

Sustainable Development



Trifecta - Sustainability

- Certified over 4 Million Square Feet of 3rd party certified single and multi-family residential
- Over 2 Million Square Feet of certified LEED Projects
- Over 1 Million Square Feet of Green Globes or FGBC Commercial
- Over 30,000 acres of certified Green Developments
- Active Board and Standard Committees
 - USGBC, FGBC, NAHB
- Host Discovery Channel's PROJECT EARTH
- Florida Contractor #1330049

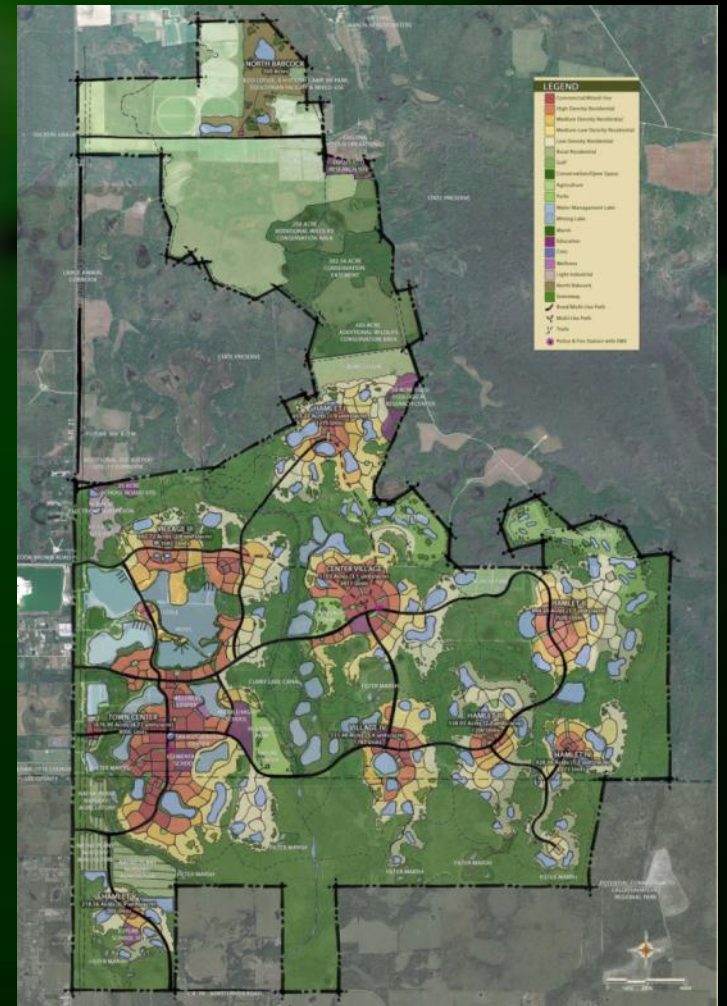




UNIVERSITY OF
FLORIDA
CIVIL ENGINEERING




trifecta





Green Remodel



Home Built
1974
Alva FL

Green Remodel



Dream Home...



Before



Landscape After



▲
▲ After



FPL

You have a new bill from Florida Power and Light.



Take the guesswork out of your electric bill

Sign up for FPL Budget Billing®

[LEARN MORE »](#)

Billers Account Number:

*****0049

Due Date:

07/29/2011

Amount Due:

\$ 46.62

Account Balance:

\$ 46.62

[Pay or View Bill](#)

Home Improvement

Improve House to Code: \$9,000

Efficiency Improvements above Code: \$7,500

Eye Candy Improvements: cork, granite, travertine,...



HIGH
ENERGY
USE

Low
HERS
Index
Save
Energy

ZERO
Energy
Use

300
290
280
270
260
250
240
230
220
210
200
190
180
170
160
150
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Typical New Home 1979

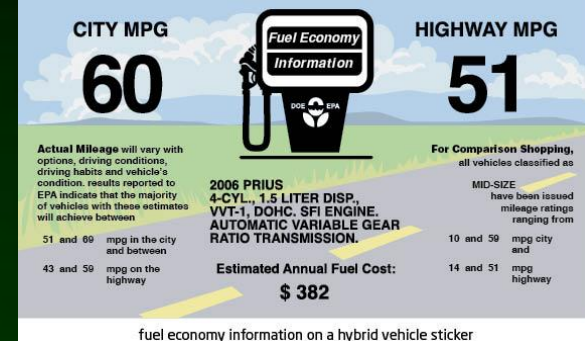
Typical New Home 1982

Typical New Home 1997

Typical New Home 2004

Energy Star HI = 77

Zero Energy Home





Energy



Simple Conservation



53,000 Barrels/day lost



2,000,000 Barrels/day lost

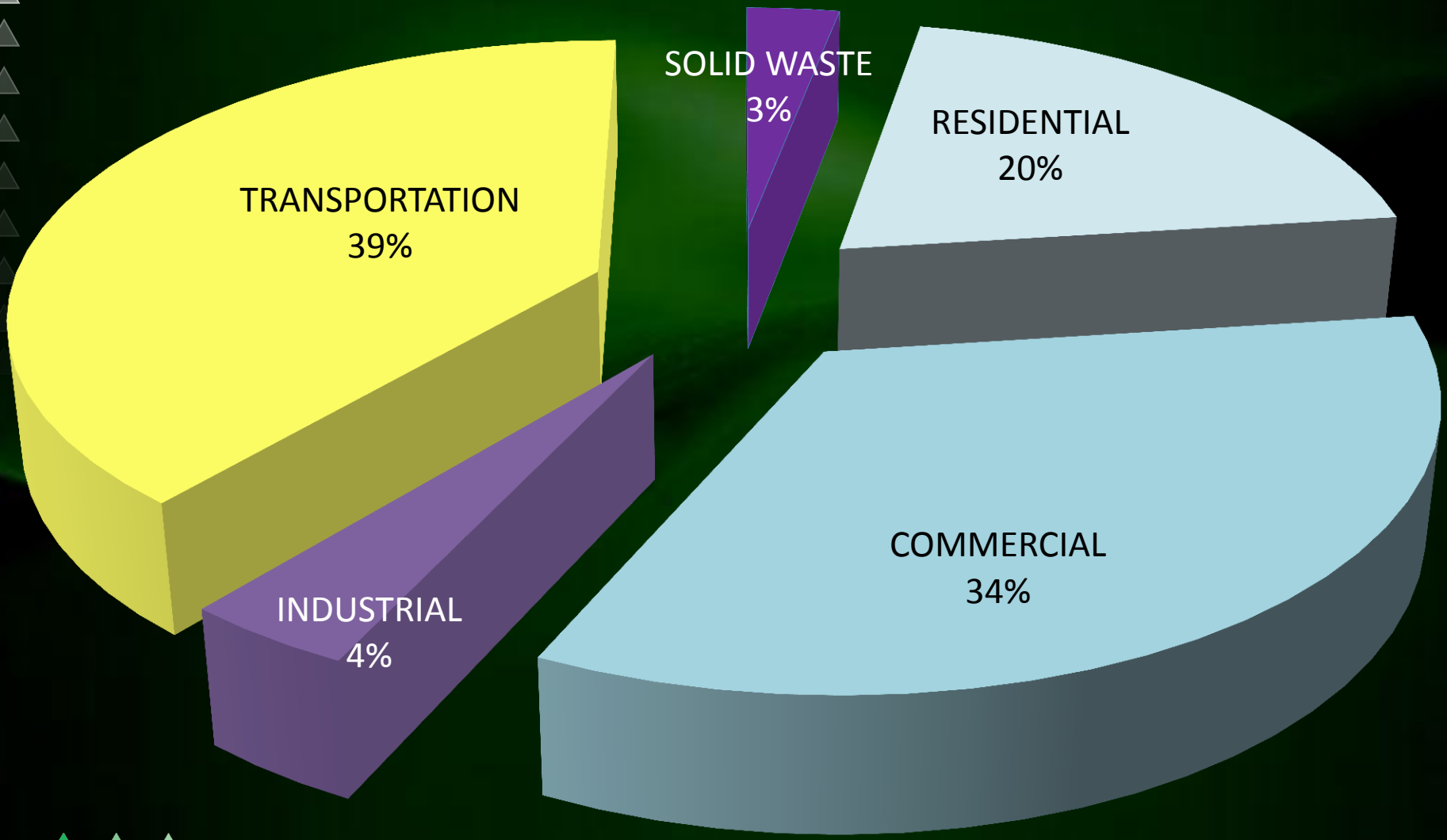
- Several years ago Fermi Award winning physicist and former California Energy Commissioner Dr. Art Rosenfeld, stated that **the energy lost through our inefficient windows alone represents about 2 million barrels per day**

▲ In Florida

- 125 gallons of water/person/day (up to 174 gpd)
- **ENERGY NEEDED TO SUPPLY DAILY WATER NEEDS**
- Withdrawal, treatment, distribution, collection, sewage treatment,...
- 5 gallon of gas per person per day



Florida & Energy Use





Smallest of niches



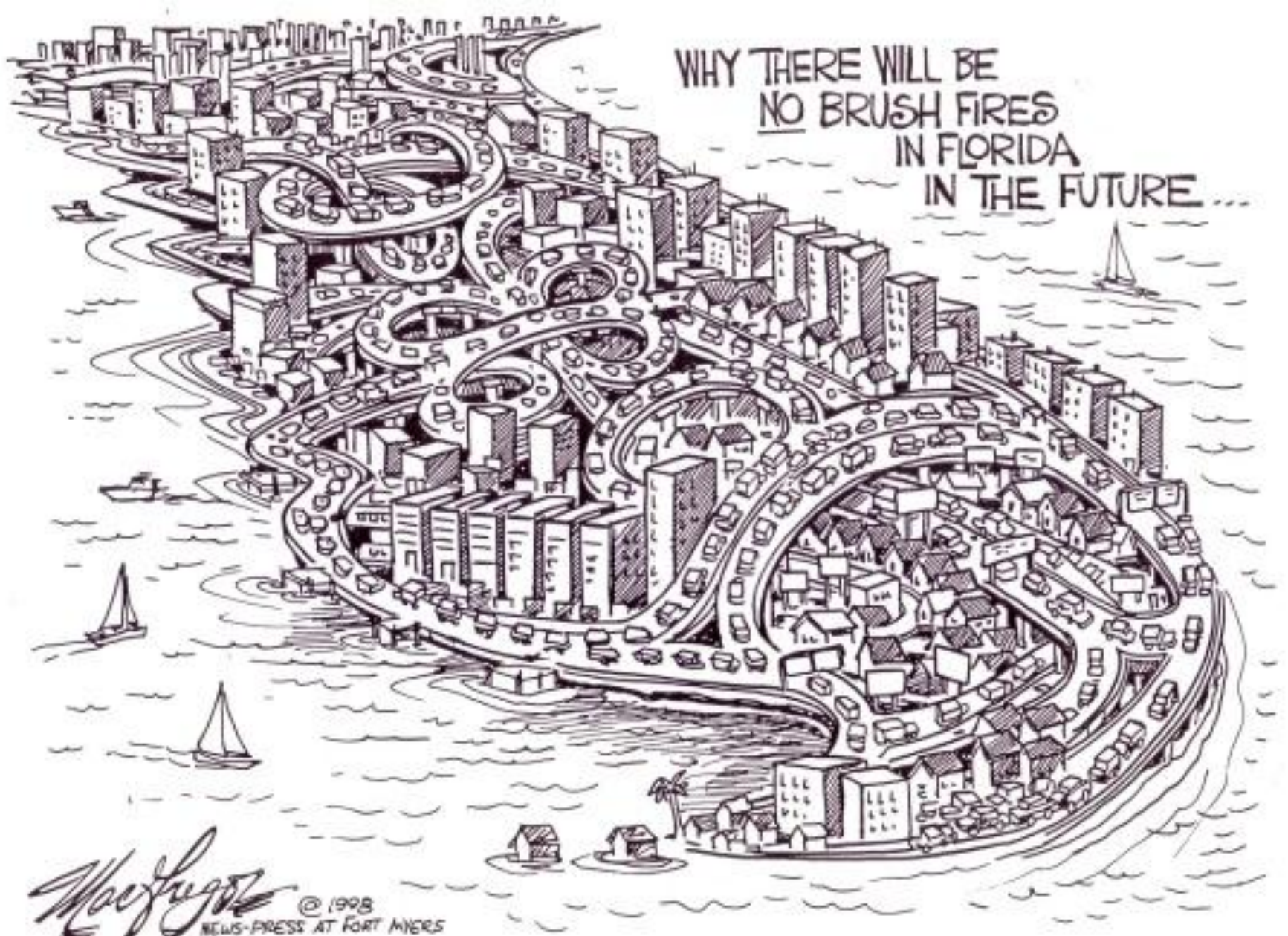
Very desirable
market, set to grow







WHY THERE WILL BE
NO BRUSH FIRES
IN FLORIDA
IN THE FUTURE ...



