildlife



Contact Information

COMMUNITY SOLUTIONS GROUP
https://gaiconsultants.com/industry/community-solutions/

Donald Wishart
Director

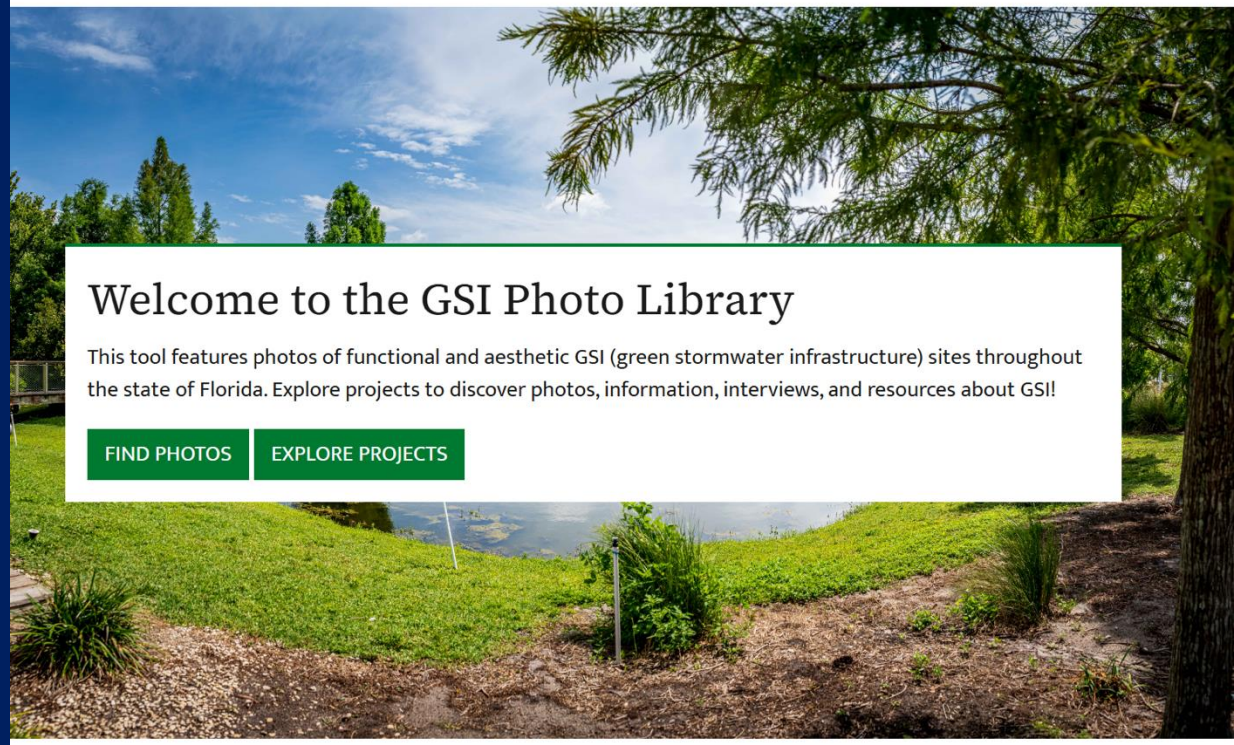
Victory Pointe Park Interview with Donald Wishart, PLA, GAI Consultants, Community Solutions Group

First, let's talk about your experience with stormwater management projects. What benefits do these projects provide?

I've been practicing Landscape architecture for about 32 years, but it is within the last 8-10 years that we've started to take more innovative approach with stormwater management.

The Nature Conservancy

PHOTOS AND PROJECTS | INTERVIEWS | RESOURCES | ABOUT | CONTACT | DEP GSI



Welcome to the GSI Photo Library

This tool features photos of functional and aesthetic GSI (green stormwater infrastructure) sites throughout the state of Florida. Explore projects to discover photos, information, interviews, and resources about GSI!

FIND PHOTOS | EXPLORE PROJECTS

Featured Interview: Cascades Park

AUTUMN CALDER

DIRECTOR, BLUEPRINT AGENCY

Autumn Calder shares how Blueprint created a stormwater facility diguised as a world class park

READ INTERVIEW | EXPLORE ALL INTERVIEWS

Save the date!

