



Land Development, Water and Accounting for Greenhouse Gas Emissions in Florida

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University of Florida



UF

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FLORIDA

IFAS Extension

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Program for Resource Efficient Communities
University of Florida

Program for Resource Efficient Communities

We promote application of design, construction and management practices that minimize environmental degradation and make more efficient use of energy, water and other natural resources in master planned residential communities.



Growth Issues

Land Development

Land Development



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Welcome to The Bonita Bay Group

The Bonita Bay Group™ offers exceptional community living with its environmentally sound development philosophies and innovative designs. Residents enjoy traditional neighborhood gathering spots, recreational facilities and access to community parks that blend seamlessly with surrounding habitats.

Distinctive Lifestyle Experiences







THE BROOKS®





the estates at





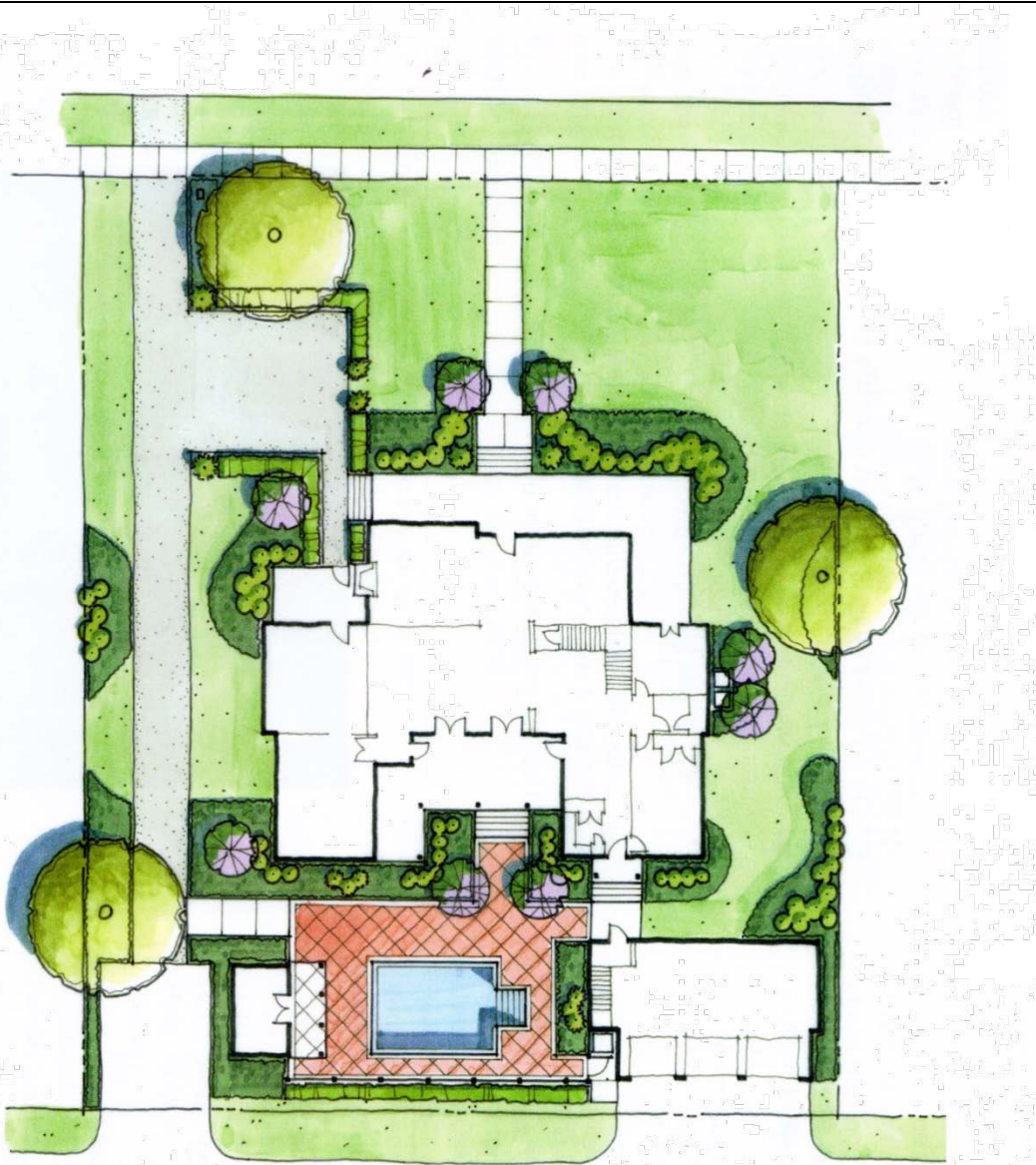
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Oakland Park



