



People, Planet, Prosperity

Sustainability in Sarasota County

Green Cities Florida

May 20, 2009



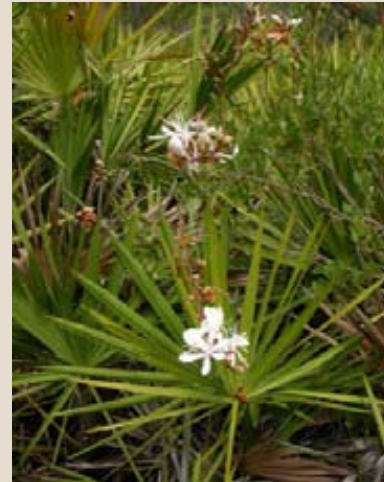
Sustainability: At the Center of Government Operations



Sustainability- Balancing Act



Planet: Environmental Sustainability



Prosperity: Economic Sustainability



People: Societal Sustainability

Enriching our social fabric



Volunteering



Community Education & Engagement



Community Health & Quality of Life



Why? Sustainability is a Citizen Priority.

Values

1. Environment
2. Arts and culture
3. Affordable housing
4. Public safety
5. Public transportation



Legacies

1. Environment
2. Smart growth
3. Affordable Housing
4. Cultural diversity
5. Arts and culture

Why? Sustainability is Good Business.

Businesses are seeing advantages:

- Green Business Partnership
- Green Builders Niche
- Energy Products



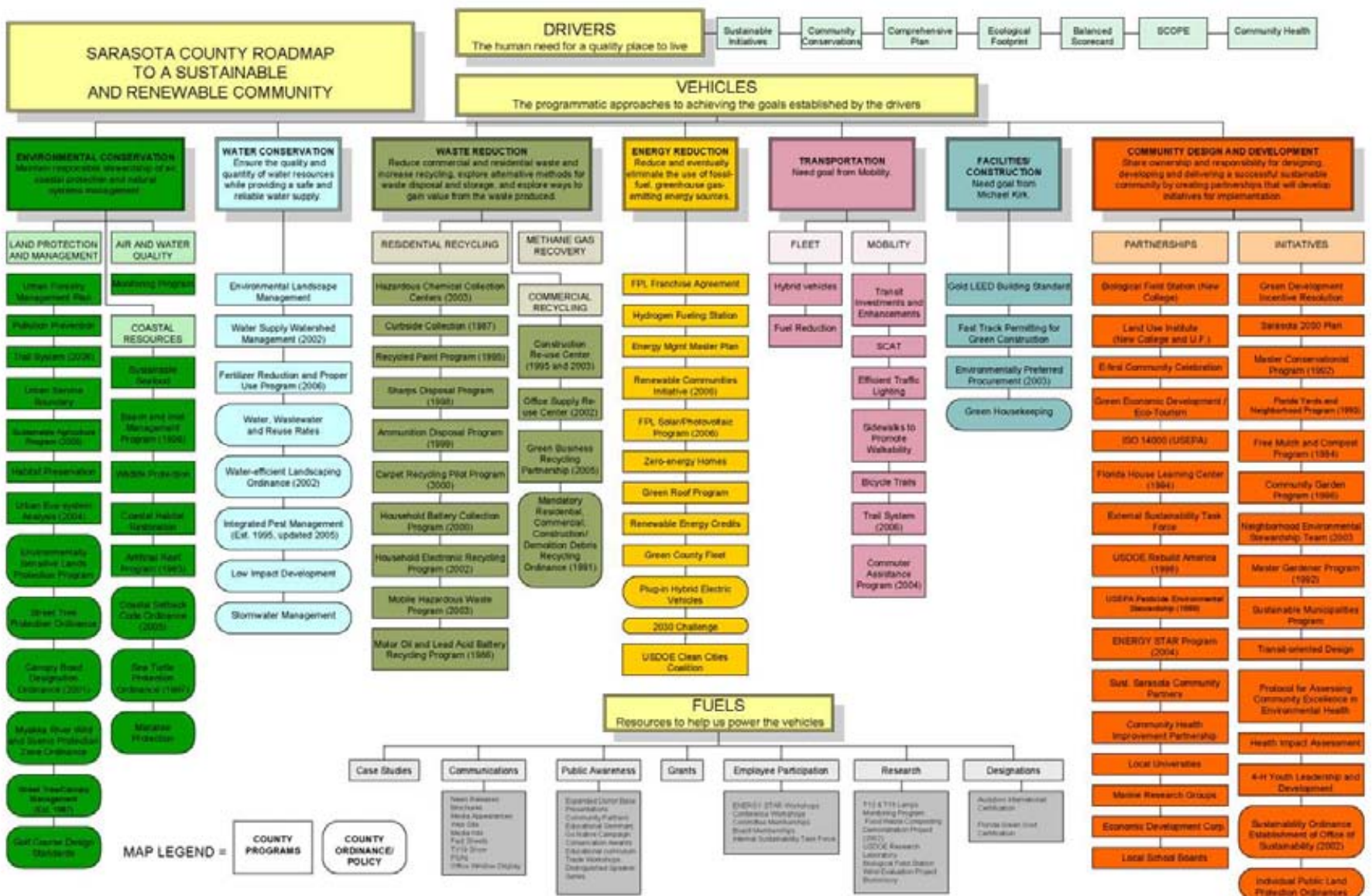
Why? Sustainability is Good Business.

