CITY OF GREENACRES COMPREHENSIVE PLAN

CONSERVATION ELEMENT

September 2008
Amendments resulting from the 2006 EAR

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I. INTRODUCTION

A. PURPOSE OF ELEMENT

The development of a Conservation Element is required by the Local Government Comprehensive Planning and Land Development Regulation Act of 1985.

In 2006, the City completed its' second Evaluation Appraisal Report (EAR). The EAR identified necessary changes and updates. These changes have been incorporated into this Element.

The purpose of this Element is "to promote the conservation, use, and protection of natural resources" located within the City and is intended to protect and enhance the public health, safety, welfare and quality of the environment. The City of Greenacres considered the following issues critical in achieving said goals:

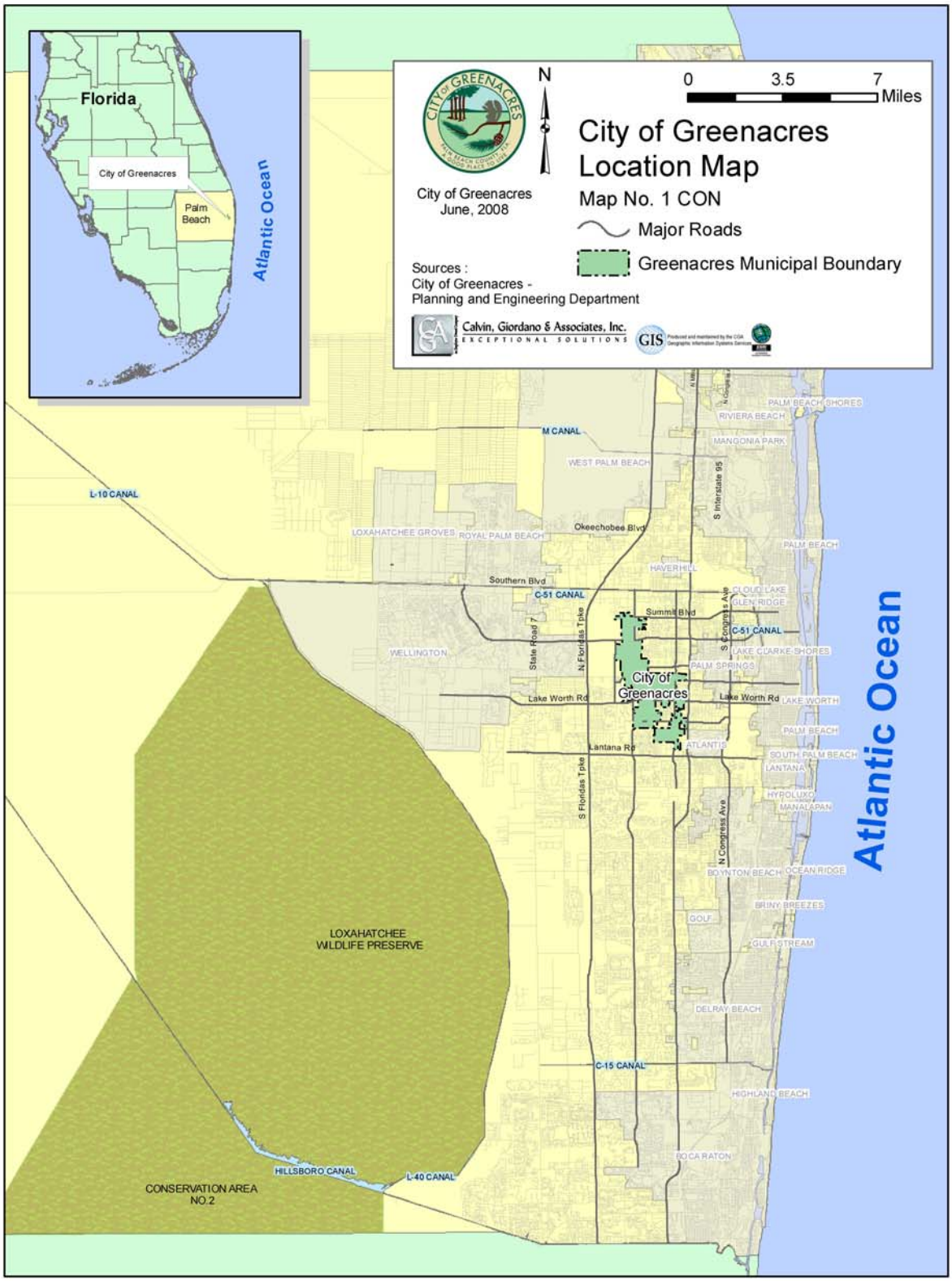
1. Effects of population growth on the environment, water supply and levels of pollution;
2. Identification and protection of endangered or threatened species and their habitats;
3. Protection of water resources;
4. Provision of ongoing environmental education; and
5. Protection and enhancement to tree preservation.

