

2013 Municipal Green Initiatives in Broward County, Florida

Local Governments in Action



Table of Contents

Introduction	1
General Program Information.....	2
Greenhouse Gas Emissions	6
Water Conservation	8
Energy.....	12
Transportation	18
Built Environment	20
Waste Reduction and Recycling.....	23
Climate Change	27
NEW Community Partners	32
Community Gardens	35
Conclusion	37
Appendix A – Broward Municipal Green Initiatives 2013 Survey Participant Contact List.....	38
Appendix B – Matrix of Municipal Green Initiatives in Broward County, Florida.....	39

Acknowledgements:

This report is produced by Broward County, in partnership with the 31 municipalities and 5 partners in higher education, as referenced. All participants have given Broward County permission to share and publish survey responses, contact information, case studies and photographs. We thank all the staff, interns, and volunteers who made the administration, analysis, and production of this survey and report possible. A community-wide assessment takes a community-wide effort, and it is with great appreciation that we acknowledge the dedication and time contributed by sustainability managers and staff throughout local governments in Broward County to make this effort possible.

Broward County Energy and Sustainability Program

2013 Municipal Green Initiatives in Broward County, FL

Introduction

Since the original Municipal Green Initiatives Survey was performed in 2011, Broward County and our 31 municipalities have come a long way, working together to assess and advance our community's collective sustainability goals and initiatives.

Over the past two years, we have collaboratively developed the Online Clearinghouse of Best Management Practices for Sustainability on the county's Go Green site (www.broward.org/gogreen), and expanded our original list of 40 survey respondents into a regional peer-exchange network of more than 250 sustainability professionals in the public, private, and non-profits sectors. These elected officials, municipal staff, environmental consultants and engaged citizens come together four times a year to share their experiences and expertise with various aspects of sustainability through the Sustainability Stewards of Broward Workshop Series.

This report summarizes the first re-issue of the Municipal Green Initiatives Survey. Results of the 2013 survey are presented in the pages to follow. There are many similarities between the 2011 and 2013 surveys. This is intentional by design in order to preserve the ability to cross-reference municipal actions across years, benchmark our efforts, and measure our successes. At the same time, some improvements have been made.

Changes include:

- ✓ Normalized data to reflect all 32 local governments (including Broward County) in every question
- ✓ Expanded participation by community partners from our leaders in higher education
- ✓ Additional questions to capture new and emerging fields of sustainability
- ✓ More opportunities to showcase key projects and program achievements through case study reporting

Before we delve into the new results, it is important to note the accomplishments of the 2011 survey, and how it generated the momentum for a new collaborative resource sharing and program advancement paradigm. The effort has become a nationally-recognized model of intergovernmental cooperation, winning a 2012 Achievement Award by the National Association of Counties. Locally, we are seeing multiple benefits spin out from the original projects, with expanded participation across an array of new programs.

The chart below shows how Broward's municipalities are using the 2011 survey and related programs:

We use the 2011 survey report to see the cumulative impact of our efforts on Broward County.	31%
We use the 2011 survey report to compare our efforts with that of our neighbors.	41%
We use the 2011 survey report to communicate our achievements.	16%
We use the Online Clearinghouse of BMPs as a resource for new ideas and case studies.	31%
We contribute information to be posted to the Online Clearinghouse.	16%
We attend the Sustainability Stewards of Broward workshops.	47%
We have hosted a Sustainability Stewards of Broward workshop.	9%
We would be interested in hosting a Sustainability Stewards of Broward workshop in the future.	16%

The Natural Resources Planning and Management Division of Broward County would like to thank our 31 municipalities for, once again, demonstrating 100% participation in this community-wide assessment.

General Program Information

Broward County and its 31 municipalities are addressing a wide range of sustainability issues. The 2013 Municipal Green Initiatives Survey has 17 types of issues covered within 8 main topic areas. Municipalities are addressing these issues through multi-departmental and cross cutting programs. Every municipality has a different approach to achieve the goals set by their leadership and community, and we wanted a question to capture the level of importance these issues were given in their general sustainability, climate change and environmental awareness efforts. This sustainability word cloud is a visual analysis of the data reported with areas of greatest concern appearing in larger text. This is also summarized below by percentage ranking.



Most municipalities (84 – 75 percent) are addressing the following issues through their programs:

- *Recycling and Waste Management*
- *Native Landscaping*
- *Energy Efficiency and Conservation*

Over half (59 – 69 percent) of Broward County municipalities are addressing:

- *Water Conservation and Reuse*
- *Community Education*
- *Urban Canopy and Open Spaces*
- *Alternative Modes of Transportation*

Some (44 – 31 percent) are addressing these areas of sustainability:

- *Green Purchasing*
- *Reducing Vehicle Miles Traveled*
- *Renewable Energy*

A few municipalities (25 percent or less) are also addressing these important sustainability issues:

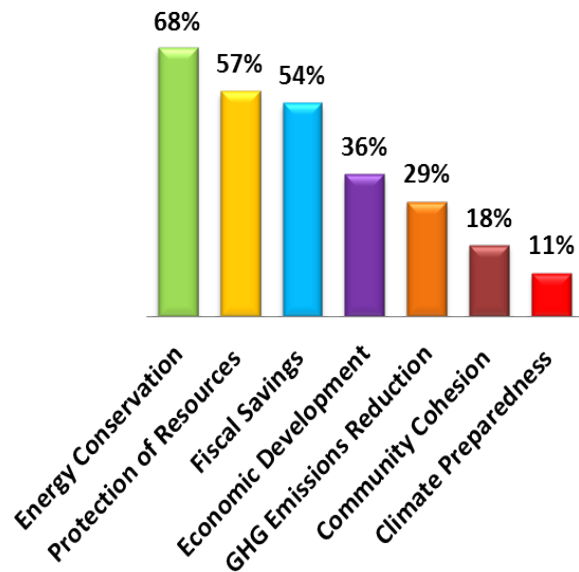
- *Alternative fuels*
- *Air quality*
- *Green Economic Development and Green Jobs*
- *Climate Mitigation*
- *Climate Adaptation*
- *Local Food Systems*

Main Benefits of Local Sustainability Initiatives

Energy Conservation is listed as the chief benefit from local sustainability initiatives (68 percent of the 28 municipalities who responded to this survey question).

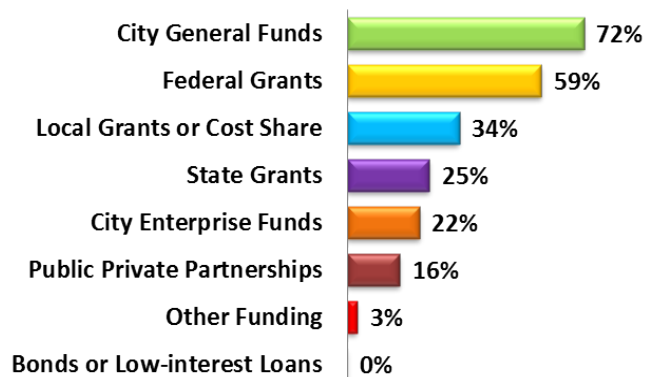
Protection of Resources is the second greatest benefit (57 percent).

Fiscal Savings came in as a close third (54 percent).



Funding for Sustainability Initiatives

The majority of Broward County, nearly three quarters (72 percent of the 32 municipalities) are using General City Funds as a source for funding sustainability projects. This is a 10 percent increase from the 2011 value. Over half (59 percent) are also using Federal Grants.



Local Grants or Cost Share is similarly a substantial source for funding sustainability initiatives at 34 percent, up by more than 15 percent from 2011 survey.

Additional funding comes from State Grants (25 percent), City Enterprise Funds (22 percent), Public Private Partnerships (16 percent) and Other Funding (3 percent).

While some municipalities were using Bonds or Low-interest Loans as a funding source in 2011, they are not currently in use for this purpose.

Local Sustainability Spotlight: Taking the Time to Recognize Success

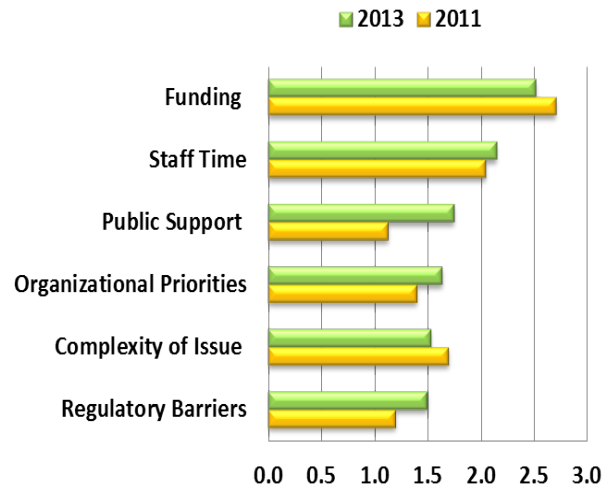
- Broward County and 12 of its municipalities offer awards programs to citizens or businesses that practice sustainability.
- Broward County and 10 of its municipalities have won awards or special certificates for sustainability initiatives in the last 2 years.

The Biggest Obstacles to Developing and Implementing Sustainability Initiatives

2013 *Funding*, while slightly less of a challenge than 2011 *Funding*, was still cited by all 32 respondents as the biggest obstacle to developing and implementing sustainability initiatives.

The second greatest obstacle to developing and applying sustainability initiatives in both 2011 and 2013 was *Staff Time*.

Public Support, which was ranked as the sixth greatest obstacle in 2011, is now ranked the third biggest obstacle.



Local Government Highlight: City of Parkland Environmentally-Conscious Incentives Ordinance

On February 18, 2009, the City of Parkland Commission amended an ordinance creating incentives for environmentally-conscious purchases made by Parkland residents and businesses. The program rewards these residents and businesses for taking extra steps to be environmentally aware. This program is featured on the City website as well as promoted through email blasts, Facebook, press releases, and informational boards and documents at our City Hall and Library. In 2012, the City issued \$2,950 worth of rebates to City residents.

For more information: <http://www.cityofparkland.org/index.aspx?NID=194>

Local Government Highlight: Celebrating Earth Day in the City of Sunrise

The City of Sunrise hosts an annual Earth Day celebration. This year's event, held at Sawgrass Sanctuary, attracted over 4,000 people. Elementary school students were invited to participate in a poster contest with the theme of Reduce, Reuse & Recycle. The top 5 posters received awards from the Mayor and were recognized at the Earth Day event. The contest was a great way to educate and involve the city's youth, while also attracting more families to the event.

Contact: Lou Sandora at LSandora@sunrisefl.gov

Local Government Highlight: Fort Lauderdale's "Green Your Routine" Volunteers

Through the city's "Green Your Routine" Program, volunteers work directly with the City Recycling Program Coordinator to promote waste reduction and recycling at home, school, work and play. Participants can choose the activities that best suit them based on their time schedule, comfort level, and style.



Children and volunteers collecting recyclables at Jazz Brunch in the Spring.

Residents of homeowner's associations (HOA) can earn grant funds for their neighborhood associations. Volunteer hours are converted to cash back to the HOA to be used to fund a neighborhood project. The city's Recycling Coordinator develops specific activities for each year's Recycling Incentive Grant (RIG). Each of the activities is worth a set amount of points. Every November, participants submit a RIG application documenting points earned during the fiscal year, which is October 1 – September 30.

For more information: <http://www.fortlauderdale.gov/recycle/greenworks.htm>

Local Government Highlight: Broward County's Energy Sense Marketing Campaign

The ENERGY SENSE marketing campaign aimed to educate, inform, and drive behavior with Broward County homeowners relative to saving money by conserving energy. Actual Broward County employees were used in the campaign to go along with the "Real people, real tips, real savings" theme. The multimedia campaign, which ran from April to the end of June 2012, included radio spots and print materials that were tri-lingual: English, Spanish and Creole. The campaign encouraged viewers to do one thing, every day, to save money and the environment. The full multi-media campaign utilized the following: Bus ads, Billboards, Radio Traffic Sponsorships including the Fort Lauderdale Air Show, General Radio Market and NPR, Google 'Pay-Per-Click' Campaign, South Florida Sun-Sentinel, Cable TV and the Haitian Media. The final number of 'impressions'* was 9,058,805. The project was funded through the Energy Efficiency and Conservation Block Grant.



