CITY OF PALM BEACH GARDENS
COMPREHENSIVE PLAN

CONSERVATION ELEMENT

SUPPORT DOCUMENT

Prepared by:

The City of Palm Beach Gardens
June 2008

I. INTRODUCTION

Photo: Florida Alligator. A listed species of Special Concern. Citv of Palm Beach Gardens

The City of Palm Beach Gardens continues to be committed to protect and preserve the City's natural resources in a manner that is balanced with the needs of the community. The abundant greenways and parkways, upland and wetland preservation areas, and open space areas all help to promote a sustainable city that identifies Conservation as one of its key priorities.

The City's Comprehensive Plan currently sets forth a number of Goals, Objectives and Policies that promote this vision. The City's existing Land Development Regulations help implement and enforce these Goals, Objectives and Policies. The Conservation Element as last amended in June 2005 provided for certain definitions to be included and to clarify alternative methods for ensuring protection of environmentally sensitive lands during the development review process. This amendment clarified that the City may approve either off-site mitigation or payment in lieu of preservation under appropriate circumstances.

Photo: Boardwalk in Frenchman's Forest. City of Palm Beach Gardens

The proposed EAR-based Comprehensive Plan amendments to the Conservation Element have been modified to "clean-up" certain existing policies that are more appropriately located in other locations within the element. Additionally, a number of minor modifications have been included to update the existing language in the Goals, Objectives and Policies to reflect existing conditions. New language has been included to further promote the vision of sustainability of the existing natural resources in the community. Finally, a new goal is being included to encourage a sustainable City through actions that reduce greenhouse gas emissions and other pollutants, and reduce the use of non-renewable resources.

II. EXISTING CONDITIONS

The City has been a tree City since 1984, and currently has over 137,799 lineal feet, (or 26.1 miles) in State-wide recognized green parkways. These parkways promote the buffering of adjacent developments; pedestrian and bicycle circulation between different

land uses; and the preservation of wooded areas and isolated wetlands in linear greenways.

Approximately 12,176 acres are currently dedicated on the City's Future Land Use Map toward Conservation. Approximately 12,758 acres or 37% of the City's actual existing uses are dedicated toward Conservation *(2008 City of Palm Beach Gardens GIS Department – See Table 1 and 2).*

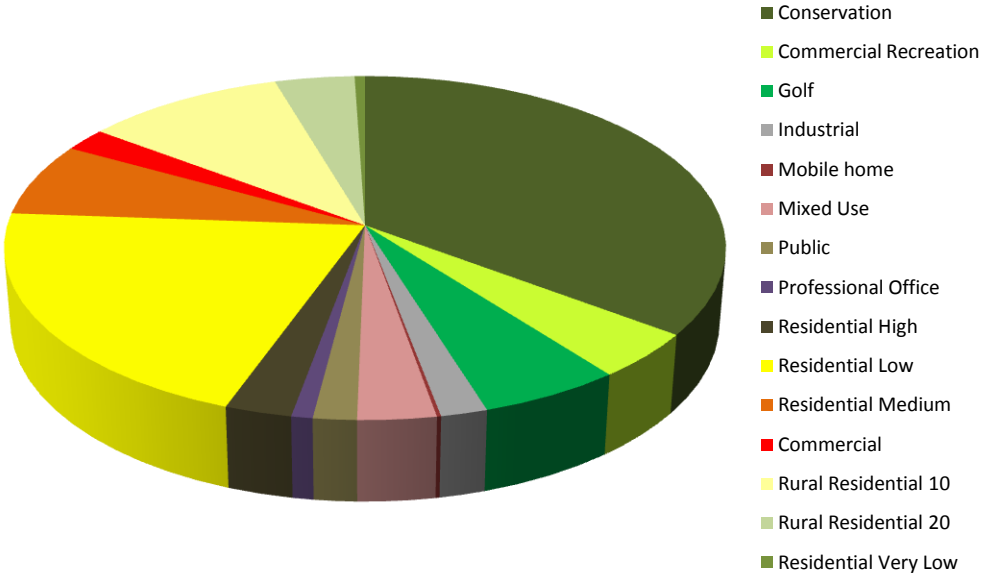


Chart 1: Land Use Table May 2008. From adopted Future Land Use Map. City of Palm Beach Gardens GIS Department.

