



Volusia LID Regional Roundtable: Overview

February 2, 2023

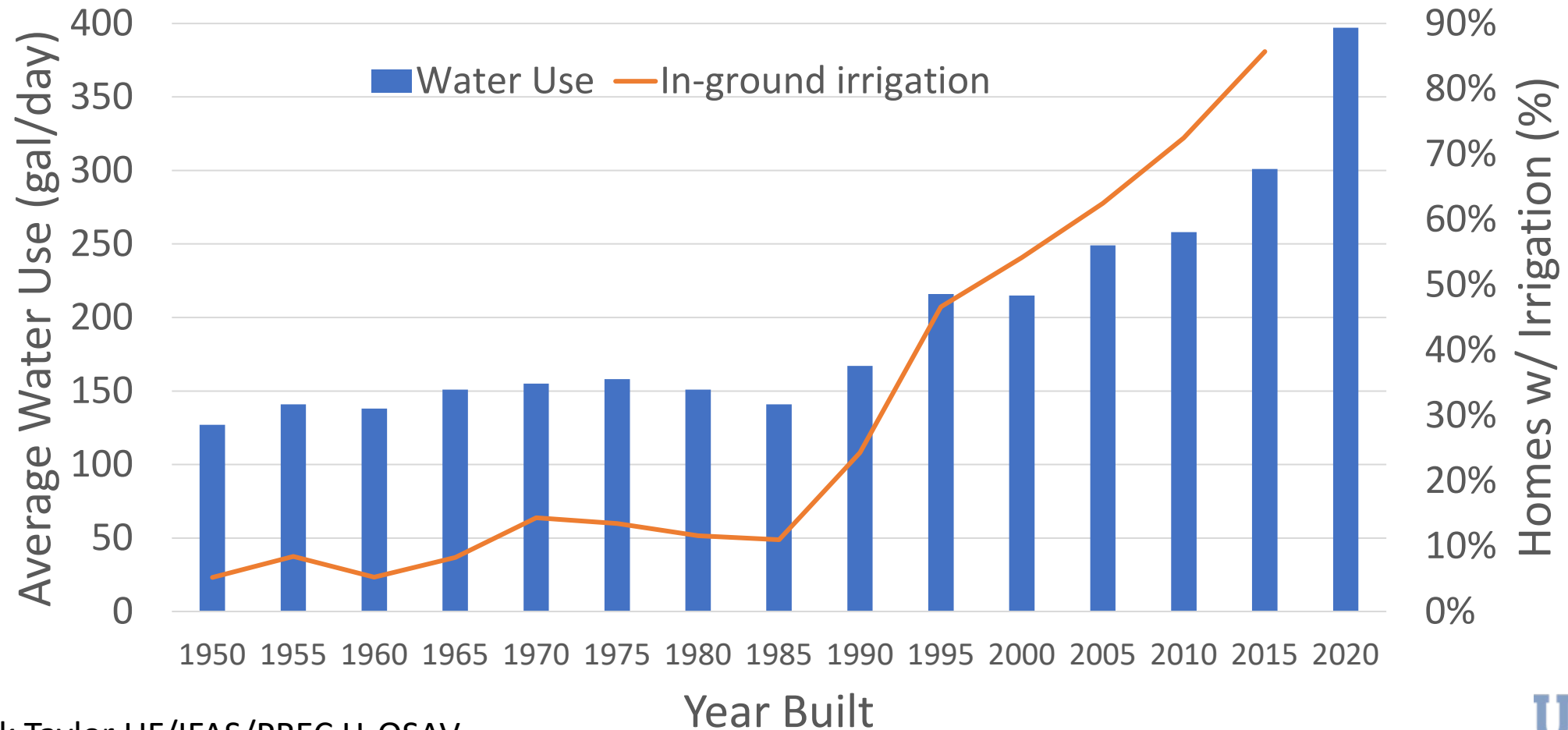
Pierce Jones, Jennison Kipp & Jerry Murphy
Program for Resource Efficient Communities
UF/IFAS Extension