For more information: <http://www.broward.org/GoGreen/EnergySense/Pages/Default.aspx>

Greenhouse Gas Emissions

Taking the Time to Measure our Contributions

Twenty-two (22) percent of Broward County and its municipalities have recently performed a Greenhouse Gas (GHG) Emissions Inventory for government operations. This is slightly higher than 2011 survey results where 19 percent reported completing GHG inventories. An additional three percent of municipalities currently have GHG emissions inventories in progress for government operations. Three municipalities reported completing a communitywide inventory compared to five in 2011.

Eighteen percent of the 31 municipalities in Broward County reference the 2007, 2009 and 2010 Broward County Community-wide Greenhouse Gas Inventories in their sustainability planning.

Local Sustainability Spotlight:

- 7 Broward County municipalities and Broward County conducted Greenhouse Gas Emission Inventories over the past two years.
- 5 Broward County municipalities referenced Broward County Community-wide Greenhouse Gas Inventories in their sustainability planning.

Cleaning the Air through Landscaping

Main benefits of Urban Forests and Urban Canopies are increased oxygen production and decreased air pollutants. Additionally, trees create natural environments that serve not only our communities through parks and recreational areas but provide habitat for birds and other fauna. At the same time, these systems can advance other sustainability goals like increasing energy conservation in our communities, by providing shade and cooling functions to the built environment.

Steps Municipalities are taking to Increase Urban Forest or Urban Canopy:

- | | |
|------------------------------------|------|
| • Landscaping Ordinances and Codes | 88 % |
| • Community Education and Outreach | 59 % |
| • Native Trees Sales and Giveaways | 56 % |
| • Other Activity | 28 % |
| • Complete Streets Program | 25 % |

Reducing our GHG Emissions through Efficient Public Service: Electronic Permitting

Local Sustainability Spotlight:

Broward County has launched the ePermits Portal, a database which will include more than 100 online environmental, building, engineering and water and wastewater services permit applications. This countywide initiative will implement electronic application processing over the next five years.

As an example of the benefits of ePermitting, the following environmental savings will be created annually by switching just ONE of these 100 approvals to paperless processing:

- 187,500 pounds of solid waste
- 233 trees
- 18,000 pounds of carbon dioxide
- 2,395 pounds hydrocarbons

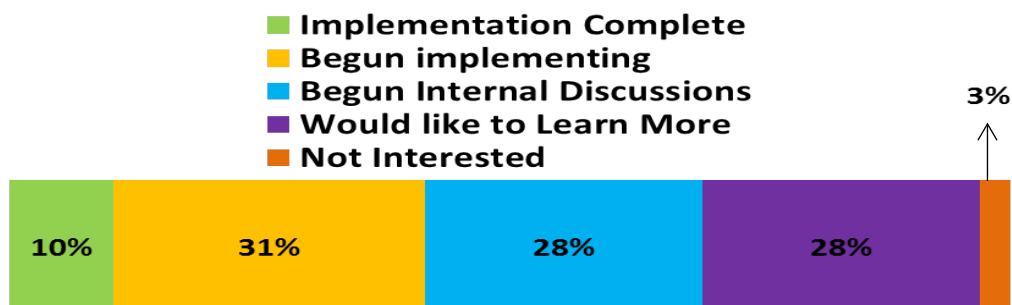
And reduce the economic impact to customers, who will save:

- \$1.2 million in paper
- 15,000 hours of travel
- \$87,500 in fuel

And we are not alone: 97 percent of municipalities in Broward County are considering, are in the process of implementing, or have completed an electronic permitting system!

Ten percent of Broward County Municipalities have finished implementation of an electronic permitting system. While 31 percent have begun implementation, 28 percent are having internal discussions about implementation and 28 percent of municipalities would like to know more. All Broward County municipalities, but one, are interested in Electronic Permitting.

The following Stacked Bar Graph represents Broward County and its municipalities' various stages of Electronic Permitting implementation:



Water Conservation

Within Broward County, our 31 municipalities can become involved in several community water planning advisory bodies and training opportunities. These include: Water Resources Advisory, Water Resources Task Force, NatureScape Broward Program, NatureScape Irrigation Services, Habitat Stewards Training, Broward Water Leaders Academy, Broward County Everglades Working Group, and Surface Water Coordination Committee.

Participation in these programs allows local governments to strategically evaluate, develop, and manage water resources in an economically and environmentally sustainable manner. The table below lists the range of participation in local water conservation activities by all Broward County municipalities.

	% Municipalities Active	% Municipalities Not Active	% Municipalities Would like to participate in future
Water Resources Advisory	34%	38%	9%
Water Resources Task Force	28%	38%	19%
NatureScape Broward Program	53%	19%	13%
NatureScape Irrigation Services	41%	31%	9%
Habitat Stewards Training	31%	38%	9%
Broward Water Leaders Academy	19%	44%	16%
Broward County Everglades Working Group	9%	50%	13%
Surface Water Coordination Committee	22%	41%	13%

The NatureScape Broward Program and NatureScape Irrigation Services had the two highest rates of participation (53 and 41 percent) by the municipalities. Water Resources Advisory and Habitat Stewards had the next two highest participation rates at 34 and 31 percent respectively.

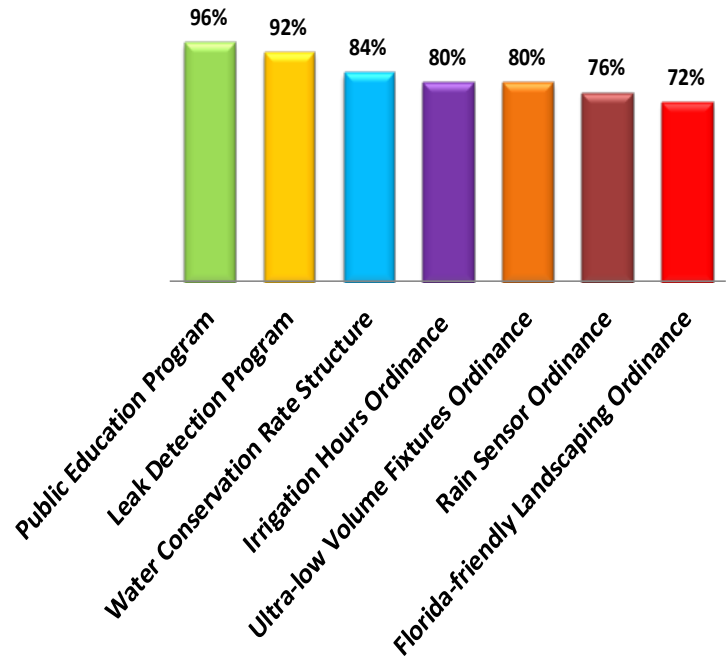
While all the programs listed above could benefit from greater participation, over 28 percent of municipalities are currently actively participating in five out of eight of the programs. Furthermore, municipalities showed interest in increasing participation in all of the programs, at a rate of 9 to 19 percent.

Strategies Implemented to Increase Local Water Conservation

Broward County and its municipalities, through our local public water utility providers (PWS), are successfully incorporating water conservation strategies into our programs, policies, and services and planning.

According to the results of a survey done as part of the 2013 LEC Water Supply Plan Update, between 72 and 96 percent of our 25 PWS Utilities are implementing these key strategies:

- ✓ *Public Education Program*
- ✓ *Leak Detection Program*
- ✓ *Water Conservation Rate Structure*
- ✓ *Irrigation Hours Ordinance*
- ✓ *Ultra-low Volume Fixtures Ordinance*
- ✓ *Rain Sensor Ordinance*
- ✓ *Florida-friendly Landscaping Ordinance*



Actions Taken to Build a Water Sustainability Ethic

A variety of education and outreach activities are being employed to create a sustainability ethic throughout our community around water use.

Over half of Broward's 31 municipalities have a *Water Conservation Web Page* and have implemented a *Rebate Giveaway Program* for high efficiency fixtures.

Over one-third reported that they *Host Education Events*, and do *Outreach to Highest Users*, and *Outreach to Home Owner Associations (HOAs)*.

Approximately one-fourth reported that they *Conduct Water Audits*, have *Competitions and Workshops*, and utilize *Radio and TV Public Service Announcements* (28, 25, and 22 percent respectively).

Local Government Highlight: Water Conservation in Pompano Beach

The City of Pompano Beach has been using reuse water for irrigation for 24 years, conserving over 10 billion gallons of water from the Biscayne Aquifer. This reduction in water withdrawals has resulted in a reversal of the saltwater encroachment upon the well fields and has protected the aquifer as well. With no city-owned wastewater facility, the Reuse Plant takes in a portion of the treated wastewater effluent from Broward County Regional Wastewater Facility destined for ocean outfall disposal. This effluent is further treated to improve its quality via filtration and disinfection.



In 2011 the City implemented the “I Can Water” Campaign, to promote the benefits of using reuse water: reduced need for fertilizers, low cost unrestricted alternative for irrigation.

Through the city’s “I Can Water” Connection program, over 500 installations have been complete. The City will save about 92.4 million gallons of drinking water a year when their goal of 770 connections is achieved.

In May 2013, the City of Pompano Beach Utilities Department received the 1000 Friends of Florida’s Community Steward Award for its comprehensive approach to water conservation.

For more information, contact Isabella Slagle at isabella.slagle@copbfl.com

Website: http://www.icanwater.com/icwsite/wp-content/uploads/2012_OASIS_Reuse_Report.pdf

Local Government Highlight: Dania’s Nanofiltration Water Treatment Plant – striving to be the first LEED gold plant in the world

The City of Dania Beach, FL constructed a new 2.0 million gallon per day (mgd) nanofiltration process to complement the City’s existing 3.0 mgd conventional lime softening water treatment plant. Efforts to develop a plant that would improve water quality, meet long term needs, and raise community awareness involved CDM Smith engineering and construction teams and Florida Atlantic University. The City has applied to receive LEED Gold certification for the project. If successful, the plant would be the first Gold certified water plant in the world.



For more information: Contact Fred Bloetscher, Project Consultant, Public Management and Planning Service, Inc., at h2o_man@bellsouth.net

Local Government Highlight: Broward County's NatureScape Irrigation Service



Broward County's NatureScape Irrigation Service (NIS) is a water conservation project offered in partnership with 18 local water utilities. The goal of NIS is to reduce urban water consumption and improve the quality of surface waters through efficient irrigation and environmentally-friendly landscape practices. The NIS program targets large properties, such as Homeowners Associations, commercial / industrial properties, parks, schools, and residential complexes, where water conservation efforts can produce the greatest water savings.

The average reduction per site evaluation is over 20 percent. This has contributed to a 13 percent overall reduction of water consumption across Broward County, down from 145 gallons per day per person (gpdpp) in 2010 to 125 gpdpp in 2012. From inception of the program in 2005 to date, NIS has saved over 965 million gallons of water with the Inter-local partners throughout the County.

Contact: Robert (Bob) Carew rcarew@broward.org

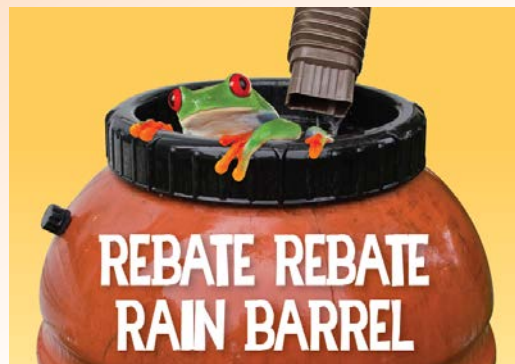
Website: <http://www.broward.org/WATERMATTERS/Pages/ProgramsNis.aspx>

Local Government Highlight: Cooper City earned the Environmental Stewardship Award

Cooper City earned the Environmental Stewardship Award through the Florida League of Cities Florida Municipal Achievement Awards Program for its "You Win - We All Win" water conservation program.

The innovative, community-driven program was developed to help reduce overall water use five percent by 2013. The program was divided into several major components including retrofitting older buildings; a competition among homeowner associations; outreach to highest users; rebates and community education.

176,000 gallons of water were saved during just a 3-month period through the homeowners association competition. In just nine months, the program provided rebates for 456 toilets, 31 rain barrels, three (3) irrigation systems and four (4) irrigation wells.