Businesses are seeing advantages:

- **Green Business Partnership**
- **Chamber Green Business Leadership**
- **Green Realtors**
- **Green Building**
- **Green Products/Services**



The Roadmap to Sustainability



Notable Distinctions

- FGBC Green Local Government Certification
- Audubon International Green Community Award
- Stormwater Excellence Award
- ICLEI Milestone 1 Award



2030 Challenge

- First county in the U.S. to adopt the AIA 2030 Challenge
- County Government Targets:
 - New construction and renovations:
 - Immediately use ½ the energy of the national average
 - 10% ↑ every 5 years
 - Carbon Neutral by 2030

ENERGY STAR Challenge

- 10% Energy Efficiency Improvement in Existing County Facilities



Community Green Building

Residential



Commercial/ Non-Profit



Willis A. Smith Construction, Inc Corporate Headquarters

Green Builders who built their own
Headquarters Green- USGBC LEED

Focus

Water efficiency

Energy efficiency

Interior health

Environment



Willis A. Smith Construction Corporate Headquarters

WILLIS A. SMITH
CONSTRUCTION, INC.



Welcome to Willis A. Smith Construction's Corporate Headquarters. This building is currently pursuing a LEED® Silver Certification from the United States Green Building Council. The USGBC awards certification to buildings that are designed and constructed in accordance with principles of sustainability set forth in the LEED® Green Building Rating System.

Willis A. Smith Construction is committed to environmentally sensitive design and construction as a long term business philosophy. Green building practices mitigate many of the negative environmental impacts of new construction. Better still, green buildings have been shown to improve worker productivity and substantially reduce operating costs throughout the entire building life cycle.

The LEED® Green Building Rating System is a voluntary, consensus-based standard for evaluating a building's environmental performance. Developed by the USGBC in association with industry representatives from a broad spectrum of design and construction disciplines, the rating system is organized into five major categories: Sustainable Sites, Water Efficiency, Energy & Atmosphere, Materials & Resources, and Indoor Environmental Quality.

Information on strategies that we have implemented from each of these categories is described below. There is additional signage posted throughout the building that highlights specific elements that have been incorporated into the project to achieve LEED® credits. I encourage you to take a guided tour of our facility and talk to our employees about green building practices. It is our sincere hope that your experience here will encourage implementation of similar practices on your next building project.

David E. Sessions, President



Energy and Atmosphere

According to the U.S. Department of Energy, buildings consume approximately 68% of the electricity produced in the United States annually. Aside from increased operational costs, energy consumed unnecessarily by inefficient buildings can have much farther reaching environmental impacts. Green buildings seek to mitigate this impact by reducing the amount of energy they consume.

