# Enhancing Urban Sustainability in Clearwater, Florida

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# Introduction

In the summer of 2007, I was contacted by members of the Clearwater Environmental Advisory Board (EAB) to ascertain whether or not there was any interest on the part of the Department of Geography and the Environmental Science and Policy Program to partner on a review of how Clearwater can move ahead in green initiatives. The Board brought to my attention the Mayor's commitment to the Governor's initiative on climate change, the Council of Mayor's statement on climate protection, and the city's overall strong record on environmental issues, particularly storm water.

The timing was perfect. The University of South Florida was recently ranked as one of eight public universities in the United States by the Carnegie Foundation as "Engaged" with its community. Our Department, which includes Geography, Environmental Science and Policy, and Urban and Regional Planning undergraduate and graduate programs, is very active with community projects. Thus, this project is a perfect example of the type of partnerships that can exist between a university and a community.

I want to stress the importance of this project to the future of Florida. Our state is at a crossroads. The impacts of climate change are already being felt around the world. With much of our state at risk from sea level rise, we need to pay close attention to how we can make our state more sustainable.

In this technical report, you will find the work completed by thirteen graduate students over the course of one semester who were given the task of looking at Clearwater within the context of urban sustainability. Each student prepared three proposals for research that were shared with the EAB and some city employees for review. Comments were returned to me for review and I selected one project for each student.

The final reports of their work are divided into four sections. Part I focuses on where the City is in its green initiatives. Three of these four papers examine what the city has done, what needs to be done to achieve 'green city' status, and on the ideas of stakeholders. The fourth paper focuses on sustainability education within the city. The student who wrote this report also produced six short sustainability videos that will be seen on Seaview, Clearwater's public education channel.

Part II focuses on innovative new sustainability projects the city could undertake to move forward as a green city. Many cities across the country have done amazing things with urban sustainability and these projects provide some ideas for city leaders. Students examined the development of a solar energy park, innovative approaches to manage sewage, the development of community gardens, and an adopt-a pond program to promote storm water and ecosystem improvement.

Part III focuses on a perennial problem in urban sustainability—transportation. In this section, one paper examines various electronic car fleet alternatives, including low speed vehicles and hybrids; another paper examines how to reduce the amount of carbon

produced to get tourists from airports to the beaches; and the final paper focuses on how Clearwater can reduce cars in tourist areas through a bike rental program.

Finally, Part IV examines energy reduction and green buildings. One paper examines the City's use of electricity and programs that can be used to reduce energy consumption through an energy management system and the other paper looks at green buildings.

Each student was restricted in the amount they could write in this report (ten pages). So, you will see as you read through each report that there are referrals to appendices. I can assure you that the appendices provide a tremendous amount of bibliographic information and many valuable resources. If you received a paper copy of this report, the appendices and bibliographic materials are in the attached CD.

I am grateful for the opportunity to work with the City of Clearwater on this project. I am especially grateful for the assistance of so many city workers, citizens, and stakeholders. I want to thank the members of the City's Environmental Advisory Board for their advice and assistance on many aspects of this project. I particularly want to thank Mr. Ed Chesney, the City's Environmental Manager.

In closing, it is truly an inspiration to work with so many people in the city who believe in moving forward on urban sustainability. Clearwater can be a national leader in this area and I hope that this report is the start of a long-term partnership between the City of Clearwater and the University of South Florida.

Robert Brinkmann, Ph.D.
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# Part I  Green City Initiatives

# Chapter 1

## Inventorying the Sustainable Initiatives of City of Clearwater

Naimish Upadhyay

### Executive Summary

The City of Clearwater has embarked on a journey to becoming a sustainable, 'green' city. At this point in time, it is of prime importance for the City and the community as a whole to know where they stand regarding their sustainable performance, and decide what they need to achieve in the future. Creating a comprehensive inventory of all sustainable initiatives undertaken by the City to date is the first step in this direction. Carrying out such an exercise has multiple benefits: the results help identify successes, shortcomings and possibilities for improvement. Additionally, an inventory will help the City move forward with the application procedure for the Florida Green Building Coalition, Inc.'s 'Green City Certification' and can serve as basis for a long term sustainability strategy for the future. The aim of this paper is to initialize the inventory process and outline its design and implementation stages. The paper also includes initial results from the cursory survey, points out some potential barriers to achieving the goals of sustainable development, and provides recommendations for the future.

### Background and Project Overview

The concept of sustainability has become a key idea in national and international discussions following publication of the Brundtland Report by the World Commission on Environment and Development in 1987. It envisaged sustainable development as a means by which the global system would satisfy "the needs of the present without compromising the ability of future generations to meet their own needs" (Eaton and

others, 2007). More recently, sustainability has been the subject of renewed interest and debate in the context of the 2002 World Summit on Sustainable Development in Johannesburg, where the strapline “People, Planet, Prosperity” was adopted to reflect the requirement that sustainable development implies the balancing of economic and social development with environmental protection (Eaton and others, 2007). For the first time in history, there are as many people living in urban areas as outside of them and predictions by the United Nations estimate that by 2030 over 60% of all people will live in cities (UNCHS, 2001). Cities are also consuming three-quarters of the world's energy and causing three-quarters of global pollution (Rogers, 1998). Central to the sustainability debate must therefore be the increasing domination of cities and their hinterland regions (Egger, 2006).

In the absence of federal direction, states and cities across the United States are taking environmental stewardship into their own hands and undertaking many sustainable initiatives. One of the major initiatives is the U.S. Council of Mayors’ Climate Protection Agreement, which has been signed by six hundred mayors across the nation as of July 2007 (including the Mayor of Clearwater, Florida) and is the only climate protection agreement of its kind in this country (The United States Conference of Mayors, 2007). Furthermore, the Governor of the State of Florida has taken frontline position in the green movement by passing various executive orders addressing the problem of greenhouse gas emissions and global climate change (Governor of the State of Florida: Executive Orders Archives, 2007). Against this backdrop, the City of Clearwater, hereafter referred to as ‘the City’, has committed to strive for sustainability and address many issues associated with the U.S. Council of Mayors’ Climate Protection Agreement.

This project focuses on planning and implementing an inventory of all the sustainable initiatives undertaken by the City thus far. The entire work is done in context of the Governor's Executive Orders on climate change and the Mayor's commitments, with the Florida Green Building Coalition, Inc.'s, (FGBC) Green City Certification Application Tool being used as a guideline for inventory (Florida Green Building Coalition, undated). The work will proceed in collaboration with two other distinct projects: developing a Stakeholder Engagement Plan and the initial application work for FGBC's Green City Certification.

**Sustainability Plan Development**

A brief review of the sustainability path adopted by some of the more popular 'Green Cities' in the U.S. show that many have developed a well-defined strategy document at the onset of their efforts. Such a 'Roadmap to Sustainability' typically includes defining sustainability within the context of the city, their achievements so far, future goals and objectives with specific time-frames, strategies to meet these goals and means to evaluate their performance. The City of Clearwater has already undertaken multiple sustainability initiatives during the past few years across various administrative departments. Creating an inventory is not only a good stock-taking exercise at this juncture, but will also help the City recognize their achievements and design future strategies.

This inventory project was accomplished through accessing existing City databases and collecting pertinent information from various City departments. Some of the data is available on the official City website, but the majority if it was collected by means of department-specific questionnaires (see Appendix A). These questionnaires ask

for inputs on current and past sustainable practices, suggestions on potential actions and on ways to 'green' existing programs. The joint survey with two other projects also included department-specific checklists of 'Green Initiatives' as prescribed by the FGBC as well as a section for listing any external (non-City) stakeholders that might want to be involved in the process. The City departments were requested to supply relevant documentation in support to their claims on the surveys. Though outside the scope of this project, the data so obtained should be compiled into a single city-wide database and analyzed to gauge overall performance. An important finding would be the extent to which the City fulfills the FGBC criteria, and what more needs to be done in order to qualify for the Green City designation.

**Sustainability Plan Implementation**

The first step in the inventory process was to study the City government, its structure and various divisions/departments in order to get familiar with the administrative system and to design the surveys appropriately. The next step was preparing the survey, which contained detailed questionnaires for sixteen city divisions: Development and Neighborhood Services, Economic Development and Housing, Engineering (Environmental and Stormwater Management), Engineering (specifically related to Jolley Trolley), Fire Rescue and Police, Human Resources, Marine and Aviation, Parks and Recreation, Moccasin Lake Environmental Education Center, Planning, Public Communications, Public Services, Public Utilities, Solid Waste, Office of City Manager/Department Heads and Clearwater Gas Company. The FGBC's criteria for Green City Certification were assimilated into these questionnaires. Care was taken to keep the survey format user-friendly and easy to understand, thereby requiring precise,

short answers in order to limit the respondents' time and assist with data integration. Thereafter, all the questionnaires were combined into a single document and sent electronically to the City Manager for distribution to individual departments. The expectation was that the questionnaires would be answered quickly and efficiently if distributed via the top-down official route. The respondents were given a week's time to return completed questionnaires owing to the time constraint imposed by the project completion deadline.

The time constraint imposed by the project deadline was a major barrier. Even though the project schedule allowed for proper design and dissemination of the questionnaires, there was not enough time to allow City personnel to respond. Therefore, the lack of responses limited the analysis of the data.

A major incentive for moving ahead with the remainder of the survey is that the creation of such an inventory provides the groundwork needed to obtain the FGBC certification for which the City has expressed interest. The results may also bring a sense of achievement and pride among all the City stakeholders. Additionally, the inventory information can be used for marketing purposes: for example, to 'sell' Clearwater as a 'green' holiday destination to potential tourists. The inventory project requires minimal funding, since it involves only the review, documentation and summarization of past and current sustainable programs and initiatives. The only major input required is the time that designated personnel in each department would need to collect, document and furnish the required data. Among the key players in the process are the City Manager and other upper-level administrative officials who may need to coordinate the efforts. This coordination will help all those involved to maintain focus, while assisting the heads of

each department in motivating their staff to perform the critical groundwork required for a successful inventory.

**Results and Future Recommendations**

Out of the sixteen City divisions that were sent the questionnaires, only six responded before the project deadline. These were the Human Resources, Engineering, Police, Solid Waste/General Services, Planning and the Public Utilities departments. Some of the major sustainable programs put into practice by these departments include a reclaimed water utility, use of water conservation devices, coastal cleanup program, flood plain restoration projects, use of LED traffic lights, recycling and reuse practices, exotic and invasive species control and creation of a wetland atlas. A full list of sustainable initiatives undertaken by each of these six departments is provided in Appendix B. The performance of the departments against the sustainability criteria as prescribed by the FGBC is provided in Appendix C.

A cursory view of the data obtained so far indicates that sustainable performance varies across the departments and the initiatives that have been undertaken so far, though commendable, seem uncoordinated and random. The results also indicate that the City, as a whole, lacks a dedicated, comprehensive policy on sustainability.

The implications of this exercise go far beyond the creation of a tabulated inventory document. It can be viewed as an opportunity for the City to take stock of its accomplishments, identify their deficiencies and to assist with decisions on future policies and actions. In addition, this ground-work will help the City move ahead with the application process for the FGBC's Green City Certification. The FGBC criteria can be used as a benchmark to assess the sustainability performance of the City. Achieving the

‘Gold’ Standard is a recommended goal for the City. The next steps would be to involve all the stakeholders and create a roadmap to sustainability - defining long-term goals, objectives, strategies and evaluation methodologies. Hopefully, this present exercise will work as a catalyst in motivating the City to become a truly sustainable community.

# Chapter 2
# Florida Green City Certification: Initial Assessment
Sarah Schlosser-Kelly

## Executive Summary

Recognition for becoming one of only nine municipalities in the State of Florida to be certified "green" by the Florida Green Building Coalition is definitely something to be proud of ("FGBC"). Through examination of current city practices and extensive communication between city departments, it was determined that the City of Clearwater currently qualifies to receive the silver level certification. This paper aims to outline the purpose and direction needed to achieve the silver level certification. The major goals of this paper are to research the current standing of the City of Clearwater relative to certification standards and provide recommendations on future courses of action.

## Project Overview

The primary goal of this project was to begin the research needed to achieve the Florida Green Building Coalition's (FGBC) Green City Certification for the City of Clearwater, hereafter referred to as 'the City'. The project also compared the City's current efforts with the certification standards. This certification serves to gain recognition and publicity for the city along with increased internal communication, implementation of money saving practices, and efficient risk and asset management. Those entities awarded certification are setting an example by being outstanding environmental stewards. Through the certification, the FGBC hopes, "that successful local governments will create and enforce landscape codes that help preserve natural Florida ecosystems, conserve water, create pedestrian-friendly environments, and follow green policies throughout their own organization in everything from ball field

maintenance to in-house recycling" (*Designation Standard*, pg 7). The certification can also assist local governments in quantifying their impact of implementing green practices (i.e. gallons of water saved, tons of recycled materials, tons of carbon dioxide emissions).

The FGBC is a non-profit, membership-based organization "dedicated to improving the built environment" whose mission is "to provide a statewide Green Building program with environmental and economic benefits" ("FGBC").

One of the major goals of the Florida Green Local Government Standard (FGLGS) is to bring together entities that are looking to incorporate green solutions, to not only local issues, but also statewide issues. This type of integration provides additional opportunities to increase energy efficiency, reduce pollution, and make improvements to the environment, while increasing the local government's operational efficiency, providing better customer service, and expanding public acceptance. Specifically for the City, the implementation of this certification may increase eco-tourism, increase water quality, reduce landfill inputs, and lower government operating costs, among many other potential benefits.

The evaluation needed for the FGLGS certification examines the following broad categories: 1) internal environmental practices, 2) ordinances and incentives that encourage sustainable practices, and 3) internal and external environmental education. The certification looks to pull from existing programs that the City may be involved in along with presenting new ideas. Existing programs within the City include the Florida Main Street Designation and Tree City USA. Certification criteria that are outside of existing City programs include the development of a local Government Water Reduction Plan and the offering of incentives to local green business.

There are seven main steps to completing the certification process. They are as follows: 1) learn about the FGLGS; 2) designate an office, department, or individual as a Project Coordinator; 3) determine what criteria apply to the local government; 4) conduct a local government assessment review in cooperation with all applicable departments; 5) compile all information from the review to determine where the local government currently stands in relation to the standard; 6) schedule an implementation meeting to outline the path to certification; 7) submit the final application and all necessary documentation to the FGBC for evaluation (*Designation Standard*, pg 4).

The assessment for receiving the certification provides 19 categories under which criteria are listed (Appendix A). The categories are as follows: Administration, Agriculture and Extension Service, Building and Development, Economic Development and Tourism, Emergency Management and Public Safety, Energy Utility, Housing and Human Services, Human Resources, Information Services, Natural Resource Management/Environmental Protection, Parks and Recreation, Planning and Zoning, Ports and Marinas, Property Appraiser/Tax Collector, Public Transportation, Public Works and Engineering, School Board, Solid Waste, and Water and Wastewater. Eliminated from further examination are the extension service, the school board, and the property appraiser/tax collector offices since they operate outside of the City and are thus not applicable to the City's application.  .

From this assessment, a point total value is calculated based on the number of practices/procedures that the City is currently doing (Appendix A). The total number of points achievable for the City is 291 (also referred to as the Maximum Applicable Points), of which, 0-20% must be achieved to be "Registered" as a Green City. This

designation requires that a filed statement of intent, along with the application, state that the City intends to achieve "Silver" certification within the next three years. Additionally, any "Registered" municipality must submit an annual report indicated the progress that has been made towards achieving the certification. Achieving "Silver" certification is receiving a total of 20-40% of 291 points, "Gold" is by receiving 41-60% of the maximum applicable points, and finally, "Platinum" certification is the City attaining 61-100% of the maximum applicable points. Thorough documentation is required for all the practices for which the City claims points. The *Florida Green Building Coalition, Inc. Green Local Governments Reference Guide* (Appendix B) provides examples of appropriate documentation.

**Results of the Initial Assessment**

This section of the paper, divided into the seventeen (17) categories by which examination of the City is performed, aims to determine where they currently stand in relation to the certification criteria. See the certification application in Appendix A for the list of the questions asked of each department.

*Administration*- In this category, only data applicable to the Planning Department were received, from which, four (4) out of fifty-nine (59) possible points (7%) were obtained by the provision of green building education to government staff and the maintenance of a group to coordinate current and future green activities.

*Building and Development*- Of a possible thirty-nine (39) points, only four (4) were obtained (10.3%) in this category. The City receiving one (1) point for each of the following: requiring mitigation of wetland habitats, enactment/enforcement of a tree

preservation/land-clearing ordinance, enactment of a landscaping ordinance for new construction, and the enactment of a septic system replacement ordinance.

*Economic Development and Tourism*- In this section, only data applicable to the Planning Department were received. Of a possible nine (9) points, two (2) points (22.2%) were received for obtaining the Florida Main Street designation and the development of a historic preservation ordinance.

*Emergency Management and Public Safety*- Of an applicable twelve (12) points, six (6) were received (50%), with two (2) points attributed to the use of green fleets.

*Energy Utility (Clearwater Gas)* – While no responses were received from this department, according to the City's website, utility customers can pay their bill online. One (1) point was applied to the application for offering this service. Another point for their use of recycled bill envelopes gets this category 11.1% of the maximum applicable points.

*Housing and Human Services*- No responses were received. Under the assumption that no actions are being taken, zero (0) points were obtained in this section of the application.

*Human Resources*- Of a possible nine (9) points, only one (1) point was received (11.1%), which was for giving away re-usable water bottles during the Employee Health Fair.

*Information Services*- Replies for two of the seven questions were received in this section. Two (2) points for the development of environmental education on the City's website/local television station and the enactment of local government policy requiring

that computers/ancillary equipment are off when not in use for a total of 28.6% of the maximum applicable points.

*Natural Resource Management/Environmental Protection*- Of the fifteen (15) points applicable in this category, thirteen (13) points (86.7%) were obtained. These points were achieved by a variety of activities including implementation of plans to remove exotic/nuisance species in public lands, maintaining membership with the Florida Local Environmental Resource Agencies, Inc. (FLERA), and the enactment of car wash standards.

*Parks and Recreation*- This department did not provide any responses, but according to the Blue Wave Campaign website, Clearwater maintains two Blue Wave Certified beaches, Clearwater City Beach and Sand Key Park Beach. For each Blue Wave beach, one (1) point is obtained, for a total of two (2) points (12.5%) in this category.

*Planning and Zoning*- Out of a possible fourteen (14) points, four (4) were obtained (28.6%). These points were for maintaining a pedestrian/bicycle coordinator on staff, encouraging mixed-use development, maintaining/reducing net impervious surface area, and the organization of green building seminars/training for staff and elected officials.

*Ports and Marinas*- No responses were received for this category, but according to the Florida Clean Marina website, the Clearwater Municipal Marina has been under this designation since 2000. For this, one (1) point was obtained, 25% of the maximum applicable points in this category.

*Public Transportation* – Even though the public transit system in the Clearwater area operates through Pinellas County, there are items within the public transportation category that apply to the City. These include the institution of bicycle and carpool commuter assistant programs. No information was received regarding these items; therefore, no points were obtained in this category.

*Public Works and Engineering*- A total of twenty-one (21) points were applicable to this section. Nine (9) points (42.9%) were received for practices including the use of LED traffic lights, street sweeping, and maintaining a certified arborist on the City staff.

*Solid Waste*- Out of a possible fifteen (15) points, eight (8) were received (53.3%). These points were obtained through various procedures including the development of a disaster management plan, provision of curbside recycling, and city wide chemical/hazardous waste collection.

*Water and Wastewater*- Out of a possible eighteen (18) points, nine (9) were received (50%). These points were obtained through a variety of activities including creation of a reclaimed water infrastructure system, the conduction of energy audits at treatment facilities, the water use rate structure being based on consumption, and implementation of low flow fixture rebates.

Overall, the City appears to be in good standing to receive the "Silver" FGLGS certification, achieving 67 of the 291 Maximum Applicable Points (23%) with their current use of green strategies. This is not the final standing of the City, being based only on the information received in the limited timeframe imposed by this project. Therefore, if this assessment if followed up with further research and there is increased city

department involvement more points may be received with the City's current sustainable activities.

**Recommendations**

If the City decides that they would prefer not to do any additional research and are happy with their standing as determined by this project, the City can submit the pre-application form (Appendix C) along with the minimum required deposit of $500. Upon submittal, a coordinator from the FGBC will be assigned to the City for assistance with the final application process and questions during the compilation of the data required for submittal with the application. The *Florida Green Building Coalition, Inc. Green Local Governments Reference Guide* (Appendix B) provides suggestions for the type of documentation needed for each strategy for which points are claimed. Once this information is complied and the final application form (Appendix D) is complete, it is submitted to the FGBC for a final decision on certification. This certification is good for a period of five years after which a new application must be submitted to retain certification.

If the City feels that some of their current practices deserve credit but are not touched upon in the application, they can submit a Standard Modification Form (Appendix E) along with the final application. A separate form must be submitted for each activity with an unlimited number of modification forms being allowed. The FGBC will review the form(s) and determine the amount of credit, if any, that will be awarded for the activities.

If the City of Clearwater decides that they would like to increase their rank to become a Gold Certified Local Government they will need an additional fifty-three (53)

points. Through further research into City activities and increased departmental participation, a portion of these points may be achievable through current City activities.

A total of thirty-five (35) additional points can be achieved by implementation of multiple community and staff education programs including, but not limited to, a green building awards program, use of informative billing (Clearwater Gas), posting of an air quality index on the web, hosting boating education classes, and the provision of information about alternative commuting on the web. Additional items by which certification points can be achieved are discussed in more detail in the *Florida Green Building Coalition, Inc. Green Local Governments Reference Guide* (Appendix B). The FGBC website provides invaluable information about the certification process and provides links to other websites for expended research. Furthermore, many professional journals have published articles on the topic of green cities and urban sustainability. Selections of these articles, which can be used for further research into sustainability, are presented in Appendix F. This list is by no means exhaustive.

Although the results of this initial assessment indicate that the City may qualify for the "Silver" FGLGS certification, many barriers to achieving the certification exist. Increased communication is needed between the project coordinator, the City mayor, and the departments/individuals responsible for providing the data requested. The financial and time commitments needed to complete the certification process may also prove to be barriers for success. A financial commitment from the City and possibly the community are needed for both the application fee and any new personnel that may be hired. The time required for compiling all the documentation can be extensive and, therefore, may require a City employee be dedicated to the process. The City may want to consider

hiring an upper-level intern or a temporary employee, just for this process. If the funding for such a person is unavailable, it may be possible to utilize multiple current employees by shifting their duties to allow for the time needed to complete the certification. Additionally, it is recommended that a strict schedule be outlined and followed in order to streamline the process. Finally, a continued commitment to sustainability and maintaining the FGLGS certification are required. Since the certification is only valid for five years, the process will need to be repeated to maintain certification past the initial five years.

The information presented in this paper is more than just a means for obtaining recognition. It is a powerful tool that promotes education and awareness of sustainable practices. Only through continued communication and cooperation will the Green Local Government certification truly become a success. This is really just the beginning to a "greener" City of Clearwater and a more sustainable community.

# Chapter 3
# Stakeholder Engagement Report
# Sandra Kling

## Executive Summary

In climate policy debates, citizen involvement is necessary because the successful implementation of policy will require public consent and participation. Therefore, current decision-making on sustainability and climate policy requires the integration of stakeholder input into policy. This report presents a plan to engage key stakeholders in the City of Clearwater (Clearwater) and summarizes stakeholder engagement activities conducted to date.

Major stakeholders in Clearwater were identified and divided into two main groups: Internal and External Stakeholders. Internal stakeholders include Clearwater elected officials and government employees. External Stakeholders include residents, external government agencies, non-governmental organizations, and businesses within Clearwater.

Stakeholder engagement activities commenced in September 2007 and included conducting a focus group meeting and surveying residential citizens and business owners. Results of the focus group began to develop a vision of sustainability. The majority of the participants stated that Clearwater is moving away from sustainability in the areas of transportation, energy, the built environment, the natural environment, and food and water supplies and that Clearwater is slowly moving towards sustainability in waste management practices. Residents responding to the online surveys identified the major concerns facing Clearwater to include traffic congestion, unsustainable development, unsustainable population growth, and a lack of government response to these concerns.

Residents indicated that the best way the city can improve sustainability is to lead by example and to offer incentives to businesses and residences.

Clearwater should continue to engage both internal and external stakeholders to develop a clear vision of sustainability and an action plan that supports that vision.

**Project Definition**

Governmental agencies have learned the importance of involving the public in making environmental decisions (U.S. EPA, 2001; Hemmati, 2003; Durant et al, 2004; McPhail, 2002). In climate policy debates, citizen involvement is necessary because the successful implementation of policy will require public consent and participation (Kasemir, 2003). Therefore, current decision-making on sustainability and climate policy requires the integration of stakeholder input into policy.

The purpose of this stakeholder report is to present a plan to engage key stakeholders in Clearwater. The report contains a list of identified stakeholder groups in Clearwater and summarizes stakeholder engagement activities conducted to date.

**Stakeholder Engagement Plan Development**

In order to develop a stakeholder engagement plan, the key stakeholders affected by sustainability and climate policy were identified. Clearwater stakeholders can be divided into two main groups: Internal and External Stakeholders. Internal stakeholders include Clearwater elected officials and government employees. External Stakeholders include residents, external government agencies, non-governmental organizations, and businesses within Clearwater. The following section describes each key stakeholder group and the initial plan to engage each group.

*Internal Stakeholders*

Clearwater government is made up of elected officials and 24 city departments (City of Clearwater website, undated). Each department was evaluated based on their stated mission and current sustainability programs to determine their role in Clearwater's sustainability goals. All city departments and employees are considered key stakeholders in implementing citywide operational sustainability goals; however, selected departments are considered key stakeholders for specific departmental and/or community sustainability initiatives. Table 1 contains a compilation of the government departments, mission statements, and a rationale for inclusion on the stakeholder list.

As a key stakeholder group, internal stakeholders should be engaged through multiple approaches, including inventorying each department to determine current sustainability programs, surveying employees to determine their opinions regarding sustainability issues, providing educational training for employees, and conducting brainstorming sessions to determine appropriate solutions in achieving sustainability.

*External Stakeholders*

External stakeholders can be divided into the following key stakeholder groups: residential, non-governmental agencies, business, and external governmental agencies.

*Residential*

In 2006, the population of Clearwater was reported to be 107,742 residents (U.S. Census website, undated). Clearwater has been subdivided into seven regional neighborhood zones. Through the Clearwater's "Block-By-Block" Program, 56 neighborhood associations have been registered with the City. The engagement plan for residents should include multiple approaches that include online and telephone surveys,

focus group meetings, and in-depth working group meetings. Conducting preliminary focus group meetings with the neighborhood association leaders would be an appropriate first step to begin the engagement process throughout the city. In addition, public announcements and citywide online or telephone surveys would be an effective method to obtain residential input and, more importantly, to begin a dialogue with the public regarding sustainability issues.

*External Governmental Agencies*

Several county, regional, state, and federal government agencies could also be considered stakeholders, and a preliminary list of these agencies are identified in Table 2. These agencies are considered to be external stakeholders due to their regulatory oversight, guidance, educational mission, and funding opportunities. For example, the Pinellas Suncoast Transit Authority would be considered a key stakeholder in visioning a sustainable transportation policy. In addition, the Pinellas County School District could assist in disseminating an educational initiative. External government agencies should be invited as appropriate during the sustainability process.

*Non-Governmental Organizations*

Numerous non-governmental agencies (NGOs) exist in Clearwater that should be engaged during the sustainability process. Each stakeholder typically has a unique position regarding sustainability within Clearwater. An appropriate strategy to engage these groups is to hold stakeholder meetings with selected NGOs to ascertain their position, gather input on solutions, and determine if a mutual partnership would be appropriate. A preliminary listing of NGOs that serve Clearwater, including environmental, social, sectarian, and educational organizations, is included in Table 2.

*Business*

Clearwater has two Chambers of Commerce: the Regional Clearwater Chamber of Commerce, with over 1,700 members, and the Clearwater Beach Chamber of Commerce, with over 290 members. Engaging business should begin by inviting chamber members to complete a survey and attend stakeholder meetings. This can be accomplished by identifying major business sectors, such as restaurants, lodging, small retail stores, chain retail stores, professional services, service providers (for example, energy and fuel stations), and light industrial. Not all businesses are members of the Chamber of Commerce; therefore, additional attempts to invite participation should be made through media announcements and by referrals. A preliminary listing of business stakeholders are identified in Table 2.

**Stakeholder Engagement Plan Implementation**

Stakeholder engagement is required at all stages in the decision-making process. For this project, stakeholder engagement began in September 2007 and included conducting a focus group meeting, surveying, and interviewing both internal and external stakeholders. This section outlines the preliminary engagement activities conducted to date.

*Internal Stakeholder Questionnaire*

To begin engaging internal stakeholders (i.e., city employees), a written questionnaire was created and submitted to each department head. The questionnaire was designed to gather input on current sustainability programs, historic programs, and planned programs. In addition, each department was asked to provide input regarding potential sustainability initiatives. As of the publication of this report, only a few

departments have responded to the request. Once all the questionnaires are received, the questionnaires should be evaluated and follow-up interviews and meetings conducted. The information gathered from this phase should be summarized in a City-wide sustainability action plan.

*Interview Summary*

Specific organizations were identified for targeted interviewing in the previous section. As of the publication of this report, one key interview was conducted with the Pinellas County Bushnell Center for Urban Sustainability. The goal of the interview was to obtain information on Pinellas County's sustainability programs and to determine how the County and City of Clearwater could partner in future sustainability efforts. In summary, the County has experience in implementing a sustainability program and is willing to provide guidance to Clearwater. In addition, the County has suggested co-launching sustainability initiatives (e.g., green building ordinances). The interview record is included in Appendix A.

*Business Survey*

Anonymous online surveys were developed using www.surveymonkey.com to engage businesses in Clearwater. One online survey was emailed to businesses registered with both Chambers of Commerce. In addition, the "Innkeepers of Clearwater Beach" monthly meeting on October 17, 2007 was attended to gather stakeholder input from the hotel business sector, and the hotel group was invited to complete the hotel-specific survey. To date, one general business survey and five hotel surveys have been completed. A summary report of the completed business and hotel online surveys is included in Appendix B.

*Residential Survey*

An anonymous online survey was developed using www.surveymonkey.com to engage the citizens of Clearwater. The residential survey was emailed to over 100 residences identified from the neighborhood association member list and from the Clearwater's Citizens Academy Program. The purpose of the online survey was to determine residential concerns, behaviors, and future vision regarding sustainability. To date, 25 surveys have been completed. A summary report of the completed online surveys is included in Appendix B.

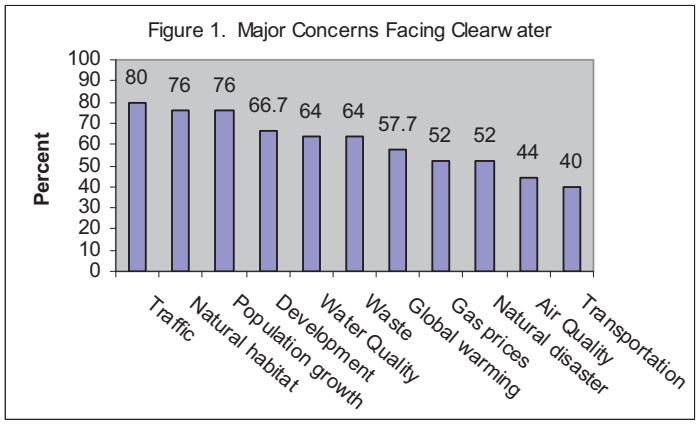
*Focus Group Meeting*

On November 7, 2007, a focus group meeting was conducted at the downtown Clearwater Library to begin a dialogue with the community regarding sustainability issues. Over 100 residents and targeted non-governmental organization representatives were invited to attend the meeting, of which 21 were present. A brief presentation on the topic of sustainability and climate change were provided to the participants, followed by a visioning exercise. A lack of a clear vision is one "blunder" that governments make in advancing sustainability (Doppelt, 2003). Participants provided their vision of a sustainable Clearwater, specifically in the following categories: transportation, energy, built environment, natural environment, food and water supply, and waste management. Participants were then asked to vote on whether they thought Clearwater is currently moving away from, stagnated, or moving towards sustainability. Participants provided a list of challenges or barriers that would affect the success of implementing a sustainability policy. Lastly, participants were asked to provide input on specific

initiatives they feel are important for Clearwater to advance. A summary report from the Focus Group meeting is included in Appendix C.

**Key Findings**

Review of online surveys indicates that participants think the three major concerns facing Clearwater are traffic congestion, a loss of natural habitat, and unsustainable population growth (Figure 1). Only two categories did not receive a majority response as a major concern, namely a lack of transportation and air quality. When asked to rank these concerns, "loss of natural habitats" was listed most often, followed by unsustainable development and population growth. The majority of participants in the survey agreed that neither government nor business is doing enough to address environmental issues and agreed that an environmental crisis will occur if society continues on the present course. A majority of participants believe that the government should lead by example and offer incentives to residents and businesses to promote sustainable practices.




Focus group participants provided input on their vision of a sustainable Clearwater. The information provided is summarized below.

| Category | Draft Vision of Sustainable Clearwater* (Summarized from comments gathered during meeting) |
|---|---|
| **Transportation** | Clearwater would have fewer automobiles and increase safe, affordable, and efficient multi-modal transportation options, to include rail, bus, bicycle, and water. The transportation system would be efficiently linked to the region. |
| **Energy** | Clearwater would utilize many clean energy sources, including solar, bio-fuels, tidal, nuclear, wind, and natural gas. Clearwater would depend less on oil and coal sources and more on clean energy, and energy efficiency would be maximized. |

| Category | Draft Vision of Sustainable Clearwater* (Summarized from comments gathered during meeting) |
|---|---|
| **Built Environment** | Clearwater would have attractive neighborhoods and commercial areas with mixed use. The built environment would use more natural construction materials that utilize natural cooling and heating. |
| **Natural Environment** | Clearwater would have more green space with more trees and natural, native habitats. Maintenance of the natural landscape will utilize organic fertilizers. |
| **Life Support (Food and Water )** | Clearwater would have more locally grown food and water. Water sources may include desalinization, rainwater, reclaimed water, and retention ponds. |
| **Waste Management** | Clearwater would have an efficient recycling system for business and residents with an emphasis on education. |

*These statements were compiled for presentation purposes. The researcher recommends formalizing a Sustainability Vision during future stakeholder meetings.

Participants voted on whether they thought Clearwater was moving away, stagnated, or moving towards sustainability. As shown in Figure 2, participants felt that Clearwater was moving away from sustainability in all categories except waste management. Transportation obtained the most votes, followed by the built environment for areas that are farthest from the vision of sustainability.

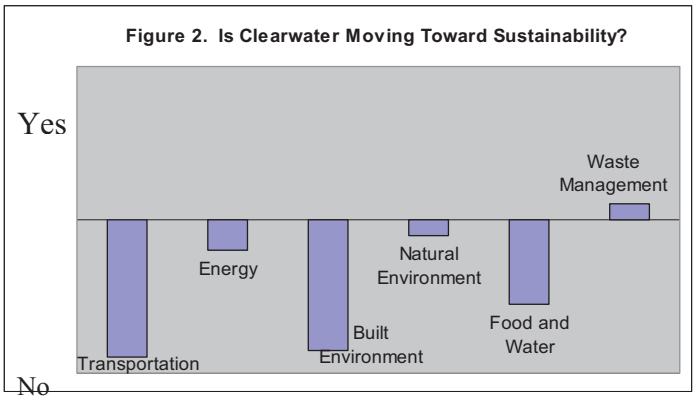


Figure 2. Is Clearwater Moving Toward Sustainability?

Lastly, participants were asked what barriers stand in the way of realizing the vision. Participants' answers included greed, ignorance, over-development, unwillingness to change, and a lack of a clear written vision.

**Recommendations**

Based on preliminary survey data and the results from the focus group meeting, the following is recommended to continue internal and external stakeholder engagement to develop a sustainability action plan.

Internal Stakeholder Recommendations

1. Compile the remaining citywide questionnaires and upon analysis, conduct follow-up interviews and meetings.

2. Conduct anonymous on-line surveying with the purpose of measuring employee knowledge, behaviors, and opinions on a variety of sustainability issues. Anonymity would be used to encourage open and honest input from city employees.

3. Conduct initial and follow-up departmental meetings as well as department heads. The purpose of the meetings would be to develop a sustainability vision and determine appropriate actions to accomplish the vision. Working groups should meet regularly thereafter to monitor progress.

4. Summarize internal stakeholder progress into a formal report (i.e., questionnaires, surveys, and meetings). The summary of activities might be included as part of a City-wide sustainability action plan.

5. Encourage all departments and employees to provide innovative solutions to support sustainability. Ensure that all ideas are documented and analyzed. A variety of approaches would work here, including anonymous suggestion boxes and contests between departments.

External Stakeholder Recommendations

1. Conduct a statistically valid survey of residents and businesses to determine their sustainability knowledge, practices, and vision. This information should be used to calculate a baseline for which to measure progress towards sustainability. (Note: The survey conducted as part of this study was used for preliminary purposes only and is not statistically valid.)

2. Continue to interview key stakeholder groups; include non-governmental agencies, business sector groups, and external government agencies.

3. Conduct focus group meetings in each of the seven neighborhood zones to build consensus on a sustainability vision and formulate an action plan. Follow up meetings would be appropriate to monitor the effectiveness of the initiatives, as well as continue to brainstorm innovative solutions to improve sustainability.

In conclusion, Clearwater residents appear to have major concerns regarding sustainability and have indicated that society has been moving away from sustainability. Critical challenges exist as society transitions towards sustainable development, including linking policy with stakeholder participation (Swart, et al 2002). However, engaging stakeholders produces universally applicable, credible, and technically superior results in transitioning towards sustainability (Richards and Dickson, 2007).

# Chapter 4
# The Role of Education in the Goal of Sustainability
Barbara Stalbird

## Executive Summary

The City of Clearwater and its residents are taking the first steps toward becoming a sustainable society. The consumer who selects a recycled paper product at the supermarket or who rejects a product because it is over-packaged is taking a positive step. The corporation that alters its manufacturing process to reduce waste and save energy is also taking positive action. This process of change is gathering momentum across the nation and around the world. Despite the encouraging trend toward sustainable living, however, an important fact remains: many Americans do not understand the concept of sustainable development.

Sustainability is a complex and multidimensional concept, which involves finding a balance between achieving environmental protection, economic progress, and sociopolitical equity (Wheeler and Beatley, 2006). The majority of citizens need more information about sustainability – what it is and what they can do to live more sustainably. It is possible that knowledge about solutions will grow as environmental problems continue to make news. However, the lack of knowledge could become a barrier to implementing solutions, especially if the public looks for a quick fix for issues like global warming (Curry, Ansolabehere, and Herzog, 2007). For many people, the desire to change is not the issue; they are ready to change their behavior but need the guidance and mechanisms to do so.

The City of Clearwater can use many different approaches to raise public awareness of sustainability. Lifelong education is a crucial tool for creating a common

understanding of this concept. This education should come from formal schooling, but it will also need to come from nonformal venues such as media, adult education programs, museum exhibits, conferences and workshops, and nature center programs; all of which can be initiated by the City. The goal is for citizens to become active participants in discussions about sustainable development within the City and in developing meaningful sustainable development strategies.

To begin the process of public education I have produced six short television segments for the City of Clearwater. They each highlight several ways that citizens can participate in creating a sustainable world. The information I presented is practical, easy to understand and cost effective. The topics covered include:

- ✓ Household products and energy conservation
- ✓ Native landscaping
- ✓ Transportation
- ✓ Green building
- ✓ Local food and produce
- ✓ Recycling

**Project Definition**

Local governments like Clearwater can be a significant catalyst of sustainability. They plan and control the very elements at stake – development, resource use, waste, energy consumption, partial regulations concerning production and land use control (Glass, 2002). They can influence sustainability because they influence the quality of life of their citizens. Furthermore, the scale of local government allows it to organize dialogue with citizens to define the values of the community.

Although previous environmental education efforts have resulted in successes, much remains to be done. A recent study conducted by the Massachusetts Institute of Technology measured public understanding of global warming. A number of questions were asked in both 2003 and 2006 regarding the source of carbon dioxide and technologies available to decrease carbon dioxide emissions into the atmosphere. In both 2003 and 2006, the average respondent answered just over half of the questions correctly. The 2006 survey did not show an increased understanding of sources of carbon dioxide or an increased awareness of the technologies available to address global warming. This suggests that the public continues to misunderstand – or are simply unaware of – some of the issues underlying action on global warming (Curry, Ansolabehere, and Herzog, 2007).

This survey, and others similar to it, reveals a significant need for increased knowledge of the environment and the ability to understand the interdependent relationships between the environment and the economy. The City of Clearwater is being proactive in its partnership with the University of South Florida to become sustainable. If they are to be successful, however, they will need the support and participation of their citizens. To obtain this, Clearwater will need an educated population who can make informed decisions. Citizens should understand that sustainable development is not an ideology or a goal, but an ongoing process; not a set of permanent answers, but a way of continually asking better questions.

**Sustainable Plan Development**

The President's Council on Sustainable Development identified education as an integral part of its long-term strategy for rebuilding communities and the country for the

21st century (PCSD, 1997). The City of Clearwater will need to formulate key objectives to reach the community through education efforts. Several examples of successful nonformal sustainability education efforts can be found in Appendix A. The Council on Sustainable Development recommends three objectives which underlie the goal of educating for sustainability.

First, Clearwater must ensure that awareness, knowledge, and understanding of sustainability become part of the mainstream consciousness. Also, there must be an in-depth understanding of the short and long term implications of decisions and choices. The citizens of Clearwater not only need to understand how natural systems work, they must also understand the interdependence of economic, social, political, and ecological conditions as it relates to their urban environment. Implementing the access of this information can be accomplished though various types of nonformal education. For example, Clearwater could host a sustainability series at various locations (i.e. the library, Moccasin Lake Nature Park, recreation centers). This series would highlight practical, useful information on how to change behaviors to live more sustainably. It would answer questions about what it takes to make a difference, and what citizens can do to have the biggest impact, without spending a fortune or making drastic lifestyle changes.

Secondly, a consensus must be reached through dialogue about sustainability. Dialogues must involve as many people and as many different viewpoints as possible. Stakeholders should work together to form an action agenda that is supported by the majority to ensure implementation. Continually involving new participants will widen the initial consensus. Implementation of such dialogue can range from town or neighborhood meetings to roundtable discussions, conferences and workshops, task forces, and

community and group "visioning" sessions. Electronic venues can also be used such as the internet, radio, television, feature articles, newspapers, etc.

Participants should be encouraged to visualize a sustainable world. They should be asked questions such as: What would a sustainable lifestyle be like? How can sustainability be achieved? What does a sustainable society mean? Since conditions vary from one community to another, what will be sustainable to one community may not be the best solution for another. Also, practices that are considered sustainable today may be seen as unsustainable in the future. Sustainability is a moving target, and as changes occur in technology and perspectives, our visions of a sustainable society must also change.

Lastly, the City of Clearwater must promote the skills, attitudes, motivation, and values that will redirect action to sustainable practices and produce the commitment to work individually and collectively toward a sustainable world. An understanding of the economic incentives that drive people's decisions and the other values that affect decision making can help develop a sense of how values interact and how they can change behavior (PCSD, 1997).

**Sustainable Plan Implementation**

Implementation will depend largely on public outreach. Clearwater must foster in its citizens, the ability to recognize that environmental, economic, and social conditions are interconnected. Only then can a paradigm shift occur in society's attitude toward the environment.

An effective approach to promoting sustainable practices is through a marketing and educational campaign. I have initiated this by producing 6 short video segments

about how to live more sustainably. Within each segment I gave citizens several suggestions on how to alter their everyday activities to reduce their impact on the natural environment. They provide information about:

- Ways to decrease energy consumption
- Non-toxic, environmentally friendly household products
- The benefits of native landscaping
- Ways to increase fuel efficiency and information about public transportation in Clearwater
- Where to buy local produce and why
- The benefits and objectives of green buildings
- What items to recycle and how to obtain further information on recycling

My primary objective in creating these videos was to keep the idea of sustainability in people's minds. The more often the public hears about sustainability, the more normal it will seem to them; therefore, changes that they make will not seem as drastic. Also, the more often the idea of sustainability is presented, the more likely it is to encourage a change in attitude to one of action and commitment.

**Future Recommendations**

Education can give people the tools, skills, and experience they need to understand, process, and use information about living sustainably. This education process must include a media campaign along with an education plan for residents, visitors, businesses, and City employees. The City of Clearwater will play an important role in empowering its citizens through media, adult education programs, conferences and workshops and nature center programs, as summarized in the table below:

| Major Groups | Target Audience | Recommendations |
|---|---|---|
| Formal Education | Public and private K-12<br>St. Pete College-Clearwater campus<br>Private Colleges | - Promote environmental education curriculum in schools.<br>- Partner with local schools to advance sustainability initiatives |
| Nonformal Education | Residents<br>Businesses<br>Visitors and tourists | - Media campaign<br>- Promote environmental education at parks, libraries, and nature centers<br>- Adult education programs throughout the City<br>- Conferences and workshops |
| Government | City employees | - Educate employees on sustainability issues through regular trainings<br>- Train employees to take action at work<br>- Showcase "lead-by-example" efforts to spread throughout the community |

The City of Clearwater must support a media campaign to raise public awareness of sustainability, convey information on indicators of sustainable development, and encourage individuals to adopt sustainable practices in their daily lives. As indicators of sustainability are developed, the media should feature these "yardsticks" as part of their regular coverage. The Communications Department, in cooperation with nonprofit organizations, other departments and volunteers should include in their long term planning, educational efforts to reach the community through television, radio, computers, newspapers, and other printed materials. The programs should include specific examples of everyday actions that are sustainable. Easily understood information should be shared on a regular basis and it should include relevant measures to gauge societal progress towards sustainability.

The sustainability video segments developed as part of this project are a beginning step in providing these examples in easy to understand language. These videos should be used as part of a comprehensive marketing campaign to educate Clearwater's

population. Additional efforts must be made to make this public awareness campaign successful. The video's that are already completed should be distributed to other venues (i.e. public radio). I would also recommend dedicating several interviews and stories about sustainability on the My Clearwater program. Educational publications will also be necessary. As an example, the City can provide checklists of several practical ways to contribute to a healthy Clearwater.

The City of Clearwater should utilize Moccasin Lake Nature Park as a resource for sustainability for its citizens and visitors. This was supported by the public, as evidenced by the results of the focus group meeting and preliminary surveying. The Park is already a working example of how to operate in a sustainable manner. With a little support, effort and funds it could be the headquarters of education for sustainability. The Park currently demonstrates solar energy, water conservation, native landscaping, green building, wildlife education and more. Educational information on sustainability should be exhibited throughout the Park. This would also be an ideal location for adult and youth education programs, visioning sessions, workshops, and conferences on sustainable living.

The City of Clearwater has a direct interest in educating their employees about sustainability. Employees who are trained in the principles of sustainability, for example, are in a position to slightly alter their daily habits in the workplace to conserve energy and minimize waste. One of the major goals to become certified as a Green Local Government from the Florida Green Building Coalition is to "Lead-by-example." By implementing green practices at work, the City will be in good standing with the

community for their environmental record, while at the same time reducing their economic costs.

At the community level, Clearwater would benefit from the development of partnerships among businesses, the nonprofit sector, and citizen groups to develop a shared vision for the future. A resource guide for potential partnerships has been provided in Appendix B. Educational information on sustainability has been very diverse in the past. While diversity of programs and information can be an asset, it can also be a weakness. Diversity sometimes results in duplication of efforts, lack of a shared vision, and deprivation of the strength that comes from a common voice (FFOF, 1996).

The overarching goal for the City of Clearwater is to instill the concepts of sustainability into the daily lives of their citizens. Current scientific information is more readily available then ever before. The fundamental question, however, is whether citizens will be able to understand how to use this information. Education is a tool that can ensure that technology and the capacity to use information are available to everyone.

How we meet the future is in our hands. Education about sustainability will provide Clearwater with the support and participation of their residents and visitors, enhancing the opportunity to create the future they want for a sustainable City.

# Part II  Innovative New Projects

# Chapter 5
# The Clearwater Solar Park
# Margaret Embry

## Executive Summary

Solar power is an important innovation used widely to provide a renewable, clean, reliable, and cost effective energy source. Aggregation of photovoltaic (PV) cells to create a PV system, or solar park, is one option available to harness energy from the sun. Solar energy is delivered free of charge as opposed to the economic and carbon costs of transporting conventional fuel. PV systems create no pollution and generate no waste products when operating. The PV modules, as explained further below, are based on a proven technology that has experienced little degradation in more than fifteen years of operation, more for a system that has no moving parts. Properly installed PV systems have the advantages of minimized periodic maintenance and unattended operation both of which reduce labor costs and travel expenses (economic and environmental). Finally, the advantages of PV systems offset their relatively high initial cost within a few years of operation. There are also state and federal incentives to help alleviate the upfront costs of installing and operating a solar park (DOE, undated).

A demonstration solar park is a viable option for the City of Clearwater to provide electricity to local homes and buildings. A PV system can be designed for easy expansion if Clearwater decides to create a solar park in phases. With a solar park operating in Clearwater, the city can become more sustainable by reducing carbon emissions drastically and having less reliance on fossil fuels. The city has a chance to become a model for other cities interested in becoming more sustainable. Through the

help of city officials, Progress Energy Florida, and other stakeholders, this project could become a reality for the city of Clearwater.

The following technical paper outlines feasibility and benefits of installing and operating a solar park in Clearwater along with resources that can be used to implement this project. The paper is organized into four sections: Project Definition, Sustainability Plan Development, Sustainability Plan Implementation, and Results and Future Recommendations.

**Project Definition**

Solar energy, or energy from the sun, is becoming a widespread renewable, reliable, and clean source of energy in the United States and throughout the world. Energy is harnessed from the sun through specific types of semiconducting materials exposed to sunlight which then release small amounts of electricity, a process known as the photoelectric effect. The photoelectric effect refers to the emission, or ejection, of electrons from the surface of a metal in response to light. It is the basic physical process in which a solar electric or photovoltaic (PV) cells convert sunlight to electricity. Specifically, PV cells are the basic building block of a PV system. An individual PV cell is usually quite small, typically producing about 1 or 2 watts of power. Connecting PV cells together to form larger units called modules or packs can boost the energy output of PV cells. Modules, in turn, can be connected to form even larger units called arrays, which can be interconnected to produce more power. By themselves, modules or arrays do not represent an entire PV system. Structures are needed to place the modules and arrays in orientation toward the sun, and components, including an inverter, that convert the direct-current electricity produced by modules and to alternate-current electricity.

Energy can also be stored in batteries for later use during low light days or at night. PV systems can be built with the ability to meet almost any electric power need from powering a water pump to powering a whole community through a grid-connected system (DOE, undated).

It is important to mention the effect of cloud cover on solar radiation and the energy output of a PV system as it is a common misnomer that energy cannot be produced on cloudy or low light days. While direct light, or radiation that comes straight from the sun without reflecting off of clouds, dust, the ground, or other objects, is the most efficient path to harness solar energy, diffuse light, or sunlight that is reflected off of clouds, the ground, or other objects can still produce solar radiation. Diffuse light has the slight disadvantage that it takes a longer path than a direct light ray to reach a module. With batteries in place to store energy for low light days and diffuse light still capable of creating solar radiation, cloud cover should not be an issue when producing energy from a PV system (DOE, undated).

Solar energy is an important innovation working to avoid further repercussions of climate change. Climate change has been the agenda of many city, state, and federal officials, including Florida Governor Charlie Crist. Governor Crist has recognized climate change as a problem and has since signed on to the U.S. Mayors Climate Protection Agreement. The Agreement specifically encourages the increase of the "use of clean, alternative energy by…advocating for the development of renewable energy sources…" (2005).

Clearwater can expect to see many benefits if a PV solar park project is implemented. Environmental benefits are sure to be seen, such as reduction of air

pollution, noise pollution, greenhouse gases, or hazardous waste. There is no need for liquids or gaseous fuels to be transported, further reducing pollution and the emission of greenhouse gases. Also, solar energy contributes to the nation's energy security, it helps to create jobs and strengthen the economy, it is a free and abundant energy source, and it decreases dependence on fossil fuels. Grid-connected solar energy that provides power for homes and businesses "reduces or avoids the necessity to build new transmission/distribution lines or upgrade existing ones, aids in meeting peak power needs, diversifies the range of energy sources in use and increase the reliability of the grid network, can be installed in small increments to match the load requirement of the customer, provides a potential revenue source in a diverse energy portfolio, assists in meeting renewable portfolio standards goals, and aids in off-setting or avoiding carbon emissions" (DOE, undated). The grid-connected system will allow the availability of solar energy to many in the city (depending on size of solar park) and will reduce local utility bills for businesses and residents. Also, the solar park will create an opportunity to promote education about solar energy. The park could be designed to welcome visitors and students and provide information about solar energy and PV systems.

Other communities in and outside of the United States have utilized solar energy through a solar park to provide electricity for surrounding buildings. Nellis Air Force Base in Nevada continues to construct a solar park (scheduled to be completed in December 2007) comprised of 70,000 panels over 140 acres (See Appendix A and B). This system will provide around 15 megawatts (MW) to generate thirty percent of the base's electricity needs. This park will significantly reduce the base's environmental footprint, reduce energy costs, reduce $CO_2$ emissions by 24,000 tons over thirty years,

and it complies with Nevada's Renewable Portfolio Standard. The reduction the base plans to see in $CO_2$ emissions is equivalent to removing over 186,000 cars from the road (SunPower Corp., undated).

By combining efforts to create a solar park in Clearwater with initiatives of other classmates, Clearwater could become an energy efficient and sustainable community. Some initiatives that could be considered to increase energy efficiency include Ms. Venner's energy consumption reduction plan, Mr. O'Connor's building guidelines plan-, and Mr. Noreika's reusable sludge plan at wastewater treatment facilities.

**Sustainability Plan Development**

As mentioned in the previous section, Clearwater can become more sustainable through the implementation of a PV solar park by reducing carbon emissions and providing a clean, renewable, abundant, and reliable energy source for businesses and residents. Clearwater could become a template for other cities committed to becoming more sustainable. This technical paper is designed to provide city officials in Clearwater with the information needed to plan, design, calculate cost and carbon dioxide reduction, and construct a solar park in Clearwater.

Since no site has been chosen for the Clearwater solar park, averages for energy output, cost, and reduction of carbon emissions are assumed. Once a site has been chosen and a technical design has been created for the solar park, the following numbers can be used to quantify the performance of each measure. Energy production from the typical solar PV array in Florida is approximately 4 kilowatt hours (kWh) / meter$^2$ ($m^2$) / day. This means a typical solar panel covering one square meter of ground in Florida will produce 4 kWh of electricity per day. An inverter is needed for a utility-grid-connected

system and they are designed based on the electrical requirements and range in multiple capacity sizes. Typical single phase inverters can range from 1.5 kilowatts (kW) to 5 kW or more, depending on the application and design. Larger solar PV arrays can be designed for three phase applications and their capacity ranges may be much greater. The design engineer can determine the optimal installation based on cost, maintenance, and efficiency.

To illustrate this in a real world setting, Progress Energy Florida has a system that uses a 3.5 kW inverter, so it can be assumed that this size converter could be used in Clearwater. For a 3.5 kW inverter, 32.5 $m^2$ of solar panel coverage is needed assuming a ground mounted PV system takes 100 $ft^2$/kW (could take more area depending on shading at the site). Most panels are about 1 $m^2$, so thirty-three panels would be needed. Shading occurs because the panels need to be angled up (tracking panels could also be used), therefore, more area to space the panels out is needed, around thirty percent (30%) more space than the panel area. With these calculations, land area will need to be 46.4 $m^2$ for each module. Therefore, each module will produce 130 kWh of electricity each day. To recap: one 3.5 kW inverter, thirty-three solar panels, and 46.4 $m^2$ of land area will produce 130 kWh/day based on the above parameters.

Progress Energy Florida conducted an end use metering study in 1998-1999. This research, coupled with billing data analysis, indicates the average residential customer in their service territory uses approximately 17,000 kWh / yr. Considering this average and if the system produced 130 kWh/day, then close to three houses could be powered through the system. Hopefully the system would be larger than the hypothetical scenario to power more houses and businesses. According to the Environmental Protection Agency (EPA), a PV array "with a surface area roughly the size of two football fields could produce 1000 kW of peak power" (2005). While there could be more energy produced than is needed, it is

ideal to include a backup storage system (battery) with the PV system to store power to be used during low light conditions or at night. The modules do not have to be placed together, leaving the option open for one large site or many smaller sites depending on site availability. Where the panels are placed will not affect the calculations, there just simply needs to be space.

A reasonable estimate for a typical solar PV array is $10.00 per watt according to Progress Energy Florida. This price can vary based on the installation requirements and the size of the system. Subsidies will help support the project with a Federal tax credit of thirty percent (30%) and State rebate of $4.00 per watt up to a total rebate of $100,000. There are also other funding opportunities through the Department of Energy, Energy Efficiency and Renewable Energy Department, Solar Energies Technologies Program, the Environmental Protection Agency, and the Florida Department of Environmental Protection. MMA Renewable Ventures, LLC (website found in appendix), based in California, is also an option for private financing (this company financed the Nellis Air Force Base solar park). According to the EPA, "PV systems cost from $6,000/kW to $10,000/kW installed. The cost of a PV system depends on the system's size, equipment options and installation labor costs" (2005).

The national average of carbon dioxide ($CO_2$) reduction using a PV system, per the Department of Energy (DOE), is 1.53 lbs of $CO_2$ / kWh. The State of Florida is slightly below the national average at approximately 1.35 lbs of $CO_2$ / kWh. Using the 1.35 lbs $CO_2$ average and the hypothetical output from above,130 kWh/day, Clearwater can expect to see a twelve ton reduction of $CO_2$ within the first year of operation. Assuming the system has a 20 – 25 year lifespan, Clearwater can expect to see a $CO_2$

reduction of 240 – 300 tons. Based on the project kW, the total project pounds or tons of $CO_2$ reduction can be estimated. Please keep in mind the above calculations are hypothetical.

**Sustainability Plan Implementation**

The first step in implementing a solar park project for Clearwater is to continue with a feasibility study, including collaboration with Progress Energy Florida or an outside contractor, contacting solar panel and inverter provider(s), evaluating available sites and assessing how many modules each site can house, and perhaps holding a stakeholder meeting to evaluate how the public is responding to this project. After a feasibility study has been completed, a site or sites needs to be chosen. With the site(s) chosen, it can be determined how many kWh/day will be produced along with the reduction in carbon emissions. The next step would be to design and build the project. This can be done with the help of Progress Energy Florida design engineers or an outside contractor, such as SunPower Corporation, and a PV system components provider. Progress Energy Florida has experience in designing, building, and operating PV arrays and is interested in collaborating on this project.

Barriers that may be encountered in the implementation phase of the project are upfront costs (economic and energy costs), installation problems, electronic equipment problems, and having the space to create a park(s) that can power many buildings. The high initial cost of a PV system is recovered through substantial fuel savings over the life of the system and lower utility bills. In terms of the energy payback time, or the time it takes for a PV system to generate the same amount of energy that it took to manufacture the system, energy is recovered in two to five years. Since a well-designed and

maintained PV system will operate for more than twenty years, and a system without moving parts will operate for close to thirty years, PV systems produce far more energy over their useful life than energy used to manufacture them. Most problems with the actual system occur because of poor or substandard system installation. Failed connections, insufficient wire size, and components not rated for the specific application are common problems associated with poor installation. The next most common cause of problems is the failure of the electronic parts, such as the controller, inverter, and protection components associated with poor installation. Batteries that store energy fail quickly if they are used outside their operating specification (DOE, undated). It appears that Clearwater has many city owned lots that could be suitable for PV arrays. This will be addressed further during the design phase.

Once a PV system is implemented and is operational, it will be important for the city of Clearwater to define goals and benchmarks to determine the success of the project. Obvious goals and benchmarks that could be established for measurement include target reduction of carbon emissions, energy output of the system and the number of buildings receiving electricity from the system. Once the assumed energy output is determined, these goals and benchmarks can be quantified.