Contact: Mike Bailey, Cooper City Utilities Director; m Bailey@coopercityfl.org

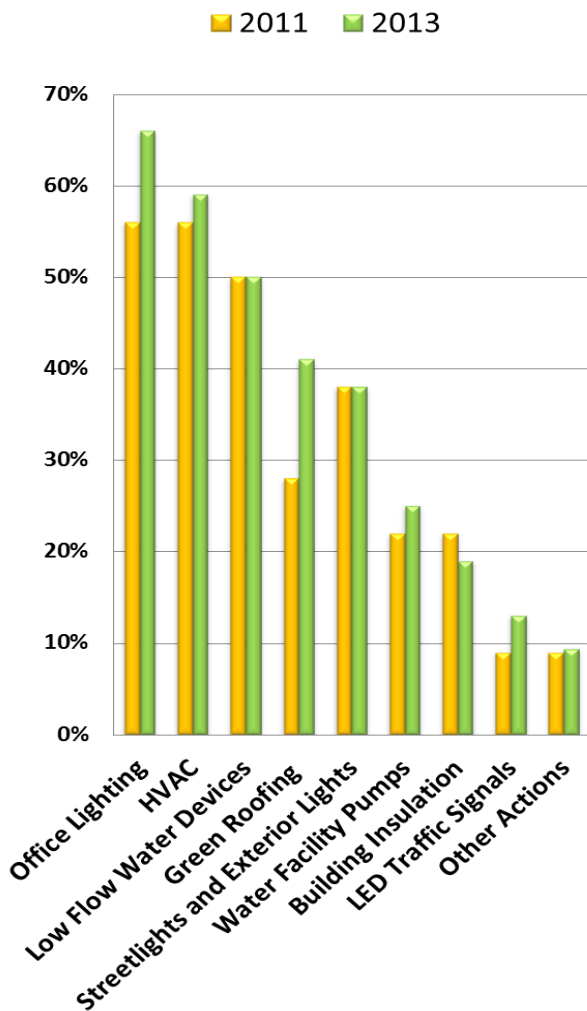
Website: <http://www.youwin-weallwin.com/gimme5.html>

Energy

In this section, we will discuss four energy strategies: improving energy efficiency through retrofits and facility upgrades, reducing energy use and consumption through polices and operational changes, increasing production of renewable energy sources through local government leadership, and educating the community about energy goals, strategies, and available programs.

Energy Efficiency Upgrades and Retrofits

At the time of the original survey in 2011, many municipalities were utilizing Energy Efficiency and Conservation Block Grant (EECBG) funds to advance energy efficiency upgrades and retrofits of government facilities and services. While this funding source is no longer available, many municipalities have found that investing in these types of improvements can yield significant financial benefits. We found through the 2013 survey, Broward's municipalities are continuing to invest in making their facilities more energy efficient and sustainable!



In the graphic to the left, we compare energy efficiency upgrades and retrofits from the 2011 Municipal Survey to our 2013 results. Across Broward and our 31 local municipalities, we see a general increase in energy efficiency investments:

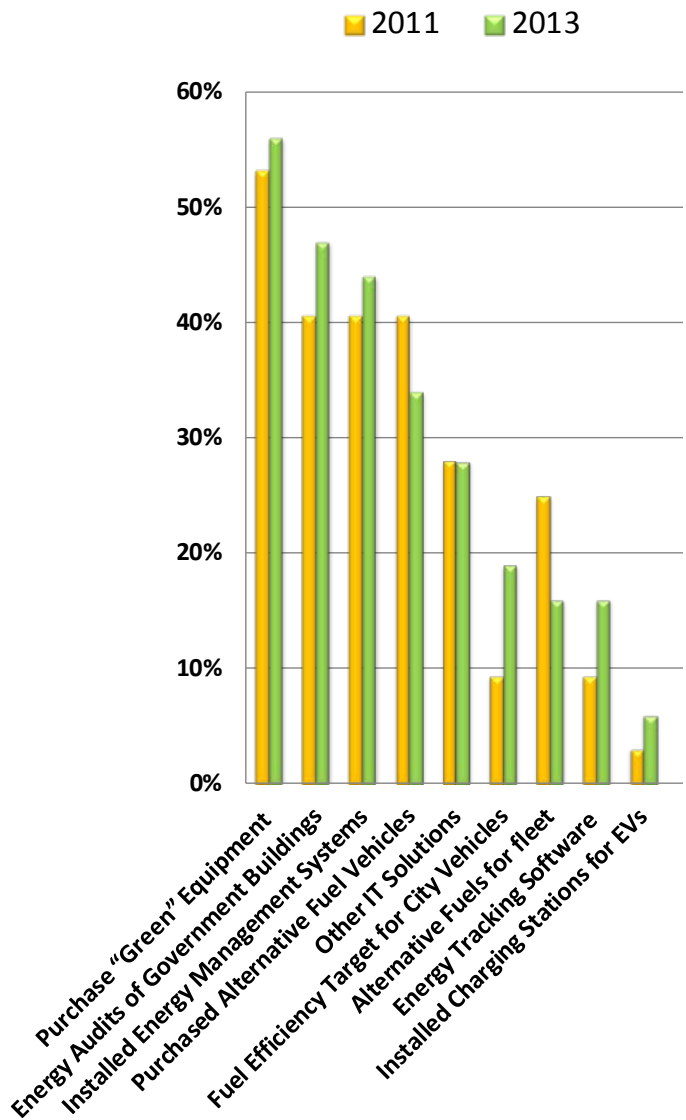
- *Green Roofing* had the highest increase from 28 to 41 percent.
- *Office Lighting* increased from 56 to 66 percent.
- *HVAC (Heating and Air Conditioning)* increased from 56 to 59 percent.
- *Water Facility Pumps* increased from 22 to 25 percent.
- *LED Traffic Signals* increased from 9 to 13 percent.
- Investments in both *Low Flow Water Devices* and *Streetlights and Exterior Lighting* stayed constant.
- *Building Insulation* was the only improvement which dropped slightly from 22 to 19 percent.

Actions Taken To Decrease Use of Energy

Broward’s municipalities have also continued to take action to decrease energy usage through a variety of innovative strategies.

The graphic to the right compares results from the 2011 survey to the 2013 survey. Percentages are based on all 32 respondents:

- *Fuel Efficiency Target for City Vehicles* was the action with the largest increase from 9 percent to 19 percent.
- *Purchase of “Green” Equipment* increases slightly from 53 percent to 56 percent. Over half of Broward County's municipalities reported this action as their leading step towards energy sustainability.
- *Energy Audits of Government Buildings, Energy Management Systems, Energy Tracking Software, and Charging Station for EVs* all increased from 2011 to 2013.
- *Other IT Solutions* stayed constant at 28 percent.
- *Purchased Alternative Fuel Vehicles and Alternative Fuels for Fleet* both decreased slightly.



Local Sustainability Spotlights:

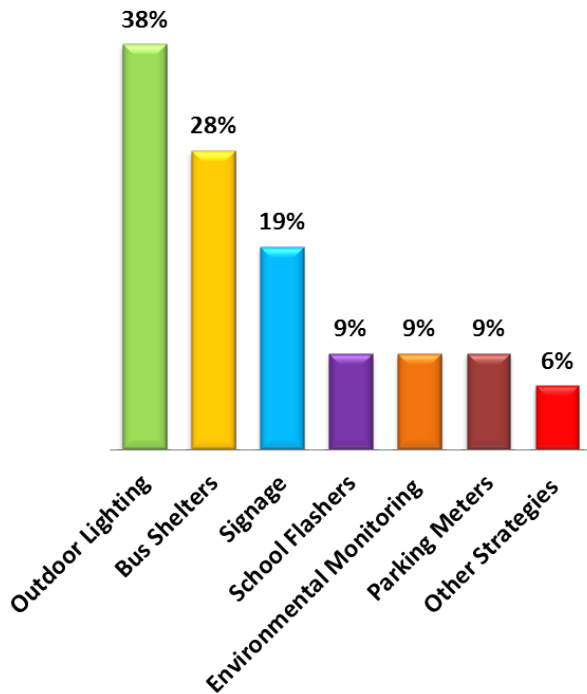
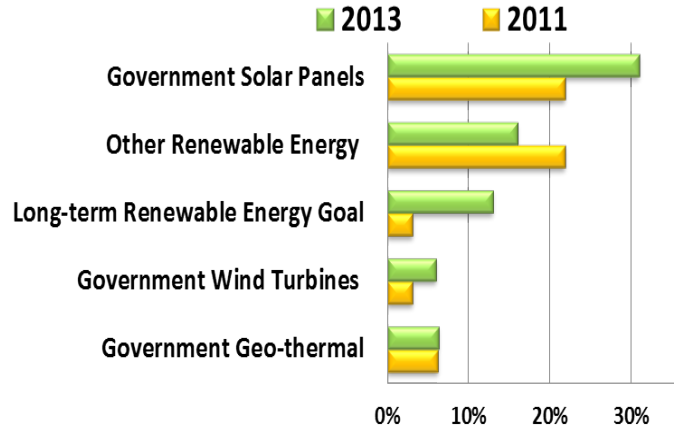
- **Tamarac and Broward County have an Energy Manager on staff!**
- **Broward County and five (5) municipalities have a community-wide energy conservation or energy efficiency goal!**
- **Twenty-eight percent of Broward County’s municipalities have a community-wide light policy, ordinance, or regulation to address light pollution as part of the Dark Sky Initiative!**

Actions Taken to Increase the Production of Renewable Energy

Broward County and its 31 municipalities have taken strong actions to increase renewable energy production.

In three of five categories surveyed, an increase in activity was reported from 2011 to 2013. Percentages are based on all 32 respondents.

- *Installing Solar Panels on Government Facilities* is the most widely used action at 31 percent, 9 percent greater than reported in the 2011 survey.
- Establishing a *Long-term Renewable Energy Goal* had an impressive increase from 3 percent to 13 percent.
- *Other Renewable Energy* (the second greatest reported action) decreased from 22 percent to 16 percent.



Incorporating Solar Energy into Existing Projects and Facilities

The top three ways Broward County and our 31 municipalities are incorporating solar into existing projects and facilities are through:

- *Outdoor Lighting* (38 percent)
- *Bus Shelters* (28 percent)
- *Signage* (19 percent)

In addition, local governments are finding opportunities to incorporate solar energy into *School Flashers*, *Environmental Monitoring Stations*, *Parking Meters*, and through *Other Strategies* (six-nine percent).

Community-wide Education and Promotion of Energy Efficiency and Renewables

Broward and its 31 municipalities continue to expand education programs and the promotion of renewable energy production and energy efficient consumption practices throughout our community.

Through a variety of programs, incentives, demonstration projects and partnerships, our local governments have generally increased the level of education and outreach to the community over the last two years on this issue. The table below compares information provided from the 2011 and 2013 Municipal Surveys. Percentages are based on all 32 respondents.

Action	2011	2013
Participate in GoSolar, Streamlined Solar Permitting Program	n/a	50%
Incentives, Rebates or Give-aways on Energy Efficient Fixtures and Appliances	22%	34%
Reduced Regulations and Administrative Barriers	13%	31%
Renewable Energy Demonstration Project	6%	16%
Provide Training and Education to Public on Renewables	3%	13%
Energy Audits for Residents and Local Businesses	3%	13%
Weatherization Assistance	16%	9%
Revolving Loan Funds	9%	6%
Create Partnerships for Green Jobs Training	9%	0%

- Exactly half of Broward County and Municipalities reported that they *Participate in GoSolar* at the time this survey was issued. The 2013 Municipal Survey is the first time we recorded data for this question.
- *Reduced Regulations and Administrative Barriers* to residential renewable energy production increased from nearly one-quarter (22 percent) in 2011 to nearly one-third (34 percent) in 2013.
- A 10 percent increase was noted in both *Renewable Energy Demonstration Projects* (6 percent to 16 percent) and *Provide Training and Education and Energy Audits for Residents and Local Business* (3 percent to 13 percent) from 2011 to 2013.
- The use of some education and outreach activities were reported to be in use at decreasing rates over the last two years, including *Weatherization Assistance* (from 16 percent to 9 percent), *Revolving Loan Funds* for energy efficiency and renewable energy improvements (from 9 percent to 6 percent) and *Creating Partnerships for Green Jobs Training* with Community Colleges and Workforce Development Centers (from 9 percent to 0 percent).

Local Government Highlight: Solar Photovoltaic at Deerfield Beach Central City Campus

In December 2011, the City of Deerfield Beach installed solar photovoltaic panels on the Central City Campus building using EECBG funding. The 14.88 KW, grid-tied solar photovoltaic (PV) system is comprised of 62 SolarWorld SW240 modules paired with three SMA SB4000US inverters. The racking system includes solar rails mounted on a standing seam metal roof using S-5! Clamps which allowed the entire system to be installed without any roof penetrations.



The project serves as a demonstration for residents and visitors on the benefits of solar energy. The clean renewable energy produced by the solar PV system will provide free power to the City’s Central City Campus Administrative building, reduce government operations greenhouse gas emissions and will significantly reduce the City’s operating costs.