Development Challenges





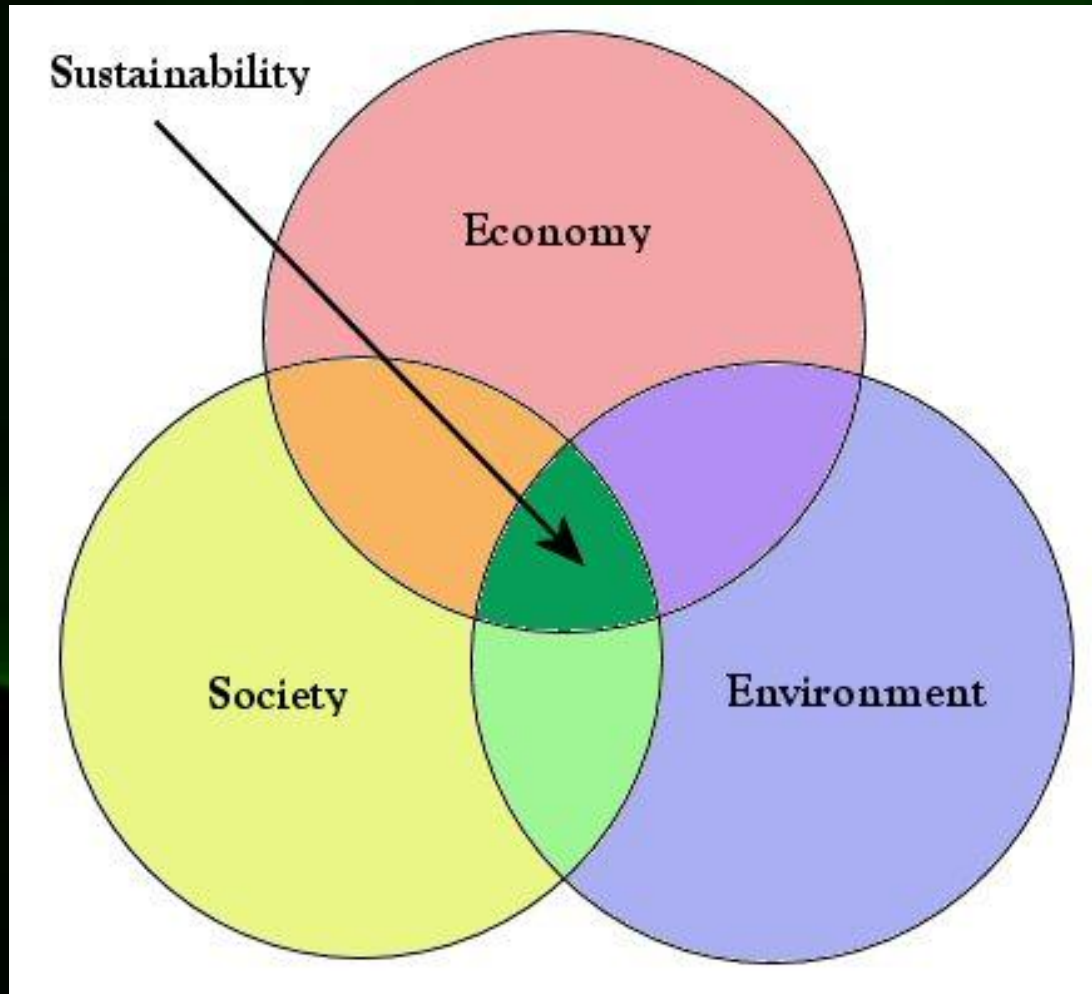
So what is the Industry's Response ?

- Green Building
- Sustainable Development
- Ecological Design
- LEED™ Certified Projects
- High Performance Design and Construction
- Sustainable Construction
- New Urbanism
- Smart Growth





▲ Sustainability



Natural Capitalism



Sustainability

- NO single answer
- commitment, change, improvements, support, ... from everyone and on many levels
 - Leaders
 - Contractors
 - Staff
 - Families
 - Community





Demographics

- 40 million “Green Boomers”
- ½ of the 79 million baby boomers
- Plus younger green minded consumers
- They are all high-educated, involved, active, merely urban, double income, early-adapting, ... And marketers are starving to get them

Demographics

- 71% Women
- 66% annual income > \$55,000
- 30% under 35 years old
- 37% 35 – 54 years old
- 26% 55 – 64 years old
- 7% > 65+ years old

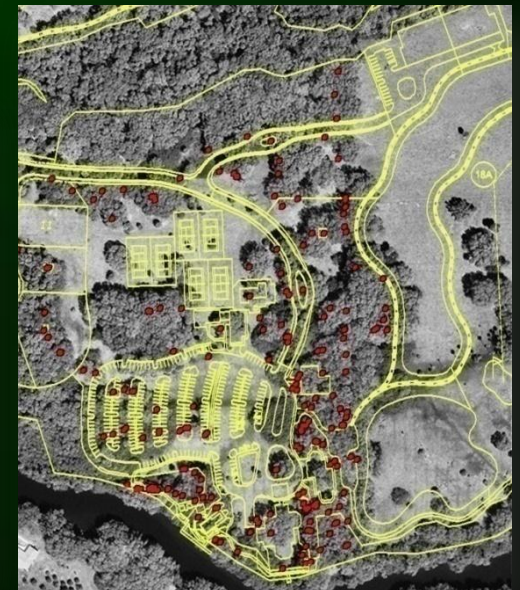
Green Packaging - Food

- Natural or “organic” - \$25 Billion/year
- 10% of the grocery store space
- 20% increase since 2000

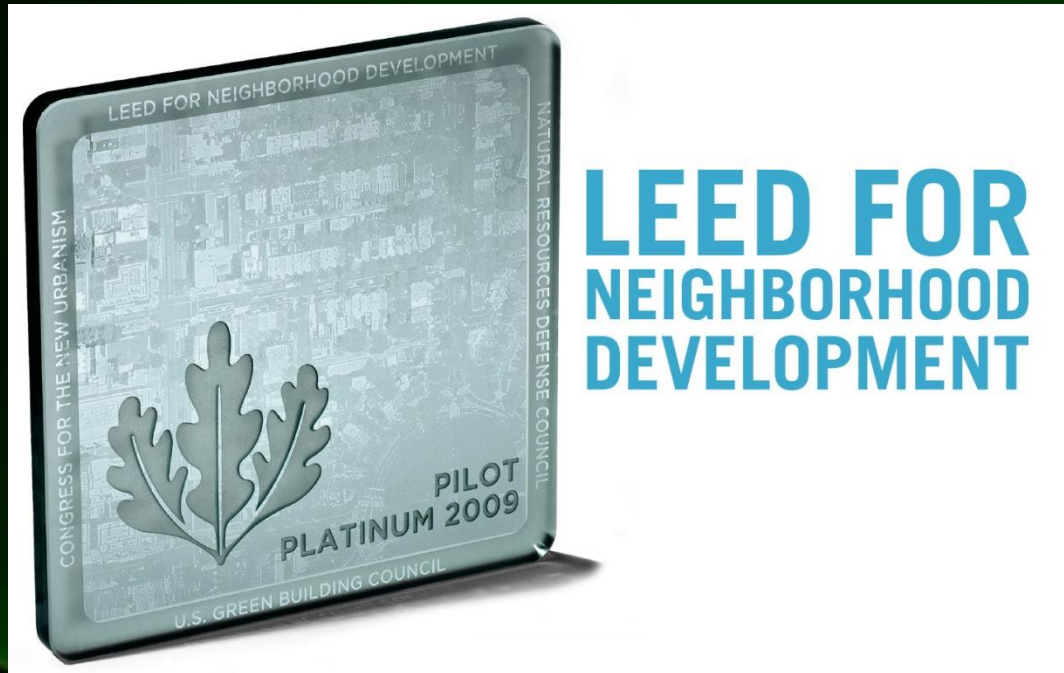


Green Development

1. Protect Ecosystems and Conserve Natural Resources
2. Create a Green Circulation System
3. Green Utilities Practices
4. Amenities
5. Covenants and Deed Restrictions
6. Provide Educational Information to Help Achieve and Promote Green Living Practices