Framing the Issue: Three Recent UF Studies

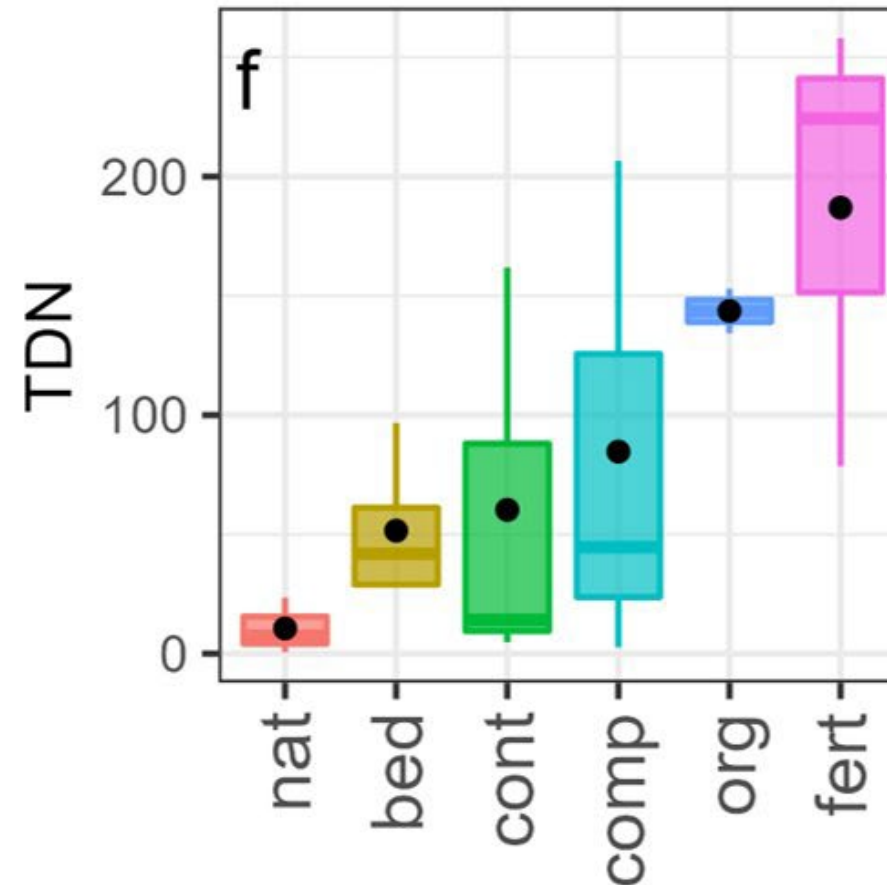
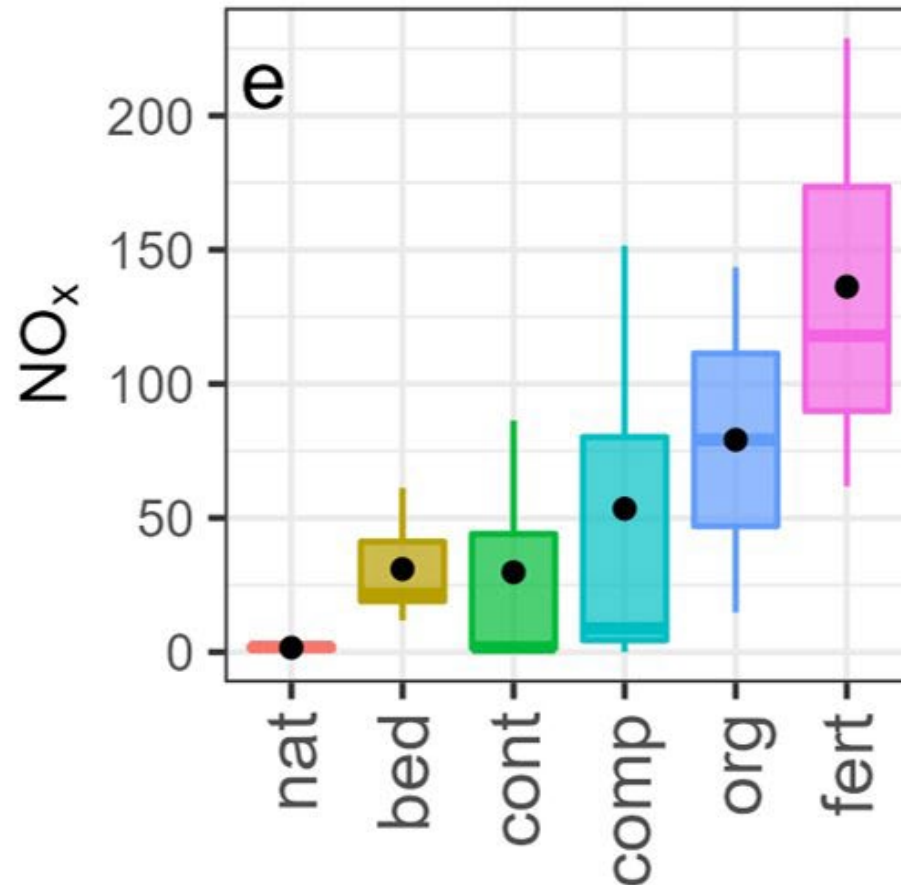
Average Daily Water Use by Year Built