The LEED® rating system establishes minimum requirements for energy-efficient building design based on the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) Standard 90.1-2004. This document identifies minimum performance requirements for the following areas: building envelope, HVAC systems, service water heating, power, lighting, and major electrical equipment. Points toward LEED® certification are awarded on a graduated scale for increased efficiency over a hypothetical baseline building.

Energy savings on this building have been achieved primarily through improvements to the building envelope and HVAC systems. The exterior walls were constructed using insulated concrete forms (ICFs). ICFs are hollow styrofoam blocks that are assembled onsite much like building blocks, then filled with reinforcing steel and concrete. Based on our selected interior and exterior finishes, the resulting wall assembly has a thermal resistance value of approximately R-24. To put this in perspective, consider that a typical steel stud wall assembly with fiberglass batt insulation may have R-values in the R-12 to R-19 range. Not only do the ICF walls have a much higher R-value, the solid concrete masonry gives them an extremely high thermal mass. Together, these two factors result in a building envelope that allows very little heat infiltration during the hot summer months and avoids out large swings in temperature that often occur in the winter and early spring.

This reduced cooling load allowed us to select smaller, more efficient mechanical units. All HVAC systems in the building are SEER 14 or greater and use Puron® R-410a refrigerant, an ozone friendly chemical. We have installed low-e glass in all of the exterior windows and fabricated aluminum sun shades above to reduce heat gain from direct solar radiation. In combination, these measures result in an energy savings of 28% above standard design and construction practices.



Sustainable Sites

Unlike a footprint in the sand that is washed away by the rising tide, buildings leave an indelible mark on the sites they occupy. Sustainable site development encourages practices that limit the environmental impact of buildings on local ecosystems.

Often overlooked is the effect a building's location has on the surrounding environment based on its occupants' options for travel to and from the site. To encourage our employees to use alternative methods of transportation, we have constructed only the minimum amount of parking spaces required by Sarasota County zoning ordinances. Preferred parking is provided near the entrance to our building for carpool, vanpools, low-emitting, and fuel efficient vehicles. Additionally, we have installed ample bicycle parking and provided showers/changing facilities for employees who chose to pedal to work.

Innovative site development may also result in undesirable changes to the quality and quantity of storm water runoff. When improperly designed, new impervious cover from the building footprint and parking areas increases storm water outflows and conveys surface contaminants to local receiving water bodies. In accordance with LEED® guidelines, this facility actually reduces the amount of storm water that leaves the property during a peak rainstorm as compared to its predevelopment state. This is accomplished by the onsite retention pond to the north of the building. The littoral shelf within the pond provides additional treatment of runoff through native vegetation and a permanent pool volume, forcing suspended sediment to settle out of the water prior to being discharged from the site.

In addition to reduced surface permeability, the use of dark, non-reflective materials for parking, roof and site walkways contributes to heat island effects by absorbing radiation from the sun and transferring it back to the surrounding area through convection and conduction. Alternatively, materials with a high solar reflectance index (SRI) help minimize thermal gradient differences by reducing heat absorption. The birch white Butler metal roof panels that have been installed on this building have an SRI of 85, more than double the minimum SRI value required for the applicable LEED® credit. Our asphalt parking areas have been designed so that at least 40% of the surface area is shaded by new landscaping within 3 years of building occupancy.

Exterior building and parking area lighting is often necessary for safety and security. However, typical design practices can result in excessive light trespass, creating a nuisance for adjacent properties and reducing night sky access. Our exterior light fixtures have been installed with oblique shields that restrict direct and reflected illumination from spilling outside the boundaries of the site.



Water Efficiency

Each year, Americans extract billions of gallons of fresh water more than we return to the earth to recharge our natural water system. In addition to depleting one of our most important natural resources, excessive water usage results in increased lifecycle costs for building operations. It also increases the burden on public infrastructure for municipal supply and wastewater treatment.

Toilet and urinal flushing account for a large portion of potable water usage in commercial buildings. These functions are prime candidates for water reuse strategies. This facility collects rainwater from the roof and directs it to two 1,000 gallon underground precast concrete cisterns located at the east end of the building. The harvested rainwater is chlorinated and pumped through the building in dechlorinated reuse piping to serve toilets and urinals, resulting in zero potable water usage for sewage conveyance.