Key roles and resources needed to continue research and implementation for this project will be through the city of Clearwater, Progress Energy Florida, and a private contractor if chosen. It will be important to keep the line of communication open with the residents of Clearwater and take into consideration their suggestions and concerns. Also, a provider for the equipment will need to be chosen. Progress Energy Florida suggests using the Florida Solar Energy Center (FSEC), the Florida Solar Energy

Industries Association (FlaSEIA), and the Florida Solar Energy Research & Education Foundation (FlaSEREF) to direct the city to a list of solar vendors (see websites in appendix).

**Results and Future Recommendations**

Key findings of this research indicate that Clearwater has an opportunity to build and operate an innovative and sustainable project that will provide electricity for local homes, businesses, and other buildings. Through this project, carbon emissions could be cut dramatically while Clearwater decreases their dependence on traditional fuel. This provides advantages to homeowners and business owners through lower utility costs and sets Clearwater up as a model of sustainability and innovation to other cities around the world. A PV system that is designed, installed, and maintained well will operate for more than twenty years, while the basic PV module that has no moving parts and can last more than thirty years as mentioned earlier (DOE, undated).

As mentioned in the sustainability plan implementation section, it is important to do further feasibility research, contact design engineers, equipment providers, and potential operators. Site(s) selection, energy output calculations, carbon emission reduction calculations, and number of buildings the solar park can power will all aid the city of Clearwater in its decision to implement a PV system project. If the project is implemented, the longevity of the system will provide Clearwater with a renewable energy source for years to come.

# Chapter 6
# The Clearwater Community Garden Initiative
**Joshua Birky**

## Executive Summary

The idea of community gardens is not new, though the many benefits that they promote are just now being realized. Due to their role as a green space in an urban environment these gardens can bolster citywide economics by their positive effect on business, property value and tourism. These gardens also have the capability of improving the quality of water, air and soil in their area and also reducing the amount of environmental and economic damage that can be caused by pollution and storm water. Above all these gardens can have noticeable positive mental and physical health effects on all ages as well as making communities more safe and cohesive.

In order to create an effective community garden, stakeholder groups from all sectors of the community must be involved. A target group must also be identified and then catered to by choosing an appropriate location for the garden as well as the proper plot design, irrigation and maintenance features. Once the garden has been planned all legal and bylaw issues must be addressed and fundraising must be conducted with the ultimate goal of making the project at least profit neutral.

Finally we must realize that a garden is not truly a community garden unless it actually seeks to involve its community. The best way to achieve the involvement of those in the Clearwater area is to seek out possible groups that could act as resources for the garden's development and perhaps eventual expansion. If the Clearwater community as a whole can put people, resources and money behind this project, it has the potential to

spread beyond one simple location and turn into a network of community gardens that strengthen and enrich Clearwater's environment, economy and health.

**Introduction**

The city of Clearwater is no exception to the current trend of urbanization and currently seems to be balanced on a fulcrum where a slight push in either direction could snowball into either responsible sustainable development or typical "built-out" urbanization. In order to effectively push Clearwater towards a more sustainable future, the city should design and develop a community garden which represents and employs the ideas of sustainable development as well as fostering a spirit of community and environmental education. Rather than give a specified plan for an individual garden within the city of Clearwater, I plan instead to provide a flexible framework which can be used in the future as a resource and cornerstone to any community garden project in the city.

**Why Garden?**

Before we look at all the aspects that would be involved in developing a community garden in Clearwater, we should first put forth the motivation for such a project and ask ourselves "why garden?" Although there may be very obvious aesthetic and intangible reasons for developing a garden within the city there are also a number of compelling quantitative reasons in economic, environmental and health related areas. It is quite obvious that a project which can prove its economic merits will be looked upon more favorably than one which is not self sustaining. Community gardens, and more generally green spaces in an urban environment, have been proven as key components in positive economic movement. One of the main areas of community garden development

with economic implications is that of the effects of green spaces on property value. According to numerous studies, it has been shown that an increase in the amount of urban green an area, including trees and foliage, has a significant impact on the property value of the adjacent and surrounding locations (Rodbell 1991, Altunkasa 2004).

Along with this, green spaces also act to improve the economic state of a city through ecological restoration and stabilization which improves the quality of soil, water and air and can prevent the possible costs associated with environmental degradation (Rodenburg 2002). Separate studies have also shown that urban green spaces can save money through storm water retention and purification (Giving Tree 2007). Along with all of these factors community gardens would also act to draw more citizens and tourists towards the community and thus give businesses in the area a positive push.

Obviously a patch of vibrant green growth in the middle of an urban setting has many positive environmental impacts; in fact so many that they would dwarf the scale of this report. Yet, it is still important that we quickly summarize some of the main benefits that a community garden would bring in order to show that such a project would, in fact, bring environmental progress to Clearwater. Besides the ability for a garden to mitigate pollution and regulate an ecosystem (as previously discussed) an urban green space also has the potential to increase the biodiversity of an area (Colding 2006). Basically by installing a community garden in Clearwater we would effectively be reducing water toxicity, improving soil quality, reducing flood severity, stabilizing ecosystems, improving air quality and sequestering carbon.

Though economic and environmental benefits are important byproducts of a community garden project, some of the most essential benefits come from what a garden

can do for the health of an individual and the community as a whole. For an individual gardens offer a place to get extensive physical activity and thus decrease the chance of many health problems. Along with this benefit green spaces in urban environments also offer mitigation for Attention Deficit Disorder (Fabor 2001), increases in self discipline in youth (Faber 2002), healthy mental development in children (Kuo 2004), stress relief (Wells 2003), and sustained health for the elderly (Takano 2002). From these examples we can see that the health benefits of green spaces are both universal (across all ages) and widespread (mental and physical).

Recognizing that the individuals alone are not what makes a community garden, but instead it is the interaction of these individual that are crucial, we then must evaluate the effects that such a garden would have on community health. Urban green spaces promote community health by making communities safer and giving communities a center for activity and congregation. The enhanced amount of safety comes from the fact that areas of green in urban settings have been shown to reduce crime rates (Kuo 2001), and reduce the amount of aggression individuals exhibit through the abatement of mental fatigue (Kuo 2001 (2)). Urban green spaces can also act as a place, or context, in which communities can define themselves (Sullivan 2004), and where communities can grow into vibrant healthy units (Coley 1997).

Before moving on with this report it is also worth noting that by developing a community garden in Clearwater the city would be moving one step closer to fulfilling many of its long term goals. Since one of the main movers for this project was Clearwater's involvement in the "U.S. Mayors Climate Protection Agreement" it is essential that we evaluate how the development of community gardens fulfills aspects of

this climate agreement. Primarily, this sort of green land development promotes a sustainable type of planning by preserving open space and introducing plants that will help in the sequestration of CO2 – a main component of global warming. Less directly, a community garden will create a platform to educated citizens of the community about the importance of urban green spaces and their role in the mitigation of climate change. A community garden initiative would also fit into Florida's green local government standard. Community gardens are an important factor in a green local standard because they fulfill many of the requirements in areas such as economic and tourist development, environmental protection, parks and recreation, water and wastewater and natural resource management. Improvements in all of these areas would move Clearwater much closer to being considered a green city.

**Implementation and Design**

Now that we have gone over the many reasons for starting a community garden in Clearwater, it is essential that we next look at who the stakeholders would be. In other words we need to identify what groups within the community have some vested interest in a garden's development. Since a monumental amount of research has already been done by Sandra Kling on the specific stakeholders for the overall sustainability project in Clearwater, I will simply lay out some broad areas and general groups that should have an interest in a community garden project. These groups and their potential involvement in this project can be found in Appendix A**.**

After identifying the main groups of people who will be involved in the development and use of a community garden in Clearwater we must next briefly go over the main physical and ideological features of a community garden. The point of this

overview is to show all the possible options that the garden planners will need to consider and also to indicate what the results of these decisions may mean. Hopefully this will provide a flexible framework for the city of Clearwater to use as its base for development.

Once the decision has been made to build a community garden in Clearwater we must then come to a decision on the most basic features of the garden. The first step is finding the proper location for the garden (Appendix B). Some of the main factors in deciding on a location in Clearwater are the land's proximity to downtown Clearwater, bus routes and the Clearwater farmer's market.

After deciding on a location for the garden the next step is to figure out what size plots are desired and where they will be in relation to each other. The options in this area are pretty much endless but can be narrowed down to a few main sizes. Large individual plots (30 ft x 30 ft) are good for only the serious (commercial) growers or a large group (family) of casual growers; Medium plots (15 ft x 15 ft) are manageable for an individual with lots of spare time or an average sized family; and small plots (5 ft x 5 ft) are good for an individual or small family looking to garden as a hobby. The main principles that need to be followed are; to make sure you start small and build up and that you design the plots based on the type of prospective gardeners (Bartholomew 1981).

The idea of designing plots for prospective gardeners can also be translated into the style of the plots. One of the main examples of this would be the use of raised plot beds for the elderly and handicapped. The use of these raised beds would make gardening easier for those who have trouble bending over or getting down on their knees.

Another design style could be pre-tilled plots for young children, so that the initial aspect of growing is made easy.

Since the idea of designing for your growers has been mentioned so often we should now look at whom these potential growers are. The first option that can be explored is to create a garden that tries to cater to all groups. This sort of garden would have many different plot sizes and styles and would offer different kinds of assistance depending on the grower. This sort of garden, however, would be very resource intensive and thus may not be the best option. For this reason it may be wise to chose a certain group such as the elderly, low-income children, low-income families, schools, etc. and then base the garden features on that target group.

After developing the basic features of the community garden the next step is to make sure that the garden is able to function and become fruitful. In order for any growth to occur an efficient irrigation technique needs to be decided on in order to fit into Clearwater's climate and water availability. The most cost-effective irrigation system is a drip irrigation system because it provides water directly to the roots (Markels 2002). By also utilizing rain barrels along with a drip irrigation system a garden could become even more efficient at conserving water. However, if the construction and operation of this system is too daunting then a traditional "hose and spout" system could also work (though it would use up a good deal more water).

Besides irrigation, there are numerous other areas of garden up-keep that must be addressed such as pest control and soil quality. The proper control of these features is far too broad to address in this report but are still very important aspects of a garden. For

that reason when a garden is started the local county extension office should be contacted as well as any local resources (Appendix C).

**Logistics and Challenges**

With any large scale project there are always challenges that must be dealt with and the development of a community garden is no exception. Although Clearwater will almost certainly face some unique and unpredictable challenges there are a few expected areas that can be looked at prior to their occurrence. These problems will most often occur in areas dealing with legal issues and fundraising

Due to the fact that the land for this project would be city-owned many of the permit, insurance and other legal issues are made much more simplistic and thus not necessary for this report. The formation of bylaws, however, is an area of concern. A sample set of bylaws and other forms have been included in Appendix D and could be adjusted to fit the specific desires of a garden in Clearwater.

In many cases community gardens that are started without government assistance are funded out of the pockets of their members. Even though this can be considered a viable option, it is certainly not the only option. Since a project is much more appealing when it is either profit neutral or profit producing, it is important to look over ways to fund and maintain a community garden within Clearwater. The many ways of possible fundraising are laid out in Appendix E.

A key way to address all of these challenges, and gain information on community gardening in general, is by utilizing all of the resources that are available. These resources can come from the national, state and local level and I have laid out a few of these main resources in Appendix C of this report. An inventory of numerous local

groups interested in sustainability has also been compiled by Naimish Upadhyay and would be very helpful as a potential resource.

**Clearwater Application**

All of the information that we have discussed thus far can have a vague feel to it unless we have a direct plan of action and set of clear steps to follow. The first step will be identifying which location in Clearwater will be used and who the target audience will be. Once a location and group has been decided upon the next step is too look at local and national sources of funding and areas of local support. For Clearwater this means looking at stakeholders who have shown interest in the project such as "Natures Food Patch" in Clearwater or the downtown farmer's market. It is also key that local educational and governmental resources are explored such as the Pinellas County extension office for advice, the Pinellas county correctional facility for labor and local colleges (USF campuses, University of Tampa, Eckerd College, etc.) for volunteer work, advice and design. Once enough public support and interest has been built it is then important to make sure that there are enough funds and materials by seeking out grants and donations from all areas, especially local growers and nurseries that are generally very generous with seed donations. After all of this has been completed the final step is to sign up members, form a community committee and produce bylaws which will govern the growth and maintenance of the gardens. Hopefully this initial project will inspire the formation of future gardens across the city that can eventually develop into an entire network of community gardens.

# Chapter 7
# Adopt-A-Pond
Michelle A. Harmeling

## Executive Summary

Florida has had tremendous growth in the coastal areas, causing a decrease in wetlands that historically provided natural water treatment. This also led to an increase in impervious surfaces, and urban runoff. Management of stormwater has become a key issue regarding the quality of the City of Clearwater's natural resources. New rules, high rates of growth, and poor water quality have all led to improvements in stormwater management (Nisenson, 2005). Stormwater ponds which served Pinellas County previously had an Adopt-A-Pond program that was only available to unincorporated county areas, so a localized program is needed at the City level. The City has developed many capital improvement projects which primarily resulted in flood protection, but also added the benefit of stormwater quality improvement. Working with existing relationships between the City, County and citizen groups could provide the dual benefit of water quality improvement with aesthetic benefits, and community involvement with educational properties. A program with many options relating to improvements in aesthetics, education, and/or function would prove the most beneficial to a City with diverse groups that may choose to participate in the program. Keeping City costs low is of great importance to the current economy. There are many grant opportunities at the county, state, and federal level, as well as Non Governmental Organizations (NGO's) that are very interested in the improvement of the Tampa Bay watershed. The suggested program will also give the citizens of the City an opportunity to actively improve their water quality.

**Project Definition**

The United States Conference of Mayors has given the challenge at the city to become more sustainable through their Climate Protection Agreement. The City signed the agreement and is now examining operations for areas in need of sustainability improvements. In the 2007 Executive Order, stormwater ponds would be included in the section addressing land use and management policies that improve the long-term storage of carbon in Florida's biomass. In addition to water quality benefits, stormwater ponds also serve to provide plant establishment. According to the South West Florida Water Management District (SWFWMD):

> "Stormwater contributes nine times more oxygen demanding substances to water bodies than point sources (industrial effluent discharges). Stormwater contributes approximately 80–95% of the heavy metals that reach Florida waters. Nutrient loads from stormwater runoff are comparable to those in to those in secondarily treated sewage effluent discharges. Restoration programs have demonstrated stormwater pollution can be reversed".

Stormwater ponds offer a multitude of environmental benefits, whether they are done to minimum standards, or enhanced to their maximum potential. Their benefits from capturing sediment alone results in removal of metals, particles, organics, and the biological uptake by plants removes dissolved metals and nutrients (EPA, 1999) Also some types of ponds provide needed wetland habitat that can be utilized by waterfowl and amphibians.

According to City Public Works Administration stormwater policy (Section III):

"Lake/Pond maintenance shall be restricted to City owned systems or those portions of systems owned by the City only, and shall be limited to only those controls needed to satisfy an immediate problem, system operation, or to comply with provisions of agreement to remove silt and/or nuisance or exotic plant species where all appropriate licenses, permits, or exemptions have first been obtained. (The City) shall not be responsible for maintenance of private lakes or ponds (Clearwater pg. 3, 2006)."

The United States Census Bureau, states that the City has a total area of 37.7mi, 25.3 mi of it is land and 12.4 mi of it (32.98%) is water, broken up into three main watersheds: Stevenson Creek, Alligator Creek, and Allen's Creek. With such a large percentage of water that is not all under City ownership, a plan needs to be developed for all stormwater ponds to manage the resource. The City has many plans in order for flood control, but it will be up to citizen involvement to achieve successes in Non-Point Pollution control; primarily in their stormwater ponds. In a research study of urban area citizens it was shown that 94% agreed it would "be desirable to design and manage future stormwater control basins for fish and wildlife as well as for flood and sediment control if this were feasible from technical and economic standpoints" (Adams, 1984). As stated before, Pinellas County had a volunteer based Adopt-a-Pond program, but due to budgetary constraints the program was discontinued. Informational and guidance materials generated from these programs existence will be discussed later in this report. The intention is not to reinvent the wheel, but to apply these diverse programs at the City level.

**Sustainable Plan Development**

The City has several capital improvement projects for stormwater improvement. The goal of inspecting locations with the potential high risk of industrial runoff, such as retention and detention ponds, within the City, for pollutant discharge, was accomplished in the 2004//2005 period and all areas were in compliance. Some of the planned projects include Stevenson's Creek Estuary Restoration, coastal improvements, channel improvements, Coopers Point and Allen's Creek Drainage improvements. These improvements were included in the 2007 Budget Summary and there are completed projects such as Kapok Wetland Restoration Project and Glen Oaks Park. The 2008 city vision includes improvements to the Alligator Lake Wetland Creation and Stormwater Treatment project and the Alligator Creek Phase II implementation project to improve water quality in Tampa Bay (City Vision & Performance Measures, 2006). The City will have to first incorporate the proposal, later mentioned, into existing plans and focus the way the Adopt-A-Pond program would affect the watershed. Defining goals beyond stormwater quantity and quality to address invasive species, wildlife habitat and aesthetics would be needed to show measurable success. In order to have sustainable stormwater management, a project approach must be established toward all or many of the stormwater ponds, whether municipally owned or within a neighborhood. Also there are many State and Federal Grant opportunities that should properly amend the City budget, including the Pinellas County Environmental Fund and the partnerships with the Tampa Bay Estuary Program locally. Figure 1 shows the cost per kilogram to remove nitrogen and phosphorous based on projects that have received TMDL Water Quality

Restoration Grants (Livingston and Crane-Amores, 2005). This is an example of state dollars spent on these types of programs.

There is existing information that can serve as guiding principles for the program. First the SWFWMD has educational documents for the Stormwater Management System (SWMS), which can be dispersed to Neighborhood Associations. Also, Pinellas County Water Resources has many materials that can be used as guidelines for local project development such as *A Citizen's Guide to Lake and Pond Management*. There are many Florida programs in place that can serve as an initial model for the City to tailor to their needs. Hillsborough County, for example, has a Stormwater Management Section with more than 200 ponds that have been adopted from which Pinellas County modeled their program. "The Hillsborough County Stormwater program is a stepping stone by County government to initiate the improvement of stormwater quality (SWFWMD pg. 1, 2007)." The City of Lakeville, Minnesota also has a unique program that is set up to provide user related options to attract more program participants. From these examples, a blend can be created to be used at the unique local level rather than the unincorporated county-wide level. Since there is more concern initially with flood protection, the program may want to begin at an advisory and grant level, to focus City dollars toward capital improvements in flood protection.

**Sustainability Plan Implementation**

The Adopt-A-Pond program could be implemented at the City level through the stormwater division. By offering initial support toward pond retrofits, and development of a volunteer base for management, the program should prove to be sustainable. Volunteer efforts have proven successful in other City departments, as with the Adopt-a-

Park program. There are two broad options for implementation: providing an initial clean up effort by the City and the planting materials, which involves up-front budgetary constraints (that would later be balanced through volunteer maintenance labor); or provide only Staff expertise, educational materials, and applications for grant monies to perform the remediation activities. Using education and plantings would be the first step toward program development. "Educational efforts, whether signs associated with a structural retrofit project or statewide efforts such as Florida yards and Neighborhoods are essential in reducing [pointless personal pollution] and in gaining the support of citizens and elected officials for stormwater management programs (Livingston and Amores, pg. 4, 2003)." Also, creating vegetated buffers will show a water quality benefit beyond retention/detention alone, increasing vegetation also increased nutrient uptake of Nitrogen and Phosphorous. A central program option would be enhancement of the littoral shelf in stormwater ponds. See Figure 2 for explanation of this portion of a stormwater pond. The SWFWMD offers community education grants and the following is an excerpt from a Sarasota County project that was awarded $4,834.00 in grant dollars: Gillespie Pond Restoration Project

> "Will restore the Gillespie pond by involving community and school volunteers in planting aquatic and shoreline trees. This planting project will help to minimize bank erosion, filter storm water that enters and exits the pond, improve wildlife habitat and educate the community about healthy ponds, watershed protection, and Florida-friendly landscape practices (SWFWMD, 2007)."

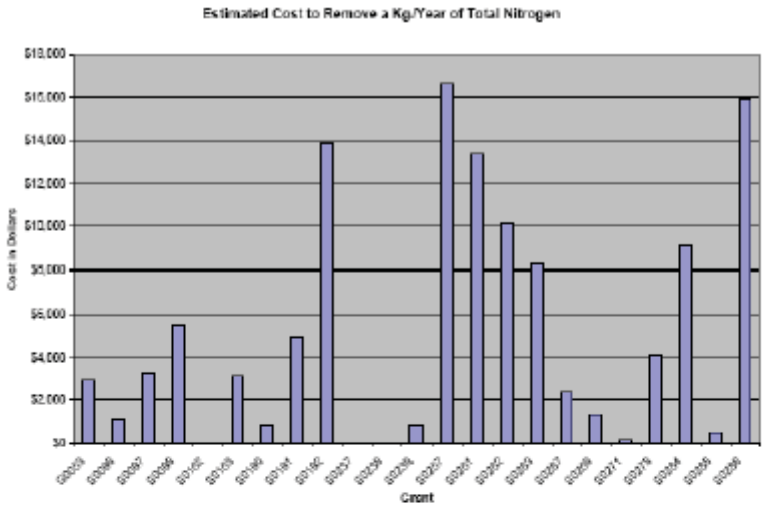
This example shows that initial costs can be kept low if the program is grant based and matched with staff hours toward oversight of these projects. The procedure

that is recommended is a blend from Pinellas County Adopt Your Pond program, the existing Clearwater Adopt-a-Park Program, and Adopt-A-Pond programs throughout the state and country: Through existing volunteer channels (e.g. Clearwater Adopt-A-Park), the City can form program working groups that can begin by assisting in approved activities requested by Neighborhood Association applicants. With guidance from City staff the program can provide the following options at the applicants request: Provide a one-time nuisance vegetation removal and disposal, provide the Florida native vegetation for planting, materials for trash removal and disposal, provide materials such as Barley straw to improve water aesthetics, and professional support in regards to environmental education (such as training citizens on frog monitoring, examination of pond buffers, and Hillsborough County's Pond Walk Program). This overall program would be most beneficial if it were tied to an agreement such as dedicating assistance on another applicant's pond, or a City pond (on a one time basis) or committing to hours of service on their existing pond.

**Results and Future Recommendations**

The City has made strong efforts in the area of stormwater management and improvement which has been shown in the existing water quality. Yet in order to be sustainable and keep up with the increase in urban runoff discharges, a program needs to be applied and managed by the City toward all stormwater features. There are many challenges associated with assessments, prioritization, and funding of stormwater pond projects. Using existing programs such as the Pinellas County Water Atlas http://www.pinellas.wateratlas.usf.edu/ for citizen interaction and tracking of future projects can aid in the program organization, but also allow for citizen and County

involvement on the decision-making. Showing the economic benefits related to the savings in nutrient loadings and pursuing grant opportunities will safeguard the program from being cut. Approaching Home Owners Associations and Neighborhood Representatives first will cover a large number of privately owned ponds that would otherwise be left to the minimal standards of grassing alone. They have expressed an interest in more diverse and beneficial plantings, but just need the guidance. Also, advertising the program via utility bills would gather more volunteer interest. Informing the public of their impact toward water quality and providing a venue for active involvement can create more environmental citizens; thus extending to every aspect of sustainability including more efficient energy use, generation of less waste, and greener choices overall . With large amounts of community involvement, this program could serve as a stepping stone from work being done in community stormwater ponds, to the installation of rain gardens within individual lots. Rain gardens would be a shining example of a truly sustainable community as it would show citizen level interest in "recharging groundwater, maintaining natural hydrology, and absorbing and detaining pollutants carried in the stormwater" (Hager pg. 4, 2003). The Adopt-a-Pond Program would show the City's commitment to go above and beyond minimum stormwater quality management, inspiring the citizens to do so as well.



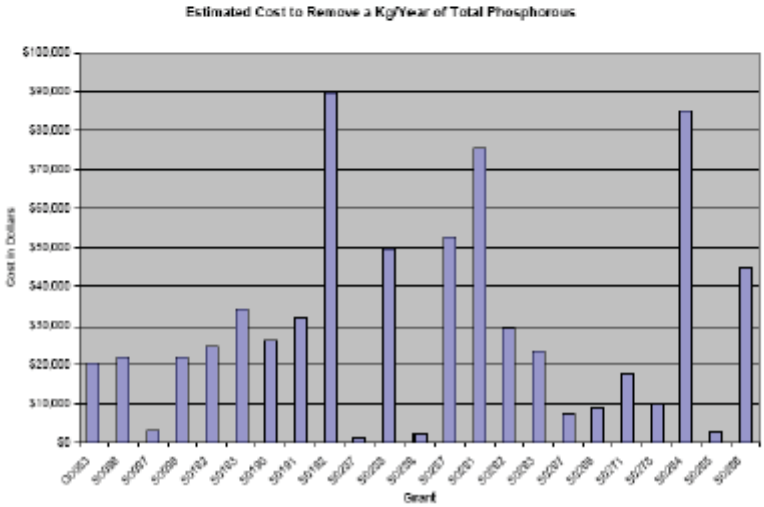




Figure 1. Cost per kilogram to remove nitrogen and phosphorous (TMDL grants).

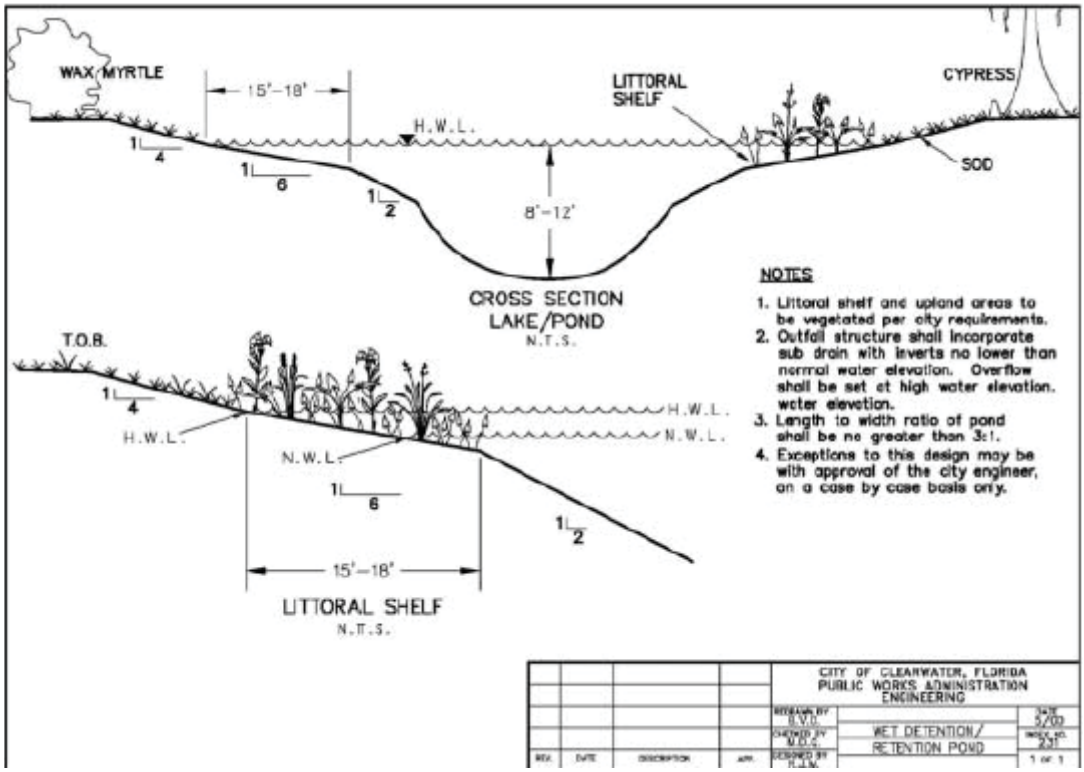



Figure 2. Littoral shelf location

# Chapter 8
# Sustainable Wastewater Residuals Treatment
Nick Noreika

## Executive Summary

A biosolids treatment program is the focus of this paper. The benefits of converting a waste product to a sustainable resource will be looked at, and the feasibility examined.

Wastewater treatment facilities use natural biological methods to break down the components and clean the water. There are two main by-products of wastewater treatment: the treated effluent and the residuals (also known as biosolids or sludge). In Clearwater the treated effluent can be used as reclaimed water for various commercial and residential purposes. However, the residuals are hauled off to Hillsborough and Polk County to be land applied. As far as the sewage sludge (residuals), these biosoldis are a valuable soil fertilizer because of their high organic content that plants need. The term residuals has gained popularity through recent years because of the changing perception that sludge is not just a waste product anymore.

Beneficial uses for sludge include application to land for farming and ranching operations. The non-beneficial methods of disposing of sludge are land filling and incineration. This type of sludge is referred to as Class B sludge, which is the type Clearwater wastewater treatment facilities generate. The City of Clearwater currently hauls off their sludge to Hillsborough and Polk County to be land applied. Residuals that meet very strict regulatory standards are considered Class A sludge; they go through extensive treatment, and can be used as commercial grade fertilizer.

Surface and land fill disposal pose problems with public acceptance and limitations on available space. Economic factors often influence the selection of a use or disposal option. Other factors include public acceptance, the availability of land to which residuals can be applied, and the degree of treatment that the residuals receive before leaving the wastewater treatment facility, (Smith, 1997).

Residuals application and treatment has been a common practice for almost 150 years, (National Resource Council, 1996). Wastewater and residual treatment are both natural solutions to converting a waste stream (sewage) to a practical resource (fertilizer). These benefits are well established, yet public perception today mainly considers the biosolids material as a waste, and not as a useful by-product. Through my research, I will discuss how the current Clearwater solution of land applying their residuals may not be the best way to go about obtaining treatment. The method of exporting the City's waste stream to other counties can lead to a negative public perception of the way Clearwater handles their residuals, along with the fact that obtaining Class A sludge treatment over Class B can be a lot more environmentally friendly and economically beneficial.

My report will conclude the long term costs outweighing the short term costs of establishing the proper equipment for such a treatment facility to come on line, making the City of Clearwater able to become environmentally sustainable.

**Sustainable City**

Ideally a wholly sustainable City's consumption of waste could be compared to a biological organism model in the way that it uses and generates resources. There would essentially be a circular metabolism where every output discharged by an organism would also become an input which, renewing and sustaining the continuity of the whole

living environment of which it is part. The whole web of life hangs together in a chain of mutual benefit through the flow of nutrients that pass from one organism to another. However the "metabolism of most modern cities is essentially linear, with resources being pumped through the urban system without much concern about their origin or about the destination of wastes, resulting in the discharge of vast amounts of waste products incompatible with natural systems. In urban management, inputs and outputs are considered as largely unconnected," (Reader, 2007, p.125-6). The goods cities consume end up as waste or land fill material. This essentially non-circular metabolic system is not sustainable. This trend can be reversed if the outputs of a City can be made into beneficial inputs

**Biosolids Treatment**

Sewage sludge is generated during the treatment of sewage. This sludge contains nutrients that can be beneficial to plants; however it can also contain agents such as pathenogenic bacteria and parasites that can cause disease and attract vectors. If this sludge is untreated before land application or surface disposal there is a potential for direct or indirect exposure of humans to these agents. Therefore regulations require that before sludge can be land applied or used for any other form of "beneficial use" (EPA, 2003) the sludge must first be treated. In the United States the use and disposal of treated sludge (biosolids) is regulated under 40 CFR Part 503 which requires that sewage sludge be treated by a Class A treatment process, where pathogens are treated to a below detectable limit, or a Class B treatment process, where the sludge is unlikely to pose a threat to human health and environment under certain conditions (EPA, 2003). If Class B

biosolids are land applied, crop harvesting, animal grazing, and public access must be limited for a certain period of time and be closely monitored.

In the past, the City of Clearwater operated an RDP Envessel Pasteurization process at the Northeast Advanced Pollution Control Facility (APCF), which produced Class A biosolids from the sludge generated by the City's three APCFs. The sludge was then land applied. However, the City discontinued this process in 1998 after determining it was more cost effective to enter in to a long term contract with a contract operator to produce Class B biosolids, which are hauled to residual fields in Polk County and Hillsborough County for land application. Land application of biosolids is not very sustainable:

- The transport of biosolids from the City to the land application sites in other counties involve the emission of pollutants and usage of gasoline. As land application sites become more scarce, trucks will have to travel farther.
- Land – Not only is public awareness increasing resentment towards sludge fields, but a more prevalent long term problem is the fact that land is running out for this type of application process.

In addition to being unsustainable, it is important that the City be self reliant regarding residuals treatment. There is typically tremendous opposition to land application in communities where it occurs. A recent law suit in California has received a lot of attention in the residuals management industry. Orange County, California is dependant on Kern County to accept its residuals for land application. In November 2006, Kern County adopted an ordinance to ban the importation of biosoldis. The Kern County voters overwhelmingly (83%) voted for the ban on biosolids recycling in their

county, (Nebra, 2007). Neighbors argued that they should have the right to enjoy their home without be subjected to a neighboring residual treatment facility. The debate centered on the public's perception of living next to sludge material rather than a scientific debate about the actual hazards of the biosolids. Even though the residuals being shipped met the criteria for Class B biosolids land application, and there was no imminent hazard or danger to the public, the Kern County voters still wanted the ban. Their perception of the industry was the driving force for the lawsuit between the two government entities

The Court concluded that the outright ban of biosolids discriminates against interstate commerce, and Kern County lost the lawsuit. Out-of-county biosolids are considered commerce, and cannot be shut out of a county. Additionally, the Court did not find evidence that harm would occur to residents living near to the sludge fields, and it stated that the practice has been undertaken safely throughout the United States without indication of detrimental environmental or health impacts, (Nebra, 2007). Although the lawsuit was lost, it demonstrates the growing public discourse over the land application of Class B biosolids which could potentially lead to issues down the road.

**Sustainable Development Plan and Implementation**

A more sustainable plan for Clearwater would be for the City to treat its sludge to Class A standards, that is commercial grade for farming and agriculture. Although the sludge fields can be used by cattle ranchers to pasture their cows and grow hay, producing a commercial grade fertilizer would create a better and more useful product. This would also allow the City to avoid any potential issues that down the road with land application.

The initial costs of starting up a Class A residual treatment process will be the biggest factor. Proper planning and equipment purchasing is essential.

A meeting with Clearwater's Superintendent of Public Utilities, John Milligan, revealed a plan of action for what the City is currently, and planning on doing, regarding residuals treatment. Six years ago, Clearwater was hauling its sludge off to land fills. As mentioned above, this is a common practice for urbanized cities to do, which is very non-sustainable. Today, the City of Clearwater hauls off its sludge to be land applied, or sent to a land fill. To lighten the load of the actual hauling costs of trucking the sludge to the fields, the City invested in anaerobic digesters to reduce volatile solids in the sludge to reduce hauling coats. There are two digesters at the Marshall Wastewater Treatment Facility, and one at the Northeast Wastewater Treatment Facility. These digesters not only reduce the amount of volatile solids in the sludge, but can actually generate electricity in the process. The methane gas produced is a by-product of the residuals treatment, and 3500 cubic feet is produced every hour. This generates power for micro turbines, has so far given Clearwater an energy reduction of $80-100 thousand dollar per year.

Clearwater did have a brief history with treating their sludge back in 1995 at the Northeast Facility. The process was a lime treatment process with is not efficient and literally a stinking process of residuals treatment. This type of treatment was messy, and treated with a high amount of lime to stabilize the sludge, which still had to be hauled away to residual fields. Overall, the plant was deemed too big of an expense, and went off line.

The plan currently on the table for Clearwater is to buy two dryers to treat and dry out their residuals. This type of advanced treatment yields Class A sludge. This method would dry sludge up to 90% solids, and the product would be hauled away to make fertilizer at fertilizer plants. The major barrier for this the $14-15 million dollar price tag that goes with the equipment purchase for the capital project. A solution to lighten the expense load would be to have smaller, neighboring cities help contribute. The cities of Tarpon, Oldsmar and Dunedin could contribute towards the operations and maintenance costs of the equipment. Another way is if each smaller city were to pay per pound of what goes through the plant. This could be beneficial for a smaller quantity generator.

A concern John had with obtaining the Class A residual is the responsibility that comes with it. The difference between Class A and Class B residuals is huge. Class A is strictly regulated, and must meet strict guidelines before leaving the plant. This can be seen as a hindrance for most plant mangers. The three hurdles for the City to get this plan off the ground are: 1 – Operations and maintenance costs, 2 – Start up capital costs for the initial purchase for the equipment, and 3 – Fuel costs.

To look at the incentives that can overcome these barriers, we'll look at each one of issues, and see specifically how each can be dealt with to move ahead with the project. First, the operations and maintenance (O&M) costs are varied because it depends on the frequency of machine usage. John's concern was for Clearwater to take on such a potentially huge O&M expenses for the City. The potentially high costs of repairs and/or downed equipment can be off-set by having the smaller surrounding cities of Tarpon, Oldsmar and Dunedin share expenses, in the meanwhile, ship their sludge to the Clearwater plant as well for Class A residual treatment. If neighboring cities can come to

the table as well with this part of the project, it would be a win-win situation for everyone. The second concern being addressed is the capitol project cost of $14-15 million dollars for 4 years. John stressed the importance of such projects being done over a few years, rather than at one. If a huge project is taken up too quickly, it can have negative impacts on the taxpayers. This is to be avoided by all means; even if a great project idea is in the works, a time frame must be set to disperse the stress of the initial costs. The last issue mentioned is fuel costs. Unstable fuel costs can drive or crash markets and industries in our current economy. The dryers covert our waste product into a great resource, but it takes fuel to run the dryer stems that treat the residuals. A huge spike in fuel costs can cause extra expenses for the Class A process. If certain energy efficient dryers are purchased, they have capabilities of recirculating their energy, making them more efficient and less expensive to operate.

**Results and Future Recommendations**

Earlier, I mentioned the issues of basic sludge land fill and field application implications. Land filling is getting significantly more expensive. Basic land application is getting met with opposition from communities as was seen from the California county law suit. I think John Milligan said it best during our meeting, "Availability of land is what drives residual dryers to be purchased. We are running out of land." Running out of land is an issue that will have to eventually be addressed, as with all wasting industries.

The bottom line for Clearwater tax payers is a benefit for purchasing the dryers. For the fiscal year of October 2006 through 2007, the current cost of hauling Class B sludge out of the City cost $750,000. Estimation for running the fuel dryers to treat the

sludge, with fuel costs estimated at $1.94 a gallon, the number came out to $620,000. Clearwater can save potentially over $100,000 a year by treating their sludge with this dryer method; all the while being sustainable and environmentally friendly. These costs can change however; rising fuel costs to operate this dryer system can become a huge negative factor for the City.

Looking towards the future, it can be an option left on the table to treat greater amounts of sludge from a growing population by making even bigger gains through the treatment process. The granulator method can be looked at if and when the Clearwater dryer treatment proves successful.

The neighboring City of Largo has a biosolids fertilizer plant which has been operating since 1991. A field meeting conducted with the Largo biosolids plant foreman, Craven Askew, went through the process of how regular wastewater sludge is treated and creates a Class A soil conditioner product. "The City of Largo Wastewater Biosolids Facility utilizes advanced heat-drying technology to produce marketable pelletized domestic waste residuals. The facility produces between 16 and 18 dry tons per day of Class A residuals that are sold for beneficial use as a soil conditioner. The finished product has very little odor, has a high nutrient value and is highly marketable. The finished product is sold to a private entity for resale to various agricultural interests throughout the United States. The final product is used directly as a soil conditioner and also is mixed with other ingredients for use as a fertilizer," (Askew, 2004, p.). A diagram for the facility shows the sludge treatment process from start to finish, (Diagram 1). The end product of the Largo Biosolids Facility is a pelletized, granular residual that is sold and used as fertilizer. The plant currently sells the finished product for $42.50 a ton to

the Centico Company, which has contracts with major fertilizer and agriculture companies throughout the U.S.

The major difference between what is being proposed for Clearwater regarding Largo's treatment process is the fact that a pelletizing train is not required to make commercial grade fertilizer. It is very useful to pelletize the residuals, and it makes a better product for agricultural use; however, at this stage of the plan for Clearwater is to treat the sludge with dryers and not put it through the pelletizing part of the process. This won't pull a profit for the City, since the end product will be picked up for free from a distributor.

If Clearwater were to put a biosolids processing plant into operation for the city, 100% of their waste stream from sewage sludge could be transformed into a fertilizer resource; hence, the current trend of the City's linear process urban production would be converted to a circular trend of input and output sustainability.

# Part III Transportation

# Chapter 9
# Electric Vehicles in Clearwater
# John Connaughton

## Executive Summary

The subject of my study is how the city can reduce the generation of greenhouse gases produced there by cars and trucks. I first examine the benefits of low speed electric vehicles, or LSVs. This solution is attractive in terms of ecology and economics, but it is dependent upon a cultural and therefore political modification: it might require lowering speed limits on some roadways in Clearwater.

The conclusion of my study is that electric cars and trucks will eventually be the answer to the basic problem of greenhouse gas emissions, even if they are not LSVs. The problem is, affordable models of faster and fully electric vehicles do not exist yet. They will soon, but if Clearwater needed to replace vehicles today, and could not adopt the low speed solution, then the best solution I could present now would be a hybrid.

In doing this report I examined several dozens of internet sources, and my links are provided in the references for this chapter. As much as is possible the numbers cited herein come only from government web sites, most notably www.fueleconomy.gov, on the assumption those are the most objective and thorough. I avoided other sites unless they agreed with government sites. For distances I relied on Google Earth's measuring tools.

## Fuel Alternatives: Ecology

From the ecological point of view any alternative to gasoline is better than gasoline. Appendix A shows that the typical mid-sized gasoline car on the road today

emits at least 8 tons of greenhouse gases in the course of an average year's 15,000 miles. Ethanol, natural gas, and hybrids are all notably better, and these could be adopted and used in the city right now with no more preparation than locating the nearest fuel supplier. Greenhouse gases from ethanol are about 80% of gasoline, and natural gas is about 67% of gasoline.

For absolute improvement, however, there is only electric. Electric does not produce any greenhouse gases at all, or only traces. Therefore replacing one gasoline car with an electric one cuts pollution by 8 tons or more per 15,000 miles driven.

**Fuel Alternatives: Economics**

If electricity is generated by solar, wind or water power, the raw resource is free (as well as clean) and there would be no comparison at all between electricity and other sources of automotive power. But most electricity today is generated from fossil fuels. When fossil fuels are the original energy source for both, gasoline arrives at the pump much more efficiently (82%) than electricity arrives at the outlet (52%). However, production and distribution do not matter, even ignoring the 'free' nature of renewable sources, because this is more than offset by performance at the end.

In a gasoline engine several things have to happen to get energy from a burning fuel converted into pressure turning the axles; in an electric car the axle can actually be the shaft in the motor. An electric thus, and in other ways, has significantly fewer moving parts. Because of this electric is about 75% efficient in converting stored energy into useful motion, compared to 20% for gasoline. At the point of use an electric motor approximately triples the productivity of a gasoline engine. (See appendix E.)

For the argument, say gasoline at the pump costs $3.00 per gallon. At 30 mpg, 30 miles costs $3.00, or 10 cents per mile. A gallon of gasoline contains power equal to 33.5 kilowatts worth of electricity. The current cost of kilowatt-hours is about $.10 each (which is probably high, especially if one recharges at night). This means an electric car needs $3.35 worth of electricity to match the power in a gallon of gas—but at three times the efficiency, you go 90 miles for that $3.35, which means 3.7 cents per mile instead of 10. (See appendix A again for annual costs, and appendix C for fuel efficiency data.)

**Other Technical Considerations**

On top of the difference in fuel-to-action efficiency, any car that burns any fuel at all for even a moment (meaning hybrids too) needs a containment chamber for the fire and systems for conversion and exhaust, making them much heavier and more complex than an electric car, and therefore more expensive to build, purchase and maintain. Batteries might outweigh a full tank of gasoline, but overall the electric will still weigh less.

The life span of an electric motor is 30,000 hours. A gasoline engine driven 1,000,000 miles at an average speed of 50 mph has run only 20,000 hours, and it has probably needed a good amount of servicing along the way, while an electric did not.

As of now the weak point in electric cars is the battery. A hybrid Prius set on 'EV' (electric vehicle only) will run out of power in 10 or 11 miles because it draws on a single battery for locomotion; fully electric vehicles have greater range because they use grids of up to 20 batteries. Furthermore, however many there are, current batteries still

last for only 3 or 4 years—and batteries are expensive. The owner of an electric vehicle today may need to spend 20 x $100 = $2,000 every 3 or 4 years to replace them.

By comparison, the Department of Energy estimates a 4-year average routine maintenance cost for gasoline cars to be $2,983. I do not have an item by item comparison on this, however. Both need tires, for example, and that might be included for the gasoline car but it is not for the electric. Therefore I allow that electric and gasoline maintenance may be an even match, at least for now.

I think, though, it will not be that way for long. As I edit in late November 2007, U.S. News & World Report reports that GM is closing in on a 300 lb. lithium ion battery that should extend range by 4 or 5 times the nickel metal hydride in a Prius, let alone the lead acid batteries that preceded that. I also expect that in the end fuel-cell technology will render all batteries obsolete, but I am not going there in this report except to note fuel-cells are intended to produce electricity, so that conversion from batteries at a later date should be a relatively focused and simple process.

If maintenance is a draw for now, and fuel costs run 3 to 1 in favor of electrics, and emissions are not even an argument, then it is time to start looking at electric vehicles.

**Low Speed Vehicles (Lsvs)**

For the technical reasons just described, and for reasons still to be discussed, LSVs are lightweight and inexpensive, typically $9,000 - $15,000. They win on purchase price as well as environmental cost and fuel economy. (Appendix E includes links to a number of different makes and models.) But what are they?

Federal Department of Transportation rules on this subject have existed only since 1998, when it became necessary for the public safety to separate smaller electric vehicles—specifically, golf carts—from sharing the same roads as faster, heavier vehicles. The result was the creation of the LSV category. The definition hinges largely on attaining speeds above 20 mph, which keeps golf carts out of this category. LSVs are supposed to be capped at 25 mph, but for technical reasons they are often--if not usually--capable of more; thus how and where they are allowed to be used defines them better than simple speed capability.

The federal rule drew upon the dozen or so states that already had rules for this, including Florida. Most of these, including Florida, allow LSVs on private and public roads where permitted by local government, or in self-contained retirement communities. Arizona took the approach that LSVs can be driven there on any road posted at 35 mph or lower.

Like other states that addressed the issue, Florida requires efficient brakes, reliable steering apparatus, safe tires, a rearview mirror, red reflectorized warning devices in front and rear, headlights, taillights, and brake lights. Notably, there is nothing in the rule about side impact panels or any meaningful bumpers—and therefore these vehicles would not pass a crash test. (This is another reason they are so lightweight.)

I could find no indication that automobile insurance companies have given LSVs any thought at all yet. I looked for quotes on-line and spoke at some length with a service representative at Progressive Insurance. They had never heard of these vehicles. So for now I assume that LSVs are treated as any other vehicle for insurance purposes; but for several reasons, most obviously speed, insurance on a LSV should cost far less.

Because they are only minimally equipped for safety, though, serious consideration needs be given to whether or not LSVs should be on the same roads as faster moving, heavier vehicles. The easy answer is that they should not. The next question, then, is a planning one: how much of the City of Clearwater could tolerate a speed limit of 35 mph on all traffic so that these vehicles would be reasonably safe?

Appendix B shows a map laying out the current speed limits in Clearwater. It is clear from that map that most of the road mileage in Clearwater is already at 35 or 30 mph. These speed zones are located largely in residential areas and in the island communities. Clearly LSVs would do well if they were used exclusively in these areas. The problem is getting from one such area to another one when they are not directly connected.

There are significant miles of roadway in Clearwater currently limited to 40 mph. These roads are problems for the LSVs where they divide the lower speed areas from each other. If these speed limits could be reduced by 5 mph, almost the entire city would then be capped at 35 mph. Very little would not be.

West of Route 19 only 6.13 miles of road are set above 40 mph, including 4.46 miles of Coachman, Drew and North Belcher roads, and 1.67 miles on The Memorial Causeway Bridge. These are all set at 45 mph. Perhaps the east end could be ignored; but the bridge looms in Clearwater's primary industry, and most obviously divides the lower speed areas. If the bridge could be reduced by 10 mph this entire plan would come together. (In driving the bridge's 1.67 miles, the difference between 45 mph and 35 mph is 38 seconds.)

I must note, however, the bridge is part of an evacuation route, and that makes this more than only a life-style issue. LSVs might be the only means of escape for some, but their presence on the bridge might also be the cause of chaos. This question needs professional consideration that I cannot provide.

**Higher-Speed Electrics**

At the other end of the scale, several new electric vehicles like the Tesla can out-perform all but the most powerful gasoline engines. The people behind the Tesla claim it can accelerate from zero to 60 mph in under 4 seconds, then cruise at 130 mph for up to 245 miles. They claim a fuel cost of 2 cents per mile and the equivalent of 135 mpg in efficiency. The first production run of this car sells for $100,000, which could come down with volume; in the meantime it provides a glimpse into the future of electronic car technology.

On the more practical end—but still at $42,000---from 1997 to 2003 Toyota sold a 100% electric SUV called the Rav-IV. It matched the speed and performance of any other SUV except for range, and it offered zero emissions and fuel efficiency equal to 111 mpg.

The electric Rav-IV was discontinued after 6 years, so something about it still wasn't economical. Or it may have had to do with California loosening an emissions standard the day before they closed it down, but I do not know that. My point is that the technology already exists, even the tooling and assembly line already exist, so full speed electrics could return as fast as demand rises as gas goes up, or legal standards tighten again.

Let me re-cap. We already know that electric is the only really good answer ecologically for personal transportation. We already know it is the least expensive type of fuel consumption. We know that except for batteries there is no comparison in maintenance costs. So what else is there?

**Hybrids**

The simplest way to deal with the subject of hybrids is to say a few things about the Toyota Prius. This car owns 40% of the hybrid market in the United States. It has been named Car of the Year in Japan (1997-98), in North America (2004) and in Europe (2005). It claims overall fuel mileage of 46 mpg, and its suggested retail price for 2007 was a low $22,175. More than a million have been sold world-wide. It is used by local governments as police vehicles from Sweden to Ottawa to Laguna Beach, CA. It is also available now at many dealers within or around Clearwater, and it has a history of exemption from sales taxes (at least in Connecticut), federal income tax credits, and 10% discounts on insurance. If Clearwater were in the market to replace a sedan in its fleet right now, one would almost have to endorse this vehicle.

Nonetheless, half the time this vehicle is running on gasoline, and every 15,000 miles or so it has put 4 or 5 tons of greenhouse gas emissions into the air.

**What Other Cities Are Doing Now**

What cities are doing right now is buying the Toyota Prius. No-one thinks they can afford to wait for the perfect all-electric vehicle. There is something like a contest going on today in the United States, with cities competing to see who can get greenest, fastest. A website called Sustainlane currently ranks the top ten as follows; the

percentage shown for each is how much of their city fleets are powered by alternative fuels.

| | | | |
|---|---|---|---|
| Las Vegas, NV | 63% | Denver, CO | 31% |
| Honolulu, HI | 51% | Phoenix, AZ | 28% |
| Kansas City, MO | 45% | Los Angeles, CA | 25% |
| Albuquerque, NM | 42% | Seattle, WA | 25% |
| Dallas, TX | 39% | Portland, OR | 25% |

Albuquerque and Denver are on record as pursuing 100% greenness. In Albuquerque ethanol, electricity and biofuels are mandated for city buses, and hybrid cars are encouraged by getting free parking.

New York City is noteworthy. They bought 20 of the electric Toyota Rav-IV themselves and have in place major economic incentives to promote private investment in electrics and hybrids and other alternative fuels. The taxi medallions sold for alternative vehicle taxis there run at up to 33% less than for gasoline. The NYC Department of Transportation (NY DOT) will pay up to 80% of the incremental cost for new or converted medium- and heavy-duty natural gas, electric, dual-fuel (80% CNG), or hybrid electric vehicles. The New York City Private Fleet Alternative Fuel/Electric Vehicle Program gives out awards to help private sector fleets convert to alternative fuels. For examples:

- UPS was awarded $746,888 to purchase ten (10) electric delivery vehicles for use in the Manhattan South delivery area.

- Coca-Cola Enterprises, Inc, was awarded $124,237 to purchase five International Eaton hybrid-electric delivery trucks that operate out of their Bronx depot and service the five boroughs.

The money for these awards comes from Federal Department of Transportation Congestion Mitigation and Air Quality (CMAQ) funds distributed through NYSERDA to address air quality improvement strategies in the transportation sector. And finally, until December 31, 2010 New York state is giving a tax credit for the installation of clean fuel vehicle refueling infrastructure located in the state. The tax credit is equal to 50% of the cost of the infrastructure. (See Appendix D for more detail on NYC's programs.)

Quoting from ZAP's publicity release of March 29, 2007, the City of Richmond, CA, has joined them in launching a pilot fleet program to demonstrate ZAP electric trucks in a city fleet, the first fleet in the country to incorporate all-electric city-trucks. ZAP calls the XEBRA sedan and truck "city-cars," an electric car design for inner city driving up to 40 MPH. XEBRA is manufactured through a strategic partnership with a Chinese auto manufacturer and available through ZAP's authorized dealers at a price of about $10,000. (Note the speed—almost only a LSV. I assume these avoid the higher speed limit streets.)

**Implementation Ideas For Clearwater**

1. Clearwater can work with the state and the county to look at sales taxes, which Connecticut waives on purchases of hybrids.
2. It can work with the state DMV to set graduated fee rates based in part on fuel usage.

3. It can look at reduced license (medallion) fees for electric or hybrid taxicabs.
4. It can consider free parking for obvious electrics or hybrids.
5. It can explore the federal and state agencies which would support such efforts financially.
6. It can explore the LSV idea with adjacent towns and cities.
7. It can promote electric vehicle rentals by rental companies, and electric shuttle service by local hotels, via tax considerations. It could also bring consumer pressure to bear here by offering consumer incentives, like local hotel discounts if they show they rented a hybrid.
8. It can look at partnerships with electric utilities for the development of convenient, credit-card operated charging stations in public parking facilities or even with metered street parking; such convenience for citizens could only encourage private use of electrics.
9. Clearwater could explore a partnership with 'Zip-Cars,' a national rental operation in major cities that rents vehicles out for just a few hours at a time and at a fairly low cost. A fleet of inexpensive electric vehicles might prove a very strong economic model here.
10. Clearwater could buy an electric or hybrid vehicle the next time one of the town's fleet needs to be replaced, and track that vehicle's expenses and performance for the sake of learning more.

# Chapter 10
# Sustainable Options for Travelers to Clearwater
Johan Gonzalez

## Executive Summary

For the fall semester of 2007 Dr. Robert Brinkmann, Chair of the Geography Department at the University of South Florida, conceived a course outline meant to complement 'greening' efforts being made by the city of Clearwater, Florida. This project is the work of one of the students taking that course.

The subject of this project is transportation systems used to get here by visiting tourists and winter residents. This project is related to two other USF projects focusing on transportation, one about electric vehicles and other fuel alternatives, and the second on bicycle use within the city. These however are more about what can be done once a person is in the city, as opposed to how one gets there.

Clearwater is a city that is strongly affected, economically and socially, by tourism with a significant percentage of the population here is seasonal due to our attractive beaches and climate. However, the transportation systems our visitors use to get here adversely affect the quality of life in Clearwater for everyone.

The goal of this project is to identify the transportation systems that travelers use now to come to the area, and identify alternatives that are more sustainable. The pros and cons to these alternatives will be presented followed by an implementation strategy for their adoption.

The city has recognized the need for multimodal transportation in its plans for development, and has made the first step in considering sustainable options. The city, as well as other stakeholders such as shuttle operators, can adopt alternative options with

financial and research assistance from outside as well as internal sources. This would serve to improve the lifestyles of both residents and visitors and make the city a sustainable community and tourism destination

**Project Definition**

The scope of the project is to identify the options of that travelers chose to get to Clearwater from the major airport in the area, and to identify the economic, social, and environmental impacts those options might have on the city. Alternatives that could help reduce the impact of tourism on the city shall be presented. This would include a study of the strengths and weaknesses of alternative transportation options, as well as suggestions for making the acceptance of these options more feasible.

The project involves several elements of sustainable transportation. In the first place it might be useful to define what sustainability is. The most basic definition is from the Brundtland Report (1987): Sustainable development "*meets the needs of the present without compromising the ability of future generations to meet their own needs"*[1]. In terms of transportation the Environmental Directorate of the OECD defines environmentally sustainable transportation as, "*transportation that does not endanger public health or ecosystems and that meets needs for access consistent with (a) use of renewable resources that are below their rates of regeneration, and (b) use of non-renewable resources below the rates of development of renewable substitutes.*"[2] This definition is relevant to the project in that it mentions renewable alternatives to petroleum, which will be considered later.

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[1] Sustainable Transportation and TDM. Online TDM Encyclopedia http://www.vtpi.org/tdm/tdm67.htm
[2] Sustainable Transportation and TDM. Online TDM Encyclopedia http://www.vtpi.org/tdm/tdm67.htm

There are several impacts that transportation can have on the environment which are of concern to the city. One of the major concerns today is the depletion of non renewable resources such as gasoline and diesel. The burning of fossil fuels also contributes to air and water pollution, which can affect the city's tourist trade. It also affects the city's efforts in terms of greening itself in that climate change has shown to be linked to human contributions of green house gases.

The economic consequences of transportation are also significant. There are the more obvious costs on the building of facilities such as highways as well as concurrent costs to increase access to urban and suburban areas. Traffic congestion due to the increased automobile usage also has economic costs due to increased fuel usage. One of the major concerns of consumers today is the rising cost of gasoline. (This may actually help sustainability efforts, in that it almost forces people to consider alternative means of transportation.

**Benefits**

There are several benefits to be gained from understanding how tourists traveling to Clearwater impact the environment through their transportation choices. By addressing this source of potential green house emissions, this study can help the city contribute to the international movement of adaptation to climate change. If it leads to the adoption of fuel efficient vehicles and alternative fuels, it will reduce the consumption of petroleum citywide. New developments can be designed with more sustainable transit options, and of themselves become a draw for residents and tourists.

**Sustainable Plan Development**

The need for more sustainable transit options begins with a review of the data gathered on options for travel to the city. Different alternatives will be assessed with examples of success stories to better explain the possibility of adoption.

The major data sources on travelers from the airport to Clearwater were gathered from two surveys. The first is the Tampa International Airport Survey (See Appendix 1). This survey though not specific to the area of Clearwater in general was instrumental in revealing the fact that travelers in the airport tended to bed either picked up (36.4%) or were using private vehicle (19.5%). The use of rental cars (36.9%) was also relevant to sustainable development in Clearwater, for several reasons. The survey shows that the major users of transportation from the airport are private or small car users[3]. It also emphasizes that any sustainable transit approaches by the city government should include rental car companies as prime stakeholders.

The second source was the St. Petersburg/Clearwater Area Convention and Business Bureau[4]. The website that is operated by this organization had a number of important surveys that were related to the specifics of travelers to Clearwater. In the 2006 annual visitor profile, the number of travelers who deplaned from Tampa International numbered approximately seventy-two thousand compared to twenty thousand from Orlando international[5]. The number of visitors who used rental cars annually was also significant (fifty three thousand).

The rental car companies at the airports offer a number of vehicle choices to travelers, including fuel efficient models as well as those with low efficiency. Some

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[3] Tampa transit survey Pg 16 http://www.tampaairport.com/ground_transportation/transit_survey.pdf
[4] St. Petersburg/Clearwater Area Convention & Visitors Bureau website http://www.pinellascvb.com/
[5]pg 19 http://www.pinellascvb.com/statistics/Pinellas%20Annual%202006.pdf

companies did offer some alternative vehicle types. An example would be The Dollar Rental Company, which offers a hybrid Nissan Altima[6]. Alamo also offers a number of hybrids, including the Toyota Prius and Camry[7]. A number of rental car companies, in fact, are now aware of and working to improve the greenhouse gas emissions problem as it relates to rental cars[8].