This Element establishes the plan which provides the basis for decision-making by City officials relative to conservation.

B. LOCATIONAL SETTING

The City of Greenacres is located in the east-central portion of Palm Beach County, approximately six (6) miles inland from the Atlantic Ocean and one mile east of the Florida Turnpike (See Location Map No. 1). Although completely surrounded by unincorporated Palm Beach County, several neighboring communities lie within two (2) miles of the City. These municipalities include: the City of Atlantis, Village of Palm Springs, the Town of Haverhill and the Village of Wellington.

The climate in the City of Greenacres and the surrounding area is moderate, classified as a semitropical region. "August is the warmest month of the year with a mean temperature of 82.9°F. This averages into the maximum mean of 89.9°F and the minimum mean of 75.8°F. January is the coldest month with a mean of 64.2°F.


Florida
City of Greenacres
Palm Beach
Atlantic Ocean
N
0 3.5 7 Miles
City of Greenacres
Location Map
Map No. 1 CON
City of Greenacres
June, 2008
Major Roads
Greenacres Municipal Boundary
Sources :
City of Greenacres -
Planning and Engineering Department
Calvin, Giordano & Associates, Inc.
EXCEPTIONAL SOLUTIONS
GIS
M CANAL
L-10 CANAL
WEST PALM BEACH
LOXAHATCHEE GROVES
ROYAL PALM BEACH
Okeechobee Blvd
HAVERHILL
Southern Blvd
C-51 CANAL
Summit Blvd
WELLINGTON
State Road 7
N Florida's Tpke
S Florida's Tpke
S Congress Ave
N Congress Ave
S Interstate 95
City of Greenacres
Lake Worth Rd
Lantana Rd
ATLANTIS
PALM SPRINGS
LAKE CLARKE SHORES
GLEN RIDGE
CLOUD LAKE
RIVIERA BEACH
PALM BEACH SHORES
MANGONIA PARK
PALM BEACH
LAKE WORTH
SOUTH PALM BEACH
LANTANA
HYPOLUXO
MANALAPAN
BOYNTON BEACH
OCEAN RIDGE
BRINY BREEZES
GULF STREAM
DELRAY BEACH
HIGHLAND BEACH
BOCA RATON
LOXAHATCHEE
WILDLIFE PRESERVE
C-15 CANAL
HILLSBORO CANAL
L-40 CANAL
CONSERVATION AREA
NO.2
Atlantic Ocean

Rain showers and/or thunderstorms of short duration are frequent during the summer and fall." Based on Palm Beach County estimates, the City averages "61.6 inches of rain per year."

II. DEFINITION OF RELEVANT TERMS

A. AIR POLLUTION - is defined as "the introduction into the atmosphere of contaminants such as smoke, fumes or odors that are of sufficient quantity, concentration or duration as to have a negative effect on human, animal or plant life or on human activities. Air pollution may be classified by physical form (e.g., mobile source, stationary source, indirect source) or by some other useful characteristic, such as degree of severity."