UF/IFAS CENTER FOR LAND USE EFFICIENCY

2026 URBAN LANDSCAPE SUMMIT

APRIL 21-22

MORE INFO

ROOTED IN REALITY:
PRACTICAL SOLUTIONS FOR CHANGING URBAN LANDSCAPES

UF | IFAS Extension
UNIVERSITY of FLORIDA

Greenprints

Planning for Biodiverse, Resilient and Healthy Communities

Kierstyn Cox, The Nature Conservancy

Image Credits (L to R):

What is a Greenprint?

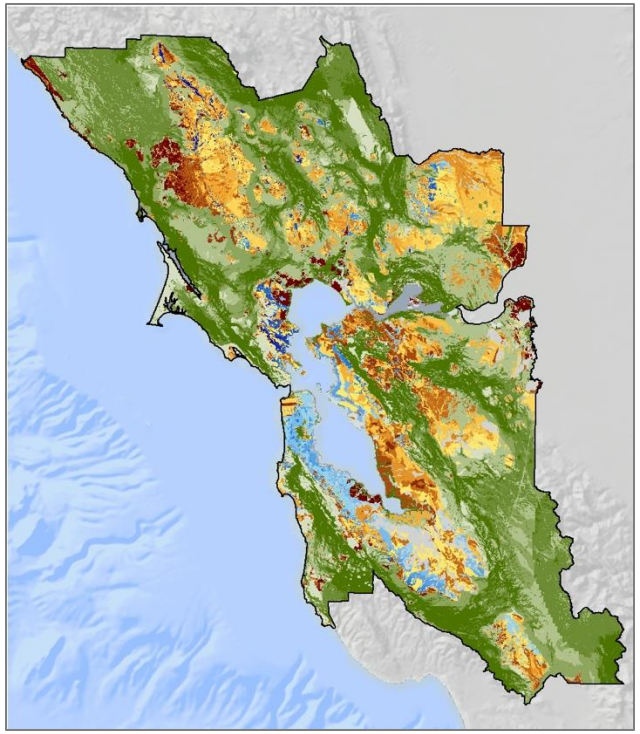
Greenprints are **strategic conservation plans** that can make communities stronger, healthier and more resilient