These options have several environmental problems. The major problem would be the emissions that fossil fuelled cars emit. These include major green house gases such as carbon dioxide which contribute to global warming as well as other gases that are detrimental to human health. The other major concern will be congestion on the major roadways to Clearwater especially during the peak tourist season during the winter. Therefore sustainable options should seek to reduce emissions as well as lessen traffic on the roads.

**Alternatives**

Light rail is a form of transport that uses electric rail cars on private roads. This mode of transport should be considered an option for bringing travelers from the airport to the city and its tourist destinations.

**Advantages**

Light rail can provide a higher capacity service than buses or shuttles approximately 100 persons per car or 150 per train[9]. They also are less polluting in that

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[6] Dollar Rental Company undated http://ww2.dollar.com/Cars/FindACar.aspx
[7] Alamo car rental undated http://www.alamo.com/
[8] http://aboutus.enterprise.com/file/162/Customer_Cabon_Offsets_Oct07.pdf
[9] http://www.sfeccstudy.com/other_transportation.html

they give off zero emissions at the point of use. Passenger comfort can be superior to other forms of mass transit. This can enhance the image of using light rail encouraging greater ridership. The costs to passengers are also much less than renting a car. Light rail can also reduce congestion on major roadways by reducing the number of commuters from the airport.

**Disadvantages**

The major disadvantage would be costs on construction and implementation. Capital cost can be high (between 3 and 25 million dollars)[10]. The infrastructure required will occupy significant urban space and may require modifications to existing traffic flows. Cost of construction will be naturally reduced due to the topography of Florida (flat) especially in the light that there is no need for underground construction. Speed can be a concern with the average being between 15 to 25 miles/hour with a top speed of 65 mile/hour. This however can be ideal if the rail is constructed along scenic areas such as Tampa bay where tourist would most likely visit during their stay.

The airport has considered a small light rail project in conjunction with the City of St. Petersburg[11]. This should be replicated in Clearwater with the system running along the scenic Courtney Campbell Causeway. It also serves create a vital linkage with an important shareholder in tourism as well as provide travelers with further incentive to use light rail.

Shuttle usage was also a concern, although it does not have as significant an impact on fuel usage as private cars do, according to the surveys. Shuttles can reduce the

[10] http://www.sfeccstudy.com/other_transportation.html
[11] ttp://www.heraldtribune.com/article/20071102/NEWS/711020396/-1/RSS01

impact on the environment through the sharing of rides by travelers to their destination. The sustainability of shuttles can be further enhanced buy using alternative fuels or even going completely electric. There are several benefits to conversion

**Benefits**

The most important is the reduction of emissions. Shuttles tend to make several trips a day the reduction benefits can be compounded. They can also help shuttle operators reduce operational and maintenance costs as these vehicles are more efficient that their petroleum counterparts. The public relation perception of alternative fuel vehicles are extremely positive as they are cleaner and quieter that thand conventional vehicles.

**Disadvantages**

The major disadvantage would be costs of implementation. Typically buses using natural gas or ethanol cost $60, 000 more than conventional vehicles. This is in addition to the new infrastructure needed such as fuelling staion and storage. However this can be mitigated through grant programs from the Federal Transit Administration as well as excises taxes such as an alternative fuel infrastructure tax credit. One example would be Section 1342 of the Energy Policy Act of 2005[12]. It provides a tax credit equal to 30% of the cost of alternative refueling property. Qualifying alternative fuels are natural gas, propane, hydrogen, E85, or biodiesel mixtures of B20 or more.

Another program is the Clean Cities initiative. According to the Guide to alternative fuel transportation in Florida by the Clean Fuel Florida advisory Board (2003), Clean Cities is

[12] http://www.eere.energy.gov/afdc/progs/view_ind_fed.php/afdc/351/0

a U.S. DOE nationwide initiative, begun in 1994, to encourage the use of alternative fuels, infrastructure and vehicles through grassroots groups in designated areas throughout the country. The program is a voluntary, locally based government and industry partnership to mobilize local stakeholders in the effort to expand the use of alternatives to gasoline and diesel fuel. The program seeks to improve the quality of life by using clean domestic fuels for transportation. This program can aid in infrastructural implementation of alternative fuels. Portland, Oregon has a program using a mix of alternative fuels, and that city is considering conversion to hybrid buses[13]. The experience of The Salt Lake City international airport was also successful in term of working with shuttle companies and offering incentives.[14] This suggests that with suitable partnership and incentives, a sustainable alternative to private automobile use from airports can be achieved.

Transit buses were not popular choices for travelers to get to Clearwater. However, as an alternative to private cars, public transportation can be less damaging to the environment. They can also serve as means of transit from transit stations of intercity systems such as light rail. The City of Clearwater is served by a number of routes of the Pinellas Suncoast Transit Authority. The most significant to Clearwater, in terms of tourism, would be the Suncoast trolley (http://www.psta.net/beachtrolley.htm) and the Jolley Trolley (http://www.thejolleytrolley.com/). Both these trolley services operate between the Cities of Clearwater and St. Petersburg on a regular daily schedule. The continuous operation of these vehicles, as well as their accessibility to popular tourist

[13] http://www.eere.energy.gov/afdc/progs/ddown_exp.php/SHUTL/159
[14] http://www.eere.energy.gov/afdc/progs/ddown_exp.php/SHUTL/7

areas, makes them prime candidates for consideration in sustainable transit options as electrical buses.

The experience of the Greater New Haven Transit District (GNHTD) in Connecticut is one success story[15]. They began operating four Ebus -22-foot, fully electric trolley replica vehicles in 2002. The most positive aspects of the switch were the reduction of emissions in the immediate area as well as a reduction in fuel consumption.

**Sustainability Plan implementation**

The first step would be construction of a light rail network from the Tampa international airport. This will be accomplished through funding from the Clean cities initative as well as funding from the Federal Transit authority. The airport also has a vested interest in a light rail project as it would reduce congestion to and from the airport and could provide additional funds for construction. The initial cost borne by the city would be recouped through funding sources as well as the user fees once the system is fully operational (7 to 15 dollars per trip). These systems would run along the major route from the airport to the Courtney Campbell causeway. This is the significant link between Tampa and Clearwater and completely above ground eliminating the need for underground sections. This would reduce cost per mile significantly.

Shuttle usage can offer significant savings in terms of fuel consumption as well as emissions due to increase in number of passengers. These reductions can be further enhanced with conversion of shuttle fleets to either use alternative fuels or completely electric. A mix of both can be used with electric shuttles being used for relatively short

[15] http://www.eere.energy.gov/afdc/progs/ddown_exp.php/SHUTL/72

trips. Infrastructure cost though significant will be reduced through incentives such as tax credits.

The city of Clearwater must actively engage the rental car companies to encourage passengers to choose hybrids as their mode of transport. This can be accomplished by giving financial incentives such as free parking at poular sites or reduced hotel rates for passengers using sustainable rental vehicles within the city the public image of rental car companies will be enhanced by such a program.

**Results and future recommendations**

The data reviewed suggested that travelers mainly use either private transportation or rental cars in arriving from the Tampa International Airport. These options were not sustainable as they contribute significantly to petroleum usages and air pollution. The sustainable transportation options such as electric light rail from the air port to Clearwater as well as shuttles and renal vehicles using alternative fuels and engines will help reduce the negative effects of travel to the city. The main disadvantage (costs of implementation) can be reduced through aid from programs offered by the Federal Transit authority and clean cities program among others..

The first recommendation would be to educate travelers about sustainable options before they arrive in the city. This can be done through the My Clearwater website as well as through travel agencies. A clear listing of options should be presented as well as any incentives for choosing to use them.

Involvement of the hospitality industry must be a necessary component of any sustainability project involving tourists. A second recommendation would be the hosting

of green conventions for business travelers. This would make regular travelers aware of the city initiatives for sustainability as well as provide an opportunity to showcase any environmental business programs the city may have to offer. It also gives hoteliers incentives to adopt technologies such as electric vehicles in their business plans.

# Chapter 11
# A Bicycle Sharing Program for the City of Clearwater: Getting People Out of Their Cars and Into a Greener City

**Danielle Sobczak**

## Executive Summary

Creating a sustainable community involves developing in a way that increases resident's quality of life while protecting the natural environment. In other words, sustainable communities increase economic and community well-being in ways that promotes healthy environments (Hubbard, undated). It involves the efficient use of resources, meeting local needs through the efficient use of those resources, protection and enhancing in an equitable manner community quality of life and creating new businesses that provide services or products that protect or restore the environment (Hubbard, undated). Designing a sustainable transportation system is an important component in developing a sustainable community. A sustainable transportation system minimizes carbon dioxide emissions, reduces air pollution, promotes physical fitness, reduces noise pollution and provides a healthier and greener image for the community.

Developing policies and providing transportation infrastructure that promotes the use of bicycles is an important component of developing a sustainable transportation system. The City of Clearwater has recognized this and is taking important steps to promote bicycle use through various infrastructure projects and educational campaigns outlined in *Shifting Gears: Bicycle and Pedestrian Master Plan City of Clearwater 2006*. A bicycle sharing program, gaining popularity throughout the United States and across Europe, may compliment the City's current efforts to create a more sustainable transportation system.

**Project Definition**

Currently, residents and visitors rely heavily on the use of personal automobiles to navigate the City of Clearwater. This results in traffic congestion, increased air pollution and the image that the city is unsafe for pedestrians. Modifying the City of Clearwater's current transportation system is important and necessary in the city's quest to create a greener image and more sustainable community. A bicycle sharing program is an innovative and environmentally friendly transportation program that also promotes health through exercise, reduces annual transportation costs for participants, reduces traffic congestion, and reduces air pollution and carbon emissions thus creating a more sustainable transportation system and environment. This paper will demonstrate, using Paris as a model, how a bicycle sharing program in the City of Clearwater may compliment the city's current Bicycle and Pedestrian Master Plan and get people out of their cars and into a greener city.

There are several ways cities can provide bicycles to their residents and visitors through bicycle sharing programs. The "first generation" bicycle sharing programs are unregulated programs where a city simply releases bicycles into the community for anyone to use (Gordon, p. 2007). There is no charge for the use of the bicycles and the bicycles are typically painted an identifying color (2007). However, this program is plagued with problems, most commonly bicycle vandalism and theft (2007). Other programs, often referred to as "next generation programs" include deposit programs where "a small cash deposit releases the bike from a locked terminal" and can only be retrieved by returning the bicycle to another terminal (Wikipedia, undated). Unfortunately, this program is also plagued with theft problems because the deposit

amount is only a fraction of the cost of the bicycle and therefore there is no true incentive to return the bike (Wikipedia, undated). Membership programs have fewer problems with theft (Wikipedia, undated). These programs are designed where "bicycles are kept either at volunteer-run hubs or at self service terminals" and "individuals registered with the program identify themselves with their membership card" allowing them to check out a bicycle (Wikipedia, undated). The membership creates a sense of responsibility thus reducing bicycle vandalism and theft (Wikipedia, undated). Another common program involves the long-term checkout of bicycles (Wikipedia, undated). This program allows bicycles to be given "free of charge, for a refundable deposit, or sold at a reduced price" and are "assigned to one person" for an extended period of time (undated). The most common disadvantage of this program is "the much lower using frequency" (undated).

Finally, the "third generation" of bike-sharing programs are "high-tech" featuring "electronic payment, tracking and locking systems" (Gordon, 2007). These programs are often the product of public-private partnerships where cities have signed contracts with private advertising agencies that supply the city with bicycles for no charge and also provide the maintenance for the bicycles (Wikipedia, undated). In return the cities allow the agencies to advertise on the bicycles directly or in various locations throughout the city for no costs (Wikipedia, undated). These programs have proven more successful and have successfully combated the theft and low usage problems plaguing most of the other programs. As a result, this program may prove most useful for the City of Clearwater. The following section will use Paris' Velib′ program as a model for a successful bicycle sharing program that has the potential to be implemented in the City of Clearwater. Of course Paris and Clearwater are extremely different in numerous ways. However, Paris

seems to be the leader in this type of program and therefore serves as an excellent model. In addition, with any community bike program local variations should always be considered and adapted to accordingly.

**Sustainable Plan Development**

On July 15, 2007, "the City of Paris launched a new self-service bicycle" program appropriately named Velib′, a "combination of the French words velo (bicycle) and liberte (liberty)" (Velib´, undated). Paris' program has been described as "the most ambitious in the world" (Bennhold, 2007). The overall goals of the program include pollution reduction and to reduce "damage caused by intense use of cars, and also to limit the emission of green house gases" (Velib', undated). Furthermore, the city aims to transform their current transportation system by drastically reducing the use of cars and increasing the use of bicycles (undated). Positive consequences of this change in transportation include healthier residents, improved quality of life and a greener image for the city.

Paris' program features 24 hour self-service bicycle terminals (Shown in Appendix 1, Figure 1) where users can take a bike from one terminal and return it to another (undated). In addition, the terminals have computers allowing users to "obtain one-day and seven-day subscriptions," recharge accounts, obtain terminal location information and view their account information (undated). The bicycle terminals are strategically located around the city "to serve centers of interest" (undated). The bicycles (Shown in Appendix 1, Figure 2), costing around 1,300 dollars apiece (Anderson, 2007), are designed for "durability, safety and comfort" (pristine planet,

2007) and are painted a soft grey to blend "harmoniously into the urban environment" (Velib′, undated). In addition, the bicycles are equipped with an electronic tracking device that substantially deters theft. Computers at the bicycle terminals assess the maintenance needs of the bikes. The costs to rent the bicycles are relatively cheap and affordable to most. For instance, the first 30 minutes are free, the next 30 minutes will cost $1.30, $2.60 will be charged for the next 30 minutes and $5.20 will be charged for the fourth-half hour of use and every 30 minutes after that (Anderson, 2007). The rising rate helps promote the swift return of the bicycles.

Paris' program is a public-private partnership with the company JCDecaux (2007). JCDecaux is responsible for providing all of the bikes, building the pickup/drop-off stations, covering start-up costs and employing the individuals necessary to operate the program (2007). All of the revenue from the program will go directly to the city and JCDecaux will pay Paris an annual fee (2007). In exchange the company will receive "exclusive control over 1,628 city owned billboards" (2007). Additionally, the company is responsible for maintenance of the bicycles and terminals. To further increase the sustainability of the program the company has developed some innovative maintenance techniques. For example, "control of the bikes will be carried out with 20 clean natural gas vehicles" and "the maintenance staff will travel around using 130 electrically assisted bikes" (Velib′, undated). Furthermore, the most common maintenance required is washing the bicycles and this is accomplished using "rain water recovered from JCDecaux sites" (Velib′, undated). The bicycles are also "99% recyclable" and the company has "set up a recycling network for worn bike tires" (Velib′, undated). To date

the largest complaint with the program is that often in certain areas all of the racks are occupied in the terminals making returning a bicycle difficult (Anderson, 2007).

It seems that Paris' bicycle sharing program would compliment Clearwater's current sustainability efforts and Bicycle and Pedestrian Master Plan. For instance, the Master Plan outlines the city's vision stating:

> *The City of Clearwater seeks to increase overall mobility and wellness by providing an integrated non-motorized network of bicycle and pedestrian facilities throughout the City for the purpose of recreation, conservation, education, transportation and economic development*

A bike sharing program would bring in bike rental revenue that could be used to further enhance the city's transportation infrastructure and support the city's vision. In addition, bike sharing programs are known to reduce traffic. For instance, the mayor in Lyon, France claims, traffic has been reduced by four percent since the implementation of their bike sharing program (Anderson, 2007). A bike sharing program also has the potential to reduce air pollution, improve parking, and enhance the city's image as a greener, quieter more relaxed place to live and visit (2007). More importantly, a bicycle sharing program may help reduce carbon emissions. Again the deputy mayor of Lyon, France reports that "the cities 3,000 rental bikes have logged about 10 million miles—saving an estimated 3,000 tons of carbon dioxide from being spewed into the air" (Anderson, 2007). Furthermore, Cambridge reports that vehicles may emit between 280 to 430 grams of carbon dioxide per mile where as using a bicycle emits no carbon dioxide (Cambridge, undated). There are also practical benefits to bicycle sharing programs. For example, in Paris a recent study analyzed various trips around the city comparing "a car,

bike, taxi and walking, and the bikes were always the fastest" (Anderson, 2007). Using bicycles as the main mode of transport also saves money. For instance, AAA reports that "car ownership ranks as the second highest living expense" and "the average yearly cost of car ownership is $8, 431" (Community Cycling Center, Undated). This cost is significantly higher than the costs to participate in the bicycle sharing program described above.

**Sustainability Implementation Plan**

The key to getting people out of their cars and onto a bicycle is to make it easy for them and making it the popular thing to do. The City of Clearwater already has transportation infrastructure modifications underway that will undoubtedly promote the use of bicycles. For instance, there are approximately 14 miles of existing multi-use trails and the City plans to add an additional 5.2 miles outlined in their Master Plan. In addition to these modifications, the City is actively promoting education and safety programs as well as campaigns to encourage bicycle use. The City has already conducted studies looking at bicycle use characteristics and has developed a model for prioritization of projects. In other words, the City's efforts in creating a friendlier biking atmosphere will be useful and may even serve as a model to implement the proposed bicycle sharing program.

As with any community project it is important to obtain community input from stakeholders representing the diversity within the community. Community participation may be accomplished through interviews, focus groups, workshops and surveys. Through this process' project goals, priorities, timelines and concerns may be established

and addressed. More specifically, location of bicycle terminals may be identified and strategies to avoid user complaints developed. Furthermore, potential partnerships may be identified through the stakeholder process. These partnerships may include local businesses and the tourism industry that is so prominent in Clearwater. As mentioned in the Paris model the public-private partnership was imperative to their bike sharing program because the private company provided all of the start-up costs, bicycles, terminals, necessary personnel and maintenance of the program in return for advertising privileges. Therefore, the City of Clearwater should make establishing partnerships a top priority in implementing a bicycle sharing program of their own. Getting people to use the bicycles will most likely pose the largest challenge and their use will serve as the clearest marker of success. The City can use educational programs and advertising to promote the programs use. These programs would compliment the current programs already in place that are described in the City's Master Bicycle and Pedestrian Plan. It seems a bicycle sharing program would be a perfect compliment to this waterfront community and will help sustain the qualities that make it such an attractive community to live in and visit.

**Results and Future Recommendations**

*"Not everything that can be counted counts, and not everything that counts can be counted."*

— Albert Einstein

Measuring the success of sustainability initiatives is often difficult. In the case of the proposed bicycle sharing program success can be measured in terms of use. The City may be able to gage the potential success of the project through obtaining public input

through the stakeholder process described above. The potential for success can be maximized through careful planning and educational outreach. The City of Clearwater has the opportunity to become a leader in sustainable transportation with the implementation of its own bicycle sharing program.

Figure 1. Example of a Velib´ Terminal (Velib, undated)

Figure 2. Example of Velib Bicycle (Velib, undated)

# Part IV Energy and Buildings

# Chapter 12
# Energy Management
# Ifetayo Venner

## Executive Summary

As a signatory to the Mayor's Climate Change Agreement, the City of Clearwater is required to strive to meet or exceed Kyoto protocol targets for reducing global warming in its own operations and communities. Under the Kyoto protocol, developed countries are required to reduce greenhouse gas emissions by an average of 5% below 1990 levels at a minimum (United Nations, 1998). As energy use in the United States has steadily risen, so too has the amount of greenhouse gases in the atmosphere. It is clear that to reduce energy related emissions the consumption of energy from fossil fuels will need to be reduced.

Currently the most cost effective way to reduce greenhouse gases is to reduce overall energy consumption. The City can do much to promote energy efficiency among its constituents through education, tax incentives, building code changes among other things. However, this would be more effective if the City set the example by instituting these measures within its own operations.

Discussions with staff indicate that there is some progress towards becoming more energy efficient and the City is moving in the right direction. However, there is no clear policy on energy efficiency, coordination or directive from the higher levels of the City. This means that the full potential for energy savings is not being realized. To engage as many employees as possible and to maximize savings the City should develop an energy management program. This paper presents the key constituents for a successful energy management program.

## The Case for Energy Management

As a signatory to the Mayor's Climate Change Agreement, the City of Clearwater is required to strive to meet or exceed Kyoto protocol targets for reducing global warming in its own operations and communities. Under the Kyoto protocol, developed countries are required to reduce greenhouse gas emissions by an average of 5% below 1990 levels at a minimum (United Nations, 1998). Most of the man made greenhouse gases in the United States come from burning fossil fuels for energy use; of these, carbon dioxide is the most significant. As energy use in the United States has steadily risen, so too has the amount of greenhouse gases in the atmosphere. Figure 1 shows the energy consumption and carbon dioxide ($CO_2$) gas emissions in the US from 1949 through 2006. It is clear that to reduce energy related emissions the consumption of energy from fossil fuels will need to be reduced.

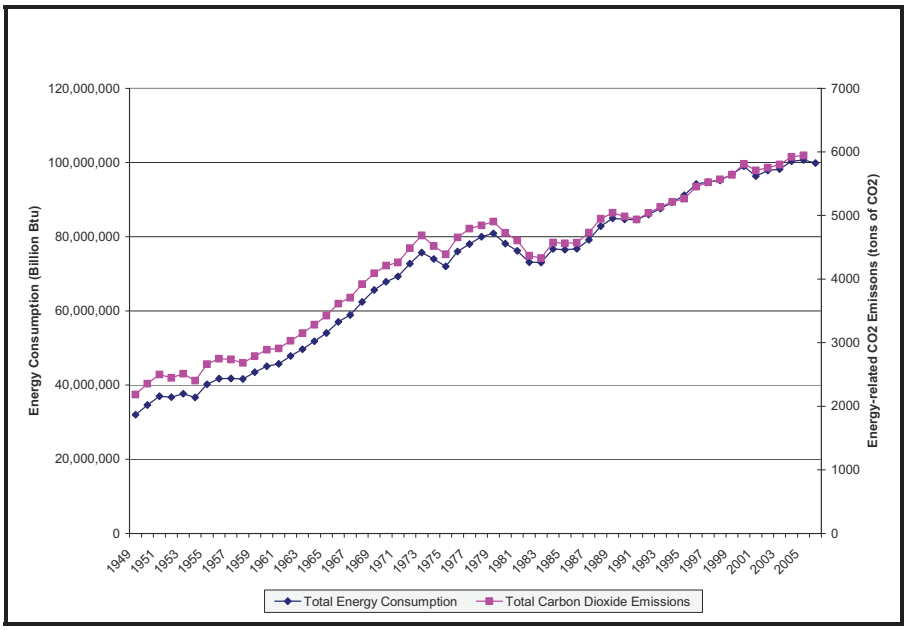


Figure 1. United States Total Energy Consumption and Energy-Related $CO_2$ Emissions (Department of Energy, undated)

Among the actions identified in the Mayor's agreement to reduce emissions due to energy consumption are to promote the use of clean, alternative energy and to make energy efficiency a priority. Clean, alternative energy sources of energy are an alternative to burning fossil fuels and will in the future be critical to reducing the consumption of greenhouse gas generating fuels. Solar energy, for example, could potentially be key in a state with as many sunshine days as Florida. The City should do what it can to promote the development and use of alternative energy sources where possible.

However, currently these alternatives are not cost effective and viable for large scale use. For the time being the most efficient way to reduce greenhouse gases is to reduce overall energy consumption. The City can do much to promote energy efficiency among its constituents through education, tax incentives, building code changes among other things. However, this would be more effective if the City set the example by instituting these measures within its own operations. Residents and business would respond to the City's commitment and see that it is possible.

**Current Practice**

The City is made up of several departments. Discussions with staff in General Services and Public Utilities, as well a general City Of Clearwater website investigation, indicate that there is some progress towards becoming more energy efficient. Some examples are:

- Replacement of older inefficient HVAC equipment
- Installation of electronic temperature control systems
- Gradual replacement of existing lighting to more efficient types

- Specification of efficient lighting products for construction and renovation projects
- The use of natural gas for heating, space and water, when applicable.
- Replacement of process air blowers and change to more efficient diffusers at the Marshall Street Advanced Wastewater Treatment Facility.
- Piloting of more energy efficient motors at the City wastewater treatment plants

These projects show that the City is moving in the right direction. Some of the staff are committed to saving energy and realize that it can be cost effective and even produce cost savings. However, there is no clear policy on energy efficiency, coordination or directive from the higher levels of the City. This means that the full potential for energy savings is not being realized. To engage as many employees as possible and to maximize savings the City should develop an energy management program with defined goals, employee education and management backing.

**Developing a Successful Energy Management Program**

A City energy management program will require several components to be successful. Much of it is outlined in the Figure 2, a guideline established by ENERGY STAR, a joint program of the Environmental Protection Agency and the Department of Energy, set up to help organizations save money and protect the environment through energy efficient policies and practices.

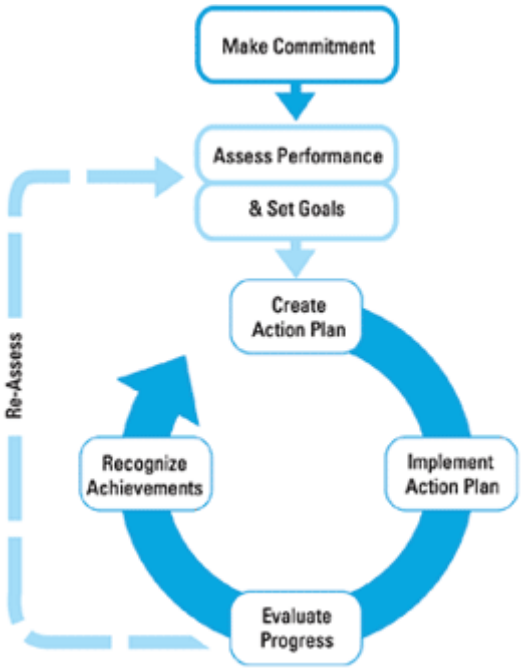


Figure 2. Guidelines for Energy Management (ENERGY STAR, undated)

Management Commitment

For an energy management program to be a success, and to engage as many people as possible, commitment from the top levels of the City is critical. Money should be set aside to fund the program and from the Mayor on down through the ranks it should be clear that this is a critical goal. It is critical that the program launch be well publicized within the City and that commitment from the highest levels of the City is demonstrated. Communication could be in the form of memos/email to all of the staff from the Mayor, posters and/or an article in a newsletter. Details of the program could be made to management of the various departments who could then communicate the detail to their employees through meetings etc where necessary.

Management Coordination

Ideally someone should be designated with responsibility for energy management, reporting to the City Manager. This may not be possible with the limited budget of the City. However, the City should establish an energy management committee comprised of representatives from the various City departments, as well as stakeholders in the community with relevant expertise. There should be a representative from each department that affects energy use (eg. General Facilities, Engineering, Public Utilities), the Office of Management Budget, the Clearwater Gas System and Progress Energy. This team would initially be charged with developing a formal energy policy, developing strategies and a plan to implement them, identifying barriers and procedures to over come them, and communication with employees. As the program progresses it would be responsible for evaluating proposals, monitoring and reporting progress and branching out into new areas.

According to ENERGY STAR (ENERGY STAR, undated), to be successful and energy policy should:

- State a clear, measurable objective
- Establish accountability
- Allow for the policy to be evaluated and updated as needs and priorities change
- Set and promote goals, linking them to the overall financial and environmental goals

Establish Goals and Accountability

Since the overall goal is to reduce energy, the goal should also be measurable. There should be an overall goal, goals for individual departments and sub-units and goals for processes. Goals should have clear, obligatory deadlines, and be achievable. Managers of the various departments should have input in determining goals and be held accountable for achieving them. Some examples of goals are:

- Reduce overall City/department/equipment/process energy use by a certain percentage or amount
- Reduce greenhouse gas production by a certain percentage or amount
- Gain a certain number of additional points related to energy towards achieving a higher Florida Green Building status, a LEED certification for a building
- Performance against a certain benchmark such as another similarly sized City.

Establish a baseline

Before any program begins the City should asses the current overall energy use and the energy use of the individual departments to establish a baseline which is critical for determining trends, success in meeting goals and identifying areas with potential for improvement. A complete assessment of what is currently being done should also be performed to identify successful projects, opportunities and problems.

Create an action plan

Once the general policy is created and goals identified, an action plan should be established to implement the goals. This should be updated at annually to reflect achievements and changing priorities, needs and technologies. The action plan should:

- Evaluate the past performance
- Identify current energy use and short term and long term goals for the City as a whole and the various departments
- Set timelines for the achieving the goals
- Establish a system to track and monitor success
- Identify critical people and roles
- Identify resources

Establish criteria for identifying and approving projects

Some of the criteria for identifying savings and projects could be

- Is the equipment/process needed?
- Can the equipment be used more efficiently or the process made more efficient?
- Can the same purpose be accomplished using less energy by some other equipment or process
- Would new, more efficient equipment be more cost effective
- If the project must prove to be profitable the criteria must be determined such as a payback period or a particular return on investment.

Engage Employees

For the program to be successful everyone in the City needs to be involved. Some critical factors that will contribute to the success are:

- Employees should know why the program is necessary and what the goals are.
- Employees should know that they are critical to the program's success, how they can contribute and what is expected of them. They should let educated as to how their activities (at work and at home) affect energy use and impact the environment.
- Early success is critical to gaining support and enthusiasm. Management should start out with some programs with the most chance of success and publicize them.
- The energy management team could put it its separate newsletter detailing goals, programs and successes.
- Individual departments could also form teams responsible for implementing and championing the program.
- Employees could be rewarded through publicity, letters, or even gift cards or monetary rewards especially if a suggestion has let to large savings.
- Workshops/training with staff

Evaluate Progress

Once the action plan is implemented energy consumption should continuously be measured and compared to goals established for each department. This energy savings could then be converted to greenhouse gases. Data such as energy, monetary and

emissions savings and return on investment are critical to justifying the need for and success of the program and to make corrective action if necessary. It also can be used to sets a good example when City moves forward with trying to get its residents to and business to establish their own energy efficiency measures.

**Conclusion**

If the City adopts an energy management program following the guidelines outlined above, it should be able to improve energy efficiency further, reducing greenhouse gases and saving money in the process.

# Chapter 13
# Sustainable Building Initiatives in Clearwater, FL
Jack O'Connor

## Executive Summary

This study report begins by identifying the challenges and opportunities faced by the City of Clearwater in connection with the emerging practices of sustainable or green building development. The costs and benefits of this approach are discussed in some detail. While the issues discussed are seemingly specific to the City, they are representative of much a larger national and global trend. Included in the discussion are references to other venues and how they have used public policy initiatives to further their community objectives. The free market and private enterprise have also waded into the idea pool, while technical organizations have undertaken a wide range of studies and the cost/benefit models are evolving almost daily.

Sustainability and green design have become a part of a larger global debate. Climate change, specifically humankind's potential to adversely impact the earth, is a topic to which green design and construction play a part. Energy, water, and related resource consumption/conservation are all themes central to sustainability. This has been an interesting and rewarding study. The initial results provide a necessary platform to support further research and evaluation.

## Project Definition

In accordance with the city of Clearwater's mission to become a more sustainable community, this project specifically deals with current environmental efficiency issues with Clearwater's buildings. This study examines what role Clearwater's current building

regulations play, if any, in creating and maintaining sustainable offices, retail spaces, hotels, apartment complexes, and other types of buildings. This project will examine various factors that are taken into consideration by cities when analyzing a building's sustainability. These include, but are not limited to: building materials, energy consumption, and waste output. The widespread use of air conditioning in Florida is an unavoidable reality. However, there are numerous steps that can be taken to maintain current service level standards while reducing the amount of overall consumption.

Sustainability has become a global area of concern. For example, the California Integrated Waste Management Board states that commercial and residential buildings account for one-sixth of the world's fresh water withdrawals, one-quarter of its wood harvest, and two-fifths of its material and energy flows. The creation of more sustainable buildings is an opportunity to use resources efficiently while creating healthier buildings that improve human function, build a better environment, and provide for improvement of traditional cost/benefit ratios.

Sustainable buildings, more commonly referred to as "green buildings," are structures designed, built, renovated, operated, or reused in an ecological and resource-efficient manner. Green buildings are utilized to meet certain objectives such as protecting occupant health, improving employee productivity, using energy, water, and other resources more efficiently, and reducing the overall impact to the environment.

**Sustainable Plan Development**

From an economic standpoint, green buildings have traditionally cost more to design and construct. However, evidence suggests that green buildings also generate substantial savings, primarily through lower operating costs over the life cycle of the facility. For example, *The Tampa Tribune*'s Russell Ray recently wrote an article about Verizon's upcoming use of solar power to run the equipment that makes telecommunications possible in the Tampa Bay area. Verizon has recently completed the installation of 140 solar panels at its central office building in Carrollwood. According to Russell Ray's article, the savings would be very significant, and the $300,000 upfront cost of the project would be completely recoupable (Ray, *Tampa Tribune*, 2007).

Currently, the Leadership in Energy and Environmental Design (LEED) Green Building Rating System has been established to accurately gauge a building's level of sustainability. LEED projects are independently certified as including a pre-determined number of energy-efficient and environment-conscious elements into design and construction. LEED Certification can be difficult to achieve, but several newer buildings, utilizing cutting-edge sustainable technology are setting a tremendous example. For example, the largest and most energy efficient LEED building in the state of New Mexico, the Jefferson Green office complex in Albuquerque, is one of the few buildings in the world to achieve a double LEED Gold Certification (Jefferson Green pamphlet, 2007).

LEED's point-based rating system is organized into six categories (Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources, Indoor Environmental Quality, and Innovation and Design Process) which contain credits and

prerequisites. A project must achieve all seven prerequisites in order to attain any level of LEED certification. The prerequisites include Erosion and Sedimentation Control, Fundamental Building Systems Commissioning, Minimum Energy Performance, CFC Reduction in HVAC&R Equipment, Storage and Collection of Recyclables, Minimum IAQ Performance, Environmental Tobacco Smoke Control (Jefferson Green pamphlet, 2007).

One of Florida's newest and most environmentally-friendly buildings is already located on Clearwater Beach. The Sand Pearl Resort has recently been considered for LEED certification by the US Green Building Council. This hotel and resort is one of the first of its kind, and is already considered to be a leader among other resorts in energy efficiency and environmental design.

The Sand Pearl Resort has taken several innovative steps to ensure quality conservation. For example, in the area of climate control, they have replaced the traditional Freon cooling system through using the building's own water supply. A state-of-the-art chiller system provides high efficiency cooling, using only about 70% of the energy required for other cooling methods. The indoor air quality is subsequently improved by utilizing the chilled water plant to supply the hotel's interior spaces with pre-conditioned air (Sand Pearl information pamphlet, 2007).

The Sand Pearl's conservation efforts were underway from the beginning of its design and construction. Approximately 24 million pounds (12,000 tons, to be exact) of materials were reintroduced into the manufacturing process instead of being tossed away into landfills. That meant that over 65% of "normal" construction demolition waste was recycled, providing wood, concrete, plastic, gypsum, and metal for use in other

construction projects which is enough building material for 80 new 2,000-square foot homes (Sand Pearl information pamphlet, 2007).

**Sustainable Plan Implementation**

An example of "green legislation" in an area of the state in close proximity to Clearwater is currently taking place in Sarasota County. The Sarasota Green Building Program Resolution, part of a county-wide program popularly known as "Sustainable Sarasota," was first implemented in March of 2005. This resolution was designed "to provide the Sarasota Community with a certification-based 'green building' program." This ordinance encourages the county to design and construct sustainable, energy-efficient buildings through the compliance of new county buildings. It also encourages voluntary green building in private development through incentive-based programs.

To promote energy efficient construction, this ordinance provides a great deal of incentives for building new energy-efficient homes, such as: fast-track permitting for building permits, and a 50% reduction in the building permit fee with a maximum of $1,000 per building, but no person or organization shall receive more than $5,000 in permit fee refunds (Romero and Hostetler, 2007).

The Sarasota County government also provides marketing incentives, including erection of building signs at the site, placing participants on the city website, and press releases. Finally, the Board of County Commissioners offers a Green Building Award to recognize one participant each year that demonstrates commitment to the program. An independent third party must certify buildings in order to retain such benefits. Standards

for development certification are compliant with the Florida Green Building Coalition and the U.S. Green Building Council (Romero and Hostetler, 2007).

In addition to the green building program in Sarasota County, similar programs have been adopted in other Florida communities, including the city of Gainesville and Miami-Dade County. Outside of Florida, notable green building programs across the country have been started in Frisco, TX; Boulder, CO; and Arlington County, VA (Romero and Hostetler, 2007).

In a fascinating article for the Massachusetts Technology Collaborative entitled *Green Building Costs and Financial Benefits*, Gregory H. Kats analyzes the various economic aspects of green building. Kats acknowledges the fact that green buildings are commonly perceived to be significantly more expensive than conventional buildings and often not justified on the basis of cost. Kats even references an early 2003 article in the New York Times entitled "Not Building Green Is Called a Matter of Economics."

However, Kats is quick to point out that, in many cases, green buildings are both environmentally and fiscally responsible alternatives. He goes on to explain that the average premium for green buildings is slightly less than 2%, or $3-5 per square foot, substantially lower than is commonly perceived. The majority of this cost is due to the increased architectural and engineering (A&E) design time, modeling costs, and time necessary to integrate sustainable building practices into projects. Generally speaking, the earlier these green building features are incorporated into the design process, the lower the cost will be. Green buildings are known for providing financial benefits that conventional buildings do not. These benefits include energy and water savings, reduced

waste, improved indoor environmental quality, greater employee comfort/productivity, reduced employee health costs, and lower operations and maintenance costs (Kats, 2003).

Energy, in particular, is a substantial and widely recognized cost of building operations. Consumption can be easily reduced through energy efficiency and through other related measures that are part of green building design. For example, Kats' article goes on to reveal that green buildings, when compared to conventional buildings, are on average 25 to 30% more energy efficient, characterized by even lower electricity peak consumption, more likely to generate renewable energy on-site, and more likely to purchase grid power generated from renewable energy sources.

In addition to energy, green building offers benefits in both health and productivity for all parties involved. Every year, hundreds of billions of dollars are spent on health and productivity costs imposed by poor indoor environmental quality in commercial buildings. This is not particularly surprising, as people spend about 90% of their time indoors, and the concentration of pollutants indoors is typically higher than outdoors, sometimes by as much as 10 or even 100 times (Kats, 2003).

The relationship between worker comfort/productivity and building design/operation is very complicated. There are numerous studies, reports, and articles that find significantly reduced illness symptoms, reduced absenteeism, and increases in perceived productivity with employees in buildings with cleaner indoor environments. Green buildings are not only 25-30% more energy efficient, on average, but are known to generate much lower emissions. The measures that are often taken to ensure these lower emissions include better siting (e.g., avoiding locating air intakes next to outlets, such as parking garages, and avoiding recirculation), and building better material source controls

(including paying the required amount of attention to storage). Certified and Silver-level green buildings achieved 55% and Gold level LEED buildings achieved 88% of possible LEED credits for use of the following: less toxic materials, low-emitting adhesives and sealants, paints, carpets, composite woods, and indoor chemical and pollutant source control. Green buildings offer generally improved thermal comfort and better ventilation, especially in buildings that use underfloor air for space conditioning (Kats, 2003).

Increased efficiency of construction materials is yet another benefit of building green. Green buildings utilize reused and recycled materials, zero or low gassing of harmful air emissions, zero or low toxicity, sustainably harvested materials, high recyclability, durability, longevity, and local production. Through using dimensional planning and other material efficiency strategies, the amount of building materials needed are reduced, as is construction costs. For example, designing rooms on 4-foot multiples conform to standard-sized wallboard and plywood sheets (CIWMB, 2007).

Water efficiency is a very important characteristic of sustainable buildings. Green buildings are often designed for dual plumbing to use recycled water for toilet flushing or a gray water system that recovers rainwater or other non-potable water for site irrigation. Wastewater is greatly minimized by using ultra low-flush toilets, low-flow shower heads, and other water conserving fixtures. Other measures that can be taken to ensure a greater level of water efficiency include installing point-of-use hot water heating systems for more distant locations, using a water budget approach that schedule irrigation, metering the landscape separately from buildings, using micro-irrigation (which excludes sprinklers and high-pressure sprayers) to supply water in non-turf areas, and using state-of-the-art irrigation controllers and self-closing nozzles on hoses (CIWMB, 2007).

The issue of cost is an ever-present concern to developers and city leaders alike whenever extra measures are undertaken to pursue an ecologically-friendly environment. While there seems to be a general consensus on the environmental and social benefits of green building, there is a consistent concern, both within and outside the green building community, over the lack of accurate and thorough financial and economic information. Sustainable buildings generally incur a "green premium" above the costs of standard construction, although studies such as those of Kats point to a significant reduction in this capital outlay "premium." However, there is virtually no dispute that green buildings provide an array of financial and environmental benefits that conventional buildings do not. These benefits, such as energy savings, should be looked at through a life cycle cost methodology, not just evaluated in terms of initial costs. From a life cycle savings standpoint, savings resulting from investment in sustainable design and construction dramatically exceed any additional upfront costs (CIWMB, 2007).

It is generally recognized that conventional buildings consume a large portion of water, wood, energy, and other resources used in the economy. Green buildings provide a potentially promising way to help address a range of challenges facing the state of Florida, such as: the high cost of electric power, worsening electric grid constraints (with associated power quality and availability problems), pending water shortage and waste disposal issues, continued state and federal pressure to cut criteria pollutants, growing concern over the cost of global warming, the rising incidence of allergies and asthma (especially in children), the health and productivity of workers, the effect of the physical school environment on children's abilities to learn, and increasing expenses of maintaining and operating state facilities over time.

**Results and Future Recommendations**

The benefits to green building include a great deal of cost savings from reduced energy, water, and waste; lower operations and maintenance costs; as well as enhanced occupant productivity and health. According to a survey done in the state of California, the total financial benefits of green buildings are over ten times the average initial investment required to design and construct a green building. Energy savings alone exceed the average increased cost associated with building green (ciwmb.ca.gov – Executive Summary).

Additionally, the relatively large impact of productivity and health gains reflects the fact that the direct and indirect cost of employees is far larger than the cost of construction or energy. Consequently, even small changes in productivity and health translate into large financial benefits. Despite data limitations and the need for additional research in various areas, it is clear that building green is cost-effective and makes financial sense.

The City of Clearwater would be well-advised to consider legislation that would provide incentives for the future use of sustainable design and construction. Currently, the city's building regulations offer no apparent guidelines or incentives for building green (see Appendix C). I propose that the City of Clearwater use the guidelines set forth in Sarasota County's Resolution No. 2005-048 (see Appendix B), and develop legislation that would allow for financial incentives for building developers in Clearwater who pursue LEED certification for future construction projects.

By following in the lead of the city of Gainesville and Sarasota County, Clearwater will find itself in a rare and highly enviable position to set itself aside from a majority of communities not just within the state of Florida, but across the entire country. Creating new building regulations designed to encourage more sustainable construction and operations would not only be environmentally beneficial and fiscally responsible, but could also attract a tremendous amount of favorable publicity towards the city. Clearwater, after all, relies on the tourism a great deal as a valuable source of income.

In a world where the environment is one of the most pressing issues, waterfront communities such as Clearwater are most often looked at as having a critically important impact on our planet's ecology. This is an opportunity for the City of Clearwater to take a position of leadership among Florida's cities in what will certainly come to define how cities are planned and constructed in the future. By utilizing green building practices, Clearwater has a chance to be one of a select few cities in the world that set the standard for intelligent, creative, and responsible development.

# Final Summary
## Robert Brinkmann

These papers represent a body of work that mark a significant moment in the sustainability of Florida. The graduate students provided many suggestions for urban sustainability that were designed specifically for Clearwater. The work demonstrates that Clearwater has already done many things to promote urban sustainability including the development of a bicycle and pedestrian master plan, an environmental education center, and the conversion of traffic lights to LED technology. Indeed, so much has been done that the city is likely to gain 'silver' status if it were to apply for green city status from the Florida Green Building Coalition.

The students also explored the strength of support for sustainability efforts among stakeholders in the City of Clearwater. The city has very strong links with community groups. Many members of the community participated in a stakeholder meeting where they provided input on how the city can move ahead with sustainability. The ideas they came up with were very helpful and demonstrate that there is widespread support for sustainability initiatives within the city. Indeed, there is also support within other groups including the Clearwater Beach Innkeepers Association, the Clearwater Regional Chamber of Commerce, the Clearwater Beach Chamber of Commerce, and the Clearwater Audubon Society.

Many cities have distinguished themselves with innovative sustainability projects. For example, the City of Milwaukee, Wisconsin is known for its comprehensive watershed management, the City of Portland, Oregon is known for its comprehensive energy plan, and the City of Cleveland is known for its EcoVillage program. These illustrate the reality and practicality of urban sustainability. The City of Clearwater has

the opportunity to become a leader in Florida in urban sustainability by taking bold moves. Several examples were presented in this report for review, and the students identified willing private and public partners ready to assist with implementation. For example, one idea presented is the development of a solar park. This idea has some traction in that Progress Energy is interested in moving forward with assisting the city in the development of this idea.

Transportation is also an interesting issue within the City. Several ideas were presented and each provides opportunities for future research and discussion. With Clearwater's unique road network and seasonal residents, there are opportunities and problems. Nevertheless, a focus on bicycle transportation, airport to hotel transportation, and electric fleet vehicles could make a difference.

Finally, there are many practical moves the city could make with energy and green building. There is no doubt that the city can save money through the development of green buildings and through an integrated energy management system. There are opportunities to change building codes and to rethink how the city moves forward with redevelopment.

We urge that the city continue its progress in sustainability. **We believe that the cost savings brought about through conservation would support the hiring of a sustainability officer.** Indeed, this is a trend seen in many cities. For example, the City of Dunedin recently hired a sustainability officer in charge of its sustainability initiatives.

The University of South Florida will continue its partnership with the City. Three students in this class have expressed a desire to continue their work and develop master's

theses around their topics. We hope that this document and the future work done by students and faculty will be useful to the citizens of the City of Clearwater.

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Federal law on golf carts and low speed vehicles

http://www.nhtsa.dot.gov/cars/rules/rulings/lsv/lsv.html
Excerpt: list of state rules the DOT used for a base- see page 36

http://www.sptimes.com/2007/05/24/Northpinellas/Golf_cart_plan_on_roa.shtml
St. Pete Times article about golf carts

http://www1.eere.energy.gov/vehiclesandfuels/epact/index.html
The US Dept of Energy's web site for the Energy Policy Act of 1992

OTHER CITIES (See appendix C for New York City)

http://cityguides.msn.com/citylife/greenslideshow.aspx?cp-documentid=4848659&GT1=10564
Antidotal evidence

http://www.sustainlane.us/articles/Top_Ten_Alternative_Fueled_City_Fleets.jsp
ranking of cities

http://www.zapworld.com/node/158
Richmond, CA, March 29 2007- introduces fleet of ZAP electric trucks. Up to 40 mph, $10,000 each

GENERAL

http://www.nytimes.com/2007/09/23/automobiles/23AUTO.html?pagewanted=3&_r=2
Title: Electric cars are the future

http://www.nytimes.com/2007/08/05/automobiles/05BAKER.html?ex=1207022400&en=117c91abbef02305&ei=5087&mkt=autosphoto
Jay Leno's electric classics – just for fun

http://www.nafa.org/Content/NavigationMenu/Resource_Center/Alternative_Fuels/Energy_Equivalents/Energy_Equivalents.htm
Source of the gasoline equivalent table that is Appendix B

http://www.directives.doe.gov/pdfs/doe/doetext/neword/430/g4301-1chp23.pdf
Department of energy on automobile maintenance costs

DATA ON SPECIFIC CARS

http://www.fueleconomy.gov/
The is the single best resource for environmental data on automobiles.

http://www.energy.ca.gov/reports/2002-08-28_600-02-020F.PDF
A California report on Neighborhood Electric Vehicles (NEVs)- same thing as LSVs

http://www.gatormoto.com/index.cfm?Action=ViewCategory&Category=16&gclid=CMz6ksbFiY8CFSc8gQod2BrVrA
Low speed vehicles made in Florida

http://findarticles.com/p/articles/mi_hb5243/is_200706/ai_n19763859
ZAP cars in development

http://www.cnn.com/2007/TECH/11/08/smart.car/index.html
The European Smart car goes on the US market in January 2008. It starts at about $11,000 and gets 40+ mpg, so its carbon footprint is probably 4-5 tons per 15,000 miles.

http://golfcarportal.com/members/premier_member.php?url=www.ecarco.com&member=1260
Another low speed, $14,000 for 8 passengers, $21,000 for 14

http://www.gatormoto.com/index.cfm?action=ViewDetails&ItemID=39
Low speed 15 passenger, $16,000

http://en.wikipedia.org/wiki/Toyota_Prius
All about the Prius

TECHNICAL JOURNAL ARTICLES

http://www.usnews.com/articles/news/national/2007/11/16/an-inside-look-at-the-chevy-volt.html?s_cid=rss:an-inside-look-at-the-chevy-volt.html
The newest GM battery

http://tristate.apogee.net/mnd/mfgeovr.asp (this is not a .gov, but it corroborates well)

**Efficiency Comparison of Electric Motors vs. Engines**

http://www.ecoworld.com/blog/2006/08/04/electric-car-cost-per-mile/ (not a .gov, but it corroborates well)
Source of the economics model on page 3

http://www.ucsusa.org/clean_vehicles/cars_pickups_suvs/batteryelectric-vehicles.html
Union of concerned scientists, on batteries

http://www.sciencemag.org/cgi/content/abstract/260/5105/176
A Nickel Metal Hydride Battery for Electric Vehicles

http://www.scirus.com/srsapp/search?p=0&dt=all&ds=bls&ds=sd&ds=mps&ds=cps&ds=cpp&sa=all&q=electric+car#results
Economic and environmental comparison of conventional, hybrid, electric and hydrogen fuel cell vehicles

http://www.scirus.com/srsapp/search?p=0&dt=all&ds=bls&ds=sd&ds=mps&ds=cps&ds=cpp&sa=all&q=electric+car#results
The car and fuel of the future

http://www.scirus.com/srsapp/search?p=0&dt=all&ds=bls&ds=sd&ds=mps&ds=cps&ds=cpp&sa=all&q=electric+car#results
Analysis of the vehicle mix in the passenger-car sector in Japan for $CO_2$ emissions reduction by a MARKAL model

http://www.scirus.com/srsapp/search?p=0&dt=all&ds=bls&ds=sd&ds=mps&ds=cps&ds=cpp&sa=all&q=electric+car#results
PM technology trends
Electric car revolution brings fresh PM challenges

http://www.scirus.com/srsapp/search?q=electric+AND+car&ds=bls&ds=sd&ds=mps&ds=cps&ds=cpp&drill=yes&p=20
Life cycle cost analysis of a car, a city bus and an intercity bus power train for year 2005 and 2020
Jonas Hellgren

http://www.scirus.com/srsapp/search?q=electric+AND+car&ds=bls&ds=sd&ds=mps&ds=cps&ds=cpp&drill=yes&p=20
Which energy source for road transport in the future? A comparison of battery, hybrid and fuel cell vehicles

http://www.scirus.com/srsapp/search?q=electric+AND+car&ds=bls&ds=sd&ds=mps&ds=cps&ds=cpp&drill=yes&p=60
Impact of electric power generation on green house gas emissions in Europe: Russia, Greece, Italy and views of the EU power plant supply industry – A critical analysis

http://www.scirus.com/srsapp/search?q=electric+AND+car&ds=bls&ds=sd&ds=mps&ds=cps&ds=cpp&drill=yes&p=60
A retail and lifecycle cost analysis of hybrid electric vehicles

http://www.scirus.com/srsapp/search?q=electric+AND+car&ds=bls&ds=sd&ds=mps&ds=cps&ds=cpp&drill=yes&p=80
Energy and environmental costs for electric vehicles using $CO_2$-neutral electricity in Sweden

http://www.scirus.com/srsapp/search?q=electric+AND+car&ds=bls&ds=sd&ds=mps&ds=cps&ds=cpp&drill=yes&p=80
Choice of smallest car by multi-vehicle households and the demand for electric vehicles

http://www.scirus.com/srsapp/search?q=electric+AND+car&ds=bls&ds=sd&ds=mps&ds=cps&ds=cpp&drill=yes&p=100
The challenge to fulfill electrical power requirements of advanced vehicles

http://www.scirus.com/srsapp/search?q=electric+AND+car&ds=bls&ds=sd&ds=mps&ds=cps&ds=cpp&drill=yes&p=100
Electric vehicle purchasing intentions: The concern over battery charge duration

http://www.aseanenvironment.info/Abstract/41014839.pdf
Economic costs and environmental impacts of alternative fuel vehicle fleets in local government: An interim assessment of a voluntary ten-year fleet conversion plan

http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6V2W-48CNNCM-2&_user=2139826&_coverDate=05%2F31%2F2004&_rdoc=1&_fmt=&_orig=search&_sort=d&view=c&_acct=C000054278&_version=1&_urlVersion=0&_userid=2139826&md5=58e855b45b51179f2a44527d01273d55
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# CHAPTER 1

# APPENDIX A

# SUSTAINABILITY INITIATIVES INVENTORY/STAKEHOLDER QUESTIONNAIRE

**CITY OF CLEARWATER**
**SUSTAINABILITY INITIATIVES INVENTORY/STAKEHOLDER QUESTIONNAIRE**

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## 1) CURRENT SUSTAINABILITY INITIATIVES

Please provide a list of current sustainability initiatives or programs, as defined in the cover letter, undertaken by your Department/Division. The purpose of this exercise is to determine what initiatives are currently being implemented that would qualify as a sustainable initiative. Please attach any available supporting documents for all items listed.

| Title of the Initiative/ Program | Main purpose of program | Initiation Date/History | Target Audience, if appropriate | Title (s) of Supporting Documents | Highlight what has been successful about this program in relation to sustainability? |
|---|---|---|---|---|---|
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## 2.) HISTORICAL SUSTAINABILITY INITIATIVES (programs no longer in effect)

Please provide a list of historical sustainability initiatives or programs undertaken by your Division. The purpose of this exercise is to put on record all the past sustainable initiatives undertaken by the city. Please attach any available supporting documents for all items listed. Add as many rows as necessary.

| Title of the Initiative/ Program | Main purpose of program | Date/ Duration of Program | Target Audience, if appropriate | Title (s) of Supporting Documents | Reason for discontinuing program |
|---|---|---|---|---|---|
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Please list and provide more information on programs that might be appropriate to re-implement in light of "Green City" directives.

