

**CITY OF PALM BEACH GARDENS
COMPREHENSIVE PLAN**

FUTURE LAND USE ELEMENT

SUPPORT DOCUMENT

The City of Palm Beach Gardens

June 2008

I. INTRODUCTION



The City of Palm Beach Gardens (“the City”) is located in northern Palm Beach County (refer to Map 1-1), and is surrounded by the following municipalities: the Town of Jupiter to the north, Town of Juno Beach and Village of North Palm Beach to the east, and the Town of Lake Park, City of West Palm Beach, and Riviera Beach to the south.

The City’s boundaries meander quite considerably, and are not “squared off” to match primary roadways or geographic features. Most of the City lies west of the Intracoastal Waterway (ICWW), but a portion of the municipal limits run east of the ICWW and U.S. Highway One on both the north and south sides of PGA Boulevard with a small part running to the Little Lake Worth water feature. The City’s northern boundary extends to Donald Ross Road until it intersects Interstate 95. West of this point, the boundary extends as far north as the north boundary of the Loxahatchee Slough ecosystem. The western limits run to west of the Beeline Highway while the southern boundary runs to Northlake Boulevard west of the Beeline Highway and to the Beeline Highway south of Northlake Boulevard.

The City was incorporated in 1959 and most development has occurred since its incorporation. MacArthur Boulevard at its Northlake Boulevard intersection is historically significant within the City. This gateway was created by J.D. MacArthur when he first developed the area. It is still marked with relocated banyan trees which were moved to the present location in 1961. The accompanying fountains and landscaping have since been removed. The City maintains this entry into the original neighborhoods as a historic gateway and greenway.

There is no traditional downtown area within the City. Commercial development is primarily located along the arterial roads, such as PGA Boulevard and Northlake Boulevard. The tallest buildings within the City are the Landmark residential center towers, scaling 192 feet (Tower 2) and 160 feet (Tower 1 and 3). The tallest office building is the Medical Mall, located on PGA Boulevard at 151 feet. These buildings are located within the Regional Center Development of Regional Impact (DRI). The Regional Center is located at PGA Boulevard and Alternate A1A. Other ten story buildings are located along PGA Boulevard, such as the Gardens Plaza Building (137 feet) and the Medical Pavilion (86 feet). Office buildings elsewhere in the City are under four stories high.

The centerpiece of the Regional Center DRI, The Gardens Mall, consists of 1.39 million square feet of retail area and attracts approximately 15,000 to 20,000 shoppers per day.

Two other large commercial projects are adjacent to the Gardens Mall: Downtown at the Gardens and Legacy Place. These two projects combined consist of .77 million square feet of retail and office area. The development of the Regional Center DRI has made the City a major center of retail and office space in northern Palm Beach County.

Various architectural styles exist within the City and its' associated neighborhoods. The neighborhoods are generally suburban in appearance and share some features in common such as the following;

- Few have been built to the allowed density
- Generally built in the moderate to high price range, and in good physical condition
- Most residential areas are heavily landscaped
- Ninety percent of the 3,000+ acres designated as recreational consists of golf courses and other amenities
- Multi-family housing is predominantly garden style apartments and duplexes
- The maximum height of existing residential buildings is three stories

According to the 2007 data, the median income for a household in the City is \$59,776, and the median income for a family is \$74,548. The per capita income for the City is \$42,975. About 3.5% of families and 5.6% of the population are below the poverty line, including 6.9% of those under age 18 and 3.5% of those residents age 65 or over.

II. Existing Conditions

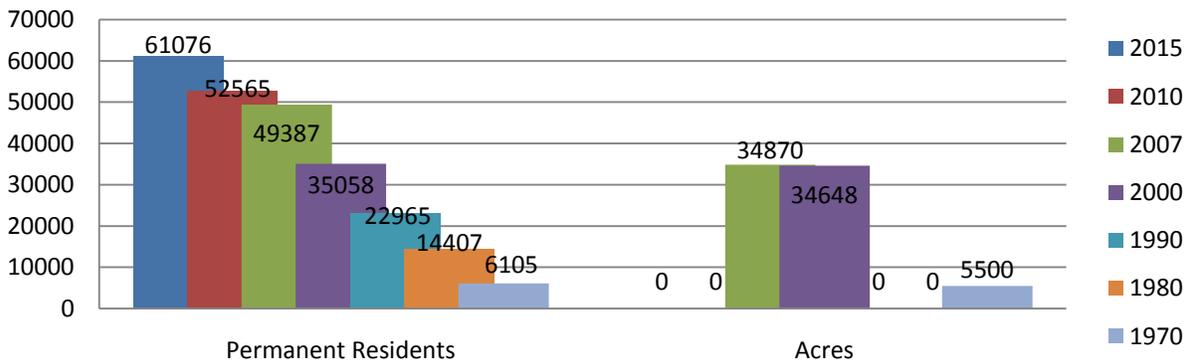
Demographic profile



The City utilizes the University of Florida's Bureau of Economic and Business Research (BEBR) data, which estimates that the City's permanent population has grown to approximately 49,387 in 2007. The City has a history of growth; both in population and in municipal acreage (refer to Figure 1-1). As noted in Figure 1-1, the City's population grew from 6,105 permanent residents to 22,965 between 1970 and 1990, or nearly triple the population (276% increase). More recently, the City has grown from 22,965 to 35,058 from 1990 to 2000 (53%). It is estimated that the City has grown by 14,329 persons since the 2000 census. Within the last seven years, the population increase almost equals the number of persons added to the City population in the 20 years between 1970 and 1990. The City is projected to continue growing, with projections from the

County's 2006 Population Model indicating the City's 2015 population to be 61,076. This estimate does not factor increases in the City's municipal area.

FIGURE 1-1. A GROWING CITY



Source: Palm Beach Gardens Planning and Zoning
May 2008

Compounding the impact of population is the seasonal growth factor. It is estimated in the 2000 census that 85% of the City’s housing is permanently occupied by year-round residents. Factoring housing identified for seasonal use, the City’s population is estimated to be 58,102 during the seasonal months (December thru April). Furthermore, tourists and seasonal family guests add to the seasonal population. The peak population is the maximum number of people in the City during the winter tourist season including permanent residents, seasonal residents, seasonal family guests and tourists. Peak population was projected by adding a seasonal factor of +20% to the permanent population projections.

Table 1-1 shows the estimated and projected numbers of people in Palm Beach County and in the City through the year 2015. (Please see table on following page)

TABLE 1-1. PERMANENT AND PEAK POPULATION ESTIMATES AND PROJECTIONS:

Year	Permanent Residential County Population ¹	Permanent Residential City Population ²	City's Share of County Population (%) ³	Peak City Population ⁴
1990	863,518	22,965	2.66	27,563
1995	997,889	31,011	3.11	37,213
2000	1,067,900	35,058	3.10	42,069
2007	1,170,300	45,584	3.60	54,700
2010	1,271,100	52,565	4.13	63,078
2015	1,535,800	61,076	3.97	73,291

Annexations of developed and developing lands contributed to the increase of population between 1990 and 1996. By focusing on economic development and continuing its policy of providing attractive living places, Palm Beach Gardens anticipates attracting a substantial percentage of the people moving to the County. A majority of growth experienced between 2000 and 2007 has been through rapid development of vacant land. A majority of future growth may be attributed to infill and redevelopment.

Palm Beach Gardens has also witnessed significant growth in land area since incorporation in 1959. It is estimated that the City currently encompasses nearly 35,000 acres or 56.16 square miles, which represents a five-fold expansion during that time. However, since 1999, the City has had a total of five annexations, totaling 222 acres, representing a relative cessation of municipal boundary expansion.

Land Use Data and Inventory

In order to better guide and direct future land uses within the City of Palm Beach Gardens, it is necessary to inventory the present land use patterns. An Existing Land Use Map, (please refer to Map A.2.), was developed depicting the existing land use patterns in the City of Palm Beach Gardens as of 2008. It should be noted that the Existing Land Use Map represents a present-day snapshot of development patterns as they exist today.

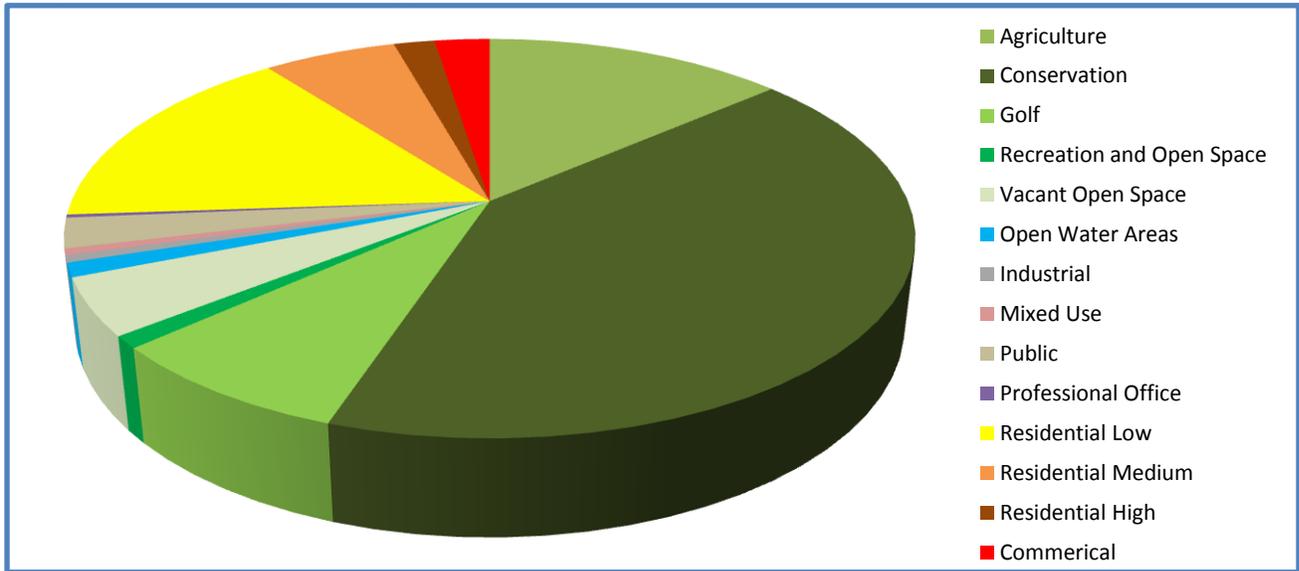
¹Sources: U.S. Census data for 1990. BEBR estimate for 1995. April, 1995, BEBR medium growth projections for other years

² Sources: U.S. Census data for 1990. BEBR estimate for 1995. All other years are based on City projections

³ Percent of County residents living in City

⁴ Persons in City during peak season, City estimates

FIGURE 1-2. EXISTING LAND USE



City of Palm Beach Gardens GIS Department.