2021 Study of Single-Family, Detached Homes in Gainesville, FL



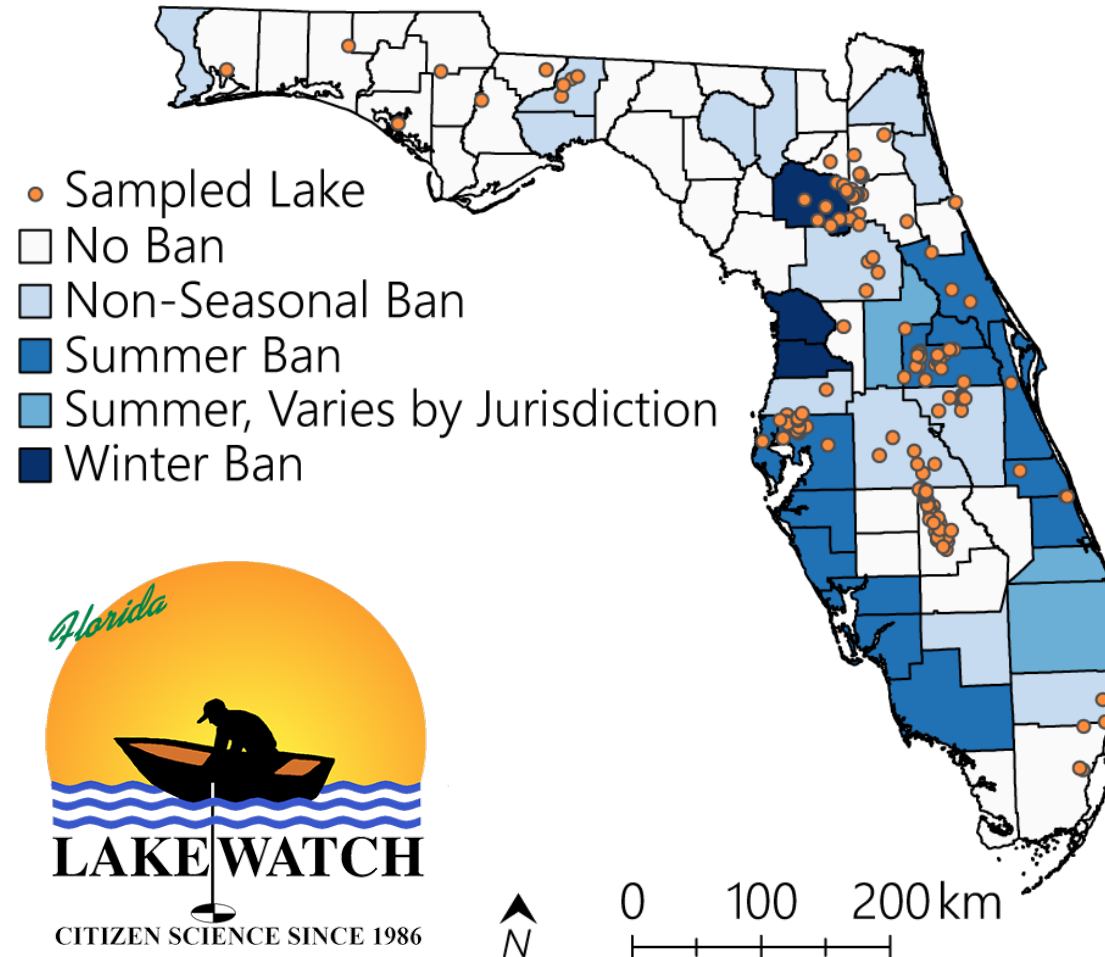
Nitrogen Leaching in Residential Lawns

2021-22 Alachua County EPD Lysimeter Study



Residential Fertilizer Ordinance Impacts

Using LAKEWATCH Data to Evaluate Water Quality Trends



Residential Fertilizer Ordinance Impacts

Using LAKEWATCH Data to Evaluate Water Quality Trends

Ordinance impact on water quality trend

Ban Type	Total phosphorus trend	Total nitrogen trend	Chlorophyll a trend	Secchi depth trend