## 3.) GIVE US YOUR INPUT ON POTENTIAL SUSTAINABILITY INITIATIVES

Please give your valuable suggestions regarding advancing sustainability initiatives in your City Department. Look toward the items that were answered "no" in Section 1 for some ideas, but don't limit your innovative ideas to that list. As City employees, you would know best what ideas will work in your City and which ones may be difficult to implement. Also offer ideas on how to integrate more "green" on existing programs in this section. The ideas will be compiled in a report. Please list your suggestions below:

| Sustainability Idea/Initiative | Main purpose | Target Audience, if appropriate | Challenges in Implementing Idea | Individual with Idea to contact for further interview (optional) |
|---|---|---|---|---|
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## 4.) STAKEHOLDER LIST COMPILATION

In implementing sustainability initiatives, the City will be actively engaging external stakeholders to participate in the process, including various business leaders, educational establishments, nonprofit organizations, faith-based organizations, and government partnerships, in addition to residential citizens and neighborhood associations. We are compiling a stakeholder list for inclusion in future focus group meetings and surveying and would like your input. Please list as many key stakeholders that you feel would be impacted by green initiatives with the appropriate information. If you already have a ready-made list, please attach it to the survey.

| Organization Name | Brief Description of Organization | Contact Person | Email address | Phone number |
|---|---|---|---|---|
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## 5.) FLORIDA GREEN BUILDING COALITION CHECKLIST

All departments should try to complete as much of the following table as possible. If you are unsure of the meaning of the item or don't know the answer, state unknown or you may contact us for further clarification. If the item does not apply to your department, then state not applicable (NA). When complete, please proceed to your specific department checklist in the pages that follow. Note that not all departments have a specific department checklist

| CITY MANAGER/DEPARTMENT HEADS | Yes/No/NA/ Unknown | If yes, what is the title of supporting Documents | If no, has the item been considered? Discuss why the item has not been implemented. |
|---|---|---|---|
| **Local Government environmental commitment** | | | |
| Write or re-write mission statement to include environmental commitment. | | | |
| Incorporate the mission statement into the local government's comprehensive plan. | | | |
| **Conservation planning** | | | |
| Monitor and track local government energy use. | | | |
| Develop a local government energy reduction plan. | | | |
| Monitor and track local government water use. | | | |
| Develop a local government water reduction plan. | | | |
| Monitor and track local government solid waste generation/ recycling rates. | | | |
| Develop a local government solid/hazardous waste reduction plan. | | | |
| Develop an EPP program for the local government. | | | |
| Encourage EPP program implementation. | | | |
| **Reduce greenhouse gas emissions** | | | |
| Participate in Cities for Climate Protection Campaign. | | | |
| Alternative Fuel Vehicle purchase. | | | |
| **Build, renovate, and maintain green government buildings** | | | |
| Become a member of FGBC. | | | |
| Become a member of USGBC. | | | |
| Construct LEED or FGBC certified buildings or renovate for LEED EB or CI. | | | |
| Employ green cleaning and maintenance procedures. | | | |
| **Dedicate personnel to green municipal process** | | | |
| Maintain an office, person, or group to coordinate current and future green activities. | | | |
| **Green local government buildings ordinance** | | | |

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|---|---|---|---|
| Adopt an green standard as official minimum criteria for new govt. buildings. | | | |
| Adopt green cleaning/maintenance practices available from DEP. | | | |
| Enact green landscaping ordinance for local government buildings. | | | |
| **Community education** | | | |
| Budget for publicity / education related to the govt's commitment to green. | | | |
| **Staff education** | | | |
| Organize green building education for local government staff. | | | |
| **CLEARWATER GAS COMPANY (Energy provider)** | **Yes/No/NA/ Unknown** | **If yes, what is the title of supporting Documents** | **If no, has the item been considered? Discuss why the item has not been implemented.** |
| **Reduce green house gas emissions** | | | |
| Offer green power. | | | |
| Certify renewable electricity products under Center for Resource Solutions. | | | |
| Voluntary funding of green power through customer billing. | | | |
| Become an Energy Star ally. | | | |
| **Reduce waste** | | | |
| Actively promote fly ash / blast furnace slag source. | | | |
| Utilize recycled billing envelopes. | | | |
| Enable customers to make online bill payments. | | | |
| **Incentives to reduce energy use** | | | |
| Offer distributed generation incentives. | | | |
| Offer energy audits. | | | |
| Commercial building incentives. | | | |
| Residential building incentives. | | | |
| Rate structures based on consumption. | | | |
| **Community education** | | | |
| Informative billing. | | | |
| Take part in any speakers bureau or sponsor workshops. | | | |
| Emissions info posted on website. | | | |
| Enable customers to track and analyze their usage via the internet. | | | |
| **Staff education** | | | |
| Send appropriate staff for training related to distributed generation. | | | |
| Send appropriate staff for energy audit training. | | | |
| **DEVELOPMENT AND NEIGHBORHOOD SERVICES DEPARTMENT** | **Yes/No/NA/ Unknown** | **If yes, what is the title of supporting Documents** | **If no, has the item been considered? Discuss why the item has not been** |

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|---|---|---|---|
| | | | **implemented.** |
| **Monitor and track green building within the city** | | | |
| Create and maintain an electronic database of all building energy code compliance. | | | |
| Create and maintain an electronic database of all green and energy ratings. | | | |
| **City green building program with incentives** | | | |
| Adopt FGBC or LEED green standards as official green standards of the city. | | | |
| Offer an incentive(s) for FGBC or LEED certified commercial and institutional buildings. | | | |
| Offer an incentive(s) for FGBC or Energy Star certified green homes. | | | |
| Offer an incentive(s) for FGBC certified green developments. | | | |
| **Preserve/enhance native habitat and natural resources** | | | |
| Require mitigation for consumption of natural habitat or resources. | | | |
| Enact and enforce a tree preservation or land-clearing ordinance. | | | |
| Regulate impervious parking surfaces. | | | |
| Enact a septic system replacement ordinance. | | | |
| **Conserve water resources** | | | |
| Enact a rain sensor ordinance applicable to all functioning automatic irrigation systems. | | | |
| Enact a landscaping ordinance for new construction. | | | |
| **Staff education** | | | |
| Require key staff to complete approved course in green building on a bi-annual basis. | | | |
| **Industry education** | | | |
| Offer classes to industry that detail any green incentives or regulations present. | | | |
| Offer incentives for local professionals to attend green building classes offered by others. | | | |
| Conduct a green building awards program. | | | |
| **Community education** | | | |
| Publicity and case studies for green building. | | | |
| **ECONOMIC DEVELOPMENT AND HOUSING** | **Yes/No/NA/ Unknown** | **If yes, what is the title of supporting Documents** | **If no, has the item been considered? Discuss why the item has not been implemented.** |
| **Green building to spur economic development** | | | |
| Team with tourism department on eco-tourism campaign. | | | |

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|---|---|---|---|
| Track amount of tourism that takes part in eco-related activities. | | | |
| **Green building through historic preservation/downtown revitalization** | | | |
| Achieve Florida Main Street Designation. | | | |
| **Local business incentives** | | | |
| Incentives for location of green businesses within city. | | | |
| Offer special promotion for local eco-hotels. | | | |
| **Revitalize distressed areas** | | | |
| Incentives for green redevelopment. | | | |
| **Historic preservation** | | | |
| Develop a historic preservation ordinance. | | | |
| Develop funding mechanism to aid with historic preservation. | | | |
| **Provide green, affordable housing to the community** | | | |
| Construct/renovate green buildings. | | | |
| **Increase the affordability of affordable housing** | | | |
| Affordable housing constructed by city and other parties mandated green. | | | |
| Offer incentives for construction of green affordable housing. | | | |
| Offer incentives for location efficient affordable housing. | | | |
| **Improve current stock of affordable housing** | | | |
| Remodeling of affordable housing mandated green. | | | |
| **Community education** | | | |
| Offer orientation classes for residents of affordable housing or refer to existing courses. | | | |
| **Staff education** | | | |
| Applicable staff complete CEU approved course in green building on a bi-annual basis. | | | |
| **ENGINEERING (ENVIRONMENTAL AND STORMWATER MANAGEMENT** | **Yes/No/NA/ Unknown** | **If yes, what is the title of supporting Documents** | **If no, has the item been considered? Discuss why the item has not been implemented.** |
| **Preserve / enhance habitat** | | | |
| Become a designated Waterfronts Florida community. | | | |
| Become an Audubon Sustainable Community. | | | |
| Create an endangered lands conservation / purchasing program. | | | |
| Certify community under National Wildlife Federation Wildlife Habitat program. | | | |
| Develop & implement plans for species removal throughout public lands. | | | |
| **Engage and learn from other similar** | | | |

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|---|---|---|---|
| **departments** | | | |
| Become a member of FLERA. | | | |
| **Minimize greenhouse gas emissions and preserve air quality** | | | |
| Offer local tax based or other AFV incentives. | | | |
| Enact automobile emissions regulations for vehicles registered in city. | | | |
| Require vapor controls at all gas stations. | | | |
| Enact open burning regulations. | | | |
| **Preserve / enhance habitat** | | | |
| Coastal areas to enact sea turtle ordinance. | | | |
| Enact a manatee protection plan. | | | |
| Develop a boat facility siting plan. | | | |
| **Conserve water** | | | |
| Enact car wash standards. | | | |
| Enact fountain / water feature standards. | | | |
| **Community education** | | | |
| Pertinent local GIS and other data on city website. | | | |
| Air quality index on website. | | | |
| Results from water quality testing on website. | | | |
| Operate an environmental demonstration / learning center. | | | |
| **ENGINEERING**<br><br>**(SPECIFICALLY RELATED TO THE JOLLEY TROLLEY)** | **Yes/No/NA/ Unknown** | **If yes, what is the title of supporting Documents** | **If no, has the item been considered? Discuss why the item has not been implemented.** |
| **Reduce green house gas emissions** | | | |
| Utilize alternative fuels for fleet. | | | |
| Institute a bicycle commuter assistance program. | | | |
| Make amends for vehicles to accommodate bicycles. | | | |
| Engage in carpool/vanpool assistance. | | | |
| **Monitor and track green building progress** | | | |
| Analyze transportation routes to determine connectivity to bicycle & pedestrian network. | | | |
| **Reduce solid and hazardous waste** | | | |
| Operate a green fleet. | | | |
| **Community education** | | | |
| Provide public transportation route searching via the internet. | | | |
| Provide information about alternative commuting on website. | | | |

| FIRE RESCUE AND POLICE | Yes/No/NA/ Unknown | If yes, what is the title of supporting Documents | If no, has the item been considered? Discuss why the item has not been implemented. |
|---|---|---|---|
| **Reduce green house gas emissions** | | | |
| Use of AFV and/or bicycle patrol for urban/neighborhood areas. | | | |
| Use renewable energy as backup / emergency power. | | | |
| **Reduce solid and hazardous waste** | | | |
| Maintain green fleets. | | | |
| Firing ranges utilize non-lead bullets or trap and collect fragments. | | | |
| Minimize photo-processing waste. | | | |
| **Conserve water** | | | |
| Fire departments review training operations and conserve water where appropriate. | | | |
| **Enhance durability of built environment** | | | |
| Incentives for disaster mitigation. | | | |
| **Community education** | | | |
| Offer mitigation audits to homes, businesses, and local government buildings. | | | |
| Create an education campaign for mitigation. | | | |
| **Staff training** | | | |
| Police trained in crime prevention through environmental design. | | | |
| Public safety staff attends training on Healthy Street design. | | | |
| **HUMAN RESOURCES** | **Yes/No/NA/ Unknown** | **If yes, what is the title of supporting Documents** | **If no, has the item been considered? Discuss why the item has not been implemented.** |
| **Reduce green house gas emissions.** | | | |
| Alternative commuting incentives for local government employees. | | | |
| **Reduce solid and hazardous waste.** | | | |
| Provide reusable mug / water bottle to all employees. | | | |
| **Staff education** | | | |
| New employee orientation includes general city commitment to environment. | | | |
| Conduct or refer to special training on one or more green city programs. | | | |
| **MARINE AND AVIATION** | **Yes/No/NA/ Unknown** | **If yes, what is the title of supporting Documents** | **If no, has the item been considered? Discuss why the item has not been implemented.** |
| **Preserve aquatic habitat** | | | |

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|---|---|---|---|
| Take part in Florida Clean Marina program. | | | |
| Implement advanced Stormwater controls and waterfront considerations. | | | |
| **Preserve aquatic habitat** | | | |
| Offer low pollution engine incentives. | | | |
| **Boater education** | | | |
| Host boater education classes. | | | |
| **Preserve aquatic habitat** | | | |
| Take part in Florida Clean Marina program. | | | |
| Implement advanced Stormwater controls and waterfront considerations. | | | |
| **Preserve aquatic habitat** | | | |
| Offer low pollution engine incentives. | | | |
| **Boater education** | | | |
| Host boater education classes. | | | |
| **PARKS AND RECREATION** | **Yes/No/NA/ Unknown** | **If yes, what is the title of supporting Documents** | **If no, has the item been considered? Discuss why the item has not been implemented.** |
| **Green public amenities** | | | |
| Maintain organic community gardens. | | | |
| Minimize chlorine in community swimming pools. | | | |
| Install appropriate bicycle security at all public amenities. | | | |
| Public golf courses are Audubon certified. | | | |
| Apply Florida Friendly landscaping principles at public amenities. | | | |
| Minimize heat effect/Stormwater runoff of trees, highly reflective materials, or surface. | | | |
| Public beaches adhere to Blue Wave Campaign criteria. | | | |
| Implement recycling stations for plastic, glass, and aluminum containers at all areas. | | | |
| Implement energy efficient lighting & controls for outdoor courts, parks, and playfields. | | | |
| **Staff education** | | | |
| Each staff member trained in an area related to their function on a bi-annual basis. | | | |
| **Community education** | | | |
| Place signs and/or brochures at green features of public amenities for their benefits. | | | |
| **PARKS AND RECREATIONS (Mocassin Lake Environmental Education Center)** | **Yes/No/NA/** | **If yes, what is the title of supporting Documents** | **If no, has the item been considered? Discuss why the item has not been implemented.** |
| **Florida friendly government owned landscapes** | | | |

| | | | |
|---|---|---|---|
| Certified Florida friendly landscapes within the city. | | | |
| **Community incentives** | | | |
| Offer free or discounted green products to the public. | | | |
| **Promotion of organic farming** | | | |
| Offer incentives to create organic farms, or sustainable/water efficient agriculture. | | | |
| **Community education** | | | |
| Offer green building or green local government education to the community. | | | |
| Provide green building or green local government education materials. | | | |
| Maintain active FY&N program or other home owner/builder/developer outreach program. | | | |
| Maintain an active student/teacher education program. | | | |
| **Industry education** | | | |
| Offer promotion and education of water conservation within the agricultural sector. | | | |
| Offer education on organic farming, perm culture and sustainable agriculture. | | | |
| **PLANNING** | **Yes/No/NA/ Unknown** | **If yes, what is the title of supporting Documents** | **If no, has the item been considered? Discuss why the item has not been implemented.** |
| **Monitor and track green building within the city** | | | |
| Develop a system of sustainable community indicators related to local govt. Planning. | | | |
| Link indicators to a GIS system. | | | |
| Assist other departments with the tracking of indicators related to their function. | | | |
| **Enhance pedestrian travel in a city & reduce green house gas** | | | |
| Maintain a bicycle / pedestrian coordinator on staff. | | | |
| Implement FDOT “12 Steps Towards Walkable Communities” into planning process. | | | |
| Healthy street design is official local government policy. | | | |
| **Green building incorporated into city planning process** | | | |
| Develop urban area boundaries. | | | |
| Encourage mixed-use zoning / development. | | | |
| Maintain or reduce net impervious surface area through zoning decisions. | | | |
| **Staff education** | | | |
| Organize green building seminars and/or training sessions for staff and elected officials. | | | |

| PUBLIC COMMUNICATIONS | Yes/No/NA/ Unknown | If yes, what is the title of supporting Documents | If no, has the item been considered? Discuss why the item has not been implemented. |
|---|---|---|---|
| **Reduce solid and hazardous waste** | | | |
| Operate local government computer and equipment reuse center. | | | |
| Recycling of end-of-life electronic equipment. | | | |
| **Conserve energy and resources through policy** | | | |
| Enact local government policy so all computer/ancillary equipment is off when not in use. | | | |
| Enact policy so all computer electronic equipment purchased has conservation features. | | | |
| **Community education** | | | |
| Operate website dedicated to green city program. | | | |
| Develop environmental education content for city websites, television programs, etc. | | | |
| **Staff education** | | | |
| Conduct regular education on energy use/energy savings modes for in-house equipment. | | | |
| **PUBLIC SERVICES** | **Yes/No/NA/ Unknown** | **If yes, what is the title of supporting Documents** | **If no, has the item been considered? Discuss why the item has not been implemented.** |
| Operate a community tool lending library. | | | |
| Maintain a green fleet program for department or entire local government. | | | |
| Utilize integrated pest management. | | | |
| **Minimize green house gas emissions** | | | |
| Operate local government alternative fueling station. | | | |
| Earn waste reduction credit through the production of clean-burning fuels. | | | |
| **Minimize local government energy use** | | | |
| Use LED traffic lights. | | | |
| Utilize solar or other energy efficient streetlights. | | | |
| Operate a Rebuild America program for the local government. | | | |
| **Enhance storm water control and water conservation** | | | |
| Street sweeping. | | | |
| Routine maintenance plan for maintenance of storm sewers. | | | |
| Employ green landscaping procedures for local | | | |

| | | | |
|---|---|---|---|
| government facilities. | | | |
| **Preserve/enhance street tree coverage** | | | |
| Become a Tree City USA. | | | |
| **Reward innovation** | | | |
| Develop a reward program for employee environmental innovation in public services. | | | |
| **Staff education** | | | |
| Offer green fleet management training to all applicable departments. | | | |
| Train and certify select staff as certified arborists. | | | |
| **Community Education** | | | |
| Community Stormwater education campaign. | | | |
| **PUBLIC UTITLITIES** | **Yes/No/NA/ Unknown** | **If yes, what is the title of supporting Documents** | **If no, has the item been considered? Discuss why the item has not been implemented.** |
| **Plant operations aimed at environmental performance** | | | |
| Seek FLDEP plant operations excellence award. | | | |
| Create a reclaimed water infrastructure. | | | |
| **Reduce energy use** | | | |
| Conduct energy audit of treatment facilities. | | | |
| Use cogeneration. | | | |
| **Reduce solid and hazardous waste** | | | |
| Use recycled bill envelopes. | | | |
| **Reduce water use** | | | |
| Utilize rate structures based on consumption. | | | |
| Low flow fixture rebates. | | | |
| Enforce watering restrictions during meter reads. | | | |
| Require metering of shallow aquifer removal and sub-metering of multi-family housing. | | | |
| **Community education** | | | |
| Utilize informative billing. | | | |
| Distribute printed material or create internet content detailing water wastewater source. | | | |
| Create an education campaign for water use reduction (xeriscape, rainwater, etc.). | | | |
| Maintain an on-call water quality program. | | | |
| Become part of groundwater guardian program. | | | |
| Offer home and business audits. | | | |
| Enable customers to track and analyze their usage via the internet. | | | |

| SOLID WASTE | Yes/No/NA/ Unknown | If yes, what is the title of supporting Documents | If no, has the item been considered? Discuss why the item has not been implemented. |
|---|---|---|---|
| **Reduce local government solid waste** | | | |
| Become a partner in the EPA waste wise program. | | | |
| City wide chemical/hazardous waste collection. | | | |
| Operate public reuse store / swap shop. | | | |
| C&D separation for recycling at landfill (pallets, metals, carpet padding, cement, etc.) . | | | |
| Offer recycled paint back to community. | | | |
| Landfill gas recovery. | | | |
| Develop a disaster waste management plan. | | | |
| **Monitor and track green building** | | | |
| Curbside recycling for homes and businesses. | | | |
| Monitor types and amounts of material entering landfill. | | | |
| **Preserve / Enhance habitat** | | | |
| Closed landfill management. | | | |
| **Local business incentives / regulations** | | | |
| Incentives for local businesses who utilize EPP or other solid waste reduction strategy. | | | |
| Mandatory recycling of typical recyclables and C&D debris for homes and businesses. | | | |
| **Minimize solid waste generation** | | | |
| Volume based or special rates for solid waste collection. | | | |
| Offer mulched yard waste to community. | | | |
| **Community education** | | | |
| Teach EPP / recycling to local businesses. | | | |
| Develop education program for solid waste management. | | | |
| **Staff education** | | | |
| Conduct a customer waste survey. | | | |

# CHAPTER 1

# APPENDIX B

# SUMMARY OF SUSTAINABLE PROGRAMS RUN BY CITY DEPARTMENTS

## 1) ENGINEERING DEPARTMENT:

| Title of Sustainable Initiative/ Program | Main purpose of the program |
|---|---|
| Exotic & Invasive Species Control | Eradicate non-native invasive plant species which out compete native plants |
| Coastal Cleanup | Trash removal within Clearwater waterways |
| I-25 Monofilament Cleanup | Cleanup abandoned fishing lines which entraps birds |
| Cooper's Point Preserve | Management of a +75 acre wild life preserve |
| Alligator Creek Flood Plain Restoration Project (Kapok Park) | Reclaim flood plain lost to development in the 1960's |
| Stevenson's Creek Flood Plain Restoration Project | Taking homes out of the 100 year Flood Plain |
| Town Pond (Prospect Lake) Project | Regional Stormwater Pond for Downtown Redevelopment Projects |
| Arbor Day – Tree give away | Provide free tree specimens to residents |
| Wetland Atlas | Survey of all existing wetlands within the city. |
| Stormwater Utility Fee | Fee used for Stormwater capital improvement projects |
| Florida Main Street Designation | Program supports local revitalization and historic preservation efforts in various commercial areas of community |
| **Potential Sustainable Initiatives** | **Main Purpose** |
| Create a Sustainability web page on the main city website | To bring "green" topics to our citizens |
| Stormwater Education | Advanced water quality issues |

## 2) SOLID WASTE/GENERAL SERVICES DEPARTMENT:

| Title of the Initiative/ Program | Main purpose of program |
|---|---|
| Commercial Recycling | Reduce waste being disposed off at the landfill. |
| Multi-Family Recycling | |
| Curbside Recycling | |

| | |
|---|---|
| Cooperative Marketing<br>Of recyclable<br>commodities with the<br>following:<br>City of Dunedin<br>City of Safety Harbor<br>City of Largo<br>Pinellas County<br>Town of Belleair<br>City of Gulfport<br>City of Indian Rocks Beach | Regionalize our<br>processing,<br>marketing and<br>shipping to market |
| Hazardous Household Chemicals Collection Day | To keep these items out of waste stream; protect the environment. |
| Electronic Equipment Collection Program | Materials in electronic equipment can be reused or recycled. |
| Printer Cartridge Collection | Reuse cartridges that may be recycled. |
| Mixed Paper Collection | Add another commodity to our programs; replace glass |
| **Historical Sustainable Initiative** | **Reason for Discontinuing Program** |
| Recycling glass | No longer a meaningful market, able to reduce on the job injuries and eliminate handling dangerous commodity |

**3) PUBLIC UTILITES DEPARTMENT:**

| **Title of the Initiative/ Program** | **Main purpose of program** |
|---|---|
| Reclaimed Water (RCW) Utility | Conserve /offset potable water use |
| Wellfield rehab/expansion | Lessen dependence upon regional water sources |
| Water Conservation Devices | Water conservation |
| Low Flow Toilet Rebate Program | Water Conservation |
| Water Wise Program | Water Conservation |
| Anaerobic Digester Rehabilitation Project | Reduce hauling costs and fuel usage @ 2 WWTPs |
| Centrifuge Project | Reduce hauling costs and fuel usage @ WWTPs |
| Reclaimed Interconnect to Pinellas County | Reduces nutrient load on ambient waters |
| Motor Conversion Project | Water Pollution Control power consumption reduction |
| Aeration Project | Reduce blower horsepower at one WWTP |
| **Historical Sustainable Initiative** | **Reason for Discontinuing Program** |
| Nitrate Recycle project | Improved Wastewater Treatment Plant (WWTP) discharge quality WHICH Reduces |

| | |
|---|---|
| | nitrogen discharged to ambient waters (Old Tampa Bay & Stevenson's Creek) |

**4) HUMAN RESOURCES DEPARTMENT:**

| Title of the Initiative/ Program | Main purpose of program |
|---|---|
| Recycling of Paper | Better alternative to dispose off large amount of paper generated |
| Recycling of Plastic/Aluminum Cans | Sustainable alternative to recycle waste generated in the department |
| **Potential Sustainable Initiatives** | **Main Purpose** |
| Reduce amount of plastic water bottle waste. | Encourage conservation and eliminate waste. |

**5) PLANNING DEPARTMENT:**

| Title of the Initiative/ Program | Main purpose of program |
|---|---|
| Conservation Element | Natural environment protection – create awareness and lead to legislation |
| Landscape/Tree protection | Preserve tree canopy, create awareness |
| Land clearing/grabbing | Erosion/dust control, minimize soil loss |
| Historical Preservation | Preserve/reuse existing buildings |
| **Potential Sustainable Initiatives** | **Main Purpose of program** |
| LEED Green Initiatives | Energy/environmental consciousness |
| Bicycle parking | Energy saving from reduced car reliance |

**6) POLICE DEPARTMENT:**

| Title of the Initiative/ Program | Main purpose of program |
|---|---|
| Use of hybrid cars in police fleet | Pollution reduction, decreased fuel consumption |

# CHAPTER 1

# APPENDIX C:

# DEPARTMENTAL RESPONSES ON FGBC 'GREEN CITY CERTIFICATION' APPLICATION TOOL

## 1) PUBLIC UTILITES DEPARTMENT:

| Criteria | Yes/No/NA/ Unknown | If yes, what is the title of supporting Documents | If no, has the item been considered? Discuss why the item has not been implemented. |
|---|---|---|---|
| **Plant operations aimed at environmental performance** | | | |
| Seek FLDEP plant operations excellence award. | No | | |
| Create a reclaimed water infrastructure. | Yes | RCW Masterplan | |
| **Reduce energy use** | | | |
| Conduct energy audit of treatment facilities. | Yes | | |
| Use cogeneration. | No | | |
| **Reduce solid and hazardous waste** | | | |
| Use recycled bill envelopes. | No | | CCS is billing entity not utilities, plus CCS uses 3rd party vendor for billling |
| **Reduce water use** | | | |
| Utilize rate structures based on consumption. | Yes | Rate table | |
| Low flow fixture rebates. | Yes | Pinellas County | |
| Enforce watering restrictions during meter reads. | No | | Meter readers not given enforcement authority |
| Require metering of shallow aquifer removal and sub-metering of multi-family housing. | No | | Cannot enforce submetering; who is responsible for meter maintenance? |
| **Community education** | | | |
| Utilize informative billing. | Yes | Sunshine lines | |
| Distribute printed material or create internet content detailing water wastewater source. | Yes | Consumer Confidence Report (CCR) & City Web page | |
| Create an education campaign for water use reduction (xeriscape, rainwater, etc.). | Yes | Water Wise and Sunshine Lines | |
| Maintain an on-call water quality program. | Yes | After hours response | |
| Become part of groundwater guardian program. | Yes | Wellhead protection | |
| Offer home and business audits. | No | | Do not have manpower |
| Enable customers to track and analyze their usage via the internet. | Yes | | Billing is available online. Bills show past 12 months usage. |

## 2) PLANNING DEPARTMENT:

| Criteria | Yes/No/NA/ Unknown | If yes, what is the title of supporting Documents | If no, has the item been considered? Discuss why the item has not been implemented. |
|---|---|---|---|
| **Monitor and track green building within the city** | | | |
| Develop a system of sustainable community indicators related to local govt. Planning. | | | |
| Link indicators to a GIS system. | | | |
| Assist other departments with the tracking of indicators related to their function. | | | |
| **Enhance pedestrian travel in a city & reduce green house gas** | | | |
| Maintain a bicycle / pedestrian coordinator on staff. | | | |
| Implement FDOT "12 Steps Towards Walkable Communities" into planning process. | | | |
| Healthy street design is official local government policy. | | | |
| **Green building incorporated into city planning process** | | | |
| Develop urban area boundaries. | | | |
| Encourage mixed-use zoning / development. | Yes | Development Code | |
| Maintain or reduce net impervious surface area through zoning decisions. | Yes | Development Code | |
| **Staff education** | | | |
| Organize green building seminars and/or training sessions for staff and elected officials. | Yes | AICP Green Building Teleconferences | |

## 3) SOLID WASTE/GENERAL SERVICES DEPARTMENT:

| Criteria | Yes/No/NA/ Unknown | If yes, what is the title of supporting Documents | If no, has the item been considered? Discuss why the item has not been implemented. |
|---|---|---|---|
| **Reduce local government solid waste** | | | |
| Become a partner in the EPA waste wise program. | N/A | | |
| City wide chemical/hazardous waste collection. | YES | News release 10/27/07 | |
| Operate public reuse store / swap | N/A | | |

| | | | |
|---|---|---|---|
| shop. | | | |
| C&D separation for recycling at landfill (pallets, metals, carpet padding, cement, etc.) . | YES | Purchase Order with Angelo's Recycled Materials Limited | |
| Offer recycled paint back to community. | N/A | | |
| Landfill gas recovery. | N/A | | |
| Develop a disaster waste management plan. | YES | Storm Debris Removal Waste Management Plan | |
| **Monitor and track green building** | | | |
| Curbside recycling for homes and businesses. | YES | Code of Ordinances, Appendix A | |
| Monitor types and amounts of material entering landfill. | YES | Purchase Order with Pinellas County | |
| **Preserve / Enhance habitat** | | | |
| Closed landfill management. | N/A | | |
| **Local business incentives / regulations** | | | |
| Incentives for local businesses who utilize EPP or other solid waste reduction strategy. (Environmental Purchasing Plan) | N/A | | |
| Mandatory recycling of typical recyclables and C&D debris for homes and businesses. | N/A | | |
| **Minimize solid waste generation** | | | |
| Volume based or special rates for solid waste collection. | YES | Code of Ordinances, Appendix A | |
| Offer mulched yard waste to community. | YES | Signage at drop-off site | |

## 4) ENGINEERING DEPARTMENT:

| Criteria | Yes/No/NA/ Unknown | If yes, what is the title of supporting Documents | If no, has the item been considered? Discuss why the item has not been implemented. |
|---|---|---|---|
| **Preserve / enhance habitat** | Yes | Comprehensive Plan | |
| Become a designated Waterfronts Florida community. | | | |
| Become an Audubon Sustainable Community. | Yes | Cooper's Point Preserve, I-25 | |
| Create an endangered lands conservation / purchasing program. | N/A | | Have done this, put not under such a title. |
| Certify community under National Wildlife Federation Wildlife Habitat program. | Yes | Part of parks & rec. | |
| Develop & implement plans for species removal throughout public | Yes | Exotic Species Removal Program | |

| | | | |
|---|---|---|---|
| lands. | | | |
| **Engage and learn from other similar departments** | | | |
| Become a member of FLERA. | Yes | City Membership | |
| **Minimize greenhouse gas emissions and preserve air quality** | | | |
| Offer local tax based or other AFV incentives. | No | | |
| Enact automobile emissions regulations for vehicles registered in city. | No | | |
| Require vapor controls at all gas stations. | Yes | Pinellas County Code | |
| Enact open burning regulations. | Yes | City Code | |
| **Preserve / enhance habitat** | | | |
| Coastal areas to enact sea turtle ordinance. | Yes | Comprehensive Plan | |
| Enact a manatee protection plan. | Yes | State Law | |
| Develop a boat facility siting plan. | Yes | Comprehensive Plan | |
| **Conserve water** | | | |
| Enact car wash standards. | Yes | City Ordinance | |
| Enact fountain / water feature standards. | Yes | City Ordinance | |
| **Community education** | | | |
| Pertinent local GIS and other data on city website. | Yes | Myclearwater.com | |
| Air quality index on website. | No | | Pinellas County |
| Results from water quality testing on website. | No | | Under consideration with new webpage |
| Operate an environmental demonstration / learning center. | Yes | | Moccasin Lake Park |

## 5) POLICE DEPARTMENT:

| FIRE RESCUE AND POLICE | Yes/No/NA/ Unknown | If yes, what is the title of supporting Documents | If no, has the item been considered? Discuss why the item has not been implemented. |
|---|---|---|---|
| **Reduce green house gas emissions** | | | |
| Use of AFV and/or bicycle patrol for urban/neighborhood areas. | Yes | Standard operating procedure manual | |
| Use renewable energy as backup / emergency power. | Yes | Diesel Generator | |
| **Reduce solid and hazardous waste** | | | |
| Maintain green fleets. | Yes | Hybrid vehicles | |
| Firing ranges utilize non-lead bullets | No | Utilize both lead and | |

| | | | |
|---|---|---|---|
| or trap and collect fragments. | | non-lead bullets/trap and collect with dirt burms | |
| Minimize photo-processing waste. | N/A | | |
| **Conserve water** | | | |
| Fire departments review training operations and conserve water where appropriate. | | | |
| **Enhance durability of built environment** | | | |
| Incentives for disaster mitigation. | | | |
| **Community education** | | | |
| Offer mitigation audits to homes, businesses, and local government buildings. | | | |
| Create an education campaign for mitigation. | | | |
| **Staff training** | | | |
| Police trained in crime prevention through environmental design. | Yes | Crime prevention surveys to the public | |
| Public safety staff attends training on Healthy Street design. | Yes | Police Academy Training | |

## 7) HUMAN RESOURCES:

| HUMAN RESOURCES | Yes/No/NA/ Unknown | If yes, what is the title of supporting Documents | If no, has the item been considered? Discuss why the item has not been implemented. |
|---|---|---|---|
| **Reduce green house gas emissions.** | | | |
| Alternative commuting incentives for local government employees. | No | | Commuting incentives have not been considered. There has been some discussion in the past regarding telecommuting, but we have had a difficult time adapting the concept to public service, due to the need in so many of our departments for employees to be present in order to interact with the public and other departments. |
| **Reduce solid and hazardous waste.** | | | |
| Provide reusable mug / water bottle to all employees. | Yes | | Many of our field departments provide personnel with canisters of water or sports drink along with a bottle. We have not |

| | | | |
|---|---|---|---|
| | | | implemented such an initiative for our office staff. |
| **Staff education** | | | |
| New employee orientation includes general city commitment to environment. | No | | Has not been considered |
| Conduct or refer to special training on one or more green city programs. | No | | Has not been considered |

# CHAPTER 2

# APPENDIX A

# Certification Assessment Tool

# Florida Green Local Government Standard Designation

## Why Become a Designated Green Local Government?

The Florida Green Local Government Designation is an opportunity to set goals for a sustainable environmental practice that can be carried out on a systematic basis. The designation allows the community to be recognized, while at the same time assuring that the stewardship measures are significant, sincere, and persistent. Elected officials can set in motion a process that may extend beyond their terms and their generation in creating a culture of environmental stewardship through all future decisions and departments.

Following the green designation standard will likely lead to reduced government utility use, reduced waste and reduced expenditures on toxic cleaners and pest controls. Long-term benefits may include reduced capital outlay for new water sources, new energy plants, port dredging and roads.

Demonstrate long-lasting leadership. Create a greener future for your community. Commit to seeking the Florida Green Local Government designation as a green city or county.

**Tool and Application Instructions**

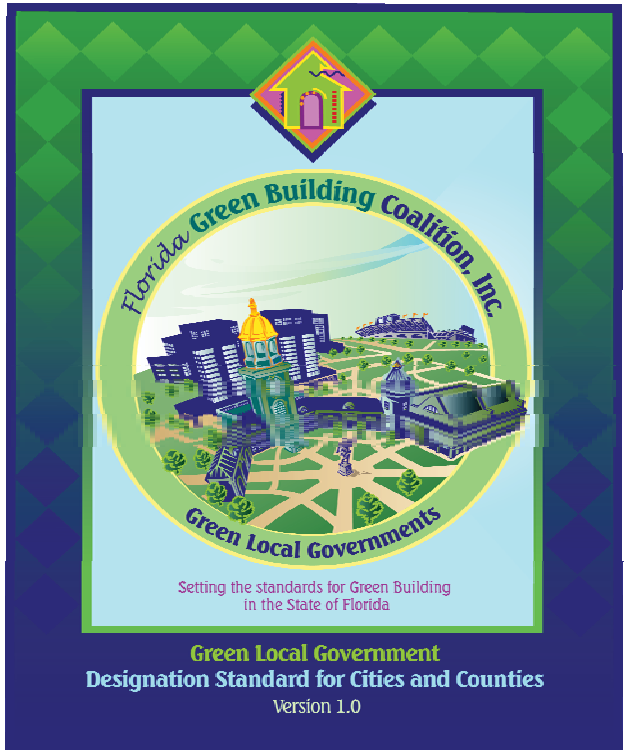
1) To start the process enter names of Local Government Departments in rows 17 through 40:

2) The following 19 worksheets allow you to determine which criteria apply to your city/county, and help you to track progress as criteria are implemented. Tools are provided for you to flag criteria according to appropriate department and staff member. Point totals are tallied for each government function.

3) The "Filter Tool" contains all criteria, and allows criteria to be organized according to a number of variables. Point totals are tallied for the entire program.

4) A complete application package will include an electronic copy of the completed tool or hard copy of all "sheets" except the "filter tool", all required documentation, and the required application fee.

| |
|---|
| No Department Selected |
| City Attorney |
| City Auditor |
| City Manager |
| Clearwater Gas System |
| Development & Neighboorhood Srv. |
| Economic Development & Housing |
| Engineering |
| Finance |
| Human Resources |
| Information Technology |
| Marine & Aviation |
| Office of Management and Budget |
| Parks and Recreation |
| Planning |
| Public Services |
| Public Utilities |
| Solid Waste |
| Police Department |
| Fire Department |
| Public Communications |
| Chamber of Commerce |
| |
| |
| |



## ADMINISTRATION

Administrative entities such as Boards of City or County Commissioners can effectively manage risks, assets, and budgets through conservation planning, enacting guiding policy, and educating staff members.

| # | | Energy & Air EA | Water W | Waste W | Health H | Land Use LU | Awareness A | Credit Name | Maximum Possible Points | Maximum Applicable Points | Credit Points Achieved |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **A1** | | | | | | | | **Local Government environmental commitment** | | | |
| A1a | L | | | | | | ✓ | Write or re-write mission statement to include environmental commitment. | 2 | ☑ 2 | ☐ 0 |
| A1b | L | | | | | | ✓ | Incorporate the mission statement into the local government's comprehensive plan. | 3 | ☑ 3 | ☐ 0 |
| **A2** | | | | | | | | **Conservation planning** | | | |
| A2a | L | ✓ | | | | | ✓ | Monitor and track local government energy use. | 1 | ☑ 1 | ☐ 0 |
| A2b | L | ✓ | | | | | | Develop a local government energy reduction plan. | 1 | ☑ 1 | ☐ 0 |
| A2c | L | | ✓ | | | | ✓ | Monitor and track local government water use. | 1 | ☑ 1 | ☐ 0 |
| A2d | L | | ✓ | | | | | Develop a local government water reduction plan. | 1 | ☑ 1 | ☐ 0 |
| A2e | L | | | ✓ | | | ✓ | Monitor and track local government solid waste generation/ recycling rates. | 1 | ☑ 1 | ☐ 0 |
| A2f | L | | | ✓ | | | | Develop a local government solid/hazardous waste reduction plan. | 1 | ☑ 1 | ☐ 0 |
| A2g | L | | | ✓ | ✓ | | ✓ | Develop an EPP program for the local government. | 1 | ☑ 1 | ☐ 0 |
| A2h | L | | | ✓ | ✓ | | | Encourage EPP program implementation. | 5 | ☑ 5 | 0 |
| **A3** | | | | | | | | **Reduce greenhouse gas emissions** | | | |
| A3a | L | ✓ | | | | | | Participate in Cities for Climate Protection Campaign. | 1 | ☑ 1 | ☐ 0 |
| A3b | L | ✓ | | | | | | Alternative Fuel Vehicle purchase. | 3 | ☑ 3 | 0 |
| **A4** | | | | | | | | **Build, renovate, and maintain green government buildings** | | | |
| A4a | L | | | | | | ✓ | Become a member of FGBC. | 1 | ☑ 1 | ☐ 0 |
| A4b | L | | | | | | ✓ | Become a member of USGBC. | 1 | ☑ 1 | ☐ 0 |
| A4c | L | ✓ | ✓ | ✓ | ✓ | ✓ | | Construct LEED or FGBC certified buildings or renovate for LEED EB or CI. | 10 | ☑ 10 | 0 |
| A4d | L | ✓ | ✓ | ✓ | ✓ | | | Employ green cleaning and maintenance procedures. | 5 | ☑ 5 | 0 |
| **A5** | | | | | | | | **Dedicate personnel to green municipal process** | | | |
| A5a | L | | | | | | ✓ | Maintain an office, person, or group to coordinate current and future green activities. | 3 | ☑ 3 | ☑ 3 |

## ADMINISTRATION

Administrative entities such as Boards of City or County Commissioners can effectively manage risks, assets, and budgets through conservation planning, enacting guiding policy, and educating staff members.

| # | | EA (Energy & Air) | W (Water) | W (Waste) | H (Health) | LU (Land Use) | A (Awareness) | Credit Name | Maximum Possible Points | Maximum Applicable Points | Credit Points Achieved |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **A6** | | | | | | | | **Green local government buildings ordinance** | | | |
| A6a | C | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | Adopt an green standard as official minimum criteria for new govt. buildings. | 10 | ☑ 10 | ☐ 0 |
| A6b | C | ✓ | ✓ | ✓ | ✓ | | | Adopt green cleaning/maintenance practices available from DEP. | 5 | ☑ 5 | ☐ 0 |
| A6c | C | | ✓ | | | | | Enact green landscaping ordinance for local government buildings. | 1 | ☑ 1 | ☐ 0 |
| **A7** | | | | | | | | **Community education** | | | |
| A7a | E | | | | | | ✓ | Budget for publicity / education related to the govt's commitment to green. | 1 | ☑ 1 | ☐ 0 |
| **A8** | | | | | | | | **Staff education** | | | |
| A8a | E | | | | | | ✓ | Organize green building education for local government staff. | 1 | ☑ 1 | ☑ 1 |

L Lead by Example
C Control
E Education

**Maximum Possible Points Total** 59

**Maximum Applicable Points Total** 59

**Credit Points Achieved Total** 4

**Percent of Maximum Applicable Points Total** 7 %

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*Florida Green Building Coalition, Inc.*

# AGRICULTURE AND EXTENSION SERVICE

These departments may better realize goals of water conservation within the community and effective community eduation.

| # | | Energy & Air EA | Water W | Waste W | Health H | Land Use LU | Awareness A | Credit Name | Maximum Possible Points | Maximum Applicable Points | Credit Points Achieved |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **B1** | | | | | | | | **Florida friendly government owned landscapes** | | | |
| B1a | L | | ✓ | | | | ✓ | Certified Florida friendly landscapes within the city/county. | 10 | ☐ 0 | 0 |
| **B2** | | | | | | | | **Community incentives** | | | |
| B2a | C | ✓ | ✓ | ✓ | ✓ | | ✓ | Offer free or discounted green products to the public. | 6 | ☐ 0 | 0 |
| **B3** | | | | | | | | **Promotion of organic farming** | | | |
| B3a | C | | ✓ | | | ✓ | | Offer incentives to create organic farms, or sustainable/water efficient agriculture. | 5 | ☐ 0 | 0 |
| **B4** | | | | | | | | **Community education** | | | |
| B4a | E | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | Offer green building or green local government education to the community. | 1 | ☐ 0 | ☐ 0 |
| B4b | E | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | Provide green building or green local government education materials. | 1 | ☐ 0 | ☐ 0 |
| B4c | E | | ✓ | | | | ✓ | Maintain active FY&N program or other home owner/builder/developer outreach program. | 1 | ☐ 0 | ☐ 0 |
| B4d | E | | | | | | ✓ | Maintain an active student/teacher education program. | 1 | ☐ 0 | ☐ 0 |
| **B5** | | | | | | | | **Industry education** | | | |
| B5a | E | | ✓ | | | | ✓ | Offer promotion and education of water conservation within the agricultural sector. | 1 | ☐ 0 | ☐ 0 |
| B5b | E | | ✓ | | | ✓ | ✓ | Offer education on organic farming, permaculture and sustainable agriculture. | 1 | ☐ 0 | ☐ 0 |

L Lead by Example
C Control
E Education

**Maximum Possible Points Total** 27

**Maximum Applicable Points Total** 0

**Credit Points Achieved Total** 0

**Percent of Maximum Applicable Points Total** #### %

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## BUILDING AND DEVELOPMENT

These departments can benefit from utilizing green buildings as an indicator, and learning about how to foster adoption of green by the private sector for the benefit of the entire community.

| # | | Energy & Air EA | Water W | Waste W | Health H | Land Use LU | Awareness A | Credit Name | Maximum Possible Points | Maximum Applicable Points | Credit Points Achieved |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **C1** | | | | | | | | **Monitor and track green building within the city/county** | | | |
| C1a | L | | | | | | ✓ | Create and maintain an electronic database of all building energy code compliance. | 5 | ☑ 5 | ☐ 0 |
| C1b | L | | | | | | ✓ | Create and maintain an electronic database of all green and energy ratings. | 5 | ☑ 5 | ☐ 0 |
| **C2** | | | | | | | | **City/County green building program with incentives** | | | |
| C2a | C | | | | | | ✓ | Adopt FGBC or LEED green standards as official green standards of the city/county. | 2 | ☑ 2 | ☐ 0 |
| C2b | C | ✓ | ✓ | ✓ | ✓ | ✓ | | Offer an incentive(s) for FGBC or LEED certified commercial and institutional buildings. | 4 | ☑ 4 | ☐ 0 |
| C2c | C | ✓ | ✓ | ✓ | ✓ | ✓ | | Offer an incentive(s) for FGBC or Energy Star certified green homes. | 4 | ☑ 4 | ☐ 0 |
| C2d | C | ✓ | ✓ | ✓ | ✓ | ✓ | | Offer an incentive(s) for FGBC certified green developments. | 4 | ☑ 4 | ☐ 0 |
| **C3** | | | | | | | | **Preserve/enhance native habitat and natural resources** | | | |
| C3a | C | | | | | ✓ | | Require mitigation for consumption of natural habitat or resources. | 5 | ☑ 5 | 1 |
| C3b | C | | ✓ | | | ✓ | | Enact and enforce a tree preservation or land-clearing ordinance. | 1 | ☑ 1 | ☑ 1 |
| C3c | C | ✓ | | | | ✓ | | Regulate impervious parking surfaces. | 1 | ☑ 1 | ☐ 0 |
| C3d | C | | ✓ | | | | | Enact a septic system replacement ordinance. | 1 | ☑ 1 | ☑ 1 |
| **C4** | | | | | | | | **Conserve water resources** | | | |
| C4a | C | | ✓ | | | | | Enact a rain sensor ordinance applicable to all functioning automatic irrigation systems. | 1 | ☑ 1 | ☐ 0 |
| C4b | C | | ✓ | | | | | Enact a landscaping ordinance for new construction. | 1 | ☑ 1 | ☑ 1 |
| **C5** | | | | | | | | **Staff education** | | | |
| C5a | E | | | | | | ✓ | Require key staff to complete approved course in green building on a bi-annual basis. | 1 | ☑ 1 | ☐ 0 |
| **C6** | | | | | | | | **Industry education** | | | |
| C6a | E | | | | | | ✓ | Offer classes to industry that detail any green incentives or regulations present. | 1 | ☑ 1 | ☐ 0 |
| C6b | E | | | | | | ✓ | Offer incentives for local professionals to attend green building classes offered by others. | 1 | ☑ 1 | ☐ 0 |
| C6c | E | | | | | | ✓ | Conduct a green building awards program. | 1 | ☑ 1 | ☐ 0 |
| **C7** | | | | | | | | **Community education** | | | |
| C7a | E | | | | | | ✓ | Publicity and case studies for green building. | 1 | ☑ 1 | ☐ 0 |

# BUILDING AND DEVELOPMENT

These departments can benefit from utilizing green buildings as an indicator, and learning about how to foster adoption of green by the private sector for the benefit of the entire community.

| # | Energy & Air (EA) | Water (W) | Waste (W) | Health (H) | Land Use (LU) | Awareness (A) | Credit Name | Maximum Possible Points | Maximum Applicable Points | Credit Points Achieved |
|---|---|---|---|---|---|---|---|---|---|---|

- L Lead by Example
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- E Education

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**Maximum Possible Points Total** 39

**Maximum Applicable Points Total** 39

**Credit Points Achieved Total** 4

**Percent of Maximum Applicable Points Total** 10.3 %

# ECONOMIC DEVELOPMENT AND TOURISM

These departments can learn about how green local government features can attract visitors and sustainable businesses to the community, as well as mear to preserve existing community features.

| # | | EA (Energy & Air) | W (Water) | W (Waste) | H (Health) | LU (Land Use) | A (Awareness) | Credit Name | Maximum Possible Points | Maximum Applicable Points | Credit Points Achieved |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **D1** | | | | | | | | **Green building to spur economic development** | | | |
| D1a | L | | | | | | ✓ | Team with tourism department on eco-tourism campaign. | 1 | ☑ 1 | ☐ 0 |
| D1b | L | | | | | | ✓ | Track amount of tourism that takes part in eco-related activities. | 1 | ☑ 1 | ☐ 0 |
| **D2** | | | | | | | | **Green building thorugh historic preservation/downtown revitilization** | | | |
| D2a | L | ✓ | | | | ✓ | ✓ | Achieve Florida Main Street Designation. | 1 | ☑ 1 | ☑ 1 |
| **D3** | | | | | | | | **Local business incentives** | | | |
| D3a | C | ✓ | ✓ | ✓ | ✓ | ✓ | | Incentives for location of green businesses within city/county. | 1 | ☑ 1 | ☐ 0 |
| D3b | C | ✓ | ✓ | ✓ | ✓ | ✓ | | Offer special promotion for local eco-hotels. | 1 | ☑ 1 | ☐ 0 |
| **D4** | | | | | | | | **Revitilize distressed areas** | | | |
| D4a | C | | | | | ✓ | | Incentives for green redevelopment. | 2 | ☑ 2 | ☐ 0 |
| **D5** | | | | | | | | **Historic preservation** | | | |
| D5a | C | | | | | ✓ | ✓ | Develop a historic preservation ordinance. | 1 | ☑ 1 | ☑ 1 |
| D5b | C | | | | | ✓ | ✓ | Develop funding mechanism to aid with historic preservation. | 1 | ☑ 1 | ☐ 0 |

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C Control
E Education

**Maximum Possible Points Total** 9

**Maximum Applicable Points Total** 9

**Credit Points Achieved Total** 2

**Percent of Maximum Applicable Points Total** 22.2 %

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# EMERGENCY MANAGEMENT AND PUBLIC SAFETY

These departments can take steps to improve the environmental performance of in-house actions, as well as eduate the community about the importance and benefits of disaster mitigation.

| # | | Energy & Air (EA) | Water (W) | Waste (W) | Health (H) | Land Use (LU) | Awareness (A) | Credit Name | Maximum Possible Points | Maximum Applicable Points | Credit Points Achieved |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **E1** | | | | | | | | **Reduce green house gas emissions** | | | |
| E1a | L | ✓ | | | | | | Use of AFV and/or bicycle patrol for urban/neighborhood areas. | 1 | ☑ 1 | ☑ 1 |
| E1b | L | ✓ | | | | | | Use renewable energy as backup / emergency power. | 1 | ☑ 1 | ☑ 1 |
| **E2** | | | | | | | | **Reduce solid and hazardous waste** | | | |
| E2a | L | ✓ | | ✓ | | | | Maintain green fleets. | 3 | ☑ 3 | 2 |
| E2b | L | | | ✓ | | | | Firing ranges utilize non-lead bullets or trap and collect fragments. | 1 | ☑ 1 | ☐ 0 |
| E2c | L | | ✓ | ✓ | | | | Minimize photo-processing waste. | 1 | ☐ 0 | ☐ 0 |
| **E3** | | | | | | | | **Conserve water** | | | |
| E3a | L | | ✓ | | | | | Fire departments review training operations and conserve water where appropriate. | 1 | ☑ 1 | ☐ 0 |
| **E4** | | | | | | | | **Enhance durability of built environment** | | | |
| E4a | C | | | ✓ | | | | Incentives for disaster mitigation. | 1 | ☑ 1 | ☐ 0 |
| **E5** | | | | | | | | **Community education** | | | |
| E5a | E | | | ✓ | | | ✓ | Offer mitigation audits to homes, businesses, and local government buildings. | 1 | ☑ 1 | ☐ 0 |
| E5b | E | | | | | | ✓ | Create an education campaign for mitigation. | 1 | ☑ 1 | ☐ 0 |
| **E6** | | | | | | | | **Staff training** | | | |
| E6a | E | | | | | | ✓ | Police trained in crime prevention through environmental design. | 1 | ☑ 1 | ☑ 1 |
| E6b | E | | | | | ✓ | ✓ | Public safety staff attend training on Healthy Street design. | 1 | ☑ 1 | ☑ 1 |

L Lead by Example
C Control
E Education

**Maximum Possible Points Total** 13

**Maximum Applicable Points Total** 12

**Credit Points Achieved Total** 6

**Percent of Maximum Applicable Points Total** 50 %

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## ENERGY UTILITY

Local energy utilities can learn about and implement green power, and also provide customers with options that allow them to learn about energy issues, conserve energy, and contribute to green power and waste reduction activities.

| # | | Energy & Air EA | Water W | Waste W | Health H | Land Use LU | Awareness A | Credit Name | Maximum Possible Points | Maximum Applicable Points | Credit Points Achieved |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **F1** | | | | | | | | **Reduce green house gas emissions** | | | |
| F1a | L | ✓ | ✓ | ✓ | ✓ | | | Offer green power. | 1 | ☑ 1 | ☐ 0 |
| F1b | L | | | | | | ✓ | Certify renewable electricity products under Center for Resource Solutions. | 1 | ☑ 1 | ☐ 0 |
| F1c | L | | | | | | ✓ | Voluntary funding of green power through customer billing. | 1 | ☑ 1 | ☐ 0 |
| F1d | L | | | | | | ✓ | Become an Energy Star ally. | 1 | ☑ 1 | ☐ 0 |
| **F2** | | | | | | | | **Reduce waste** | | | |
| F2a | L | | | ✓ | | | | Actively promote fly ash / blast furnace slag source. | 1 | ☑ 1 | ☐ 0 |
| F2b | L | | | ✓ | | | | Utilize recycled billing envelopes. | 1 | ☑ 1 | ☑ 1 |
| F2c | L | | | ✓ | | | | Enable customers to make online bill payments. | 1 | ☑ 1 | ☑ 1 |
| **F3** | | | | | | | | **Incentives to reduce energy use** | | | |
| F3a | C | ✓ | | | | | | Offer distributed generation incentives. | 1 | ☑ 1 | ☐ 0 |
| F3b | C | ✓ | | | | | ✓ | Offer energy audits. | 1 | ☑ 1 | ☐ 0 |
| F3c | C | ✓ | | | | | | Commercial building incentives. | 1 | ☑ 1 | ☐ 0 |
| F3d | C | ✓ | | | | | | Residential building incentives. | 1 | ☑ 1 | ☐ 0 |
| F3e | C | ✓ | | | | | ✓ | Rate structures based on consumption. | 1 | ☑ 1 | ☐ 0 |
| **F4** | | | | | | | | **Community education** | | | |
| F4a | E | | | | | | ✓ | Informative billing. | 1 | ☑ 1 | ☐ 0 |
| F4b | E | | | | | | ✓ | Take part in any speakers bureau or sponsor workshops. | 1 | ☑ 1 | ☐ 0 |
| F4c | E | | | | | | ✓ | Emissions info posted on website. | 1 | ☑ 1 | ☐ 0 |
| F4d | E | | | | | | ✓ | Enable customers to track and analyze their usage via the internet. | 1 | ☑ 1 | ☐ 0 |
| **F5** | | | | | | | | **Staff education** | | | |
| F5a | E | | | | | | ✓ | Send appropriate staff for training related to distributed generation. | 1 | ☑ 1 | ☐ 0 |
| F5b | E | | | | | | ✓ | Send appropriate staff for energy audit training. | 1 | ☑ 1 | ☐ 0 |

# ENERGY UTILITY

Local energy utilities can learn about and implement green power, and also provide customers with options that allow them to learn about energy issues, conserve energy, and contribute to green power and waste reduction activities.

| # | Energy & Air (EA) | Water (W) | Waste (W) | Health (H) | Land Use (LU) | Awareness (A) | Credit Name | Maximum Possible Points | Maximum Applicable Points | Credit Points Achieved |
|---|---|---|---|---|---|---|---|---|---|---|

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E Education

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**Maximum Possible Points Total** 18

**Maximum Applicable Points Total** 18

**Credit Points Achieved Total** 2

**Percent of Maximum Applicable Points Total** 11.1 %

# HOUSING AND HUMAN SERVICES

These departments can learn about how to enhance the affordability of affordable housing through green building.

| # | | EA (Energy & Air) | W (Water) | W (Waste) | H (Health) | LU (Land Use) | A (Awareness) | Credit Name | Maximum Possible Points | Maximum Applicable Points | Credit Points Achieved |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **G1** | | | | | | | | **Provide green, affordable housing to the community** | | | |
| G1a | L | ✓ | ✓ | ✓ | ✓ | | | Construct/renovate green buildings. | 20 | ☑ 20 | 0 |
| **G2** | | | | | | | | **Increase the affordability of affordable housing** | | | |
| G2a | C | ✓ | ✓ | ✓ | ✓ | | ✓ | Affordable housing constructed by city/county and other parties mandated green. | 1 | ☑ 1 | ☐ 0 |
| G2b | C | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | Offer incentives for construction of green affordable housing. | 1 | ☑ 1 | ☐ 0 |
| G2c | C | ✓ | | | ✓ | ✓ | ✓ | Offer incentives for location efficient affordable housing. | 1 | ☑ 1 | ☐ 0 |
| **G3** | | | | | | | | **Improve current stock of affordable housing** | | | |
| G3a | C | ✓ | ✓ | ✓ | ✓ | | | Remodeling of affordable housing mandated green. | 1 | ☑ 1 | ☐ 0 |
| **G4** | | | | | | | | **Community education** | | | |
| G4a | E | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | Offer orientation classes for residents of affordable housing or refer to existing courses. | 1 | ☑ 1 | ☐ 0 |
| **G5** | | | | | | | | **Staff education** | | | |
| G5a | E | | | | | | ✓ | Applicable staff complete CEU approved course in green building on a bi-annual basis. | 1 | ☑ 1 | ☐ 0 |

L Lead by Example
C Control
E Education

**Maximum Possible Points Total** 26

**Maximum Applicable Points Total** 26

**Credit Points Achieved Total** 0

**Percent of Maximum Applicable Points Total** 0 %

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# HUMAN RESOURCES

Human resources departments can engauge local government staff in the green local government effort through education and incentives.

| # | | Energy & Air EA | Water W | Waste W | Health H | Land Use LU | Awareness A | Credit Name | Maximum Possible Points | Maximum Applicable Points | Credit Points Achieved |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **H1** | | | | | | | | **Reduce green house gas emissions.** | | | |
| H1a | C | ✓ | | | ✓ | | | Alternative commuting incentives for local government employees. | 2 | ☑ 2 | ☐ 0 |
| **H2** | | | | | | | | **Reduce solid and hazardous waste.** | | | |
| H2a | C | | | ✓ | | | ✓ | Provide reusable mug / water bottle to all employees. | 1 | ☑ 1 | ☑ 1 |
| **H3** | | | | | | | | **Staff education** | | | |
| H3a | E | | | | | | ✓ | New employee orientation includes general city/county commitment to environment. | 1 | ☑ 1 | ☐ 0 |
| H3b | E | | | | | | ✓ | Conduct or refer to special training on one or more green city/county programs. | 5 | ☑ 5 | 0 |

L Lead by Example
C Control
E Education

**Maximum Possible Points Total** 9

**Maximum Applicable Points Total** 9

**Credit Points Achieved Total** 1

**Percent of Maximum Applicable Points Total** 11.1 %

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## INFORMATION SERVICES

Through education of local government staff and the community via a number of mediums, this department can help achieve local government energy and waste reduction goals, while promoting the local government's commitment to the environment.

| # | | EA (Energy & Air) | W (Water) | W (Waste) | H (Health) | LU (Land Use) | A (Awareness) | Credit Name | Maximum Possible Points | Maximum Applicable Points | Credit Points Achieved |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **I1** | | | | | | | | **Reduce solid and hazardous waste** | | | |
| I1a | L | | | ✓ | | | | Operate local government computer and equipment reuse center. | 1 | ☑ 1 | ☐ 0 |
| I1b | L | | | ✓ | | | | Recycling of end-of-life electronic equipment. | 1 | ☑ 1 | ☐ 0 |
| **I2** | | | | | | | | **Conserve energy and resources through policy** | | | |
| I2a | C | ✓ | | | | | ✓ | Enact local government policy so all computer/ancillary equipment is off when not in use. | 1 | ☑ 1 | ☑ 1 |
| I2b | C | ✓ | | | | | ✓ | Enact policy so all computer electronic equipment purchased has conservation features. | 1 | ☑ 1 | ☐ 0 |
| **I3** | | | | | | | | **Community education** | | | |
| I3a | E | | | | | | ✓ | Operate website dedicated to green city/county program. | 1 | ☑ 1 | ☐ 0 |
| I3b | E | | | | | | ✓ | Develop environmental education content for city/county websites, tv programs, etc. | 1 | ☑ 1 | ☑ 1 |
| **I4** | | | | | | | | **Staff education** | | | |
| I4a | E | ✓ | | | | | ✓ | Conduct regular education on energy use/energy savings modes for in-house equipment. | 1 | ☑ 1 | ☐ 0 |

L Lead by Example
C Control
E Education

**Maximum Possible Points Total** 7

**Maximum Applicable Points Total** 7

**Credit Points Achieved Total** 2

**Percent of Maximum Applicable Points Total** 28.6 %

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## NATURAL RESOURCES MANAGEMENT / ENVIROMENTAL PROTECTION

These departments can learn how to better achieve goals of resource conservation and wildlife protection through actions and education.

| # | | Energy & Air EA | Water W | Waste W | Health H | Land Use LU | Awareness A | Credit Name | Maximum Possible Points | Maximum Applicable Points | Credit Points Achieved |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **J1** | | | | | | | | **Preserve / enhance habitat** | | | |
| J1a | L | | ✓ | | | | ✓ | Become a designated Waterfronts Florida community. | 1 | ☑ 1 | ☑ 1 |
| J1b | L | | ✓ | | | ✓ | ✓ | Become an Audubon Sustainable Community. | 1 | ☑ 1 | ☑ 1 |
| J1c | L | | | | | ✓ | | Create an endangered lands conservation / purchasing program. | 1 | ☐ 0 | ☐ 0 |
| J1d | L | | | | | ✓ | ✓ | Certify community under National Wildlife Federation Wildlife Habitat program. | 1 | ☑ 1 | ☑ 1 |
| J1e | L | | | | | ✓ | | Develop & implement plans for species removal throughout public lands. | 1 | ☑ 1 | ☑ 1 |
| **J2** | | | | | | | | **Engage and learn from other similar departments** | | | |
| J2a | L | | | | | | ✓ | Become a member of FLERA. | 1 | ☑ 1 | ☑ 1 |
| **J3** | | | | | | | | **Minimize greenhouse gas emissions and preserve air quality** | | | |
| J3a | C | ✓ | | | | | | Offer local tax based or other AFV incentives. | 1 | ☐ 0 | ☐ 0 |
| J3b | C | ✓ | | | | | | Enact automobile emissions regulations for vehicles registered in county. | 1 | ☐ 0 | ☐ 0 |
| J3c | C | ✓ | | | | | | Require vapor controls at all gas stations. | 1 | ☐ 0 | ☐ 0 |
| J3d | C | ✓ | | | | | | Enact open burning regulations. | 1 | ☑ 1 | ☑ 1 |
| **J4** | | | | | | | | **Preserve / enhance habitat** | | | |
| J4a | C | | | | | ✓ | | Coastal areas to enact sea turtle ordinance. | 1 | ☑ 1 | ☑ 1 |
| J4b | C | | | | | ✓ | | Enact a manatee protection plan. | 1 | ☑ 1 | ☑ 1 |
| J4c | C | | | | | ✓ | | Develop a boat facility siting plan. | 1 | ☑ 1 | ☑ 1 |
| **J5** | | | | | | | | **Conserve water** | | | |
| J5a | C | | ✓ | | | | | Enact car wash standards. | 1 | ☑ 1 | ☑ 1 |
| J5b | C | | ✓ | | | | | Enact fountain / water feature standards. | 1 | ☑ 1 | ☑ 1 |
| **J6** | | | | | | | | **Community education** | | | |
| J6a | E | | | | | ✓ | ✓ | Pertinent local GIS and other data on city/county website. | 1 | ☑ 1 | ☑ 1 |
| J6b | E | ✓ | | | | | ✓ | Air quality index on website. | 1 | ☑ 1 | ☐ 0 |
| J6c | E | | ✓ | | | | ✓ | Results from water quality testing on website. | 1 | ☑ 1 | ☐ 0 |
| J6d | E | | | | | | ✓ | Operate an environmental demonstration / learning center. | 1 | ☑ 1 | ☑ 1 |

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**Maximum Possible Points Total** 19