Future Land Use Map		
EXISTING	**ACRES**	**PERCENTAGE**
Recreation Open Space	216.13	0.62%
Conservation	12176.56	35.19%
Commercial Recreation	1498.71	4.33%
Golf	1957.62	5.66%
Industrial	642.13	1.86%
Mobile home	55.78	0.16%
Mixed Use	1074.9	3.11%
Public	596.49	1.72%
Professional Office	292.04	0.84%
Residential High	920.52	2.66%

Residential Low	7130	20.61%
Residential Medium	2387.32	6.90%
Commercial	757.67	2.19%
Rural Residential 10	3523.32	10.18%
Rural Residential 20	1404.48	4.06%
Residential Very Low	181.44	0.52%
Total	**34598.98**	**100.00%**

Table 1: City of Palm Beach Gardens Existing Use Map. May 2008

Existing Uses

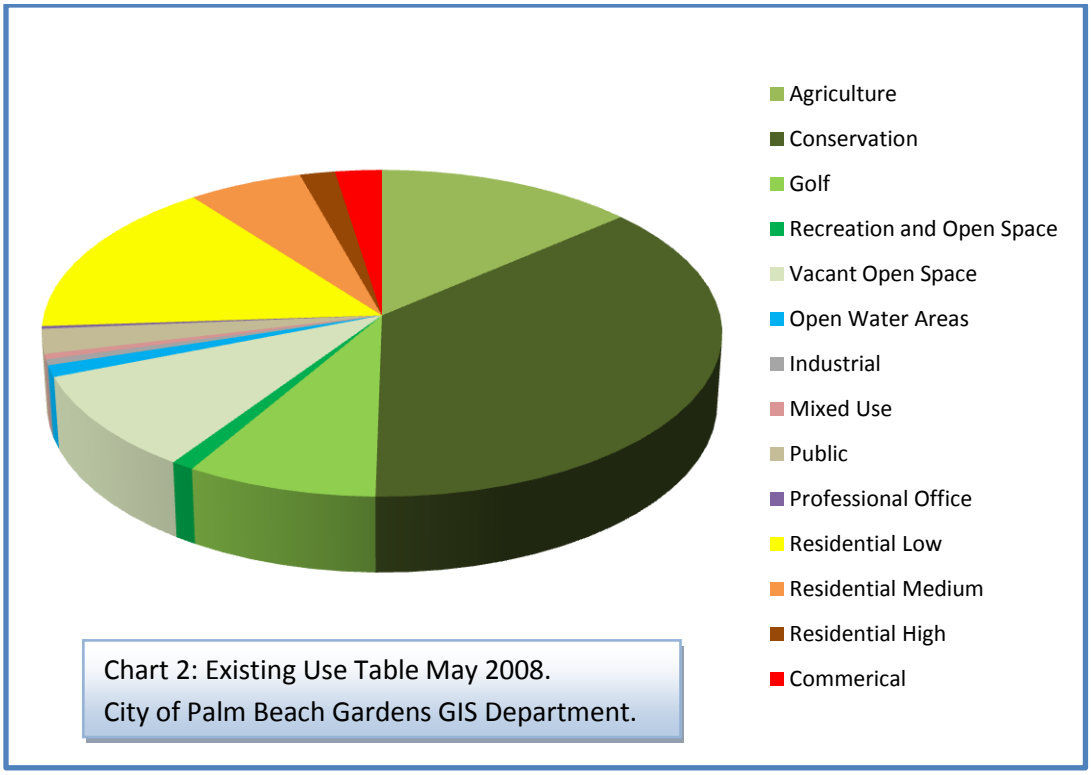


Chart 2: Existing Use Table May 2008.
City of Palm Beach Gardens GIS Department.