Many different landscapes and scales





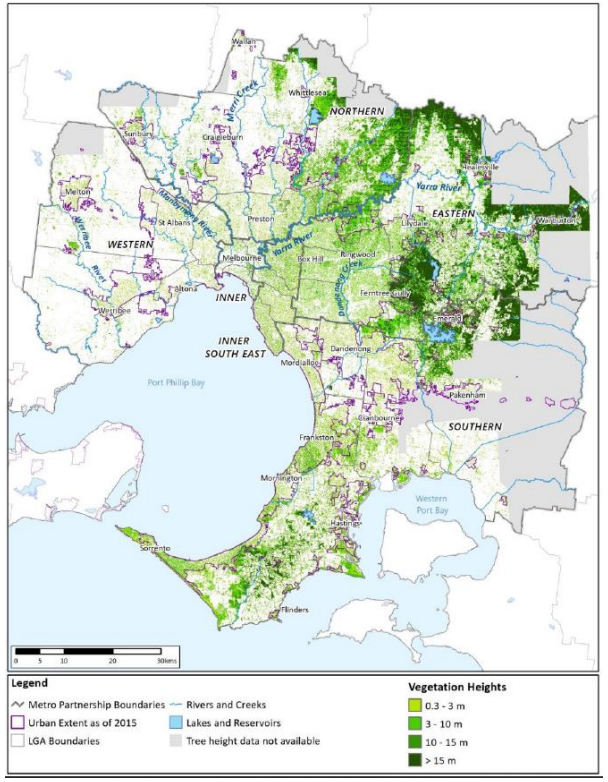

Regional



Bay Area Greenprint

California

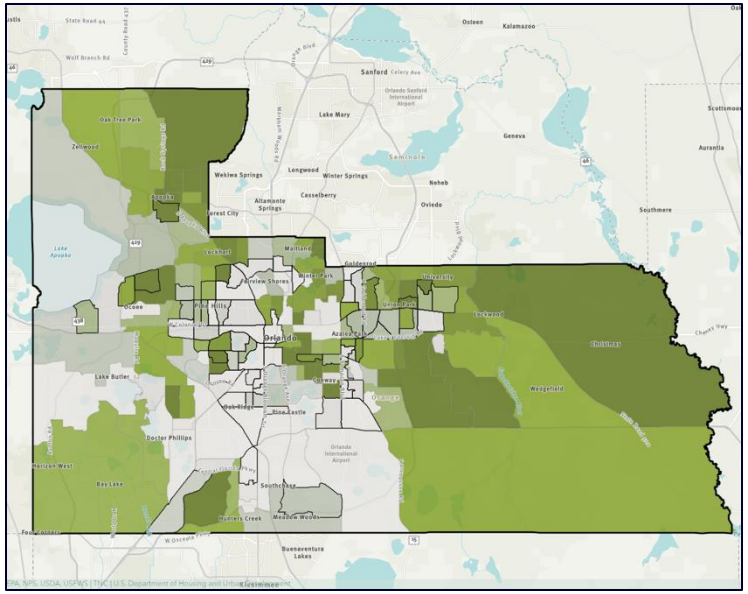
Metro



Living Melbourne

Australia

Urban



EcoResource of Orange County

Florida

EcoResource of Orange County

Image Credit: Roberto Gonzalez

EcoResource of Orange County

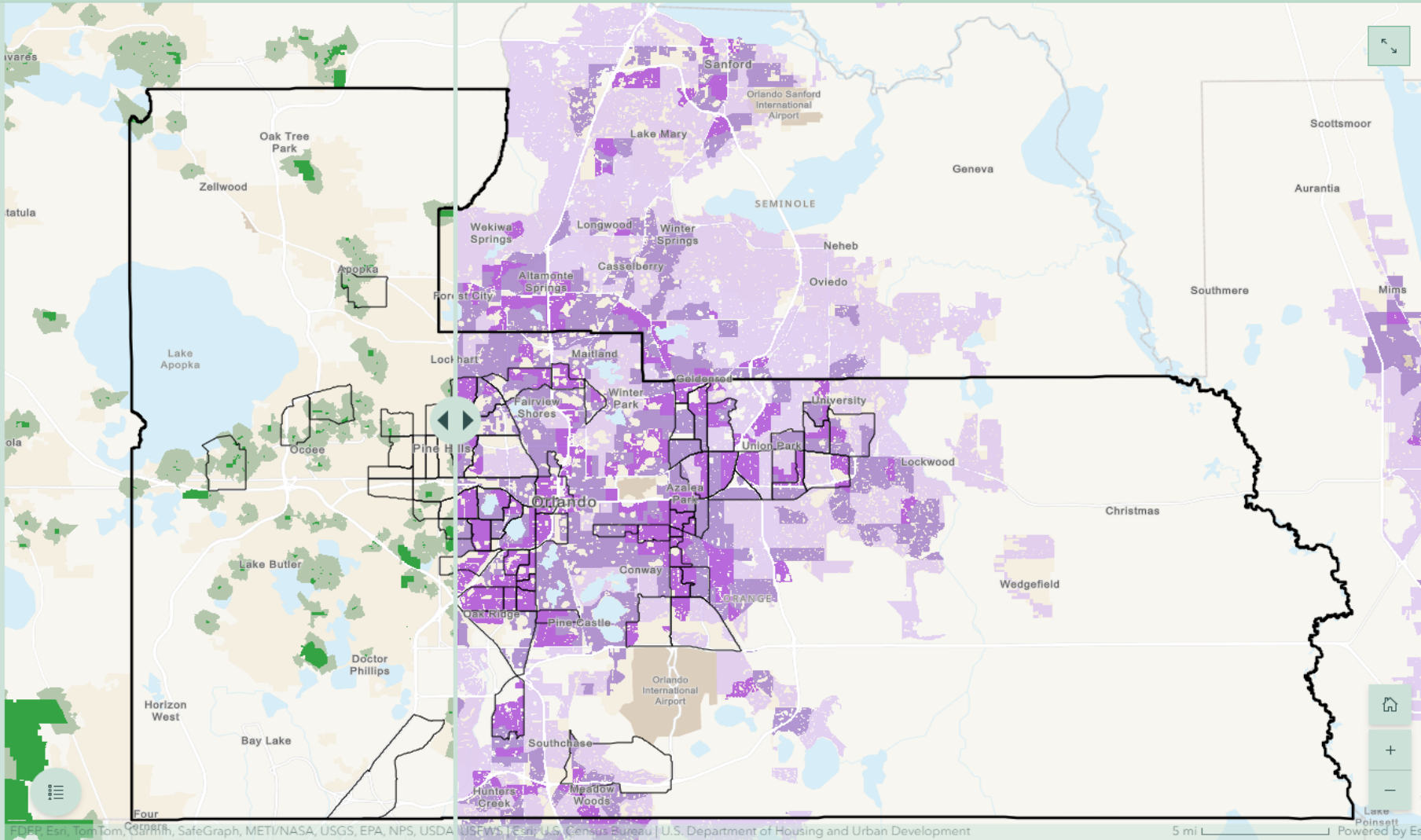
The Nature Conservancy

The Nature Conservancy nature.org EcoUrban Assessment Resource

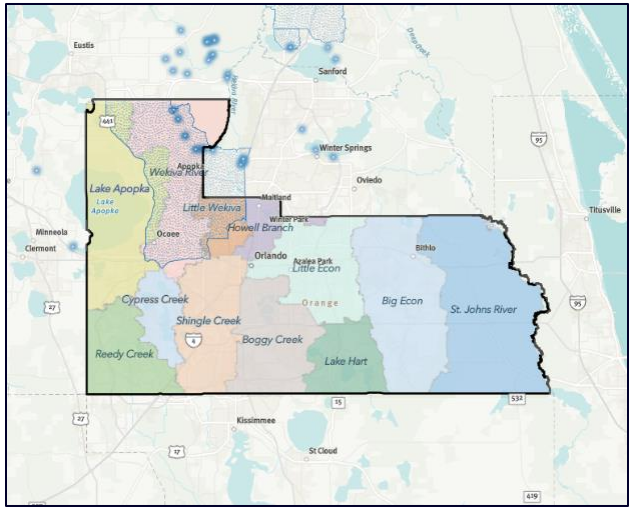
Trust for Public Land™ ParkServe®

The **Trust for Public Land**™ (TPL) has compiled and maintains a national database of publicly accessible parks and uses this data to calculate statistics about the population that