**Maximum Applicable Points Total** 15

**Credit Points Achieved Total** 13

**Percent of Maximum Applicable Points Total** 86.7 %

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# PARKS AND RECREATION

This department can achieve environmental goals through greening of pubic amenities, and using the activity to educate the community as a whole.

| # | | Energy & Air EA | Water W | Waste W | Health H | Land Use LU | Awareness A | Credit Name | Maximum Possible Points | Maximum Applicable Points | Credit Points Achieved |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **K1** | | | | | | | | **Green public amenities** | | | |
| K1a | L | | | | ✓ | ✓ | ✓ | Maintain organic community gardens. | 1 | ☑ 1 | ☐ 0 |
| K1b | L | | | | ✓ | | | Minimize chlorine in community swimming pools. | 1 | ☑ 1 | ☐ 0 |
| K1c | L | ✓ | | | ✓ | | | Install appropriate bicycle security at all public amenities. | 1 | ☑ 1 | ☐ 0 |
| K1d | L | | ✓ | | | ✓ | ✓ | Public golf courses are Audubon certified. | 2 | ☑ 2 | 0 |
| K1e | L | | ✓ | | | | ✓ | Apply Florida Friendly landscaping principles at public amenities. | 1 | ☑ 1 | ☐ 0 |
| K1f | L | ✓ | | | | ✓ | | Minimize heat effect/stormwater runoff of trees, highly reflective materials, or surface. | 1 | ☑ 1 | ☐ 0 |
| K1g | L | | ✓ | | | | ✓ | Public beaches adhere to Blue Wave Campaign criteria. | 5 | ☑ 5 | 2 |
| K1h | L | | | ✓ | | | ✓ | Implement recycling stations for plastic, glass, and aluminum containers at all areas. | 1 | ☑ 1 | ☐ 0 |
| K1i | L | ✓ | | | | | | Implement energy efficient lighting & controls for outdoor courts, parks, and playfields. | 1 | ☑ 1 | ☐ 0 |
| **K2** | | | | | | | | **Staff education** | | | |
| K2a | E | | | | | | ✓ | Each staff member trained in an area related to their function on a bi-annual basis. | 1 | ☑ 1 | ☐ 0 |
| **K3** | | | | | | | | **Community education** | | | |
| K3a | E | | | | | | ✓ | Place signs and/or brochures at green features of public amenities for their benefits. | 1 | ☑ 1 | ☐ 0 |

L Lead by Example
C Control
E Education

**Maximum Possible Points Total** 16

**Maximum Applicable Points Total** 16

**Credit Points Achieved Total** 2

**Percent of Maximum Applicable Points Total** 12.5 %

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# PLANNING AND ZONING

Planning and Zoning departments can encourage alternative modes of transportation through tracking and implementing green design.

| # | | Energy & Air (EA) | Water (W) | Waste (W) | Health (H) | Land Use (LU) | Awareness (A) | Credit Name | Maximum Possible Points | Maximum Applicable Points | Credit Points Achieved |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **L1** | | | | | | | | **Monitor and track green building within the city/county** | | | |
| L1a | L | | | | | ✓ | ✓ | Develop a system of sustainable community indicators related to local govt. Planning. | 1 | ☑ 1 | ☐ 0 |
| L1b | L | | | | | ✓ | ✓ | Link indicators to a GIS system. | 1 | ☑ 1 | ☐ 0 |
| L1c | L | | | | | | ✓ | Assist other departments with the tracking of indicators related to their function. | 5 | ☑ 5 | 0 |
| **L2** | | | | | | | | **Enhance pedestrian travel in a city & reduce green house gas** | | | |
| L2a | L | ✓ | | | ✓ | | ✓ | Maintain a bicycle / pedestrian coordinator on staff. | 1 | ☑ 1 | ☑ 1 |
| L2b | L | ✓ | | | ✓ | ✓ | ✓ | Implement FDOT "12 Steps Towards Walkable Communities" into planning process. | 1 | ☑ 1 | ☐ 0 |
| L2c | L | ✓ | | | ✓ | ✓ | ✓ | Healthy street design is official local government policy. | 1 | ☑ 1 | ☐ 0 |
| **L3** | | | | | | | | **Green building incorporated into city/county planning process** | | | |
| L3a | C | | | | | ✓ | | Develop urban area boundaries. | 1 | ☑ 1 | ☐ 0 |
| L3b | C | ✓ | | | ✓ | ✓ | | Encourage mixed-use zoning / development. | 1 | ☑ 1 | ☑ 1 |
| L3c | C | | ✓ | | | ✓ | | Maintain or reduce net impervious surface area through zoning decisions. | 1 | ☑ 1 | ☑ 1 |
| **L4** | | | | | | | | **Staff education** | | | |
| L4a | E | | | | | | ✓ | Organize green building seminars and/or training sessions for staff and elected officials. | 1 | ☑ 1 | ☑ 1 |

L Lead by Example
C Control
E Education

**Maximum Possible Points Total** 14

**Maximum Applicable Points Total** 14

**Credit Points Achieved Total** 4

**Percent of Maximum Applicable Points Total** 28.6 %

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# PORTS AND MARINAS

Ports and marinas can learn about their role in protecting recreational waters, and encourage citizens to take part.

| # | | Energy & Air (EA) | Water (W) | Waste (W) | Health (H) | Land Use (LU) | Awareness (A) | Credit Name | Maximum Possible Points | Maximum Applicable Points | Credit Points Achieved |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **M1** | | | | | | | | **Preserve aquatic habitat** | | | |
| M1a | L | ✓ | ✓ | ✓ | | | ✓ | Take part in Florida Clean Marina program. | 1 | ☑ 1 | ☑ 1 |
| M1b | L | | ✓ | | | ✓ | ✓ | Implement advanced stormwater controls and waterfront considerations. | 1 | ☑ 1 | ☐ 0 |
| **M2** | | | | | | | | **Preserve aquatic habitat** | | | |
| M2a | C | ✓ | ✓ | ✓ | ✓ | | ✓ | Offer low pollution engine incentives. | 1 | ☑ 1 | ☐ 0 |
| **M3** | | | | | | | | **Boater education** | | | |
| M3a | E | | | | | ✓ | | Host boater education classes. | 1 | ☑ 1 | ☐ 0 |

L Lead by Example
C Control
E Education

**Maximum Possible Points Total** 4

**Maximum Applicable Points Total** 4

**Credit Points Achieved Total** 1

**Percent of Maximum Applicable Points Total** 25 %

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# PROPERTY APPRAISER / TAX COLLECTOR

Green building can be encouraged thorugh incentives, and indicators should be developed to track participation.

| # | | EA (Energy & Air) | W (Water) | W (Waste) | H (Health) | LU (Land Use) | A (Awareness) | Credit Name | Maximum Possible Points | Maximum Applicable Points | Credit Points Achieved |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **N1** | | | | | | | | **Monitor and track green buildings** | | | |
| N1a | L | | | | | | ✓ | Include green features / ratings of homes in database. | 2 | ☐ 0 | 0 |
| **N2** | | | | | | | | **Incentives for green building** | | | |
| N2a | C | ✓ | ✓ | ✓ | ✓ | ✓ | | Tax incentives for certified green properties. | 2 | ☐ 0 | ☐ 0 |
| N2b | C | | ✓ | | | ✓ | | Tax incentives for lands qualifying as historic, high water recharge, greenbelt, etc. | 2 | ☐ 0 | ☐ 0 |
| **N3** | | | | | | | | **Industry education** | | | |
| N3a | E | | | | | | ✓ | Green education to local lending / real estate industry. | 1 | ☐ 0 | ☐ 0 |

L Lead by Example
C Control
E Education

**Maximum Possible Points Total** 7

**Maximum Applicable Points Total** 0

**Credit Points Achieved Total** 0

**Percent of Maximum Applicable Points Total** #### %

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# PUBLIC TRANSPORTATION

Public transportation departments can help achieve environmental goals thorugh green fleet management, and encourage ridership by analyzing routes.

| # | | EA (Energy & Air) | W (Water) | W (Waste) | H (Health) | LU (Land Use) | A (Awareness) | Credit Name | Maximum Possible Points | Maximum Applicable Points | Credit Points Achieved |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **O1** | | | | | | | | **Reduce green house gas emissions** | | | |
| O1a | L | ✓ | | | | | | Utilize alternative fuels for fleet. | 2 | ☐ 0 | ☐ 0 |
| O1b | L | ✓ | | | ✓ | | ✓ | Institute a bicycle commuter assistance program. | 1 | ☑ 1 | ☐ 0 |
| O1c | L | ✓ | | | ✓ | | | Make amends for vehicles to accommodate bicycles. | 1 | ☑ 1 | ☐ 0 |
| O1d | L | ✓ | | | ✓ | | | Engage in carpool/vanpool assistance. | 1 | ☑ 1 | ☐ 0 |
| **O2** | | | | | | | | **Monitor and track green building progress** | | | |
| O2a | L | | | | | | ✓ | Analyze transportation routes to determine connectivity to bicycle & pedestrian network. | 1 | ☑ 1 | ☐ 0 |
| **O3** | | | | | | | | **Reduce solid and hazardous waste** | | | |
| O3a | L | ✓ | ✓ | ✓ | | | | Operate a green fleet. | 1 | ☐ 0 | ☐ 0 |
| **O4** | | | | | | | | **Community education** | | | |
| O4a | E | ✓ | | | ✓ | | ✓ | Provide public transportation route searching via the internet. | 1 | ☐ 0 | ☐ 0 |
| O4b | E | | | | | | ✓ | Provide information about alternative commuting on website. | 1 | ☑ 1 | ☐ 0 |

L Lead by Example
C Control
E Education

**Maximum Possible Points Total** 9

**Maximum Applicable Points Total** 5

**Credit Points Achieved Total** 0

**Percent of Maximum Applicable Points Total** 0 %

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## PUBLIC WORKS AND ENGINEERING

Public works, engineering, and storwater departments can achieve multiple environmental goals by greening in-house actions, and also outreach to other local government departments, as well as the community at large, to transfer knowldege.

| # | | Energy & Air EA | Water W | Waste W | Health H | Land Use LU | Awareness A | Credit Name | Maximum Possible Points | Maximum Applicable Points | Credit Points Achieved |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **P1** | | | | | | | | **Minimize solid & hazardous waste through recycling & reuse** | | | |
| P1a | L | | | ✓ | | | | Develop a construction project waste management/recycling plan. | 3 | ☑ 3 | ☑ 3 |
| P1b | L | | | ✓ | | | | Operate a local government material/chemical reuse/redistribution center. | 1 | ☑ 1 | ☐ 0 |
| P1c | L | | | ✓ | | | | Operate a community tool lending library. | 1 | ☐ 0 | ☐ 0 |
| P1d | L | ✓ | | ✓ | ✓ | | ✓ | Maintain a green fleet program for department or entire local government. | 4 | ☑ 4 | 0 |
| P1e | L | | | | ✓ | | | Utilize integrated pest management. | 1 | ☑ 1 | ☐ 0 |
| **P2** | | | | | | | | **Minimize green house gas emissions** | | | |
| P2a | L | ✓ | | | | | | Operate local government alternative fueling station. | 1 | ☑ 1 | ☐ 0 |
| P2b | L | ✓ | | ✓ | | | | Earn waste reduction credit through the production of clean-burning fuels. | 1 | ☑ 1 | ☐ 0 |
| **P3** | | | | | | | | **Minimize local government energy use** | | | |
| P3a | L | ✓ | | | | | | Use LED traffic lights. | 1 | ☑ 1 | ☑ 1 |
| P3b | L | ✓ | | | | | | Utilize solar or other energy efficient streetlights. | 1 | ☑ 1 | ☐ 0 |
| P3c | L | ✓ | ✓ | | | | ✓ | Operate a Rebuild America program for the local government. | 1 | ☐ 0 | ☐ 0 |
| **P4** | | | | | | | | **Enhance storm water control and water conservation** | | | |
| P4a | L | | ✓ | | | | | Street sweeping. | 1 | ☑ 1 | ☑ 1 |
| P4b | L | | ✓ | | | | | Routine maintenance plan for maintenance of storm sewers. | 1 | ☑ 1 | ☑ 1 |
| P4c | L | | ✓ | | | | | Employ green landscaping procedures for local government facilities. | 1 | ☑ 1 | ☐ 0 |
| **P5** | | | | | | | | **Preserve/enhance street tree coverage** | | | |
| P5a | L | | ✓ | | | ✓ | ✓ | Become a Tree City USA. | 1 | ☑ 1 | ☑ 1 |
| **P6** | | | | | | | | **Reward innovation** | | | |
| P6a | C | | | | | | ✓ | Develop a reward program for employee environmental innovation in public works. | 1 | ☑ 1 | ☐ 0 |
| **P7** | | | | | | | | **Staff education** | | | |
| P7a | E | | | | | | ✓ | Offer green fleet management training to all applicable departments. | 1 | ☑ 1 | ☐ 0 |
| P7b | E | | | | | | ✓ | Train and certify select staff as certified arborists. | 1 | ☑ 1 | ☑ 1 |

# PUBLIC WORKS AND ENGINEERING

Public works, engineering, and storwater departments can achieve multiple environmental goals by greening in-house actions, and also outreach to other local government departments, as well as the community at large, to transfer knowldege.

| # | | EA (Energy & Air) | W (Water) | W (Waste) | H (Health) | LU (Land Use) | A (Awareness) | Credit Name | Maximum Possible Points | Maximum Applicable Points | Credit Points Achieved |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **P8** | | | | | | | | **Community Education** | | | |
| P8a | E | | ✓ | | | | ✓ | Community stormwater education campaign. | 1 | ☑ 1 | ☑ 1 |

L Lead by Example
C Control
E Education

**Maximum Possible Points Total** 23

**Maximum Applicable Points Total** 21

**Credit Points Achieved Total** 9

**Percent of Maximum Applicable Points Total** 42.9 %

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# SCHOOL BOARD

School systems can implement green concepts into buildings, land, and vehicles, while at the same time educating students.

| # | | EA (Energy & Air) | W (Water) | W (Waste) | H (Health) | LU (Land Use) | A (Awareness) | Credit Name | Maximum Possible Points | Maximum Applicable Points | Credit Points Achieved |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Q1** | | | | | | | | **Reduce green house gas** | | | |
| Q1a | L | ✓ | | | | | | Utilize alternative fuel for school busses. | 2 | ☐ 0 | ☐ 0 |
| **Q2** | | | | | | | | **Preserve / enhance habitat** | | | |
| Q2a | L | | ✓ | | | ✓ | | School grounds certified by environmental program. | 5 | ☐ 0 | 0 |
| **Q3** | | | | | | | | **Reduce solid waste** | | | |
| Q3a | L | ✓ | ✓ | ✓ | ✓ | | | School system utilizes a pollution prevention / EPP program. | 1 | ☐ 0 | ☐ 0 |
| Q3b | L | | | ✓ | | | | School equipment reuse program / swap shop. | 1 | ☐ 0 | ☐ 0 |
| Q3c | L | ✓ | ✓ | ✓ | ✓ | | | Operate and maintain a green fleet program. | 1 | ☐ 0 | ☐ 0 |
| **Q4** | | | | | | | | **Construct and maintain green buildings** | | | |
| Q4a | L | ✓ | ✓ | ✓ | ✓ | | | Green operation and maintenance of buildings. | 1 | ☐ 0 | ☐ 0 |
| Q4b | L | ✓ | ✓ | ✓ | ✓ | | | Construct / renovate green schools. | 10 | ☐ 0 | 0 |
| **Q5** | | | | | | | | **Green building becomes official policy** | | | |
| Q5a | C | ✓ | ✓ | ✓ | ✓ | ✓ | | Mandates for green buildings / green cleaning and maintenance. | 4 | ☐ 0 | 0 |
| **Q6** | | | | | | | | **Student education** | | | |
| Q6a | E | | | | | | ✓ | Involve students in green projects within the school. | 2 | ☐ 0 | ☐ 0 |
| Q6b | E | | | | | | ✓ | Involve students in green projects outside the school. | 2 | ☐ 0 | ☐ 0 |
| **Q7** | | | | | | | | **Staff education** | | | |
| Q7a | E | | | | | | ✓ | Incentives for environmental training of teachers over the summer. | 2 | ☐ 0 | ☐ 0 |

L Lead by Example
C Control
E Education

**Maximum Possible Points Total** 31

**Maximum Applicable Points Total** 0

**Credit Points Achieved Total** 0

**Percent of Maximum Applicable Points Total** #### %

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## SOLID WASTE

Solid waste departments can engauge in a number of activities to divert material from landfills.

| # | | Energy & Air EA | Water W | Waste W | Health H | Land Use LU | Awareness A | Credit Name | Maximum Possible Points | Maximum Applicable Points | Credit Points Achieved |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **R1** | | | | | | | | **Reduce local government solid waste** | | | |
| R1a | L | | | ✓ | | | ✓ | Become a partner in the EPA waste wise program. | 1 | ☑ 1 | ☐ 0 |
| R1b | L | | | ✓ | | | | City/county wide chemical/hazardous waste collection. | 1 | ☑ 1 | ☑ 1 |
| R1c | L | | | ✓ | | | ✓ | Operate public reuse store / swap shop. | 1 | ☑ 1 | ☐ 0 |
| R1d | L | | | ✓ | | | | C&D separation for recycling at landfill (pallets,metals,carpet padding,cement,etc.) . | 1 | ☑ 1 | ☑ 1 |
| R1e | L | | | ✓ | | | | Offer recycled paint back to community. | 1 | ☑ 1 | ☐ 0 |
| R1f | L | ✓ | | | | | | Landfill gas recovery. | 1 | ☐ 0 | ☐ 0 |
| R1g | L | | | ✓ | | | | Develop a disaster waste management plan. | 1 | ☑ 1 | ☑ 1 |
| **R2** | | | | | | | | **Monitor and track green building** | | | |
| R2a | L | | | ✓ | | | | Curbside recycling for homes and businesses. | 1 | ☑ 1 | ☑ 1 |
| R2b | L | | | ✓ | | | ✓ | Monitor types and amounts of material entering landfill. | 1 | ☑ 1 | ☑ 1 |
| **R3** | | | | | | | | **Preserve / Enhance habitat** | | | |
| R3a | L | | | | | ✓ | | Closed landfill management. | 1 | ☐ 0 | ☐ 0 |
| **R4** | | | | | | | | **Local business incentives / regulations** | | | |
| R4a | C | | | ✓ | | | | Incentives for local businesses who utilize EPP or other solid waste reduction strategy. | 1 | ☑ 1 | ☐ 0 |
| R4b | C | | | ✓ | | | | Mandatory recycling of typical recyclables and C&D debris for homes and businesses. | 1 | ☑ 1 | ☐ 0 |
| **R5** | | | | | | | | **Minimize solid waste generation** | | | |
| R5a | C | | | ✓ | | | ✓ | Volume based or special rates for solid waste collection. | 1 | ☑ 1 | ☑ 1 |
| R5b | C | | | ✓ | | | | Offer mulched yard waste to community. | 1 | ☑ 1 | ☑ 1 |
| **R6** | | | | | | | | **Community education** | | | |
| R6a | E | | | ✓ | | | ✓ | Teach EPP / recycling to local businesses. | 1 | ☑ 1 | ☐ 0 |
| R6b | E | | | ✓ | | | ✓ | Develop education program for solid waste management. | 1 | ☑ 1 | ☐ 0 |
| **R7** | | | | | | | | **Staff education** | | | |
| R7a | E | | | | | | ✓ | Conduct a customer waste survey. | 1 | ☑ 1 | ☑ 1 |

## SOLID WASTE

Solid waste departments can engauge in a number of activities to divert material from landfills.

| # | Energy & Air (EA) | Water (W) | Waste (W) | Health (H) | Land Use (LU) | Awareness (A) | Credit Name | Maximum Possible Points | Maximum Applicable Points | Credit Points Achieved |
|---|---|---|---|---|---|---|---|---|---|---|

L Lead by Example
C Control
E Education

**Maximum Possible Points Total** 17

**Maximum Applicable Points Total** 15

**Credit Points Achieved Total** 8

**Percent of Maximum Applicable Points Total** 53.3 %

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## WATER AND WASTEWATER

Water and wastewater utilities can achieve local government environmental goals through plant operation, and though innovative means to inform the public about their water use.

| # | | Energy & Air (EA) | Water (W) | Waste (W) | Health (H) | Land Use (LU) | Awareness (A) | Credit Name | Maximum Possible Points | Maximum Applicable Points | Credit Points Achieved |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **S1** | | | | | | | | **Plant operations aimed at environmental performance** | | | |
| S1a | L | | ✓ | | | | ✓ | Seek FLDEP plant operations excellence award. | 2 | ☑ 2 | ☐ 0 |
| S1b | L | | ✓ | | | | | Create a reclaimed water infrastructure. | 2 | ☑ 2 | ☑ 2 |
| **S2** | | | | | | | | **Reduce energy use** | | | |
| S2a | L | ✓ | | | | | | Conduct energy audit of treatment facilities. | 1 | ☑ 1 | ☑ 1 |
| S2b | L | ✓ | | | | | | Use cogeneration. | 1 | ☑ 1 | ☐ 0 |
| **S3** | | | | | | | | **Reduce solid and hazardous waste** | | | |
| S3a | L | | | ✓ | | | | Use recycled bill envelopes. | 1 | ☑ 1 | ☐ 0 |
| **S4** | | | | | | | | **Reduce water use** | | | |
| S4a | C | | ✓ | | | | ✓ | Utilize rate structures based on consumption. | 1 | ☑ 1 | ☑ 1 |
| S4b | C | | ✓ | | | | | Low flow fixture rebates. | 1 | ☑ 1 | ☑ 1 |
| S4c | C | | ✓ | | | | ✓ | Enforce watering restrictions during meter reads. | 1 | ☑ 1 | ☐ 0 |
| S4d | C | | ✓ | | | | | Require metering of shallow aquifer removal and sub-metering of multi-family housing. | 1 | ☑ 1 | ☐ 0 |
| **S5** | | | | | | | | **Community education** | | | |
| S5a | E | | ✓ | | | | ✓ | Utilize informative billing. | 1 | ☑ 1 | ☑ 1 |
| S5b | E | | | | | | ✓ | Distribute printed material or create internet content detailing water wastewater source. | 1 | ☑ 1 | ☑ 1 |
| S5c | E | | | | | | ✓ | Create an education campaign for water use reduction (xeriscape, rainwater, etc.). | 1 | ☑ 1 | ☑ 1 |
| S5d | E | | ✓ | | | | ✓ | Maintain an on-call water quality program. | 1 | ☑ 1 | ☐ 0 |
| S5e | E | | ✓ | | | | ✓ | Become part of groundwater guardian program. | 1 | ☑ 1 | ☐ 0 |
| S5f | E | | ✓ | | | | ✓ | Offer home and business audits. | 1 | ☑ 1 | ☐ 0 |
| S5g | E | | ✓ | | | | ✓ | Enable customers to track and analyze their usage via the internet. | 1 | ☑ 1 | ☑ 1 |

# WATER AND WASTEWATER

Water and wastewater utilities can achieve local government environmental goals through plant operation, and though innovative means to inform the public about their water use.

| # | Energy & Air | Water | Waste | Health | Land Use | Awareness | Credit Name | Maximum Possible Points | Maximum Applicable Points | Credit Points Achieved |
|---|---|---|---|---|---|---|---|---|---|---|

L Lead by Example
C Control
E Education

**Maximum Possible Points Total** 18

**Maximum Applicable Points Total** 18

**Credit Points Achieved Total** 9

**Percent of Maximum Applicable Points Total** 50 %

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# Florida Green Local Government Standard Filter Tool

Use this sheet to create custom reports to facilitate tracking of progress
or distribution of criteria lists to individuals or departments.

| # | | EA (Energy & Air) | W (Water) | W (Waste) | H (Health) | LU (Land Use) | A (Awareness) | Credit Name | MPP | MAP | CPA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A1a | L | | | | | | ✓ | Write or re-write mission statement to include environmental commitment. | 2 | ✓ 2 | 0 |
| A1b | L | | | | | | ✓ | Incorporate the mission statement into the local government's comprehensive plan. | 3 | ✓ 3 | 0 |
| A2a | L | ✓ | | | | | ✓ | Monitor and track local government energy use. | 1 | ✓ 1 | 0 |
| A2b | L | ✓ | | | | | | Develop a local government energy reduction plan. | 1 | ✓ 1 | 0 |
| A2c | L | | ✓ | | | | ✓ | Monitor and track local government water use. | 1 | ✓ 1 | 0 |
| A2d | L | | ✓ | | | | | Develop a local government water reduction plan. | 1 | ✓ 1 | 0 |
| A2e | L | | | ✓ | | | ✓ | Monitor and track local government solid waste generation/ recycling rates. | 1 | ✓ 1 | 0 |
| A2f | L | | | ✓ | | | | Develop a local government solid/hazardous waste reduction plan. | 1 | ✓ 1 | 0 |
| A2g | L | | | ✓ | ✓ | | ✓ | Develop an EPP program for the local government. | 1 | ✓ 1 | 0 |
| A2h | L | | | ✓ | ✓ | | | Encourage EPP program implementation. | 5 | ✓ 5 | 0 |
| A3a | L | ✓ | | | | | | Participate in Cities for Climate Protection Campaign. | 1 | ✓ 1 | 0 |
| A3b | L | ✓ | | | | | | Alternative Fuel Vehicle purchase. | 3 | ✓ 3 | 0 |
| A4a | L | | | | | | ✓ | Become a member of FGBC. | 1 | ✓ 1 | 0 |
| A4b | L | | | | | | ✓ | Become a member of USGBC. | 1 | ✓ 1 | 0 |
| A4c | L | ✓ | ✓ | ✓ | ✓ | ✓ | | Construct LEED or FGBC certified buildings or renovate for LEED EB or CI. | 10 | ✓ 10 | 0 |
| A4d | L | ✓ | ✓ | ✓ | ✓ | | | Employ green cleaning and maintenance procedures. | 5 | ✓ 5 | 0 |
| A5a | L | | | | | | ✓ | Maintain an office, person, or group to coordinate current and future green activities. | 3 | ✓ 3 | ✓ 3 |
| A6a | C | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | Adopt an green standard as official minimum criteria for new govt. buildings. | 10 | ✓ 10 | 0 |
| A6b | C | ✓ | ✓ | ✓ | ✓ | | | Adopt green cleaning/maintenance practices available from DEP. | 5 | ✓ 5 | 0 |
| A6c | C | | ✓ | | | | | Enact green landscaping ordinance for local government buildings. | 1 | ✓ 1 | 0 |
| A7a | E | | | | | | ✓ | Budget for publicity / education related to the govt's commitment to green. | 1 | ✓ 1 | 0 |
| A8a | E | | | | | | ✓ | Organize green building education for local government staff. | 1 | ✓ 1 | ✓ 1 |
| B1a | L | | ✓ | | | | ✓ | Certified Florida friendly landscapes within the city/county. | 10 | 0 | 0 |
| B2a | C | ✓ | ✓ | ✓ | ✓ | | ✓ | Offer free or discounted green products to the public. | 6 | 0 | 0 |
| B3a | C | | ✓ | | | ✓ | | Offer incentives to create organic farms, or sustainable/water efficient agriculture. | 5 | 0 | 0 |
| B4a | E | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | Offer green building or green local government education to the community. | 1 | 0 | 0 |
| B4b | E | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | Provide green building or green local government education materials. | 1 | 0 | 0 |
| B4c | E | | ✓ | | | | ✓ | Maintain active FY&N program or other home owner/builder/developer outreach program. | 1 | 0 | 0 |
| B4d | E | | | | | | ✓ | Maintain an active student/teacher education program. | 1 | 0 | 0 |
| B5a | E | | ✓ | | | | ✓ | Offer promotion and education of water conservation within the agricultural sector. | 1 | 0 | 0 |
| B5b | E | | ✓ | | | ✓ | ✓ | Offer education on organic farming, permaculture and sustainable agriculture. | 1 | 0 | 0 |
| C1a | L | | | | | | ✓ | Create and maintain an electronic database of all building energy code compliance. | 5 | ✓ 5 | 0 |
| C1b | L | | | | | | ✓ | Create and maintain an electronic database of all green and energy ratings. | 5 | ✓ 5 | 0 |
| C2a | C | | | | | | ✓ | Adopt FGBC or LEED green standards as official green standards of the city/county. | 2 | ✓ 2 | 0 |

# Florida Green Local Government Standard Filter Tool

Use this sheet to create custom reports to facilitate tracking of progress
or distribution of criteria lists to individuals or departments.

| # | | EA (Energy & Air) | W (Water) | W (Waste) | H (Health) | LU (Land Use) | A (Awareness) | Credit Name | MPP | MAP | | CPA | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C2b | C | ✓ | ✓ | ✓ | ✓ | ✓ | | Offer an incentive(s) for FGBC or LEED certified commercial and institutional buildings. | 4 | ✓ | 4 | | 0 |
| C2c | C | ✓ | ✓ | ✓ | ✓ | ✓ | | Offer an incentive(s) for FGBC or Energy Star certified green homes. | 4 | ✓ | 4 | | 0 |
| C2d | C | ✓ | ✓ | ✓ | ✓ | ✓ | | Offer an incentive(s) for FGBC certified green developments. | 4 | ✓ | 4 | | 0 |
| C3a | C | | | | | ✓ | | Require mitigation for consumption of natural habitat or resources. | 5 | ✓ | 5 | ✓ | 1 |
| C3b | C | | ✓ | | | ✓ | | Enact and enforce a tree preservation or land-clearing ordinance. | 1 | ✓ | 1 | ✓ | 1 |
| C3c | C | ✓ | | | | ✓ | | Regulate impervious parking surfaces. | 1 | ✓ | 1 | | 0 |
| C3d | C | | ✓ | | | | | Enact a septic system replacement ordinance. | 1 | ✓ | 1 | ✓ | 1 |
| C4a | C | | ✓ | | | | | Enact a rain sensor ordinance applicable to all functioning automatic irrigation systems. | 1 | ✓ | 1 | | 0 |
| C4b | C | | ✓ | | | | | Enact a landscaping ordinance for new construction. | 1 | ✓ | 1 | ✓ | 1 |
| C5a | E | | | | | | ✓ | Require key staff to complete approved course in green building on a bi-annual basis. | 1 | ✓ | 1 | | 0 |
| C6a | E | | | | | | ✓ | Offer classes to industry that detail any green incentives or regulations present. | 1 | ✓ | 1 | | 0 |
| C6b | E | | | | | | ✓ | Offer incentives for local professionals to attend green building classes offered by others. | 1 | ✓ | 1 | | 0 |
| C6c | E | | | | | | ✓ | Conduct a green building awards program. | 1 | ✓ | 1 | | 0 |
| C7a | E | | | | | | ✓ | Publicity and case studies for green building. | 1 | ✓ | 1 | | 0 |
| D1a | L | | | | | | ✓ | Team with tourism department on eco-tourism campaign. | 1 | ✓ | 1 | | 0 |
| D1b | L | | | | | | ✓ | Track amount of tourism that takes part in eco-related activities. | 1 | ✓ | 1 | | 0 |
| D2a | L | ✓ | | | | ✓ | ✓ | Achieve Florida Main Street Designation. | 1 | ✓ | 1 | ✓ | 1 |
| D3a | C | ✓ | ✓ | ✓ | ✓ | ✓ | | Incentives for location of green businesses within city/county. | 1 | ✓ | 1 | | 0 |
| D3b | C | ✓ | ✓ | ✓ | ✓ | ✓ | | Offer special promotion for local eco-hotels. | 1 | ✓ | 1 | | 0 |
| D4a | C | | | | | ✓ | | Incentives for green redevelopment. | 2 | ✓ | 2 | | 0 |
| D5a | C | | | | | ✓ | ✓ | Develop a historic preservation ordinance. | 1 | ✓ | 1 | ✓ | 1 |
| D5b | C | | | | | ✓ | ✓ | Develop funding mechanism to aid with historic preservation. | 1 | ✓ | 1 | | 0 |
| E1a | L | ✓ | | | | | | Use of AFV and/or bicycle patrol for urban/neighborhood areas. | 1 | ✓ | 1 | ✓ | 1 |
| E1b | L | ✓ | | | | | | Use renewable energy as backup / emergency power. | 1 | ✓ | 1 | ✓ | 1 |
| E2a | L | ✓ | | ✓ | | | | Maintain green fleets. | 3 | ✓ | 3 | ✓ | 2 |
| E2b | L | | | ✓ | | | | Firing ranges utilize non-lead bullets or trap and collect fragments. | 1 | ✓ | 1 | | 0 |
| E2c | L | | ✓ | ✓ | | | | Minimize photo-processing waste. | 1 | | 0 | | 0 |
| E3a | L | | ✓ | | | | | Fire departments review training operations and conserve water where appropriate. | 1 | ✓ | 1 | | 0 |
| E4a | C | | | ✓ | | | | Incentives for disaster mitigation. | 1 | ✓ | 1 | | 0 |
| E5a | E | | | ✓ | | | ✓ | Offer mitigation audits to homes, businesses, and local government buildings. | 1 | ✓ | 1 | | 0 |
| E5b | E | | | | | | ✓ | Create an education campaign for mitigation. | 1 | ✓ | 1 | | 0 |
| E6a | E | | | | | | ✓ | Police trained in crime prevention through environmental design. | 1 | ✓ | 1 | ✓ | 1 |
| E6b | E | | | | | ✓ | ✓ | Public safety staff attend training on Healthy Street design. | 1 | ✓ | 1 | ✓ | 1 |
| F1a | L | ✓ | ✓ | ✓ | ✓ | | | Offer green power. | 1 | ✓ | 1 | | 0 |

# Florida Green Local Government Standard Filter Tool

Use this sheet to create custom reports to facilitate tracking of progress
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| # | | Energy & Air EA | Water W | Waste W | Health H | Land Use LU | Awareness A | Credit Name | MPP | MAP | CPA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| F1b | L | | | | | | ✓ | Certify renewable electricity products under Center for Resource Solutions. | 1 | ✓ 1 | 0 |
| F1c | L | | | | | | ✓ | Voluntary funding of green power through customer billing. | 1 | ✓ 1 | 0 |
| F1d | L | | | | | | ✓ | Become an Energy Star ally. | 1 | ✓ 1 | 0 |
| F2a | L | | | ✓ | | | | Actively promote fly ash / blast furnace slag source. | 1 | ✓ 1 | 0 |
| F2b | L | | | ✓ | | | | Utilize recycled billing envelopes. | 1 | ✓ 1 | ✓ 1 |
| F2c | L | | | ✓ | | | | Enable customers to make online bill payments. | 1 | ✓ 1 | ✓ 1 |
| F3a | C | ✓ | | | | | | Offer distributed generation incentives. | 1 | ✓ 1 | 0 |
| F3b | C | ✓ | | | | | ✓ | Offer energy audits. | 1 | ✓ 1 | 0 |
| F3c | C | ✓ | | | | | | Commercial building incentives. | 1 | ✓ 1 | 0 |
| F3d | C | ✓ | | | | | | Residential building incentives. | 1 | ✓ 1 | 0 |
| F3e | C | ✓ | | | | | ✓ | Rate structures based on consumption. | 1 | ✓ 1 | 0 |
| F4a | E | | | | | | ✓ | Informative billing. | 1 | ✓ 1 | 0 |
| F4b | E | | | | | | ✓ | Take part in any speakers bureau or sponsor workshops. | 1 | ✓ 1 | 0 |
| F4c | E | | | | | | ✓ | Emissions info posted on website. | 1 | ✓ 1 | 0 |
| F4d | E | | | | | | ✓ | Enable customers to track and analyze their usage via the internet. | 1 | ✓ 1 | 0 |
| F5a | E | | | | | | ✓ | Send appropriate staff for training related to distributed generation. | 1 | ✓ 1 | 0 |
| F5b | E | | | | | | ✓ | Send appropriate staff for energy audit training. | 1 | ✓ 1 | 0 |
| G1a | L | ✓ | ✓ | ✓ | ✓ | | | Construct/renovate green buildings | 20 | ✓ 20 | 0 |
| G2a | C | ✓ | ✓ | ✓ | ✓ | | ✓ | Affordable housing constructed by city/county and other parties mandated green. | 1 | ✓ 1 | 0 |
| G2b | C | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | Offer incentives for construction of green affordable housing. | 1 | ✓ 1 | 0 |
| G2c | C | ✓ | | | ✓ | ✓ | ✓ | Offer incentives for location efficient affordable housing. | 1 | ✓ 1 | 0 |
| G3a | C | ✓ | ✓ | ✓ | ✓ | | | Remodeling of affordable housing mandated green. | 1 | ✓ 1 | 0 |
| G4a | E | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | Offer orientation classes for residents of affordable housing or refer to existing courses. | 1 | ✓ 1 | 0 |
| G5a | E | | ✓ | | | | ✓ | Applicable staff complete CEU approved course in green building on a bi-annual basis. | 1 | ✓ 1 | 0 |
| H1a | C | ✓ | | | ✓ | | | Alternative commuting incentives for local government employees. | 2 | ✓ 2 | 0 |
| H2a | C | | | ✓ | | | ✓ | Provide reusable mug / water bottle to all employees. | 1 | ✓ 1 | ✓ 1 |
| H3a | E | | | | | | ✓ | New employee orientation includes general city/county commitment to environment. | 1 | ✓ 1 | 0 |
| H3b | E | | | | | | ✓ | Conduct or refer to special training on one or more green city/county programs. | 5 | ✓ 5 | 0 |
| I1a | L | | | ✓ | | | | Operate local government computer and equipment reuse center | 1 | ✓ 1 | 0 |
| I1b | L | | | ✓ | | | | Recycling of end-of-life electronic equipment | 1 | ✓ 1 | 0 |
| I2a | C | ✓ | | | | | ✓ | Enact local government policy so all computer/ancillary equipment is off when not in use | 1 | ✓ 1 | ✓ 1 |
| I2b | C | ✓ | | | | | ✓ | Enact policy so all computer electronic equipment purchased has conservation features | 1 | ✓ 1 | 0 |
| I3a | E | | | | | | ✓ | Operate website dedicated to green city/county program | 1 | ✓ 1 | 0 |
| I3b | E | | | | | | ✓ | Develop environmental education content for city/county websites, tv programs, etc. | 1 | ✓ 1 | ✓ 1 |

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| # | | EA (Energy & Air) | W (Water) | W (Waste) | H (Health) | LU (Land Use) | A (Awareness) | Credit Name | MPP | MAP | | CPA | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| I4a | E | ✓ | | | | | ✓ | Conduct regular education on energy use/energy savings modes for in-house equipment | 1 | ✓ | 1 | | 0 |
| J1a | L | | ✓ | | | | ✓ | Become a designated Waterfronts Florida community | 1 | ✓ | 1 | ✓ | 1 |
| J1b | L | | ✓ | | | ✓ | ✓ | Become an Audubon Sustainable Community | 1 | ✓ | 1 | ✓ | 1 |
| J1c | L | | | | | ✓ | | Create an endangered lands conservation / purchasing program | 1 | | 0 | | 0 |
| J1d | L | | | | | ✓ | ✓ | Certify community under National Wildlife Federation Wildlife Habitat program | 1 | ✓ | 1 | ✓ | 1 |
| J1e | L | | | | | ✓ | | Develop & implement plans for species removal throughout public lands | 1 | ✓ | 1 | ✓ | 1 |
| J2a | L | | | | | | ✓ | Become a member of FLERA | 1 | ✓ | 1 | ✓ | 1 |
| J3a | C | ✓ | | | | | | Offer local tax based or other AFV incentives | 1 | | 0 | | 0 |
| J3b | C | ✓ | | | | | | Enact automobile emissions regulations for vehicles registered in county | 1 | | 0 | | 0 |
| J3c | C | ✓ | | | | | | Require vapor controls at all gas stations | 1 | | 0 | | 0 |
| J3d | C | ✓ | | | | | | Enact open burning regulations | 1 | ✓ | 1 | ✓ | 1 |
| J4a | C | | | | | ✓ | | Coastal areas to enact sea turtle ordinance | 1 | ✓ | 1 | ✓ | 1 |
| J4b | C | | | | | ✓ | | Enact a manatee protection plan | 1 | ✓ | 1 | ✓ | 1 |
| J4c | C | | | | | ✓ | | Develop a boat facility siting plan | 1 | ✓ | 1 | ✓ | 1 |
| J5a | C | | ✓ | | | | | Enact car wash standards | 1 | ✓ | 1 | ✓ | 1 |
| J5b | C | | ✓ | | | | | Enact fountain / water feature standards | 1 | ✓ | 1 | ✓ | 1 |
| J6a | E | | | | | ✓ | ✓ | Pertinent local GIS and other data on city/county website | 1 | ✓ | 1 | ✓ | 1 |
| J6b | E | ✓ | | | | | ✓ | Air quality index on website | 1 | ✓ | 1 | | 0 |
| J6c | E | | ✓ | | | | ✓ | Results from water quality testing on website | 1 | ✓ | 1 | | 0 |
| J6d | E | | | | | | ✓ | Operate an environmental demonstration / learning center | 1 | ✓ | 1 | ✓ | 1 |
| K1a | L | | | | ✓ | ✓ | ✓ | Maintain organic community gardens | 1 | ✓ | 1 | | 0 |
| K1b | L | | | | ✓ | | | Minimize chlorine in community swimming pools | 1 | ✓ | 1 | | 0 |
| K1c | L | ✓ | | | ✓ | | | Install appropriate bicycle security at all public amenities | 1 | ✓ | 1 | | 0 |
| K1d | L | | ✓ | | | ✓ | ✓ | Public golf courses are Audubon certified | 2 | ✓ | 2 | | 0 |
| K1e | L | | ✓ | | | | ✓ | Apply Florida Friendly landsapcing principles at public amenities. | 1 | ✓ | 1 | | 0 |
| K1f | L | ✓ | | | | ✓ | | Minimize heat effect/stormwater runoff of trees, highly reflective materials, or surface | 1 | ✓ | 1 | | 0 |
| K1g | L | | ✓ | | | | ✓ | Public beaches adhere to Blue Wave Campaign criteria | 5 | ✓ | 5 | ✓ | 2 |
| K1h | L | | | ✓ | | | ✓ | Implement recycling stations for plastic, glass, and aluminum containers at all areas | 1 | ✓ | 1 | | 0 |
| K1i | L | ✓ | | | | | | Implement energy efficient lighting & controls for outdoor courts, parks, and playfields | 1 | ✓ | 1 | | 0 |
| K2a | E | | | | | | ✓ | Each staff member trained in an area related to their function on a bi-annual basis | 1 | ✓ | 1 | | 0 |
| K3a | E | | | | | | ✓ | Place signs and/or brochures at green features of public amenities for their benefits | 1 | ✓ | 1 | | 0 |
| L1a | L | | | | | ✓ | ✓ | Develop a system of sustainable community indicators related to local govt. planning | 1 | ✓ | 1 | | 0 |
| L1b | L | | | | | ✓ | ✓ | Link indicators to a GIS system | 1 | ✓ | 1 | | 0 |
| L1c | L | | | | | | ✓ | Assist other departments with the tracking of indicators related to their function | 5 | ✓ | 5 | | 0 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L2a | L | ✓ | | | ✓ | | ✓ | Maintain a bicycle / pedestrian coordinator on staff | 1 | ✓ | 1 | ✓ | 1 |
| L2b | L | ✓ | | | ✓ | ✓ | ✓ | Implement FDOT “12 Steps Towards Walkable Communities” into planning process | 1 | ✓ | 1 | | 0 |
| L2c | L | ✓ | | | ✓ | ✓ | ✓ | Healthy street design is official local government policy | 1 | ✓ | 1 | | 0 |
| L3a | C | | | | | ✓ | | Develop urban area boundaries | 1 | ✓ | 1 | | 0 |
| L3b | C | ✓ | | | ✓ | ✓ | | Encourage mixed-use zoning / development | 1 | ✓ | 1 | ✓ | 1 |
| L3c | C | | ✓ | | | ✓ | | Maintain or reduce net impervious surface area through zoning decisions | 1 | ✓ | 1 | ✓ | 1 |
| L4a | E | | | | | | ✓ | Organize green building seminars and/or training sessions for staff and elected officials | 1 | ✓ | 1 | ✓ | 1 |
| M1a | L | ✓ | ✓ | ✓ | | | ✓ | Take part in Florida Clean Marina program | 1 | ✓ | 1 | ✓ | 1 |
| M1b | L | | ✓ | | | ✓ | ✓ | Implement advanced stormwater controls and waterfront considerations | 1 | ✓ | 1 | | 0 |
| M2a | C | ✓ | ✓ | ✓ | ✓ | | ✓ | Offer low pollution engine incentives | 1 | ✓ | 1 | | 0 |
| M3a | E | | | | | ✓ | | Host boater education classes | 1 | ✓ | 1 | | 0 |
| N1a | L | | | | | | ✓ | Include green features / ratings of homes in database | 2 | | 0 | | 0 |
| N2a | C | ✓ | ✓ | ✓ | ✓ | ✓ | | Tax incentives for certified green properties | 2 | | 0 | | 0 |
| N2b | C | | ✓ | | | ✓ | | Tax incentives for lands qualifying as historic, high water recharge, greenbelt, etc. | 2 | | 0 | | 0 |
| N3a | E | | | | | | ✓ | Green education to local lending / real estate industry | 1 | | 0 | | 0 |
| O1a | L | ✓ | | | | | | Utilize alternative fuels for fleet | 2 | | 0 | | 0 |
| O1b | L | ✓ | | | ✓ | | ✓ | Institute a bicycle commuter assistance program | 1 | ✓ | 1 | | 0 |
| O1c | L | ✓ | | | ✓ | | | Make amends for vehicles to accommodate bicycles | 1 | ✓ | 1 | | 0 |
| O1d | L | ✓ | | | ✓ | | | Engage in carpool/vanpool assistance | 1 | ✓ | 1 | | 0 |
| O2a | L | | | | | | ✓ | Analyze transportation routes to determine connectivity to bicycle & pedestrian network | 1 | ✓ | 1 | | 0 |
| O3a | L | ✓ | ✓ | ✓ | | | | Operate a green fleet | 1 | | 0 | | 0 |
| O4a | E | ✓ | | | ✓ | | ✓ | Provide public transportation route searching via the internet | 1 | | 0 | | 0 |
| O4b | E | | | | | | ✓ | Provide information about alternative commuting on website | 1 | ✓ | 1 | | 0 |
| P1a | L | | | ✓ | | | | Develop a construction project waste management/recycling plan | 3 | ✓ | 3 | ✓ | 3 |
| P1b | L | | | ✓ | | | | Operate a local government material/chemical reuse/redistribution center | 1 | ✓ | 1 | | 0 |
| P1c | L | | | ✓ | | | | Operate a community tool lending library | 1 | | 0 | | 0 |
| P1d | L | ✓ | | ✓ | ✓ | | ✓ | Maintain a green fleet program for department or entire local government | 4 | ✓ | 4 | | 0 |
| P1e | L | | | | ✓ | | | Utilize integrated pest management | 1 | ✓ | 1 | | 0 |
| P2a | L | ✓ | | | | | | Operate local government alternative fueling station | 1 | ✓ | 1 | | 0 |
| P2b | L | ✓ | | ✓ | | | | Earn waste reduction credit through the production of clean-burning fuels | 1 | ✓ | 1 | | 0 |
| P3a | L | ✓ | | | | | | Use LED traffic lights | 1 | ✓ | 1 | ✓ | 1 |
| P3b | L | ✓ | | | | | | Utilize solar or other energy efficient streetlights | 1 | ✓ | 1 | | 0 |
| P3c | L | ✓ | ✓ | | | | ✓ | Operate a Rebuild America program for the local government | 1 | | 0 | | 0 |
| P4a | L | | ✓ | | | | | Street sweeping | 1 | ✓ | 1 | ✓ | 1 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| P4b | L | | ✓ | | | | | Routine maintenance plan for maintenance of storm sewers | 1 | ✓ 1 | ✓ 1 |
| P4c | L | | ✓ | | | | | Employ green landscaping procedures for local government facilities | 1 | ✓ 1 | 0 |
| P5a | L | | ✓ | | | ✓ | ✓ | Become a Tree City USA | 1 | ✓ 1 | ✓ 1 |
| P6a | C | | | | | | ✓ | Develop a reward program for employee environmental innovation in public works | 1 | ✓ 1 | 0 |
| P7a | E | | | | | | ✓ | Offer green fleet management training to all applicable departments | 1 | ✓ 1 | 0 |
| P7b | E | | | | | | ✓ | Train and certify select staff as certified arborists | 1 | ✓ 1 | ✓ 1 |
| P8a | E | | ✓ | | | | ✓ | Community stormwater education campaign | 1 | ✓ 1 | ✓ 1 |
| Q1a | L | ✓ | | | | | | Utilize alternative fuel for school busses | 2 | 0 | 0 |
| Q2a | L | | ✓ | | | ✓ | | School grounds certified by environmental program | 5 | 0 | 0 |
| Q3a | L | ✓ | ✓ | ✓ | ✓ | | | School system utilizes a pollution prevention / EPP program | 1 | 0 | 0 |
| Q3b | L | | | ✓ | | | | School equipment reuse program / swap shop | 1 | 0 | 0 |
| Q3c | L | ✓ | ✓ | ✓ | ✓ | | | Operate and maintain a green fleet program | 1 | 0 | 0 |
| Q4a | L | ✓ | ✓ | ✓ | ✓ | | | Green operation and maintenance of buildings | 1 | 0 | 0 |
| Q4b | L | ✓ | ✓ | ✓ | ✓ | | | Construct / renovate green schools | 10 | 0 | 0 |
| Q5a | C | ✓ | ✓ | ✓ | ✓ | ✓ | | Mandates for green buildings / green cleaning and maintenance | 4 | 0 | 0 |
| Q6a | E | | | | | | ✓ | Involve students in green projects within the school | 2 | 0 | 0 |
| Q6b | E | | | | | | ✓ | Involve students in green projects outside the school | 2 | 0 | 0 |
| Q7a | E | | | | | | ✓ | Incentives for environmental training of teachers over the summer | 2 | 0 | 0 |
| R1a | L | | | ✓ | | | ✓ | Become a partner in the EPA waste wise program | 1 | ✓ 1 | 0 |
| R1b | L | | | ✓ | | | | City/county wide chemical/hazardous waste collection | 1 | ✓ 1 | ✓ 1 |
| R1c | L | | | ✓ | | | ✓ | Operate public reuse store / swap shop | 1 | ✓ 1 | 0 |
| R1d | L | | | ✓ | | | | C&D separation for recycling at landfill (pallets,metals,carpet padding,cement,etc.) | 1 | ✓ 1 | ✓ 1 |
| R1e | L | | | ✓ | | | | Offer recycled paint back to community | 1 | ✓ 1 | 0 |
| R1f | L | ✓ | | | | | | Landfill gas recovery | 1 | 0 | 0 |
| R1g | L | | | ✓ | | | | Develop a disaster waste management plan | 1 | ✓ 1 | ✓ 1 |
| R2a | L | | | ✓ | | | | Curbside recycling for homes and businesses | 1 | ✓ 1 | ✓ 1 |
| R2b | L | | | ✓ | | | ✓ | Monitor types and amounts of material entering landfill | 1 | ✓ 1 | ✓ 1 |
| R3a | L | | | | | ✓ | | Closed landfill management | 1 | 0 | 0 |
| R4a | C | | | ✓ | | | | Incentives for local businesses who utilize EPP or other solid waste reduction strategy | 1 | ✓ 1 | 0 |
| R4b | C | | | ✓ | | | | Mandatory recycling of typical recyclables and C&D debris for homes and businesses | 1 | ✓ 1 | 0 |
| R5a | C | | | ✓ | | | ✓ | Volume based or special rates for solid waste collection | 1 | ✓ 1 | ✓ 1 |
| R5b | C | | | ✓ | | | | Offer mulched yard waste to community | 1 | ✓ 1 | ✓ 1 |
| R6a | E | | | ✓ | | | ✓ | Teach EPP / recycling to local businesses | 1 | ✓ 1 | 0 |
| R6b | E | | | ✓ | | | ✓ | Develop education program for solid waste management | 1 | ✓ 1 | 0 |

# Florida Green Local Government Standard Filter Tool

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| # | | EA (Energy & Air) | W (Water) | W (Waste) | H (Health) | LU (Land Use) | A (Awareness) | Credit Name | MPP | MAP | CPA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| R7a | E | | | | | | ✓ | Conduct a customer waste survey | 1 | ✓ 1 | ✓ 1 |
| S1a | L | | ✓ | | | | ✓ | Seek FLDEP plant operations excellence award | 2 | ✓ 2 | 0 |
| S1b | L | | ✓ | | | | | Create a reclaimed water infrastructure | 2 | ✓ 2 | ✓ 2 |
| S2a | L | ✓ | | | | | | Conduct energy audit of treatment facilities | 1 | ✓ 1 | ✓ 1 |
| S2b | L | ✓ | | | | | | Use cogeneration | 1 | ✓ 1 | 0 |
| S3a | L | | | ✓ | | | | Use recycled bill envelopes | 1 | ✓ 1 | 0 |
| S4a | C | | ✓ | | | | ✓ | Utilize rate structures based on consumption | 1 | ✓ 1 | ✓ 1 |
| S4b | C | | ✓ | | | | | Low flow fixture rebates | 1 | ✓ 1 | ✓ 1 |
| S4c | C | | ✓ | | | | ✓ | Enforce watering restrictions during meter reads | 1 | ✓ 1 | 0 |
| S4d | C | | ✓ | | | | | Require metering of shallow aquifer removal and sub-metering of multi-family housing | 1 | ✓ 1 | 0 |
| S5a | E | | ✓ | | | | ✓ | Utilize informative billing | 1 | ✓ 1 | ✓ 1 |
| S5b | E | | | | | | ✓ | Distribute printed material or create internet content detailing water wastewater source | 1 | ✓ 1 | ✓ 1 |
| S5c | E | | | | | | ✓ | Create an education campaign for water use reduction (xeriscape, rainwater, etc.) | 1 | ✓ 1 | ✓ 1 |
| S5d | E | | ✓ | | | | ✓ | Maintain an on-call water quality program | 1 | ✓ 1 | 0 |
| S5e | E | | ✓ | | | | ✓ | Become part of groundwater guardian program | 1 | ✓ 1 | 0 |
| S5f | E | | ✓ | | | | ✓ | Offer home and business audits | 1 | ✓ 1 | 0 |
| S5g | E | | ✓ | | | | ✓ | Enable customers to track and analyze their usage via the internet | 1 | ✓ 1 | ✓ 1 |

L Lead by Example
C Control
E Education

*Florida Green Building Coalition, Inc.*
www.FloridaGreenBuilding.org

**Maximum Possible Points Total** 365

**Maximum Applicable Points Total** 291

**Credit Points Achieved Total** 67

**Percent of Maximum Applicable Points Total** 23.02 %

(Note: Values are tallied for entire program, not just visible criteria.)

# CHAPTER 2

# APPENDIX B

## Florida Green Building Coalition, Inc. Green Local Government Reference Guide

Setting the standards for Green Building
in the State of Florida

# Green Local Government
# Designation Standard for Cities and Counties

Version 1.0

**Reference Guide**

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# A - Administration

## *Lead by Example*

### Credit 1: Local government environmental commitment

*ACTIVITY:*
a) Write or re-write mission statement to include the local government's commitment to the environment. (2 points)
b) Incorporate the mission statement into the local government's comprehensive plan. (3 points)

*APPROACH:*
The mission statement should highlight efforts to enhance or preserve sustainability within the city/county. Mission statements can be further strengthened with an ordinance or resolution, and including them in a comprehensive plan demonstrates accountability.

*SUGGESTED DOCUMENTATION:*
Copy of mission statement and/or comprehensive plan language.

*BENEFIT:*
A mission statement that includes a focus on the environment may unify support and justify many appropriate environmental actions.

*RESOURCES:*
City of Portland, OR Sustainable City Principles
http://www.sustainableportland.org/Sustainable%20City%20Principles.pdf
Sarasota County, FL Sustainability Resolution
http://rsc.co.sarasota.fl.us/documents/stewardship_resolution.pdf

### Credit 2: Conservation planning.

*ACTIVITY:*
a) Monitor and track local government energy use. (1 points)
b) Develop a local government energy reduction plan. (1 points)
c) Monitor and track local government water use. (1 points)
d) Develop a local government water reduction plan. (1 points)
e) Monitor and track local government solid waste generation/recycling rates. (1 points)
f) Develop a local government solid/hazardous waste reduction plan. (1 points)
g) Develop an EPP program for the local government. (1 points)
h) Encourage EPP program implementation (1 point per department, max 5 points)

*APPROACH:*
Monitor and track local government energy use in buildings through bill collection and analysis as an indicator for performance / future progress. Utilize information to develop and institute a plan to reduce energy use by at least 10% within 5 years. Undertake a similar study for water consumption and solid waste generation. Using existing examples and resources develop and implement an environmentally preferable purchasing program (EPP) for the local government, as part of, or separate from the solid/hazardous waste reduction plan. This program should

document how purchasing decisions consider the US EPA's 5 guiding principles to EPP. Receive 1 point for every department that implements the EPP program into their actual purchasing scheme.

*SUGGESTED DOCUMENTATION:*
Provide summary of energy use and/or water use and/or solid waste generation within local government for a period of at least 2 years. Submit copies of conservation plans/programs.

*BENEFIT:*
Monitoring current consumption sets a baseline upon which to improve. Undertaking monitoring activity and analyzing results often unveils opportunity for conservation. Local governments often spend a significant amount of their annual budget on energy, water, and waste. Successful plan/program implementation often yields economic as well as environmental benefits.

*RESOURCES:*
Portland, OR Energy Division Publications
http://www.sustainableportland.org/osd_pubs.html#energy
US EPA EnergyStar for Government
http://www.energystar.gov/index.cfm?c=government.bus_government
Florida Water Management Districts
http://www.dep.state.fl.us/secretary/watman/default.htm
Florida DEP Waste Reduction Division
http://www.dep.state.fl.us/waste/categories/wr/default.htm
US EPA Environmentally Preferable Purchasing
http://www.epa.gov/oppt/epp/index.htm
US EPA Guiding Principles to EPP
http://www.epa.gov/oppt/epp/guidance/fivegp.htm

**Credit 3: Reduce greenhouse gas emissions.**

*ACTIVITY:*
a) Participate in Cities for Climate Protection Campaign. (1 point)
b) Alternative Fuel Vehicle purchase. (1-3 points)

*APPROACH:*
Participate in the International Council for Local Environmental Initiatives Cities for Climate Protection Campaign (CCP), and utilize the framework to develop a strategic agenda to reduce local air emissions. For 1 point, purchase at least 1 alternative fuel vehicle (AFV) for local government use and evaluate performance such that similar vehicles can be purchased in the future. For 2 points, utilize AFV for 25% of all local government owned passenger vehicles. For 3 points, utilize AFV for >50% local government owned passenger vehicles.

*SUGGESTED DOCUMENTATION:*
a) Copy of required resolution for CCP participation.
b) Photo and basic AFV specs.

*BENEFIT:*
Embarking on strategies to plan and implement greenhouse gas emission reductions show the local government's commitment to the global, as well as local environment. Reducing greenhouse gas emissions help combat global warming, and also improve local air quality, especially in urbanized areas.

*RESOURCES:*
International Council for Local Environmental Initiatives
http://www.iclei.org/us/ccp/
City of Gainesville Climate Protection Campaign
http://www.gru.com/OurEnvironment/AirQuality/ccpCampaign.jsp
US DOE Clean Cities Program
http://www.eere.energy.gov/cleancities/
Florida Space Coast Clean Cities Coalition
http://www.fsec.ucf.edu/env/fsccities/spccst.htm
Florida Gold Coast Clean Cities Coalition
http://www.sfrpc.com/fgcccc.htm
Florida Green Local Government Standard Fleet Management and Vehicle Maintenance Module

**Credit 4: Build, renovate, and maintain green government buildings.**

*ACTIVITY:*
a) Become a member of FGBC. (1 points)
b) Become a member of USGBC. (1 points)
c) Construct LEED or FGBC certified buildings or renovate for LEED EB or CI. (1 point per 10% of owned or leased facilities)
d) Employ green cleaning and maintenance procedures. (1 point per 20% of owned or leased facilities)

*APPROACH:*
Join the Florida Green Building Coalition (FGBC) and/or US Green Building Council (USGBC) under the Local Government membership category. Construct new buildings and facilities to the FGBC or USGBC LEED guidelines, and seek official certification. For existing buildings that undergo renovation, utilize the LEED Existing Buildings (EB) or Commercial Interiors (CI) specifications. Incorporate green cleaning and maintenance suggestions outlined in the Creating a Green and Profitable Work Environment Publication available from Florida Department of Environmental Protection Pollution Prevention Program.