Existing Use Table		
Parkway (in feet and miles)		
PARKWAY	137,799 ft	26.1 miles
Agriculture	4765.25	14.02%
Conservation	12758.48	37.53%
Golf	2866.76	8.43%
Recreation and Open Space	344.71	1.01%
Vacant Open Space	3327.12	9.79%

Open Water Areas	395.8	1.16%
Industrial	199.62	0.59%
Mixed Use	181.56	0.53%
Public	849.39	2.50%
Professional Office	89.44	0.26%
Residential Low	5462.22	16.07%
Residential Medium	2109.21	6.20%
Residential High	649.37	1.91%
Commercial	860.01	2.53%
Total	**33998.93**	**100.00%**

Table 2: City of Palm Beach Gardens Existing Use Map. May 2008

As shown in Chart 2 and Table 2 above, the majority of existing land use is currently in either open space or recreation use or conservation. All of the green existing uses shown below represent the cumulative acreage of the City's total recreation and open space areas, which make approximately 58% of the City's total existing land use base.

Flora and Fauna

The diversity of natural ecological systems within the City has been greatly reduced by drainage, land development, and invasive exotic flora. The two basic categories for the City are uplands and wetlands. The upland communities include the pine flatwoods, which predominate, particularly in the vacant western and northern areas and remnants of the oak hammocks in the coastal area. The City uses the Native Plants of South Florida (NPSF) Database: Master List of Species by Family to source most native flora and fauna that grows in the City can be found in the Appendix Section.

Photo: American Beauty Berry (native plant). City of Palm Beach Gardens

Wetlands are located in the inland slough which has been severely disturbed by drainage. However, development at the PGA Resort Community has completed construction of drainage modifications and improvements that will restore the hydroperiod and promote the wetland communities near the original slough boundary. Mirasol has been developed with two key components that help drainage and the environment. Due to the Seacoast Utility Authority (SUA) well draw down of the ground water, volume lift pumps have been installed to help supplement the lakes, littoral shelves and adjacent wetlands. Also, the finish floor elevation for buildings was set taking into consideration the future and now existing C-18 canal and G-160 control structure. Another positive note, the Mirasol Property Owners Association gave all the Mirasol wetland and upland preserve lands to

Northern Palm Beach County Improvement District, in fee simple title, to manage the lands. The Evergrene community was developed by WCI and received Audubon International certification, and there is a very highly ranked "Greenhouse" constructed in Evergrene.

Photo: Mangrove Swamp. City of Palm Beach Gardens

Much of the City east of the Turnpike has been cleared and developed, eliminating all but the primary species in some areas. Likewise, within each of the mapped communities, small pockets of other types of communities may be present.

The majority of the vacant land in the City is characterized by pine flatwoods or wetlands. The Loxahatchee Slough is the major natural resource and topographical feature within the City limits. Other large natural preservation areas include the Frenchman's Forest Eco-site and the preserve area that is part of the Frenchman's Creek DRI, the Sandhill Crane and Hungryland Slough which fall under multiple jurisdictions. Dune remnants exist in the Frenchmans's Reserve PUD and Sanctuary PUD. Isolated wetlands exist throughout the City; however, the abundance of wetlands is associated with the Loxahatchee Slough ecosystem. See Map A.12. that illustrates these natural areas in the City. The vast majority of these conservation lands within the City were purchased with Palm Beach County and South Florida Water management District subsequent to the MacArthur Foundation purchase. The acquisitions of these conservation lands have provided for the opportunity for large areas of ecological diversity and habitat in additional to eco-corridors to provide connections throughout the City.

The Loxahatchee and Hungryland Slough natural areas also provide natural passive recreation opportunities with long distance hiking trails, canoe and kayak opportunities. These trail systems, managed by Palm Beach County Environmental Resource Management and the Florida Trail Association, traverse some of the finest examples of South Florida's natural communities.