TABLE 1-2. EXISTING USE DATA

Existing Use Table		
Existing Land Use	Acreage	Percent of Total
Agriculture	4765.25	13.67%
Conservation	14458.06	41.48%
Golf	2866.76	8.22%
Recreation and Open Space	344.71	.99%
Vacant Open Space	1615.45	4.63%
Open Water Areas	395.8	1.14%
Industrial	199.62	0.57%
Mixed Use	181.56	0.52%
Public	849.39	2.44%
Professional Office	89.44	0.26%
Residential Low	5462.22	15.67%
Residential Medium	2109.21	6.05%
Residential High	649.37	1.86%
Commercial	872.01	2.50%
Total	34858.85	100.00%

City of Palm Beach Gardens Existing Use Map. May 2008

The City's existing land use consists of a large percentage of agriculture, conservation, and golf course uses, as shown by the green hues in Figure 1-3. Vacant land represents approximately 5 percent of the total land, which equals the land existing as non-residential (Commercial, Professional Office, Industrial and Mixed Use). Residential uses (all categories) represent nearly a quarter of the total land area of the city.

Land Use Ratios

Residential land use needs are based on accommodating the growth in population with the potential dwelling units needed to house the additional population, while maintaining about 8 percent vacancy rate to keep the housing market in a stable condition. As discussed in the Housing Element, by the year 2015, 9,429 additional single family and 9,429 additional multi-family units will be needed to house the projected population. It is assumed that single family development will average 3 units per acre, while multi-family developments will average 7 units per acre on a city-wide basis. Total additional acreage needs were added to the existing residential acreage to project the residential acreage needs in the year 2015 and the intermediate years 1995, 2000, 2010.



TABLE 1-3 LAND USE NEEDS IN CUMULATIVE TOTAL ACREAGE

Land Use	1998	2000	2005	2010	2015
Single- Family	3,559	4,453	5,619	6,785	7,952
Multi-Family	1,611	1,272	1,605	1,938	2,272
Mobile Homes	56	56	56	56	56
Urban Residential Total	5,226	5,781	7,280	8,779	10,280
Commercial*	706	678	856	1,033	1,271
<i>Industrial</i>	216	145	183	222	280
<i>Parks and Recreation (Public)</i>	150	179	226	273	320
<i>Public Institutional (non-regional Facilities)</i>	253	96	122	148	173
<i>Total Needed for Development</i>	NA	6,879	8,667	10,455	12,324
<i>Conservation</i>	12,083	12,083	12,083	12,083	12,083
<i>Vacant & Agricultural/ Rural</i>	15,892	15,564	13,776	11,988	10,119
<i>Total Acres in City**</i>	34,526	34,526	34,526	34,526	34,526

NOTE: Figures are rounded to the nearest acre.

The non-residential acres are based on the following ratio of acres per 1,000 people at projected peak population:

Commercial	20
Industrial	4.3
Recreation	3.7
Public/Institutional	2.0

*Commercial includes retail, professional office and service uses.

**acreage may change if there are annexations.

Source: City of Palm Beach Gardens, May 2008

The City has several regional commercial facilities which serve the entire north county population and currently has approximately 21.08 acres of existing commercial land use for every 1,000 persons, which includes retail, general commercial, professional office and other service commercial uses. The existing commercial land use ratio is consistent with the needs of a regional commercial center. In order to accommodate for a growth in regional demand and population, the City should aim toward keeping this standard to project the future commercial land use needs. Utilizing the current standard, the projected commercial acreage needed for the 2015 population amounts to approximately 339 acres. This represent a total projected need of 1,287 acres of land designated Commercial or Professional Office. Although the City currently only has 1,050 acres of land designated Commercial and Professional Office, the 1,075 acres of land designated Mixed Use may absorb the remaining need for the additional commercial land use.

The City currently has 4.3 acres of land designated industrial use for every 1,000 persons. Utilizing the current standard, the projected industrial acreage needed for the 2015 population amounts to approximately 67.9 additional acres. This represents a total projected need of 279.9 acres. The City has 642 acres of land designated Industrial and therefore will be able to absorb the existing industrial land use trends.

The conservation land use is projected on the basis of conservation needs identified during the plan preparation process. The projected acreage primarily includes the Loxahatchee Slough, C-18 Canal and the conservation area included in PGA National development. The City currently has 317 acres of conservation land use per 1,000 persons. Because of the large ratio of conservation land to population, the existing ratio is not required to project future conservation land use needs. The City will continue to identify conservation needs on a parcel by parcel basis.

Recreation land use needs are based on the standard of 3.7 acres of public neighborhood and community park facilities per 1,000 persons of the permanent population. The Evaluation and Appraisal Report (EAR)-based amendments is proposing to review this Level of Service. The City currently has 7.56 acres of recreation and open space land per 1,000 persons. This does not include a large acreage of golf course land use. Utilizing the level of service standard, the projected recreation and open space acreage needed for the 2015 population amounts to approximately 57.3 additional acres, or a total of 226 acres. The City currently has 216 acres of land designated recreation and open space, however, the projected need may be absorbed

in existing recreation and open space within acreage designated with other land uses (i.e. Residential).

Public facility land use needs are based on an average of 2 acres per 1,000 persons of the peak population. The projected land use needs for public facilities as shown in Table 1-4 includes education, health, library, and governmental land use needs. Due to the North County Governmental Complex, Seacoast Utility Authority water and wastewater plants, and Palm Beach Community College, 342 acres which serve as regional facilities, the number of existing acres of public land is skewed. Lessing out these regional uses, the remainder of existing public facilities comprises +250 acres. Based on land use to population ratio, there appears to be sufficient public lands in the City to serve the residential needs.

The EAR-based amendment is proposing to assess the historic and cultural resources in the City. The assessment of historic resources is important as the City prepares to celebrate its 50-year anniversary, as the National Trust of Historic Preservation considers the 50 year benchmark to be historically significant for sites and structures. The City has designated one site, the MacArthur Banyan Tree as an area of historic and cultural significance, by recognizing it as a gateway to the City and designating this area with the MacArthur Boulevard Historic Overlay

No agricultural land uses other than those appropriate to a rural residential designation are proposed in the City. Therefore, Table 1-4 projects no increased need for agricultural land or historic resources in any of the years. Agriculture uses represent approximately 14 percent of the total area of the City. The Vavrus parcel currently has approvals from the City for a variety of agricultural uses.

Existing Land Use analysis

Commercial development represents less than three percent of the City's total land area. The Palm Beach Gardens Mall, Downtown at the Gardens, and the immediate surrounding developments constitute the major regional shopping and commercial area in the City. The remainder of commercial development is generally situated along major roadways such as PGA Boulevard, Northlake Boulevard, Donald Ross Road and Alternate A1A.

Industrial use represents less than one percent of the land area in Palm Beach Gardens. The existing Northcorp Center and the unbuilt PGA Professional Center, a majority located on the east side of I-95, north and south of PGA Boulevard.

Public/Institutional uses represent a small percentage (2.4 percent) of land area in the City. These uses consist of the City Hall and administrative complex, and other governmental entities land (i.e. Seacoast Utilities facilities), churches, civic and cultural facilities lands.

Lands designated as Conservation consume the greatest percentage (Approximately 41%) of land use types in Palm Beach Gardens today. A very limited amount of low density residential development is permitted in Conservation areas if approved by the City Council. Residential land uses consume 23 percent of the total land area. Most of the residential lands are developed at low densities; however, mixed use developments are a recent trend and permit varying densities and intensities of development. Residential developments are located throughout the city containing a variety of housing types. The predominant community type is residential/golf course. There are six major residential/golf communities with a total of thirteen golf courses in Palm Beach Gardens. Vacant land use represents nearly 5 percent of the land area of the City.



Analysis of Vacant Land for Development Suitability

In assessing the suitability of land for development, natural characteristics of the land, tire ease with which urban services can be provided, the proximity to railroad lines, roadway access and traffic congestion, and existing adjacent uses are all important considerations. Maps I-3 and I-3b shows the sector lines, major roads, and railroads in the City. It also shows the natural characteristics of vacant lands and the existing uses on adjacent lands. Map I-4 provides topographic information and Map 1-5 shows the locations of wells and the draw-down zones. Table I-3 summarizes the development constraints within each

sector. A clear cell indicates the most favorable condition for development; a solid cell the least favorable.

The pattern of constraints visible in this table shows the transition in constraints between the eastern versus western sectors of the City. In the western sectors constraints are primarily due to the lack of nearby urban services and presence of natural areas. In the eastern portion there are few environmental or urban service constraints and development is primarily hampered by traffic congestion.

Natural resources in the City are discussed in greater detail in the Conservation Element Support Document. Transportation conditions are discussed in more detail in the Transportation Element Support Document. Urban service conditions are discussed in more detail in the Infrastructure Element Support Document. The shadings in the table are intended to represent general conditions in the sector. The information is not detailed enough to replace the impact assessments required by City land development codes when individual parcels are proposed for development. Likewise, the wetland

boundaries shown on Map 1-3 should not be used to determine wetland jurisdictional lines.