B. AMBIENT AIR - is defined as "the outdoor air, in which pollution is influenced by natural forces, such as diffusion by the wind. The term is used to distinguish air quality found in outdoor air (which is affected by air pollution released into the (atmosphere) from air quality found in indoor spaces."

C. CONE OF INFLUENCE - is defined as "an area around one or more major water wells." This area is calculated, based on the rate of movement of groundwater.

D. CONSERVATION USES - is defined as "activities within land areas designated for the purpose of conserving or protecting natural resources or environmental quality and includes areas designated for such purposes as flood control, protection of quality or quantity of groundwater or surface water, flood plain management, fisheries management, or protection of vegetative communities or wildlife habitats."

E. ECOSYSTEM - is defined as a "system comprised of all living organisms in a given geographic area, and the physical environment with which and in which they interact."

F. ENDANGERED SPECIES - is defined as "any species of fish and wildlife naturally occurring in Florida, whose prospects of survival are at risk due to modification or loss of habitat; over-utilization for commercial, sporting, scientific or educational purposes; disease; predation; inadequacy of regulatory mechanisms; or other natural or man made factors affecting its continued existence."

G. FISH AND WILDLIFE - is defined "as any member of the animal kingdom, including, but not limited to, any mammal, fish, bird, amphibian, reptile, mollusk, crustacean, arthropod, or other invertebrate."

H. GROUND WATER - is defined as "water beneath the surface of the ground, whether or not flowing through known and definite channels."

I. HAZARDOUS WASTE - is defined as "solid waste, or a combination of solid wastes, which, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible or incapacitating reversible illness or may pose a substantial present or potential hazard to human health or the environment when improperly transported, disposed of, stored, treated or otherwise managed."

J. LANDSCAPING - is defined as "material such as, but not limited to, grass, ground covers, shrubs, vines, hedges, trees or palms; and non-living durable material commonly used in landscape such as, but not limited to, rocks, pebbles, mulch, sand, walls or fences, benches, fountains, paving for pedestrian use (but excluding paving for vehicles), exterior landscape accent lighting fixtures and any other item of exterior landscape furniture."

K. NON-POINT SOURCE POLLUTION - is defined as "pollution derived from one or more of various diffuse discharges, such as runoff. It includes, but is not limited to water pollution caused by urban runoff, runoff from construction sites, hydrological modification, solid waste disposal practices and individual sewage disposal facilities, such as septic systems."

L. OPEN SPACE - (See Recreation and Open Space Element definitions section.)

M. PLANT MATERIAL (PLANTS) - is defined as "grass, ground cover, shrubs, vines, hedges, and trees or palms."

N. POINT SOURCE POLLUTION - is defined as "water pollution which comes from an individual and distinct channel such as a pipe, culvert or ditch; or an individual and distinct stationary source of air pollution, such as an exhaust stack."

O. POLLUTION - is defined as “the presence in the outdoor atmosphere, ground or water of any substances, contaminants, noise or man-made or man induced alteration of the chemical, physical, biological, or radiological integrity of air or water, in quantities or at levels which are or may be potentially harmful or injurious to human health or welfare, animal or plant life, or property, or unreasonably interfere with the enjoyment of life or property.”

P. STREETSCAPE - is defined as "all the elements that normally constitute the physical makeup of a street or avenue and that as a group, delineate its character. A streetscape normally includes building frontage, street paving and furniture, street tree planting and signage."

Q. SURFACE WATER - is defined as “water upon the surface of the earth, whether contained in bounds created naturally or artificially or diffused.”

R. SURFACE WATER BASIN - is defined as "the geographical area within which a person, business or household obtains water from surface waters."

S. THREATENED SPECIES - is defined as "any species of fish and wildlife naturally occurring in Florida which may not be in immediate danger of extinction, but which exists in such small populations as to become endangered if it is subjected to increased stress as a result of further modification of its environment."

T. WATER CONSERVATION - is defined "as programs and procedures to reduce the amount of water consumed by businesses and households."

U. WATER POLLUTION - is defined as the "impairment of the quality of water through the introduction of chemical, physical or biological substances; changes in water temperature; or other means."