Endangered and Threatened Species

The endangered and threatened plant and wildlife species and species of special concern are listed in the Appendix Section This document is issued by Florida Fish and Wildlife Conservation Commission, who through the Army Corps of Engineers, the US Fish and Wildlife Service, function as the key regulatory agencies for endangered or threatened species on new development permits. However, all

Photo: Gopher Tortoise. A listed threatened species. City of Palm Beach Gardens

protected species, plants and animals fall under the regulations of the City's natural resources code, and must be protected or relocated during construction and land alteration. Section 14-2 in the City Code of Ordinance designates the City as a bird and wildlife sanctuary which makes it unlawful for anyone in the City to kill, injure, molest, or harm any bird or animal wildlife within the City. The Loxahatchee Slough ecosystem serves as a rookery for wading birds and Sandhill cranes. In other areas of the City, the gopher tortoise is the protected species most likely to be found.

III. TRENDS AND CHALLENGES

Management of Conservation Lands

Charts 1 and 2 above indicate the large percentage of conversation lands the City has as part of its jurisdiction. One of the key challenges with having such a large area of existing lands dedicated toward conservation is the need to adequately manage the areas to ensure long term protection of living ecology within these systems. For example, the Resolution signed between the City of Palm Beach Gardens and the South Florida Water Management District in March 2004 to help adopt a forest management plan for the Sand Hill Crane Tract. Since many of the areas within the City are owned and operated by the Palm Beach County, additional Policies have been included as part of EAR based amendment to further promote effective Intergovernmental Coordination. These Policies include:

Policy 6.1.6.3.: *The City shall continue to cooperate with the SFWMD and Palm Beach County, through the exchange of technical information and informal coordination, in order to make a concerted effort to protect and conserve unique vegetative communities that exist in areas such as the Loxahatchee Slough, Sandhill Crane and Hungryland Slough and which fall under multiple local jurisdictions. Further, the City shall assist in the Loxahatchee Slough, Sandhill Crane and Hungryland Slough ecosites' protection by designating complete ecosites with Conservation land use and a consistent zoning district, and assisting with management activities.*

Policy 6.1.6.5.: *After the acquisition of new lands by agencies intended to conserve ecosites, the City shall coordinate with Palm Beach County and other applicable outside agencies in order to obtain a Management Plan for the ecosite, and designating the appropriate properties with a Conservation land use and a consistent zoning district.*

All of these Policies make reference to the need to modify some inconsistent zoning and land use districts that have an actual conservation use, but are not currently reflected on the City's Future Land Use Map and Zoning Designation Map. As part of the City's

Round I 2008 Comprehensive Plan amendment process, the City is planning to correct these inconsistencies in accordance with the above proposed Policies.

Water Restrictions

South Florida has recently suffered severe drought conditions. In February 2007, Florida Water Officials declared that the Everglades water body, a source that supplies more than 800 million gallons of water a day, could not longer support additional demand, and cities like Fort Lauderdale and Miami must explore alternate sources to meet future water needs. In terms of District-wide rainfall, 2006 was the sixth-driest year on record dating back to 1932, and the dry trend has continued into 2007, with sporadic rainfall that has been substantially below normal through April.

In October 2007, Lake Okeechobee was about 4 feet below its historical average for the time of year. (*Source: www.sfwmd.gov*) Consequently, the issue of water conservation has been the subject of much discussion at the local level here in South Florida, and the lack of rainfall in the region causing record low levels of Lake Okeechobee have resulted in the South Florida Water Management District imposing strict drought restrictions.

As part of the City's intergovernmental coordination efforts, the City has been cooperating with recent restrictions imposed by the South Florida Water Management District. The City has been actively enforcing SFMWD's Modified Phase II water restrictions, and has placed a number of useful links on its website to assist residents to better understand the limitations of the drought restrictions.

Infill & Re-development

Conservation Goals, Objectives and Policies have been included in a number of additional Elements within this EAR-based amendment process. One of the key concepts that go hand-in-hand with conservation is the acknowledgement to provide sustainable growth that promotes the mixture of land uses, multi-modal transportation, infill, and redevelopment. The supporting data of Future Land Use Element provides more detail on what measures the City is taking to promote this concept.

Essentially, infill & re-development should support superior projects within the Cities' urban landscape. These buildings are encouraged to be mixed use, energy efficient, appropriately landscaped, and aesthetically pleasing. Infill redevelopment should allow flexible design while maximizing the potential use of a building or site. The very nature of infill redevelopment promotes higher densities and best uses while discouraging sprawling development upon green space, suburban, and rural land.