*SUGGESTED DOCUMENTATION:*
a-b) Copy of membership application.
c) Copy of relevant registration certificates.
d) Copy of "baseline checklist" from referenced publication that indicates suggestions implemented.

*BENEFIT:*
Green construction, maintenance, and operation practices ensure that buildings not only conserve natural resources, but that they are also affordable to operate and healthy places to work.

*RESOURCES:*
Florida Green Building Coalition
http://www.floridagreenbuilding.org
US Green Building Council
http://www.usgbc.org
Florida DEP Pollution Prevention Division – Green Building
http://www.dep.state.fl.us/waste/categories/p2/pages/GreenBuilding.htm

**Credit 5: Dedicate personnel to green city/county process.**

*ACTIVITY:*
a) Develop and maintain an office, person, or group to coordinate current and future green city/county activities. (3 points)

*APPROACH:*
Create a designated office of sustainability, sustainability coordinator, or sustainable task force that consists of representatives from multiple departments to aid in fulfilling environmental mission of the local government. Responsibilities can be further strengthened with an ordinance or resolution.

*SUGGESTED DOCUMENTATION:*
Written documentation of new responsibilities for existing staff, or description of new positions created.

*BENEFIT:*
Assigning staff to the green local government process will ensure an efficient and coordinated approach within government operations, and within the community at large. An office or staff dedicated to sustainability issues may uncover various current and future opportunities, such as dollar savings, through pollution prevention and other analysis.

*RESOURCES:*
Sustainable Sarasota
http://sarasota.extension.ufl.edu/SS/SS.html
Sustainable Alachua County
http://www.sustainac.org/

## *Control*

**Credit 6: Green local government buildings ordinance.**

*ACTIVITY:*
a) Adopt an FGBC or LEED standard as official minimum criteria for new local government buildings (10 points)
b) Adopt green cleaning/maintenance practices available from FL DEP (5 points)
c) Enact green landscaping ordinance for local government buildings. (1 points)

*APPROACH:*
Enact a policy whereby all new government buildings / renovations meet requirements of an existing green standard such as those administered by the Florida Green Building Coalition (FGBC) or the US Green Building Council's LEED Standards. Alternatively, a local government may choose to only regulate the cleaning/maintenance practices, or installed landscape and irrigation practices for new/existing buildings. For existing buildings, the policy must include removal of all invasive species on the building grounds.

*SUGGESTED DOCUMENTATION:*
Copies of appropriate policies.

*BENEFIT:*
Green construction, maintenance, and operation practices ensure that buildings not only conserve natural resources, but that they are also affordable to operate and healthy places to work.

*RESOURCES:*
Florida Green Building Coalition
http://www.floridagreenbuilding.org
US Green Building Council
http://www.usgbc.org
Portland, OR LEED
http://www.sustainableportland.org/portland_leed.pdf
Florida DEP Pollution Prevention Division – Green Building
http://www.dep.state.fl.us/waste/categories/p2/pages/GreenBuilding.htm
Sarasota County Landscaping Ordinance
http://sarasota.extension.ufl.edu/Hort/LandscapeOrd.html
Florida Green Local Government Standard Environmental Landscaping Module and Video

## *Education*

### Credit 7: Community education.

*ACTIVITY:*
a) Budget for publicity / education related to the local government's commitment to the Florida Green Local Government Standard. (1 points)

*APPROACH:*
If credit 5a has been incorporated, the entity must be given the means to undertake promotion of local government mission within the community. If a dedicated entity is not created, additional funds may be given to an extension service or other similar organization with which to accomplish this task.

*SUGGESTED DOCUMENTATION:*
Submit dollar amount of funds earmarked for this task.

*BENEFIT:*
Educating the community about the Green Local Government process may promote the local government's commitment to program aspects, and potentially foster community participation.

## Credit 8: Staff education.

*ACTIVITY:*
a) Organize green building education for local government staff. (1 point).

*APPROACH:*
If credit 5a has been incorporated, part of the entity's responsibility should be to organize various green building education opportunities for local government staff, including themselves. If a dedicated entity is not created, another department can be delegated this task.

*SUGGESTED DOCUMENTATION:*
List of appropriate educational courses that can be held onsite, or that are offered offsite.

*BENEFIT:*
Staff training is important to stay abreast of current trends and techniques, and to gain new insights.

*RESOURCES:*
Sustainable Sarasota
http://sarasota.extension.ufl.edu/SS/SS.html

# B - Agriculture and Extension Service

## *Lead by Example*

### Credit 1: Florida friendly government owned landscapes

*ACTIVITY:*
a) Certified Florida friendly landscapes within the city/county.

*APPROACH:*
Work with public works department to modify (if necessary) and certify public landscapes under Florida Yards & Neighborhoods program. (1 point of each 10% of city/county maintained acreage certified).

*SUGGESTED DOCUMENTATION:*
Copy of FY&N checklist for each certified property.

*BENEFIT:*
Florida friendly landscapes conserve water, have low maintenance requirements, and are naturally pest resistant.

RESOURCES:
Florida Yards & Neighborhoods Program
http://hort.ifas.ufl.edu/fyn/

## *Control*

### Credit 2: Community incentives.

*ACTIVITY:*
a) Offer free or discounted green products to the public. (2 points per product type offered for free, 1 point for each discounted product – maximum six points.)

*APPROACH:*
Offer free or discounted products such as compost bins, native drought tolerant seedlings, environmentally friendly pesticides, rain barrels, etc.

*SUGGESTED DOCUMENTATION:*
Submit type of product supplied, and estimated number of each to be distributed.

*BENEFIT:*
Simple, inexpensive products supplied at no or low cost to the community may help with community education, and may spawn further green activity within the community.

*RESOURCES:*
Charlotte County discounted compost bins
http://www.charlottecountyfl.com/EnvironmentalServices/solidwaste/backyardcomposting.asp

Jacksonville Communi-Tree program
http://www.jea.com/community/communitree.asp
Miami-Dade County Adopt-A-Tree program
http://www.miamidade.gov/derm/adoptatree/home.asp

**Credit 3: Promotion of organic farming.**

*ACTIVITY:*
a) Offer incentives to maintain/create certified organic farms within the city/county or to incorporate sustainable and water efficient agriculture. (1 points per incentive – maximum 5 points)

*APPROACH:*
Example incentives include lower tax base for certified organic farms, assistance with organic certification fees, providing low interest loans for retrofit, and assistance with promotion and marketing.

*SUGGESTED DOCUMENTATION:*
Provide details of incentives offered, and approximate value to average certified organic farm. Include number of certified farms operating or planned within the city/county.

*BENEFIT:*
Organic produce does not rely on chemical pesticides, which often results in lower product yield. Incentives can help organic farms compete in marketplace. Demand for organic produce is growing in many areas, much of which is shipped in from outside Florida. Local organic farms can build local economy.

## *Education*

**Credit 4: Community education**

*ACTIVITY:*
a) Offer green building or green local government education to the community. (1 point)
b) Provide green building or green local government education materials. (1 point)
c) Maintain an active FY&N program or other builder/developer/homeowner outreach program. (1 point)
d) Active an teacher / student education program. (1 point)

*APPROACH:*
Conduct green building training to the public on topics such as integrated pest management, composting, sustainable agriculture, etc. through courses or seminars. In lieu of courses, provide material such as websites, local television programs, videos, printed material, etc. on green building topics. Maintain an active Florida Yards & Neighborhoods (FY&N) program or other

outreach program such as master gardener, master conservationalist, etc. Develop and/or take part in a student/teacher education program on green building issues related to services provided by the agriculture department / extension service.

*SUGGESTED DOCUMENTATION:*

a) Provide agenda for course(s).
b) Supply examples of educational material.
c) List name of program and key staff members.
d) Describe nature of teacher/student program, and number of teachers participating or expected to participate.

*BENEFIT:*

Educating the community on green building issues helps to filter local government commitment to public sector.

*RESOURCES:*

Sustainable Sarasota
http://sarasota.extension.ufl.edu/SS/SS.html
Florida Green Local Government Standard Environmental Landscaping Module, Posters and Video

## Credit 5: Industry education

*ACTIVITY:*

a) Offer promotion and education of water conservation within the agriculture sector. (1 point)
b) Offer education on principles and applications of organic farming, permaculture and sustainable agriculture. (1 point)

*APPROACH:*

Develop, distribute, and market educational material on green agricultural issues. Examples include courses, seminars, websites, printed material, etc. Mobil irrigation labs are another example that combines education with a technical assistance incentive.

*SUGGESTED DOCUMENTATION:*

Submit details of the educational outreach such as course agendas, advertisements, or copies of printed material.

*BENEFIT:*

Industry education and technical assistance may foster incorporation of green principles and help achieve local government goals.

*RESOURCES:*

Sarasota County Extension Integrated Agricultural Management
http://sarasota.extension.ufl.edu/Ag/ag.html

# C - Building and Development

## *Lead by Example*

### Credit 1: Monitor and track green building within the city/county.

*ACTIVITY:*
a) Create and maintain an electronic database of all building energy code compliance. (5 points)
b) Create and maintain an electronic database of all green and energy ratings conducted on all buildings and land developments within the city/county. (5 points)

*APPROACH:*
Require an electronic submission of energy code calculations or manually enter into a database. Obtain a hardcopy of rating certificate(s) and indicate program qualified for in database.

*SUGGESTED DOCUMENTATION:*
Describe strategy and process for tracking code compliance and ratings electronically.

*BENEFIT:*
Market penetration of ratings, as well as features that qualify a building for a rating, are useful indicators, as are details of methods used to achieve Florida Energy Code compliance. Data may be useful to determine effectiveness of any incentives, promotion, or incentives taking place towards the creation of green buildings.

*RESOURCES:*
Florida Green Building Coalition (FGBC)
http://www.floridagreenbuilding.org
Florida Home Energy Ratings
http://www.fsec.ucf.edu/bldg/fyh/ratings/

## *Control*

### Credit 2: City/County green building program with incentives.

*ACTIVITY:*
a) Adopt FGBC or LEED green standards as officially recognized green standards of the city/county. (2 pts)
b) Offer an incentive(s) for FGBC or LEED certified commercial and institutional buildings. (4 pts)
c) Offer an incentive(s) for FGBC or Energy Star certified green homes. (4 points)
d) Offer an incentive(s) for FGBC certified green developments. (4 points)

*APPROACH:*
Incorporate by resolution, ordinance, or otherwise a green building standard(s) to promote resource conservation and as a proactive step to reduce future capital expenditures for resource extraction. As a next step, offer incentives to foster participation. Example incentives include reduced permit, inspection or impact fees; fast track permitting; or promotion/publicity. Incentives may be for builder/developer, or building owner, but must have a value of at least $300 per home, $1000 per commercial building and $2500 per land development.

*SUGGESTED DOCUMENTATION:*
Provide copy of resolution, ordinance, or other documentation that indicates how standard has been made part of official city/county green building program. If the program contains an incentive, provide details and conditions of incentive, along with approximate dollar value per applicant.

*BENEFIT:*
Adopting a green building standard as an official program for the city/county shows the community that the building department endorses the standard. Encouraging participation reaps benefits for the community at large. Primary benefits are health, comfort, safety, and affordability for occupants, as well as environmental protection and natural resource management. Including an incentive shows the community that the local government strongly encourages participation from the general public.

*RESOURCES:*
City of Gainesville Green Building Program
http://library.municode.com/gateway.dll/FL1/florida1/13640/13675/13677?f=templates&fn=default.htm
Florida Green Building Coalition (FGBC)
http://www.floridagreenbuilding.org
US Green Building Council (USGBC LEED)
http://www.usgbc.org
Florida Home Energy Ratings
http://www.fsec.ucf.edu/bldg/fyh/ratings/

**Credit 3: Preserve/enhance native habitat and natural resources.**

*REQUIREMENT:*
a) Require mitigation for consumption of natural habitat or resources. (1 points per land type – maximum 5 points)
b) Enact and enforce a tree preservation or land-clearing ordinance. (1 point)
c) Regulate impervious parking surfaces. (1 point)
d) Enact a septic system replacement ordinance. (1 point)

*APPROACH:*
a) When native habitat or other ecologically significant lands such as wetland, agricultural land, high water recharge area, wildlife corridor, etc. is consumed for development, require mitigation through purchase and maintenance of similar amount of adjacent land with similar significance. If mitigation land exceeds 50 acres, require an individual be dedicated to ensuring successful preservation during development. If mitigation land exceeds 1,000 acres, require the developer to retain the position for at least 10 years. Alternatively, require the project to comply with an appropriate Florida Green Building Coalition standard.
b) Tree preservation/land clearing ordinance can be in form of protection, mitigation, canopy continuity, or % shading requirements. Must require a tree survey prior to any land clearing, and must include financial penalty for removal of trees in addition to planting of new trees.

c) New impervious parking surface to be limited to serve 50% of permanent building occupants / peak visitors. All additional parking to be impervious. Shared parking facilities must be encouraged (e.g., do not require a church and bank that are next to one another to have as much parking as if they were in separate locations).
d) Require residents with septic systems to hookup to central wastewater treatment when available.

*SUGGESTED DOCUMENTATION:*
Submit written documentation of all ordinances and regulations for which credit is desired.

*BENEFIT:*
a) Ecologically significant lands are important to be preserved in order to retain biodiversity, local food production, and to provide means for aquifer recharge and storm water treatment.
b) Land development often completely removes existing vegetation, and attempts to replace it post-construction. Replacement is often inadequate, and removal displaces wildlife, and leads to erosion, adding to storm water runoff and treatment concerns.
c) Land dedicated for impervious parking is often unnecessarily sized according to peak demand. Excessive impervious surface contributes to storm water runoff, and heat island effects.
d) Many aging septic systems are operating beyond their useful service life, and provide for inadequate treatment. Provide for central sewer throughout the city/county to reduce pollutant load entering natural systems.

*RESOURCES:*
Florida Green Building Coalition
http://www.floridagreenbuilding.org
Brevard County aquifer protection ordinance
http://www.brevardcounty.us/environmental_permitting/assets/documents/pdf/aquifer_protection.pdf
Brevard County significant environmental areas protection ordinance (draft)
http://www.brevardcounty.us/environmental_management/rsm_seas_ord_drafts.cfm
Brevard County land clearing and tree protection ordinance
http://www.brevardcounty.us/environmental_permitting/documents/ARTICLEXIIIDIVISION3LandClearingandTreeProtection.pdf
Volusia County Tree Protection Ordinance
http://www.volusia.org/environmental/permitting/trees/NewTreeOrd.pdf
Sarasota County Canopy Road Ordinance
http://www.scgov.net/Frame/ScgWebPresence.aspx?AAA498=CCC9C374C5A4B4B4CB80BAABC6708EB5C596BBA9C7AEB2B3C9C57B778172857D8495ADB4C1B1C665A7C1ADAA7290BFA9BEC0ADB4B5A67BB5B9B8
Alternatives to impervious pavement
http://www.uri.edu/ce/wq/has/html/imperv.html

## Credit 4: Conserve water resources

*ACTIVITY:*
a) Enact a rain sensor ordinance applicable to all functioning automatic irrigation systems. (1 point)
b) Enact a landscaping ordinance for new construction. (1 point)

*APPROACH:*

a) Require that all automatic irrigation systems have a functioning rain shut off device and assist with retrofit where necessary by underwriting part of the cost in demonstrated hardship cases.
b) Enact a landscaping ordinance that fosters Florida Friendly principles described in FGBC Green Home Standard.

*SUGGESTED DOCUMENTATION:*
Submit copy of ordinance.

*BENEFIT:*

a) Presence of a functioning rain sensor is a requirement of the 2001 Florida Building Code for new construction. However, there are many more automatic irrigation systems operating in Florida that were installed before this requirement was included in the code. Retrofitting older systems with rain shut-off control acts as an effective water conservation strategy.
b) Florida Friendly landscapes focus on native, drought tolerant plant material grouped according to watering needs. Appropriate turf varieties are limited to pet, play, and entertainment needs. If automatic watering is desired, multiple program controllers can be employed to deliver no more water than what is required by each group. Irrigation systems themselves are also designed to then deliver that water as efficiently as possible.

*RESOURCES:*
Volusia County rain sensor ordinance
http://65.77.232.5/workshops.htm
Brevard County landscaping ordinance
http://www.brevardcounty.us/environmental_permitting/documents/ARTICLEXIIIDIVISION2Landscaping.pdf
Volusia County Waterwise landscape ordinance
http://65.77.232.5/environmental/natural%5Fresources/water%20resources/landscapeordinance.htm
Florida Green Local Government Standard Environmental Landscaping Module and Video

## *Education*

### Credit 5: Staff education.

*ACTIVITY:*

a) Require all inspectors, reviewers, and supervisors to complete four hours of CEU approved course in green building on a bi-annual basis. (1 point)

*APPROACH:*
Several green building courses are offered on a regular basis throughout the state such as the University of Florida's Build Green and Profit course. This course, as well as others, can also be brought to your specific location.

*SUGGESTED DOCUMENTATION:*
Research and provide list of applicable courses offered that employees may leverage. Approximate and submit budget based on average travel and course registration costs to fulfill requirement.

*BENEFIT:*
In order for green building techniques to be implemented effectively and efficiently, staff should have a general comprehension of the benefits, and applicability.

RESOURCES:
University of Florida Build Energy Extension Service
http://www.energy.ufl.edu/
Florida Solar Energy Center Building Science Training and Certification Center
http://www.fsec.ucf.edu/ed/contin_ed/bldg_sci.htm

**Credit 6: Industry education.**

*ACTIVITY:*
a) Department offers classes to industry professionals that detail any green incentives or regulations present. (1 point)
b) Department advertises and offers incentives for local construction industry professionals to attend green building classes offered by others. (1 points)
c) Conduct a green building awards program. (1 points)

*APPROACH:*
a) Short courses/seminars are held either through building department or in conjunction with local HBA to brief builders/developers on green incentives/regulations present.
b) Building department offers to pay at least half the cost for local industry professionals to attend CEU courses in green building to help achieve local government goals.
c) A green building awards program is conducted by the department, which can also be conducted in conjunction with local HBA or FGBC.

*SUGGESTED DOCUMENTATION:*
a) Submit seminar schedule and agenda.
b) Provide copy of advertisement.
c) Describe framework of awards program including actual awards, and basis for qualification.

*BENEFIT:*
Local governments can encourage implementation of green building by ensuring local industry is educated on techniques and benefits, and acknowledged for their efforts.

*RESOURCES:*
City of Gainesville Green Building Program
http://library.municode.com/gateway.dll/FL1/florida1/13640/13675/13677?f=templates&fn=default.htm

## Credit 7: Community education.

*ACTIVITY:*
a) Publicity and case studies for green building. (1 points)

*APPROACH:*
Through the local government's website, through printed material, through television/radio commercials, or otherwise, create and distribute publicity for the city/county green building program (if in effect) and/or green projects within the city/county.

*SUGGESTED DOCUMENTATION:*
Provide narrative of plans to publicize green building within the community and provide at least one example or draft of example.

*BENEFIT:*
When green building takes place, many persons and organizations both directly related to the project as well as indirectly benefit. It is important to publicize efforts towards green building, as an incentive for those involved, as well as an effort to gain support and interest of others.

*RESOURCES:*
City of Gainesville Green Building Program
http://library.municode.com/gateway.dll/FL1/florida1/13640/13675/13677?f=templates&fn=default.htm

# D - Economic Development / Tourism

## *Lead by Example*

### Credit 1: Green building to spur economic development.

*ACTIVITY:*
a) Team with tourism department on eco-tourism campaign. (1 points)
b) Track amount of tourism that takes part in eco-related activities. (1 points)

*APPROACH:*
Together with the local tourism department, identify environmental attractions of the local area and develop an eco-tourism campaign as a form of economic development. Track tourism through hotel surveys or otherwise for activities such as fishing, hiking, biking, or attendance at eco-related festivals.

*SUGGESTED DOCUMENTATION:*
Provide a survey of local environmental attractions (parks, beaches, lakes, trails, etc) and describe plans to promote such attractions to people visiting the area. Submit details of how local eco-tourism activities are tracked.

*BENEFIT:*
Ecotourism is a growing interest of national and international visitors alike, and a successful campaign can improve economic development through increased tourism. By creating economic benefit from natural features there should be increased support for resource protection.

RESOURCES:
Volusia County ECHO Tourism Campaign
http://echotourism.com/
Visit Gainesville
http://www.visitgainesville.net/

### Credit 2: Green building through historic preservation/downtown revitalization

*ACTIVITY:*
a) Achieve Florida Main Street Designation. (1 points)

*APPROACH:*
Undertake process and actions required to be designated a Florida Main Street. Counties may achieve points by assisting at least one city with the process.

*SUGGESTED DOCUMENTATION:*
Submit copy of Florida Main Street designation or completed application package.

*BENEFIT:*
Becoming a Florida Main Street shows the local government's commitment to management of downtown historic areas, and acts to both preserve and promote this feature to the community and abroad.

*RESOURCES:*
Florida Main Street Program
http://dhr.dos.state.fl.us/preservation/architecture/mainstreet/

## *Control*

### Credit 3: Local business incentives.

*ACTIVITY:*
a) Incentives for location of green businesses within city/county. (1 points)
b) Offer special promotion for local eco-hotels. (1 points)

*APPROACH:*
Combine promotion of participation in the Florida Green Local Government Program with eco-friendly business incentives in order to attract sustainable industry or businesses that employ sustainable practices to the local area. Provide marketing incentives for local eco-hotels that have met the Florida Department of Environmental Protection Green Lodging Criteria.

*SUGGESTED DOCUMENTATION:*
Develop and submit documentation describing specific incentives available for establishment of businesses/non-profits that specialize in green building products, services, education, or outreach. Describe how local eco-hotels are given promotional incentives.

*BENEFIT:*
Establishing business incentives help attract sustainable businesses to the community that foster implementation and acceptance of green building, attract sustainably minded employees, and provide for community wide economic and environmental benefits.

*RESOURCES:*
Sustainable Sarasota Green Business Development Assistance
http://sarasota.extension.ufl.edu/SS/SS.html
Florida DEP Green Lodging Program
http://www.dep.state.fl.us/waste/categories/recycling/GreenLodging/default.htm

### Credit 4: Revitalize distressed areas.

*ACTIVITY:*
a) Incentives for green redevelopment. (2 points)

*APPROACH:*
Either through the creation of redevelopment agencies or otherwise, create and offer incentives (tax based, building based, land based, etc) for redevelopment of distressed areas via green development.

*SUGGESTED DOCUMENTATION:*
Provide copy of proposed incentives, management plan, and baseline requirements for eligibility.

*BENEFIT:*
Green redevelopment generally involves the local community, and shows that the city/county considers the distressed area an integral part of the community, and desires that redevelopment plans ensure the continued sustainability of the area.

### Credit 5: Historic preservation

*ACTIVITY:*
a) Develop a historic preservation ordinance. (1 points)
b) Develop funding mechanism to aid with historic preservation. (1 points)

*APPROACH:*
Develop a register of historic buildings within the city/county, and create an ordinance designed to protect such properties. As a next step, budget funds to aid with protection of historic properties.

*SUGGESTED DOCUMENTATION:*
Submit language for ordinance, and/or details regarding acquiring and maintaining historic preservation funds.

*BENEFIT:*
Preserving a community's history through protection of historic properties maintains appropriate land use and provides educational opportunities.

*RESOURCES:*
Historic Preservation info from the Florida Department of State
http://dhr.dos.state.fl.us/preservation/

## *Education*

No criteria identified.

# E - Emergency Management / Public Safety

## *Lead by Example*

### Credit 1: Reduce green house gas emissions.

*ACTIVITY*:
a) Use of AFV and/or bicycle patrol for urban/neighborhood areas. (1 points)
b) Use renewable energy as backup / emergency power. (1 points)

*APPROACH:*
Police departments / neighborhood watch employ alternative fueled vehicles (AFV) and/or bicycles for light duty patrols. Shelters and roving disaster assistance employs photovoltaics for some percentage of backup power rather 100% supplied by fossil fuel generators.

*SUGGESTED DOCUMENTATION:*
a) Submit details of vehicles used for light duty patrols.
b) Describe use of renewable energy as backup/emergency power.

*BENEFIT:*
All activities are geared towards reducing release of pollutants to the atmosphere. Along with reducing air pollution, alternative vehicles often make patrols more accessible to the public.

*RESOURCES:*
Ft. Lauderdale Police Department Bicycle Patrol
http://info.ci.ftlaud.fl.us/police/bicycle.html
US DOE Clean Cities Program
http://www.eere.energy.gov/cleancities/
Florida Space Coast Clean Cities Coalition
http://www.fsec.ucf.edu/env/fsccities/spccst.htm
Florida Gold Coast Clean Cities Coalition
http://www.sfrpc.com/fgcccc.htm
Florida Green Local Government Standard Fleet Management and Vehicle Maintenance Module
Photovoltaics for Disaster Relief
http://www.fsec.ucf.edu/pvt/Projects/disaster/index.htm

### Credit 2: Reduce solid and hazardous waste.

*ACTIVITY:*
a) Maintain green fleets. (1-3 points)
b) Firing ranges utilize non-lead bullets or trap and collect fragments. (1 points)
c) Minimize photo-processing waste. (1 points)

*APPROACH:*
Incorporate at least 75% of the applicable best management practices outlined in chapters C-M of the Florida Green Local Government Standard Fleet Management and Vehicle Maintenance Module. One point per fleet (police, fire, etc.) is available. All firing ranges use non-lead (ceramic) bullets or employ a means to reclaim lead before entering ecosystem. Police photo

processing minimizes waste by employing digital technology, recycling chemicals in house, or contracting with an outside entity that employs recycling.

*SUGGESTED DOCUMENTATION:*

a) Describe the green fleet program used for emergency vehicle purposes.
b) Submit documentation of strategy employed to reduce lead resulting from firing ranges.
c) Submit documentation of strategy to reduce photo-processing waste.

*BENEFIT:*

Stewardship towards pollution prevention activities is often ignored in departments that deal with emergencies/public safety. Certain simplistic measures can be employed to improve the environmental performance of such departments.

*RESOURCES:*

Florida Green Local Government Standard Fleet Management and Vehicle Maintenance Module and Posters
FL Department of Environmental Protection Lead Management at Florida Shooting Ranges
http://www.dep.state.fl.us/waste/categories/hazardous/pages/lead.htm
US Army Environmental Center Small Arms Range Technology
http://aec.army.mil/usaec/technology/rangexxi03.html
National Park Service Firing Range Waste Mangement
http://www.nps.gov/renew/rangewastemgt.pdf
Miami-Dade DERM Photo Shop Hazardous Waste Mangement
http://www.co.miami-dade.fl.us/derm/land/library/hw_photoshops.pdf
US EPA Photo Processing Information
http://www.epa.gov/epaoswer/hazwaste/id/infocus/photofin.pdf
FL DEP Photo Shop Hazardous Waste Management
http://www.dep.state.fl.us/waste/quick_topics/publications/shw/hazardous/photoshops04.PDF

## Credit 3: Conserve water

*REQUIRMENTS:*

a) Fire departments review training operations and conserve water where appropriate. (1 points)

*APPROACH:*

Where procedure allows, training exercises are configured to collect and reuse water where possible.

*SUGGESTED DOCUMENTATION:*

Describe strategy, system, or operation that allows water collection and reuse during training activities.

*BENEFIT:*

Stewardship towards water conservation is often ignored in departments that deal with emergencies/public safety. Certain simplistic measures can be employed to improve the environmental performance of such departments.

## *Control*

### Credit 4: Enhance durability of built environment.

*ACTIVITY:*
a) Incentives for disaster mitigation. (1 points)

*APPROACH:*
Emergency management teams with appropriate sources to offer rebates or low interest loans for mitigation upgrades applied to new and existing commercial and residential buildings.

*SUGGESTED DOCUMENTATION:*
a) Submit details of incentive program and dollar amounts available.

*BENEFIT:*
Providing a mechanism that assists the public enhance the durability of the built environment may lessen the local government's risk during disasters.

*RESOURCES:*
City of Deerfield Beach "Operation Open for Business Program"
http://www.floridadisaster.org/brm/Mit_Success/ms_broward_deerfield_beach_showc.htm

## *Education*

### Credit 5: Community education.

*ACTIVITY:*
a) Offer mitigation audits to homes, businesses, and local government buildings. (1 points)
b) Create an education campaign for mitigation (shelters point out features with signs, etc.) (1 points)

*APPROACH:*
Emergency Management conducts free or low cost audits of buildings to identify opportunities for mitigation. Community knowledge of mitigation features is strengthened through educational material, as well as drawing attention to features present at local shelters.

*SUGGESTED DOCUMENTATION:*
a) Provide details of building audit program.
b) Submit elements of education campaign including advertisements for courses, course agendas, or demonstration activities at local shelters.

*BENEFIT:*
Providing outreach to the local community may assist with actual implementation of disaster mitigation within the local built environment.

*RESOURCES:*
City of Deerfield Beach "Operation Open for Business Program"
http://www.floridadisaster.org/brm/Mit_Success/ms_broward_deerfield_beach_showc.htm
US FEMA Mitigation Division Education Information
http://www.fema.gov/fima/education.shtm

**Credit 6: Staff training**.

*ACTIVITY:*
a) Police trained in crime prevention through environmental design. (1 points)
b) Public safety staff attends training on Healthy Street design. (1 points)

*APPROACH:*
Appropriate law enforcement personnel required to attend one time course in crime prevention through environmental design (CPTED) and/or "Street Design Guidelines for Healthy Neighborhoods". Healthy Street Design encourages pedestrian access through the use of narrow streets whose design still enables access to emergency vehicles.

*SUGGESTED DOCUMENTATION:*
Details of courses provided, agendas, and instructor.

*BENEFIT:*
Often, environmental stewardship is ignored when it comes to crime protection and public safety. With proper training and experience, knowledge of environmental issues can actually enhance crime prevention and public safety.

*RESOURCES:*
CPTED Handbook
http://www.cpted-watch.com/
CPTED in Gainesville
http://www.state.fl.us/fdi/fscc/news/local/gaines5.htm
CPTED training
http://www.nicp.net/cpted_conference.htm
FL Department of Transportation Walkable Communities: 12 steps to an Effective Program
http://www.dot.state.fl.us/safety/ped_bike/brochures/pdf/12STEPS.PDF
Healthy Street Design Training
http://www.walkable.org/services.htm
Tampa Bay Regional Planning Council Traffic Calming Workshop
http://www.tbrpc.org/livable/traffic.htm

# F - Energy Utility

## *Lead by Example*

**Credit 1: Reduce green house gas emissions through renewable energy and energy efficiency.**

*ACTIVITY:*
a) Offer green power. (1 points)
b) Certify renewable electricity products under Center for Resource Solutions. (1 points)
c) Voluntary funding of green power through customer billing. (1 points)
d) Become an Energy Star ally. (1 points)

*APPROACH:*
Acquire green power generation capability and offer to interested customers. Additional points available for certification of green power under Center for Resource Solutions' Green-E program. If in pursuit of green power capability, points are available for allowing customers to voluntarily fund efforts through bill donations. Points are also available for promoting energy efficiency on the demand side by becoming a US EPA Energy Star ally.

*SUGGESTED DOCUMENTATION:*
a) Describe green power generation capacity and any cost difference to consumers compared to standard generation.
b) Submit proof of participation in Green-E program.
c) Describe elements of consumer funding effort to acquire future green power.
d) Copy of EPA Energy Star ally application.

*BENEFIT:*
Many customers desire green power as an alternative to conventional power generation. Many are willing to contribute to the effort through monetary donations, or increased rates. Becoming an Energy Star ally shows the utility's commitment to reducing green house gas emissions.

*RESOURCES:*
Gainesville Regional Utilities Green Energy
http://www.gru.com/OurEnvironment/GreenEnergy/gruGreen.jsp
Jacksonville JEA Clean Power
http://www.jea.com/community/cleanpower.asp
Green-E Renewable Energy Certification Program
http://www.green-e.org/ipp/ipp_index.html
New Symrna Beach Utilities Commission Green Pricing Program
http://www.ucnsb.net/electric/solar.shtml
Energy Star ally information for Utilities
http://www.energystar.gov/index.cfm?c=join.reps_agree

**Credit 2: Reduce waste.**

*ACTIVITY:*
a) Actively promote fly ash / blast furnace slag source. (1 points)
b) Utilize recycled billing envelopes. (1 points)
c) Enable customers to make online bill payments. (1 point)

*APPROACH:*
Waste fly ash and blast furnace slag is a useful replacement for Portland cement in concrete mixtures. Points are available for actively promoting the availability of such material, and seeking end users of the product. Examples include partnering with the Southern Waste Information Exchange (SWIX). All customer billing should include return envelopes with post consumer recycled content. Allow customers to elect an online bill payment option whereby no paper mailing is sent.

*SUGGESTED DOCUMENTATION:*
a) Describe details of how this resource is promoted for availability.
b) Submit example envelope.
c) Provide details or internet site of online bill pay system.

*BENEFIT:*
Pollution prevention and waste management activities can save money for the utility, and minimize solid waste.

RESOURCES:
Southern Waste Information Exchange
http://www.wastexchange.org
Gainesville Regional Utilities Fly Ash Recycling
http://www.gru.com/OurEnvironment/CorporateRecycling/flyash.jsp
Jacksonville JEA Bill Pay Options
http://www.jea.com/customer/payment/index.asp
Gainesville Regional Utilities Bill Pay Options
http://www.gru.com/YourHome/AboutYourBill/paymentoptions.jsp

## *Control*

**Credit 3: Incentives to reduce energy use.**

*ACTIVITY:*
a) Offer distributed generation incentives. (1 points)
b) Offer energy audits. (1 points)
c) Commercial building incentives. (1 points)
d) Residential building incentives. (1 points)
e) Rate structures based on consumption. (1 points)

*APPROACH:*
Incentives and assistance should be made available for customers who wish to use photovoltaics, or other types of onsite energy production. Incentives include co-purchasing/co-ownership of equipment, net metering, etc. Free/discounted energy audits should be made available either

through in-house staff or outside contractors for qualifying commercial and residential customers. Other commercial and residential building incentives such as lighting incentives, insulation upgrades, efficient equipment rebates etc. should be made available to qualifying customers. Structure usage rates to discourage over consumption by allowing charges to increase with increasing energy use.

*SUGGESTED DOCUMENTATION:*
To achieve the points listed for each activity, submit a description of the activity.

*BENEFIT:*
Offering incentives to the community to reduce energy usage can help provide energy security for the city/county.

*RESOURCES:*
Gainesville Regional Utilities Solar Rebate Program
http://www.gru.com/OurEnvironment/GreenEnergy/solar.jsp
Gainesville Regional Utilities Dual Metering Program
http://www.gru.com/OurEnvironment/GreenEnergy/dualMetering.jsp
Jacksonville JEA Solar Incentive Program
http://www.jea.com/services/electric/solar.asp
New Symrna Beach Utilities Commission Energy Audits
http://www.ucnsb.net/electric/energyaudit.shtml

## *Education*

### Credit 4: Community education.

*ACTIVITY:*
a) Informative billing. (1 points)
b) Take part in any speaker's bureau or sponsor workshops. (1 points)
c) Emissions info posted on website. (1 points)
d) Enable customers to track and analyze their usage via the internet. (1 points)

*APPROACH:*
Develop informative billing that educates customers about current and past usage. Actively engage staff in promoting energy efficiency through speaking opportunities, or sponsor others to conduct workshops. Develop and post an "environmental report" on a website that details process of power production including raw materials consumed, processing specifics, and emissions information. Develop an online system whereby customers can access account history and evaluate performance based on other users with similar characteristics. Offer suggestions for users to reduce usage.

*SUGGESTED DOCUMENTATION:*
a) Submit copy of an example bill.
b) Submit names and qualifications of utility employees willing to take part in a speakers bureau, and topics they would be willing to discuss, or examples of sponsored workshops.
c) Provide internet link where one would find utility emissions info.
d) Provide internet link to website where customers can gain access to energy usage information.

*BENEFIT:*
A strategic means to encourage conservation is to actively take part in consumer education.

*RESOURCES:*
Jacksonville JEA Billing information
http://www.jea.com/customer/mybill/page1-front.asp
Jacksonville JEA Workshops
http://www.jea.com/business/services/devandbuild/workshop.asp
Jacksonville JEA Speakers Bureau
http://www.jea.com/community/education/teacher/speaker.asp
Gainesville Regional Utilities Customer Account Information
http://www.jea.com/community/education/teacher/speaker.asp

## Credit 5: Staff education.

*ACTIVITY:*
a) Send appropriate staff for training related to distributed generation. (1 points)
b) Send appropriate staff for energy audit training. (1 points)

*APPROACH:*
Many courses are offered through state agencies such as the Florida Solar Energy Center that will enable staff to assist customers with demand side management. Such courses include Installation of Grid Connected Photovoltaics and Certified Energy Rater training.

*SUGGESTED DOCUMENTATION:*
Submit details of courses to be attended, and names/numbers of personnel that have or will be trained by such courses.

*BENEFIT:*
Having staff trained in such areas will streamline future adoption of various conservation programs.

*RESOURCES:*
Florida Solar Energy Center Continuing Education
http://www.fsec.ucf.edu/ed/contin_ed/index.htm

# G - Housing and Human Services

## *Lead by Example*

**Credit 1: Provide green, affordable housing to the community.**

*REQUIREMENTS*
a) Construct/renovate green buildings. (1 points per living unit, maximum 20 points)

*APPROACH:*
New affordable housing units should be constructed to the FGBC green home standard in order to score points. Renovated units should score at least 150 points on the Florida Green Home Standard or 75% of other applicable green standard.

*SUGGESTED DOCUMENTATION:*
Submit copies of Green Home Standard Certificates, or completed Green Home Checklists for renovated units.

*BENEFIT:*
Certified green homes not only help with the local government's environmental goals, but also provide healthy, efficient, and durable living environments for the occupants.

*RESOURCES:*
Florida Green Home Standard Designation:
http://www.floridagreenbuilding.org/standard/homes/Default.htm
Alachua County Housing Authority Green Affordable Home
http://www.floridagreenbuilding.org/news/default.htm#ACHA

## *Control*

**Credit 2: Increase the affordability of affordable housing.**

*ACTIVITY:*
a) Affordable housing constructed by city/county and other parties mandated green. (1 points)
b) Offer incentives for construction of green affordable housing. (1 points)
c) Offer incentives for location efficient affordable housing. (1 points)

*APPROACH:*
Require that all new affordable housing constructed within the city/county be built to an existing green standard. Alternatively, offer an incentive for the construction of green and/or location efficient housing. Example incentives include tax incentives, permitting incentives or other incentives that equate to at least $300 per housing unit.

*SUGGESTED DOCUMENTATION:*
Submit copy of mandate/ordinance/incentive program.

*BENEFIT:*
Certified green and location efficient homes not only help with the local government's environmental goals, but also provide healthy, efficient, and durable living environments for the occupants.

*RESOURCES:*
Florida Green Home Designation Standard
http://www.floridagreenbuilding.org/standard/homes/Default.htm
City of Gainesville Green Building Program
http://library.municode.com/gateway.dll/FL1/florida1/13640/13675/13677?f=templates&fn=default.htm

**Credit 3: Improve current stock of affordable housing.**

ACTIVITY:
a) Remodeling of affordable housing mandated green. (1 points)

APPROACH:
Mandate that the renovated units score at least 150 points on the Florida Green Home Standard or 75% of other applicable green standard.

*SUGGESTED DOCUMENTATION:*
Submit copy of mandate/ordinance/incentive program.

*BENEFIT:*
Certified green and location efficient homes not only help with the local government's environmental goals, but also provide healthy, efficient, and durable living environments for the occupants.

*RESOURCES:*
Florida Green Home Designation Standard
http://www.floridagreenbuilding.org/standard/homes/Default.htm

## *Education*

**Credit 4: Community education.**

*ACTIVITY:*
a) Offer orientation classes for residents of affordable housing or refer to existing courses. (1 point)

*APPROACH:*
Organize and deliver homeowner orientation class to be given to residents that covers important green maintenance and operational aspects of residential housing such as thermostat operation, HVAC filter replacement, and light bulb replacement. Alternatively, existing courses such as the Florida Energy Extension Service "Buy Green and Save" can be leveraged.

*SUGGESTED DOCUMENTATION:*
Submit copies of course agenda and attendance.

*BENEFIT:*
True benefits of green housing are only realized when the occupants understand how their activities interact with the design of the building.

*RESOURCES:*
Florida Energy Extension Service
http://www.energy.ufl.edu/

**Credit 5: Staff education.**

*ACTIVITY:*
a) All applicable staff to complete equivalent of four hours of CEU approved course in green building on a bi-annual basis. (1 points)

*APPROACH:*
Several green building courses are offered on a regular basis throughout the state such as the University of Florida's Build Green and Profit course, and the Florida Solar Energy Center's Failure Proof Building series. This course, as well as others, can also be brought to your specific location.

*SUGGESTED DOCUMENTATION:*
Submit titles and agendas of courses taken, and number of staff who attended.

*BENEFIT:*
Educating staff on green building can assist with implementation of the techniques when projects are specified, and staff can assist with necessary occupant education.

*RESOURCES:*
University of Florida Build Energy Extension Service
http://www.energy.ufl.edu/
Florida Solar Energy Center Building Science Training and Certification Center
http://www.fsec.ucf.edu/ed/contin_ed/bldg_sci.htm

# H - Human Resources

## *Lead by Example*

No Criteria Identified.

## *Control*

### Credit 1: Reduce green house gas emissions.

*ACTIVITY:*
a) Alternative commuting incentives for local government employees. (2 points)

*APPROACH:*
Examples include acquiring free or discounted public transportation fees for local government employees, offering preferred (such as covered) parking for car pool users, or instituting a bonus system for employees who utilize alternative transportation, such a bicycle commuting.

*SUGGESTED DOCUMENTATION:*
Describe the local government's approach to providing an alternative commuting incentive.

*BENEFIT:*
Providing an incentive for alternative community may increase the number of employees that participate, furthering goals of reducing air pollution.

*RESOURCES:*
Kansas City Metropolitan Energy Center bicycle commuting program
http://www.kcenergy.org/NL/2004-05/Bike2Work.htm

### Credit 2: Reduce solid and hazardous waste.

*ACTIVITY:*
a) Provide reusable mug / water bottle to all employees. (1 points)

*APPROACH:*
During employee orientation, provide each new employee with a reusable mug and water bottle. Do not provide disposable cups for employees.

*SUGGESTED DOCUMENTATION:*
Provide photo of beverage container provided to employees.

*BENEFIT:*
This strategy will enable employees to take an active role in the local government's waste reduction goals.

## *Education*

### Credit 3: Staff education.

*ACTIVITY:*

a) New employee orientation includes general local government commitment to environment. (1 points)
b) Conduct or refer to special training on one or more green local government programs. (1 points per required training program, maximum 5 points.)

*APPROACH:*

During new employee orientation, include a segment that details the local government's commitment to the environment, and the Florida Green Local Government program for one point. Maximum of 5 points available for requiring training specific to one or more of the local government's green programs such as an environmentally preferable purchasing (EPP) program, solid and hazardous waste management and recycling, or green fleet management.

*SUGGESTED DOCUMENTATION:*

Provide copies of any printed material used for above mentioned education purposes, or provide agenda to courses employees are referred to.

*BENEFIT:*

New employees should be aware of local government's environmental goals, and should be encouraged to participate.

*RESOURCES:*

North Carolina Department of Environment and Natural Resources Sustainability Orientation
http://www.sustainablenc.org/DENR/orientation.pdf
US EPA EPP Training Tool
http://www.epa.gov/oppt/epp/gentt/index.htm

# I - Information Services

## *Lead by Example*

### Credit 1: Reduce solid and hazardous waste.

*ACTIVITY:*
a) Operate local government computer and equipment reuse center. (1 points)
b) Recycling of end-of-life electronic equipment. (1 points)

*APPROACH:*
A computer and electronic equipment reuse center will arrange for collection of surplus equipment, and make the inventory available to all local government departments. Develop a recycling program for end-of-life electronic equipment.

*SUGGESTED DOCUMENTATION:*
Provide a copy of a brochure, flyer, or web page that is distributed to local government departments explaining the operation of the reuse center. Provide details of recycling effort.

*BENEFIT:*
Computers and equipment considered obsolete for certain purposes may be very capable of performing other tasks within the city/county, and may be in great demand by other employees. When at true end-of-life, proper recycling is an appropriate way to deal with this hazardous waste stream.

*RESOURCES:*
Palm Beach County Solid Waste Authority Business Equipment Reuse Center
http://www.dep.state.fl.us/waste/quick_topics/publications/shw/recycling/InnovativeGrants/IGyear4/finalreport/PalmCountyBERCFinalReportMay2004.pdf
Florida's Strategy for End-Of-Life electronics
http://www.dep.state.fl.us/waste/categories/electronics/pages/strategy.htm
Alachua County Computer Reuse Page
http://environment.alachua-county.org/Pollution_Prevention/hhwaste/E-ReUse/hhw_E-ReUse.htm
Alachua County End-of-Life electronic equipment pilot collection program
http://www.dep.state.fl.us/waste/quick_topics/publications/shw/electronics/alach_99.pdf
EPA Waste Wise Update: Electronics Reuse and Recycling
http://www.epa.gov/epaoswer/non-hw/reduce/wstewise/pubs/wwupda14.pdf
Sarasota County Electronic Disposal Program
http://www.co.sarasota.fl.us/Services/Service.aspx?C6B9C692B2=AC979B

## *Control*

### Credit 2: Conserve energy and resources through policy.

*ACTIVITY:*
a) Enact local government policy whereby all computer/ancillary equipment is turned off when not in use. (1 points)

b) Enact policy whereby all computer/ancillary electronic equipment purchased has conservation features such as standby modes and double sided printing capability. (1 points)

*APPROACH:*
Do not allow computers, copiers, printers, monitors, etc. to remain on when the equipment is not planned for use for at least 3 hours. Ensure all purchased equipment includes the latest conservation features.

*SUGGESTED DOCUMENTATION:*
Provide copies of applicable policies.

*BENEFIT:*
A significant amount of energy can be saved by purchasing equipment with energy conservation features, and ensuring that they are utilized to their fullest extent.

*RESOURCES:*
Energy Star for Government
http://www.energystar.gov/index.cfm?c=government.bus_government

## *Education*

### Credit 3: Community education.

*ACTIVITY:*
a) Operate website dedicated to the green local government program. (1 points)
b) Develop environmental education content for city/county websites, tv programs, etc.

*APPROACH:*
As a part of the local government website, dedicate a section, page, or area that details the local government's involvement in the green local government standard. At a minimum, the content should link to the standard documents, and detail what criteria is being incorporating to comply with the standard. Develop educational outreach elements for the local community, such as television programs, or website content.

*SUGGESTED DOCUMENTATION:*
a) Provide link to the green city/county program website.
b) Provide examples of educational material.

*BENEFIT:*
Keeping citizens informed of the city/county's environmental progress will help with education and involvement of the local community.

*RESOURCES:*
Sustainable Sarasota
http://sarasota.extension.ufl.edu/SS/SS.html
Sustainable Alachua County
http://www.sustainac.org/

Miami-Dade Department of Environmental Resources Management
http://www.co.miami-dade.fl.us/derm/
Florida Green Local Government Standard Environmental Landscaping Video

## Credit 4: Staff education.

*REQUIREMENTS*

a) Conduct regular education on energy use/energy savings modes for in-house computers and ancillary equipment. (1 points)

*APPROACH:*

Conduct training on computer policy for new employees and develop printed material/web based content that updates policy as features/needs change. Conservation features are effective only if used properly.

*SUGGESTED DOCUMENTATION:*

Provide copy of memo, website, or other means used to educate employees on proper equipment usage.

*BENEFIT:*

Often times conservation features of equipment are not used properly, virtually negating their benefit.

*RESOURCES:*

Energy Star for Government
http://www.energystar.gov/index.cfm?c=government.bus_government

# J - Natural Resources Management / Environmental Protection

## *Lead by Example*

### Credit 1: Preserve / enhance habitat.

*ACTIVITY:*
a) Become a designated Waterfronts Florida community. (1 points)
b) Become an Audubon Sustainable Community. (1 point)
c) Create an endangered lands conservation / purchasing program. (1 points)
d) Certify community under National Wildlife Federation Wildlife Habitat program. (1 points)
e) Develop and implement a plan for invasive species removal throughout public lands in the city/county. (1 points)

*APPROACH:*
Leverage Waterfronts Florida program to revitalize and promote interest in waterfront areas. Participate in Audubon International's Sustainable Community Program. Create a program that identifies and focuses on the preservation and/or purchase of endangered lands. Develop a plan for and seek certification under the NWF Community Wildlife Habitat program. Create and implement an action plan for the reduction of urban heat islands. Carry out an invasive species removal program on city/county land.

*SUGGESTED DOCUMENTATION:*
a, b, d) Submit official notice of participation in mentioned programs.
c, e) Provide a description of the program.

*BENEFIT:*
Habitat should be preserved and enhanced for the benefit of maintaining biodiversity, and for the general benefit of the community, and visitors to the community.

*RESOURCES:*
Waterfronts Florida Partnership Program
http://www.dca.state.fl.us/fdcp/dcp/waterfronts/waterfront.htm
Audubon International Sustainable Communities
http://www.audubonintl.org/projects/scc/index.htm
Brevard County Environmentally Endangered Lands Program
http://www.eelbrevard.com
National Wildlife Federation Community Wildlife Habitat Program
http://www.nwf.org/backyardwildlifehabitat/certifyyourcommunity.cfm
Cool Houston! Urban Heat Islands Reduction Program
http://www.harc.edu/harc/Projects/CoolHouston/
Brevard County Invasive Exotic Plant Removal
http://www.brevardcounty.us/environmental_management/plants_nnips_home.cfm

**Credit 2: Engage and learn from other similar departments.**

*ACTIVITY:*
a) Become a member of FLERA. (1 points)

*APPROACH:*
Become a member and participate in the Florida Local Environmental Resource Agencies group. Participate with the FLDEP in their environmental crimes task force.

*SUGGESTED DOCUMENTATION:*
Submit appropriate application forms.

*BENEFIT:*
Participating in such groups allows a local government to learn from the endeavors and activities of others.

*RESOURCES:*
Florida Local Environmental Resource Agencies
http://www.flera.org

## *Control*

**Credit 3: Minimize greenhouse gas emissions and preserve air quality.**

*ACTIVITY:*
a) Offer local tax based or other AFV incentives. (1 points)
b) Enact automobile emissions regulations for vehicles registered in county. (1 points)
c) Require vapor controls at all gas stations. (1 points)
d) Enact open burning regulations. (1 points)

*APPROACH:*
Create tax or other incentives for alternative fueled vehicles (AFV) registered within county of at least $100 per vehicle. Enact an automobile emissions standard for vehicles registered within county. Require all gas stations within jurisdiction to utilize vapor controls on pumps. Prohibit burning of yard wastes, household refuse, and recyclable material.

*SUGGESTED DOCUMENTATION:*
Submit copies of appropriate legislation, ordinance, mandate, etc.

*BENEFIT:*
Incentives and ordinances at the local level can be an effective way of curbing air pollution, and can help prevent an area from being classified as non-attainment by the EPA.

*RESOURCES:*
Model Electric Vehicle Incentive Legislation
http://www.nationalcleancities.org/GovtRelat/electric.asp
Sarasota County Open Burning
http://www.scgov.net/Services/Service.aspx?C6B9C692B2=AC95A0
Florida Green Local Government Standard Green Fleet Management Module

## Credit 4: Preserve / enhance habitat.

*ACTIVITY:*
a) Coastal areas to enact sea turtle ordinance. (1 points)
b) Enact a manatee protection plan. (1 point)
c) Develop a boat facility siting plan. (1 points)

*APPROACH:*
Sea turtle ordinance dealing with appropriate lighting controls in effect and enforced. Official plan in place that evaluates the siting of all marinas on the basis of preservation of key habitat and endangered species (sea grass beds, manatees, etc.).

*SUGGESTED DOCUMENTATION:*
Submit copies of the ordinance/plan.

*BENEFIT:*
Such strategies will help the local government be a steward for marine wildlife and habitat.

RESOURCES:
Florida Fish and Wildlife Commission Sea Turtle Protection Program
http://www.floridaconservation.org/psm/turtles/turtletemplate2.htm
Florida Fish and Wildlife Commission Manatee Protection Program
http://www.floridaconservation.org/psm/manatee/manatee.htm
Sarasota County Manatee Protection Plan
http://scg.co.sarasota.fl.us/Natural_Resources/BFSP/manatee_protection_plan.asp
Florida Fish and Wildlife Commission Boat Facility Siting Guide
http://www.dca.state.fl.us/fdcp/DCP/marinasiting/Boatsite0800.pdf

## Credit 5: Conserve water.

*ACTIVITY:*
a) Enact car wash standards. (1 points)
b) Enact fountain / water feature standards. (1 points)

*APPROACH:*
Require all new car washes (self serve and automatic) to utilize best management practices. Require permitting and design review of fountains and water features to ensure that best management practices are used such as minimizing water evaporation and other losses, using stormwater, etc.

*SUGGESTED DOCUMENTATION:*
Submit copies of appropriate ordinance or mandate.

*BENEFIT:*
By developing or implementing existing conservation strategies for such end uses of water, a significant amount of water can be saved.

*RESOURCES:*
Texas Water Utilities Association Vehicle Washing Tips
http://www.twua.org/p2/Tips/Vehicle_Washing.html
US Environmental Protection Agency Source Water Protection Practices Bulletin
http://www.epa.gov/safewater/protect/pdfs/vehicle.pdf

## *Education*

### Credit 6: Community education.

*ACTIVITY:*
a) Pertinent local GIS and other data on city/county website. (1 points)
b) Air quality index on website. (1 points)
c) Results from water quality testing on website. (1 points)
d) Operate an environmental demonstration / learning center. (1 points)

*APPROACH:*
Make available environmental GIS data and other data such as aerial photographs, Air Quality Index, water quality testing results from natural water bodies, etc. on local government website. Construct and operate a building/complex that focuses on education of environmental issues related to built environment.

*SUGGESTED DOCUMENTATION:*
a-c) Submit appropriate web links to information.
e) Provide a detailed description of the learning center, and educational programs/exhibits contained within.

*BENEFIT:*
Educating the community on various environmental issues may increase awareness and public participation.

*RESOURCES:*
Sarasota County GIS Info
http://gis.co.sarasota.fl.us
St. Johns River Water Management District GIS Data
http://www.sjrwmd.com/programs/data.html
Sarasota County Air Quality Index
http://www.scgov.net/aqi.aspx
Orange County Water Quality
http://www.orangecountyfl.net/topics/Lakes/Default.asp
Brevard County Environmental Field Station
http://www.brevardcounty.us/environmental_management/edu_field_station.cfm
Florida House Learning Center
http://sarasota.extension.ufl.edu/FHLC/flahouse.html

# K - Parks and Recreation

## *Lead by Example*

### Credit 1: Green public amenities.

*ACTIVITY:*

a) Maintain organic community gardens. (1 points)
b) Minimize chlorine in community swimming pools. (1 points)
c) Install appropriate bicycle security at all public amenities. (1 points)
d) Public golf courses are Audubon certified. (1 points for 50% of courses certified, 2 points for 100% of courses certified)
e) Apply green landscaping and irrigation standards, proper waterfront considerations, and integrated pest management to public amenities. (1 points)
f) Minimize heat island effect / stormwater runoff of recreational areas through trees, highly reflective materials, or impervious surface. (1 points)
g) Public beaches adhere to Blue Wave Campaign criteria. (1 points per beach)
h) Implement recycling stations for plastic, glass, and aluminum beverage containers at all recreational areas. (1 points)
i) Implement energy efficient lighting and controls for outdoor stadiums, courts, parks, and playfields. (1 points)

*APPROACH:*

Institute and assist with the maintenance of at least one organic garden as a community amenity. Employ alternative technologies for maintenance of swimming pools such as salt water systems that minimize chlorine use. Place appropriate bicycle racks at public amenities. Achieve Audubon certification for at least one public golf course. Utilize Florida Friendly Landscaping at public amenities. Choose pervious and/or reflective materials for parking lots, walkways, etc and utilize tree canopy. Incorporate Blue Wave Campaign criteria and achieve certification for public beaches. Place recycling containers along with all trash receptacles. Utilize energy efficient bulbs and fixtures, and proper timer controls to ensure public field and stadium lights are not left on overnight.

*SUGGESTED DOCUMENTATION:*

a) Provide description of garden including organic strategies employed, and rules for participation.
b) Provide cut sheet of alternative system used.
c) List all amenities where bicycle racks are placed.
d) Provide listing of all golf courses, and provide certificates for ones that are Audubon certified.
e) Provide standards and techniques employed.
f) Describe strategy to reduce the heat island effect, and provide locations.
g) Submit certification or application for Blue Wave Campaign.
h) Provide photo of appropriate recycling stations, and locations.
i) Describe strategies for achieving energy conservation through appropriate outdoor lighting.

*BENEFIT:*
By "greening" public amenities, local government environmental goals are achieved, and the public is made aware of many of the strategies that can be used on their own private property.

RESOURCES:
University of Florida IFAS Starting a Community Garden
http://edis.ifas.ufl.edu/EP124
Sarasota County Community Garden
http://www.co.sarasota.fl.us/Services/Service.aspx?C6B9C692B2=AA9397&D4C7CF=C6B9C691ADA2AAA393958098A6A9A29597789D94A6AD979D829AAB93C3B0
Salt Water Pool Systems
http://www.poolplaza.com/pool-school/salt_pools.shtml
Audubon Signature Golf Course
http://www.audubooninternational.org/programs/acss/golf.htm
Florida Yards & Neighborhoods Program
http://hort.ifas.ufl.edu/fyn/
Florida Green Local Government Standard Environmental Landscaping Module
Sarasota County Landscaping Ordinance
http://sarasota.extension.ufl.edu/Hort/LandscapeOrd.html
Cool Neighborhoods: The measurement of small scale heat islands
http://www.fsec.ucf.edu/bldg/pubs/pf363/index.htm
Alternatives to impervious pavement
http://www.uri.edu/ce/wq/has/html/imperv.html
Blue Wave Campaign
http://www.cleanbeaches.org/bluewave/bluewave.cfm
Energy Efficient Lighting
http://www.eere.energy.gov/consumerinfo/factsheets/eelight.html
Dark Sky Association
http://www.darksky.org

## *Control*

No criteria identified.

## *Education*

### Credit 2: Staff education

*ACTIVITY:*
a) Each staff member trained in an area related to their function on a bi-annual basis. (1 points)

*APPROACH:*
Take advantage of the multitude of green education offered by a local extension service by requiring staff attend at least one course, twice a year, for a total of 6 CEU.

*SUGGESTED DOCUMENTATION:*
Submit names of staff members and title/agenda for courses they are scheduled for.

*BENEFIT:*
Training staff in "green building" will enable them to design and implement green strategies in their daily activity.

## Credit 3: Community education

*ACTIVITY:*
a) Place informative signs and/or brochures at green features of public amenities that detail their benefits. (1 points)

*APPROACH:*
Individual signs/placards may be placed at each feature, or a collection of information can be made available in a central area for each green amenity.

*SUGGESTED DOCUMENTATION:*
Submit examples of material of photos of material.

*REFERENCES:*
Florida Green Local Government Standard Environmental Landscaping posters

# L - Planning and Zoning

## *Lead by Example*

### Credit 1: Monitor and track green building within the city/county.

*ACTIVITY:*

a) Develop a system of sustainable community indicators related to local government planning. (1 points)
b) Link indicators to a GIS system. (1 points).
c) Assist other departments with the tracking of indicators related to their function. (1 points per department – max 5 points).