No ban	Small degradation	No change	No change	Small improvement
Nonseasonal	Small improvement	Small improvement	No change	No change
Summer	Medium improvement	No change	No change	Medium improvement
Winter	Large improvement	Large improvement	Large improvement	Large improvement

Florida Land Development Conventional Practice

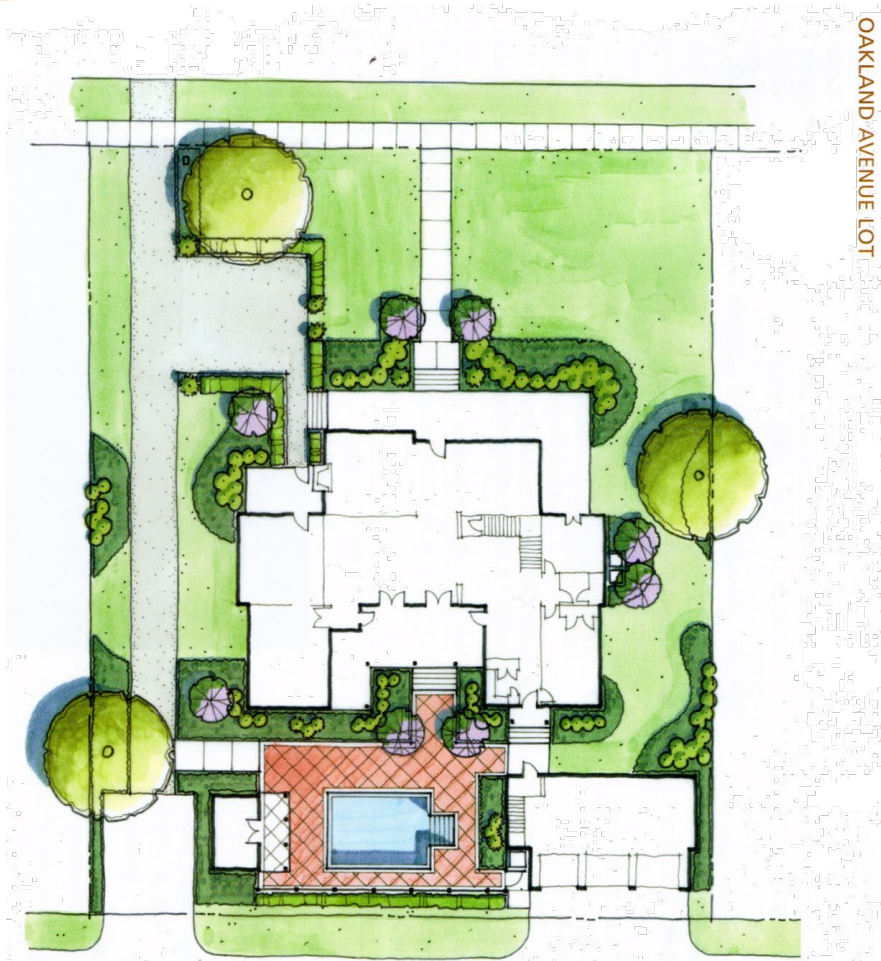
Florida Land Development

Oakland Park



Florida Land Development

Oakland Avenue Lot



FRONT YARD

Trees	minimum of 2 canopy trees and 2 accent trees
Shrubs	20% minimum
Groundcover	15% minimum
Turf	60% maximum