The ability to live, work, and play within one's own neighborhood is vital for infill redevelopment's success. The use of energy efficient appliances, environmentally friendly materials, superior architecture, and native landscaping provide the foundation for infill redevelopment initiatives. On-site water quality can also be significantly improved by infill redevelopment. Surface water from impervious surfaces (rooftops, sidewalks, and parking lots) currently is diverted to water retention and/or detention areas.

Climate Change

As described in detail in the supporting data within the Future Land Use Element, climate change is a key focus as part of this EAR-based amendment process. A number of policies have been included in the various elements within the Comprehensive Plan to address the need to reduce green house gas emissions. Conservation is a key element to prevent climate change in the City. The following initiatives are encouraged to promote sustainable growth:

- Conserve, reuse, recycle
- Walk, bike, carpool, or use mass transit
- Building 'green' energy efficient buildings
- Encourage mixed land uses
- Provide incentives for business/residential responsibility
- Sustain water quality
- Limit dependence on oil
- Educate individuals on the aforementioned items

Conservation & Green Building

One of the overall principles of the EAR-based amendment is the integration and inclusion of green building standards into several Elements of the City's Comprehensive Plan. The Conservation Element is an integral component to fulfilling the green building theme. A number of Green Building certification programs include as part of their checklists direct incentives to conserve lands that have native upland and wetland habitats in addition to open space and green space areas. Green building standards furthermore encourage quality site design measures including clustering to allow for the preservation of the natural areas along with multi-modal transportation opportunities.

For example, the Florida Green Building Coalition certification checklist provides specific number of criteria that promotes Conservation. The first Category is entitled, "Protect Ecosystems and Conserve Natural Resources", and includes a point system with incentives such as:

- Develop management plan for preserved, created or restored habitats
- Conduct tree, topographic, soil and wildlife surveys prior to design
- Create conservation areas and nature parks

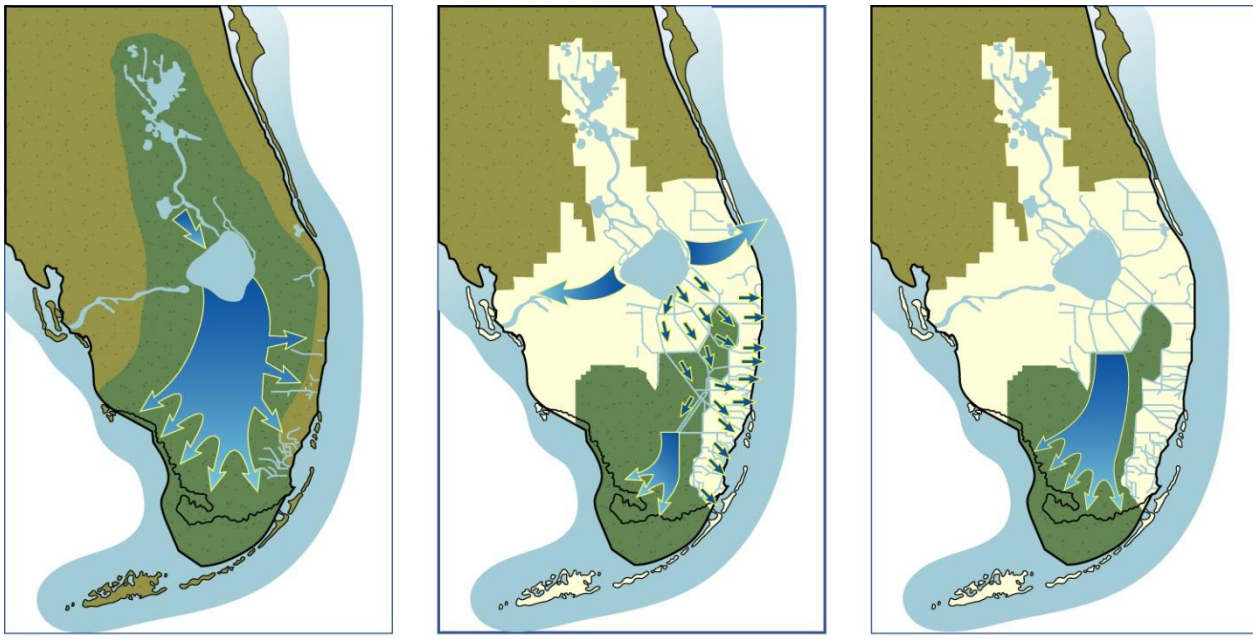
- Preserve the most valuable spaces for biodiversity
- On-site conservation plan for a specific wildlife species
- Maintain or provide wildlife corridors
- Preserve upland buffers to enhance preserved wetlands
- Preserve or provide aquifer recharge areas in uplands
- Restore native wildlife habitat