The majority of the City is underlain by sandy soils which are suitable for development when adequately drained. Muck soils, however, must be physically removed before development can take place and are therefore more of a constraint to development. The Loxahatchee Slough is an example of an area in the City with large pockets of muck soils.

The purpose of providing drainage is to quickly remove rainfall (storm water) from developed areas so that flooding does not occur. The natural topography is almost flat (see Map 1-4) and drainage is poor. In undeveloped areas rainfall accumulates and stays on the land for long periods. This creates large areas of wetland and a high water table throughout.

Before development can take place, a surface water management permit must be obtained from the South Florida Water Management District (SFWMD), a regional water resource agency. The SFWMD has rules limiting water table draw-downs, wetland impacts and the rate at which water can be discharged to the main canal system. The effect of these rules is to decrease the amount and location of development which can be accommodated, and to increase the costs of developing wet areas.

The presence of protected species of flora and fauna may affect the net developable areas as land may be set-aside to ensure the protected species is not eliminated by a proposed development.



Existing Vacant Land

The City has vacant land in locations where there are special opportunities for economic development.

There are vacant lands adjacent to the two railroads in the City. There is State support for renewal of blighted areas, revitalization of traditional downtown development and interest in sustainable forms of development.

A quarter mile is considered the maximum distance between two points that any significant number of people will walk if it is pleasant. A key to making the walk pleasant is designing the sidewalk environments with as much consideration for pedestrian safety, comfort, and convenience. Recently much work has gone into development of “neo-traditional” design standards to facilitate pedestrian transportation options. The

integration of work places and residences connected by pedestrian scale transportation rather than typical automobile methods allows for greater quality of life, sense of place, and improved health. Numerous scientific studies indicate that residents within pedestrian oriented communities have fewer respiratory problems, obesity, and stress than their suburban sprawl counterparts. Mixed use development opportunities occur throughout the city and should address the needs of non-automobile transportation in order to promote the City as an epicenter for sustainability.

Second, there is vacant land next to the new North Palm Beach County General Aviation Airport. All of the land close to the CSX railroad in sector 2 and some in sector 1 are in the noise zone of this airport. These tracts are, therefore, not so well suited for mixed including residential uses as the land adjacent to the DEC tracks. They are suitable for employment centers (i.e. industrial district development) as long as adequate environmental protection is provided.

Third, the recent acquisition of environmentally sensitive land in and around the City places the City in a unique position to promote economic development based on eco-tourism. In other areas of the State, birding, nature study, hiking, as well as more strenuous wilderness expeditions have proved popular with foreign tourists and residents. In addition to passive recreation opportunities on conservation lands in the City, areas open to horseback riding (Dupuis), hunting (Corbett Wildlife Management Area), and hiking and camping are found close by. The vacant lands around the Loxahatchee Slough may eventually support commercial recreation development akin to successful camping and wilderness outfitter enterprises in other parts of the state (e.g. Blackwater Creek State Forest, Ocala National Forest).

Due to the decreasing amount of vacant land in the City, more sustainable development patterns should be encouraged. Encouraging mixed-use neighborhoods or development forms as identified in the Treasure Coast Regional Planning Council's Strategic Regional Policy Plan will limit sprawl, promote efficient delivery of services, protect natural resources, and create a sense of community.



Provision of Urban Services

Urban services need to be located nearby new developments so they can be the most cost effective. The development of new facilities rather than the expansion of existing facilities create a greater strain on taxpayers. Likewise, conservation efforts can further reduce the demand for services such as electricity and storm water. The need to development compact, walkable communities is essential when redeveloping within the city because it will utilize existing services and

be more cost effective than building new facilities. This will provide for more funds to be spent upon creating additional benefits, services, and programs for the cities residents. Many cities throughout the United States are currently hiring sustainability managers/directors in order to guide their municipalities into the most cost effective methods to limit adverse climate change and reduce demand upon the development of new service facilities.

The following urban services are evaluated in this plan;

- Solid waste disposal
- Sewer
- Drinking and irrigation water
- Storm water management
- Police
- Fire
- Parks and recreation
- Traffic
- Public schools

Palm Beach Gardens provides solid waste pickup through a franchise, Solid Waste Authority (SWA), which provides disposal at its' owned and operated facilities. The SWA is a County agency that carries out county-wide planning for adequate land fill sites, transfer stations and recycling programs. The city of Palm Beach Gardens could reduce the need of these services by providing for better recycling opportunities and waste management. Currently, land development regulations inhibit recycling on-site because nearly all sites within the city are built out and the need for parking spaces is a higher priority than recycling. The city has the potential to secure funds from the state of Florida and the U.S. Government in order to reduce, re-use, and recycle. The city recently received a substantial amount of grant money from the SWA agency in order to purchase red recycling receptacles. The city must recognize and develop new opportunities for conservation when businesses have lead by example and given grant money in order to reduce unnecessary waste which could be recycled.

The Seacoast Utility Authority, owned by a consortium of local governments in northern Palm Beach County, provides sanitary sewer, and potable water service for the City. The long term source of potable water has been identified as a problem due to resource availability during periods of drought and continued population growth. This problem is not unique to Palm Beach Gardens and northern Palm Beach County has been identified as a water shortage area by SFWMD.

The drainage (storm water management) provided to the eastern sectors of the City is generally deemed adequate to meet the established level of service standards. In October 1995, the system was tested by unusually heavy rains which resulted in flooded homes and businesses. The City engineer classified this as a 200-year event.

The C-18 canal, which runs through the Loxahatchee Slough, carries storm water to areas west of the Slough.

The City ensures that adequate facilities and services are available to meet the needs of new development through the concurrency management system. Prior to approval of a new development or redevelopment project, the current facilities and services are analyzed to determine if they are sufficient. If a problem is noted, expansion of new facilities/services must be implemented before completion of the development/redevelopment.

The Palm Beach County School Board provides public educational facilities and programs for school-aged children on a county-wide basis which is independent of any local government control. There are seven public schools in the City; three elementary, two middle and two high schools. These are identified with public/institutional uses on the existing and future land use maps. City residents do not necessarily attend the school closest to their homes or even schools within the City limits.

The following information concerning funds and school locations has been provided by Palm Beach County School District. (County) The Palm Beach County School District has allocated funds based upon long range planning for the purpose of providing adequate public school facilities. The following funds for maintenance, major renovation, and repair have been allocated for dispersal throughout Palm Beach County;

Ten-Year Maintenance	\$491,703,783
Twenty-Year Maintenance	\$1,869,193,344

A percentage of the allocated funds mentioned above will be used for public school facilities within the City and are planned (opening dates are based upon school year);

- 03-X Palm Beach Gardens Elementary 2007/2008
- 04 A Scripps / Gardens Area Elementary FY2013/2017 (Outside City Boundary)

The following Palm Beach County School modernizations/replacements are planned and opening dates are based upon school year;

- Palm Beach Gardens High 2009/2010
- Palm Beach Gardens Elementary 2008/2009
- Allamanda Elementary 2008/2009

Realizing the need for adequate facilities, the City has identified schools as 'public/institutional' uses allowed in all residential, industrial and public land use categories. The future land use map currently contains over 10,000 acres of vacant

residential land and 400 acres of vacant industrial land in which future schools can be accommodated.

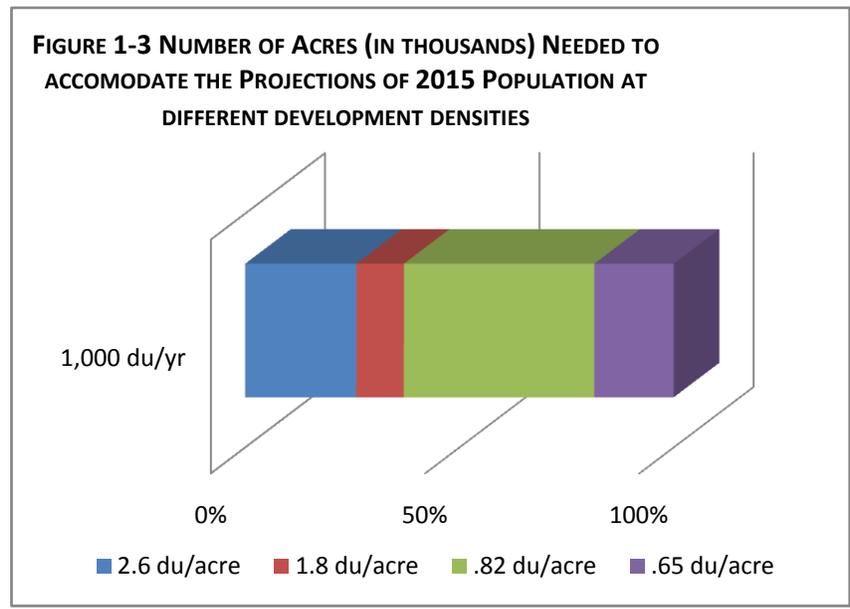
There is currently no commuter rail transportation in the City, but County bus service has been expanded to include many new routes. Some bike paths and pedestrian pathways are available, but need to be expanded in existing neighborhoods. Bike and pedestrian paths have been included with all recent road widening projects using state funds, and the City’s parkway system has been designated as an urban component of Florida’s Greenway’s System.

Palm Beach County has a county-wide and city-wide traffic performance standards ordinance which establishes minimum levels of service on roadways in the City. The ordinance establishes a minimum level of service (LOS) which must be maintained on all county and state roadways including the segments inside City limits.

III. TRENDS AND CHALLENGES

Future Growth

The amount of vacant land needed to accommodate the projected Year 2015 population varies greatly with the density at which development takes place. In addition to the land needed for housing, allowances must be made for commercial and industrial uses, parks, roads and various public and institutional uses such as schools, and churches. Two methods were used to assess potential needs.