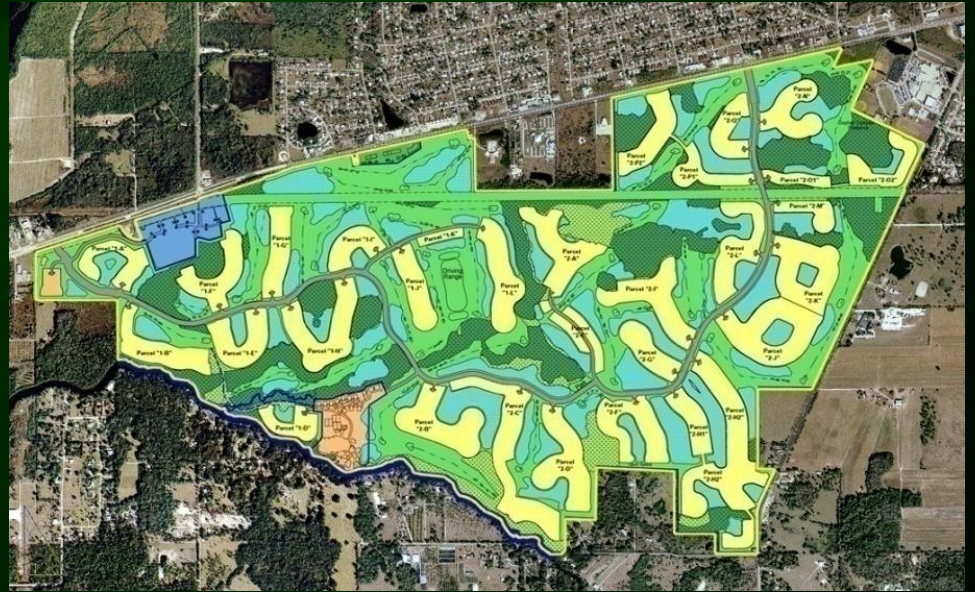


LEED for Neighborhood Development



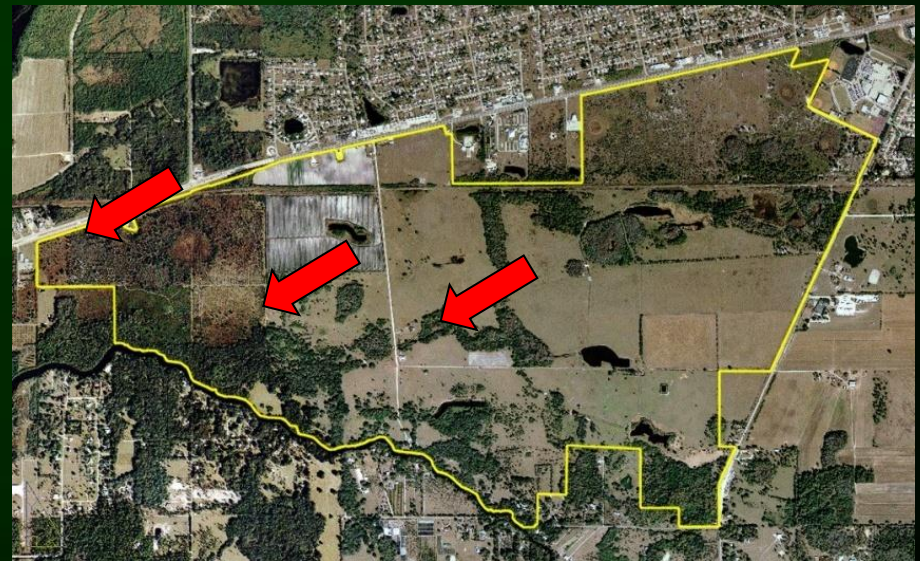
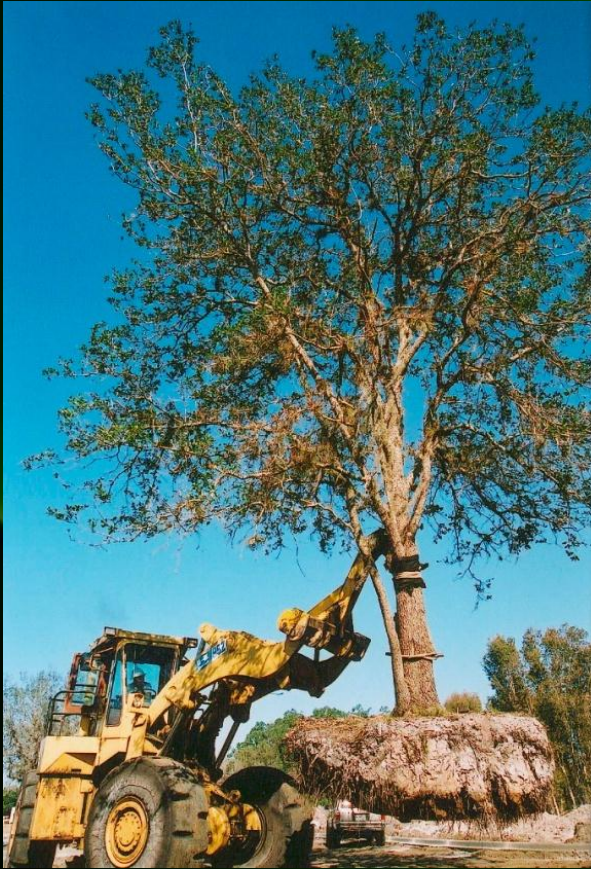
1. Smart Location & Linkage
2. Neighborhood Pattern & Design
3. Green Construction & Technology
4. Innovation & Design Process

A “Noun”



What is Sustainable Development?

A “Verb”



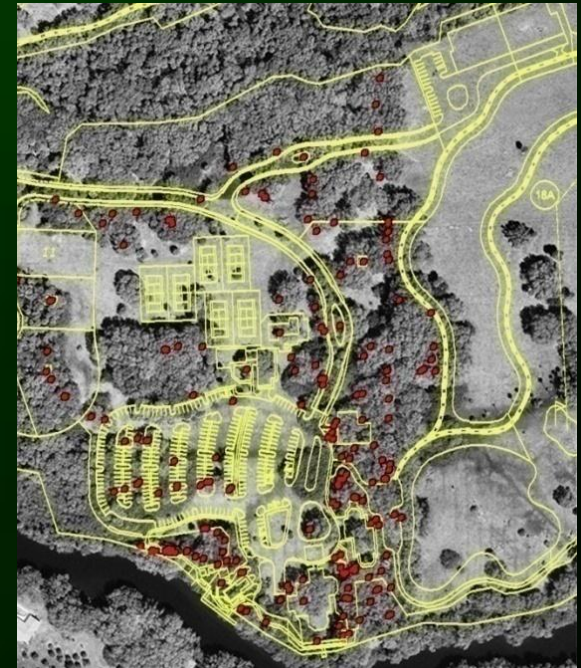
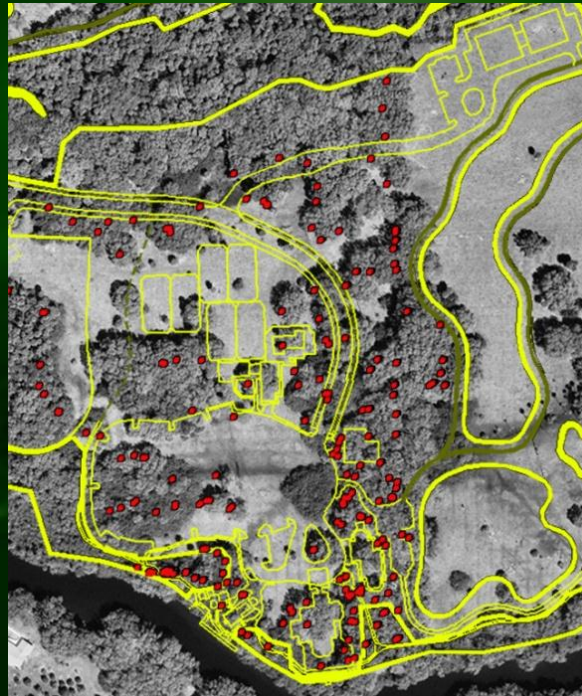
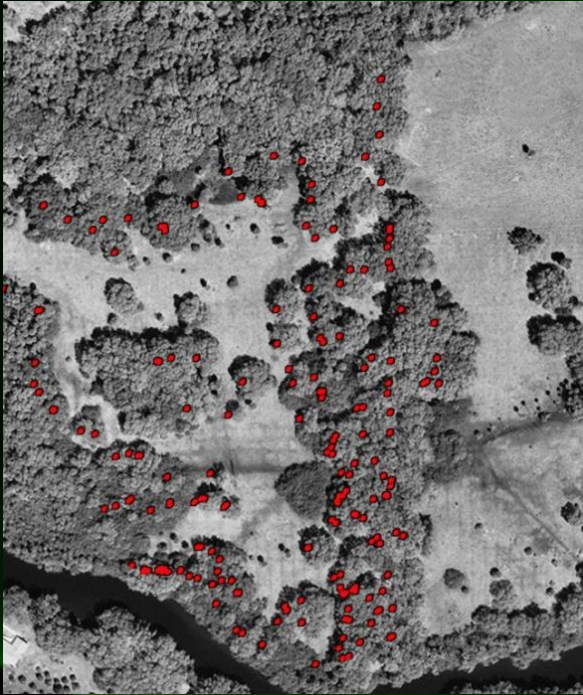




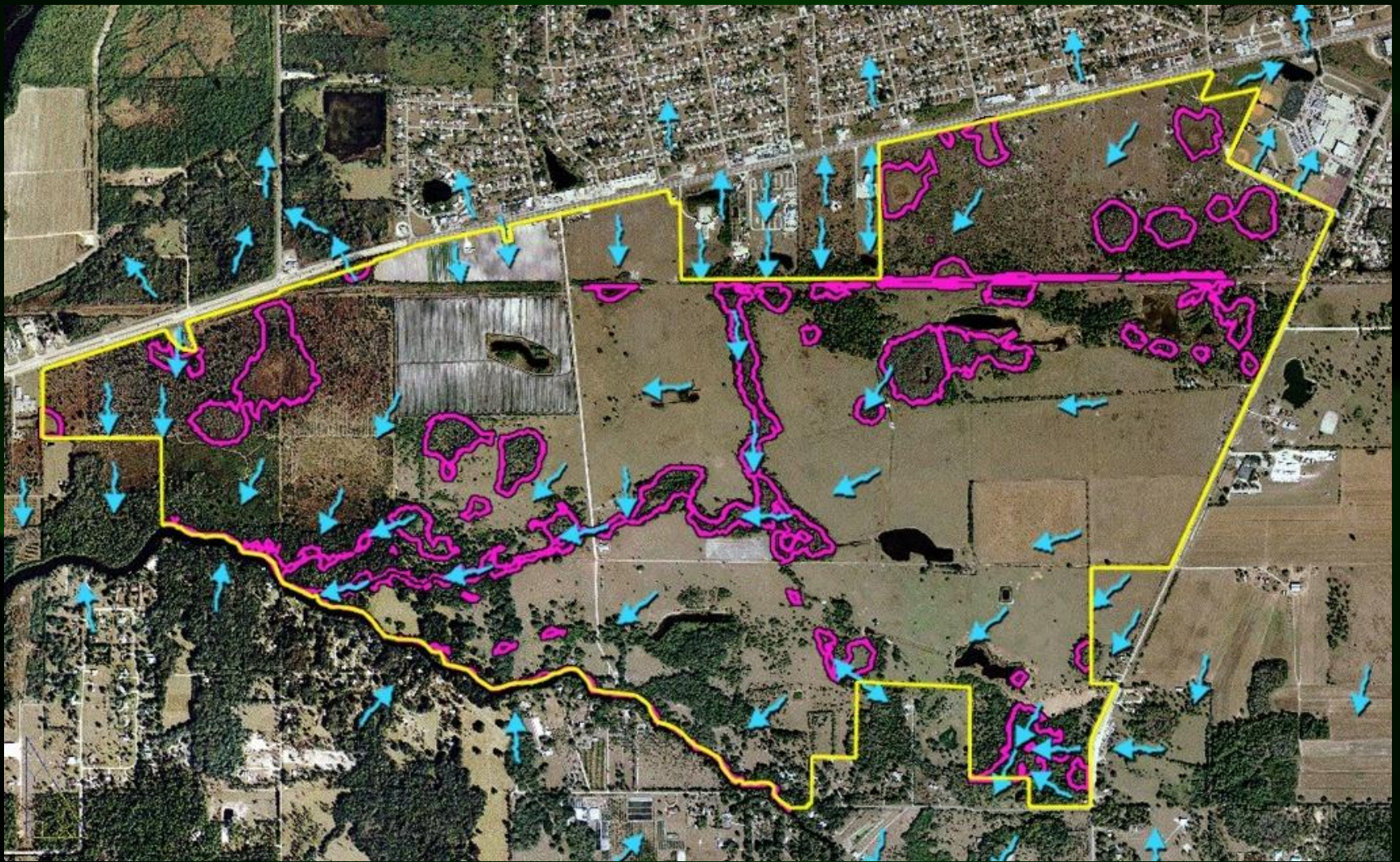
▲▲▲ Critter Crossings



▲▲▲ Design around trees



▲▲▲ Stormwater

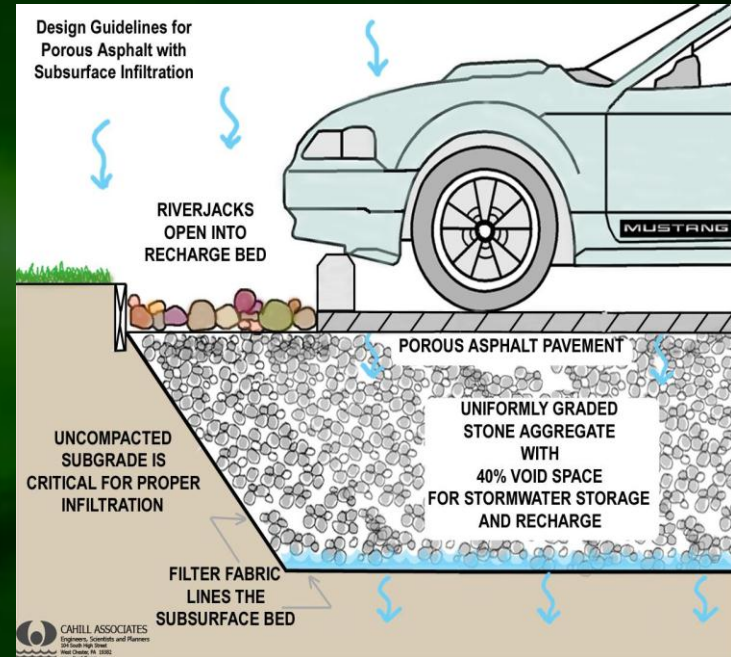




...function like this



Solutions



Centralized Versus Decentralized Systems







Example

Pervious Surfaces



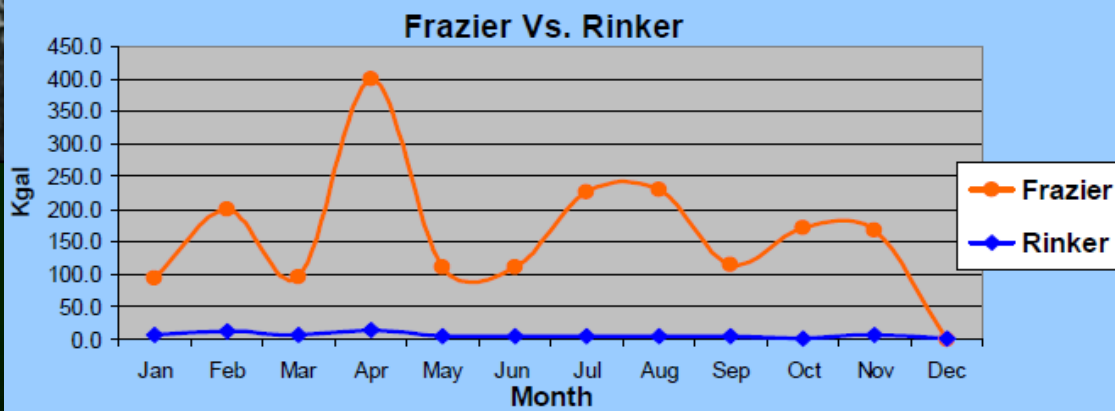


Cisterns





\$38,000



Cistern



Water



▲ In 2011 – is this the best we can do?