lives within a 10 minute walk of a park in a city or town. It shares this data through its **ParkServe®** platform.

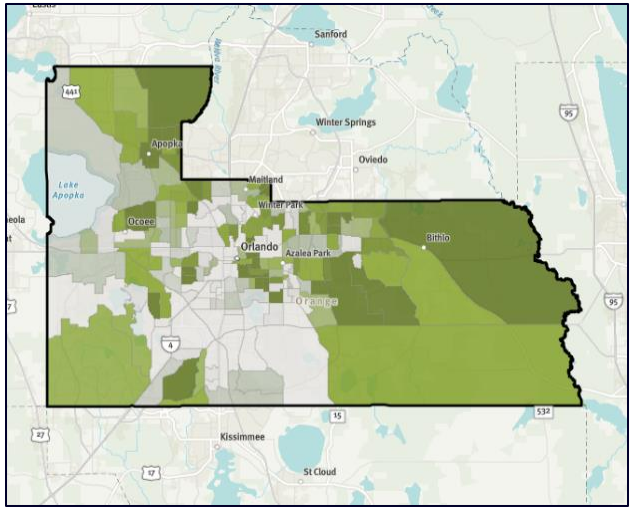
Moving the slider to the right reveals a map that shows which areas are within a 10 minute walk to a public park. Dark green indicates public parks. The light green surrounding the parks indicates the area within a 10-minute walking distance. Moving the slider left reveals prioritized urban areas that would benefit from more parks, as determined by the TPL's multi-variable demographic analysis. In both maps, low and moderate income tracts are outlined in black. *This map slider was produced using data, in whole or in part, provided by The Trust for Public Land™.*