Master Plan

Oakland Park



FRONT YARD

Treesminimum of 2 canopy trees
and 2 accent trees
Shrubs20% minimum
Groundcover . .15% minimum
Turf60% maximum

SIDE YARD

Treesminimum of 1 canopy tree
and 2 accent trees
Shrubs30% minimum
Groundcover . .0% minimum
Turf70% maximum

ALLEY YARD

Shrubs30% minimum
Groundcover . .0% minimum
Turf70% maximum

Oakland Avenue Lot

Land Development



Land Development



Growth Issues

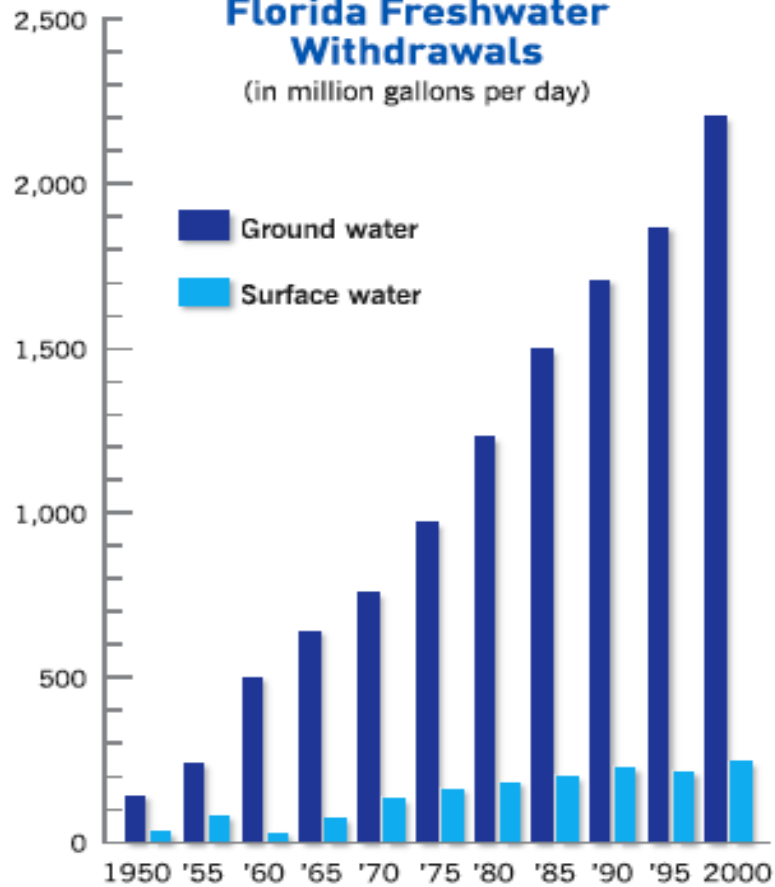
Water Supply

Water Supply

Florida Freshwater Withdrawals

(in million gallons per day)