Contact: Chad Grecsek at cgrecsek@deerfield-beach.com

Local Government Highlight: Tamarac’s Energy Efficiency and Conservation Strategy

The City of Tamarac’s comprehensive approach includes programs to reduce electricity consumption, initiatives, and the installation of solar panels to offset electricity



EECBG funding of \$544,900 kick started the city’s energy efficiency and conservation strategy with the provision for keystone projects, such as the installation of solar panels at the Tamarac Community Center, virtualization of the City’s IT Network, and transition to induction lighting. The City further took advantage of rebate programs from Florida Power and Light Company and the Florida Department of Agriculture and Consumer Services totaling nearly \$270,000; a 16 percent offset to the total construction budget of \$1.7 million.

Contact: Dave Moore, 954-597-3724 Website: <http://www.tamarac.org/index.aspx?nid=160>

Local Government Highlight: Go SOLAR Broward

Go SOLAR Broward Rooftop Solar Challenge program makes it easier, faster and cheaper for residents and businesses to adopt solar energy. The solar system permitting process had traditionally varied across Broward County's 31 municipalities, acting as a barrier to those interested in retrofitting their home or business. Broward County and 14 participating partner municipalities formed a Go SOLAR Team, received a rooftop solar challenge grant from the Department of Energy, and addressed these barriers to solar energy through the following four areas: Permitting; Financing; Planning and Zoning; and Outreach and Education.

The Go SOLAR online system went live in December 2012. Contractors can now registered on Go SOLAR to obtain a permit to install any one of several rooftop solar system options and receive a set of pre-approved design plans for that system within minutes. Further, regardless in which partner city the installation is taking place or which plan selected, the contractor will pay an identical fee for every permit obtained through the Go SOLAR system.



Visit gosolar.broward.org for more information.

Local Government Highlight: Broward County Property Assessed Clean Energy (PACE) Program

The Broward County Board of County Commissioners voted unanimously to establish a commercial and residential Property Assessed Clean Energy (PACE) Program on October 8, 2013. The action authorizes the development of the necessary agreements with two firms, Ygrene Energy Fund Florida and EcoCity Partners, L3Cpartners. Once the agreements are executed (expected in the spring of 2014), property owners can begin to submit applications to access the financing. The upcoming PACE program will provide a new financing mechanism to those who want to make building improvements that are energy efficient but do not have the upfront funding available. The assessment may stay with the property when it is sold since the new owner continues to receive the benefit and cost savings of the improvements. These programs operate on private capital, not taxpayer dollars, and will broaden access to affordable finance strategies to advance energy efficiency improvements, renewable energy options, and wind mitigation measures in existing structures.

Interested parties can send their contact information to EnergySense@broward.org to be registered to receive regular updates on the status of the Broward PACE program.

Local Government Highlight: Broward County HVAC Retrofits



Broward County completed Heating, Ventilation and Air Conditioner (HVAC) retrofits on the West Regional Courthouse, replacing older chillers and water pumps with more energy efficient and environmentally friendly units. This resulted in an average 22 percent gain in overall energy performance for the building. The average electricity use prior to the HVAC upgrades was 5,423 kWh/Day and after was 4,263 kWh/Day, resulting in a projected difference of 416,024 kWh annually. The equivalent cost savings are \$34,070 per year. Additionally, FPL incentives resulted in \$1,784 in additional costs savings in the purchase of the units.

For more information, contact David Cabrera at dcabrera@broward.org.

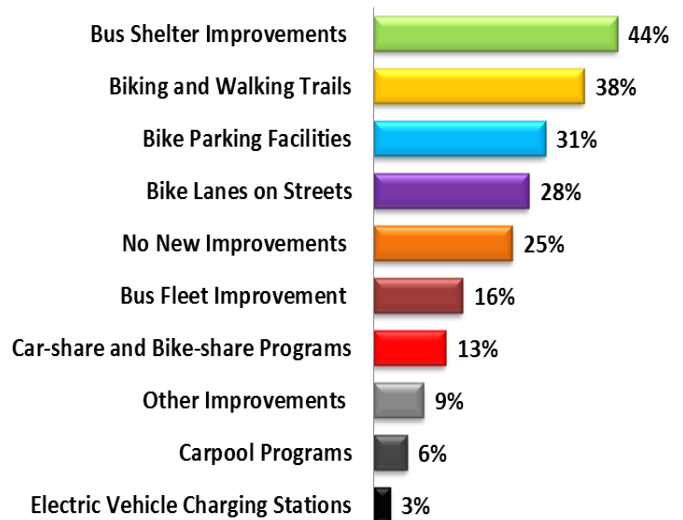
Transportation

Sustainable transportation is central to the discussion of how local governments can make their communities more efficient, healthy, productive, and enjoyable. The “great connector”, transportation bridges other sustainability themes such as land use, building and landscape design, emissions reductions and climate change, and community health and livability. Broward County and our 31 municipalities are taking actionable steps to increase the efficiency and use of our public transit systems, expand access and connection to pedestrian services, and promote alternative fuel transportation options.

Top Alternative Transportation Improvements

In the last two years, Broward County and its 31 municipalities have made tangible progress in expanding alternative transportation in Broward County through significant investment in a variety of projects.

- ✓ *Bus Shelter Improvements*, such as increasing protection from sun and rain, providing real-time information, etc., was the top alternative transportation action reported by 44% of municipalities.
- ✓ *Adding Biking and Walking Trails and Bike Parking Facilities* were also high on the list, at 38 and 31 percent, respectively.
- ✓ Expanding dedicated *Bike Lanes on Streets* also improves pedestrian access, and was implemented by 28 percent of respondents.
- ✓ *Bus Fleet Improvements*, such as the purchase of higher efficiency, hybrid, electric, or biodiesel buses, was reported at 16 percent.
- ✓ Installation of *Electric Vehicle Charging Stations*, a relatively new practice, was reported by 3 percent.



Creating More Walkable Communities

Broward County and its 31 municipalities have taken targeted steps to create more walkable and pedestrian friendly communities. The top four actions reported in the 2013 Municipal Survey are:

- Enforce Street Tree Requirements 41 percent
- Improved Grid Network and Connectivity 25 percent
- Widened Sidewalks 44 percent
- Reduce Parking Standard 22 percent

These results are relatively consistent with the 2011 Municipal Survey, except for a marked increase in *Improved Grid Network and Connectivity*, which rose in two years from a modest 6 percent to a solid 25 percent. An emerging trend, which is new to the 2013 Municipal Survey and will be recorded through subsequent years, is the adoption of a *Complete Streets Policy*, currently accomplished by Broward County and two municipalities.

Local Government Highlight: 95 and 595 Express Bus Service

Express Bus Service provides travel along the major interstate highways from Southwest Broward to Miami-Dade County and free commuter park and ride locations. Express Bus service operates during peak hours Monday through Friday and provides premium transit service with free Wi-Fi access.

595 Express Bus Service routes will serve major attractions in the corridor including the BB&T Center, Sawgrass Mills Mall, City of Weston, the South Florida Education Center, the Central Plantation Business District, Fort Lauderdale-Hollywood International Airport, Tri-Rail, and Downtown Fort Lauderdale. 95 Express Bus Service offers direct express service to downtown Miami, Miami's Civic Center and Health District and Doral from convenient locations in Broward County and the Golden Glades Interchange.



For more information:

595 Express Bus Link: <http://www.i-595.com/About-Improvements-ExpressBusService.asp>

95 Express Bus Link: <http://www.miamidade.gov/transit/95-express.asp#0>

Local Government Highlight: The Wave Street Car

The Wave Car is a 2.7 mile streetcar system that will serve as a local circulator in Downtown Fort Lauderdale. The 10 solar powered stations will reflect the character of the specific areas and will feature real time commuter information. Improvements around the stations will include pedestrian crosswalks, shade trees, lighting, and improved sidewalks.



For more information: http://wavestreetcar.com/project_details

Built Environment

Forty-percent of energy consumption in the United States comes from traditional building energy consumption demands. Locally, that number is even higher. According to the Broward County Community-wide Greenhouse Gas Emissions Inventory published in 2012, residential and commercial use of electricity was responsible for 54% of the community GHG emissions. Sustainable building practices such as Leadership in Energy and Environmental Design (LEED) can reduce both energy demand and operations costs.

Local Leadership

Since 2008, Florida state statutes requires all new or retrofitted publicly financed buildings to be constructed and maintained to meet the United States Green Building Council (USGBC) Leadership in Energy and Environmental Design (LEED) rating system, or a similar nationally-recognized, high-performance green building rating system standard.

In 2013, Broward County government expanded their commitment to improve the climate resiliency and energy-efficiency of new and existing buildings and public infrastructure in the Broward County Comprehensive Plan through Policies 19.3.1 – 19.3.3 of the Climate Change Element.

So far, 28 percent of the Broward County and our municipalities reported having LEED certified government owned and operated buildings. About half of those (16 percent) reported having achieved the LEED for Existing Buildings: Operations and Maintenance certification. While other strategies are more targeted for directly influencing the private sector to embrace green construction through incentives and comprehensive sustainable community design guidelines, one of the first steps a local government can take to promote the “build green – be green” movement, is by leading by example. Building and maintaining to LEED standards demonstrates a commitment to the community that we are “walking the walk” when we talk about our sustainability principles.

In-House Expertise

A critical practical step that is necessary to achieving our own sustainability goals, and being able to promote and enforce them in the community, is having personnel on staff with expertise in the technical aspects of green building design and construction.

Among Broward County and its 31 municipalities, exactly half have staff with LEED accreditation. Planning and Facilities/Maintenance were the departments most likely to house LEED accredited staff, but Building Construction, Permitting, and Sustainability Programs also made significant investments in training their staff for knowledge in this field as well. County-wide, we total 30 government departments with staff members who have LEED accreditations.

While LEED accreditation is tremendously beneficial, it also requires a significant commitment of time and resources to accomplish. At minimum, the Broward County Climate Change Action Plan recommends that all local licensed personnel in each municipality’s building department have at least eight continuing education units (CEUs) of emerging energy efficiency and renewable energy technologies.

Incentives for Green Construction

A common and effective practice for positively influencing the private sector to incorporate sustainability is offering incentives for green construction. Currently, the following incentives are offered by survey participants in Broward County and our 31 municipalities:

- Streamlined Permitting Process (22 percent)
- Increased Density or Height Allowances (13 percent)
- Reduced Fees (6 percent)

Alternatives for Recognizing Green Building Practices

LEED isn’t the only certification available for green construction. Other certification and assessment processes are generally recognized as acceptable and considered under the Florida State Statute. The following alternative approaches are recognized by Broward County and our 31 municipalities:

- Florida Green Building Coalition (38 percent)
- Energy Star Home Certification (16 percent)
- Green Globes (6 percent)

Measuring Success Starts with a Goal

Building and maintaining our own buildings to green standards, training our staff about energy efficiency, water conservation, and sustainable sites, and offered incentives for the private sector to join our lead, all make positive steps toward building a more sustainable community. However, it is hard to assess what you cannot measure. While all these efforts are beneficial, we do not really know how effective these first steps are at increasing the number of LEED or similarly certified buildings were in the community.

Our first step should be to establish a goal, so that we may measure our progress toward a target. Currently, only 23 percent of Broward County and our municipalities have a LEED certification goal for private construction. Perhaps the next survey will demonstrate that we have advanced beyond this first “setting the stage” phase, and moved into the more active phases of implementation, assessment, and strategic collaborative planning. Increased tracking will begin to determine the quantitative effect we are having on our communities through our policies and actions.

Local Government Highlight: Wilton Manors Green Building Ordinance

Wilton Manor’s Green Building Ordinance provides the city community with a certification-based "green building" program. City-owned civic or office construction projects are expected to follow the program guidelines, upon review by the City Commission in accordance with Section 165.40 (B). The program is voluntary for all others, and was established to promote sustainable and environmentally-friendly practices of construction and design.

**Local Government Highlight:
Broward County Convention Center LEED Gold Certification**

In 2012, the Broward County Convention Center became LEED Gold Certified for Existing Buildings. The project started October 2008. Total cost was \$4.2 million with \$3.06 million attributed directly to improvements contributing to LEED certification and \$1.17 million spent on other capital improvement projects. Most of the energy-efficiency upgrades and retrofits have a return on investment of six years or less. Main components were lighting and plumbing retrofits, boiler replacement and HVAC upgrades. A newly designed irrigation system on the site’s landscaping tracks water savings, at an impressive 65 percent!