Additional water savings have been achieved through the use of efficient plumbing fixtures in the restrooms. Dual flush toilets allow both the standard 1.6 gallon flush for solid waste as well as a smaller volume 0.8 gallon flush for liquid waste. Low flow urinals reduce water consumption to half of the 1.0 gallon per flush requirement mandated by the Energy Policy Act of 1992. And low flow restroom faucets use just one-fifth of the volume of potable water consumed by traditional lavatories. These measures result in a cumulative yearly potable water savings of nearly 17% over traditional plumbing practices.

Landscape irrigation is another area that has traditionally been a source of unnecessary potable water consumption. The native Florida trees and shrubs that are planted throughout our site have been carefully selected for their high drought tolerance and low maintenance requirements. We have installed a high efficiency drip irrigation system that is connected to Braden River Utilities reclaimed water system. This water is obtained from one of the many storm water retention ponds here in Lakewood Ranch, resulting in zero potable water usage for landscape irrigation.



8801 Lakewood Ranch Boulevard North
Sarasota, Florida 34240
PH 941.552.1110 FAX 941.552.4333
www.willissmith.com



Materials and Resources

From initial extraction as raw materials, processing and manufacturing, delivery to the project site, incorporation into the building, eventual demolition, and potential reuse, building materials impact the environment in a multitude of ways. Careful material selection during design as well as aggressive solid waste diversion practices during construction can mitigate many of the negative impacts associated with these activities.

The U.S. EPA estimates that commercial construction generates between 2 and 2.5 pounds of solid waste per square foot. Much of this waste can be diverted from landfills. In addition to our dumpster for general construction debris, four separate waste containers were placed onsite during construction to accept concrete, metal, unpainted/unstained wood, and cardboard. Material from these four containers was deposited at local recycling facilities, resulting in diversion of approximately 90% of the construction waste (by tonnage) from local landfills.

We took further steps to reduce our impact on the solid waste stream by striving to incorporate building materials with high recycled content. The Butler pre-engineered metal building components, Butler metal roof panels, reinforcing steel in building foundations and ICF walls, and metal framing members all contributed to create a building with more than 20% of its materials (by cost) containing post- and pre-consumer recycled content.

We have also taken steps to encourage environmentally responsible forest management by purchasing casework and composite wood products from Forest Stewardship Council (FSC) certified sources. FSC certification is awarded to companies that manufacture and sell wood products obtained from forest managers that engage in socially responsible forest management practices.



Indoor Environmental Quality

Much research has been done over the past several decades regarding the negative impacts of poor indoor air quality on occupant health and productivity. Considering the amount of time Americans typically spend indoors, taking steps to ensure a healthy indoor environment is imperative. Most IAQ problems are preventable through thoughtful design and construction practices.

Volatile organic compounds (VOCs) are one of the primary sources of indoor air contamination. Commonly associated with respiratory irritants and smells, these chemicals are released into the air by materials installed inside the building envelope. The LEED® rating system specifies maximum VOC limits for the most notorious offenders: adhesives, sealants, paints, carpeting, and composite wood products (casework and furniture). The interior paints we have selected from the Sherwin Williams Harmony® line emit zero VOCs. The 24/7/365 caulking we have installed is certified to meet the requirements of the Carpet and Rug Institute's Green Label Plus Program, a third party certification of low-emitting carpet products. And the casework and cabinets we have installed contain no added urea-formaldehyde resins.

In addition to selecting materials with low VOC content, special care was taken during construction to ensure that fresh materials and MHC systems were properly protected from construction contaminants. An indoor air quality management plan was developed and implemented during the construction and pre-occupancy phases of the building based on the Sheet Metal and Air Conditioning Contractors National Association (SMACNA) IAQ Guidelines for Occupied Buildings under Construction. All absorptive materials, both stored onsite and installed, were properly protected from moisture damage. All ductwork was sealed immediately upon installation and MERV 8 filters were installed on all return ducts and air handling units for the limited pre-occupancy phase of operation.