- Ground water
- Surface water

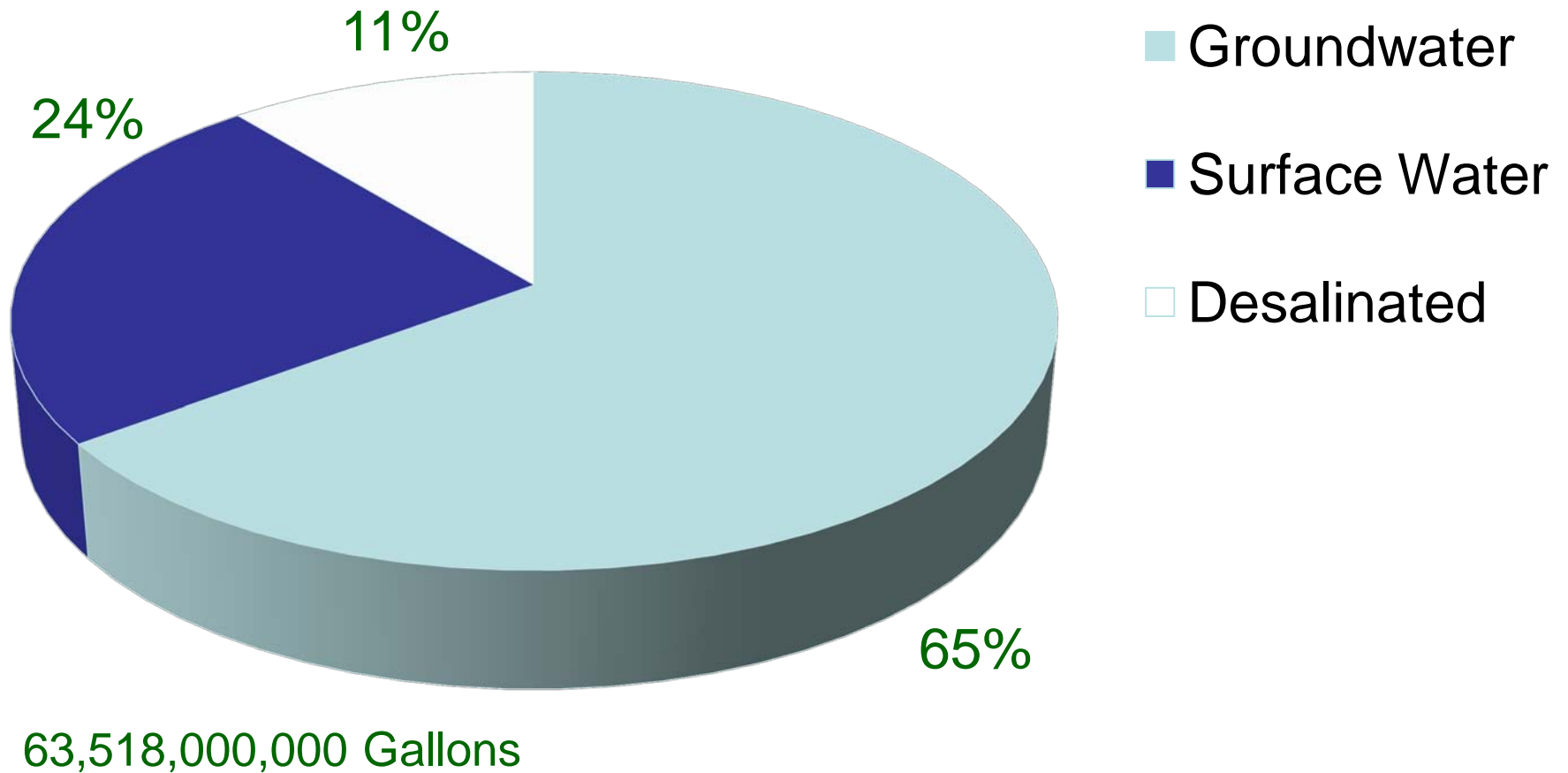


Source: U.S. Geological Survey

Tampa Bay Water Desalinization Facility



Water Supply



TBW - 2008 Water Produced

St. Petersburg Times

Man jailed for brown lawn gets help from neighbors

By Erin Sullivan, Times Staff Writer
In print: Monday, October 13, 2008

BAYONET POINT — "He's in prison for God knows how long because we can't afford to sod the lawn," said his sobbing daughter, Jennifer Lehr.

Prudente has owned a home in the deed restricted community since 1998. The covenants require homeowners to keep their lawns covered with grass.



Free from jail, Joseph Prudente, 66, inspects his new lawn with pride Sunday. Prudente, who says he barely has enough to pay the mortgage, was jailed for having a brown lawn.