Benefits also include significant reductions in GHG emissions and energy consumption. Improved policies and procedures have increased recycling from 8 percent to 65 percent, and the facility’s new Digester composts 95 percent of organic waste, resulting in less trash hauling and decreased pest and odor issues.

For more information:

<http://www.broward.org/GoGreen/Municipalities/Documents/BCConventionCenterGreenGuide.pdf>

Waste Reduction and Recycling

A wide range of strategies are being employed across Broward County to reduce waste, encourage and support recycling, and redirect waste streams into more productive feedback loops.

Local Government Actions Taken to Reduce, Reuse and Recycle

The graphic to the right is a comparison between the 2011 and 2013 Municipal Surveys. All 32 respondents are used to calculate percentages below.

The biggest *increases* from 2011 to 2013 were:

- *Automated Collection* more than doubled in the municipalities from 22 to 47 percent.
- *Recycling Rewards Programs* dramatically increased from 9 to 28 percent.
- *Fuel Efficient Collection Fleet* increased from 16 to 25 percent.

The biggest *decreases* from 2011 to 2013 were:

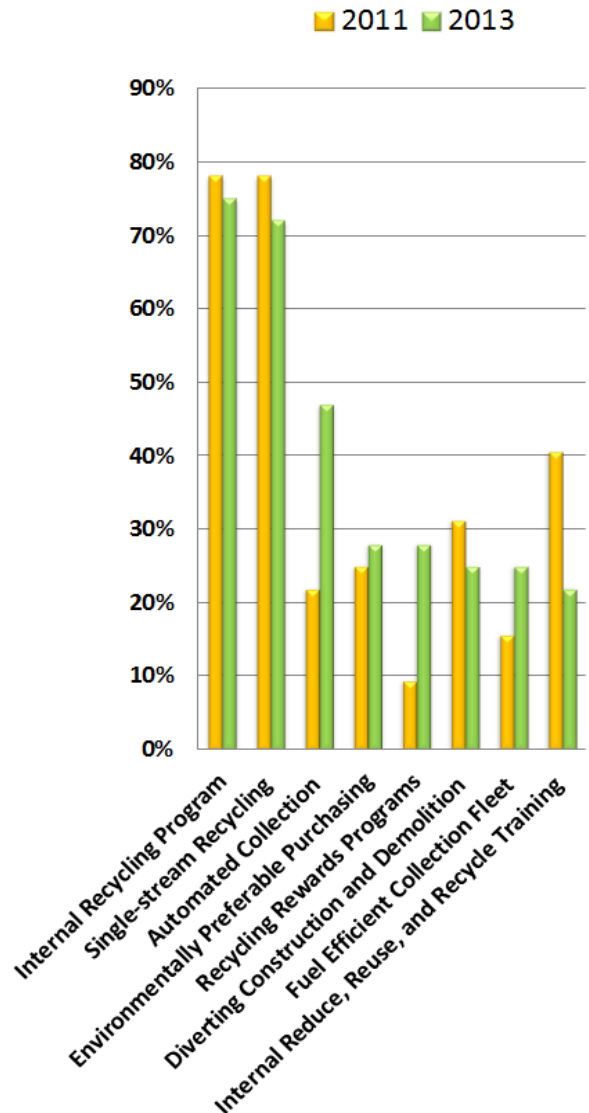
- *Internal Reduce, Reuse, and Recycle Training* decreased by almost half, from 41 to 22 percent.
- *Diverting Construction and Demolition* dropped from 31 to 25 percent.

Other, less dramatic shifts include:

- *Environmental Preferable Purchasing* increased slightly from 25 percent to 28 percent.
- *Internal Recycling Programs* dropped slightly from 78 percent to 75 percent.
- *Single-stream Recycling* also dropped slightly from 78 percent to 72 percent.

Currently, no local governments are utilizing the following two strategies:

- Pay-As-You-Throw (PAYT)
- Collection of Organic Material for Composting



Stickier Banana Peels: “Other” Types of Recycling Programs

Typically, three types of recycling programs are the most challenging for municipalities to implement; Multi-family Residential, Office Workplace, and Public Events.

Tackling these three areas is critical to increasing the overall effectiveness of a waste reduction strategy in a community. First, local governments need to have a policy in place. Then, we can measure the level of support a program is able to provide to implement the strategy. These range from *Encourage*, then *Mandate*, to *Provide (financial) Support and/or Enforce*.

The following results were collected from the 2013 Municipal Survey on these more challenging but critical programs:

	% Municipalities with No Policy	% Municipalities who Encourage	% Municipalities who Mandate	% Municipalities who Provide Support/Enforce
Multi-family Residential	9%	34%	22%	25%
Office Workplace	3%	50%	19%	13%
Public Events	6%	47%	13%	16%

As we can see, most municipalities do have a policy in place to begin to tackle these “stickier” waste reduction and recycling initiatives, with the most common level of support for these programs being the first *Encourage* phase. However, we are seeing strides toward more effective implementation, as 20-25% are moving into the *Mandate*, *Provide Support* and *Enforce* phases on all three strategies. This is a marketed improvement to the 2011 results. For example, Multi-family Residential recycling programs are now *Supported and Enforced* at an additional 10%.

New Strategies and Waste Reducing Innovations

Since the 2011 Municipal Survey, sustainability practitioners throughout the Broward community have been gathering to share best management practices through a peer network exchange called the Sustainability Stewards of Broward. During quarterly workshops, a number of innovative practices and policies have been shared regarding this topic. The following four strategies have been presented and discussed during the 2012/2013 workshop series. Note, both municipal survey participants, and university survey participants (to be covered later in the report) are listed below for their leadership in these emerging fields of practice.

- Plastic Bag / Styrofoam Regulations:
 - The City of Deerfield Beach
 - The City of Coconut Creek
 - Broward College

- Clothing Donation Box Ordinance
 - The City of Deerfield Beach
 - The Town of Davie
 - Broward College
 - University of Miami

- Redirecting Food-Grade Waste to Local Food Banks
 - University of Miami

- Sending Food Residuals to an Organics Recycling Facility
 - None yet. However, several local large scale commercial operations in the region send this type of waste (or resource) to the Waste Management Facility in Okeechobee.

Local Government Highlights: The City of Deerfield Beach's "All In" Program

The City of Deerfield Beach has established the "All In" program, a single stream roll cart recycling program. Through funding provided by Broward County, the City purchased roll carts, radio frequency identifiers, and automated side loaders. The program resulted in a 20 percent increase of recyclables collected curbside. In addition, the City has partnered with Recycling Perks to provide rewards to residents who recycle with points. Residents can redeem the points at local businesses and even at City-based recreation facilities and events.



For more information: <http://fl-deerfieldbeach5.civicplus.com/index.aspx?NID=1144>

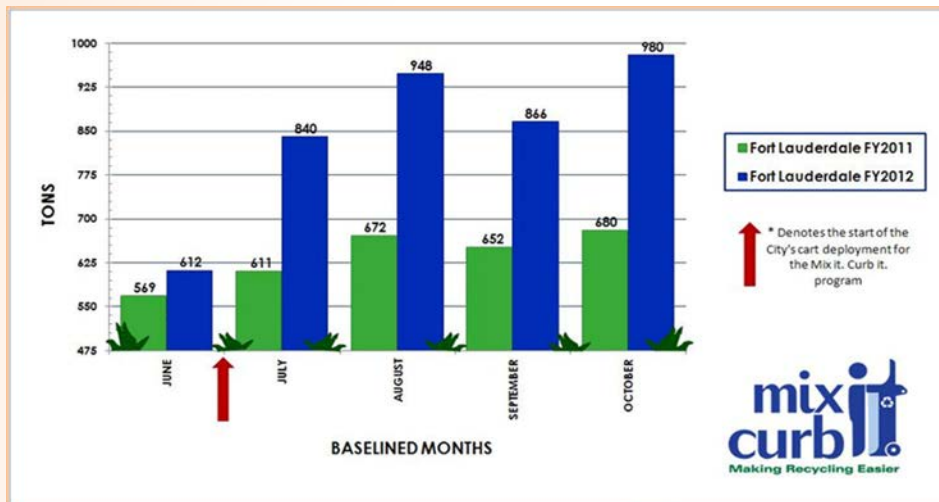
Local Government Highlight: Fort Lauderdale’s “Mix it Curb it” Program

Through strategic planning and city-wide involvement, the city successfully and seamlessly “rolled out” its new single stream recycling program.

During the launch of Mix it, Curb it:

- Nearly 40,000 carts delivered in five weeks
- No service disruption
- Lower than 1.5% error rate, with all cleared within delivery period and most within 24 hours
- Fewer than five calls to Commission offices
- Increased recycling participation immediately
- Huge increase in “Green Your Routine” brand awareness
- Roll-out completed on time and under budget allowing for additional education and outreach

Ultimately, the Mix it, Curb it campaign reached 40,000+ residents and increased recycling collection by 40%. Graph below provided by City of Fort Lauderdale.



Climate Change

Broward County, our 31 Municipalities and 5 Partners in Higher Education were asked to rank their level of concern regarding 14 potential impacts of climate change on our local community.

The top 7 Climate Change Issues Identified by survey respondents as being "Of Great Concern"

Flooding / Storm Water Management	74%
More Intense Hurricanes	63%
Impact to Public Infrastructure	51%
Saltwater Intrusion to Aquifer	45%
Impacts to Private Property	43%
Sea Level Rise *	40%
Beach Erosion *	34%

The top 7 Climate Change Issues Identified by survey respondents as being "Of Moderate Concern"

Temperature Changes	67%
Impact to Natural Systems	57%
Heat Stress / Public Health	53%
Price / Availability of Energy	51%
Price / Availability of Food	46%
Drought	46%
Migration of Affected Populations *	38%

*Notes:

All 14 climate change impacts were identified as of great or moderate concern by at least 40% of survey respondents (none with a high percentage reporting the issue as of "Less of a Concern"), with two exceptions:

(1) *Beach Erosion* had 34% responding "Of Great Concern" and 37% responding "N/A" or not applicable. Due to the location specific tendency for this concern, we have included it in the first tier of issues.

(2) Migration of Affected Populations was reported as a moderate level concern by 38% of respondents, which SurveyMonkey still found statistically significant in the prioritization.

Additionally, *Sea Level Rise* had a 40% response rate in both the "Of Great Concern" and "Of Moderate Concern" categories. Because this was the only impact to score 40% or greater in both top categories, we have included it in the top tier of issues.

Including Climate Change into Comprehensive and Strategic Community Planning

Broward County has made it a priority to reduce carbon emissions, identify and address vulnerabilities, consider these hazards prior to making infrastructure investments and prepare residents, businesses and natural resources for a changing environment. On February 12, 2013, Broward County took a progressive step forward in planning for community resilience and the long-term sustainability of Broward's environment and economy with the adoption of the Climate Change Element into the Broward County Comprehensive Plan. An amendment to the County Land Use Plan parallels the Element, and includes a new Priority Planning Areas for Sea Level Rise Map.

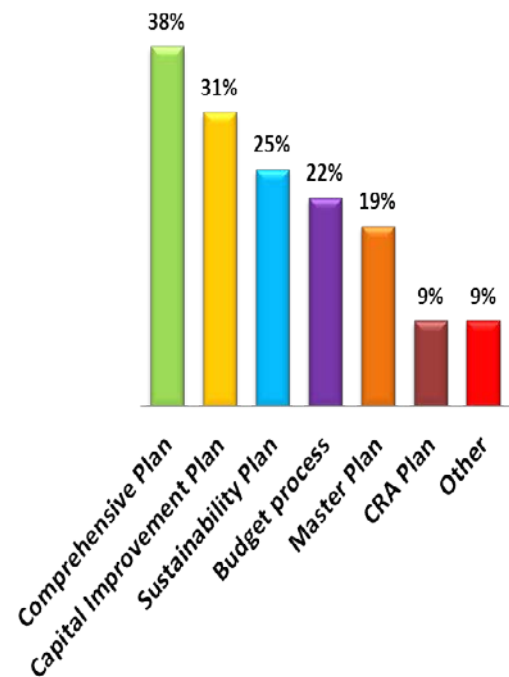
Among the first dedicated comprehensive plans to focus on climate change in the country, the Climate Change Element provides a planning foundation for Broward County to move forward to address its own challenges while creating a template for local municipalities and the region to use to advance their climate planning.

Incorporating Climate Change Concerns into Municipal Comprehensive Plans:

- Over three-fourths (77 percent) of Broward County's 31 municipalities are aware that Broward County created and adopted and Climate Change Element.
- Over one-third of Broward County's municipalities (38 percent) plan to update their *Comprehensive Plan* to include climate change.