The accompanying chart (Figure 1-3) illustrates one way of estimating the amount of land needed. It uses the densities of various existing developments in the City to illustrate how density affects the possible 2015 land needs for the population growth projections. The current total vacant, developable land in the City is roughly 13,147 acres. Population growth is represented on the chart by average

annual building rates of 1,000 units per year. The average number of building permits issued per year between 1990 and 1995 was 761. This average includes a low of 505 one year and a high of 1,517, another. According to the U.S. Census, the City has

averaged 929 building permits per year between 2000 and 2007. This average includes a current low point of 130 in 2007 and an all-time high of 2,583 permits in 2004. Between the years of 2001 and 2004, the City issued over 1,000 permits every year. During this three year growth spurt the City processed over 6,000 permits. However, the most recent three years have seen a dramatic slowing of growth, especially in the residential market. The City processed less than 800 permits between 2005 and 2007.

The densities used in the chart reflect the number of homes per gross acre including such things as golf courses and water management lakes. PGA National was included because it has industrial and commercial development and a variety of types of housing from apartments to single family residents. The density for PGA National represents what might be accomplished under a PDA overlay. The following developments were used in compiling the chart:

PGA National = 2.6 dwelling units per acre

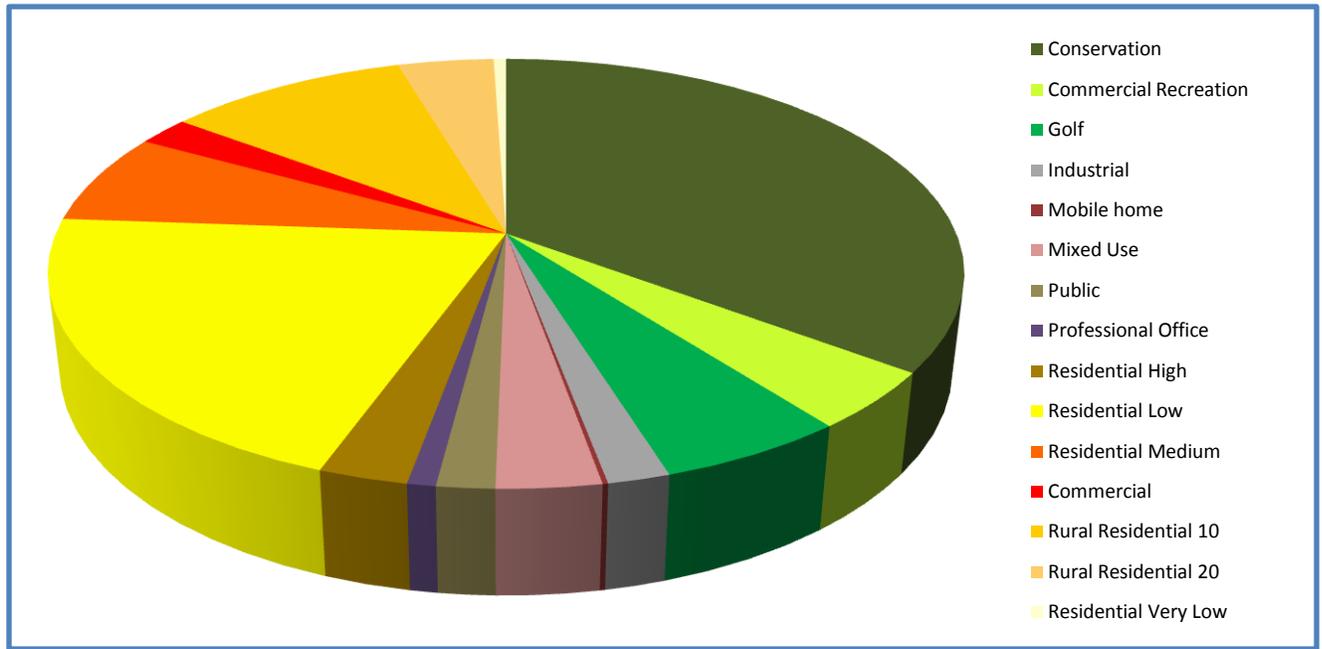
Ballen Isles = 1.8 dwelling units per acre

Frenchman's Creek = .82 dwelling units per acre

Steeplechase = .65 dwelling units per acre

Figure I-2 summarizes Table I-2 and shows the percentage of Future Land Use in various use categories as of 2008. (please see figure and table on the following page) The table clearly illustrates that the City has a large distribution of Conservation, Commercial Recreation and Golf Future Land Uses (shown in green hues), and Residential High, Residential Medium, Residential Low, Residential Very Low and Rural Residential 10/20 (shown in Yellow and Orange hues). Non-residential Future Land Use categories such as Commercial, Mixed Use, Professional Office and Industrial are shown in red and purple hues and constitute a very small percentage (8 percent) of the overall Future Land Use Map.

Figure 1-4. Future Land Use, May 2008.



From adopted Future Land Use Map. City of Palm Beach Gardens GIS Department.

Table 1-4. Future Land Use

Future Land Use Map		
Land Use Category	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%

City of Palm Beach Gardens Existing Use Map. May 2008

Table 1-4 presents a projection of the land use needs through 2015 in five year increments calculated another way. Residential acres are based on building an average of 1,000 homes each year, sixty percent of those as single family homes and forty percent as attached homes (apartments or multi-plex housing). In this projection, a density of 3 units per acre was assumed for single family and a density of 7 units per acre for multi-family units. Projections for commercial (retail and service), industrial, public facility and recreation acreage needed in 2015 were made by applying the acreage per 1,000 peak population factors found in the existing land use analysis.

Intermediate year projections were calculated by straight line adjustment between the existing acreage factor (acres of use per 1,000 peak population) and the 2015 acreage factor. Expansion of government offices and other public facilities will occur primarily by adding on to existing buildings, so the current number of acres available is adequate for some time. Retail acres will also increase slowly because the current regional retail should be adequate for some time.

These projections indicate that the City currently includes enough vacant developable land to accommodate all projected uses at current average development intensities. If future development all takes place at the lower end of existing development densities, much less population can be accommodated. Table 1-5 summarizes the amount of land designated in each land use category on the Future Land Use Map (Map A.1.). It can be seen by comparing Tables 1-4 and 1-5 that the City will need additional non-residential land in the future.

Nonresidential land use, although projected as being needed, has not been designated on the Future Land Use Map at this time in order to prevent strip commercialization of the major arterials or premature construction of nonresidential uses before the market (residential use) is present. Because there are future needs for nonresidential uses, the Planned Community District and Planned Unit Developments allow a percentage of community-serving nonresidential as a component of the residential project.

The following developments and natural areas outside the City limits potentially affect the City's future land use planning;

- Pratt-Whitney Industrial Park and the Palm Beach Park of Commerce, a major area employer and nearby industrial park, respectively.(update) Both are located less than 1-1/2 miles north west of the City off Beeline Highway. The City includes most of the nearby developable land.
- The North Palm Beach County General Aviation Airport is located on Beeline highway, and is surrounded by the City. Noise from the airport will be incompatible with certain uses if future development is located nearby. The airport's presence creates the potential for economic opportunities.
- Abacoa DRI is located north of Donald Ross and east of Interstate 95 and features development plans which include 6,073 dwelling units, 1,085,000 square feet of retail space 2,264,700 square feet of office space, a Florida Atlantic

University campus and a spring training baseball facility. A neo-traditional architectural style is the design of this development. Abacoa will be linked to the City by an extension of Central Boulevard. Phase One of The Scripps Institute will be located on the Florida Atlantic University Campus in Abacoa. The second phase will be located in Palm Beach Gardens, on property across from Abacoa on Donald Ross Road.

- The City of West Palm Beach Water Catchment Area, a continuation of the Loxahatchee Slough, is situated south of Beeline Highway. The City of West Palm Beach has plans to enhance the water supply potential of this area.

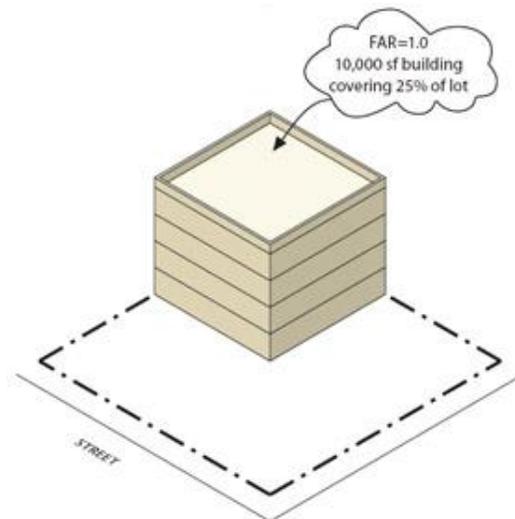
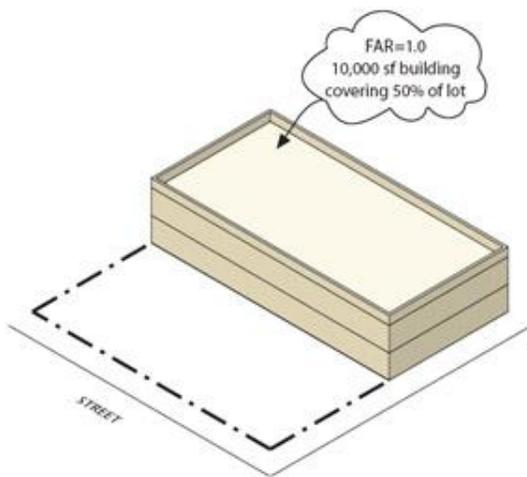
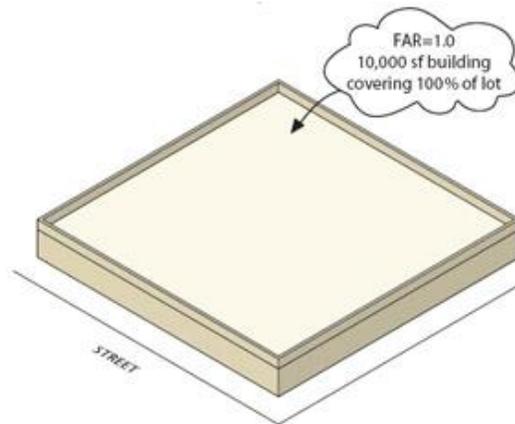
Further, a tri-party planning area has been established for the City's western area. The Western Northlake Boulevard Corridor Planning Area was established pursuant to the study which was completed in June, 1998 via an interlocal agreement. It provides for 'heightened review' to be conducted by the City, Palm Beach County and the City of West Palm Beach. Development proposals within the planning area will be reviewed for consistency with the recommendations of the Western Northlake Corridor Land Use Study. Any proposals which are not consistent with the Study shall undergo tri-party review and comment prior to consideration by the governing body having land use jurisdiction.