St. Petersburg Times

Tampa Bay Water makes last withdrawal from tapped out reservoir

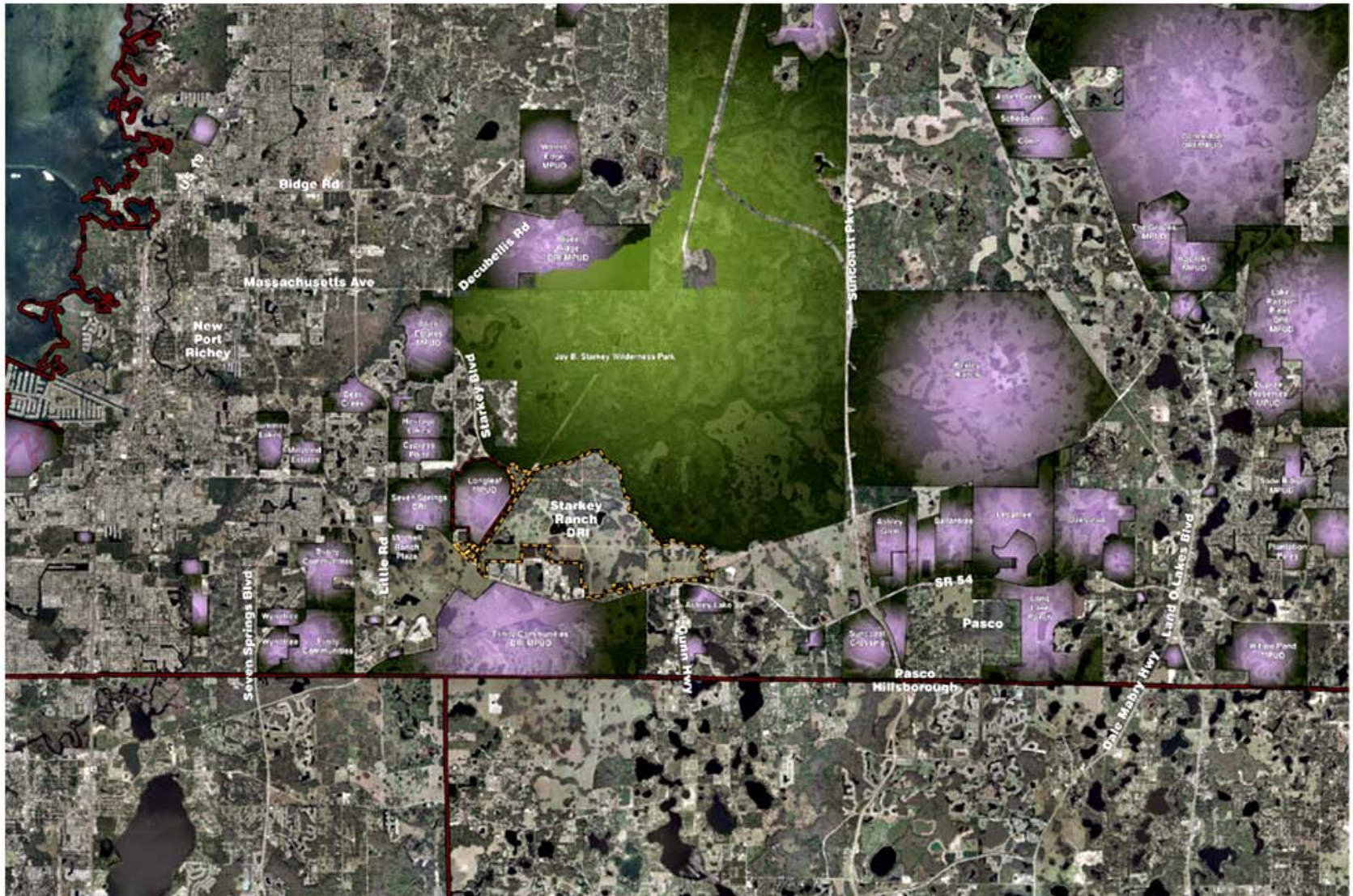
*By Craig Pittman, Times Staff Writer
In Print: Saturday, March 14, 2009*

Get used to having a brown lawn for a while. As of this week, Tampa Bay Water has virtually drained its 15 billion-gallon reservoir.