SIDE YARD

Trees	minimum of 1 canopy tree and 2 accent trees
Shrubs	30% minimum
Groundcover	0% minimum
Turf	70% maximum

ALLEY YARD

Shrubs	30% minimum
Groundcover	0% minimum
Turf	70% maximum

Florida Land Development

Conventional Practice



Florida Land Development

Conventional Practice



Florida Land Development Landscaping Impacts

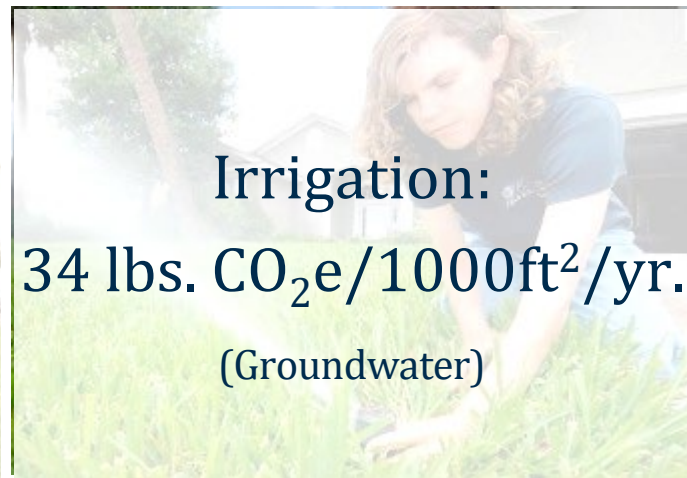
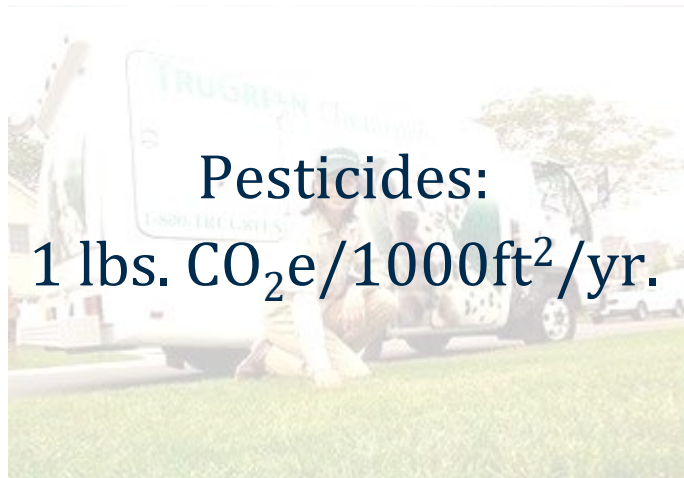
Landscaping Impacts