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Sustainable Growth

Floor Area Ratios (FARs)

The floor area ratio (FAR) is the principal bulk regulation controlling the size of buildings. FAR is the ratio of total building floor area to the area of its zoning lot. Typically, each zoning district has an FAR control which, when multiplied by the lot area of the zoning lot, produces the maximum amount of floor area allowable in a building on the zoning lot. For example, on a 10,000 square-foot zoning lot in a district with a maximum FAR of 1.0, the floor area of a building cannot exceed 10,000 square feet. Other controlling mechanisms, such as lot coverage, maximum height and setbacks, further define potential building envelopes.



<http://www.nyc.gov/html/dcp/html/zone/glossary.shtml>

Crime Prevention Through Environmental Design (CPTED)

Since the establishment of procedures including the City's Police Department in the development review process, proactive approaches in crime prevention has been identified as a priority. Crime Prevention Through Environmental Design (CPTED) principles have been implemented through practice in site plan review. The major benefits have been well documented: reduction in crime, reduction in the potential for

crime, perceived safety and security, improvement and beautification of physical environment, increased business activity and more efficient use of city personnel and equipment.

According to the theory of CPTED - multi-disciplinary approach to “defensive space”, established by C. Ray Jeffery and Timothy D Crowe - the four strategies can be summarized as follows:

- **Natural Surveillance** - A design concept keeping intruders and other criminal activity easily observable. The strategy promotes maximized visibility by people, parking areas and building entrances: doors and windows that look out on to streets and parking areas; pedestrian-friendly sidewalks and streets; front porches; and adequate nighttime lighting.
- **Territorial Reinforcement** - Physical design can create or extend a sphere of influence. Users develop a sense of territorial control while potential offenders, perceiving this control, are discouraged. The strategy promotes features that define property lines and distinguish private spaces from public spaces using landscape plantings, pavement designs, gateway treatments, and fences that do not limit natural surveillance.
- **Natural Access Control** - A design concept that decreases crime opportunity by denying access to crime targets and creating a perception of risk. The strategy is achieved by designing streets, sidewalks, building entrances and neighborhood gateways to clearly indicate public routes and discouraging access to private areas with structural elements.
- **Target Hardening** – The strategy is accomplished by prohibiting entry or access, such as window locks, dead bolts for doors, interior door hinges.

In the 1990’s, the State of Florida set a precedent for implementing a statewide directive for utilizing CPTED as a crime prevention measure by passing the Safe Neighborhoods Act. In accordance with this act of legislation, the State recognizes CPTED is a concept for crime reduction and public safety. Furthermore, CPTED is a major criterion in the review of State grants utilizing the Safe Neighborhoods Act.

Jeffery, C. R. (1977). Crime prevention through environmental design. Beverly Hills: Sage Publications.

Crowe, Timothy D. (1991) Crime prevention through environmental design. National Crime Prevention Institute. Butterwoth-Heinemann

Bioscience Research Protection Overlay (BRPO)

On February 14, 2006, the County Commission designated the Abacoa FAU / Briger site as the alternative site for the Scripps Florida development. In order to qualify as an alternative site, two conditions had to be met: 1) a hundred acres with the potential for two (2) million square feet for Scripps Florida and 2) additional opportunities for up to six

(6) million square feet of available land to accommodate the creation of a bioscience research / biotechnology industry cluster within a five (5) mile radius of the Scripps Florida campus on the Abacoa FAU/ Briger site. Phase 1 of Scripps, or 365,000 square feet, will be located within the Town of Jupiter on 30 acres within the Abacoa FAU campus. The remainder of the Scripps Florida program or 1.6 million square feet will be accommodated on 70 acres of the Briger site within the City of Palm Beach Gardens. The property owner of the Briger Tract donated thirty (30) acres to the County and is currently under contract to sell the County an additional forty (40) acres, for a total of seventy (70) acres.

In order to accommodate the second condition, the City in partnership with the Town of Jupiter, the City of Riviera Beach, the Town of Lake Park, and the Town of Mangonia Park provided an inventory of properties that could be used for bioscience research / biotechnology users within their respective boundaries. The inventory included vacant land without traffic entitlements, vacant land with traffic entitlements, and existing development, which totaled approximately 51.9 million square feet within a ten (10) mile radius of the proposed Scripps Florida campus. As part of the alternate site proposal, each municipality committed to amend its respective comprehensive plans to create an overlay that would provide for and encourage the cluster of the bioscience research / biotechnology industry uses within its community.

On March 2, 2006, the City approved an Interlocal Agreement, in alliance with the five north county municipalities and Palm Beach County, to fulfill the commitment to provide assurances that the State and County investment in Scripps, as a catalyst for economic development cluster in Palm Beach County, could be realized. The Interlocal obligates the City to initiate amendments to the Comprehensive Plan to establish a Bioscience Research Protection Overlay (BRPO) to protect those lands which have been identified as appropriate for a bioscience research protection overlay.

On December 21, 2006, the City adopted a Bioscience Research Overlay Protection (BRPO) ordinance. The creation of the Overlay furthers the City's commitment to secure and preserve opportunities for a Bioscience research / biotechnology industry cluster within close proximity to the master campus of Scripps Florida on the Abacoa FAU / Briger site. This vision includes Scripps Florida as a catalyst for a cluster of 8,000,000 square feet of Bioscience Use and accessory or ancillary uses to accommodate up to 40,000 high paying jobs in Florida.

The following policies support the BRPO:

Policy 1.3.4.3.: *By December 2010, the City shall adopt and maintain land development regulations that provide incentives for Bioscience development and encourage a predominance of Bioscience Uses to develop a cluster of the industry within the BRPO.*

Policy 1.3.4.4.: *By December 2010, the City shall adopt and maintain land development regulations that do not permit rezoning of lands within the BRPO that would eliminate Bioscience Uses without the vote of four members of the Palm Beach Gardens City Council. The limitation on conversion of uses does not apply to permitted, conditional, and approved uses allowed in a planned development and/or development of regional impact. Nothing in this policy shall be interpreted to abrogate rights that have been vested under law for uses that are not Bioscience Uses. The City land development regulations shall establish an administrative process to review claims of vested rights under this policy.*

Historic, Cultural and Archeological Resource Preservation

The EAR-based amendment is proposing to assess the historic and cultural resources in the City. The assessment of historic resources is important as the City prepares to celebrate its 50-year anniversary, as the National Trust of Historic Preservation considers the 50 year benchmark to be historically significant for sites and structures. The City has designated one site, the MacArthur Banyan Tree as an area of historic and cultural significance, by recognizing it as a gateway to the City and designating this area with the MacArthur Boulevard Historic Overlay

The EAR-based amendment is proposing the following policy with regard to historic, cultural and archeological resources:

Policy 1.2.5.4.: *By December 2010, the City shall assess and development implementation strategies for Historic, Cultural and Archeological Resource Preservation.*

Future Annexation

Palm Beach Gardens has actively pursued expanding the City's incorporated areas through voluntary annexation.

Palm Beach Gardens has identified natural extensions of its current municipal boundary which are intended to recognize and be responsive to the following concerns and objectives:

- A regular and logical municipal boundary which minimizes irregular City limits, pockets, and extensions
- A desire to guarantee local input and control of land uses around major intersections such as PGA Boulevard and Beeline Highway, and I-95 and Donald Ross Road;
- A need to provide and ensure adequate rights-of-way for major arterials and contiguous buffer areas;
- A desire to ensure the restoration and preservation of the Loxahatchee Slough.

Prior to annexation of any area, an annexation study will be prepared to estimate projected population, future land use needs, impacts on the infrastructure, and a preliminary fiscal analysis. The properties to the east of the Loxahatchee Slough are developed and any annexation is seen as occurring in the long-term. If the property owners of this coastal residential area wish to annex into a municipality, Palm Beach Gardens will initiate a study on the feasibility of service provision.

The City of Palm Beach Gardens has adopted a Potential Future Annexation Area Map (Map A.4.) in its current Comprehensive Plan. The future annexation area was established in consideration of: "squaring off" the corporate limits, where practical and where essential public facilities and services can be provided; encouraging the annexation of unincorporated pockets and enclave areas; development of in-fill areas within the interior of the City's corporate boundaries; and by identifying potential annexation areas that have been mutually agreed upon through cooperative actions with neighboring municipalities.