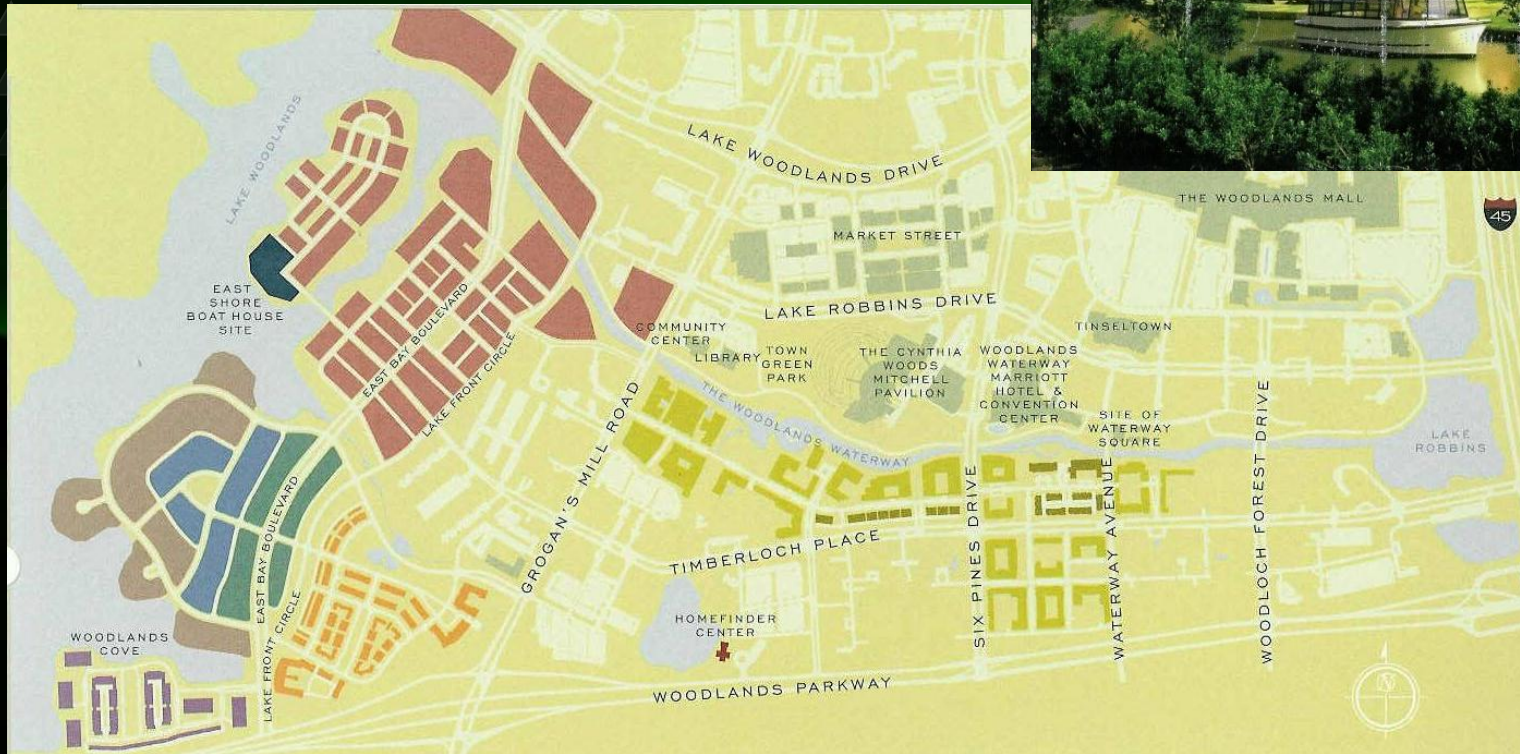
▲▲ Non Potable Water for Irrigation - Rainwater







Access – mixed use



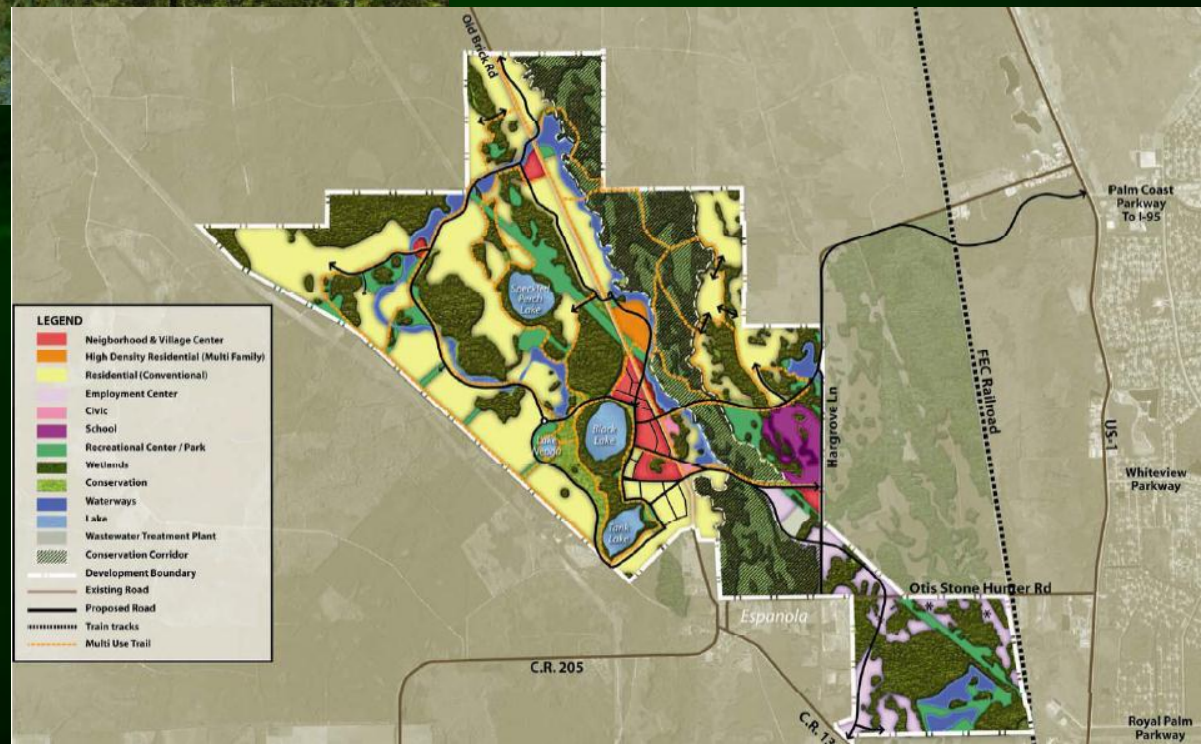
Town Center





Town Center





Connections and Transportation



Lose 20 lbs of unsightly CO₂ a day.

New research shows that a person who rides public transportation instead of driving reduces his or her carbon dioxide output, a harmful greenhouse gas, by more than 20 lbs a day and 4,800 lbs annually. That saves more than weatherizing a home, adjusting a thermostat, switching to compact fluorescent light bulbs and replacing older appliances with higher efficiency models, combined.

A national climate change strategy that doesn't embrace public transportation has simply missed the bus.

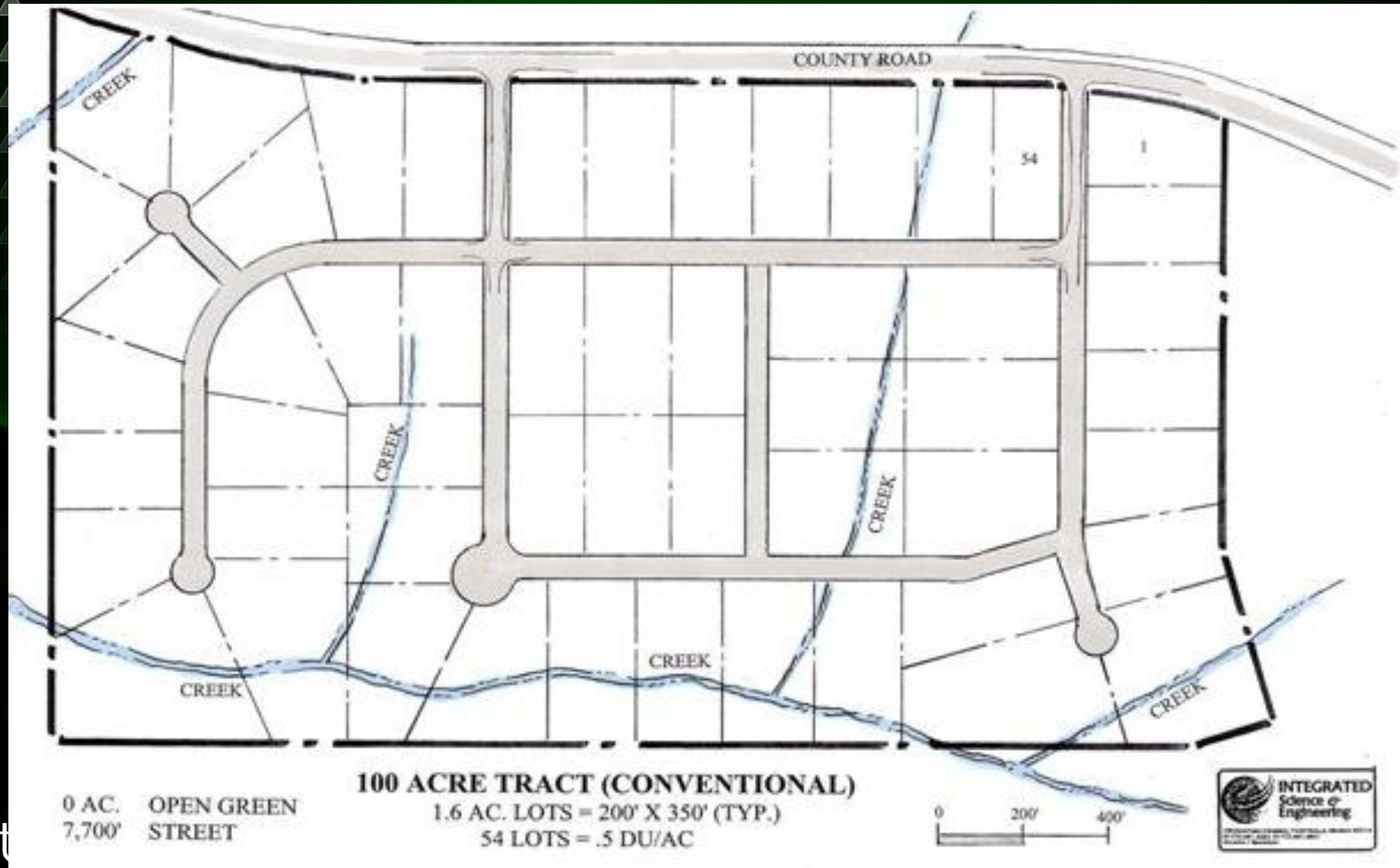
To learn more, visit publictransportation.org.