*APPROACH:*

Develop system of community indicators consisting of at least 10 indicators related to green building. Example indicators include vehicle miles traveled per day, number of pedestrian trips made per day (no automobile used), pedestrian network coverage, proper solar orientation of streets, etc. Achieve additional points for linking the indicators to a Geographic Information System for ease in assessing areas in need of attention. Utilize capabilities to assist other departments with the creation, tracking, and use of functionally related indicators.

*SUGGESTED DOCUMENTATION:*

Submit list of indicators used, and how they are used for planning purposes. Describe whether a GIS system is used in conjunction with those indicators, and whether the knowledge about such a system for planning has been extended to other departments.

*BENEFIT:*

Tracking indicators related to green building can assist in setting future goals related to environmental stewardship within the city/county.

*RESOURCES:*

City of Tampa Community Indicators Report
http://sustainable.state.fl.us/fdi/fscc/news/wkshp/or1199/indexrpt.pdf
Orange County Indicators Report
http://www.hciflorida.org/library/pdfs/Legacy%20Report.pdf

### Credit 2: Preserve / enhance pedestrian travel within the city/county to reduce green house gas.

*ACTIVITY:*

a) Maintain a bicycle / pedestrian coordinator on staff. (1 points)
b) Implement FDOT "12 Steps Towards Walkable Communities" into planning process. (1 points).
c) Healthy street design is official local government policy. (1 points)

*APPROACH:*
Bicycle / pedestrian coordinator to be a full time staff position and individual should be involved with review of all city/county planning. Minimize stormwater runoff and reduce greenhouse gas emissions by encouraging walkability and minimizing street width through adoption of FDOT program and/or "Street Design Guidelines for Healthy Neighborhoods" from Walkable Communities, Inc.

*SUGGESTED DOCUMENTATION:*
a) Submit name of staff member and brief job description.
b) Describe how the FDOT recommendations are considered for planning purposes.
c) Submit copy of ordinance or mandate whereby "Street Design Guidelines for Healthy Neighborhoods" must be considered when planning new projects.

*BENEFIT:*
By providing appropriate means of pedestrian travel, vehicle miles can be reduced, thereby assisting with prevention of air pollution.

*RESOURCES:*
Brevard County Bicycle/Pedestrian Program
http://www.brevardmpo.com/Bike/ped.htm
FL Department of Transportation Walkable Communities: 12 steps to an Effective Program
http://www.dot.state.fl.us/safety/ped_bike/brochures/pdf/12STEPS.PDF
Healthy Street Design
http://www.walkable.org/

## *Control*

### Credit 3: Green building incorporated into city/county planning process.

*ACTIVITY:*
a) Develop urban area boundaries. (1 points)
b) Encourage mixed-use zoning / development. (1 points)
c) Maintain or reduce net impervious surface area through zoning decisions. (1 points)

*APPROACH:*
Limit sprawl by developing an urban area boundary that limits city infrastructure. Do not allow single-use zoning or subdividing for projects over 10 acres. Do not allow re-zoning that will increase the amount of impervious surface through new parking lots, etc., or permit the activity along with appropriate mitigation/controls.

*SUGGESTED DOCUMENTATION:*
a) Submit location of urban service boundaries.
b-c) Submit mandate or ordinance related to mixed-use zoning and new parking areas.

*BENEFIT:*
Making appropriate decisions when it comes to zoning and re-zoning can help achieve green local government goals.

## *Education*

**Credit 4: Staff education.**

*ACTIVITY:*

a) Organize green building seminars and/or training sessions for staff and elected officials to attend on a bi-annual basis, or send staff to external courses. (1 point)

*APPROACH:*

Arrange for speakers from other local governments or professional organizations to give in-house seminars, or leverage other green building training opportunities for staff.

*SUGGESTED DOCUMENTATION:*

Submit overview of seminars, including location, speakers, and agenda.

*BENEFIT:*

Staff education on green building issues can foster new thinking when it comes to local planning.

*RESOURCES:*

Healthy Street Design Training
http://www.walkable.org/services.htm
Tampa Bay Regional Planning Council Traffic Calming Workshop
http://www.tbrpc.org/livable/traffic.htm

# M - Ports and Marinas

## *Lead by Example*

### Credit 1: Preserve aquatic habitat

*ACTIVITY:*
a) Take part in Florida Clean Marina program. (1 points)
b) Implement advanced stormwater controls and waterfront considerations. (1 points)

*APPROACH:*
Certify marinas under the FLDEP Division of Law Enforcement Florida Clean Marina Program. Implement advanced stormwater controls such as pervious parking and other proper waterfront considerations such as landscaping for erosion control.

*SUGGESTED DOCUMENTATION:*
a) Submit evidence of certification, or completed program application.
b) Submit details of advanced controls, and locations where implemented.

*BENEFIT:*
Certified Clean Marinas promote stewardship that significantly reduces hazardous waste discharge, as well as solid waste generation.

*RESOURCES:*
Florida's Clean Marina Program
http://www.dep.state.fl.us/law/Grants/CMP/
Florida Yards and Neighborhoods Program
http://hort.ifas.ufl.edu/fyn/

## *Control*

### Credit 2: Preserve aquatic habitat

*ACTIVITY:*
a) Offer low pollution engine incentives. (1 points)

*APPROACH:*
Offer incentives for customers using environmental controls such as 4-stroke engines, or direct injection 2-stroke engines. Incentives could include reduced slip fees, etc.

*SUGGESTED DOCUMENTATION:*
Provide details of incentive, including approximate dollar amount or equivalent, and participation in the program.

*BENEFIT:*
Tangible incentives can help offset the cost of advanced equipment encountered by end users.

*RESOURCES:*
New Hampshire Department of Environmental Services Fact Sheet
http://www.des.state.nh.us/factsheets/ard/ard-31.htm

## *Education*

### Credit 3: Boater education

*ACTIVITY:*
a) Host boater education classes. (1 points)

*APPROACH:*
Classes can include elements of Florida Clean Marina Program, endangered/threatened species protection, and protection of crucial habitat such as sea grass beds, etc.

*SUGGESTED DOCUMENTATION:*
Provide information on classes including speakers, agenda, and attendance figures.

*BENEFIT:*
In order to extend principles incorporated by the city/county, the public should be aware of various programs, and what roles they can play in ensuring success.

*RESOURCES:*
Florida's Clean Marina Program
http://www.dep.state.fl.us/law/Grants/CMP/

# N - Property Appraiser / Tax Collector

## *Lead by Example*

### Credit 1: Monitor and track green buildings.

*ACTIVITY:*
a) Include green features / ratings of homes in database. (1-2 points)

*APPROACH:*
For one point, include an indicator of environmental certification for each building within the public database. For two points, include specific environmental features of the buildings in the database.

*SUGGESTED DOCUMENTATION:*
Describe what features of homes are identified.

*BENEFIT:*
Green features increase the market value of homes, and are beginning to influence home buyer decisions.

*RESOURCES:*
Florida Green Building Coalition Standards
http://www.floridagreenbuilding.org/standard/Default.htm
Florida Home Energy Ratings
http://www.fsec.ucf.edu/bldg/fyh/ratings/

## *Control*

### Credit 2: Incentives for green building.

*ACTIVITY:*
a) Tax incentives for certified green properties. (2 points)
b) Tax incentives for lands qualifying as historic, high water recharge, greenbelt, etc. (2 points)

*APPROACH:*
When determining an assessed value of a home, an "environmental exemption" could be offered for homes and buildings certified under green or Energy Star standards such that the tax base is lowered, acting as an incentive.

*SUGGESTED DOCUMENTATION:*
Describe how the "environmental exemption" and/or tax incentives are structured.

*BENEFIT:*
Green homes benefit the entire community, due to their environmental performance. Tax based incentives is one way to foster construction/renovation of green homes within the community.

*RESOURCES:*
Florida Green Building Coalition Standards
http://www.floridagreenbuilding.org/standard/Default.htm
Florida Home Energy Ratings
http://www.fsec.ucf.edu/bldg/fyh/ratings/

## *Education*

### Credit 3: Industry education.

*ACTIVITY:*
a) Green education to local lending / real estate industry (1 point).

*APPROACH:*
Offer courses to realtors, bank appraisers, and or other local lending professionals on the benefits of green features and green properties.

*SUGGESTED DOCUMENTATION:*
Provide details of courses developed in house, or external courses referred to.

*BENEFIT:*
Realty, appraisal and lending professionals need to know the inherent benefits of green features, to accurately account for their value in the marketplace.

*RESOURCES:*
Appraisal Journal Article on Market Value of Energy Efficiency
http://www.natresnet.org/herseems/appraisal.htm
Florida Energy Extension Service
http://www.energy.ufl.edu

# O - Public Transportation

## *Lead by Example*

### Credit 1: Reduce green house gas emissions.

*ACTIVITY:*
a) Utilize alternative fuels for fleet. (2 points)
b) Institute a bicycle commuter assistance program. (1 points)
c) Make amends for vehicles to accommodate bicycles. (1 points)
d) Engage in carpool/vanpool assistance. (1 points)

*APPROACH:*
Operate and maintain a fleet that runs on an alternative fuel such as CNG or biodiesel. Develop and maintain a free bicycle-sharing program for select areas of the community. Ensure that public transportation fleet can store bicycles on board. Provide a service that facilitates ride sharing within the city/county.

*SUGGESTED DOCUMENTATION:*
Submit number and types of vehicles using alternative fuels, and fuel type chosen. Describe elements of bicycle-sharing program. Submit photo of features that allow public transportation to accommodate bicycles.

*BENEFIT:*
Alternative fuels significantly reduce the amount of air pollution generated by a city/county. Encouraging bicycle transportation can help reduce private vehicle miles traveled.

*RESOURCES:*
Florida Green Local Government Standard Fleet Management and Vehicle Maintenance Module
Portland, OR Community Cycling Center Programs
http://communitycyclingcenter.org/programs.html
Gainesville Bikes on Buses
http://www.go-rts.com/bikes.html
Space Coast Area Transit Car Pool Matching
http://www.ridescat.com/cummuter-assistance/carpool.php

### Credit 2: Monitor and track green building progress.

*ACTIVITY:*
a) Analyze public transportation route system to determine connectivity to bicycle and pedestrian network. (1 points)

*APPROACH:*
Using GIS or other means, analyze the public transportation route system to determine connectivity to the bicycle and pedestrian network.

*SUGGESTED DOCUMENTATION:*
Submit overview of study, and degree of connectivity to bicycle and pedestrian network.

*BENEFIT:*
Sometimes small changes in public transportation routes can enhance ridership, especially if stops are easily accessible on foot or bicycle.

RESOURCES:
City of Tallahassee Bicycle/Pedestrian Program
http://www.state.fl.us/citytlh/planning/trans/bikeped/transbp.html

**Credit 3: Reduce solid and hazardous waste.**

*ACTIVITY:*
a) Operate a green fleet. (1 points)

*APPROACH:*
Incorporate at least 75% of the applicable best management practices outlined in chapters C-M of the Florida Green Local Government Standard Fleet Management and Vehicle Maintenance Module.

*SUGGESTED DOCUMENTATION:*
Submit details of green fleet management plan.

*BENEFIT:*
Green fleets significantly reduce the generation of solid and hazardous waste by the local government.

*RESOURCES:*
Florida Green Local Government Standard Fleet Management and Vehicle Maintenance Module and Posters

## *Control*

No criteria identified.

## *Education*

**Credit 4: Community education.**

*ACTIVITY:*
a) Provide public transportation route searching via the internet. (1 points)
b) Provide information about alternative commuting on website. (1 points)

*APPROACH:*
Operate a website where routes are displayed. Another approach would allow citizens to determine an available public transportation route by entering a starting point and ending destination. Also provide content that suggests and explains other methods of commuting, such as bicycle commuting or carpools.

*SUGGESTED DOCUMENTATION:*
Submit website address.

*BENEFIT:*
Access to public transportation routes over the internet allows for easier planning for riders when using the system for both routine and non-routine journeys.

*RESOURCES:*
Gainesville Area Regional Transit System Routes and Schedules
http://www.go-rts.com/routes/index.asp
Space Coast Area Transit Bicycle Commuting Information
http://www.ridescat.com/cummuter-assistance/bike.php

# P - Public Works and Engineering

## *Lead by Example*

### Credit 1: Minimize solid and hazardous waste through recycling and reuse.

*ACTIVITY:*
a) Develop a construction project waste management/recycling plan. (3 points)
b) Operate a local government material/chemical reuse/redistribution center. (1 points)
c) Operate a community tool lending library. (1 points)
d) Maintain a green fleet program for department (2 points) or entire local government (4 points).
e) Utilize integrated pest management. (1 points)

*APPROACH:*
Develop a construction project waste management/recycling plan to be implemented prior to undertaking any construction project (roads, buildings, etc.). Plan should call for environmental and economic evaluation of various recycling, reuse, and disposal alternatives for waste generated by project. Oversee a center whereby surplus equipment/material/chemicals are made available for reuse to local government staff, or the community. Oversee a community tool lending library. Spearhead efforts to maintain green fleets within the local government by incorporating at least 75% of the applicable best management practices outlined in chapters C-M of the Florida Green Local Government Standard Fleet Management and Vehicle Maintenance Module. Incorporate a system of integrated pest management for use at all local government buildings, landscapes, and facilities.

*SUGGESTED DOCUMENTATION:*
a) Copy of plan implementation procedures.
b-c) Provide location of center and/or library, and hours of operation.
d) Provide details of green fleet program.
e) Submit elements of IPM program.

*BENEFIT:*
Employing various recycling and reuse strategies reduced the amount of solid and hazardous waste that must be disposed of.

*RESOURCES:*
Build Your Own CDL Program
http://www.ecy.wa.gov/programs/swfa/cdl/toolbox_howto.htm
Sarasota County Recycled Paint
http://www.scgov.net/Content/Content.aspx?C7A6C692B2=A6959A&D4C7CF=C7A6C691ADA2A6A596958098A7A4A29597789D94A4AD9498829EA493C3B0
City of Berkeley, CA Tool Lending Library
http://berkeleypubliclibrary.org/tool/index.html
Florida Green Local Government Standard Fleet Management and Vehicle Maintenance Module and Posters.
Sarasota County Integrated Pest Management
http://sarasota.extension.ufl.edu/IPM/ipm.htm

## Credit 2: Minimize green house gas emissions.

*ACTIVITY:*
a) Operate local government alternative fueling station. (1 points)
b) Earn waste reduction credit through the production of clean-burning fuels. (1 points)

*APPROACH:*
If a local government fleet operates on alternative fuel, operate and maintain a refueling station. County governments get waste reduction credits for using yard clippings, clean wood waste, or paper waste as feedstocks for the production of clean-burning fuels such as ethanol.

*SUGGESTED DOCUMENTATION:*
Submit location of station, and fuel type. Describe clean-burning fuel production feedstock and process.

*BENEFIT:*
Alternative fuels conserve resources and minimize vehicular emissions to the atmosphere.

*RESOURCES:*
Florida Green Local Government Standard Fleet Management and Vehicle Maintenance Module.
Florida Statute 403.706
http://www.flsenate.gov/Statutes/index.cfm?mode=View%20Statutes&SubMenu=1&App_mode=Display_Statute&Search_String=&URL=CH0403/Sec706.HTM

## Credit 3: Minimize local government energy use.

*ACTIVITY:*
a) Use LED traffic lights. (1 points)
b) Utilize solar or other energy efficient streetlights. (1 points)
c) Operate a Rebuild America program for the local government. (1 points)

*APPROACH:*
Develop a plan for replacing conventional traffic and streetlights with energy efficient models. Organize a constituency to become a Department of Energy Rebuild America partnership.

*SUGGESTED DOCUMENTATION:*
a-b) Submit details of light replacement plan, or dates that lights were retrofitted to more efficient technology.
d) Provide a list of partners in the program.

*BENEFIT:*
Significant savings can be achieved by upgrading various light fixtures to more efficient models. Rebuild America partnerships work towards energy efficient improvements in the local government sector.

*RESOURCES:*
Florida Traffic Engineering Research Lab LED Traffic Signal Testing
http://rite.eng.fsu.edu/led/products.shtml

City of St. Cloud success with LED Traffic Lights
http://www.stcloud.org/index.asp?SID=445
Rebuild Sarasota
http://www.rebuild.gov/partnerships/communityview.asp?OrganizationID=1161

## Credit 4: Enhance storm water control and water conservation.

*ACTIVITY:*
a) Street sweeping. (1 points)
b) Routine maintenance plan for maintenance of storm sewers. (1 points)
c) Employ green landscaping procedures for local government facilities. (1 points)

*APPROACH:*
Assist local government to comply with requirements of National Pollutant Discharge Elimination System (NPDES) permit through street sweeping and storm sewer maintenance activities. Utilize the green landscaping practices as detailed for local governments to reduce the need for fertilizer.

*SUGGESTED DOCUMENTATION:*
a-b) Provide details of street sweeping and storm sewer maintenance schedule.
c) Provide details of landscaping activities and landscape fertilization plan (include type of fertilizers used, method of application, and application schedule).

*BENEFIT:*
The pollutant load that stormwater places on natural and artificial treatment systems can be reduced through various strategies.

*RESOURCES:*
City of Tampa Street Sweeping Operations
http://www.tampagov.net/dept_stormwater/operations/strinlet.asp
City of Tampa Storm Sewer Maintenance
http://www.tampagov.net/dept_stormwater/operations/sewmaint.asp
Florida Green Local Government Standard Environmental Landscaping Module

## Credit 5: Preserve/enhance street tree coverage.

*ACTIVITY:*
a) Become a Tree City USA. (1 points)

*APPROACH:*
Fulfill the requirements of this National Arbor Day Foundation program.

*SUGGESTED DOCUMENTATION:*
Submit official certification, or application for certification.

*BENEFIT:*
Tree City USA often involves the entire community in the planting of trees for many environmental benefits including shade value and wildlife habitat.

*RESOURCES:*
National Arbor Day Foundation Tree City USA Program
http://www.tampagov.net/dept_stormwater/operations/sewmaint.asp

## *Control*

**Credit 6: Reward innovation.**

*ACTIVITY:*
a) Develop a reward/incentive program for employee environmental innovation in public works. (1 points)

*APPROACH:*
Create a forum/mechanism by which employees can make suggestions to enhance the environmental performance of public works functions, along with an awards or incentive program.

*SUGGESTED DOCUMENTATION:*
Describe the operation of the forum/mechanism.

*BENEFIT:*
Often times, due to their constant field involvement, employees can generate interesting and innovative ideas geared towards environmental stewardship that decision makers may overlook.

## *Education*

**Credit 7: Staff education.**

*ACTIVITY:*
a) Offer green fleet management training to all applicable departments. (1 points)
b) Train and certify select staff as certified arborists. (1 points)

*APPROACH:*
Become schooled in the facets of green fleet management and provide outreach to other local government departments not currently utilizing a green fleet. Select staff to undertake necessary training to become a certified arborist by the International Society of Aboriculture.

*SUGGESTED DOCUMENTATION:*
Submit materials that describe the type of training/outreach offered. Submit copies of individual certifications.

*BENEFIT:*
Generally, public works has the necessary equipment, staff, and facilities to operate a green fleet program, and is best suited to extend the program to other departments. Certain public works staff should be trained in aboriculture such that tree planting, trimming, and preservation are carried out in an effective fashion.

*RESOURCES:*
Florida Green Local Government Standard Fleet Management and Vehicle Maintenance Module and Posters
International Society of Aboriculture
http://www.isa-arbor.com/home.asp

## Credit 8: Community Education

*ACTIVITY:*
a) Community stormwater education campaign. (1 points)

*APPROACH:*
Place informative stickers or use stenciling on important aspects of stormwater management systems (outfall pipes, drains, impervious surface, etc.) throughout the city/county. Many can be obtained from the local water management district.

*SUGGESTED DOCUMENTATION:*
Submit examples or photos of stickers or stencils.

*BENEFIT:*
Stormwater conveyance marking may help educate the public about the path stormwater takes through the community, and may help them to respect, and not negatively impact the system.

*RESOURCES:*
Indian River Lagoon Storm Drain Stenciling
http://sjr.state.fl.us/programs/outreach/pubs/irl_update/01sum01.html#2

# Q - School Board

## *Lead by Example*

### Credit 1: Reduce green house gas.

*ACTIVITY:*
a) Utilize alternative fuel for school busses. (2 points)

*APPROACH:*
School bus fleet operates on an alternative fuel such as CNG or biodiesel.

*SUGGESTED DOCUMENTATION:*
Submit details of fuel type used, source of fuel, refueling stations, and appropriate training of mechanics.

*BENEFIT:*
Alternative fuels generate significantly less gas and particulate emissions than diesel.

*RESOURCES:*
Florida Green Local Government Standard Fleet Management and Vehicle Maintenance Module

### Credit 2: Preserve / enhance habitat

*ACTIVITY:*
a) School grounds certified by environmental program. (1-5 points)

*APPROACH:*
Seek certification of individual school grounds by state or national programs such as those offered from Audubon International, Florida Yards & Neighborhoods, National Wildlife Federation, etc. Receive one point for each 20% of school grounds certified.

*SUGGESTED DOCUMENTATION:*
Submit certification or application for certification materials.

*BENEFIT:*
Organized programs provide well defined goals, strategies to achieve those goals, and offer an incentive to follow through with the entire program.

*RESOURCES:*
Florida Yards & Neighborhoods Program
http://hort.ifas.ufl.edu/fyn/
Audubon International Cooperative Sanctuary Program
http://www.audubooninternational.org/programs/acss/index.htm
National Wildlife Federation Schoolyard Habitats
http://www.nwf.org/schoolyardhabitats/index.cfm
Florida Green Local Government Standard Environmental Landscaping Module

## Credit 3: Reduce solid waste

*ACTIVITY:*
a) School system utilizes a pollution prevention / EPP program. (1 points)
b) School equipment reuse program / swap shop. (1 points)
c) Operate and maintain a green fleet program. (1 points)

*APPROACH:*
Develop and implement a specialized pollution prevention and/or environmentally preferable purchasing program (EPP) for the school system. Create a specialized equipment reuse program for the school system. Practice green fleet management within the school system by incorporating at least 75% of the applicable best management practices outlined in chapters C-M of the Florida Green Local Government Standard Fleet Management and Vehicle Maintenance Module.

*SUGGESTED DOCUMENTATION:*
a) Submit guidelines by which the school system uses for purchase of equipment and supplies.
b) Describe operation and location of reuse program/swap shop.
c) Describe elements of the green fleet program that are used by the school vehicle system.

*BENEFIT:*
a) By purchasing environmentally preferable supplies, indoor air quality can be enhanced, as well as product recycled content / recyclability.
b) Reuse of school equipment can save the local government money while at the same time helping to achieve solid waste management goals.
c) Green fleet programs provide enhanced risk management for the school system, by reducing generation of solid and hazardous waste.

*RESOURCES:*
Pollution Prevention in Schools
http://www.mercuryinschools.uwex.edu/act/p2.htm
Palm Beach County Solid Waste Authority Business Equipment Reuse Center
http://www.dep.state.fl.us/waste/quick_topics/publications/shw/recycling/InnovativeGrants/IGyear4/finalreport/PalmCountyBERCFinalReportMay2004.pdf
Alachua County Computers for Schools Program
http://www.pcsforschools.org/howhlp/howtodon.html
Leon County School Transportation Department
http://www.dep.state.fl.us/waste/categories/p2/pages/leon.htm
Florida Green Local Government Standard Fleet Management and Vehicle Maintenance Module

## Credit 4: Construct and maintain green buildings.

*ACTIVITY:*
a) Green operation and maintenance of buildings. (1 points)
b) Construct / renovate green schools. (1-10 points)

*APPROACH:*
Incorporate the green cleaning and maintenance principles of the Creating Green and Profitable Work Environments Guide in the school system. Construct new schools or renovate existing schools to meet an existing green building standard. Score 1 point for each 10% of school buildings meeting an FGBC or USGBC green building standard.

*SUGGESTED DOCUMENTATION:*
a) Submit a copy of the "baseline checklist" included in the guide to show which principles have been incorporated.
b) Submit certifications received for school buildings.

*BENEFIT:*
There are many existing programs that can help guide school construction and maintenance that improve the life-cycle cost and environmental performance of the buildings.

*RESOURCES:*
Creating Green and Profitable Work Environments
http://www.fsec.ucf.edu/bldg/commercial/cleaning/index.htm
Brevard County School System Custodial Standards
http://ehs.brevard.k12.fl.us/PDF%20files/custodial_procedures.PDF
Florida Green Building Coalition Commercial Building Standard
http://floridagreenbuilding.org/standard/com/default.htm
USGBC LEED Standards
http://www.usgbc.org/leed/leed_main.asp

## *Control*

**Credit 5: Green building becomes official policy**.

*ACTIVITY:*
a) Mandates for green buildings / green cleaning and maintenance. (2-4 points)

*APPROACH:*
School Board enacts requirements for construction of new schools (4 points) or renovation of existing schools (3 points) to green building standards or employing green cleaning and maintenance standards in all schools (2 points).

*SUGGESTED DOCUMENTATION:*
Submit copies of official ordinance or mandate.

*BENEFIT:*
By requiring such activity, environmental performance goals are ensured.

*RESOURCES:*
Creating Green and Profitable Work Environments
http://www.fsec.ucf.edu/bldg/commercial/cleaning/index.htm
Florida Green Building Coalition Commercial Building Standard
http://floridagreenbuilding.org/standard/com/default.htm

USGBC LEED Standards
http://www.usgbc.org/leed/leed_main.asp

## *Education*

### Credit 6: Student education

*ACTIVITY:*
a) Involve students in green projects within the school. (2 points)
b) Involve students in green projects outside the school. (2 points)

*APPROACH:*
Students are exposed to green building through lesson plans such as by taking part in the Alliance to Save Energy Green Schools program or curricula developed by the Florida Solar Energy Center. Students can also be exposed to green building outside of lesson plans through field trips to green local government features and involvement in projects that enable school grounds to be certified by state and national programs.

*SUGGESTED DOCUMENTATION:*
Submit details of projects, either in-house, external, or both, which engage students in green building education.

*BENEFIT:*
Green building education can fulfill part of the requirements for science curriculums.

*RESOURCES:*
Alliance to Save Energy Green Schools Program
http://www.ase.org/section/program/greenschl/
Florida Solar Energy Center Education Resources
http://www.fsec.ucf.edu/ed/teachers/
Alachua County Environmental Park Tours
http://www.environmentalpark.alachua.fl.us/tours.htm

### Credit 7: Staff education.

*ACTIVITY:*
a) Incentives for environmental training of teachers over the summer. (2 points)

*APPROACH:*
School Board offers incentives for teachers who choose environmentally based learning opportunities/projects during the summer season.

*SUGGESTED DOCUMENTATION:*
Submit details of coursework offered to staff, and incentives for completing such coursework.

*BENEFIT:*
Incentive based summer learning opportunities are an effective way to bring environmental curricula into the classroom.

*RESOURCES:*
Alliance to Save Energy Green Schools Program
http://www.ase.org/section/program/greenschl/
Florida Solar Energy Center Education Resources
http://www.fsec.ucf.edu/ed/teachers/

# R - Solid Waste

## *Lead by Example*

### Credit 1: Reduce local government solid waste

*ACTIVITY:*
a) Become a partner in the EPA waste wise program. (1 points)
b) City/County wide chemical/hazardous waste collection. (1 points)
c) Operate public reuse store / swap shop. (1 points)
d) C&D separation for recycling at landfill (wood pallets, metals, cardboard, carpet padding, brick, cement, etc.) (1 points)
e) Offer recycled paint back to community. (1 points)
f) Landfill gas recovery. (1 points)
g) Develop a disaster waste management plan. (1 points)

*APPROACH:*
Become an official partner of the US EPA waste wise program. Conduct community wide hazardous waste collection, either through curbside pickup or a designated drop off facility for items such as paint, chemicals, mercury, antifreeze, batteries, electronic equipment etc. Drop-off for items such as spent rechargeable batteries may take place via bins where new product is sold. Operate a public reuse store / swap shop where community members can drop off /purchase reusable materials/equipment, or partner with a local Habitat for Humanity affiliate to maintain a Habitat ReStore. Institute separation of reusable items such as wood, pallets, metals, cardboard, carpet padding, brick, cement, etc. at C&D landfill either for recycling or for resale. Conduct in house or contracted paint collection and recycling and offer recycled paint back to the community. Institute landfill gas recovery at landfills and utilize for heat or power. Develop a disaster waste management plan that involves recovery of reusable materials.

*SUGGESTED DOCUMENTATION:*
a) Submit copy of Waste Wise partner application.
b) Submit information used to inform employees of collection activities.
c) Submit location and hours of operation for reuse store / swap shop.
d) Describe types and amounts of items separated out of general waste stream at landfill.
e) Provide example of material used to educate the public about the availability of recycled paint.
f) Provide overview of landfill gas recovery system and end use of energy recovered.
g) Describe waste management efforts and recovery plan in the event of a disaster.

*BENEFIT:*
Several opportunities exist to reduce the amount of material entering the landfill, thereby extending their useful life.

*RESOURCES:*
US EPA Waste Wise Program
http://www.epa.gov/wastewise/
Sarasota County Project Green Sweep
http://www.co.sarasota.fl.us/Services/Service.aspx?C6B9C692B2=AC979D&D4C7CF=C6B9C691ADA2ACA799958198A6A3A29597789D94A4A59D977CA3A7A393B3B4

Alachua County Hazardous Waste Collection
http://environment.alachua-county.org/Pollution_Prevention/hhwaste/round.htm
Habitat for Humanity ReStore Directory
http://www.habitat.org/env/restore_detail.aspx?place=88
Orange and Seminole Counties Drywall Recycling Pilot
http://www.americanrecycler.com/02florida03.html
Sarasota County Recycled Paint
http://www.scgov.net/Content/Content.aspx?C7A6C692B2=A6959A
University of Florida IFAS "Energy in Garbage" Article
http://edis.ifas.ufl.edu/BODY_EH333
US EPA Disaster Debris Document
http://www.epa.gov/epaoswer/non-hw/muncpl/debris.htm

## Credit 2: Monitor and track green building.

*ACTIVITY:*
a) Curbside recycling for homes and businesses. (1 points)
b) Monitor types and amounts of material entering landfill. (1 points)

*APPROACH:*
Monitor participation rates for residential and commercial recycling and develop a strategy to increase participation. Monitor types and amounts of material entering landfill and develop programs to identify areas where minimization improvements are needed.

*SUGGESTED DOCUMENTATION:*
a) Submit recycling schedule and types of bins used / commodities recycled.
b) Explain strategy for monitoring material entering landfill and include some data.

*BENEFIT:*
Curbside recycling may enhance recycling participation. By monitoring types and amounts of material entering landfill, it can be used as an indicator to help decide where to target solid waste reduction efforts.

RESOURCES:
Polk County Municipal Solid Waste Reduction and Reuse Measurement Guide
http://www.dep.state.fl.us/waste/quick_topics/publications/shw/recycling/InnovativeGrants/IGyear5/PolkCountyWasteReductionGrantFinal.pdf

## Credit 3: Preserve / Enhance habitat.

*ACTIVITY:*
a) Closed landfill management. (1 points)

*APPROACH:*
Properly manage closed landfills such that the land can be used as a community amenity such as a park.

*SUGGESTED DOCUMENTATION:*
Submit closed landfill management plan.

*BENEFIT:*
Proper management of closed landfills allows for the land to be used as a community amenity.

*RESOURCES:*
Landfill Closure: End Uses
http://www.forester.net/msw_9909_landfil_closure.html

## *Control*

### Credit 4: Local business incentives / regulations

*ACTIVITY:*
a) Incentives for local businesses who utilize EPP or other solid waste reduction strategy. (1 points)
b) Mandatory recycling of typical recyclables and C&D debris for homes and businesses. (1 points)

*APPROACH:*
Develop an incentive of at least $200 per business for those that employ environmentally preferable purchasing (EPP) or other solid waste reduction strategy. Enact mandatory and enforced recycling of typical recyclables and C&D debris.

*SUGGESTED DOCUMENTATION:*
a) Submit details of incentive and any application materials.
b) Submit language of ordinance or mandate.

*BENEFIT:*
Offering some kind of incentive may increase participation of local businesses in the communities EPP program, or could encourage them to develop one of their own. Enforcing a recycling mandate will help ensure that solid waste management goals are met.

*RESOURCES:*
Hawaii Green Business Program
http://www.hawaii.gov/dbedt/ert/greenbusiness/

### Credit 5: Minimize solid waste generation.

*ACTIVITY:*
a) Volume based or special rates for solid waste collection. (1 points)
b) Offer mulched yard waste to community. (1 points)

*APPROACH:*
Institute collection/disposal rates based on volume for all customers and/or elevated rates for special collections. Effectively market source of mulch from chipped yard waste to community.

*SUGGESTED DOCUMENTATION:*
a) Provide details of rate structure.
b) List pick up locations for mulched yard waste.

*BENEFIT:*
Volume based rates may inherently encourage waste minimization. Offering free mulch not only relieves the local government of a source of waste, but also promotes waterwise landscapes. Ensure that available mulch is generated from appropriate species/sources.

*RESOURCES:*
Reason Public Policy Institute Variable Rates for Municipal Solid Waste
http://www.rppi.org/environment/ps160.html
Wisconsin volume based fee collection guide
http://www.p2pays.org/ref/21/20329.pdf
Brevard County Yard Waste Collection and Mulching
http://countygovt.brevard.fl.us/swr/yardwaste.cfm

## *Education*

### Credit 6: Community education.

*ACTIVITY:*
a) Teach EPP / recycling to local businesses. (1 points)
b) Develop education program for solid waste management. (1 points)

*APPROACH:*
Provide education and outreach on environmentally preferable purchasing (EPP) and other solid waste reduction approaches to the local community.

*SUGGESTED DOCUMENTATION:*
Submit details of courses or other components of education program.

*BENEFIT:*
One of the barriers to EPP and solid waste management for local businesses is a lack of knowledge of available products, waste reduction techniques, and their environmental and economic benefits.

*RESOURCES:*
Alachua County Waste Watchers
http://www.alachua-wastewatchers.org/
US EPA EPP Training Tool
http://www.epa.gov/oppt/epp/gentt/index.htm

### Credit 7: Staff education.

*ACTIVITY:*
a) Conduct a customer waste survey. (1 points)

*APPROACH:*
Conduct a voluntary study whereby customers are able to indicate problematic waste sources (such as junk mail) to be used to gauge development of waste reduction programs and outreach.

*SUGGESTED DOCUMENTATION:*
Submit copy of survey/study instrument.
*BENEFIT:*
Results from such a study can be used to tailor development of waste reduction programs and outreach such that they target the most problematic components of the waste stream.

*RESOURCES:*
Polk County Municipal Solid Waste Reduction and Reuse Measurement Guide
http://www.dep.state.fl.us/waste/quick_topics/publications/shw/recycling/InnovativeGrants/IGyear5/PolkCountyWasteReductionGrantFinal.pdf
University of Central Florida Contract Report: Incentives for Recycling
http://www.floridacenter.org/publications/shapek_90-6.pdf

# S - Water and Wastewater

## *Lead by Example*

### Credit 1: Plant operations aimed at environmental performance.

*ACTIVITY:*
a) Seek FLDEP plant operations excellence award. (2 points)
b) Create a reclaimed water infrastructure. (2 points)

*APPROACH:*
Consideration for the Florida Department of Environmental Protection (FLDEP) award is based on maintenance, compliance, innovative treatment, waste reduction, pollution prevention, conservation, recycling, or other special achievement. Example approaches to employ are to recycle lime removed from drinking water, or create a reclaimed water infrastructure.

*SUGGESTED DOCUMENTATION:*
a) Submit award certificate or completed award application.
b) If a reclaimed water infrastructure does not exist, create one or submit results of comprehensive study to show it was deemed unfeasible.

*BENEFIT:*
The FLDEP plant operations excellence award shows the community that the local government is committed to environmental stewardship. Reclaimed water provides a "sink" for treated wastewater other than surface discharge or underground injection, and conserves potable and shallow aquifer resources.

*RESOURCES:*
FL DEP Awards
http://www.dep.state.fl.us/water/wastewater/dom/domaward.htm
FL DEP Water Reuse Program
http://www.dep.state.fl.us/water/reuse/index.htm
City of Clearwater, FL Reclaimed Water Division
http://www.clearwater-fl.com/gov/depts/pwa/public_utils/divisions/reclaimed/index.asp

### Credit 2: Reduce energy use.

*ACTIVITY:*
a) Conduct energy audit of treatment facilities. (1 points)
b) Use cogeneration. (1 points)

*APPROACH:*
Leverage a utility or other existing program to conduct an energy audit of water/wastewater treatment facilities to identify potential areas where energy efficiency can be enhanced. Develop a system for cogeneration, such as utilizing digester gas as a form of cogeneration and an end use for the heat/electricity generated.

*SUGGESTED DOCUMENTATION:*
a) Submit summary of audit results and recommendations that were generated.
b) Describe the method of cogeneration and intended end use.

*BENEFIT:*
There are many opportunities within water/wastewater treatment plants for energy conservation.

*RESOURCES:*
US Department of Energy Rebuild America Program
http://www.rebuild.gov
Louisiana Department of Natural Resources Rural Water Energy Conservation
http://www.dnr.state.la.us/SEC/EXECDIV/TECHASMT/programs/industrial/ruralwater.htm
Iowa Association of Municipal Utilitites: How to save energy and money in your water and wastewater systems
http://www.iamu.org/main/energy/water/waterreport.htm
California Energy Commission: Process Energy
http://www.energy.ca.gov/process/water/water_index.html
City of Santa Cruz, CA solar photovoltaic and electrical cogeneration upgrade project
http://www.ci.santa-cruz.ca.us/pw/pdf/ProjectoftheYear2003.pdf

**Credit 3: Reduce solid and hazardous waste.**

*ACTIVITY:*
a) Use recycled bill envelopes. (1 points)

*APPROACH:*
Return envelopes sent to customers should contain post consumer recycled content.

*SUGGESTED DOCUMENTATION:*
a) Submit example of envelope.

*BENEFIT:*
Goals for solid waste reduction can be set for every local government department, and many innovative strategies can be employed to achieve those goals.

## *Control*

**Credit 4: Reduce water use.**

*ACTIVITY:*
a) Utilize rate structures based on consumption. (1 points)
b) Low flow fixture rebates. (1 points)
c) Enforce watering restrictions during meter reads. (1 points)
d) Require metering of shallow aquifer removal and sub-metering of multi-family housing. (1 points)

*APPROACH:*
Restructure residential and commercial water rates to promote conservation through the use of innovative programs such as inverted block rates. Offer low flow fixture rebates or replacement

assistance for existing fixtures. Enforce all local and regional watering restrictions during routine meter reads. Require additional metering and sub-metering and track as indicators of performance.

*SUGGESTED DOCUMENTATION:*
Submit details of how rates are structures.
Provide information regarding rebate, including any advertising to make consumers aware.
Provide strategy of how restrictions will be enforced.
Describe metering plan and expected end use of information collected.

*BENEFIT:*
Various strategies exist to promote water conservation – some incentive based, and some enforcement based. Choosing one, the other, or both may help achieve water conservation goals. Some, such as the shallow well metering program suggested, may simply educate water users on the amount of water used for certain purposes, such as irrigation. Water users should be educated to the fact that all sources of water are a scarce commodity in Florida, not just potable water.

*RESOURCES:*
Florida Water Conservation Initiative Final Report: Water Pricing Chapter
http://www.dep.state.fl.us/water/waterpolicy/docs/WCI_2002_Final_Report.pdf
Georgia issues in water pricing
http://www.griffin.uga.edu/water/fs98_16.pdf
City of Melbourne, FL plumbing retrofit programs
http://www.melbournefl.org/watercon/plumbing.htm

## *Education*

### Credit 5: Community education.

*ACTIVITY:*
a) Utilize informative billing. (1 points)
b) Distribute printed material or create internet content detailing water wastewater source, quality, treatment process. (1 points)
c) Create an education campaign for water use reduction (xeriscape, rainwater, etc.). (1 points)
d) Maintain an on-call water quality program. (1 points)
e) Become part of groundwater guardian program. (1 points)
f) Offer home and business audits. (1 points)
g) Enable customers to track and analyze their usage via the internet. (1 points)

*APPROACH:*
Develop informative billing that educates customers about current and past usage. Develop and post an "environmental report" on a website or in printed form that details the process of water/wastewater treatment including raw materials consumed, processing specifics, water quality and emissions information. Team with the extension service on a demand side water conservation educational program. Maintain an on-call program that answers questions and conducts field investigations in response to citizen concern of water pollution incidents. Become a partner in the national groundwater guardian program. Acquire staff capability to conduct home and business water audits to identify areas of potential conservation opportunities, such as

mobile irrigation labs. Develop an online system whereby customers can access account history and evaluate performance based on other users with similar characteristics. Offer suggestions for users to reduce usage.

*SUGGESTED DOCUMENTATION:*

a) Submit copy of sample bill.
b) Provide copies of educational material, or website link.
c) Provide details of education campaign including descriptions of any courses offered.
d) Provide operational overview of on-call program.
e) Submit certificate of participation or completed program application.
f) Describe audit services made available.
g) Provide website whereby customers can gain access to usage information.

*BENEFIT:*

Many strategies exist to educate the public on the importance of water conservation, and education, combined with outreach and tools can help the local government achieve their water conservation goals.

*RESOURCES:*

City of Melbourne, FL Water Quality Report
http://www.melbournefl.org/pub/pub-pdf/waterquality.pdf
Groundwater Guardian Program
http://www.groundwater.org/gg/learnmore.html
Sarasota County Environmental Education: Water Resources
http://www.scgov.net/Services/Service.aspx?C6B9C692B2=AC959D&D4C7CF=C6B9C691ADA2ACA599957999A3A4A792997899A893A495A17DA2AEA7A783B795
Palm Beach Soil and Water Conservation District Mobil Irrigation Lab
http://www.pbswcd.org/mblirrlab.htm
Sarasota County H2O2GO Program
https://h2o2go.scgov.net/Index.jsp

# CHAPTER 2

# APPENDIX C

# Pre-Application Form

# Florida Green Local Government Standard
# Pre Application Form

Submit this form for committing to meet the designation and having FGBC, Inc. assign a contact person to answer questions regarding verification and submittal materials. Deposit must be included as indicated below.

## 1. Local Government Information

Local Government Name: City of Clearwater

Coordinator Name:

Coordinator Address: P.O. Box 4748
Clearwater, Florida 33758-4748

Coordinator Phone: (727) 562-4742
Coordinator Fax: (727) 562-4755
Coordinator Email: Ed.Chesney@myclearwater.com

Pertinent Local Government decision makers involved and their titles:

## 2. Application Fee

| | |
|---|---|
| Population[1] < 20,000 | $1,500 |
| Population[1] 20,000 - 100,000 | $3,000 |
| Population[1] > 100,000 | $4,500 |

Total Application Fee $4,500

Deposit[2] paid at this time $500

Total due with final application $4,000

[1] Population based on 2000 US Census

[2] Minimum deposit for Pre Application Submittal is $500

Please make check payable to Florida Green Building Coalition, Inc.

## 3. Agreement

I have read the entire standard and will abide the policies it contains. I understand that this deposit allows FGBC, Inc. to assign a project evaluator to provide information regarding documentation needed to verify points. I plan to submit the necessary documentation for any credit points I am claiming. Failure to earn a designation will not be grounds for refunding of the deposit. I have the authority to sign for the local government.

Printed Name _____

Title _____

Signature _____

Date _____

# CHAPTER 2

# APPENDIX D

# Final Application Form

# Florida Green Local Government Standard
# Final Application Form

Submit this form along with an electronic copy of this entire spreadsheet, or a print out of all "sheets" except the "Filter Tool". Also include all documentation necessary to determine compliance.

## 1. Local Government Information

Local Government Name: City of Clearwater

Coordinator Name:

Coordinator Address:
P.O. Box 4748
Clearwater, Florida 33758-4748

Coordinator Phone: (727) 562-4742
Coordinator Fax: (727) 562-4755
Coordinator Email: Ed.Chesney@myclearwater.com

## 2. Point Totals

| Category | MAP | CPA | Category | MAP | CPA |
|---|---|---|---|---|---|
| A | **59** | **4** | K | **16** | **2** |
| B | **0** | **0** | L | **14** | **4** |
| C | **39** | **4** | M | **4** | **1** |
| D | **9** | **2** | N | **0** | **0** |
| E | **12** | **6** | O | **5** | **0** |
| F | **18** | **2** | P | **21** | **9** |
| G | **26** | **0** | Q | **0** | **0** |
| H | **9** | **1** | R | **15** | **8** |
| I | **7** | **2** | S | **18** | **9** |
| J | **15** | **13** | | | |

Total Maximum Applicable Points **291**

Total Credit Points Achieved **67**

Percent of Maximum Applicable Points Total **23** %

Platinum = 61 - 100% of MAP total
Gold = 41 - 60% of MAP total
Silver = 20 - 40% of MAP total
Registered = 0-20% of MAP total
(Registered level requires documentation of intent to achieve Silver level or above within 3 years.)

## 3. Agreement and Application Fee

Total application fee $4,500

Deposit paid

Balance now paid

I have read the entire standard and will abide by the policies it contains. I understand that this fee allows an FGBC evaluator to decide whether a designation will be awarded. I understand that no designation will be awarded until all documentation deemed necessary by the evaluator to judge compliance with the standard has been provided. I understand that this fee is non-refundable, and that FGBC, Inc. reserves the right to revoke the designation according to the policies set forth in the standard. I have the authority to sign for the local government.

Printed Name

Title

Signature

Date

Please make check payable to Florida Green Building Coalition

# CHAPTER 2

# APPENDIX E

# Standard Modification Form

# Florida Green Building Coalition, Inc.

## *Request for Modification to FGBC Standard*

Please use one form per requested section to change

| Information About the Requestor: | Standard to be Modified |
|---|---|
| Name:<br>Title:<br>Company:<br>Mailing Address:<br>City, State, Zip:<br>E-Mail:<br>Phone:<br>Cell:<br>Fax: | ☐ Homes<br>☐ Commercial<br>☐ Land Development<br>☐ Local Government |

Change to Main body of Standard
Please describe change requested and reason/benefit of change (use additional pages if necessary).

Change to Checklist Items
Category Name: _____
Current Checklist Title: _____

| This request is to: | Requested Revision of Checklist Item Title: |
|---|---|
| ☐ Delete this item<br>☐ Add this item<br>☐ Modify this item | Revised or New Checklist Item Points: |

Revised or New Checklist Reference Guide Entry (this must be completed):

Justification/Benefit of Proposed Change:

Signature of Person Making the Request: _____
Date of Signature:_____

Send form to info@FloridaGreenBuilding.org or fax to Eric Martin at 321-638-1439 or mail to FGBC c/o FSEC, 1679 Clearlake Road, Cocoa, FL 32922

Form Last Modified 10/07/04

# CHAPTER 3

## TABLE 1

## INTERNAL STAKEHOLDER LIST

## TABLE 1. Internal Stakeholder List

| Office/Department | Further Divisions | Mission/Vision Statement | Rationale for Inclusion on Stakeholder List |
|---|---|---|---|
| Mayor & City Council | Mayor<br>Vice-Mayor<br>Three council members<br><br>15 Boards, included in Departmental Divisions below. | The duty of the City Council is to discharge the obligations and responsibilities imposed by State Law, City Ordinance, and the Clearwater Charter. Policy is set by the City Council, the elected representatives of the City. The City Council is responsible for approving the budget and determining the ad valorem tax rate on all real and personal property within the corporate limits of the City. | Provides leadership and vision<br><br>Enacts legislation<br><br>Allocates budget |
| City Attorney | No further division | The Office of the City Attorney provides timely, cost-efficient, quality services and advice to support the City Council, the City Manager, and all city departments, boards, and agencies in fulfilling their missions and goals; and to advance, advocate, and safeguard the interests of the City within the bounds of the law. | Provides legal advice<br><br>Has intimate knowledge on Clearwater Codes of Ordinances, Florida Statutes, Pinellas County Ordinances, and U.S. Code |
| City Auditor | No further division | To provide an independent, objective assurance and consulting activity by examining and evaluating City organizational activities through financial, compliance, operational, and revenue audits that promote maximum accountability, efficiency, and effectiveness. We are committed to providing proactive, accurate, and fair services within the City of Clearwater Government in a friendly, professional manner. | Currently not considered a key stakeholder |
| City Manager | No further division | Our mission is to ensure that the City of Clearwater government provides the municipal services and infrastructure necessary for a high quality of life for all our citizens. | Coordinates overall administration and coordinates the City.<br><br>Implements City Council's Ordinances and Policies<br><br>Provides leadership and vision to all departments. |
| Clearwater Customer Service | No further division | Realizing that Customer Service is an attitude, rather than a department, Clearwater Customer Service provides courteous, understanding, efficient service to our customers, citizens and the internal departments that we are privileged to serve. | Provides centralized customer service for utilities (water/sewer, solid waste/recycling, reclaimed water, stormwater, and gas)<br><br>Can provide insight into customer concerns, complaints |

## TABLE 1. Internal Stakeholder List

| Office/Department | Further Divisions | Mission/Vision Statement | Rationale for Inclusion on Stakeholder List |
|---|---|---|---|
| Development and Neighborhood Services Department | Building Services<br><br>Community Response Team (Code Enforcement)<br><br>Neighborhood Services<br><br>Business Tax Receipts<br><br>Beautification Committee<br><br>Community Development Board<br><br>Municipal Code Enforcement Board | Our objective is to make the City of Clearwater the best place to work, live, and play by encouraging neighborhood involvement, empowerment and revitalization, and by guiding the future growth, development, and redevelopment of the City. We are committed to providing prompt, accurate, consistent and fair service in a friendly manner.<br>Further, we strive to consistently, fairly and impartially regulate established community standards and quality of life issues as set forth by the City's Code of Ordinances, with an emphasis on achieving voluntary code compliance through education, communication and cooperation. | Implement sustainability programs set forth (e.g., green building, native landscaping, etc.)<br><br>Educational services through Block-by-Block program<br><br>Beautification program to implement many sustainable programs. |
| Economic Development and Housing | Economic Development<br><br>Housing<br><br>Brownsfield Advisory Board<br><br>Historical Committee<br><br>Neighborhood and Affordable Housing Board<br><br>Downtown Development Board<br><br>Clearwater Housing Authority<br><br>Enterprise Zone Development Agency<br><br>Public Art and Design Advisory Board | Our mission is to improve and expand the economic base of the community through the retention and expansion of existing businesses and the attraction of new businesses and real estate investments, and by implementing value-added strategies and programs that enhance the community's overall high quality of life and local and national image. Further, our mission is to provide quality affordable housing and community services to the citizens of Clearwater. | Economic Development is interrelated with other City Agencies and focuses on vulnerable parts. Department will have big impact on incorporating sustainability issues in its programs.<br><br>Relationship to tourism and chambers of Commerce<br><br>Implement educational components in businesses<br><br>Enhances "livability" and "image" of City<br><br>Housing Department provides affordable housing to community, social services to community, and home rehabilitation. Housing can infuse sustainability in its programs and provide education to its recipients. |

## TABLE 1. Internal Stakeholder List

| Office/Department | Further Divisions | Mission/Vision Statement | Rationale for Inclusion on Stakeholder List |
|---|---|---|---|
| Engineering | Engineering Production (Utilities Engineering, Landscape Architectures, and GIS department)<br><br>Environmental and Stormwater Management (Environmental Management, Stormwater Management, land development Engineering)<br><br>Traffic Operations (Signal Systems, Traffic Calming, Traffic Engineers)<br><br>Parking System<br><br>Environmental Advisory Board | To provide engineering expertise to implement the transportation, parking, utility, and general engineering segments of the Capital Improvement Program; and to optimize the function of the City's traffic operations and parking systems affording the maximum benefit and convenience to our residents and visitors. | Engineering Production<br>Landscape architectures and contractors provide expertise and implement green ordinances.<br><br>Environmental and Stormwater Management<br>Implement green programs and educational component<br><br>Traffic Operations<br>Provide input for transportation options, traffic calming, and neighborhood input.<br><br>Parking Systems<br>Parking garages, oversees parking and traffic flow associated with parking, supports Jolley Trolley Operations (green fleet for trolley) |
| Equity Services | No further division<br><br>Community Relations Board | The City of Clearwater Equity Services Department promotes the dignity and worth of all people by ensuring strong opposition to unlawful discrimination, providing valuing diversity and discrimination law training, supporting social services, and engaging in positive community interactions. | Social services to diverse, equal opportunity, community relations<br><br>Ensure that green initiative includes the needs of diverse populations – input and ideas |
| Finance | No further division | Our mission is to serve the citizens of Clearwater by effective coordination of the fiscal management of the City through efficiently providing timely, responsive and comprehensive financial/support services to all our customers. | No considered key stakeholder currently. |
| Fire & Rescue | Operations<br><br>Fire Prevention & Investigations<br><br>Support Services | To ensure the health, safety, & well-being of our community by providing a wide range of innovative services. | Greenhouse gas inventory, green fleet conversion<br><br>Water use information required for Florida Green Building Coalition Application<br><br>Traffic pattern issues or concerns could be appropriate<br><br>Natural disaster strategy |
| Human Resources | No further division | To optimize the City's human resources capability by acquiring, maintaining, developing, and retaining, a diverse, highly qualified, motivated, and productive work force. | Employee training on green policies |

## TABLE 1. Internal Stakeholder List

| Office/Department | Further Divisions | Mission/Vision Statement | Rationale for Inclusion on Stakeholder List |
|---|---|---|---|
| Information Technology | No further division | Information Technology is committed to serving the business operations of the City by providing enterprise-wide integrated system solutions and high-quality customer service to ensure the efficient utilization of technology resources and investments. | |
| Library | Five Branches<br><br>Library Board | To meet the informational, educational, recreational and cultural reading and viewing needs and expectations of all citizens and population groups in the community, using a wide array of library formats and materials and a trained and dedicated staff. | Dissemination of information!!!!<br><br>Place to hold meetings<br><br>Offer programs to the public regarding sustainability |
| Marine & Aviation | Pier 60 Operations<br><br>Airpark<br><br>Marina Operations<br><br>Beach Patrol Operations<br><br>Airport Advisory Board<br><br>Marine Advisory Board | To maintain the Marine and Aviation Department as a revenue-producing department with a well trained and dedicated staff that provides high quality marine and aviation related services with excellent customer satisfaction to our citizens and customers. | Air Park – greenhouse gas inventory, sustainability issues<br><br>Marina – greenhouse gas inventory, boater education, Waterfronts Community Program, Florida Clean Marina Programs<br><br>Pier 60 and Beach Patrol – beach education, recycling, tourism |
| Office of Management & Budget | No further division | Our mission in the Office of Management and Budget is to offer accurate financial planning information and quality service to the City Management Team, the City Council, other City Departments, and our citizens in order to increase confidence in City leadership and provide comprehensive budgeting data to all of our customers. | Budgeting issues<br><br>Fiscal impacts of programs |
| Official Records & Legislative Services | City Clerk | The Official Records and Legislative Services Department is the custodian of the City's current and historical knowledge. It is our mission to receive, organize, maintain, preserve, and disseminate this knowledge. We strive to do this accurately, effectively, and efficiently. Also, the Department coordinates the City's legislative and grants programs in efforts to optimize funding opportunities. We are committed to fulfilling this mission by keeping abreast of current issues, cutting red tape, and going the extra mile to provide quality service to our customers. | Lobbyist activities<br><br>Grant identification and application to fund sustainability initiatives |

## TABLE 1. Internal Stakeholder List

| Office/Department | Further Divisions | Mission/Vision Statement | Rationale for Inclusion on Stakeholder List |
|---|---|---|---|
| Parks and Recreation | Admin, Cultural Affairs & Events<br><br>Recreation Programming<br><br>Parks and Beautification<br><br>Parks and Recreation Board | To provide parks and recreation programs, services, facilities and beautification to benefit the residents and visitors of the City of Clearwater. | Key stakeholder to maintain open landscapes in City, as well as provide education to community.<br><br>Key programs:<br>1. Adopt a Park Program<br>2. Facilities (parks, structures, programs)<br>3. Bicycle and Pedestrian Master Plan and Task Force<br>4. Moccasin Lake Environmental Education Center<br>5. Healthy Choices for Healthy Clearwater<br>6. Golf Courses – sustainable practices<br>7. Swimming pools – sustainable practices |
| Planning | Development Review<br><br>Long Range Planning | The Planning Department establishes the city's long range plans in concert with the city's overall goals. The department is responsible for administration of the city's Comprehensive Plan, the city's 20-year plan, as well as detailed neighborhood and area plans. The department also implements the city's redevelopment goals through site plan reviews of public and private projects. | Department that would develop and and incorporating green building and landscaping standards for new and redeveloped properties.<br><br>Long-range planning to incorporate sustainability focus for City. |
| Public Communications | C-View Channel 15<br><br>Documents and publications | To communicate efficiently and effectively to the citizens of Clearwater all City business and events which impact our quality of life, safety and welfare. | This is key stakeholder for marketing and communicating green messages.<br><br>Key programs include:<br>Citizen's Academy Program<br>C-View Channel 15<br>Got Gov!<br>Shaping Clearwater<br>Fun-In-The-Sun (FITS) Recreation Program Guide |
| Public Services | Administration<br><br>Construction<br><br>Stormwater Maintenance<br><br>Right-of-way Maintenance (includes streets, sidewalks, urban forestry) | Our mission is to provide quality and efficient support services for the construction, supervision and maintenance of the City's infrastructure relative to public works construction and site development, the streets and sidewalks, stormwater structures and facilities, and the urban forest for the citizens and visitors of Clearwater. | Construction division would be affected by green initiatives in Lead-by Example.<br><br>Key programs to expand:<br>Adopt A Street program<br>Stormwater Maintenance programs<br>Get to the Point! Educational program |

## TABLE 1. Internal Stakeholder List

| Office/Department | Further Divisions | Mission/Vision Statement | Rationale for Inclusion on Stakeholder List |
|---|---|---|---|
| Public Utilities | Water<br><br>Reclaimed Water<br><br>Wastewater collection<br><br>Water Pollution Control | To provide the citizens of Clearwater, both regular customers and visitors, with the basic essential services (water, wastewater collection, wastewater treatment and disposal and reclaimed water) and maintain the infrastructure as efficiently as possible, while operating within a realistic cost effective budget with a vision for the future. | Implement water initiatives, as well as educational programs related to water. |
| Solid Waste/General Services | Solid Waste/Recycling<br><br>General Services<br><br>Five costs centers<br>1. Admin<br>2. Building & Maintenance<br>3. Fleet Operation<br>4. Fleet Replacement<br>5. Radio Communications | The Solid Waste Department and the General Support Services Department were merged in early 2002 to form the Solid Waste/General Services Department. The mission of this new department is to provide Solid Waste and Recycling services to the citizens of Clearwater and Building Maintenance, fleet maintenance, and radio service to City departments. Because the scope of the new department is so broad, the mission, descriptions and strategic objectives are separated into the basic programs of Solid Waste and General Services. | Solid waste initiatives, to include recycling programs, as well as educational programs associated with solid waste<br><br>General Services maintains City buildings and fleet so would implement Lead-by-Example sustainability initiatives. Evaluate greenhouse gas emissions of buildings, possible LEED conversion, green fleet evaluations and conversion. |

# CHAPTER 3

## TABLE 2

## EXTERNAL STAKEHOLDER LIST

## TABLE 2. External Stakeholder List

| Stakeholder | Description/Details | Rational for Inclusion on Stakeholder List | Engagement History |
|---|---|---|---|
| **External Government Stakeholders** | | | |
| County of Pinellas | Pinellas County Extension, Office of Sustainability, Bushnell Center of Sustainability | Guidance, partnership opportunities | In-person interview (October 24, 2007) |
| | Pinellas Suncoast Transit Authority | Bus transportation provider | Not contacted during this project (outside scope of project) |
| | Pinellas County School District | K-12 Education | Not contacted during this project (outside scope of project) |
| Tampa Bay Regional Organizations | Tampa Bay Partnership and its Vision 21 Steering Committee | Regional partner | Not contacted during this project (outside scope of project) |
| | Southwest Florida Water Management District | Water provider | Not contacted during this project (outside scope of project) |
| | Tampa Bay Regional Planning Council | Regional partner | Not contacted during this project (outside scope of project) |
| | Tampa Bay Estuary Program | Regional partner | Not contacted during this project (outside scope of project) |
| | Urban Land Institute/Tampa Bay District Council | Regional organization | Not contacted during this project (outside scope of project) |
| State of Florida | Florida Department of Energy | Guidance, funding opportunities | Not contacted during this project (outside scope of project) |
| | Council for Sustainable Florida | Guidance, funding opportunities | Not contacted during this project (outside scope of project) |
| | Florida Fish and Wildlife Conservation Commission (FWC) | Guidance | Not contacted during this project (outside scope of project) |
| | Florida Department of Transportation | Agency responsible for road construction, maintenance, and oversight | Not contacted during this project (outside scope of project) |
| | Florida Department of Environmental Protection | Guidance, funding opportunities | Not contacted during this project (outside scope of project) |
| Federal Government | Department of Energy | Guidance, funding opportunities | Not contacted during this project (outside scope of project) |
| | Environmental Protection Agency | Guidance, funding opportunities | Not contacted during this project (outside scope of project) |

## TABLE 2. External Stakeholder List

| Stakeholder | Description/Details | Rational for Inclusion on Stakeholder List | Engagement History |
|---|---|---|---|
| **Non-Governmental Organizations (NGO) Stakeholders** | | | |
| Environmental Education Non-profits | Clearwater Marine Aquarium | Educational and environmental non-profit with mission in line with sustainability | Invited to Focus Group Meeting |
| Environmental Non-profits | Clearwater Audubon Society | Environmental non-profit group with mission in line with sustainability | Invited to Focus Group Meeting |
| | Pinellas Chapter of the Florida Native Plant Society/Alliance for Livable Pinellas | Environmental non-profit group with mission in line with sustainability | Invited to Focus Group Meeting |
| | Suncoast Avian Society | Environmental non-profit group with mission in line with sustainability | Invited to Focus Group Meeting |
| | Suncoast Herpetological Society | Environmental non-profit group with mission in line with sustainability | Invited to Focus Group Meeting |
| | Suncoast Sierra Club | Environmental non-profit group with mission in line with sustainability | Invited to Focus Group Meeting |
| | Clearwater Freecycle | Non-profit group that promotes re-use of materials through exchange on a yahoogroups website | Invited to Focus Group Meeting |
| | International Institute for Bau Biologie and Ecology, Inc. | Environmental non-profit group with mission in line with sustainability | Invited to Focus Group Meeting |
| Social Non-profits | Clearwater Downtown Partnership | Partnership opportunities | Invited to Focus Group Meeting |
| | Alliance for Affordable Services | Partnership opportunities | Invited to Focus Group Meeting |
| | African American Leadership Council | Partnership opportunities | Not contacted during this project (outside scope of project) |
| | American Board of Quality Assurance and Utilization | Partnership opportunities | Not contacted during this project (outside scope of project) |
| | Bay Area Alliance | Partnership opportunities | Not contacted during this project (outside scope of project) |
| | Clearwater Neighborhood Housing Services, Inc. | Partnership opportunities | Invited to Focus Group Meeting |

**TABLE 2. External Stakeholder List**

| Stakeholder | Description/Details | Rational for Inclusion on Stakeholder List | Engagement History |
|---|---|---|---|
| | Clearwater Neighborhood Coalition | Partnership opportunities | Invited to Focus Group Meeting |
| Sectarian | Church of Scientology | Faith-based organization, major presence in Clearwater, partnership opportunity | Invited to Focus Group Meeting |
| | Unitarian Universalists of Clearwater | Faith-based organization, partnership opportunity | Invited to Focus Group Meeting |
| Non-public Education | St. Petersburg College | Educational provider, partnership opportunity | Biology instructor invited to Focus Group Meeting |
| | Stetson University | Educational provider, partnership opportunity | Not contacted during this project (outside scope of project) |
| | University of Phoenix | Educational provider, partnership opportunity | Not contacted during this project (outside scope of project) |
| | Pinellas Technical Education Centers | Educational provider, partnership opportunity | Not contacted during this project (outside scope of project) |
| | Florida Metropolitan University | Educational provider, partnership opportunity | Not contacted during this project (outside scope of project) |
| | Clearwater Christian College | Educational provider, partnership opportunity | Not contacted during this project (outside scope of project) |
| **Business Stakeholders** | | | |
| Business Organizations | Clearwater Regional Chamber of Commerce | Represents 1,700+ business members in Clearwater, partnership opportunities | Survey forwarded to members |
| | Clearwater Beach Chamber of Commerce | Represents 290+ business members in Clearwater, partnership opportunities | Survey forwarded to members |
| Clearwater Beach Innkeepers Association | Unofficial group of hotels on Clearwater Beach | Coalition of hotel groups, partnership | Attended organizational meeting<br>Invited to Focus Group Meeting<br>Surveyed individual hotels |
| Lodging | Hilton Clearwater Beach Resort | Applicant for Green Lodging Certification | Attended organizational meeting<br>Invited to Focus Group Meeting<br>Surveyed individual hotels |
| | Fairfield Inn & Suites | Applicant for Green Lodging Certification | Not contacted during this process |

**TABLE 2. External Stakeholder List**

| Stakeholder | Description/Details | Rational for Inclusion on Stakeholder List | Engagement History |
|---|---|---|---|
| | Sheraton Sand Key Resort | Applicant for Green Lodging Certification | Attended organizational meeting<br>Invited to Focus Group Meeting<br>Surveyed individual hotels |
| | Sand Pearl Clearwater Beach | LEED – New building certification process | Attended organizational meeting<br>Invited to Focus Group Meeting<br>Surveyed individual hotels |
| Landscapers | Westenberger Tree Service | Certified Arborist, community partner in tree giveaways | Invited to Focus Group Meeting |
| Chain Grocery Stores | Publix Greenwise, Sweet Bay | Organic food providers | No contacted during this project |
| Nature's Food Patch | Organic food store and restaurant | Organic food providers | Invited to Focus Group Meeting |
| Clearwater Farmer's Market | Operate local farmers market in downtown area | Organic food providers | Invited to Focus Group Meeting |
| Progress Energy | Electricity provider in City | Energy provider, energy efficiency programs | Contacted and interviewed by another student |

# CHAPTER 3

# APPENDIX A

# STAKEHOLDER INTERVIEW SUMMARY

**STAKEHOLDER INTERVIEW SUMMARY**

DEVISH NIRMUL, MPA/MSES
Bushnell Endowed Professorship
Bushnell Center for Urban Sustainability
Pinellas County/University of Florida IFAS Extension
12520 Ulmerton Road
Largo, FL 337
bushnell@pinellascounty.org
727-582-2508

1. How long have you been in your present position? **One year**

2. Why did the County decide to get the County Florida Green Building Coalition (FGBC) Green City Designation?

**Sarasota County has led the way in Sustainability. The county wanted to be more sustainable and this is a great tool to start the process.**

3. How long did it take to get the designation from start to finish?

**They had an intern that worked for three months compiling the information. The County had already made the commitment and had a task force to implement the project.**

4. What were the challenges in completing the task?

**Dealing with the sub-cultures in each department. Some departments and individuals are shortsighted.**

5. What do you see as beneficial to having completed the task?

**Tools for measurement, improved economics, good assessments**

6. Now what for the County in terms of sustainability? What are the goals and timeline for the goals?

**Going for Gold!, Contests between departments, implementing priority areas, further infuse sustainability into the culture and language.**

7. What recommendations do you have for a City that wants to embark on the journey? What steps to take? (e.g., Tallahassee got a grant to do a Leadership in Energy and Environmental Design (LEED) building, then did the FGBC's application)

**Have a coordinator!!! Strong leadership is key!, change the management paradigm**

8. What resources does the County have to assist Cities? (e.g., incentive program)

**Co-launch green standards, can help with visioning, help city with resources (done LEED)**

9. What resources does the State government have to assist Cities?

**Florida Department of Environmental Protection, Renewable energy grants, others.**

10. What resources does the Federal government have to assist Cities?

**ICLEI – International Council for Local Environmental Initiatives (ICLEI), United States Department of Energy, and Environmental Protection Agency**

11. What critical partnerships did the County form in undertaking the task?

**World Business Council for Sustainable Development**

# CHAPTER 3

# APPENDIX B

# STAKHOLDER SURVEY RESULTS

# City of Clearwater Green Survey - Residential

**1. Please answer the following demographic information.**

| | Response Percent | Response Count |
|---|---|---|
| What neighborhood do you live in? | 92.0% | 23 |
| **How many years have you lived in Clearwater?** | **100.0%** | 25 |
| **How many years have you lived in Florida?** | **100.0%** | 25 |
| **How many months do you reside in Clearwater in a given year?** | **100.0%** | 25 |
| **How many people live in your house?** | **100.0%** | 25 |
| **How many cars are in your household?** | **100.0%** | 25 |
| | ***answered question*** | **25** |
| | ***skipped question*** | **0** |

Responses to these questions are attached on the following pages

What Neighborhood do you live in?