The Legislature recognizes that enclaves can create significant problems in planning, growth management, and service delivery, and therefore declares that it is the policy of the state to eliminate enclaves. *F.S. 171.046*

Policies that support the State policy of eliminating enclaves and the coordination with the County to avoid piecemeal annexation include the following:

Policy 1.3.7.1.: *The City shall coordinate future annexation areas (Map A.4.) with the affected land owners, governments, and agencies for the future annexation and land uses of these areas.*

Policy 1.3.7.2.: *Prior to annexation of unincorporated property, a facilities and services extension plan shall be prepared and adopted. This plan shall:*

- a. *Establish and ensure the location, level of service standards and phasing for each facility and service to be extended by the City;*
- b. *Require all development or redevelopment activities to occur in conjunction with the provision of the community facilities and services without exceeding the level of service standards established in the Capital Improvements Element of the Plan;*
- c. *In order to encourage infill development and reduce urban sprawl, future annexation ordinances shall reserve the right of the City to discourage development and redevelopment activities within proposed future annexation areas until such time as facilities and services are extended in accordance with the plan, even if facilities and services are offered by a developer in advance of the plan phasing.*
- d. *A comprehensive plan amendment shall be undertaken by the property owner during the City's next round of amendments to incorporate the parcel into the Plan. Upon the effective date of the comprehensive plan amendment, rezoning to a City zoning district shall be initiated.*

Policy 1.3.7.3.: *The City shall encourage a compact and sustainable municipal boundary. By December 31, 2009, the City shall adopt a comprehensive annexation study of all property identified in the annexation areas. The study shall include guiding policies related to the annexation of unincorporated pockets and a plan to coordinate the transition of unincorporated pockets into the City.*

Visioning



The City conducted a three-year community wide “visioning” process in 1993. This three year process culminated with the December 5, 1996, Council adoption of a document entitled *Our Vision – A Strategic Plan*. That document contains many planning directives but the following are being incorporated into the land use element

1) Establishment of an urban boundary so that development will expand in an orderly fashion;

2) Continuation of goals and policies that will limit future high-rise development, new regional attractors, yet promote unique neighborhoods, attract business and promote streetscape and beautification

programs; and

3) Establishment of goals and policies that encourage the creation of new neighborhoods which include a mix of residential and community serving uses.

The EAR-based amendment proposes to update the City’s Vision Plan through the following objective and corresponding policies:

Objective 1.3.8.: Proactively plan for future growth through an inclusive community-based planning process.

Policy 1.3.8.1.: By December 31, 2009, the City shall update the current City’s Vision Plan to include a Sustainable Development Goal. This Goal will encourage protecting the natural resources of the western area and encourage supporting sustainable redevelopment in the eastern area.

Policy 1.3.8.2.: The City shall re-evaluate the City’s Vision Plan every seven years, to coincide prior to the preparation of the Evaluation and Appraisal Report.

Transit Oriented Development (TOD)

Transit Oriented Developments (TOD’s) are typically mixed use development designed to complement public transportation and provide access to multiple modes of transit including pedestrian corridors, bicycling paths, streetcars, trolleys, and rail and bus transit. TOD’s are designed to be pedestrian friendly and concentrates density around a quarter to half mile ring (a 10 to 15 minute walk) around transit nodes, such as a rail



station. They are ideal for regional destinations and regional transit corridors. The proximity to employment centers, movie theaters, restaurants, shopping, hotels, libraries, artwork, cultural attractions, pharmacies, parks, sports fields, and a mix of housing types are essential to the success of a TOD. Connections such as bicycle networks, between the different uses are equally essential.

TOD's provide a community with many benefits and the residents can tailor design guidelines to create safety, encourage community character, and quality of life place-making. TOD's can also include luxury shopping and residences that are not typically found in strip mall development. Community involvement is necessary and very important when designing a TOD. Charettes, a design process driven by participating residents, encourage the community to understand the type of project being developed and allows input in a proactive approach. TOD's are a unique mechanism for stimulating an economy because needs and wants are easily accessible by foot, bicycle, or transit.

There are a number of important benefits gained by encouraging TOD's, all of which improve the City residents' overall quality of life.

TOD can provide mobility choices

By creating "activity nodes" linked by transit, TOD's provide mobility options to key destinations, which are very much needed for households of every income level. This offers the young, the elderly, people who prefer not to drive, people who wish to save on gas money, and those who don't own cars, the ability to get around. A successful TOD provides alternative means of transportation for residents and work personnel that commute to Palm Beach Gardens. The impacts of greater mobility are:

- Reduced commute times and traffic congestion
- Reduced dependence on oil
- Increased mobility and accessibility to every citizen
- Support for the City workforce that benefit from or may require public transportation to get to work

TOD can increase public safety

By creating active places that are busy through the day and evening and by providing natural surveillance (eyes on the street), TOD helps increase safety for pedestrians, transit-users, and others. Natural surveillance is a main concept of Crime Prevention Through Environmental Design, and is a concept supported by the City.

TOD can increase transit ridership

By improving the safe and direct connection to a lively mix of destinations and by increasing the density of potential riders living within the PUD, the efficiency and effectiveness of transit service investments is proven to increasing the use of transit by 20 to 40 percent.

TOD can reduce rates of Vehicle Miles Traveled (VMT)

By increasing transit ridership by 20 to 40 percent, the annual household driving rates for those living, working, and/or shopping near transit stations are likewise lowered. This is particularly significant compared to nation-wide trends where vehicle travel has increased faster than population. The impacts of reduced VMT's are reduced roadway congestion and injuries due to decreased number of vehicular car accidents.

TOD can increase disposable household income

By reducing the need for more than one car per household and reducing driving costs, a Palm Beach Gardens household can save an average of \$3-4,000 per year. This is significant considering that housing and transportation are the first and second largest household expenses, respectively. The impacts are a healthier local economy, by potentially shifting dollars spent on high gas prices to local commodities.

TOD can reduce air pollution and energy consumption rates

By providing safe and easy pedestrian access to transit and greater per rider efficiency through public transportation, TOD's can lower rates of air pollution and energy consumption. Also, TODs can help reduce rates of greenhouse gas emissions by 2.5 to 3.7 tons per year for each household. The environmental impacts increase the City's quality of life:

- Healthier lifestyles which encourage walking, biking, and less stress
- Reduced pollution and environmental destruction
- Improved air quality

TOD can be used as a redevelopment tool

By reviving aging or underutilized downtowns, revitalizing declining urban neighborhoods, and enhancing tax revenues for local jurisdictions, TOD's may encourage sustainable growth. The impacts of redevelopment are:

- Reduced sprawling development
- The City remains competitive in the regional and national market
- Assists in promoting the bioscience cluster
- Expands the demand for Class A office that requires access to large markets
- Focuses growth toward the regional center
- Higher and stable property values than strip mall development

- Revitalization and redevelopment to neighborhoods and corridors adjacent to transit

TOD can help conserve resource lands and open space

Because this type of development consumes less land than low density, auto-oriented growth, it reduces the need to convert farmland and open spaces to development. The impacts of using TODs to conserve open space are:

- Preservation of open space and environmentally sensitive areas
- TIF funds can be used to buy additional open space, streetscapes, or programs

TOD can promote affordable housing

By utilizing more efficient, lower-cost housing and by reducing household transportation expenditures, TOD's create a better framework for true affordable housing. Housing costs for land and structures can be significantly reduced as the result of more compact growth patterns. Also, low cost access to public transportation further lowers the overall costs of living and increases long term affordability of housing options.

TOD can decrease local infrastructure costs

Through more compact infill development, TODs can help reduce infrastructure costs (such as for water, sewer, and roads) to local governments and property owners by up to 25 percent.

TOD creates new opportunities for residents

People who choose to live in a TOD can take pride and have a stake in living more sustainably. TODs concentrate development and reinvestment in existing built environment and transit served neighborhoods. Inclusive and diverse TOD neighborhoods promote walking, bicycling, and transit use through their design and orientation. TODs encourage the design of usable open spaces and the maintenance of existing ecosystems to provide urban dwellers with respite and a connection to the natural world.

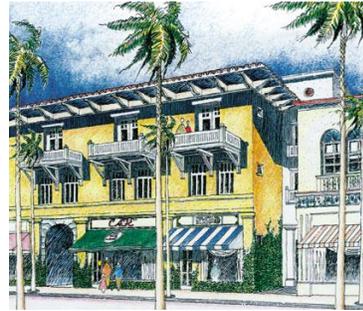
Policies that support Transit Oriented Development include the following:

Policy 1.1.1.20.: *By December 2011, the City shall conduct a study that explores the adoption of a new overlay specific toward the goal of creating transit ready development. The study shall identify major corridors which interconnect prominent north-south and east-west traffic patterns within the City, as well as connections with regional corridors from adjacent municipalities and shall identify land development regulations to encourage multi-modal transportation choices.*

Policy 1.3.5.1.: *By 2010, the City shall conduct a community-based planning process to create land development regulations for a Transit Oriented Development Zoning Overlay, and coordinate these efforts with the Florida East Coast Railroad, Treasure Coast Regional Planning Council and the Palm Beach County Metropolitan Planning organization.*

Infill & Re-development

Infill & re-development should promote superior projects within the cities' urban landscape. These buildings are encouraged to be mixed use, energy efficient, appropriately landscaped, and aesthetically pleasing. Limitations upon the land; lot size, parking requirements, height restrictions, etc. should be flexible and not a hindrance in superior design. Infill redevelopment should allow flexible design while maximizing the potential use of a building or site. The very nature of infill redevelopment promotes higher and best uses while discouraging sprawling development upon green space, suburban, and rural land. Infill redevelopment encourages the following positive planning characteristics;



- Existing infrastructure use
- Conserving natural land instead of sprawl
- Reduced commuting time
- Minimized traffic congestion
- Physical activity and healthy lifestyles
- Increased property values
- Open space preservation
- Vacant land rehabilitation
- Energy conservation
- Public/Private partnerships
- Workforce housing for teachers, police officers, and fire fighters

Infill redevelopment is positive in numerous aspects, however, becomes unachievable due to some of the following;

- Inflexible building and development code regulations
- Neighborhood opposition
- Prolonged permit processes
- Financial challenges
- Acquisition and land assembly

Creative design and the anticipation of healthier lifestyles create superior infill redevelopment projects. 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. Developers are capable of reversing the negative effects by heavily planting these areas with natural and colorful vegetation which filters water biologically. These types of treatment areas are aesthetically pleasing, cleaner, absorb cancerous heavy metals, limit algal blooms, and increase property values by the use of wetland/aquatic and upland/land plants. Infill and redevelopment can offset these types of environmental issues while providing quality urban buildings in context with their neighbors.