PUBLIC TRANSPORTATION
Wherever life takes you

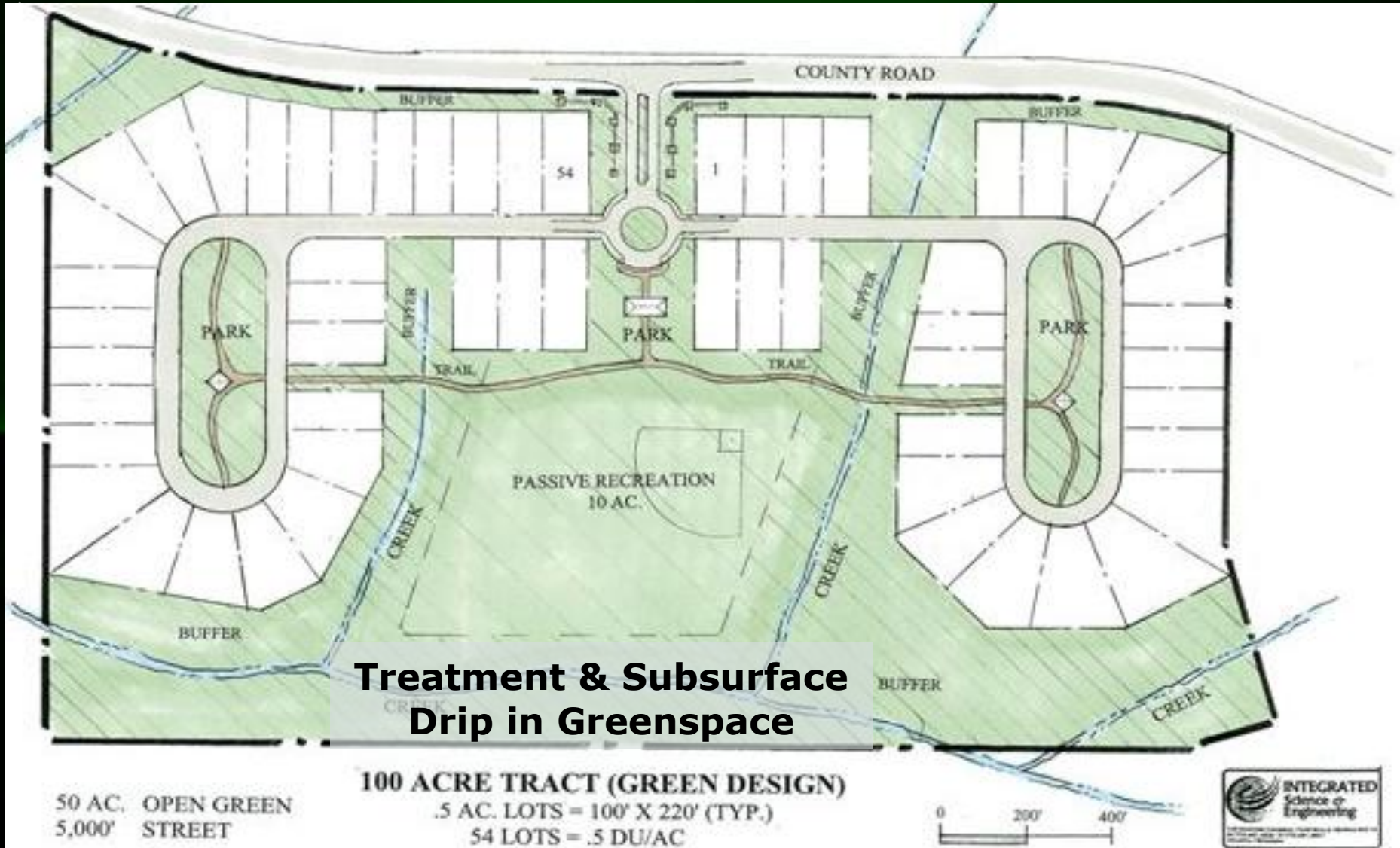
APTA AMERICAN PUBLIC TRANSPORTATION ASSOCIATION

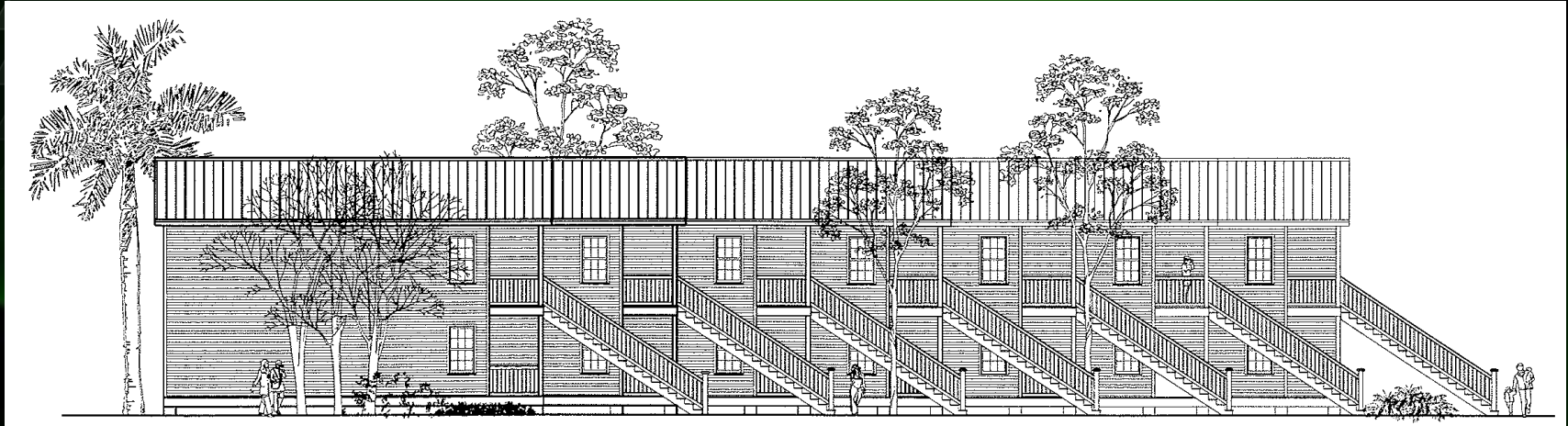


Traditional



Compact with Open Space







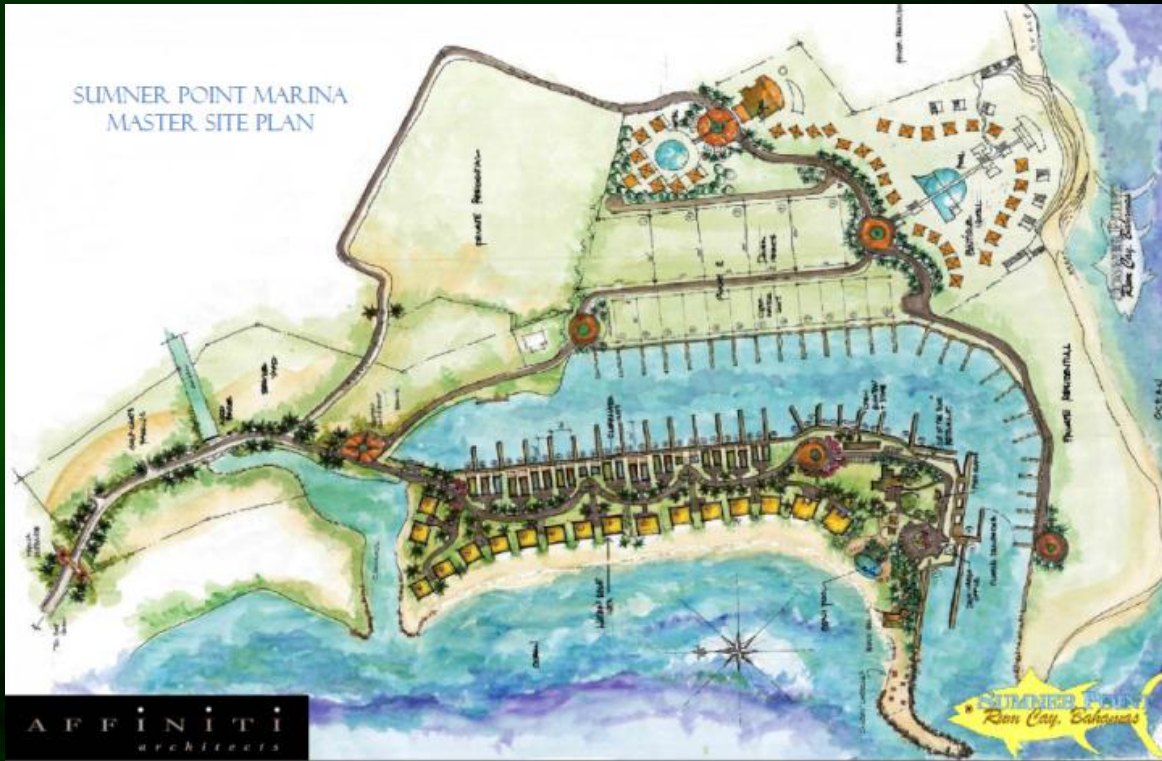


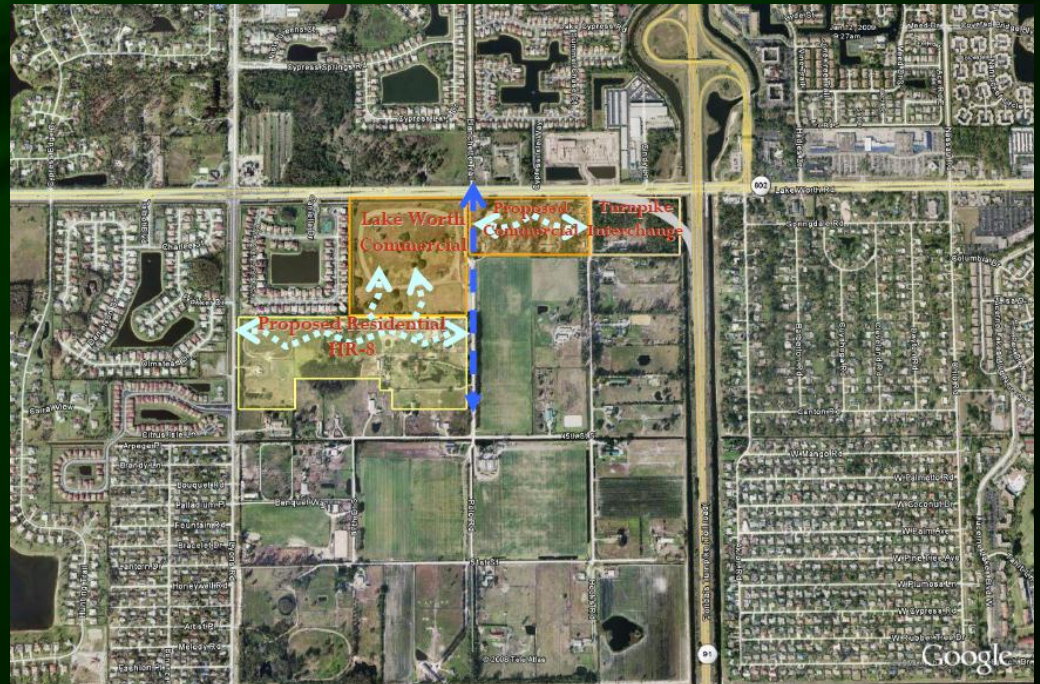
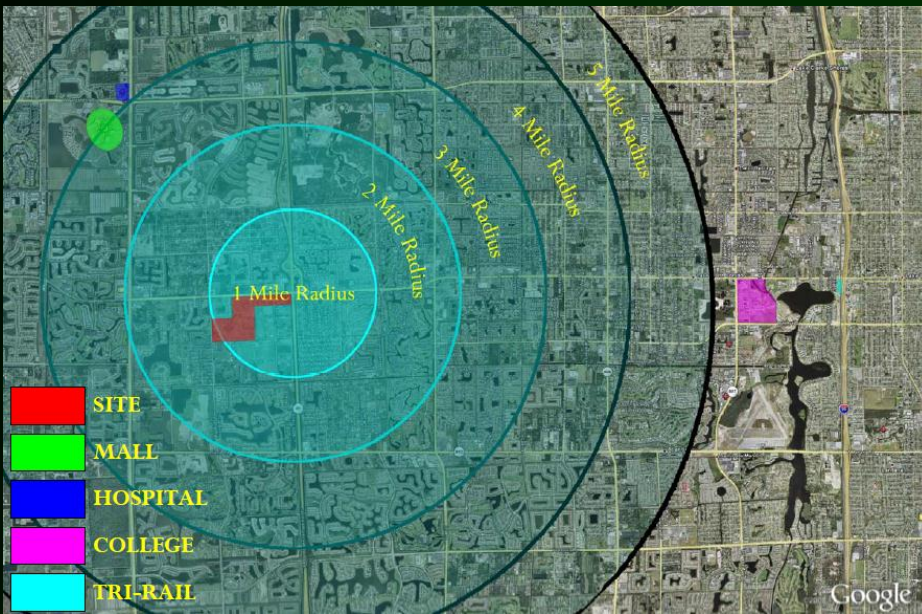
