County Government: Green Buildings



**North Sarasota Library
LEED Gold certified**

**County Judicial Center
ENERGY STAR certified**

**Twin Lakes County
Extension LEED Gold
certified**



County Government: Environmentally Preferable Products



- low-toxicity
- recycled content
- energy saving
- water saving
- renewable materials

EPP policies for paper, office supplies, and electronics are under development

County Government: Green Fleet

Hybrid Electric Vehicles and Biofuels

Hybrid Fleet Vehicles



SCAT Hybrid Buses

**All fleet vehicles use biofuels:
B5 Biodiesel
E10 Ethanol**



County Government: Lighting



South Lido Beach Park: Turtle-friendly hybrid solar/wind lighting



**LED traffic signals and solar
traffic signs**

**Renewable
energy**

COMMUNITY



SARASOTA COUNTY, FLORIDA

- **Renewable Community: uses renewable energy to power both homes and cars.**
- **Combine Zero Energy Homes and Plug-in Hybrid Vehicles**

Green Business Certification

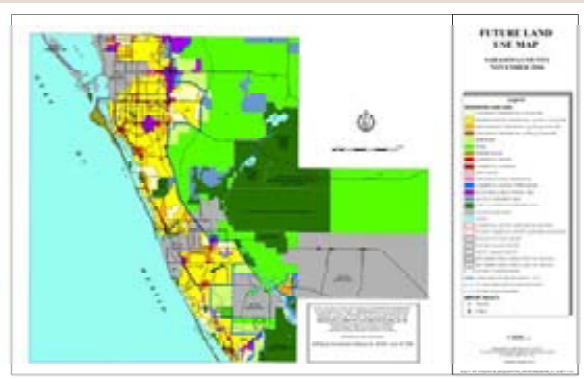


www.scgov.net/greenbusiness

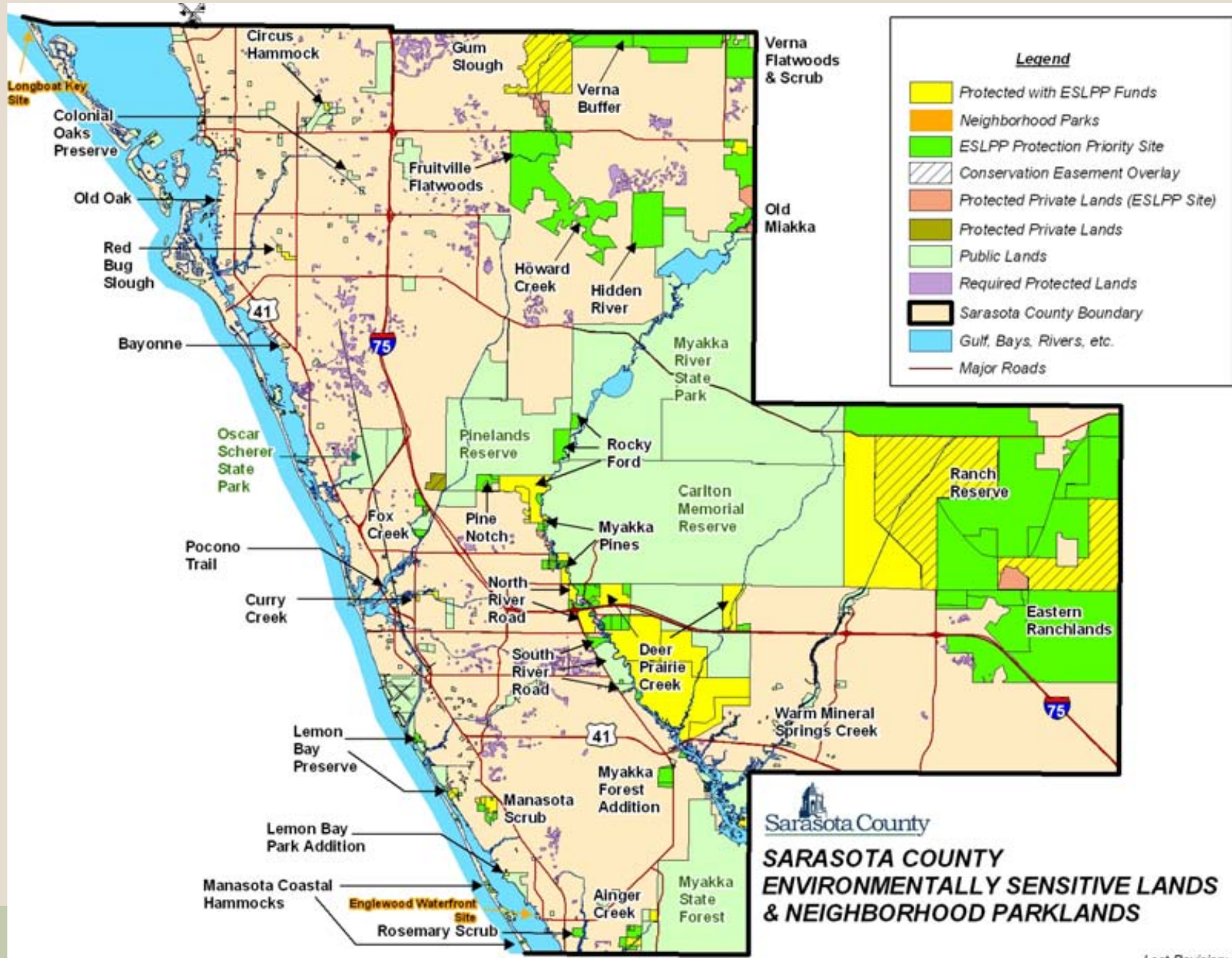
Sustainable Urbanism: Community Design & Transportation Choices