Incorporating Climate Change into Other Planning Processes:

- Just under one-third (31 percent) plan to include climate change into their *Capital Improvements Plan*.
- One-quarter (25 percent) plan to include climate change into their *Sustainability Plan*.
- Over one-fifth (22 percent) plan to include climate change into their *Budget Process*.
- Just under one-fifth (19 percent) plan to include climate change into their *Master Plan*.
- Inclusion of climate change into a *Community Redevelopment Area (CRA) Plan* and *Other* plans were both reported at 9 percent.



Information and Resources Needed for Climate Adaptation Planning

Recognizing that local governments differ in their ability to support adaptation planning, Broward County strives to be a leader in climate change by providing resources of value that can be shared throughout the region. While a number of resources have already been created* or continue to be provided**, the 2013 Municipal Survey asked local governments what else they need to better understand and prepare for risks associated with climate change. Results help to inform Broward County on how future programs can continue to meet this need.



Resources Needed for Climate Adaptation:

- The majority of respondents (89 percent) identified *Funding* as their #1 need for Climate Adaptation.
- *Technical Workshops for Staff and Elected Officials* was the second highest reported need identified at 67 Percent.
- *Community Support* (44 percent) and *Maps of Vulnerable Areas* (30 percent) were also cited as current needs.

* Resources Currently Available

Broward County Climate Change Element (GOPs) [web link](#)
Broward County Climate Change Element (support document) [web link](#)
Broward County Land Use Amendment for Climate Change [web link](#)
Priority Planning Areas for Sea Level Rise Map [web link](#)
Unified Sea Level Rise Projection for Southeast Florida (2011) report (PDF) [web link](#)
Regional Greenhouse Gas Emissions Inventory: Baseline Period 2005 -2009 [web link](#)
Analysis of the Vulnerability of Southeast Florida to Sea Level Rise [web link](#)
Southeast Florida Regional Climate Action Plan [web link](#)
Adaptation Action Areas White Paper [web link](#)

** Ongoing Opportunities to Engage

Sustainability Stewards Workshops [web link](#)
Clearinghouse of Best Management Practices [web link](#)
Broward County Climate Change Task Force [web link](#)
Southeast Florida Regional Climate Change Compact [web link](#)
Annual Southeast Florida Regional Climate Leadership Summits [web link](#)

Recent Investments in Climate Adaptation

Broward County and our 31 municipalities continue to make significant investments in projects that increase the resilience and adaptive capacity of our communities to the impacts of climate change. *Stormwater Improvements* continue to be the top adaptation investment employed. *Beach Renourishment*, *Raising Base Floor Elevations*, and *Considering Climate Impacts in Location and Design of Public Infrastructure* are the next three strategies most commonly invested in.

Results from the 2011 Municipal Survey are compared with 2013 Municipal Survey results below*.

Local Governments Investing in Climate Adaptation	2011	2013
Stormwater Improvements	68%	49%
Beach Renourishment	19%	22%
Raising Base Floor Elevations	19%	17%
Consider Impacts in Location and Design of Public Infrastructure	16%	17%
Hard Armoring	6%	16%
Vulnerability Analysis	9%	9%

*Note: 2011 Survey asked for investments made in the past 5 years. The 2013 Survey asked for investments made in the past last 2 years. Also, responses have been normalized to compare across all 32 local governments (response rate varied between survey years).

Committing to Work Regionally to Reduce Risk and Build Resilience

Many Broward County communities have signed the Mayor's Climate Action Pledge in support of the Southeast Florida Regional Climate Change Compact and the Regional Climate Action Plan. As of the 2013 Municipal Survey, 15 of Broward's 31 municipalities confirmed that they had signed the pledge, two reported that they were considering or in the process of signing, 10 needed more information, and only 2 reported no interest.

Local Government Highlight: Broward Climate Change Element Wins APA Florida 2013 Award

Broward County's Environmental Protection and Growth Management Department received an Award of Merit from the Florida Chapter of the American Planning Association (APA) in the Comprehensive Plan (large) category for the Broward County Climate Change Element (Element) at the APA Florida conference in September 2013. The Climate Change Element was adopted by the Broward County Board of County Commissioners in February 2013.

The Climate Change Element combines scientific, technical and policy input from previous and concurrent local and regional climate planning initiatives to provide a planning framework for local governments who want to incorporate the economic, environmental and social planning decisions into their own comprehensive plans.

For more information visit the Broward County website:
<http://www.broward.org/PLANNINGANDREDEVELOPMENT/COMPREHENSIVEPLANNING/Pages/CompPlan.aspx>



Photo Caption: Glenn Amoruso, center, principal planner with the Broward County Planning and Redevelopment Division, receives the award from Brian Teeple, president, APA Florida, and Allison Megrath, chair, 2013 APA Florida Project Awards. Not pictured, Jill Horwitz, the Climate Change Element project manager with the Natural Resources Planning and Management Division. (Photo courtesy Dave Hutchinson)

Local Government Highlight: Dania Beach Dune Restoration

The City of Dania Beach has been working diligently to re-nourish and improve the dune systems on their public beach. 18,731 sq. feet of seagrapes were thinned to promote development of a mature stand, and brazilian pepper, mahoe, naupaka, and other invasive species were removed.



The areas have been replanted with sea lavender, cocoplum, bay cedar, and plugs of beach elder, sea oats, beach cordgrass, dune sunflower, railroad vine, beach morning glory, sea purslane, chaff flower, sea rocket, bay bean, beach sandmat, and pennywort. The city also completed a retrofit of existing lighting and created a beach lighting ordinance for the sea turtles.

Contact: Colin Donnelly, Assistant City Manager, 954-924-6800 ext. 3613

NEW Community Partners

Leaders in Higher Education Join the 2013 Municipal Green Initiatives Survey!

Since the 2011 Municipal Survey, the Broward municipal partners collaboratively developed the Online Clearinghouse of Best Management Practices for Sustainability, and expanded our original list of 40 survey participants to a regional peer-exchange network of more than 250 sustainability professionals in the public, private, and non-profits sectors of our community. Some of the most active new participants to join the Sustainability Stewards network have been our sustainability colleagues in our local university and college systems.

Recognizing the overlapping nature of our communities (many Broward County residents study in Miami-Dade County, or work in Palm Beach County, etc.), we decided to expand the 2013 Survey to include these partners in higher education. Many of the challenges and successes they experience managing sustainability on a campus is quite similar to the challenges and successes we experience as local governments.

As you may notice, we have not included the universities responses in the majority of the charts and figures referenced throughout this summary report. This was for two reasons. First, we needed to preserve the ability to cross-reference municipal actions across the 2011 and 2013 surveys. Repeating the survey every two years gives us the opportunity to benchmark our efforts and measure our successes. While we are excited to expand participation, we did not want to lose this main function of the survey. Secondly, not all questions apply to the universities, and it would be difficult for an end user of this report to distinguish which questions they were included in, and which they were not. In most cases, we have normalized the data so that percentages are given as if all 31 municipalities answered each question. While the percentages may seem lower than in 2011, now anyone who reads or presents information from the report can say “34% of all Broward municipalities do xyz” instead of “34% of all survey respondents do xyz”. This is a clear improvement to the previous survey.

The contributions of our partners in higher education are reflected in a few ways through the report. First, their leadership and innovation is demonstrated in the case studies they have shared with us below. Their responses are also included in the Matrix of Green Initiatives, provided in the appendices. In some cases, where they are employing cutting edge practices that we wanted to specifically mention, we have included them in the narrative of the main body of the report.

We are grateful to these five centers of higher education, for deciding to join us in the 2013 survey, and for all they do to make our “greater Broward County” a more sustainable community:

Broward College
Florida Atlantic University
Florida International University
St. Thomas University
University of Miami

University of Miami - Green Construction and Sustainable Sites

The University of Miami has adopted a formal Sustainable Building Policy stating the following:

- ✓ All new buildings shall be designed and constructed in a manner to attempt to reach a minimum standard of LEED Silver rating.
- ✓ Projects will strive to achieve a higher level than LEED Silver whenever possible.
- ✓ Major renovation of existing buildings where major portions or floors of the facility and infrastructure are upgraded shall be designed and constructed in a manner to attempt to reach a minimum standard of LEED silver rating.
- ✓ Minor renovations shall follow good sustainable design practice and shall comply with the University of Miami Building Components Standards.
- ✓ University of Miami Building Component Standards shall be updated regularly to include the latest green building components and standards deemed acceptable by the University.
- ✓ Contractors and Architects shall employ whenever possible, LEED accredited staff to assist in the management and documentation.

Contact: Richard Jones, rjones@miami.edu Website: www.miami.edu/greenbuilding

Florida Atlantic University - Reducing Vulnerability to Climate Change

Impacts of climate change has been designated an FAU-wide Research Priority. The Florida Center for Environmental Studies is the home of The Integrative Collaborative on Climate and Energy (ICCE), a cross-university program creating relevant linkages across disciplines in order to advance basic and applied research in the area of climate change and adaptation, involving more than 100 faculty members. Cooperative work with USGS, SFWMD, USACE, Florida SeaGrant, the Four County Compact Group, and others provide a practical outreach for research findings.

Current projects include a study of sea level rise impacts on Florida's transportation modes and infrastructure for the Florida Department of Transportation, and the development of a NASA Climate Change curriculum to improve the climate science literacy of young adults.

Contact: Nicole Hernandez Hammer, Climate Change Initiative, Florida Center for Environmental Studies, at 561-297-3451

Website: http://www.ces.fau.edu/climate_change

Florida International University

Community Outreach/Waste Reduction

FIU Give & GoGreen (G&GG) is a Student Housing move-out program that collects unwanted lightly used clothing and goods from student residents. Materials are collected throughout the week of "move-out" and donated to local charities. Over 11,000 pounds of clothing, shoes, kitchenware, small furniture, and school supplies have been donated locally since the beginning of the program in 2011. G&GG is a partnership with Housing Facilities (who rents a storage POD), Facilities Management (provides the collection containers), and Office of Sustainability (coordinates volunteers who collect the materials).

Contact: Ali Dutton at adutton@fiu.edu

Water Conservation

FIU recently received a donation through Axe/Unilever Corporation to replace all campus shower fixtures with low-flow shower heads. About 1,500 shower heads will be changed to a low-flow fixture by the end of the project. Fixtures in all residential dorm rooms and recreation center locker rooms will be changed. We are currently trying to reach out to Athletics to also change the shower head in the Stadium and Arena locker rooms to the new low-flow fixtures.

Contact: Ali Dutton at adutton@fiu.edu

Energy Conservation and Renewables

FIU is currently #1 in the State University System for Energy Conservation. FIU has topped the SUS in energy efficiency for five consecutive years. Our Facilities Management feels the greenest energy is the energy you don't have to use, and they have developed a 5-year Energy Conservation Plan that has been successful at reducing consumption even though the university continues to grow at a fast rate.

In 2011, FIU's College of Architecture and College of Engineering competed in the US Solar Decathlon. The perFORM[D]ance house, built and designed by our students, is being reconstructed on campus as office space for the Office of Sustainability, and will function as an outreach and engagement facility for green homes, renewable energy and native landscaping. <http://solardecathlon.fiu.edu/>

Contact: Nick DiCiacco at Nicholas.Diciacco@fiu.edu

Alternative Transportation / Reducing Vehicle Miles Traveled (VMT)

FIU has partnered with South Florida Commuter Services (SFCS), a program of the Florida Department of Transportation, to provide transportation related programs and services to FIU students, faculty, and staff. See our new website <http://www.get2fiu.com>

Contact: Lissette Hernandez at Lissette.Soto@fiu.edu

For more information on all these programs, see: <http://www.gogreen.fiu.edu>

Community Gardens

Broward County is seeing a groundswell in Community Gardens and Urban Agriculture. While not a category on the 2013 Municipal Survey, many respondents submitted case studies on this topic. Community Gardens as a part of an overall sustainability program helps to connect many of the other aspects of sustainability in a tangible way, giving residents and volunteers the opportunity to interact with municipal staff and local businesses. Relationships are built, and survey respondents report multiple benefits from taking this “hands on” and collaborative approach to building a more healthy and sustainable community.

Local Government Highlight: Southwest Ranches’ Town Hall Demonstration Garden



The Southwest Ranches’ Town Hall demonstration Garden is a student-designed and constructed garden that allows students, teachers, and parents to learn how to grow their own fruits and vegetables organically. The Project’s main goal is to spread healthy eating to the student body, surrounding schools, and community as a whole.