MULTI FACETED
SOLUTION FOR
PUBLIC GREEN
SPACE

REINFORCED
TURF FOR FREE
ALLEYS

INFILTRATION
BASINS

COMMUNITY
GREEN SPACE

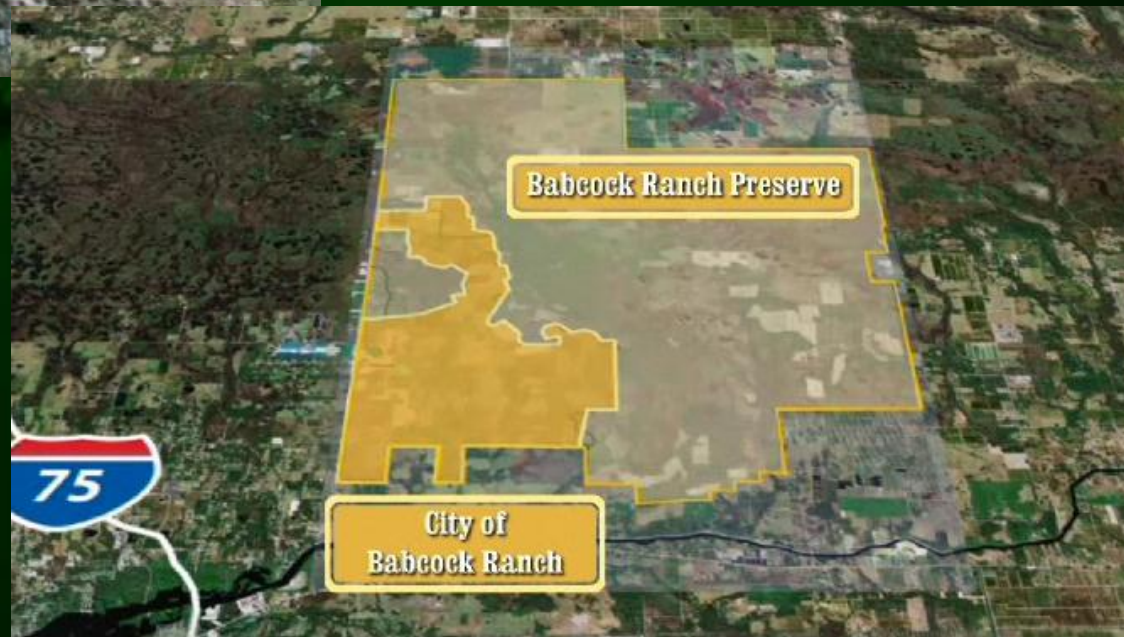
CURB

POWERSPOUTS



Babcock Ranch

SOUTHWEST FLORIDA'S CITY OF TOMORROW™





Before



After





Initial Phase - Autonomous Vehicle Travel Lanes



In Phase One, autonomous vehicles will operate between Downtown, Discovery Center, and first residential village

Phase Two - Autonomous Vehicle Village Interconnection Travel Lanes



In Phase Two, autonomous vehicles will connect residential villages, hamlets, and the Downtown area

Phase Three - Autonomous Vehicle Travel Lanes In Town Center



In Phase Three, autonomous vehicles could replace traditional vehicles on all Downtown streets



Seven Concepts of Green Building



Energy Efficiency



Indoor Environmental Quality



Water Efficiency and Quality



Passive Design



Material Selection



Construction Process



Site and Landscape

For Both
Residential and
Commercial

&

Renovations

Faulhaber Residence – 0 Energy Home (-9)









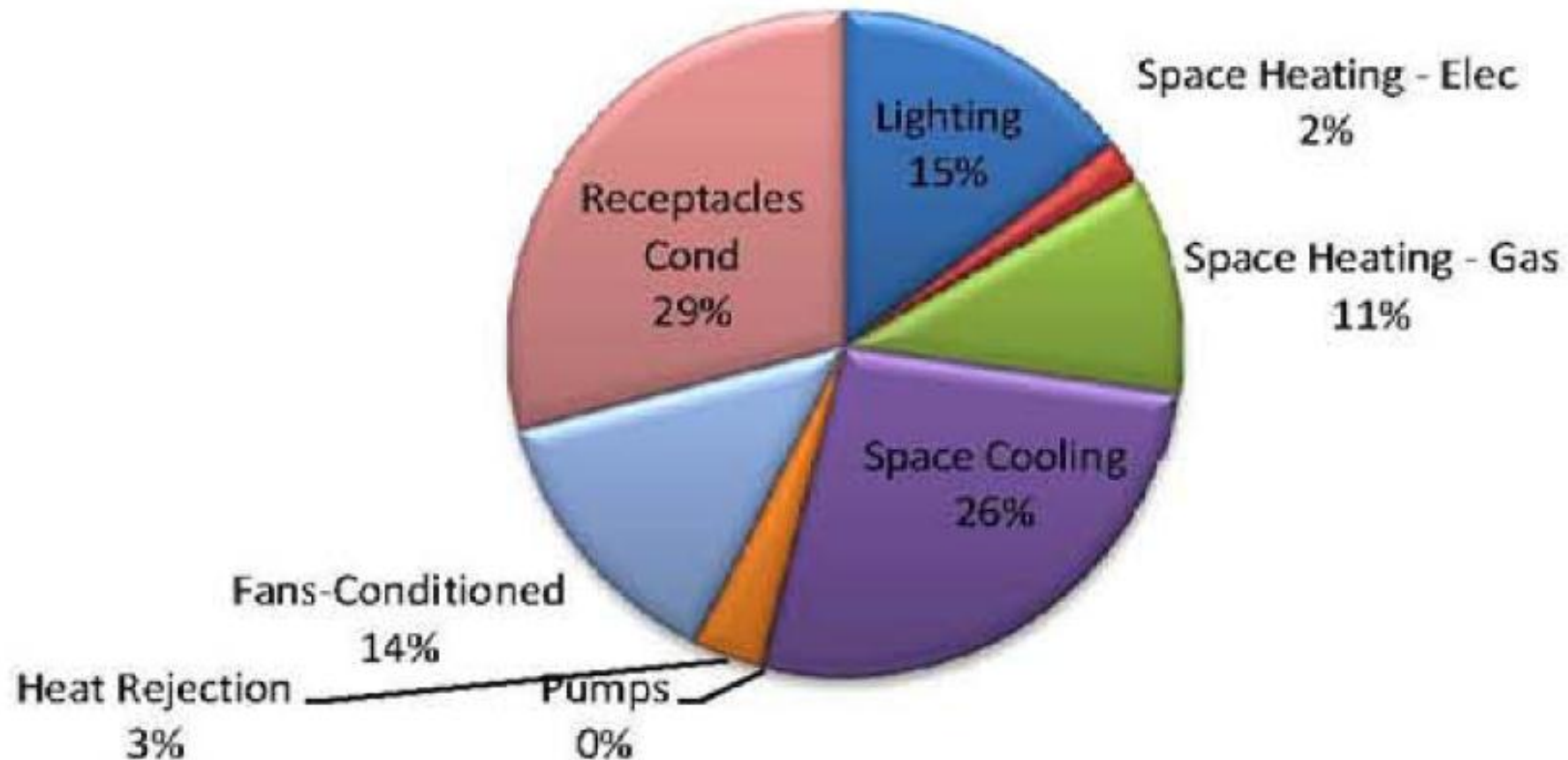


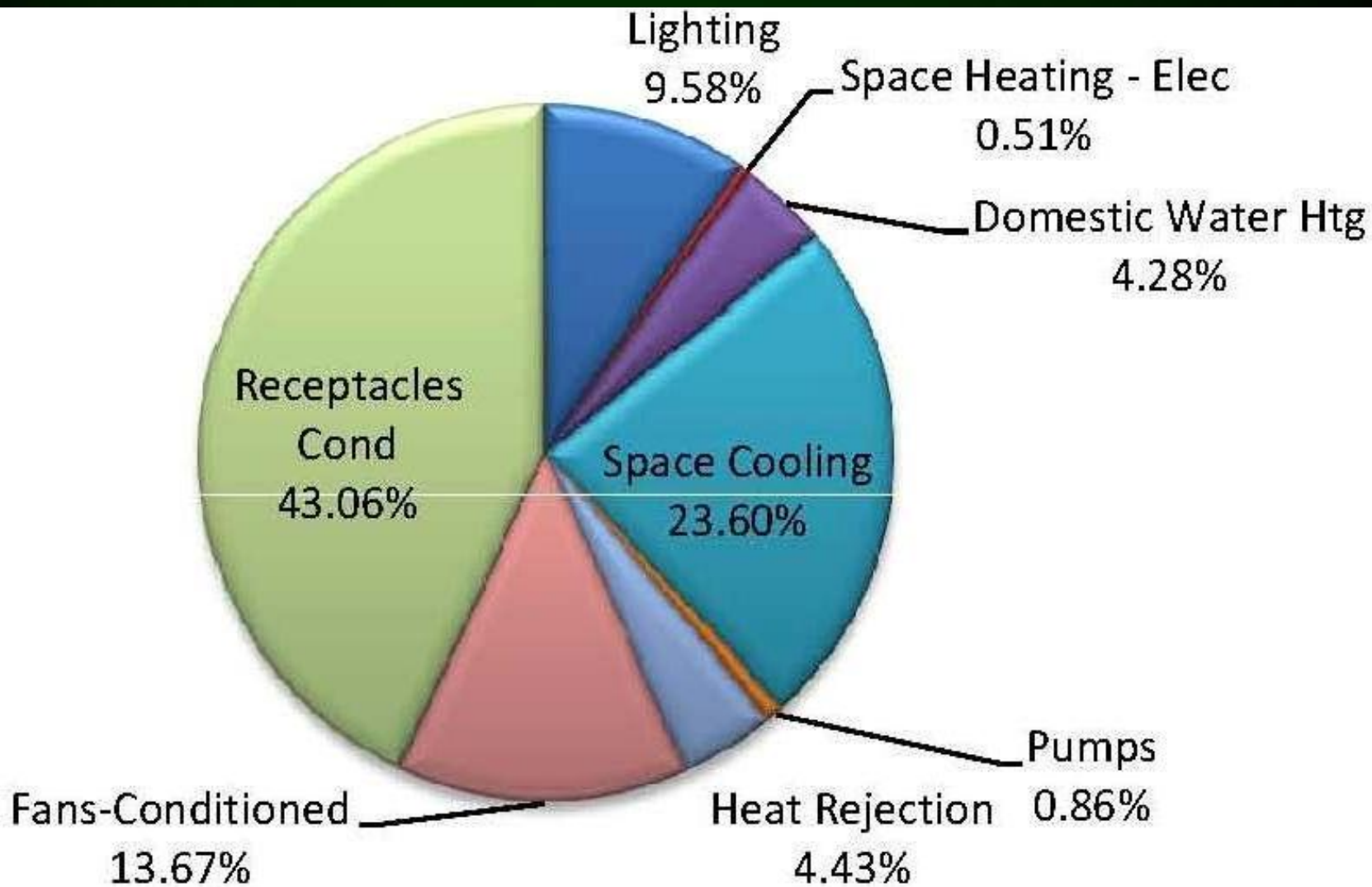
AFCEE Zero-Net Energy Demonstration Study