Policies within the Comprehensive Plan that support infill and redevelopment include the following:

Policy 1.2.4.10.: *By 2010, the City shall research opportunities and adopt incentives for rehabilitation or upgrading of landscaping or buildings on existing properties having non-conforming lot sizes.*

Policy 1.2.4.11.: *The City shall encourage infill and redevelopment of existing properties with consideration of the following:*

- 1. Address the impact of redevelopment activities on natural systems and any historic resources*
- 2. Provide for visual continuity of the community through the application of sound principles of architectural design and landscaping*
- 3. Be consistent with the character of the neighborhood*
- 4. Reduce existing non-conformities or alternatively demonstrate that adverse impacts will not be created.*
- 5. Be consistent with Section 723.0612, Florida Statutes, related to mobile home parks and include relocation strategies for those residents displaced by the implementation of the plan, which ensure that the displaced residents are provided adequate notice, equitable compensation and assistance in locating comparable alternative housing in proximity to employment and necessary public services and/or provide a minimum percentage of replacement housing on site.*

Climate Change

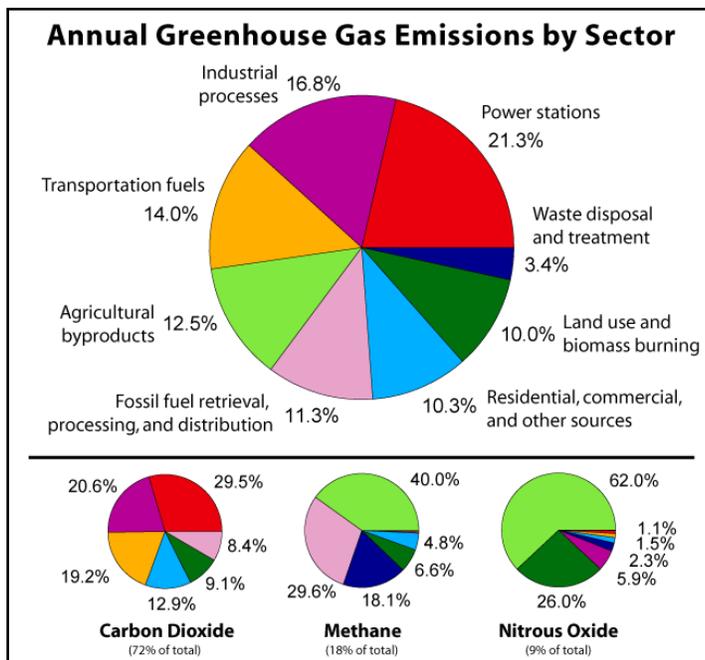


Climate change has been occurring on this planet long before mankind had the ability to negatively affect the climate. However, in recent years, the acceleration of climate change has many experts agreeing that climate is changing faster than natural cycles. Scientists have been studying the composition of ice core samples which

have locked atmospheric conditions within the ice and have discovered some interesting facts.

As levels of greenhouse gases increase, particularly carbon dioxide, methane, and nitrous oxide, there is a direct increase in global temperatures. Depending on the individual, increased global temperatures could be viewed as good or bad; however, accelerating natural cycles is detrimental to the natural environment for many reasons. The natural environment depends on slow and steady rates of change which allows for adaptability of flora and fauna on this planet. If flora and fauna are subjected to increased and/or more intense periods of drought, flood, wildfires, hurricanes, or any other natural phenomenon, then the likelihood of species adaptability is significantly altered.

The economic significance of such disasters is more than apparent to any Floridian, which rectifies the importance of gradually changing global impacts regardless of the type of pollution. Slow and steady adaptability is also crucial in modern medicine because plants are used to combat various illnesses and diseases which rely on plant diversity. If humans are capable of affecting global climate cycles then the possibility exists for the extension of beneficial plant and animal species.



The Kyoto Protocol is a program for countries to reduce their contributions of greenhouse gases. Over 170 countries throughout the world have ratified the protocol excluding the U.S.A which, as of 2005, was the largest single emitter of carbon dioxide. The lack of commitment by the federal government to accept or promote sustainable development has forced many states, counties, and cities to fight climate change at the local and regional levels. Programs which mimic Kyoto have been established throughout the world including the U.S.A. These programs aim to create carbon markets to sell, trade, and offset the adverse impacts of climate change. Conserving and limiting the output of greenhouse gases can be achieved in many

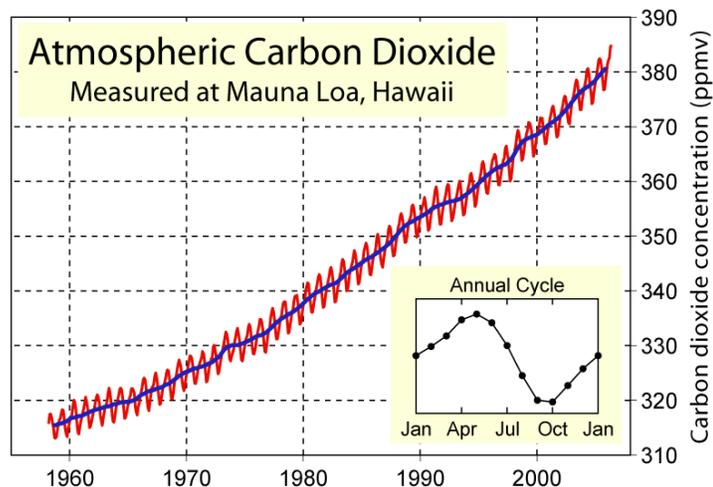
aspects of daily life. The use of energy efficient products and appliances and promoting renewable sources of energy are good steps to limit greenhouse gases.

Source: Rohde, A. Robert,
http://www.globalwarmingart.com/wiki/Image:Greenhouse_Gas_by_Sector.png

Mayors Climate Protection Center. 2007. March 19, 2008
<http://www.usmayors.org/climateprotection/>

Climate change is an important issue in most countries throughout the world including our own. Over As of March, 2008, 811 mayors throughout the United States, District of Columbia, and Puerto Rico have signed a pledge to reduce their cities' emissions of greenhouse gases (Mayors Climate Protection Center). These mayors represent a total population of nearly 80 million people. Mayors within the following nearby cities have signed the agreement; West Palm Beach, Lake Worth, Greenacres, Palm Beach, Delray Beach, Fort Lauderdale, Port Saint Lucie, Naples, Miami, Tampa, and many others (Mayors Climate Protection Center). Countries such as Norway, New Zealand, and Costa Rica have set goals of becoming the first carbon-neutral nations on the planet.

The atmospheric carbon dioxide graph, known as the Keeling Curve due to Charles David Keeling of the Scripps Institute of Oceanography, was the first collected data regarding carbon dioxide. Keeling's research led the National Oceanic and Atmospheric Administration (NOAA) to start monitoring greenhouse gases in 1970, only 12 years after he began his research into human caused climate change as a result of burning fossil fuels (Keeling, Charles David). Also represented on the graph, the



Source: Keeling, Charles David. March 9, 2008. March 19, 2008. < http://en.wikipedia.org/wiki/Charles_David_Keeling >

annual cycle, represents seasonal carbon dioxide uptake by plants. Since there is more land mass and more forests in the Northern Hemisphere, carbon dioxide is removed at a greater rate during the Northern Hemisphere's summer than the Southern Hemisphere (Keeling, Charles David). Prior to Keeling's significant findings, there was no way to measure global carbon dioxide prior to 1958 until recently.

Carbon dioxide data exists prior than 1958 and comes from 'air bubble' samples within arctic ice core samples. These samples represent atmospheric conditions as the planet used to be, and interestingly, global temperatures rise and fall in correlation with carbon dioxide levels. Additional information including graphs on this topic can be found by searching popular web searches with the phrase(s); ice core sample, keeling curve, temperature, carbon dioxide, etc.

Regardless of the evidence for climate change, 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
- Adopt CO₂ reduction Plan

Grant money for reducing the dependence on oil, combating climate change, and conserving electricity is currently available in excess of millions of dollars for fiscal year 2008. The federal government, State of Florida, and businesses within the State have incentives and programs available for residents, businesses, governments, non-profits, schools, institutions, etc. The funds can be used to install energy efficient products such as the following; photovoltaic cells, solar hot water heaters, solar pool heaters, and fuel cells. The incentives generally pay by kilowatt hour for installed products which will conserve electricity over the lifetime of the product.

These programs can easily be searched for by using any favorite World Wide Web search engine and typing 'Florida incentives for Renewable and Efficiency.' The Florida Department of Environmental Protection has similar incentive programs for hydrogen vehicles, bio-fuel infrastructure, fuel cells, and a renewable grant program equaling nearly \$23.5 million for fiscal year 2007-2008. Many opportunities exist for renewable energy grant money and should be utilized within the City of Palm Beach Gardens for the advancement of creating a 'green' signature city.

The planet is a diverse and dynamic force and humans have the ability to positively and negatively affect the land, water, and air. Checks and balances, including scientific research and education, are fundamental in addressing evolving systems such as climate change or water quality.

Green Roofs

Environmental Protection Agency, 'Heat Island Effect' October 12, 2007. March 18, 2008. < <http://www.epa.gov/hiri/strategies/greenroofs.html>>

On hot summer days, the surface temperature of a vegetated rooftop can be cooler than the air temperature, whereas the surface of a traditional rooftop can be up to 90°F (50°C) warmer(Environmental Protection Agency). Green roofs prohibit the majority of

ultraviolet radiation from penetrating the rooftop which equates to air conditioning savings and longer roof replacement periods. They also provide habitat for butterflies and birds while filtering the rooftop water and creating less strain on storm water systems. Vegetated roofs use and filter the excess water while traditional roofs typically acquire pollutants and contribute to nonpoint source pollution which ultimately goes into the Atlantic Ocean. Green roofs can be used to mitigate storm water runoff requirements while providing for an aesthetically pleasing built environment. Basic green roof systems can be installed with little or no additional engineered structural support and add about 80-150 pounds/sq. ft. for intensive green roofs while extensive green roofs add about 12-50 pounds/sq. ft. (Green Roofs: Storm water Management From the Top Down) (Source: Schloz-Barth, Katrin. "Green Roofs: Storm water Management From the Top Down." Environmental Design & Construction. 2001. March 18, 2008).