The demonstration garden features an herb spiral built by town staff and planted by local student group, “Project Primal,” from West Broward High School. The garden also includes lemongrass as accent plants, a new rosemary screening “hedge”, as well as various fragrant and flowering trees such as fisheye jasmine and firebush. The next step is incorporating herbs using as ground covers, including various oregano cultivars and scented geraniums. Other trees, plants and features of the garden will be added as time and materials permit.

Local Government Highlight: City of North Lauderdale Community Sustainability Board

The five-member board is charged with supporting and facilitating programs to encourage the sustainability of the residential and business community. The Board has also made significant improvements to the Community Garden. Since the Sustainability Board took over operation of the garden, resident participation has more than doubled with many members of North Lauderdale’s multi-cultural population becoming involved. A local school group created an educational plot and students from the nearby Boys’ and Girls’ Club visit regularly to take part in science and nutritional lessons. The Sustainability Board has created multi-lingual informational pieces on community standards and promotion of healthy eating habits, creating a positive impact on numerous populations within North Lauderdale.

For more information, see the following two web links:

http://www.nlauderdale.org/departments/city_clerk/city_advisory_boards/community_sustainability_board/index.php

http://www.nlauderdale.org/document/community_garden/index.php

Local Government Highlight: City of Dania Beach Community Garden



The City established a community garden on a vacant parcel within the Community Redevelopment Area. The community garden provides a needed service to the residents, as it provides fresh, local produce, while encouraging community participation and allowing individuals to plant and grow their own produce. The community garden is also an educational tool for the local elementary schools; students learn about different aspects of growing successfully, being self-sustainable and healthy eating habits. Additionally, each week there is a Farmers Market that sells the produce grown in the community garden to the residents of Dania Beach.

For more Information:

<http://daniabeachfl.gov/index.aspx?nid=1425>

Conclusion

The Municipal Green Initiatives Survey provides a snapshot of the growing efforts to achieve sustainability in our community. The growth of the type of projects and the participation in these efforts is demonstrated on every page of this report.

Overall, we have seen a trend to ...

- Fund sustainability initiatives through general funds, local grants and cost share strategies.
- Utilize greenhouse gas emission inventories to set program goals and measure progress.
- Take steps to increase urban forests and create more walkable livable communities through landscape codes, community gardens, complete streets programs and other activities.
- Roll-out waste reducing measures, such as automated collection and recycling rewards programs.
- Provide efficient and convenient services to the community, such as Electronic Permitting.
- Participate in regional water and climate advisory groups, training opportunities, and planning efforts, such as NatureScope Broward and the Mayor's Climate Action Pledge.

Since 2011, there has also been an increase in energy efficiency upgrades and retrofits of government facilities and services. This is a significant finding, as the federal funding source most prevalently utilized previously for these investments is no longer available. This would suggest that municipalities have found that investing in these types of improvements can yield significant financial benefits. Clearly, Broward's local governments are connecting the dots between their three highest sought benefits: energy conservation, protection of resources, and fiscal savings. In doing so, they are achieving the "triple bottom line" (environment, economy, and community) and realizing program successes that can be shared and emulated throughout the Broward community.

The 2013 survey expanded in scope and participation since the original survey was administered in 2011. This year's survey included more community partners, such as our local leaders in higher education and campus sustainability. It also broadened questions to include emerging practices, such as regulations to address light pollution, incorporation of solar energy into existing projects, innovative ways to reduce or repurpose waste to create maximum community benefit, and strategic ways of incorporating climate change considerations into community-wide planning.

As one of many outcomes of this survey, results will be shared through the Online Clearinghouse of Best Management Practices for Sustainability featured on the County's GoGreen web site, and discussed at future Sustainability Stewards of Broward workshops. The information and case studies included in this report, and shared on the Clearinghouse and through the Stewards Network, will continue to inform and inspire activities, pushing the needle further to increase the efficiency and effectiveness of our programs, and - ultimately - the health, vitality, resiliency, and sustainability of our collective Broward community.

**Broward Municipal Green Initiatives 2013 Survey
Participant Contact List**

Municipality	Lead Point of Contact	Contact Position	Department	Contact Phone	Email
Broward County	Doug Young	NRS II	Energy & Sustainability Program		ddyoung@broward.org
Coconut Creek	Jim Hetzel	Sustainable City Coordinator	Sustainable Development	954-973-6756	jhetzel@coconutcreek.net
Cooper City	Matt Wood	Growth Management Director	Growth Management	954-434-4300 x4	mwood@coopercityfl.org
Coral Springs	Mark Westfall	Environmental Coordinator	Community Development Department	954-344-1117	mwestfall@coralsprings.org
Dania Beach	Corinne Lajoie	Principal City Planner	Planning and Zoning	954.924.6800 x3704	cchurch@ci.dania-beach.fl.us
Davie	Lise Bazinet	Planner II	Planning and Zoning	954-797-1180	Lise_Bazinet@davie-fl.gov
Deerfield Beach	Chad E. Grecsek		Environmental Services / Public Works	954-420-5562	cgrecsek@deerfield-beach.com
Fort Lauderdale	Josh Nichols	Sustainability Manager	Office of Sustainability/Public Works Department	954-828-5769	jnichols@fortlauderdale.gov
Hallandale Beach	Rafael Perdomo	Engineer/ Green Initiatives Coordinator	Engineering	954-457-3043	rperdomo@cohb.org
Hillsboro Beach	Natasha Alfonso	Planner	RMA	954-695-0754	natasha@rma.us.com
Hollywood	Ali Parker	Regulatory Compliance Officer	Public Utilities	954-921-3414 x8961	aparker@hollywoodfl.org
Lauderdale by the Sea	Don Prince	Director	Municipal Services	954-275-0908	donp@lbts-fl.gov
Lauderdale Lakes	Danny Holmes	Director	Planning and Zoning	954-535-2482	danh@lauderdalakes.org
Lauderhill	Jane Sullivan	Grants Manager	Administration	954-730-3001	jsullivan@lauderhill-fl.gov
Lazy Lake	Joe McCallion	City Manager		954-614-9058	lazylake123@aol.com
Lighthouse Point	Art Graham	Public Works Director	Public Works	954-943-6500	agraham@lighthousepoint.com
Margate	Aaron Tauber	Sustainability Coordinator			atauber@margatefl.com
Miramar	Kristy Gilbert	Administrative Services Coordinator		954-883-6819	kmgilbert@ci.miramar.fl.us
North Lauderdale	Susanna Laurenti	Grants Administrator	Finance	954-722-0900 x487	slaurenti@nlauderdale.org

**Broward Municipal Green Initiatives 2013 Survey
Participant Contact List**

Municipality	Lead Point of Contact	Contact Position	Department	Contact Phone	Email
Oakland Park	Janet Saint Clair	Administrative Specialist	Engineering & Community Development Department	954-630-4335	janets@oaklandparkfl.gov
Parkland	William Mohler	Environmental Superintendent		954-757-4186	wmohler@cityofparkland.org
Pembroke Park	Todd Larson	Director	Public Works	954.966.4600 x212	tlarson@townofpembrokepark.com
Pembroke Pines	Sharon Williams	Planning Administrator (P/T)	Planning and Economic Development Division	954-435-6513	swilliams@ppines.com
Plantation	Carlos Andres Gonzalez	Redevelopment Administrator	Community Redevelopment Agency	954-585-2330	CGonzalez@plantation.org
Pompano Beach	Amanda Bassiely-Parker	Planner	Department of Development Services	954-786-4667	Amanda.Bassiely@copbfl.com
Sea Ranch Lakes	Starr Paton		Mayor's office	954-943-8862	cityclerk@searanchlakesflorida.gov
Southwest Ranches	December Lauretano		Parks & Rec	954.434.0008 x204	dlauretano@swranches.org
Sunrise	Lou Sandora	Director	Economic Development	954-746-3218 954-746-3430	lsandora@sunrisefl.gov
Tamarac	Samira Shalan	Senior Engineer	Public Works	954-597-3705	samiras@tamarac.org
West Park	Carol Aubrun	Program and Services Manager	City Manager's Office	954-989-2688 x211	cabrun@cityofwestpark.org
Weston	Dana Sampson			954.385.2000	dsampson@westonfl.org
Wilton Manors	Heidi Shafran	Community Development Services Director		954-390-2188	hshafran@wiltonmanors.com
University					
Broward College	Greg Mason				gmason@broward.edu
Florida Atlantic University	Nicole Hernandez Hammer	Program Manager	Florida Center for Environmental Studies - Climate Change Initiative	561-297-3451	nicole.hammer@fau.edu
Florida International University	Carrie Kashar	Assistant Director	Office of University Sustainability	305-348-3734	ckashar@fiu.edu
St. Thomas University	Monique Brijbasi				mbrijbasi@stu.edu
University of Miami	Ian McKeown				lmckeown@med.Miami.edu

**Appendix B:
Matrix of Municipal Green
Initiatives in Broward
County, Florida**

	Sustainability Actions Taken							Greenhouse Gas Emissions Inventory				Initiatives to Increase the Urban Forest or Tree Canopy			
	Appointed a citizens green committee	Established an internal green task force	Adopted a sustainability plan	Updated existing plans with green policies	Provided a budget for the sustainability efforts	Dedicated staff to sustainability effort	Citizens / Business Award	Government Operations - Completed	Government Operations - In Progress	Community-wide - Completed	Community-wide - In Progress	Landscaping Ordinances and Codes	Complete Streets Program	Native Tree Sales and Giveaways	Community Education and Outreach
Broward County	X	X	X	X	X	X	X	X	X		X	X	X	X	
Coconut Creek	X	X	X	X	X	X	X				X	X	X	X	
Cooper City	X										X		X	X	
Coral Springs	X	X					X				X		X	X	
Dania Beach		X		X							X				
Davie	X		X	X			X	X			X		X	X	
Deerfield Beach											X		X	X	
Fort Lauderdale	X	X	X	X	X	X	X	X			X		X	X	
Hallandale Beach				X	X	X					X		X	X	
Hillsboro Beach											X				
Hollywood	X		X	X							X		X	X	
Lauderdale By The Sea											X	X	X	X	
Lauderdale Lakes				X		X					X				
Lauderhill		X									X				
Lazy Lake															
Lighthouse Point	X	X		X			X	X			X		X	X	
Margate							X				X				
Miramar		X		X				X			X				
North Lauderdale	X										X				
Oakland Park				X							X	X	X	X	
Parkland		X	X	X	X	X	X				X	X	X	X	
Pembroke Park															
Pembroke Pines	X										X			X	
Plantation		X						X			X		X	X	
Pompano Beach				X	X	X	X				X	X	X	X	
Sea Ranch Lakes											X				
Southwest Ranches	X										X			X	
Sunrise	X	X	X	X				X			X		X	X	
Tamarac		X	X	X	X			X	X		X	X	X	X	
West Park	X						X	X					X	X	
Weston				X							X	X			
Wilton Manors							X							X	
Total Municipalities	12	12	8	16	7	12	10	7	1	3	0	28	8	18	19
University															
Florida Atlantic University				X					X						X
Florida International University		X	X	X	X	X	X	X				X	X	X	X
Broward College	X	X	X	X	X	X	X	X		X		X		X	X
St. Thomas University		X		X				X					X	X	
University of Miami	X	X	X	X	X	X	X	X		X			X	X	X

**Appendix B:
Matrix of Municipal Green
Initiatives in Broward
County, Florida**

	Participation in Community Water Planning Activities or County Services								Actions to Build a Water Conservation Ethic							
	Water Resources Advisory Board	Water Resources Task Force	Naturescape Broward Program	Naturescape Irrigation Services	Habitat Stewards Training	Broward Water Leaders Academy	Surface Water Everglades Working Group	Government building water audits	Outreach to highest users	Fixture rebates and giveaways	Community events	Outreach to Homeowners Associations	Residential competitions and workshops	Water conservation web page	Public service announcements	
Broward County	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Coconut Creek			X	X					X	X	X	X	X			
Cooper City			X	X					X	X	X					
Coral Springs	X	X	X	X	X		X					X	X			
Dania Beach									X							
Davie			X	X								X	X			
Deerfield Beach			X						X			X	X			
Fort Lauderdale	X		X		X				X	X	X	X	X	X		
Hallandale Beach	X	X	X	X	X				X	X	X			X		
Hillsboro Beach																
Hollywood	X	X	X	X	X	X			X	X	X	X	X			
Lauderdale By The Sea																
Lauderdale Lakes																
Lauderhill		X							X		X					
Lazy Lake																
Lighthouse Point			X	X	X				X			X				
Margate									X				X			
Miramar			X	X					X	X	X		X	X		
North Lauderdale	X								X				X			
Oakland Park	X	X	X	X	X	X			X	X	X	X	X			
Parkland			X	X	X				X	X	X		X			
Pembroke Park																
Pembroke Pines			X										X			
Plantation																
Pompano Beach	X	X	X	X		X			X	X	X	X	X	X		
Sea Ranch Lakes																
Southwest Ranches			X		X		X									
Sunrise	X	X		X		X			X	X	X	X	X			
Tamarac									X	X	X	X	X			
West Park																
Weston	X	X														
Wilton Manors	X		X		X	X			X							
Total Municipalities	11	9	17	13	10	6	3	7	9	12	17	12	11	8	18	7
University																
Florida Atlantic University			X													
Florida International University										X	X					
Broward College	X	X	X						X	X	X					
St. Thomas University										X						
University of Miami									X			X				