Professional Development and Education Center
Hurlburt Field, FL

ASHRAE 90.1 BASE CASE Energy Usage





Renewable Energy







▲▲▲ Energy & Atmosphere Techniques



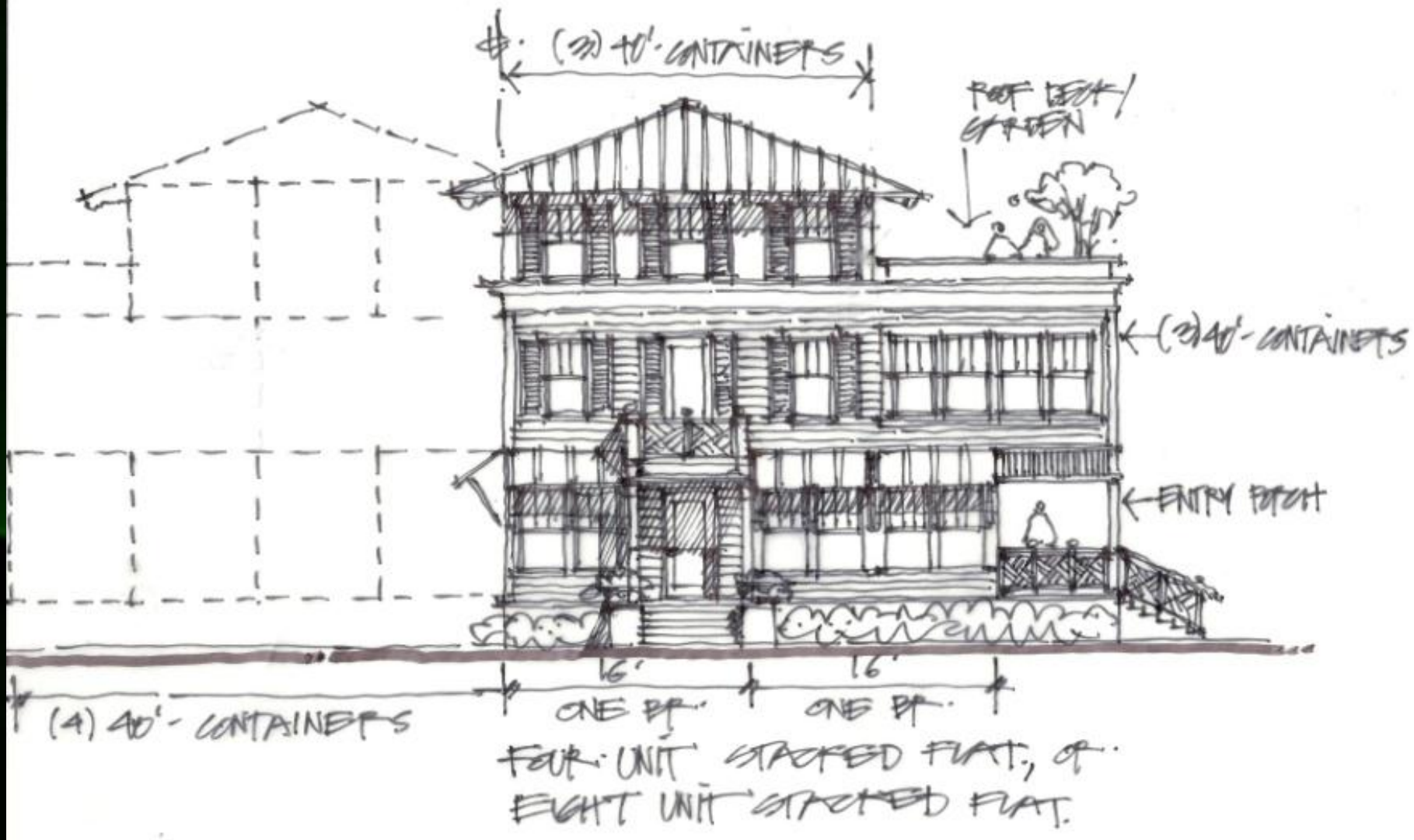
Local, Recycled, Recyclable Materials





▲▲▲ Shipping Containers...



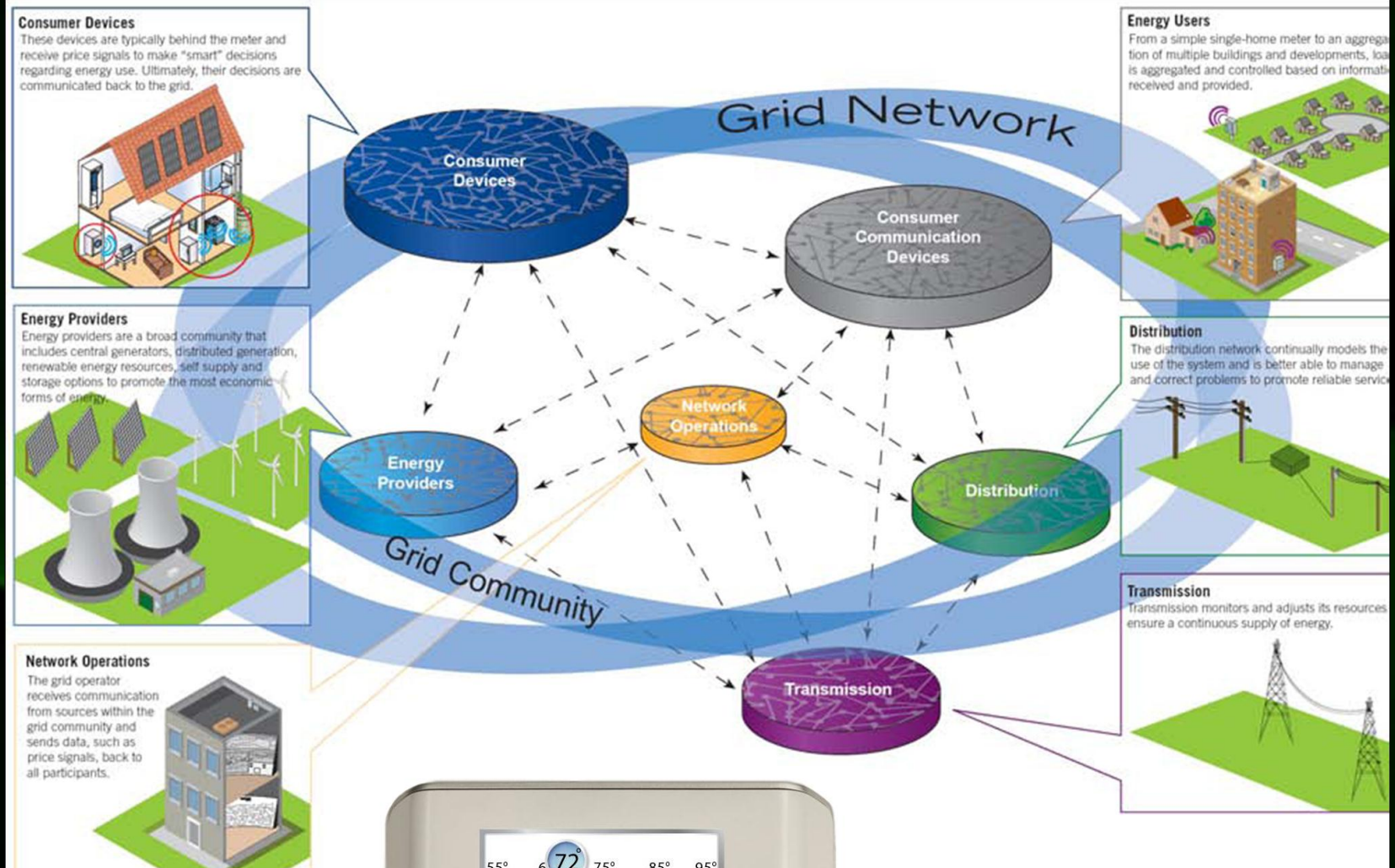




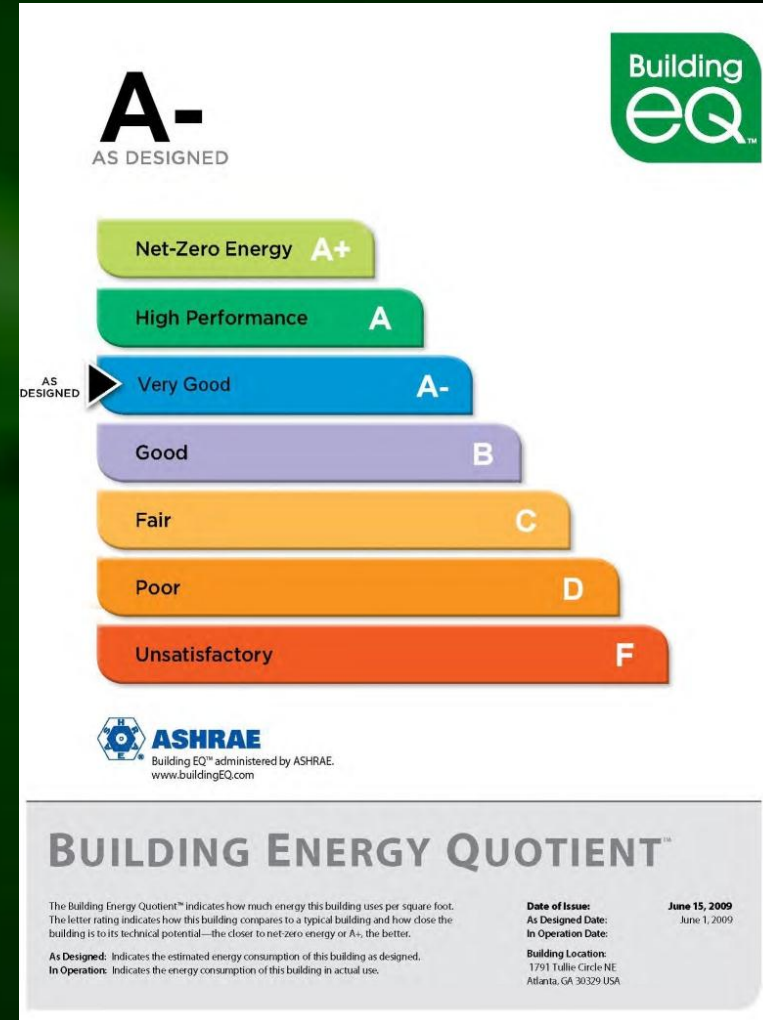
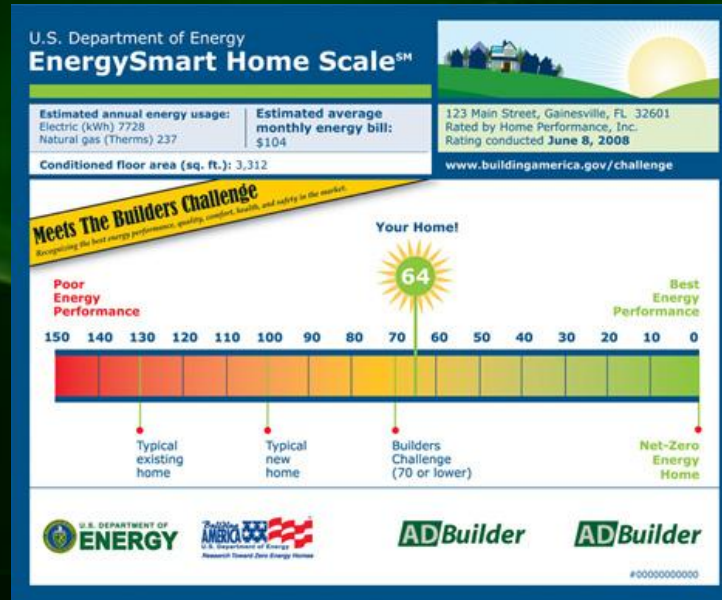
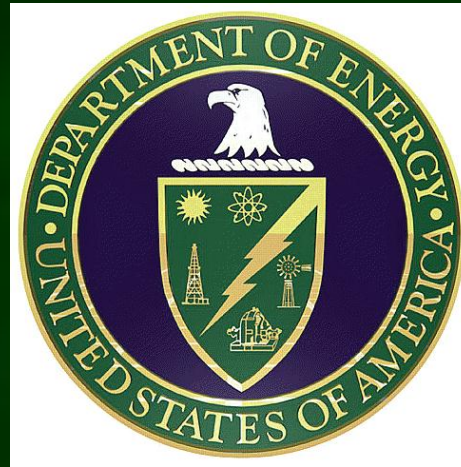
Emerging Trends

1. Smart Grid & Connected Homes
2. Building Energy Labels
3. Building Information Modeling (BIM)
4. Lenders/Insurers begin to understand Green
5. Rightsizing of Homes
6. Eco – districts
7. Water conservation
8. GHG Calculations
9. Net Zero
10. Education