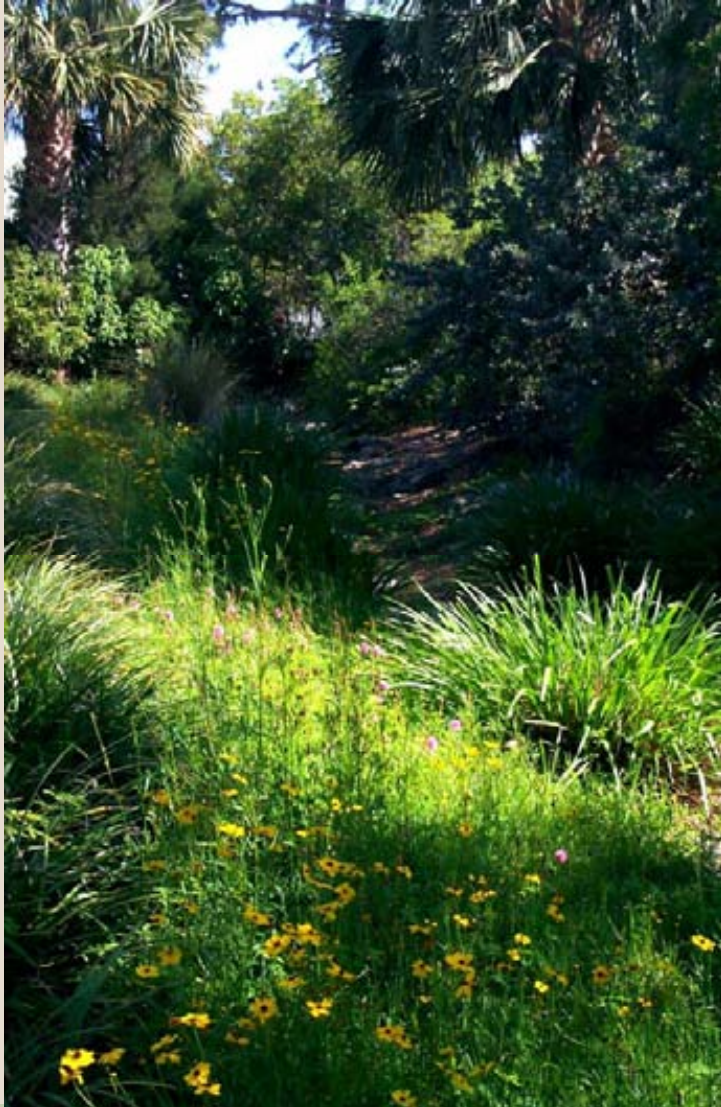
- The 2050 Plan
- Urban Service Boundary
- Community Redevelopment
- Transit Oriented Development



Environmental Lands Protection



Water Conservation & Managing Stormwater



- **Water Efficient Landscape Ordinance & Watering Restrictions**
- **Golf Course Ordinance**
- **Fertilizer & Landscape Management Code**
- **Low Impact Development**

Fertilizer & Landscape Management Education

Keeping your lawn healthy and Florida's water clean.