Conventional Practice



Landscaping Impacts

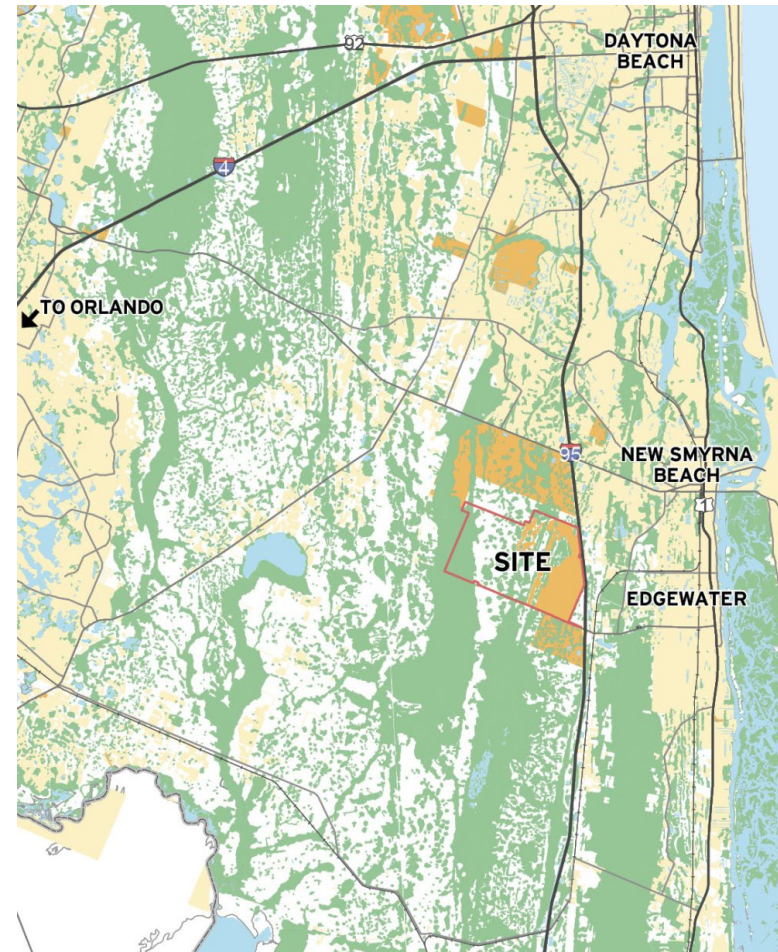
Greenhouse Gas Accounting (Groundwater)