Green roofs have been successful at the following locations; Ford Motor Company Corporate Headquarters, Gap Headquarters, The Church of Jesus Christ of Latter Day Saints Conference Center in Salt Lake City, Utah(photograph), and nearly a total of 100 green roof projects in Chicago, Illinois and Portland, Oregon(Environmental Protection Agency). The bottom photograph is the Coast Plaza Hotel in Vancouver, British Columbia and features an intensive green roof which appears like a forest.

Green roofs can take the appearance of a mature forest or can feature simple groundcover plants such as flowers, herbs, sedges, mosses, and grasses which contribute minimal additional weight and increased energy and roof replacement savings. According to the University of Florida, plant selections are based upon drought resistance, plant hardiness maps provided by the USDA, and root structure depths which will accommodate either intensive or extensive green roofs(University of Florida, "Facilities Planning & Construction", http://www.facilities.ufl.edu/sustain/Green_Roof.htm> Feb. 18, 2008. March 2008). Green roofs minimize greenhouse gases by reducing energy demand and sequestering carbon by the vegetation.

Michigan State University, 'Green Roof Research Program' August 30, 2006. March 19, 2008. < <http://www.hrt.msu.edu/greenroof/>>

Encouraging Green

One of the overall themes 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 concept. 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 that may exist on that promote mixed use developments with multi-modal transportation opportunities.

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

Policies that support the goal of encouraging Green initiative include the following:

Policy 1.1.3.1(j). *Require landscape buffers and gardens using predominately native species and other appearance measures to maintain a high visual quality and utilize xeriscape techniques;*

Policy 1.2.1.9.: *The City shall encourage the certification by Leadership in Energy and Environmental Design (LEED), US Green Building Council (USGBC), and other comparable certification bodies for all new development and redevelopment.*

Policy 1.3.6.1.: *By December 2010, the City shall adopt land development regulations to provide incentives that support sustainable design techniques for new development and redevelopment, including but not limited to 'green building' construction, 'adaptive reuse' of older buildings and Brownfield restoration.*

Policy 1.3.6.2.: *The City shall encourage policies and actions that reduce greenhouse gas emissions and other pollutants and reduce the use of non-renewable natural resources.*

Many opportunities exist to create more environmentally sustainable development. The following initiatives can be performed to reduce the impacts of climate change:

- Purchasing windmills which can be used to heat water or produce electricity
- Purchasing solar water heaters or photovoltaic panels
- Architecture suitable for maximum efficiency and comfort through green design principles
- Purchasing fuel efficient automobiles – modern hybrid automobiles can get 50-75 miles per gallon and their fuel economy can be doubled, tripled, or quadrupled if carpooling is utilized.
- Using public transportation, walking, and bicycling
- Encourage green businesses to relocate to Palm Beach Gardens

IV. CONCLUSION AND SUMMARY



The Future Land Use Plan for Palm Beach Gardens will ensure the City continues to be a welcoming, visually attractive place for visitors and residents. It includes an urban/public service center along its Main Street (PGA Boulevard), with surrounding mixed use developments. Parkways are an important part of maintaining visual appeal because it allows for pedestrian scale transportation options.

The City's use of planned community districts and planned unit developments should encourage compact multi-use development. This form of development can take advantage of future rail transit opportunities, economic revitalization of nearby cities, or accommodate growth in environmentally sensitive areas. An Urban Growth Boundary fosters the cost efficient provision of urban services while preserving sensitive environmental lands. Workplace development and eco-tourism based commercial recreation places the City in a position to accommodate new business opportunities due to the proximity of the airport and large conservation areas.

The development constraints of vacant lands are being addressed through requirements for master planned developments, an urban growth boundary, and special sector related constraints on development.

Initiatives and Studies

- Maintain compatible land uses which consider the intensities and densities of land use activities, their relationship to surrounding properties and the proper transition of uses. *(Goal 1.1, and Objective 1.1.1., Page 1-1, from Existing Definitions and Goal 1)*
- Utilize overlays and designations to address areas of special concern. The City recognizes the need to designate property that: reduce densities due to environmental and roadway capacity constraints; establish areas to encourage the development of bioscience research uses; protect the aesthetics of Northlake Boulevard; establish the Western Northlake Corridor Land Use Study Area; establish the MacArthur Boulevard Historic preservation area; establish areas for future critical interchanges; establish an Urban Growth Boundary; and establish a Parkway System as a component of the Florida Greenway System. *(Objective 1.1.2. Page 1-15, Proposed)*
- Maintain land development regulations to manage future growth and development in a manner that provides needed facilities and services, protects environmental resources, and encourages infill and redevelopment of the eastern portion of the City. *(Objective 1.1.3., Page 1-16, Existing)*
- Maintain land development regulations containing standards and provisions to encourage the elimination or reduction of uses inconsistent with the City's character and future land uses. *(Objective 1.1.4., Page 1-25, Existing)*
- Encourage development or redevelopment activities while promoting a strong sense of community, consistent quality of design and not threatening to existing neighborhood integrity and historic and environmental resources. *(Goal 1.2, Page 1-26, Proposed)*
- Issue development orders and permits for development or redevelopment activities only if the protection of natural resources is ensured and consistent with the goals, objectives, and policies of the Conservation, Infrastructure and Coastal Management Elements of this Comprehensive Plan *(Objective 1.2.1., Page 1-26 Existing)*
- Issue development orders and permits for development and redevelopment only in those areas where suitable topography and soil conditions exist to support such development. *(Objective 1.2.2., Page 1-27, Existing)*
- Issue development orders and permits for development and redevelopment activities only in areas where public facilities necessary to meet level of service standards (which are adopted as part of the Capital Improvements Element of this Comprehensive Plan) are available concurrent with the impacts of development. *(Objective 1.2.3., Page 1-27, Existing)*
- Direct future growth, development and redevelopment to areas as depicted on the Future Land Use Map, consistent with: sound planning principles; minimal natural limitations; the goals, objectives, and policies contained within this

Comprehensive Plan; and the desired community character. (*Objective 1.2.4., Page 1-29, Existing*)

- Maintain Land Development regulations which provide for the protection, preservation and reuse of public and private historic resources. (*Objective 1.2.5., Page 1-36, Existing in Coastal Management Element*)
- Plan for future needs to promote livable communities, including sustainable economic development for bioscience users, transit oriented development, and other efforts to promote sustainable growth. (*Goal 1.3, Page 1-37, Proposed*)
- Expand the City's economic base by promoting commercial and industrial activities as planned and illustrated on the Future Land Use Map, and by ensuring adequate sites and timely provision of public utilities and services to stimulate such growth. (*Objective 1.3.1., Page 1-37, Existing*)
- Improve coordination with affected and appropriate governments and agencies to maximize their input into the planning and development process and mitigate potential adverse impacts of future development and redevelopment activities. (*Objective 1.3.2., Page 1-38, Existing*)
- In coordination with the Northlake Boulevard Corridor Task Force, pursue various means to encourage improvement, enhancement, renovation or redevelopment of the older properties along Northlake Boulevard, east of Military Trail, and thereby arrest a decline in the quality of land uses and the consequent negative impact on taxable values and the overall aesthetic appearance of the corridor. (*Objective 1.3.3., Page 1-35, Existing*)
- Maintain a Bioscience Research Protection Overlay (BRPO) for the purpose of promoting Bioscience Uses and deterring the conversion of those uses to commercial or residential uses. (*Objective 1.3.4., Page 1-39, Existing*)
- Adopt a Transit Oriented Development Zoning Overlay (TODO) for the purpose of promoting the location of a rail station in the City and providing sustainable development that encourages multi-modal transit. (*Objective 1.3.5., Page 1-40, Proposed*)
- Adopt and maintain land development regulations that are aimed at eliminating barriers toward the certification by Leadership in Energy and Environmental Design (LEED), US Green Building Council (USGBC), Florida Green Building Coalition (FGBC) or any comparable certification organizations, as well as providing incentives for building certified buildings or sites. (*Objective 1.3.6., Page 1-41, Proposed*)
- Coordinate and plan for the annexation of unincorporated enclaves (*Objective 1.3.7., Page 1-41, Proposed*)
- Proactively plan for future growth through an inclusive community-based planning process. (*Objective 1.3.8., Page 1-42, Proposed*)

COMPLETION YEAR	STUDY, PLAN OR ACTION
2009	Assess Potential Annexation Areas Map and comprehensive study (Policy 1.3.7.3., page 42)
	Update City's Vision Plan (Policy 1.3.8.1., page 41)
2010	Incorporate incentives for sustainable/green building in the LDRs (Policy 1.3.6.1., page 41)
	Adopt Floor Area Ratios into the LDRs (Policy 1.1.3.8., page 25)
	Incorporate Bioscience Research Protection Overlay in the LDRs (Policies 1.3.4.1 and 1.3.4.4, page 39)
	Incentives for redevelopment (Policy 1.2.4.10., page 35)
	Incorporate incentives for bioscience users in LDRs (Policy 1.3.4.3., page 39)
	Assess the design guidelines (Policy 1.2.4.9., page 35)
	Transit Oriented Development community based planning process (Policy 1.3.5.1., page 40)
2011	Conduct archeological, cultural and historic resources assessment (Policy 1.2.5.4., page 37)
2012	Study and adopt multi-modal overlay for planned transit corridors (Policy 1.1.2.8., page 16)