Long Term Water Management

One critical new Policy that is being added to the Infrastructure Element of the Comprehensive Plan is Policy 4.D.2.2.3 which mandates that the City adopt a 10-year water supply facility work plan. This Policy, although included in the Infrastructure Element is directly tied to Conservation efforts based on the need to provide a sustainable plan for long term water use needs. The City intends to implement this plan utilizing co-ordination with the Seacoast Utility Authority and Intergovernmental Co-operation with the SFWMD and other local agencies taking into consideration the sources of water supply and anticipated needs based on projected growth.

> ***Policy 4.D.2.2.3.:*** *By 2009, the City shall adopt a 10-year Water Supply Facility Work Plan in compliance with Chapter 163, Part II, F.S.*

As part of the City's efforts to be a participating and active agency on this issue, co-ordination has already occurred with the SFWMD on its Comprehensive Everglades Water Restoration Program (CERP). In February 2008 a presentation was made to the City of Palm Beach Gardens by the SFWMD regarding the status of the CERP program as it relates to Northern Palm Beach County. The presentation included an overview of the Regional Plan, which directly includes the areas within the City.



One of the elements within the CERP program is the G-160 Loxahatchee Slough Structure that is located within the City of Palm Beach Gardens. This structure, currently in operation since 2007, provides SFWMD the ability to raise the water level of the Loxahatchee Slough ultimately to a historic level. Collectively, with the purchase of water flowage easements over private lands and additional purchases of privately owned lands in the Loxahatchee Slough, SFWMD and Palm Beach County has spent millions of dollars removing exotic invasive vegetation, filling in old agriculture ditches, and correcting the water table. This work will restore the fauna and flora of the Sandhill Crane Natural Area, Hungryland Slough and the Loxahatchee Slough, which is over 12,000 acres in the City of Palm Beach Gardens.

G-160 Structure (Loxahatchee Slough Structure. City of Palm Beach Gardens

CERP program. From February 2008 presentation made by the SFWMD. City of Palm Beach Gardens

Waste Management/Recycling

Another effort that is linked directly to Conservation is the modification to promote better waste management and recycling standards within the City. The Infrastructure Element of the Comprehensive Plan, and specifically the Solid Waste Sub-Element, addresses much of the detailed plans required to adequately maintain these systems. The City of Palm Beach Gardens does not own or operate a solid waste disposal facility. Residential and non-residential waste as well as vegetative waste is collected by a private sanitation firm for disposal at a facility that is owned and operated by the SWA.

It is the policy of the Solid Waste Authority (SWA) that Integrated Solid Waste Management principles are utilized to conserve landfill capacity, while recovering energy and material resources from the solid waste stream through a well planned and operated system using source reduction, recycling, composting, combustion and landfill.

The SWA has goals that address the "source" of waste that set forth the development and maintenance of programs that encourage residents to reduce of waste through rental, repair, reuse, reduction of unwanted direct mail and reduction of single-use and disposable products where practicable; expand existing educational and incentive programs for source separation and composting as an alternative to disposal of vegetative waste; development of educational programs informing residents of less or non-toxic alternatives to household chemical products; develop programs to assist businesses with source reduction efforts and development of quantitative methods to evaluate the effectiveness of source reduction activities.