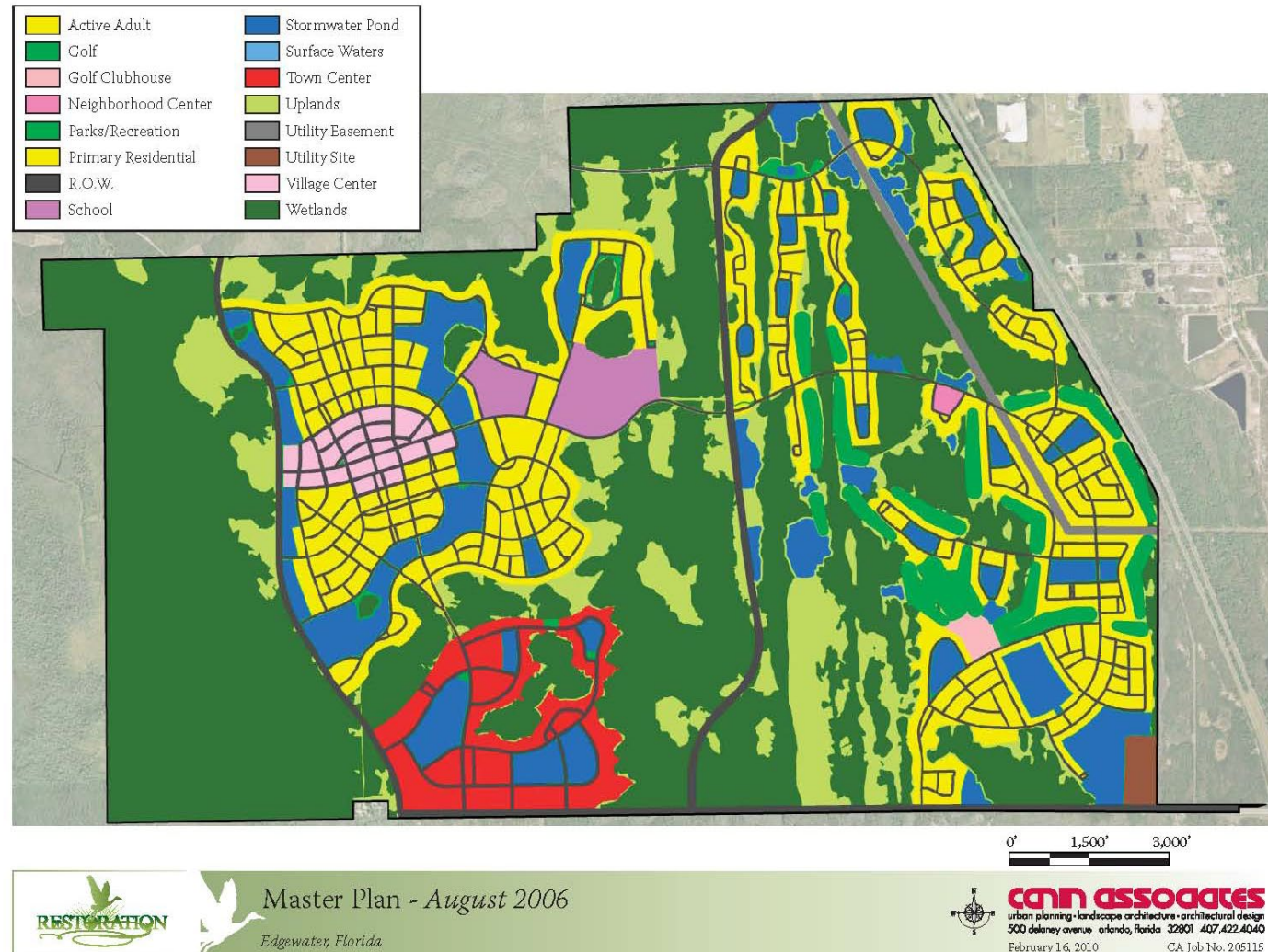
Florida Land Development Restoration

Florida Land Development Restoration

- A 5,187-acre master plan entitled to have 8,500 dwelling units.
- The project's design evolved significantly over its multi-year permitting process.
- Restoration was fully entitled based on its 2009 design to create a mixed-use, transit-oriented community with 3.5 million ft² of commercial space.