Displaying 1 - 24 of 24 responses

Jump To: 1 Go >>

| | Comment Text | Response Date |
|---|---|---|
| Find | 1. Townhomes @ Lake Avenue | Tue, 11/13/07 7:26 PM |
| Find | 2. Northwood West | Mon, 11/5/07 11:43 PM |
| Find | 3. Clearwater Beach | Mon, 11/5/07 5:23 PM |
| Find | 4. Lake Ave. and Druid Rd. | Sun, 11/4/07 1:08 PM |
| Find | 5. near Glen Oaks Park to the West | Sun, 11/4/07 6:30 AM |
| Find | 6. Skycrest | Sat, 11/3/07 12:34 PM |
| Find | 7. Coachman Ridge | Thu, 11/1/07 4:16 PM |
| Find | 8. Villge on the Green | Thu, 11/1/07 2:29 PM |
| Find | 9. Skycrest | Thu, 11/1/07 1:13 PM |
| Find | 10. HIGH POINT | Thu, 11/1/07 5:20 AM |
| Find | 11. ?? el trinidad drive east | Wed, 10/31/07 10:19 PM |
| Find | 12. Clearwater Beach | Wed, 10/31/07 6:50 PM |
| Find | 13. coachman ridge | Wed, 10/31/07 11:38 AM |
| Find | 14. belleair beach | Wed, 10/31/07 5:57 AM |
| Find | 15. Imperial Park | Tue, 10/30/07 3:03 PM |
| Find | 16. Morningside | Tue, 10/30/07 11:40 AM |
| Find | 17. Skycrest | Mon, 10/29/07 4:47 PM |
| Find | 18. Skycrest | Mon, 10/29/07 2:01 PM |
| Find | 19. Clearview Lake States | Mon, 10/29/07 1:08 PM |
| Find | 20. ASHLAND TERRACE | Mon, 10/29/07 11:46 AM |
| Find | 21. 6 | Mon, 10/29/07 7:25 AM |
| Find | 22. Clearwater Beach | Sun, 10/28/07 9:51 PM |
| Find | 23. Sabd Key | Sat, 10/27/07 4:11 PM |
| Find | 24. Hillcrest | Sat, 10/27/07 3:41 PM |

50 responses per page

How many lived in clearwater?

Displaying 1 - 26 of 26 responses

Jump To: 1 Go >>

| | Comment Text | Response Date |
|---|---|---|
| Find | 1. 44 | Tue, 11/13/07 7:26 PM |
| Find | 2. 16 | Mon, 11/5/07 11:43 PM |
| Find | 3. 6 years | Mon, 11/5/07 5:23 PM |
| Find | 4. 4 | Sun, 11/4/07 1:08 PM |
| Find | 5. three | Sun, 11/4/07 6:30 AM |
| Find | 6. 24 | Sat, 11/3/07 12:34 PM |
| Find | 7. 2 | Thu, 11/1/07 7:43 PM |
| Find | 8. 23 years | Thu, 11/1/07 4:16 PM |
| Find | 9. 12 years | Thu, 11/1/07 2:29 PM |
| Find | 10. 8 years | Thu, 11/1/07 1:13 PM |
| Find | 11. 8+ | Thu, 11/1/07 5:20 AM |
| Find | 12. 20 | Wed, 10/31/07 10:19 PM |
| Find | 13. 32 | Wed, 10/31/07 6:50 PM |
| Find | 14. 55 | Wed, 10/31/07 11:38 AM |
| Find | 15. 0 | Wed, 10/31/07 5:57 AM |
| Find | 16. 10 years | Tue, 10/30/07 3:03 PM |
| Find | 17. 28 | Tue, 10/30/07 11:40 AM |
| Find | 18. 15 | Tue, 10/30/07 9:39 AM |
| Find | 19. 15 | Mon, 10/29/07 4:47 PM |
| Find | 20. 11 | Mon, 10/29/07 2:01 PM |
| Find | 21. 5 years | Mon, 10/29/07 1:08 PM |
| Find | 22. 4 | Mon, 10/29/07 11:46 AM |
| Find | 23. 26 | Mon, 10/29/07 7:25 AM |
| Find | 24. 20 yrs. | Sun, 10/28/07 9:51 PM |
| Find | 25. 5 | Sat, 10/27/07 4:11 PM |
| Find | 26. 30 | Sat, 10/27/07 3:41 PM |

50 responses per page

How many years lived in Florida?

Displaying 1 - 26 of 26 responses

Jump To: 1 Go >>

| | Comment Text | Response Date |
|---|---|---|
| Find | 1. 47 | Tue, 11/13/07 7:26 PM |
| Find | 2. 17 | Mon, 11/5/07 11:43 PM |
| Find | 3. 6 years | Mon, 11/5/07 5:23 PM |
| Find | 4. 45 | Sun, 11/4/07 1:08 PM |
| Find | 5. 15 | Sun, 11/4/07 6:30 AM |
| Find | 6. 24 | Sat, 11/3/07 12:34 PM |
| Find | 7. 35 | Thu, 11/1/07 7:43 PM |
| Find | 8. 23 years | Thu, 11/1/07 4:16 PM |
| Find | 9. 17 years | Thu, 11/1/07 2:29 PM |
| Find | 10. 16 years | Thu, 11/1/07 1:13 PM |
| Find | 11. 50+ | Thu, 11/1/07 5:20 AM |
| Find | 12. more than 35 | Wed, 10/31/07 10:19 PM |
| Find | 13. 32 | Wed, 10/31/07 6:50 PM |
| Find | 14. 55 | Wed, 10/31/07 11:38 AM |
| Find | 15. 20 | Wed, 10/31/07 5:57 AM |
| Find | 16. 30 years | Tue, 10/30/07 3:03 PM |
| Find | 17. 28 | Tue, 10/30/07 11:40 AM |
| Find | 18. 15 | Tue, 10/30/07 9:39 AM |
| Find | 19. 35 | Mon, 10/29/07 4:47 PM |
| Find | 20. 12 | Mon, 10/29/07 2:01 PM |
| Find | 21. 20 years | Mon, 10/29/07 1:08 PM |
| Find | 22. 4 | Mon, 10/29/07 11:46 AM |
| Find | 23. 26 | Mon, 10/29/07 7:25 AM |
| Find | 24. 25 yrs. | Sun, 10/28/07 9:51 PM |
| Find | 25. 5 | Sat, 10/27/07 4:11 PM |
| Find | 26. 30 | Sat, 10/27/07 3:41 PM |

50 responses per page

Months residing in Clearwater

Displaying 1 - 26 of 26 responses << Prev Next >> Jump To: 1 Go >>

| | Comment Text | Response Date |
|---|---|---|
| Find | 1. 7 | Tue, 11/13/07 7:26 PM |
| Find | 2. 12 | Mon, 11/5/07 11:43 PM |
| Find | 3. 12 months per year | Mon, 11/5/07 5:23 PM |
| Find | 4. 12 | Sun, 11/4/07 1:08 PM |
| Find | 5. 12 | Sun, 11/4/07 6:30 AM |
| Find | 6. 12 | Sat, 11/3/07 12:34 PM |
| Find | 7. 12 | Thu, 11/1/07 7:43 PM |
| Find | 8. 12 months | Thu, 11/1/07 4:16 PM |
| Find | 9. year round | Thu, 11/1/07 2:29 PM |
| Find | 10. 12 months - ALL year | Thu, 11/1/07 1:13 PM |
| Find | 11. 12 | Thu, 11/1/07 5:20 AM |
| Find | 12. 12 | Wed, 10/31/07 10:19 PM |
| Find | 13. 12 | Wed, 10/31/07 6:50 PM |
| Find | 14. 12 | Wed, 10/31/07 11:38 AM |
| Find | 15. 0 | Wed, 10/31/07 5:57 AM |
| Find | 16. 12 | Tue, 10/30/07 3:03 PM |
| Find | 17. 12 | Tue, 10/30/07 11:40 AM |
| Find | 18. 12 | Tue, 10/30/07 9:39 AM |
| Find | 19. 12 | Mon, 10/29/07 4:47 PM |
| Find | 20. 12 | Mon, 10/29/07 2:01 PM |
| Find | 21. 7 months | Mon, 10/29/07 1:08 PM |
| Find | 22. 12 | Mon, 10/29/07 11:46 AM |
| Find | 23. 12 | Mon, 10/29/07 7:25 AM |
| Find | 24. 12 months | Sun, 10/28/07 9:51 PM |
| Find | 25. 12 | Sat, 10/27/07 4:11 PM |
| Find | 26. 12 | Sat, 10/27/07 3:41 PM |

50 responses per page

How many people live in your household?

Displaying 1 - 26 of 26 responses << Prev Next >> Jump To: 1 Go >>

| | Comment Text | Response Date |
|---|---|---|
| Find | 1. 2 | Tue, 11/13/07 7:26 PM |
| Find | 2. 2 | Mon, 11/5/07 11:43 PM |
| Find | 3. 2 | Mon, 11/5/07 5:23 PM |
| Find | 4. 2 | Sun, 11/4/07 1:08 PM |
| Find | 5. 2 | Sun, 11/4/07 6:30 AM |
| Find | 6. 3 | Sat, 11/3/07 12:34 PM |
| Find | 7. 1 | Thu, 11/1/07 7:43 PM |
| Find | 8. 3 | Thu, 11/1/07 4:16 PM |
| Find | 9. 2 | Thu, 11/1/07 2:29 PM |
| Find | 10. one | Thu, 11/1/07 1:13 PM |
| Find | 11. 2 | Thu, 11/1/07 5:20 AM |
| Find | 12. 1 | Wed, 10/31/07 10:19 PM |
| Find | 13. 2 | Wed, 10/31/07 6:50 PM |
| Find | 14. 2 | Wed, 10/31/07 11:38 AM |
| Find | 15. 6 | Wed, 10/31/07 5:57 AM |
| Find | 16. 3 | Tue, 10/30/07 3:03 PM |
| Find | 17. 2 | Tue, 10/30/07 11:40 AM |
| Find | 18. 3 | Tue, 10/30/07 9:39 AM |
| Find | 19. 3 | Mon, 10/29/07 4:47 PM |
| Find | 20. 1 | Mon, 10/29/07 2:01 PM |
| Find | 21. 2 | Mon, 10/29/07 1:08 PM |
| Find | 22. 3 | Mon, 10/29/07 11:46 AM |
| Find | 23. 1 | Mon, 10/29/07 7:25 AM |
| Find | 24. 3 | Sun, 10/28/07 9:51 PM |
| Find | 25. 2 | Sat, 10/27/07 4:11 PM |
| Find | 26. 1 | Sat, 10/27/07 3:41 PM |

50 responses per page

How many cars in household?

Displaying 1 - 26 of 26 responses << Prev Next >> Jump To: 1 Go >>

| | Comment Text | Response Date |
|---|---|---|
| Find | 1. 2 | Tue, 11/13/07 7:26 PM |
| Find | 2. 2 | Mon, 11/5/07 11:43 PM |
| Find | 3. 3 | Mon, 11/5/07 5:23 PM |
| Find | 4. 2 | Sun, 11/4/07 1:08 PM |
| Find | 5. 2 | Sun, 11/4/07 6:30 AM |
| Find | 6. 2 | Sat, 11/3/07 12:34 PM |
| Find | 7. 1 | Thu, 11/1/07 7:43 PM |
| Find | 8. 2 | Thu, 11/1/07 4:16 PM |
| Find | 9. 1 | Thu, 11/1/07 2:29 PM |
| Find | 10. one | Thu, 11/1/07 1:13 PM |
| Find | 11. 2 | Thu, 11/1/07 5:20 AM |
| Find | 12. 3 | Wed, 10/31/07 10:19 PM |
| Find | 13. 2 | Wed, 10/31/07 6:50 PM |
| Find | 14. 1 | Wed, 10/31/07 11:38 AM |
| Find | 15. 3 | Wed, 10/31/07 5:57 AM |
| Find | 16. 2 | Tue, 10/30/07 3:03 PM |
| Find | 17. 2 | Tue, 10/30/07 11:40 AM |
| Find | 18. 2 | Tue, 10/30/07 9:39 AM |
| Find | 19. 2 | Mon, 10/29/07 4:47 PM |
| Find | 20. 1 | Mon, 10/29/07 2:01 PM |
| Find | 21. w | Mon, 10/29/07 1:08 PM |
| Find | 22. 2 | Mon, 10/29/07 11:46 AM |
| Find | 23. 1 | Mon, 10/29/07 7:25 AM |
| Find | 24. 2 | Sun, 10/28/07 9:51 PM |
| Find | 25. 1 | Sat, 10/27/07 4:11 PM |
| Find | 26. 1 | Sat, 10/27/07 3:41 PM |

50 responses per page

**2. Which type of housing do you live?**

| | Response Percent | Response Count |
|---|---|---|
| **Single Family Residence** | **68.0%** | 17 |
| Apartment/Duplex | 8.0% | 2 |
| Condominium | 16.0% | 4 |
| Mobile Home | 0.0% | 0 |
| Other (please specify) | 8.0% | 2 |
| | ***answered question*** | **25** |
| | ***skipped question*** | **0** |

**3. List three reasons you live in Clearwater, in the order of importance to you.**

| | Response Percent | Response Count |
|---|---|---|
| **One** | **100.0%** | 24 |
| Two | 95.8% | 23 |
| Three | 87.5% | 21 |
| | ***answered question*** | **24** |
| | ***skipped question*** | **1** |

Responses to Question 3 is attached.

Q3. one

Displaying 1 - 25 of 25 responses << Prev Next Jump To: 1 Go >>

| | | Comment Text | Response Date |
|---|---|---|---|
| Find | 1. | Family | Tue, 11/13/07 7:26 PM |
| Find | 2. | Good Location | Mon, 11/5/07 11:43 PM |
| Find | 3. | Paradise | Mon, 11/5/07 5:23 PM |
| Find | 4. | townhouse | Sun, 11/4/07 1:08 PM |
| Find | 5. | Close to St.Cecelia Catholic Church | Sun, 11/4/07 6:30 AM |
| Find | 6. | family nearby | Sat, 11/3/07 12:34 PM |
| Find | 7. | close to my job | Thu, 11/1/07 7:43 PM |
| Find | 8. | convenient location to airport, shopping, beaches, etc | Thu, 11/1/07 4:16 PM |
| Find | 9. | Location to everything | Thu, 11/1/07 2:29 PM |
| Find | 10. | I work in Clearwater | Thu, 11/1/07 1:13 PM |
| Find | 11. | WEATHER | Thu, 11/1/07 5:20 AM |
| Find | 12. | at the time i bought, it was where i needed to be work /school reasons back in 86 | Wed, 10/31/07 10:19 PM |
| Find | 13. | Clean beuatiful beaches | Wed, 10/31/07 6:50 PM |
| Find | 14. | family | Wed, 10/31/07 11:38 AM |
| Find | 15. | warm weather | Tue, 10/30/07 3:03 PM |
| Find | 16. | Amenities | Tue, 10/30/07 11:40 AM |
| Find | 17. | close to the beach | Tue, 10/30/07 9:39 AM |
| Find | 18. | close to family and friends | Mon, 10/29/07 4:47 PM |
| Find | 19. | Weather | Mon, 10/29/07 2:01 PM |
| Find | 20. | We like this area of Clearview Lakes Estates | Mon, 10/29/07 1:08 PM |
| Find | 21. | Near to relatives | Mon, 10/29/07 11:46 AM |
| Find | 22. | location to activities, stores, work | Mon, 10/29/07 7:25 AM |
| Find | 23. | we like the coastal area to live | Sun, 10/28/07 9:51 PM |
| Find | 24. | beautiful | Sat, 10/27/07 4:11 PM |
| Find | 25. | I like my home | Sat, 10/27/07 3:41 PM |

50 responses per page

Q3. Two

Displaying 1 - 24 of 24 responses  Jump To: 1  Go >>

| | Comment Text | Response Date |
|---|---|---|
| Find | 1. Beach | Tue, 11/13/07 7:26 PM |
| Find | 2. Have family nearby | Mon, 11/5/07 11:43 PM |
| Find | 3. Near our children | Mon, 11/5/07 5:23 PM |
| Find | 4. Close to the Clearwater YMCA | Sun, 11/4/07 6:30 AM |
| Find | 5. friends | Sat, 11/3/07 12:34 PM |
| Find | 6. can't sell my condo | Thu, 11/1/07 7:43 PM |
| Find | 7. friends in neighborhood | Thu, 11/1/07 4:16 PM |
| Find | 8. Security | Thu, 11/1/07 2:29 PM |
| Find | 9. It's by the beach | Thu, 11/1/07 1:13 PM |
| Find | 10. LOWER COST OF LIVING | Thu, 11/1/07 5:20 AM |
| Find | 11. no real reason..to stay here | Wed, 10/31/07 10:19 PM |
| Find | 12. Clean beautiful water | Wed, 10/31/07 6:50 PM |
| Find | 13. weather | Wed, 10/31/07 11:38 AM |
| Find | 14. family lives close by | Tue, 10/30/07 3:03 PM |
| Find | 15. Close to beach | Tue, 10/30/07 11:40 AM |
| Find | 16. warm weather | Tue, 10/30/07 9:39 AM |
| Find | 17. moved here originally | Mon, 10/29/07 4:47 PM |
| Find | 18. Lower crime rate | Mon, 10/29/07 2:01 PM |
| Find | 19. We love the way the neighborhood is kept up | Mon, 10/29/07 1:08 PM |
| Find | 20. To move wife's parents to a warmer climate. | Mon, 10/29/07 11:46 AM |
| Find | 21. near the beach | Mon, 10/29/07 7:25 AM |
| Find | 22. quiet neighborhood | Sun, 10/28/07 9:51 PM |
| Find | 23. quiet | Sat, 10/27/07 4:11 PM |
| Find | 24. central location | Sat, 10/27/07 3:41 PM |

50 responses per page

Q3. Three

Displaying 1 - 22 of 22 responses << Prev Next > Jump To: 1 Go >>

| | | Comment Text | Response Date |
|---|---|---|---|
| Find | 1. | Climate | Tue, 11/13/07 7:26 PM |
| Find | 2. | Near Beaches | Mon, 11/5/07 11:43 PM |
| Find | 3. | Near our grandkids | Mon, 11/5/07 5:23 PM |
| Find | 4. | Centralized to the entire Pinellas County | Sun, 11/4/07 6:30 AM |
| Find | 5. | beach nearby | Sat, 11/3/07 12:34 PM |
| Find | 6. | pleasant environment | Thu, 11/1/07 7:43 PM |
| Find | 7. | location to job | Thu, 11/1/07 4:16 PM |
| Find | 8. | Activities | Thu, 11/1/07 2:29 PM |
| Find | 9. | I like my home | Thu, 11/1/07 1:13 PM |
| Find | 10. | GULF & FLOWERS | Thu, 11/1/07 5:20 AM |
| Find | 11. | would leave if i could | Wed, 10/31/07 10:19 PM |
| Find | 12. | good Quality of life | Wed, 10/31/07 6:50 PM |
| Find | 13. | being close to the beach | Tue, 10/30/07 3:03 PM |
| Find | 14. | Close to airport | Tue, 10/30/07 11:40 AM |
| Find | 15. | beautiful area | Mon, 10/29/07 4:47 PM |
| Find | 16. | Clearwater has changed so much, that I'm not sure I'll be staying. | Mon, 10/29/07 2:01 PM |
| Find | 17. | The concern of the city for its citizens. We appreciate the city and its services | Mon, 10/29/07 1:08 PM |
| Find | 18. | Weather | Mon, 10/29/07 11:46 AM |
| Find | 19. | close to airport | Mon, 10/29/07 7:25 AM |
| Find | 20. | good neighbors | Sun, 10/28/07 9:51 PM |
| Find | 21. | gulf | Sat, 10/27/07 4:11 PM |
| Find | 22. | nearby parks | Sat, 10/27/07 3:41 PM |

50 responses per page

**4. Rate the following statements as indicated below.**

| | Strongly Agree | Somewhat Agree | Neutral/Don't care | Somewhat Disagree | Strongly Disagree | Rating Average | Response Count |
|---|---|---|---|---|---|---|---|
| I would consider Clearwater to be a "green" City. | 4.0% (1) | **44.0% (11)** | 12.0% (3) | 36.0% (9) | 4.0% (1) | 2.92 | 25 |
| Government is not doing enough to address environmental issues. | 40.0% (10) | **52.0% (13)** | 0.0% (0) | 4.0% (1) | 4.0% (1) | 1.80 | 25 |
| If I moved from Clearwater, it would be important to move to an environmentally conscious neighborhood. | **44.0% (11)** | 40.0% (10) | 12.0% (3) | 0.0% (0) | 4.0% (1) | 1.80 | 25 |
| Business is not doing enough to address environmental problems | **52.0% (13)** | 28.0% (7) | 4.0% (1) | 12.0% (3) | 4.0% (1) | 1.88 | 25 |
| I am worried about flooding in low-lying areas in Florida | **40.0% (10)** | 32.0% (8) | 16.0% (4) | 4.0% (1) | 8.0% (2) | 2.08 | 25 |
| Global warming has been greatly overexaggerated | 8.0% (2) | 20.0% (5) | 4.0% (1) | 24.0% (6) | **44.0% (11)** | 3.76 | 25 |
| If things continue on their present course, we will face an environmental crisis. | **54.2% (13)** | 41.7% (10) | 0.0% (0) | 0.0% (0) | 4.2% (1) | 1.58 | 24 |
| My neighborhood is walker/bicycle friendly. | **52.0% (13)** | 24.0% (6) | 0.0% (0) | 16.0% (4) | 8.0% (2) | 2.04 | 25 |
| The City should offer incentives to residents and business to become more green. | **60.0% (15)** | 28.0% (7) | 4.0% (1) | 4.0% (1) | 4.0% (1) | 1.64 | 25 |
| I am aware of green programs initiated by the City of Clearwater. | 8.0% (2) | **36.0% (9)** | 8.0% (2) | 32.0% (8) | 16.0% (4) | 3.12 | 25 |
| | | | | | | ***answered question*** | **25** |
| | | | | | | ***skipped question*** | **0** |

**5. Indicate whether you participate in the following environmental activities. For NO answers, please give the reason why you do NOT participate.**

**Yes or No**

| | Yes | No | Not applicable | Response Count |
|---|---|---|---|---|
| Turn off water while brushing my teeth/shaving | **80.0% (20)** | 20.0% (5) | 0.0% (0) | 25 |
| Use energy efficient light bulbs (squiggly type) | **68.0% (17)** | 32.0% (8) | 0.0% (0) | 25 |
| Had an energy audit conducted by Progress Energy | 36.0% (9) | **60.0% (15)** | 4.0% (1) | 25 |
| Recycle regularly | **84.0% (21)** | 16.0% (4) | 0.0% (0) | 25 |
| Change my air filter regularly | **96.0% (24)** | 4.0% (1) | 0.0% (0) | 25 |
| Use reusable bags at the grocery store | **52.0% (13)** | 48.0% (12) | 0.0% (0) | 25 |
| Purchase environmentally-friendly products, even though they are more expensive. | **88.0% (22)** | 12.0% (3) | 0.0% (0) | 25 |
| Limit my meat intake | **76.0% (19)** | 24.0% (6) | 0.0% (0) | 25 |
| Purchase organic food | **56.0% (14)** | 44.0% (11) | 0.0% (0) | 25 |
| Attend environmental education programs | **52.0% (13)** | 44.0% (11) | 4.0% (1) | 25 |
| Member of an environmental organization | 45.8% (11) | **50.0% (12)** | 4.2% (1) | 24 |
| Bike, walk, carpool, or take the bus rather than drive whenever possible | 40.0% (10) | **60.0% (15)** | 0.0% (0) | 25 |
| Use public transit | 12.0% (3) | **80.0% (20)** | 8.0% (2) | 25 |
| Own a hybrid car | 0.0% (0) | **100.0% (25)** | 0.0% (0) | 25 |

| | | | | |
|---|---|---|---|---|
| Maintain a native, drought resistent yard | **48.0% (12)** | 36.0% (9) | 16.0% (4) | 25 |
| Member of a neighborhood association group | **64.0% (16)** | 32.0% (8) | 4.0% (1) | 25 |
| Vote on environmental initiatives | **92.0% (23)** | 8.0% (2) | 0.0% (0) | 25 |

**If no, why not**

| | Too expensive | Not enough time | Never crossed my mind | Too radical an idea | Don't care | **Response Count** |
|---|---|---|---|---|---|---|
| Turn off water while brushing my teeth/shaving | **50.0% (1)** | 0.0% (0) | **50.0% (1)** | 0.0% (0) | 0.0% (0) | 2 |
| Use energy efficient light bulbs (squiggly type) | **33.3% (2)** | 0.0% (0) | **33.3% (2)** | **33.3% (2)** | 0.0% (0) | 6 |
| Had an energy audit conducted by Progress Energy | 18.2% (2) | 27.3% (3) | **36.4% (4)** | 0.0% (0) | 18.2% (2) | 11 |
| Recycle regularly | 0.0% (0) | **50.0% (1)** | 0.0% (0) | **50.0% (1)** | 0.0% (0) | 2 |
| Change my air filter regularly | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0.0% (0) | 0 |
| Use reusable bags at the grocery store | 28.6% (2) | 14.3% (1) | **42.9% (3)** | 14.3% (1) | 0.0% (0) | 7 |
| Purchase environmentally-friendly products, even though they are more expensive. | **50.0% (1)** | 0.0% (0) | **50.0% (1)** | 0.0% (0) | 0.0% (0) | 2 |
| Limit my meat intake | 25.0% (1) | 0.0% (0) | 0.0% (0) | 25.0% (1) | **50.0% (2)** | 4 |
| Purchase organic food | **42.9% (3)** | 0.0% (0) | 14.3% (1) | 14.3% (1) | 28.6% (2) | 7 |
| Attend environmental education programs | 0.0% (0) | **50.0% (3)** | 33.3% (2) | 16.7% (1) | 0.0% (0) | 6 |
| Member of an environmental organization | 0.0% (0) | **75.0% (6)** | 12.5% (1) | 12.5% (1) | 0.0% (0) | 8 |
| Bike, walk, carpool, or take the bus rather than drive whenever possible | 0.0% (0) | **60.0% (3)** | 0.0% (0) | 40.0% (2) | 0.0% (0) | 5 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Use public transit | 8.3% (1) | **50.0% (6)** | 25.0% (3) | 16.7% (2) | 0.0% (0) | 12 |
| Own a hybrid car | **88.2% (15)** | 5.9% (1) | 0.0% (0) | 5.9% (1) | 0.0% (0) | 17 |
| Maintain a native, drought resistent yard | **33.3% (2)** | 16.7% (1) | **33.3% (2)** | 0.0% (0) | 16.7% (1) | 6 |
| Member of a neighborhood association group | 0.0% (0) | **66.7% (2)** | 33.3% (1) | 0.0% (0) | 0.0% (0) | 3 |
| Vote on environmental initiatives | 0.0% (0) | **100.0% (1)** | 0.0% (0) | 0.0% (0) | 0.0% (0) | 1 |
| | | | | | ***answered question*** | **25** |
| | | | | | ***skipped question*** | **0** |

**6. Categorize the following environmental concerns that you believe, the City of Clearwater is currently facing.**

| | Big concern | Moderate concern | No worries | **Response Count** |
|---|---|---|---|---|
| Loss of natural habitat | **76.0% (19)** | 20.0% (5) | 4.0% (1) | 25 |
| Lack of public transportation | 40.0% (10) | **44.0% (11)** | 16.0% (4) | 25 |
| Too much traffic | **80.0% (20)** | 20.0% (5) | 0.0% (0) | 25 |
| Reduced air quality | 44.0% (11) | **48.0% (12)** | 8.0% (2) | 25 |
| Population growth | **76.0% (19)** | 20.0% (5) | 4.0% (1) | 25 |
| Escalating gasoline prices | **52.0% (13)** | 44.0% (11) | 4.0% (1) | 25 |
| Reduced water quality | **64.0% (16)** | 28.0% (7) | 8.0% (2) | 25 |
| Creating too much waste | **64.0% (16)** | 32.0% (8) | 4.0% (1) | 25 |
| Unsustainable development | **66.7% (16)** | 33.3% (8) | 0.0% (0) | 24 |
| Global warming | **57.7% (15)** | 30.8% (8) | 11.5% (3) | 26 |
| Natural disaster | **52.0% (13)** | 44.0% (11) | 4.0% (1) | 25 |
| | | | ***answered question*** | **25** |

| | | |
|---|---|---|
| | *skipped question* | **0** |

**7. From the list in Question 6 above, select the three most pressing issues in order of importance.**

| | | Response Percent | Response Count |
|---|---|---|---|
| **One** | | **100.0%** | 25 |
| **Two** | | **100.0%** | 25 |
| **Three** | | **100.0%** | 25 |
| | *answered question* | | **25** |
| | *skipped question* | | **0** |

**8. Please provide any comments you feel are applicable.**

| | | Response Count |
|---|---|---|
| | | 16 |
| | *answered question* | **16** |
| | *skipped question* | **9** |

Responses to Questions 7 and 8 are on the following pages.

Q7. One

Displaying 1 - 26 of 26 responses << Prev Next >> Jump To: 1 Go >>

| | Comment Text | Response Date |
|---|---|---|
| Find | 1. Unsustainable development | Tue, 11/13/07 7:26 PM |
| Find | 2. Loss of Habitat | Mon, 11/5/07 11:43 PM |
| Find | 3. too much traffic | Mon, 11/5/07 5:23 PM |
| Find | 4. Global warming | Sun, 11/4/07 1:08 PM |
| Find | 5. Escalating Gasoline Prices | Sun, 11/4/07 6:30 AM |
| Find | 6. loss of natural habitat | Sat, 11/3/07 12:34 PM |
| Find | 7. Loss of natural habitat | Thu, 11/1/07 7:43 PM |
| Find | 8. Unsustainable development | Thu, 11/1/07 4:16 PM |
| Find | 9. Population growth | Thu, 11/1/07 2:29 PM |
| Find | 10. Lack of Public Transportation | Thu, 11/1/07 1:13 PM |
| Find | 11. GAS | Thu, 11/1/07 5:20 AM |
| Find | 12. population growth | Wed, 10/31/07 10:19 PM |
| Find | 13. loss of natural habitat | Wed, 10/31/07 6:50 PM |
| Find | 14. development | Wed, 10/31/07 11:38 AM |
| Find | 15. Unsustainable development | Wed, 10/31/07 5:57 AM |
| Find | 16. Population growth | Tue, 10/30/07 3:03 PM |
| Find | 17. Loss of natural habitat | Tue, 10/30/07 11:40 AM |
| Find | 18. illegal aliens moving into the clearwater area | Tue, 10/30/07 9:39 AM |
| Find | 19. loss of natural habitat | Mon, 10/29/07 4:47 PM |
| Find | 20. Too much waste | Mon, 10/29/07 2:01 PM |
| Find | 21. Water Quality | Mon, 10/29/07 1:08 PM |
| Find | 22. Lach of public transportation | Mon, 10/29/07 11:46 AM |
| Find | 23. traffic | Mon, 10/29/07 7:25 AM |
| Find | 24. global warming | Sun, 10/28/07 9:51 PM |
| Find | 25. global warming | Sat, 10/27/07 4:11 PM |
| Find | 26. Unsustainable development | Sat, 10/27/07 3:41 PM |

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Q7. TWO

Displaying 1 - 26 of 26 responses << Prev Next >> Jump To: 1 Go >>

| | | Comment Text | Response Date |
|---|---|---|---|
| Find | 1. | Population growth | Tue, 11/13/07 7:26 PM |
| Find | 2. | natural disaster | Mon, 11/5/07 11:43 PM |
| Find | 3. | lack of public transportation | Mon, 11/5/07 5:23 PM |
| Find | 4. | Unsustainable development | Sun, 11/4/07 1:08 PM |
| Find | 5. | Too Much Traffic | Sun, 11/4/07 6:30 AM |
| Find | 6. | too much traffic | Sat, 11/3/07 12:34 PM |
| Find | 7. | too much traffic | Thu, 11/1/07 7:43 PM |
| Find | 8. | Too much traffic | Thu, 11/1/07 4:16 PM |
| Find | 9. | Too much traffic | Thu, 11/1/07 2:29 PM |
| Find | 10. | Population Growth | Thu, 11/1/07 1:13 PM |
| Find | 11. | NATURAL DISASTER | Thu, 11/1/07 5:20 AM |
| Find | 12. | loss of natural habitat | Wed, 10/31/07 10:19 PM |
| Find | 13. | population growth | Wed, 10/31/07 6:50 PM |
| Find | 14. | water quality/amount | Wed, 10/31/07 11:38 AM |
| Find | 15. | Water Quality/Quantity | Wed, 10/31/07 5:57 AM |
| Find | 16. | too much traffic | Tue, 10/30/07 3:03 PM |
| Find | 17. | Too much traffic | Tue, 10/30/07 11:40 AM |
| Find | 18. | taxes and home owner's insurance | Tue, 10/30/07 9:39 AM |
| Find | 19. | unsustainable development | Mon, 10/29/07 4:47 PM |
| Find | 20. | Unsustainable development | Mon, 10/29/07 2:01 PM |
| Find | 21. | Too Much Traffic | Mon, 10/29/07 1:08 PM |
| Find | 22. | Too much traffic | Mon, 10/29/07 11:46 AM |
| Find | 23. | reduced water quality | Mon, 10/29/07 7:25 AM |
| Find | 24. | traffic problem cause by city policies | Sun, 10/28/07 9:51 PM |
| Find | 25. | unsustanable growth | Sat, 10/27/07 4:11 PM |
| Find | 26. | Loss of natural habitat | Sat, 10/27/07 3:41 PM |

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Q7. Three

Displaying 1 - 26 of 26 responses  << Prev  Next >>  Jump To: 1  Go >>

| | | Comment Text | Response Date |
|---|---|---|---|
| Find | 1. | Loss of natural habitat | Tue, 11/13/07 7:26 PM |
| Find | 2. | public transportation | Mon, 11/5/07 11:43 PM |
| Find | 3. | natural disaster | Mon, 11/5/07 5:23 PM |
| Find | 4. | gasoline prices | Sun, 11/4/07 1:08 PM |
| Find | 5. | Population Growth | Sun, 11/4/07 6:30 AM |
| Find | 6. | lack of quality public transportation | Sat, 11/3/07 12:34 PM |
| Find | 7. | creating too much waste | Thu, 11/1/07 7:43 PM |
| Find | 8. | Loss of natural habitat | Thu, 11/1/07 4:16 PM |
| Find | 9. | Escalating gas prices | Thu, 11/1/07 2:29 PM |
| Find | 10. | Water Quality is low | Thu, 11/1/07 1:13 PM |
| Find | 11. | POPULATION GROWTH | Thu, 11/1/07 5:20 AM |
| Find | 12. | gas prices | Wed, 10/31/07 10:19 PM |
| Find | 13. | creating too much waste | Wed, 10/31/07 6:50 PM |
| Find | 14. | habitat | Wed, 10/31/07 11:38 AM |
| Find | 15. | Global Warming | Wed, 10/31/07 5:57 AM |
| Find | 16. | global warming | Tue, 10/30/07 3:03 PM |
| Find | 17. | Unsustainable development | Tue, 10/30/07 11:40 AM |
| Find | 18. | quality of water | Tue, 10/30/07 9:39 AM |
| Find | 19. | population growth | Mon, 10/29/07 4:47 PM |
| Find | 20. | Too much traffic (& noise!) | Mon, 10/29/07 2:01 PM |
| Find | 21. | Population Growth | Mon, 10/29/07 1:08 PM |
| Find | 22. | Reduced water quality | Mon, 10/29/07 11:46 AM |
| Find | 23. | natural disaster | Mon, 10/29/07 7:25 AM |
| Find | 24. | loss of natural habitat | Sun, 10/28/07 9:51 PM |
| Find | 25. | loss of natural habitat | Sat, 10/27/07 4:11 PM |
| Find | 26. | Population growth | Sat, 10/27/07 3:41 PM |

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Q8

Displaying 1 - 17 of 17 responses << Prev Next >> Jump To: 1 Go >>

| | Comment Text | Response Date |
|---|---|---|
| Find | 1. The City needs to make an actual effort toward providing affordable housing for lower-income workers. | Tue, 11/13/07 7:26 PM |
| Find | 2. We are seriously considering a hybrid car the next time we purchase one. | Sun, 11/4/07 1:08 PM |
| Find | 3. The reasons provided to explain "no" answers to Question 5 were inadequate. At the very least, a choice of "other" or "will consider" should have been provided, if a fill-in wasn't feasible. For example, I don't own a hybrid car because I have a 12 year old Honda Civic that gets 40+ mpg. | Thu, 11/1/07 7:43 PM |
| Find | 4. In conjunction with the US 19 overpasses currently under construction at SR 590 and Sunset Point, we would like to see landscaping similar to the Drew St. overpass, such as the palm trees and shrubs. | Thu, 11/1/07 4:16 PM |
| Find | 5. We should have in Clearwater an efficient public transportation system such as Wash., DC "Metro" system or even more buses and bus routes to places of business. Also the H20 in Clearwater is very bad - you almost are forced to get filters, water softeners, reverse osmosis, etc. | Thu, 11/1/07 1:13 PM |
| Find | 6. WITH THE GROWTH AND POPULATION THAT THEY ARE ALLOWING, IN CASE OF A DISASTER, THERE IS N O WAY THAT EVERYONE OR THAT M O S T WOULD BE ABLE TO EVACUATE. | Thu, 11/1/07 5:20 AM |
| Find | 7. my NO answers.. your 'reasons' had nothing to do with my WHY NOTs | Wed, 10/31/07 10:19 PM |
| Find | 8. please use more or all native plants for city planting. please do not allow dogs on Clearwater Beach please restrict fertilizer run off form the city please have more public parking for visiting Clerwater Beach | Wed, 10/31/07 6:50 PM |
| Find | 9. 1. Unregulated growth is the cause of the other problems 2. prescribed burning would help in some cases 3. better maintainance of city parks | Wed, 10/31/07 11:38 AM |
| Find | 10. It is hard to say which is the most pressing. However, our immediate concerns include unsustainable development. How many more condos bring in how many more people? Who can afford them these days anyway? We do not have our own water source and keep adding more people. Pasco will not be able to give us water forever....All of the answers in number 9 are imporant as well. Let the nonprofits help with advice. Visit the Florida house in Sarasota. Look what they are doing. Change the lighting requirements on the beach- colored lights save turtles... | Wed, 10/31/07 5:57 AM |
| Find | 11. Global warming still only a theory not a scientific fact | Tue, 10/30/07 11:40 AM |
| Find | 12. All illegal aliens in this county and country should be deported. No more llegal aliens should be allowed into this county and country. Pinellas County and City of Clearwater should focus on greatly improving our water and air quality. The grocery stores should use environmentally friendly bags. | Tue, 10/30/07 9:39 AM |
| Find | 13. Please stop uncontrolled development, we do not have enough resources to accomodate. Also, building on environmentally sensitive areas which were never meant to be developed and which cause the greatest monetary loss when destroyed. Waterfront areas should be for public use, not special interest or purchaser of waterfront lots. | Mon, 10/29/07 4:47 PM |
| Find | 14. 1. I am appalled that we ceased to recycle glass! 2. The noise from traffic, especially loud bass car music systems, shake my house & windows. 3. Public transportation system is too limited--if PSTA wants more people to ride the bus, they need to provide better routes and | Mon, 10/29/07 2:01 PM |

Q8 (cont.)

times. (*) Your #5 question would not allow me to type in my reasons--only select from a list of someone else's reasons. For example, I hate the harsh light that comes from those newer light bulbs and I don't believe fluorescent bulbs are suddenly healthful either...it's not the cost, but the low quality of that product. Also, I know Progress Energy just wants to sell more of their products.

| | | | |
|---|---|---|---|
| Find | 15. | There is a need for EVERYONE in the city to involved. | Mon, 10/29/07 1:08 PM |
| Find | 16. | The no questions above could not be answered by the items presented. You did not consider noise polution. I am a Master Gardener and participate in green initiatives. | Mon, 10/29/07 11:46 AM |
| Find | 17. | Due to the traffic calming created by the city is forcing more traffic jams and affecting the air by having car running in one place or forcing a traffic jam. The city will allow any developer to inflict in the habitat for new construction and more concrete. | Sun, 10/28/07 9:51 PM |

25 responses per page

**9. Which method do you think would be the best way for the City to advance "green" initiatives. Rank your answers by writing one, two, and three in the boxes.**

| | Response Percent | Response Count |
|---|---|---|
| **Lead by Example (e.g., enact green techniques within the City operation to demonstrate)** | **100.0%** | 22 |
| **Enact Controls (e.g., legislate green initiatives, like mandating recycling)** | **100.0%** | 22 |
| **Offer environmental education programs (e.g., workshops on reducing energy and water usage)** | **100.0%** | 22 |
| | ***answered question*** | **22** |
| | ***skipped question*** | **3** |

Responses to this question are on the following page.

**10. Which of the following would you be interested in participating?**

| | Yes | No | Response Count |
|---|---|---|---|
| Focus group meetings | **65.0% (13)** | 35.0% (7) | 20 |
| Environmental Committees | **65.0% (13)** | 35.0% (7) | 20 |
| Environmental education programs | **66.7% (14)** | 33.3% (7) | 21 |
| Community gardening | 35.0% (7) | **65.0% (13)** | 20 |
| "Florida-Friendly" landscaping | **77.3% (17)** | 22.7% (5) | 22 |
| | | ***answered question*** | **24** |
| | | ***skipped question*** | **1** |

# Q9. Lead by Example

Displaying 1 - 23 of 23 responses

Jump To: 1 Go >>

| | Comment Text | Response Date |
|---|---|---|
| Find | 1. 2 | Tue, 11/13/07 7:26 PM |
| Find | 2. 1 | Mon, 11/5/07 11:43 PM |
| Find | 3. one | Mon, 11/5/07 5:23 PM |
| Find | 4. 2 | Sun, 11/4/07 1:08 PM |
| Find | 5. they say their green but we see so much no green N/A | Sun, 11/4/07 6:30 AM |
| Find | 6. 3 | Sat, 11/3/07 12:34 PM |
| Find | 7. 1 | Thu, 11/1/07 7:43 PM |
| Find | 8. 1 | Thu, 11/1/07 4:16 PM |
| Find | 9. 2 | Thu, 11/1/07 2:29 PM |
| Find | 10. 1 | Thu, 11/1/07 1:13 PM |
| Find | 11. 2 | Thu, 11/1/07 5:20 AM |
| Find | 12. ONE | Wed, 10/31/07 10:19 PM |
| Find | 13. 1 | Wed, 10/31/07 6:50 PM |
| Find | 14. removal of exotic species N/A | Wed, 10/31/07 11:38 AM |
| Find | 15. 1 | Wed, 10/31/07 5:57 AM |
| Find | 16. 2 | Tue, 10/30/07 11:40 AM |
| Find | 17. 2 | Mon, 10/29/07 4:47 PM |
| Find | 18. 3 | Mon, 10/29/07 2:01 PM |
| Find | 19. Two | Mon, 10/29/07 1:08 PM |
| Find | 20. 2 | Mon, 10/29/07 11:46 AM |
| Find | 21. 1 | Sun, 10/28/07 9:51 PM |
| Find | 22. lead by ex, | Sat, 10/27/07 4:11 PM |
| Find | 23. one | Sat, 10/27/07 3:41 PM |

25 responses per page

One - 11
Two - 8
Three - 2

# Q9. Controls

Displaying 1 - 23 of 23 responses

Jump To: 1 Go >>

| | Comment Text | Response Date |
|---|---|---|
| Find | 1. 1 | Tue, 11/13/07 7:26 PM |
| Find | 2. 3 | Mon, 11/5/07 11:43 PM |
| Find | 3. three | Mon, 11/5/07 5:23 PM |
| Find | 4. 1 | Sun, 11/4/07 1:08 PM |
| Find | 5. Pay for recycling such as free tickets to events and discounts for other things N/A | Sun, 11/4/07 6:30 AM |
| Find | 6. 1 | Sat, 11/3/07 12:34 PM |
| Find | 7. 2 | Thu, 11/1/07 7:43 PM |
| Find | 8. 2 | Thu, 11/1/07 4:16 PM |
| Find | 9. 2 | Thu, 11/1/07 2:29 PM |
| Find | 10. 2 | Thu, 11/1/07 1:13 PM |
| Find | 11. 3 | Thu, 11/1/07 5:20 AM |
| Find | 12. if they do this..do NOT charge people! N/A | Wed, 10/31/07 10:19 PM |
| Find | 13. 2 | Wed, 10/31/07 6:50 PM |
| Find | 14. fertilizer control (see Sarasota) N/A | Wed, 10/31/07 11:38 AM |
| Find | 15. 3 | Wed, 10/31/07 5:57 AM |
| Find | 16. 3 | Tue, 10/30/07 11:40 AM |
| Find | 17. 1 | Mon, 10/29/07 4:47 PM |
| Find | 18. 1 | Mon, 10/29/07 2:01 PM |
| Find | 19. Three | Mon, 10/29/07 1:08 PM |
| Find | 20. 3 | Mon, 10/29/07 11:46 AM |
| Find | 21. 2 | Sun, 10/28/07 9:51 PM |
| Find | 22. enact cont. | Sat, 10/27/07 4:11 PM |
| Find | 23. two | Sat, 10/27/07 3:41 PM |

25 responses per page

One - 6
Two - 7
Three - 7

Q9 Env. Ed.

Displaying 1 - 23 of 23 responses << Prev Next >> Jump To: 1 Go >>

| | Comment Text | Response Date |
|---|---|---|
| Find | 1. 3 | Tue, 11/13/07 7:26 PM |
| Find | 2. 2 | Mon, 11/5/07 11:43 PM |
| Find | 3. two | Mon, 11/5/07 5:23 PM |
| Find | 4. 3 | Sun, 11/4/07 1:08 PM |
| Find | 5. Clean & keep clean the new Glen Oaks Park and Lakes N/A | Sun, 11/4/07 6:30 AM |
| Find | 6. 2 | Sat, 11/3/07 12:34 PM |
| Find | 7. 3 | Thu, 11/1/07 7:43 PM |
| Find | 8. 3 | Thu, 11/1/07 4:16 PM |
| Find | 9. 2 | Thu, 11/1/07 2:29 PM |
| Find | 10. 3 | Thu, 11/1/07 1:13 PM |
| Find | 11. 1 | Thu, 11/1/07 5:20 AM |
| Find | 12. two | Wed, 10/31/07 10:19 PM |
| Find | 13. 3 | Wed, 10/31/07 6:50 PM |
| Find | 14. Florida friendly development N/A | Wed, 10/31/07 11:38 AM |
| Find | 15. 2 | Wed, 10/31/07 5:57 AM |
| Find | 16. 1 | Tue, 10/30/07 11:40 AM |
| Find | 17. 3 | Mon, 10/29/07 4:47 PM |
| Find | 18. 2 | Mon, 10/29/07 2:01 PM |
| Find | 19. One | Mon, 10/29/07 1:08 PM |
| Find | 20. 1 | Mon, 10/29/07 11:46 AM |
| Find | 21. 3 | Sun, 10/28/07 9:51 PM |
| Find | 22. envir. edu. | Sat, 10/27/07 4:11 PM |
| Find | 23. three | Sat, 10/27/07 3:41 PM |

25 responses per page

One - 4
Two - 7
Three - 10

**11. Optional: If you like to be contacted for inclusion in future focus group meetings, please complete the following.**

| | Response Percent | Response Count |
|---|---|---|
| **Name:** | **90.9%** | 10 |
| Address: | 81.8% | 9 |
| Zip code | 81.8% | 9 |
| Telephone | 72.7% | 8 |
| **Email address** | **90.9%** | 10 |
| | ***answered question*** | **11** |
| | ***skipped question*** | **14** |

Responses to these questions are being held as confidential records.

# Copy of City of Clearwater Green Survey - Hotel Survey

**1. Please answer the following demographic information.**

| | Response Percent | Response Count |
|---|---|---|
| **What neighborhood is your organization located?** | **100.0%** | 5 |
| **How many years have you done business in Clearwater?** | **100.0%** | 5 |
| **How many employees do you have?** | **100.0%** | 5 |
| **How many rooms do you have?** | **100.0%** | 5 |
| What is your average annual occupancy rate? | 80.0% | 4 |
| **How many food service establishments do you operate?** | **100.0%** | 5 |
| | ***answered question*** | **5** |
| | ***skipped question*** | **0** |

Responses are included on the following page

Question 1 Responses - Hotel Survey

| Respondents | What neighborhood is your organization located? | How many years have you done business in Clearwater? | How many employees do you have? | How many rooms do you have? | What is your average annual occupancy rate? | How many food service establishments do you operate? |
|---|---|---|---|---|---|---|
| 1 | clw beach | 43 | 80 | 29 | 70 | 1 |
| 2 | Clearwater Beach | 28 years | 200 | 416 | 90% | 2 |
| 3 | Sandkey | 23 years | 170 | 220 | 80% | three |
| 4 | Clearwater Beach | Since 8/27/07 | 300 | 253 | | 3 |
| 5 | Clearwater Beach | 30 | 165 | 97 | 80 | 2 |

## 2. List three reasons why your hotel is located in Clearwater, in the order of importance to you.

| | | Response Percent | Response Count |
|---|---|---|---|
| view | **One** | **100.0%** | 4 |
| view | **Two** | **100.0%** | 4 |
| view | Three | 75.0% | 3 |
| | | ***answered question*** | **4** |
| | | ***skipped question*** | **1** |

Responses to this question are on the following page.

## 3. Indicate whether your organization participates in the following environmental activities.

| | Yes | No | Not Applicable | Response Count |
|---|---|---|---|---|
| Use energy efficient light bulbs throughout hotel | 40.0% (2) | **60.0% (3)** | 0.0% (0) | 5 |
| Had an energy audit conducted by Progress Energy | 40.0% (2) | **60.0% (3)** | 0.0% (0) | 5 |
| Do you have an all-inclusive recycle program? | 20.0% (1) | **80.0% (4)** | 0.0% (0) | 5 |
| Purchase environmentally-friendly products (e.g. post consumer paper products) | **80.0% (4)** | 20.0% (1) | 0.0% (0) | 5 |
| Purchase only Energy Star appliances, where appropriate | **75.0% (3)** | 25.0% (1) | 0.0% (0) | 4 |
| Offer incentives for employees to bike, walk, carpool, or take the bus rather than drive | 0.0% (0) | **100.0% (5)** | 0.0% (0) | 5 |
| Offer shuttle transportation to and from the airport | 20.0% (1) | **80.0% (4)** | 0.0% (0) | 5 |

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List three reasons why your hotel is located in Clearwater, in the order of importance to you.

| Respondent | One | Two | Three |
|---|---|---|---|
| 1 | adjacent to the restaurant we owned | it was already built | |
| 2 | Location | Location | Location |
| 3 | Beach | Beach | Florida / weather |
| 4 | Location | Location | Location |

12

List three reasons why your hotel is located in Clearwater, in the order of importance to you.

| Respondent | One | Two | Three |
|---|---|---|---|
| 1 | adjacent to the restaurant we owned | it was already built | |
| 2 | Location | Location | Location |
| 3 | Beach | Beach | Florida / weather |
| 4 | Location | Location | Location |