From now until the summer rainy season, it must rely on its two remaining sources of water: its sometimes troubled desalination plant and the dwindling supply in the underground aquifer. "It's going to be a long couple of months waiting for the rainy season," Tampa Bay Water spokeswoman Michelle Robinson said Friday.

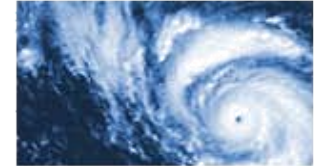
Land Development



South Pasco County

Growth Trends

HB 697



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Office of the Secretary

The Implementation of House Bill 697

The Florida Legislature recently enacted HB 697 that establishes new local planning requirements relating to energy efficient land use patterns, transportation strategies to address greenhouse gas reductions, energy conservation, and energy efficient housing. These new requirements became effective on July 1, 2008.



Growth Trends

GHG Accounting: Landscapes

<http://buildgreen.ufl.edu/news.htm>

GHG Accounting: Landscapes



Madera



Reduced Impact

Idylwild



Conventional Practice

GHG Accounting: Landscapes

Estimated GHG Emissions/1000 ft² Landscaped Area:

• Fertilization	29
• Irrigation (TBW 2008 water*)	120
• Mowing	15
• Pesticides	<u>1</u>
Total	165 lbs CO₂e/yr



GHG Accounting: Landscapes

Estimated GHG Emissions/1000 ft² Landscaped Area:

• Fertilization	29
• Irrigation (TBW groundwater*)	34
• Mowing	15
• Pesticides	1
Total	<u>79</u> lbs CO ₂ e/yr



GHG Accounting: Landscapes

Estimated GHG Emissions/1000 ft² Landscaped Area:

• Fertilization	29
• Irrigation (TBW surface water*)	48
• Mowing	15
• Pesticides	<u>1</u>
Total	92 lbs CO₂e/yr



GHG Accounting: Landscapes

Estimated GHG Emissions/1000 ft² Landscaped Area:

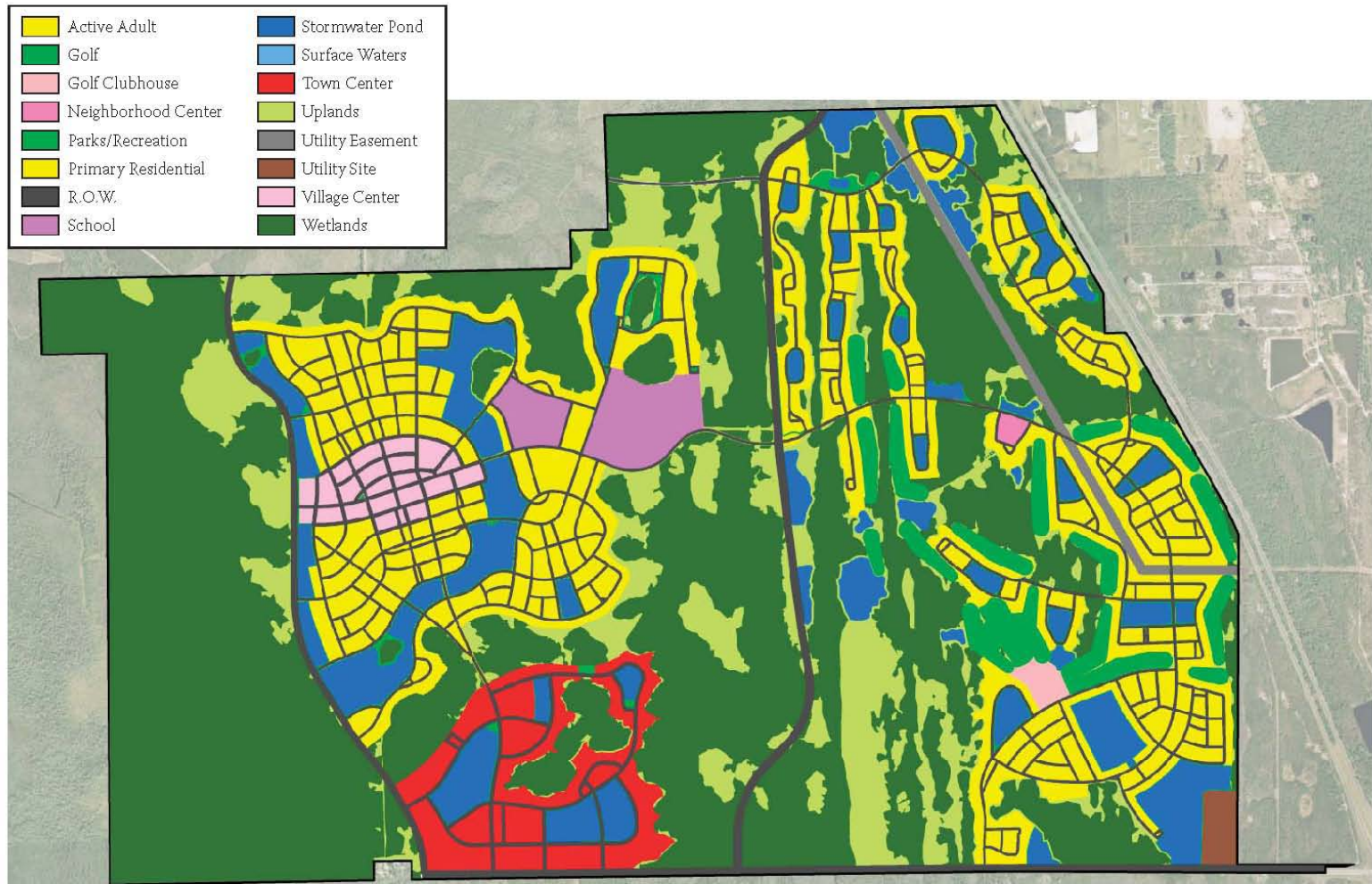
• Fertilization	29
• Irrigation (TBW desal water*)	579
• Mowing	15
• Pesticides	<u>1</u>
Total	624 lbs CO₂e/yr