Florida Land Development Restoration 2006 – Conventional Design



Master Plan - August 2006

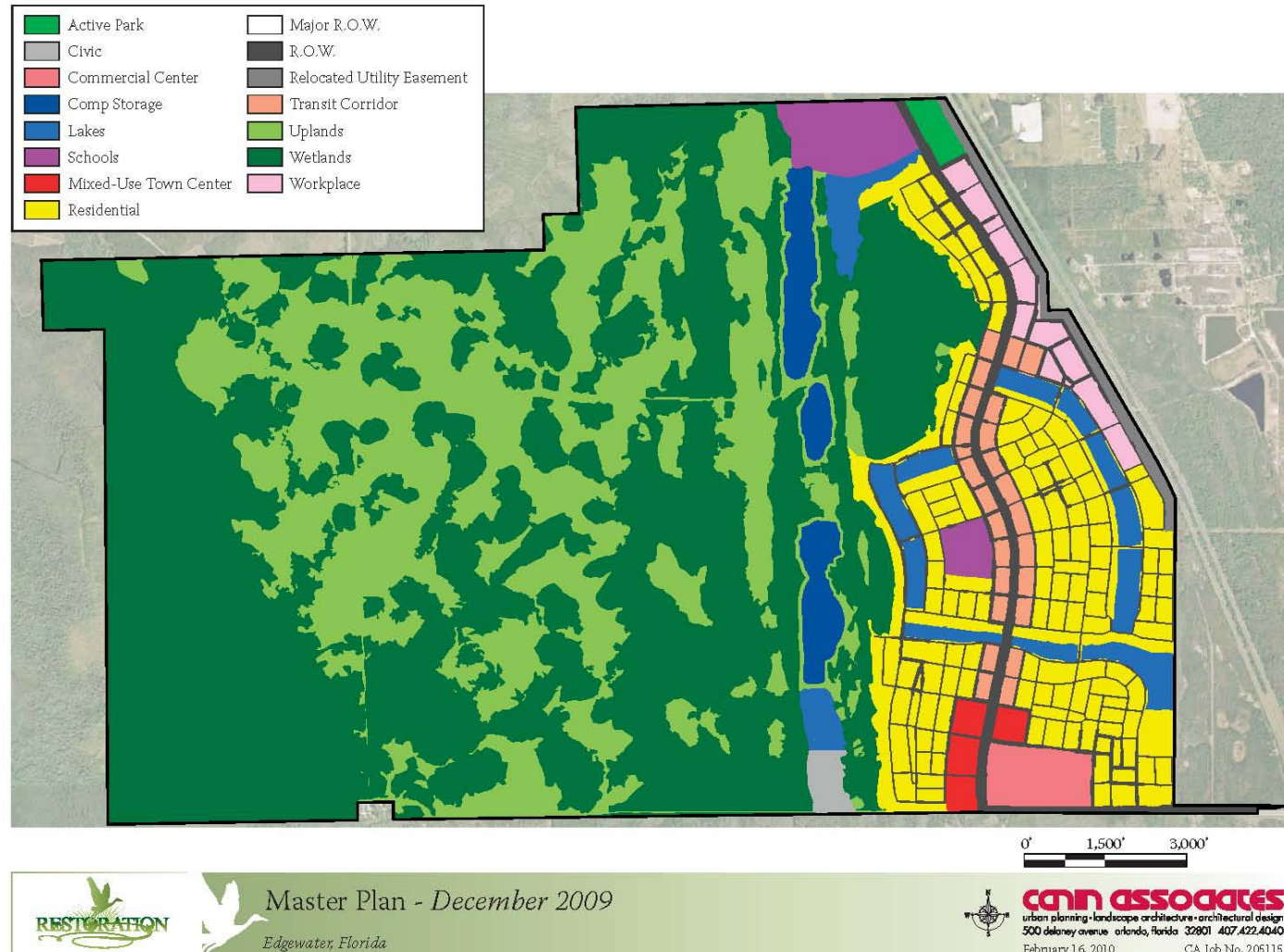
Edgewater, Florida



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February 16, 2010 CA Job No. 205115

Florida Land Development

Restoration 2009 – Reduced Impact Design



Restoration Road Infrastructure Impacts

Restoration Road Infrastructure

Life Cycle Analysis (50-year life)

<u>Characteristics</u>	<u>2006 Plan</u>	<u>2009 Plan</u>
• Lane miles	186	103
• Impervious area, sq. ft.	17,000,000	10,000,000
• Landscaped area, sq. ft.	6,000,000	3,000,000
• Cost	\$383,623,680	\$238,180,800
Initial costs avoided:		\$145,442,880

Emissions:

• Mtons CO2e per yr.	13,031	7,176
Metric tons CO2e per yr. avoided:		5,855

Restoration Landscaping Impacts

Restoration Landscaping – 2009 Design

Low Impact Design

- Largest lots are 60' wide
- Compact homes with minimal landscapable areas (375 sq. ft.)
- 75% of lots designed for turf-free landscapes



Restoration Landscaping – Two Designs

Annual Resources Accounting

<u>Characteristics</u>	<u>2006 Plan</u>	<u>2009 Plan</u>
• Landscape, acres	988	428
• Pesticides, lbs.	2,240	345
• Fertilizer, lbs. N	135,000	18,400
• Mowing, gal. gas	33,000	4,460
• Irrigation, mgal	988	63

Maintenance costs avoided:

~\$4,000,000

Emissions:

• Mtons CO2e per yr.	11,685	798
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Metric tons CO2e per yr. avoided:

10,887

Landscaping Impacts

Conventional Practice



Mitigating Impacts:
Current (Shifting?) Trends

Reducing Landscaping Impacts

The Villages (Sumter County)



Reducing Landscaping Impacts

88th Street Cottages (Alachua County) 2019-2020



Reducing Landscaping Impacts

Sunbridge Cyrils Drive (Osceola County)



TAVISTOCK
DEVELOPMENT COMPANY



Reducing Landscaping Impacts

Sunbridge Base Camp (Osceola County)



April 12, 2022

Reducing Landscaping Impacts

Sunbridge Weslyn Park – Pulte Homes



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April 12, 2022

Reducing Landscaping Impacts

Sunbridge Weslyn Park – David Weekley Homes



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October 5, 2022

Reducing Landscaping Impacts

Sunbridge Weslyn Park – David Weekley Homes



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Reducing Landscaping Impacts

Wildlight Forest Park Neighborhood (Nassau County)



wildlight

Florida Stormwater Rules

Reducing Landscaping Impacts

Wildlight Forest Park Neighborhood (Nassau County)