**Appendix B:
Matrix of Municipal Green
Initiatives in Broward
County, Florida**

	Retrofits and Energy Efficiency Upgrades in Government Facilities								Actions to Reduce Energy Use in Government Operations									
	Office lighting	Building insulation	Roofing	Heating and air conditioning systems	Low flow water devices	Pumps in the water or sewer systems	LED traffic signals	Streetlights / other exterior lighting	Use of an Energy Manager on Staff	Fuel efficiency target for city vehicles	Purchased alternative fuel vehicles	Alternative fuels available to your fleet	Government building energy audits	Energy management systems	Purchase certified equipment	Use of energy tracking software	Other IT solutions	
Broward County	X		X	X	X		X		X	X	X	X	X	X	X	X	X	
Coconut Creek	X			X						X	X	X	X	X	X	X	X	
Cooper City	X		X	X	X									X				
Coral Springs	X				X		X	X				X		X				
Dania Beach											X							
Davie	X		X	X	X				X	X	X	X	X	X			X	
Deerfield Beach	X			X				X			X	X						
Fort Lauderdale	X		X			X		X								X		
Hallandale Beach	X	X								X				X				
Hillsboro Beach											X							
Hollywood	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Lauderdale By The Sea	X			X	X			X						X				
Lauderdale Lakes			X		X							X	X	X				
Lauderhill	X			X	X								X					
Lazy Lake																		
Lighthouse Point	X		X	X							X	X						
Margate	X		X	X	X	X		X			X		X	X				
Miramar	X			X		X		X		X	X	X	X	X	X	X	X	
North Lauderdale	X		X	X									X					
Oakland Park	X	X	X	X	X	X			X			X		X			X	
Parkland	X	X	X	X	X				X			X	X	X				
Pembroke Park																		
Pembroke Pines				X	X							X						
Plantation																		
Pompano Beach	X			X	X						X	X						
Sea Ranch Lakes	X		X	X	X													
Southwest Ranches														X			X	
Sunrise	X	X		X	X	X			X		X	X	X					
Tamarac	X	X	X	X	X	X		X			X	X	X				X	
West Park																		
Weston						X	X	X										
Wilton Manors									X				X					
Total Municipalities	21	6	13	19	16	8	4	12	2	6	11	5	2	15	14	18	5	9
University																		
Florida Atlantic University														X				
Florida International University	X		X	X	X		X	X										
Broward College			X	X	X	X		X				X	X	X	X			
St. Thomas University				X	X							X	X	X				
University of Miami	X		X	X	X			X		X	X	X	X	X	X			

**Appendix B:
Matrix of Municipal Green
Initiatives in Broward
County, Florida**

	Incorporate Solar into Existing Projects / Facilities						Promote Renewable Energy/ Reduce Energy Consumption in the Community												
	Parking Meters	Outdoor Lighting	Signage	Bus Shelters	School Flashers	Environmental Monitoring Stations	Renewable energy demonstration project	Revolving Loan Fund	Incentives for energy efficient appliances	Weatherization assistance	Community energy audits	Reduced barriers to renewable energy production	Training and education on renewable energy production	Green jobs training programs	Participate in the GoSolar partnership	Energy Efficiency / Energy Conservation Goals	Light Pollution		
Broward County				X	X			X	X	X	X	X		X					
Coconut Creek		X	X					X	X	X				X			X		
Cooper City	X							X		X				X					
Coral Springs	X		X	X	X			X											
Dania Beach	X		X											X					
Davie			X						X	X	X			X			X		
Deerfield Beach					X		X							X					
Fort Lauderdale	X	X	X			X		X	X		X			X	X				
Hallandale Beach	X													X					
Hillsboro Beach																	X		
Hollywood	X	X		X			X	X		X									
Lauderdale By The Sea	X	X													X				
Lauderdale Lakes																	X		
Lauderhill				X			X	X	X								X		
Lazy Lake																			
Lighthouse Point		X	X				X		X										
Margate			X	X					X					X					
Miramar				X			X							X					
North Lauderdale			X	X											X				
Oakland Park		X					X	X		X				X	X	X			
Parkland		X	X				X		X		X			X	X				
Pembroke Park																			
Pembroke Pines																	X		
Plantation																			
Pompano Beach		X							X					X			X		
Sea Ranch Lakes																			
Southwest Ranches																	X		
Sunrise							X			X	X			X					
Tamarac							X							X					
West Park																			
Weston																			
Wilton Manors		X								X				X	X				
Total Municipalities	3	12	6	9	3	3	5	2	11	3	4	10	4	0	16	6	9		
University																			
Florida Atlantic University																	X		
Florida International University		X	X		X		X										X		
Broward College		X							X		X	X			X				
St. Thomas University						X			X		X								
University of Miami		X	X						X										

**Appendix B:
Matrix of Municipal Green
Initiatives in Broward
County, Florida**

	Actions to Increase Production of Energy In Government Operations					Alternative Transportation Improvements									Creating Walkable Communities					
	Installed solar panels	Installed a geo-thermal system	Installed wind turbines	Long-term goals for renewable energy production		Bus Fleet Improvement	Bus Shelter Improvements	Car-share / Bike-share program	Electric Vehicle Charging Stations	Expanded bike lanes on streets	Added biking and walking trails	Carpool Programs	Adopted a Complete Streets policy		Reduced Required Parking Standard	Improved Grid Network (connectivity)	Enforce Street-tree Requirements	Widened Sidewalks		
Broward County						X	X	X	X	X	X					X				X
Coconut Creek							X	X	X		X	X						X	X	X
Cooper City	X	X	X	X													X	X	X	
Coral Springs	X						X			X	X	X					X	X	X	
Dania Beach	X						X													
Davie				X		X	X			X	X	X					X	X	X	X
Deerfield Beach	X						X				X									X
Fort Lauderdale										X	X	X	X					X	X	
Hallandale Beach							X			X	X									
Hillsboro Beach																				
Hollywood	X		X				X	X				X								
Lauderdale By The Sea											X									X
Lauderdale Lakes							X													
Lauderhill							X				X									X
Lazy Lake																				
Lighthouse Point						X						X						X		
Margate	X							X				X					X	X	X	
Miramar	X	X				X	X										X	X		
North Lauderdale						X	X													
Oakland Park				X						X	X					X	X	X	X	X
Parkland	X									X	X	X					X	X	X	
Pembroke Park																				
Pembroke Pines																X	X			
Plantation																				
Pompano Beach	X							X		X						X	X	X	X	X
Sea Ranch Lakes																				X
Southwest Ranches																				
Sunrise								X										X		
Tamarac	X			X							X	X	X							X
West Park							X				X					X				
Weston										X										
Wilton Manors																X		X		
Total Municipalities	10	2	2	4		5	15	4	1	9	12	10	2		3	7	8	13	14	
University																				
Florida Atlantic University							X		X		X	X	X							
Florida International University								X		X			X					X		
Broward College								X				X	X				X			
St. Thomas University																				
University of Miami						X	X	X	X	X	X	X				X				X

**Appendix B:
Matrix of Municipal Green
Initiatives in Broward
County, Florida**

	Community-wide LEED Certification Goal for		Departments Containing Staff with LEED				Incentives Offered for Green Construction			Waste Reduction and Recycling: Community-wide												
	Private Construction	Yes	Accreditation	Building Construction	Permitting	Planning	Facilities/Maintenance	Sustainability Program	Increased Density or Height Allowances	Streamlined Permitting Process	Reduced Fees	1x week garbage collection	Pay-As-You-Throw program	Community-wide composting	Single-stream recovery facility	Recycling rewards programs	Fuel efficient collection fleet	Automated collection				
Broward County			X	X	X	X			X				X	X	X	X						
Coconut Creek		X											X	X	X							
Cooper City													X				X					
Coral Springs					X								X									
Dania Beach		X			X				X													
Davie			X			X			X	X				X								
Deerfield Beach													X	X	X	X	X					
Fort Lauderdale					X								X	X		X	X					
Hallandale Beach		X		X					X			X		X		X	X					
Hillsboro Beach																						
Hollywood					X	X							X	X			X					
Lauderdale By The Sea														X		X						
Lauderdale Lakes				X								X		X		X	X					
Lauderhill														X								
Lazy Lake																						
Lighthouse Point													X	X	X		X					
Margate						X	X						X	X	X	X	X					
Miramar					X	X			X	X			X	X		X						
North Lauderdale																						
Oakland Park		X			X				X				X	X			X					
Parkland		X		X	X	X								X	X	X						
Pembroke Park																						
Pembroke Pines									X													
Plantation																						
Pompano Beach				X	X				X	X				X								
Sea Ranch Lakes														X								
Southwest Ranches														X								
Sunrise														X	X		X					
Tamarac														X	X	X	X					
West Park		X															X					
Weston				X	X									X			X					
Wilton Manors		X							X	X				X			X					
Total Municipalities		7		3	5	9	6	3		4	7	2		4	0	0	8	23	9	8	15	
University																						
Florida Atlantic University														X								
Florida International University				X			X						X	X	X							
Broward College		X				X							X	X	X							
St. Thomas University						X	X							X								
University of Miami		X		X			X						X	X	X			X				

**Appendix B:
Matrix of Municipal Green
Initiatives in Broward
County, Florida**

	Waste Reduction and Recycling: Government Operations			Internal recycling program	Internal education programs for staff	Environmentally Preferable Purchasing	Investments in Climate Adaptation							Designation of Adaptation Action Areas			Committed to Work Collaboratively Across Region on Climate Change	
	Stormwater improvements	Raising roadbeds	Raising base floor elevations	Beach re-nourishment	Encouraging development away from Coastal High Hazard Areas	Consider climate impacts in the location, design, and construction of public infrastructure	Vulnerability analysis	Future scenarios modeling	Designation of Adaptation Action Areas	Signed Mayors' Climate Action Pledge	Signed Mayors' Climate Action Pledge	Signed Mayors' Climate Action Pledge	Signed Mayors' Climate Action Pledge	Signed Mayors' Climate Action Pledge	Signed Mayors' Climate Action Pledge	Signed Mayors' Climate Action Pledge	Signed Mayors' Climate Action Pledge	
Broward County	X	X	X							X	X	X	X	X			X	
Coconut Creek	X																X	
Cooper City	X			X									X				X	
Coral Springs	X																	
Dania Beach																	X	
Davie	X	X	X														X	
Deerfield Beach	X								X								X	
Fort Lauderdale	X			X				X	X								X	
Hallandale Beach	X			X				X				X						
Hillsboro Beach	X							X									X	
Hollywood	X		X					X		X							X	
Lauderdale By The Sea	X			X				X										
Lauderdale Lakes	X			X		X											X	
Lauderhill								X										
Lazy Lake																		
Lighthouse Point	X		X					X	X	X	X							
Margate	X							X									X	
Miramar	X	X						X										
North Lauderdale																	X	
Oakland Park	X	X						X	X	X	X						X	
Parkland	X	X	X										X					
Pembroke Park																		
Pembroke Pines																		
Plantation																		
Pompano Beach	X							X	X	X		X					X	
Sea Ranch Lakes																		
Southwest Ranches	X		X							X								
Sunrise	X	X	X					X									X	
Tamarac	X	X	X					X										
West Park	X																	
Weston	X							X					X					
Wilton Manors	X							X										
Total Municipalities	24	7	9	18	3	6	5	8	1	6	3	1	0	15				
University																		
Florida Atlantic University	X	X																
Florida International University	X	X																
Broward College	X	X	X			X			X	X	X	X	X					
St. Thomas University	X		X															
University of Miami	X	X	X					X										