Growth Trends

Development Scale Impacts (Restoration)

Restoration



0' 1,500' 3,000'



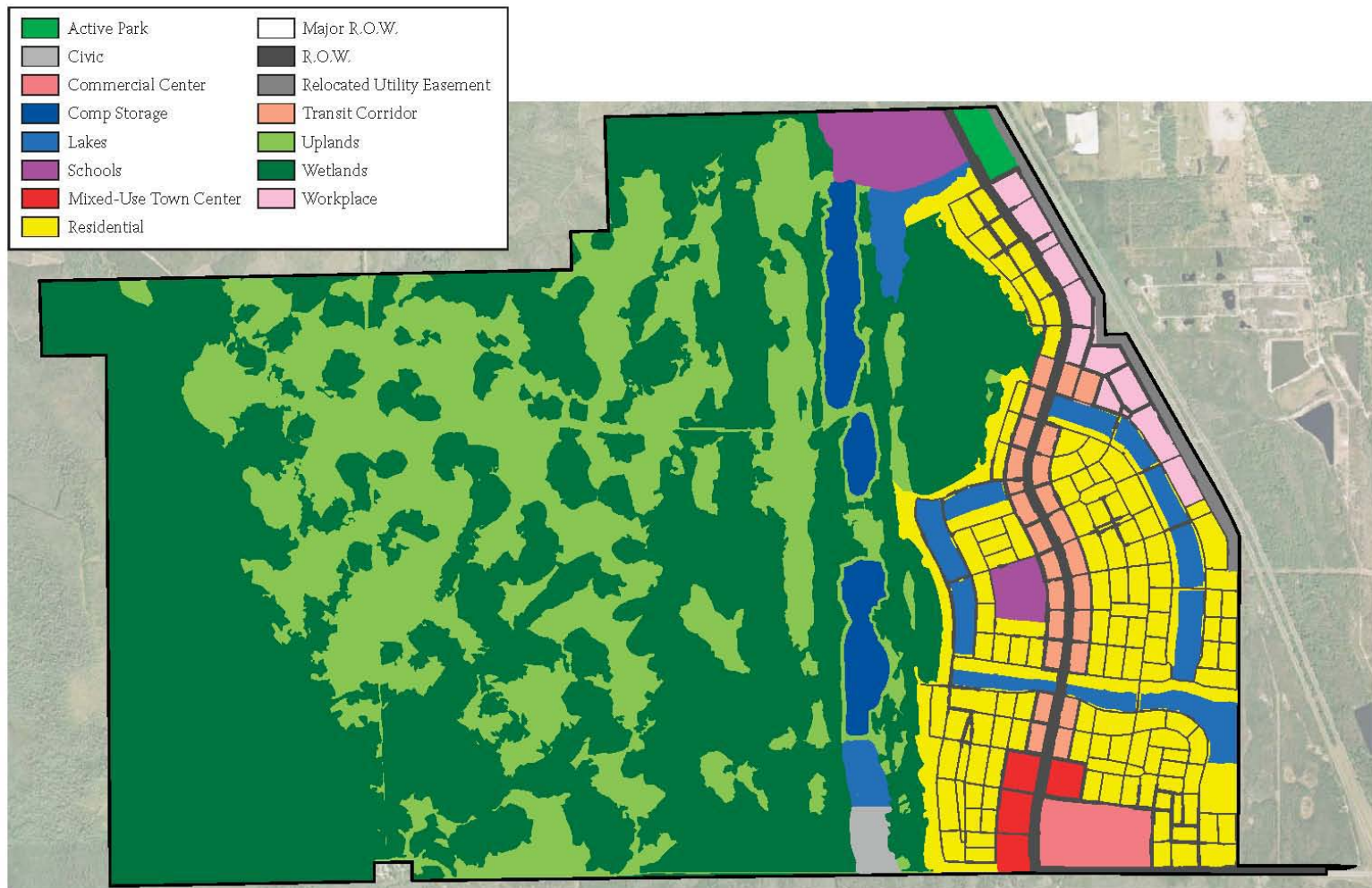
Master Plan - August 2006

Edgewater, Florida



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 500 delaney avenue orlando, florida 32801 407.422.4040
 February 16, 2010 CA Job No. 206115

Restoration



0' 1,500' 3,000'



Master Plan - December 2009

Edgewater, Florida



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February 16, 2010

CA Job No. 205115

Baldwin Park



Mixed Use TND/Transit-Oriented Development

Restoration

Single Family

- 40'

2006

200

2009

700

- 50'

200

700

- 60'

250

275

- 70'

575

0

- 80'

1,015

0

- 90'

1,160

0



Restoration

<u>Land Use (ac)</u>	<u>2006</u>	<u>2009</u>
• Preserved	2,814	3,769
• Impervious	1,029	663
• Landscaped	<u>475</u>	<u>191</u>
Totals	5,187	5,187



Restoration

<u>Practices</u>	<u>2006</u>	<u>2009</u>
• Fertilization	272	109
• Irrigation (groundwater)	320	129
• Mowing	140	56
• Pesticides	<u>9</u>	<u>4</u>
Totals	742	298
GHG (tons CO ₂ e/yr)		



Restoration

<u>Practices</u>	<u>2006</u>	<u>2009</u>
• Fertilization	272	109
• Irrigation (desal)	5,433	2,185
• Mowing	140	56
• Pesticides	<u>9</u>	<u>4</u>
Totals	5,855	2,354
	GHG (tons CO ₂ e/yr)	



Restoration

Development Order Requirements: Landscaping Standards...

To ensure homeowners are in compliance with the requirements for minimal to no added inputs of water and synthetic fertilizers and pesticides, the HOA/CDD covenants shall include provision for a third party field contractor/on-site naturalist for long-term environmental monitoring (including water quality, potable water usage and biodiversity) and education to ensure environmental goals are met.

Growth Trends

Summary

Summary

Florida's Land Development Environment:

- Conventional practices are failing
- Tested, better practices are available
- Developers are not resistant



Guidelines for New Developments

Design/specify alternative landscapes/practices:

- Eliminate all irrigation w/ potable water
- Minimize irrigation even w/ reclaimed water
- Compact design, minimize disturbance
- Minimize/eliminate fertilization
- Manage total community water budgets





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<http://buildgreen.ufl.edu/news.htm>