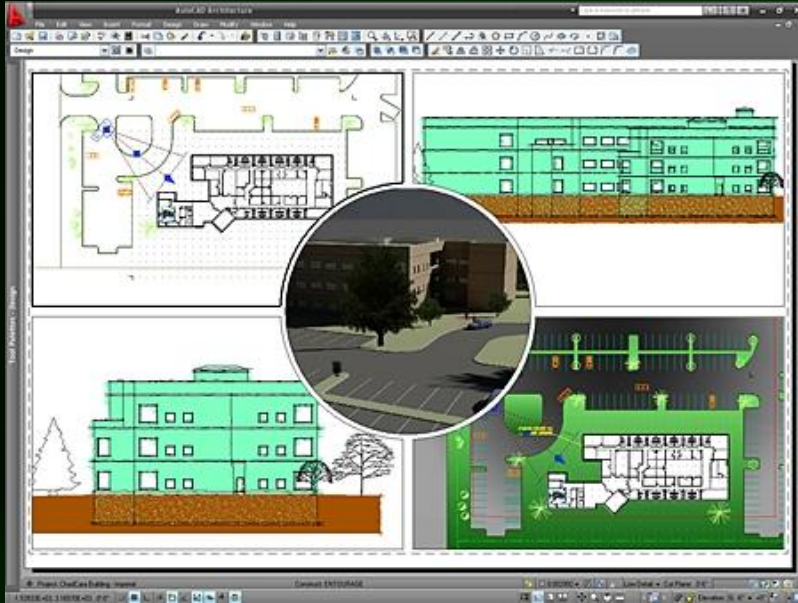
Smart Grid & Connected Homes



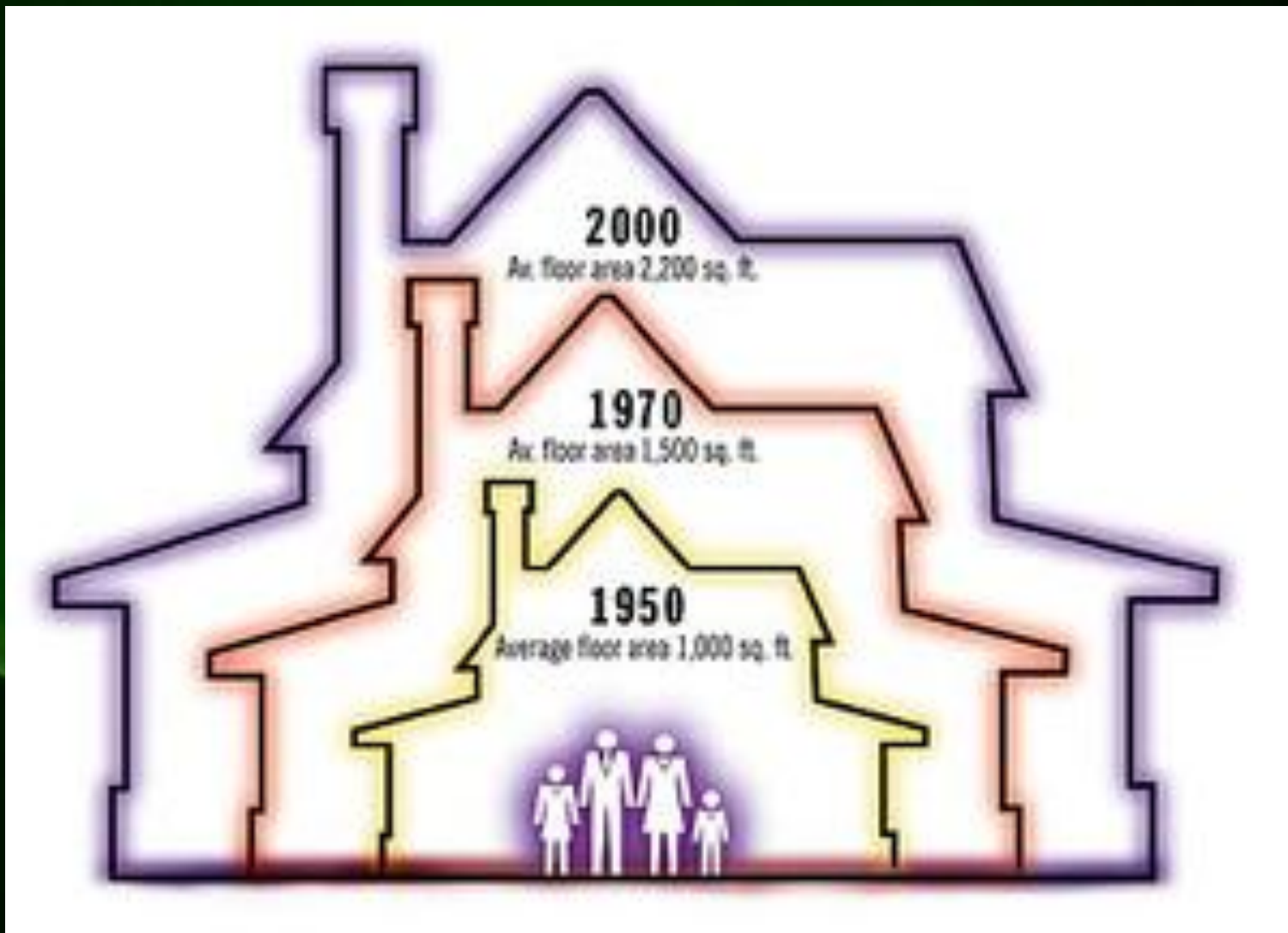
Building Energy Labels



Building Information Modeling



Rightsizing Homes



Eco - Districts



Water

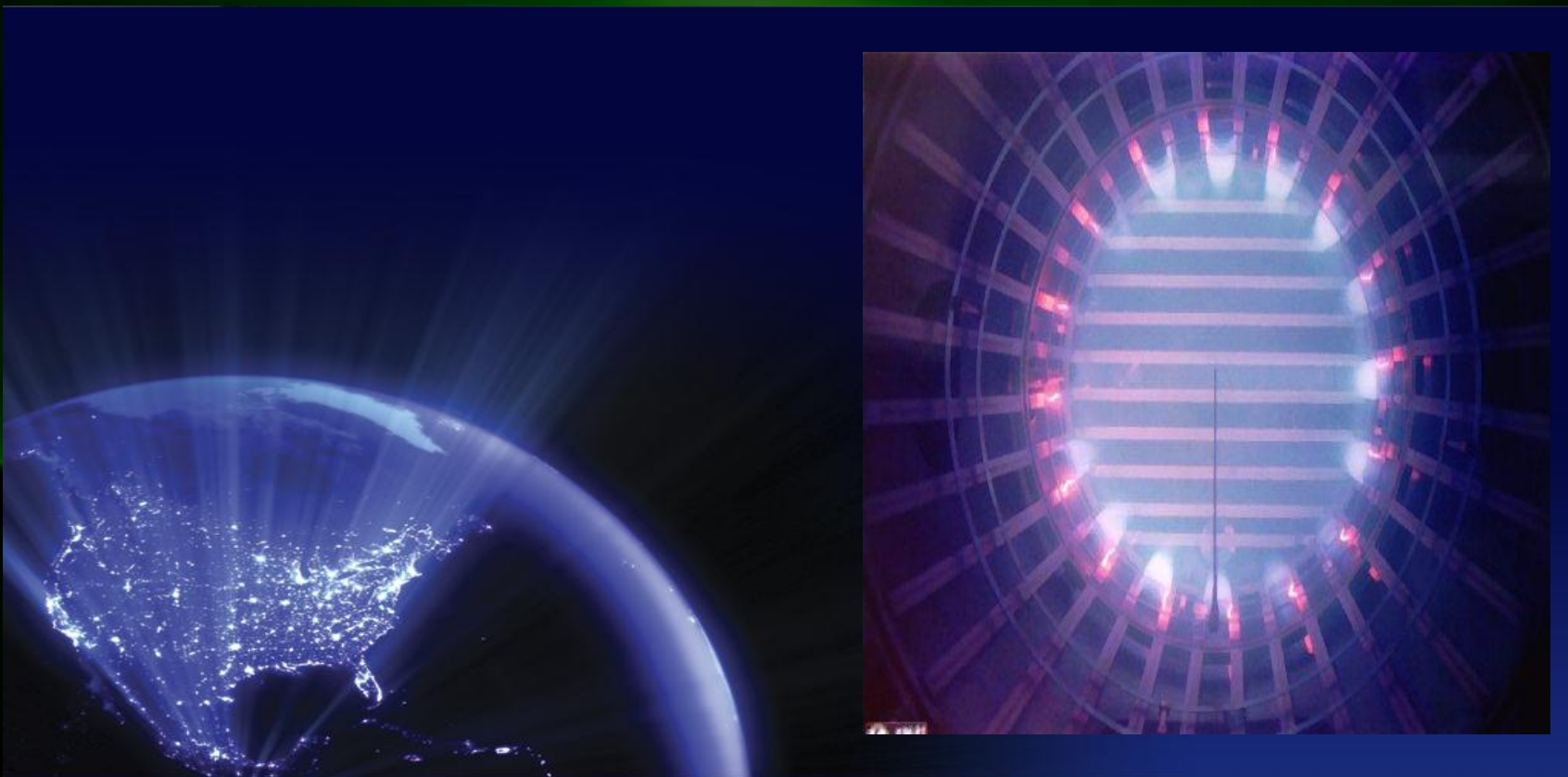




CO₂



Plasma Energy

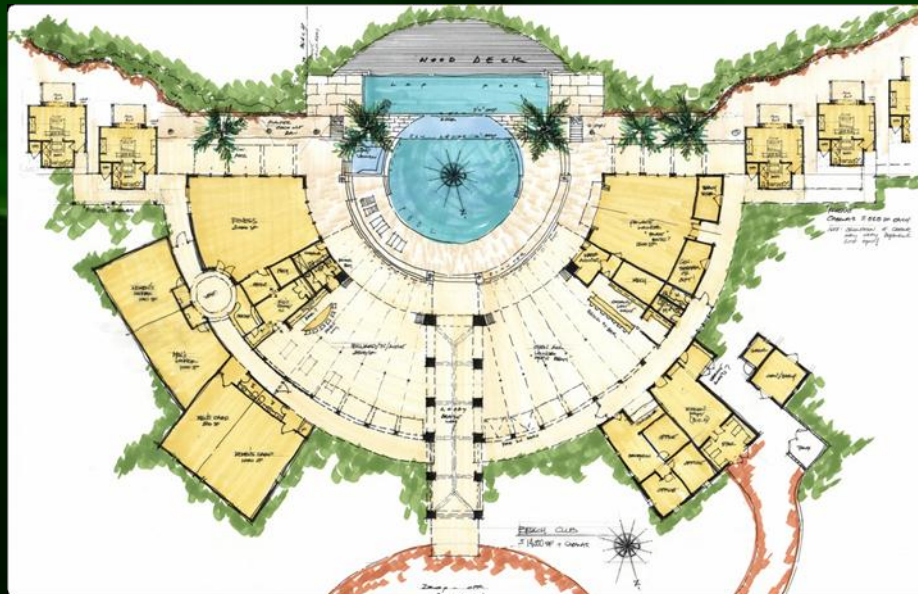
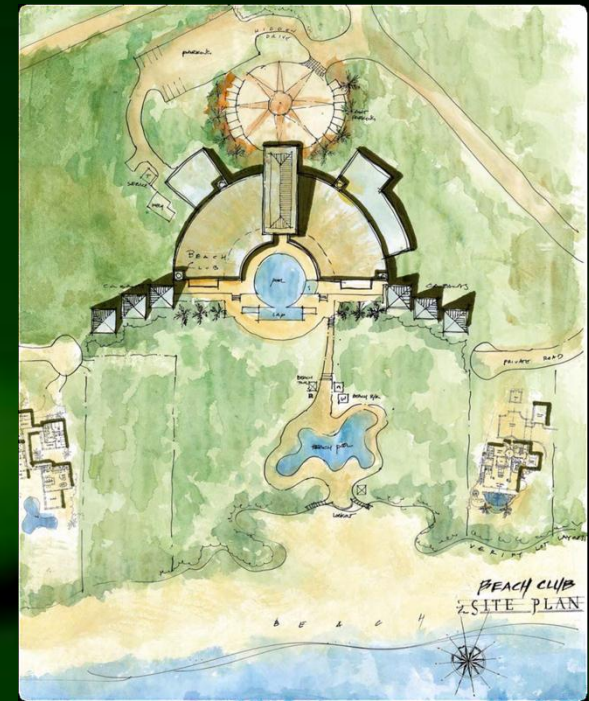


Renewable Energy



Alternative Fuels/Hybrid Technology







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