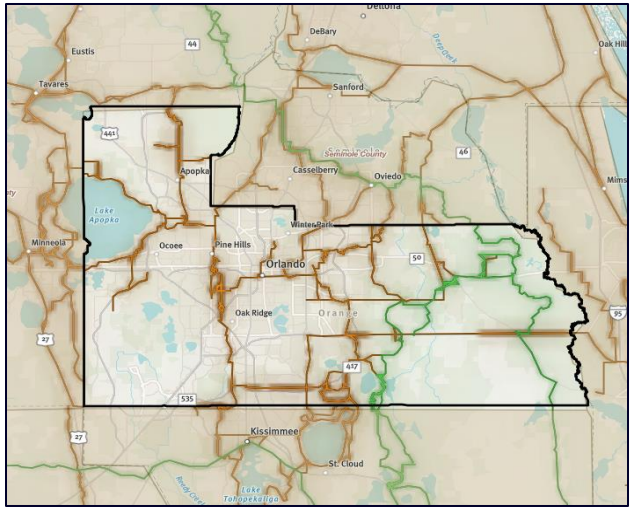
EcoResource of Orange County



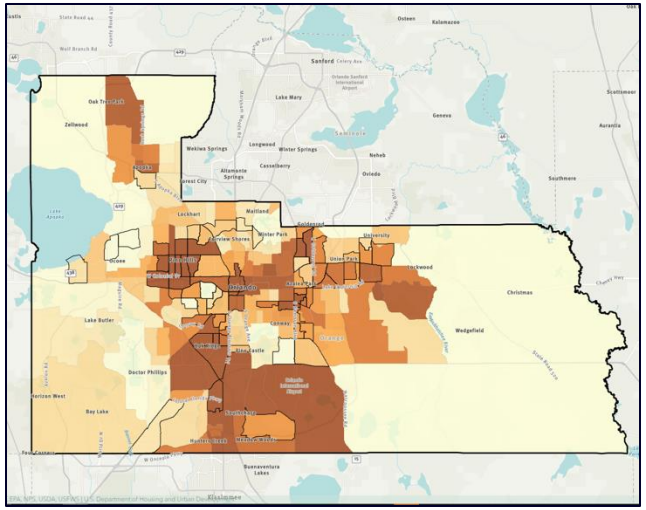
Watersheds



Tree Canopy



Recreational Trails



Urban Heat

Engagement

Engaged residents at community and neighborhood events

Surveys offered in 5 languages:

- Brazilian Portuguese
- English
- Haitian Creole
- Spanish
- Vietnamese

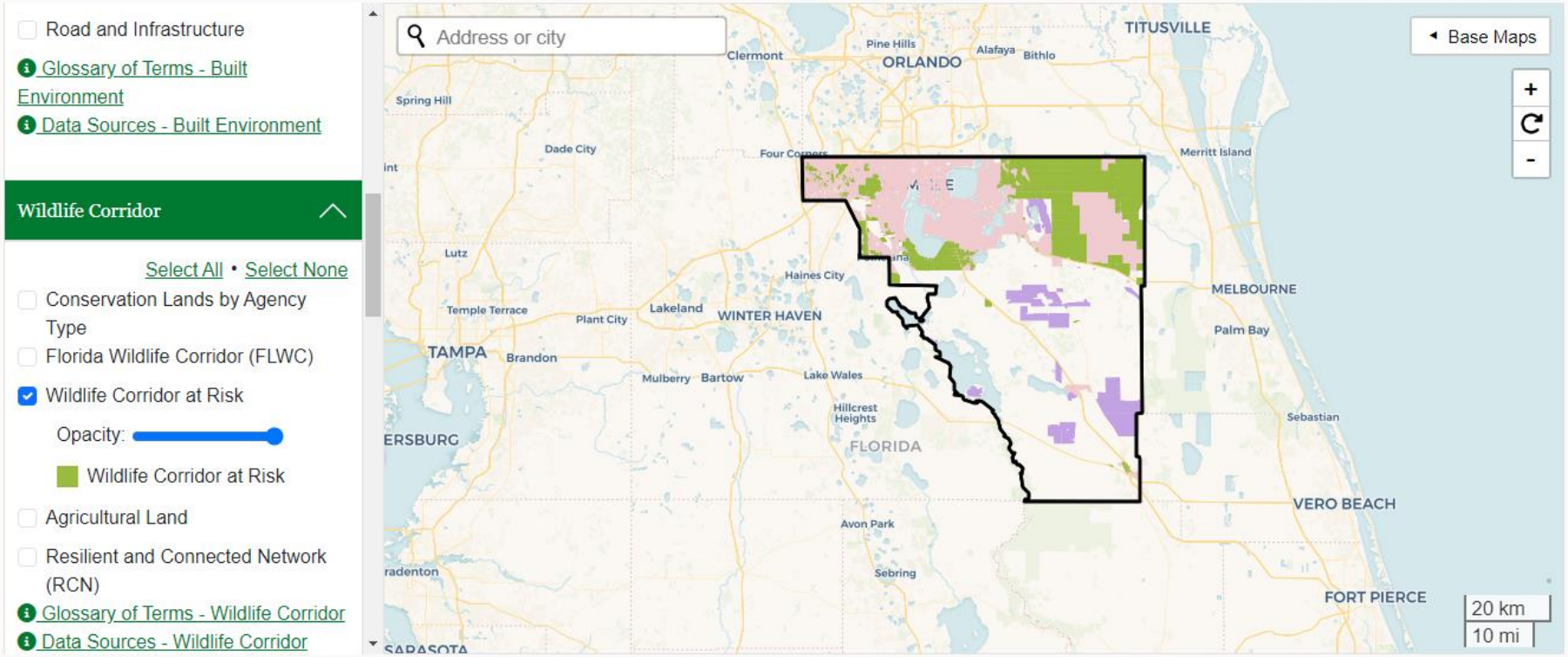
Osceola Greenprint

Image Credit: Roberto Gonzalez

Osceola Greenprint

View Map or Navigate to Report

Review the map or the text report to understand the importance of nature and its benefits under several themes.



Share | Download Spreadsheet | Download GIS File | Export Map Image

Overview | Built Environment | Wildlife Corridor | Biodiversity and Habitat | Freshwater | Resilience | Parks and Recreation

Osceola Greenprint

The Nature Conservancy

¡Comparta esta información! | Exportación de datos | Exportar imagen del mapa

Presentación | Paisaje y agricultura | Diversidad biológica y hábitat | Agua dulce | Resiliencia y equidad | Parques y recreación

Con el impacto que el crecimiento rápido y las presiones del desarrollo imponen sobre los ecosistemas y las áreas silvestres de Florida, es imperativo que la protección y la conservación de nuestros menguantes recursos vayan de la mano con decisiones sobre el uso del suelo para promover el crecimiento inteligente y el desarrollo sostenible. Usa este reporte para contribuir a reforzar la preservación de las tierras que son recursos naturales, agrícolas y de agua para apoyar a las economías rurales, mejorar la conectividad del hábitat y proteger el agua dulce y la vida silvestre en el condado de Osceola.

Hechos clave

14,208 acres
área total

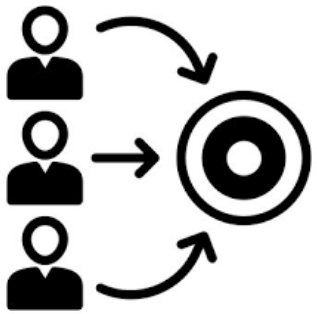
Lagos y cuencas hidrográficas

Cuencas
- Big Sand Lake
- East Lake Tohopekaliga
- Lake Tohopekaliga

Lagos
- Lake Tohopekaliga

Capa de mapa
- ☐ Límites de la cuenca hidrográfica (HUC10)
- ☐ Lagos y humedales

Engagement



Strategic Outreach

Technical Assessment & Tool Development

Greenprint Decision-Support Tool

Protecting Nature and People through Nature Based Solutions

Thank you!

Learn More:

greenprinthub.org

nature.org/Florida

Image Credit: Tyler Jones