**Trained
and
Certified**
in
Green Industries
Best Management Practices


Sarasota County



**UNIVERSITY OF
FLORIDA**
IFAS EXTENSION



FLORIDA

0250

EN0364L 07

**LIVING on the
WATER'S
EDGE**
A Homeowner's Guide to
Low Maintenance Landscaping
Along Seawalls,
Bayfronts and Canals




Sarasota County
What you need to know about
Sarasota County's
**Fertilizer &
Landscape
Management
Code**

Ordinance No. 2007-062

Waste Reduction Efforts

- Residential curbside recycling
- Commercial recycling
- Construction & Demolition Debris
- Compost and mulch give-away
- Chemical Waste drive-thru Facility & Mobile Collection
- Recycling – Motor Oil, Household Batteries, TV/Computers and Paint



Health and Safety Education

- Disaster Preparedness Education
- Housing, Home Environment and Energy Education
- Community Development
- Health and Family Education
- Community Health Improvement Partnership



Big Ideas.
Bold Action.
Bright Future.

Community Education

- Workshops
- Change A Light Campaign
- Community Events
- Research and Materials Development

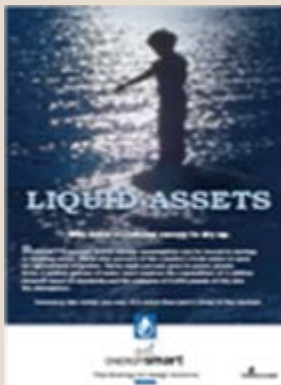
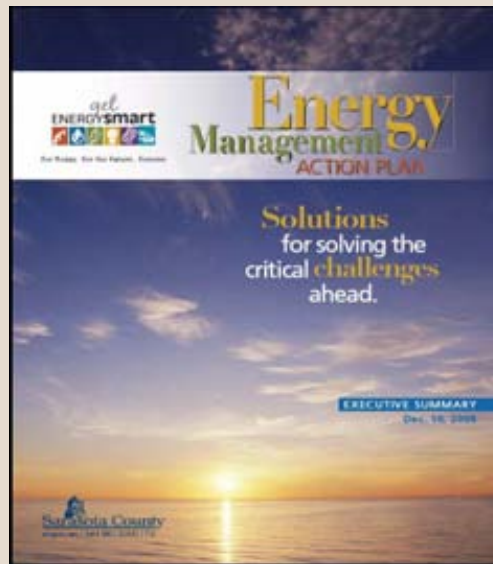




- Employee participation in reducing energy consumption
- Employee classes on organizational energy and sustainability goals leading to certified Green Champion

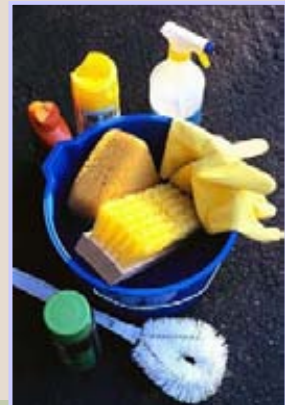


For Today. For the Future. Forever



Future Priorities

- Sarasota County chosen as one of 10 Spotlight Communities nationwide to host a National Conversation on Climate Action on April 22, 2009
- Climate Action Plan & Energy Management Plan: Community and Employee Engagement
- Landscaping for Climate Change
- Renewable Energy/ Green Economic Development
- Employee Education: EPP Implementation



Thank you!

Sarasota County Sustainability Website:

www.scgov.net/Sustainability

Get Energy Smart Website:

www.scgov.net/getenergysmart

Commissioner Shannon Staub

(941) 861-5000