The Recycling goals provide for reduction in the waste stream by recovering recyclable materials to the maximum extent practical; provide a convenient recycling program to encourage source separation of materials; provide sufficient processing capacity for source-separated recyclable material; encourage the procurement of goods mad all or in part from recycled materials; assist in the development and expansion of secondary materials markets at the local, regional, state and national levels and maximize materials recovery, revenues and market stability, through pursuing programs with municipal and commercial customers, selling of recovered materials and pursuing long term marketing arrangements with consumers or brokers.

One of the challenges that the City faces is the need to effectively implement these goals in coordination with the SWA. For example, currently the SWA does not provide for recycling facilities for any non-residential uses within the City. The City intends to work with the SWA and other local jurisdictions who fall within this restriction to ensure that the SWA starts implementing recycling for non residential uses. One of the new Policies being added to the EAR based amendment furthers this goal:

Policy 4.B.1.2.1.: The Solid Waste Authority shall implement recycling and reduction programs necessary to achieve and maintain the State recycling goal and the requirements of Chapter 403, Part IV, *Florida Statutes*.

IV. RECOMMENDATIONS AND SUMMARY

The City of Palm Beach Gardens has taken great strides over the last 10-15 years to preserve and protect the natural environment. As a result, a number of existing conservation and natural areas exist within the City today that help provide an aesthetic, recreational, economic, and ecological balance of the City's needs.

As the "green" movement has gained momentum globally, the City of Palm Beach Gardens has started to act locally. The City has already shown strong signs of its willingness to embrace concepts to become a leader to reduce green house gas emissions. By including Goals, Objectives and Policies in the Comprehensive Plan, these concepts will be strengthened into actual enforceable policies within Land Development Regulations and other City Code Ordinances.

As part of the 2008 EAR-based amendments, the existing Goal of the Conservation Element has been divided into two goals. The first proposed Goal is to preserve, manage or restore natural resources in the city to ensure their sustainability and quality. The second proposed goal is to encourage a sustainable city through actions that reduce greenhouse gas emissions and other pollutants and reduce the use of non-renewable resources. The proposed second goal focuses on green principles, while the first is focused on preservation and conservation of existing natural resources.

The following initiatives are part of the proposed Conservation Element:

- Maintain development regulations to manage surface and sub-surface water resources. *(Objective 6.1.1., Page 6-2, Existing)*

- Monitor and enforce provisions for regulating water use. *(Objective 6.1.2., Page 6-3, Existing)*

- Maintain land development regulations to ensure the control of soil erosion *(Objective 6.1.3., Page 6-4, Existing)*

- Maintain land development regulations to ensure that all ecological communities, wildlife, and marine life, especially endangered and rare species are identified, managed and protected. *(Objective 6.1.4., Page 6-4, Existing)*

- Maintain a hazardous waste management program for the proper storage, recycling, collection and disposal of hazardous wastes. *(Objective 6.1.5., Page 6-8, Existing)*

- Maintain land development regulations to ensure the provision of conservation measures on newly annexed land or newly acquired for the purpose of conservation in accordance with the goals, objective and policies of the Comprehensive Plan. *(Objective 6.1.6., Page 6-8, Existing)*

- Implement the plan for all or a part of the Parkway System prior to the issuance of any development orders for that area included in the Conceptual Linkage Plan. *(Objective 6.1.7., Page 6-9, Existing)*

- Maintain land development regulations which ensure the protection and preservation of native habitats, and maximize the provision of open space for this purpose. *(Objective 6.1.8., Page 6-10, Existing)*

- Meet or exceed the minimum air quality levels established by Department of Environmental Protection (DEP). *(Objective 6.2.1., Page 6-13, Existing)*

- Increase education of sustainable building practices and use of environmentally sustainable products within the City. *(Objective 6.2.2., Page 6-14, Proposed)*

Based on these initiatives, an action plan has been created to implement these updates:

COMPLETION YEAR	STUDY/PLAN/ACTION
2009	Specific energy efficient and recycling regulations to encourage conservation in LDRs (Policy 6.2.2.5., Page 6-15)
2011	Adopt Multi-Modal Transportation plan that includes long term strategy to reduce CO_2 emissions (Policy 6.2.1.6., Page 6-14)