V. WATER SHORTAGE - is defined as "that situation when insufficient water is available to meet the present and anticipated needs of consumers or when conditions are such as to require temporary reduction in total water consumption within a particular area to protect water resources from serious harm. A water shortage usually occurs due to drought."

W. WATER SHORTAGE EMERGENCY - is defined as "the declaration of such by the South Florida Water Management District pursuant to Chapter 373, F. S."

X. WATER WELL - is defined as "wells excavated, drilled, dug or driven for the supply of potable water for general public consumption."

Y. WELLFIELD - is defined as "an area of land which contains more than one well for obtaining water."

Z. XERISCAPE - is defined as "water conserving, drought tolerant landscaping or simply the use of appropriate plant material that does not require special attention to grow properly. Appropriate use of plant material requires comparatively little supplemental irrigation."

III. INVENTORY AND ANALYSIS

A. HISTORY OF CONSERVATION AGREEMENTS ADOPTED BY THE CITY OF GREENACRES

1. The City of Greenacres Non-Indigenous Aquatic Plant Control Maintenance Program

   On June 16, 1980, the City of Greenacres adopted Resolutions No. 80-13 and 80-14 which acknowledged the City's participation in Florida's "Non Indigenous Aquatic Plant Control Maintenance Program". Resolution No. 80-13 designated lakes, canals and all other water bodies within the City of Greenacres as areas for aquatic plant control. This program has been implemented as part of the City's flood prevention program. Resolution No. 80-14 gives the Public Works Department responsibility for administration of the local program. This Department continues to administer this program on a contractual basis.

2. The City of Greenacres Water Shortage Plan

   On August 19, 1985, the City of Greenacres adopted Ordinance No. 85-27. The purpose of the Ordinance is to protect the water resources of the City from the harmful effects of over utilization during periods of water shortage and allocate available water supplies by assisting the South Florida Water Management District (SFWMD) with the enforcement of SFWMD's water shortage plan.

3. The City of Greenacres Wellfield Protection Ordinance.

   The City has adopted a Wellfield Protection Ordinance (Ord. 88-7) that restricts land uses and regulated chemicals with zones of influence of potable water wells. This Ordinance created a permit review process through Palm Beach County and South Florida Water Management District (SFWMD) to protect and monitor our aquifer.

4. The City of Greenacres Landscape Ordinance.

   On March 4, 1991, the City of Greenacres adopted Ordinance # 90-42 and on November 6, 2000, the City of Greenacres adopted Ordinance # 2000-06. The purpose of the Ordinances is to protect existing valuable tree species and ecological communities. Additionally, invasive and non-native species are prohibited and a minimum of 50% native trees and shrubs must be planted. The Ordinance encourages

xeriscaping and requires an environmental assessment prior to any land clearing.

5. The City of Greenacres Initial Stormwater Control Regulations

On April 26, 1993, the City of Greenacres adopted Ordinance 93-05 to manage stormwater run-off. The Ordinance complies with all state and federal regulations regarding water quality. Additionally, the Ordinance prohibits any discharge into the stormwater system without approval from the necessary regulating bodies.

B. AIR QUALITY

1. REGULATORY FRAMEWORK

a) Federal

The Environmental Protection Agency (EPA) is responsible for the administration of federal air quality standards. The Clean Air Act of 1970 and the 1990 amendments directed the EPA to establish National Ambient Air Quality Standards (NAAQS). The term "ambient air quality" refers to the quality of air representatively sampled from an area.

The EPA determined that carbon monoxide, sulfur dioxide, total suspended particulate, nitrogen dioxide, ozone, and lead required regulation. For each of the criteria pollutants, the administration has set two standards: primary and secondary ambient air quality standards. Primary standards are necessary to protect human health. Human health is interpreted to include the health of the most sensitive individuals, such as children and the elderly. Secondary standards are sufficient to protect public welfare. Public welfare includes visibility, plant life, and animal life.

Ambient standards are noted in terms of exposure time (1 hour, 8 hours, annual averages) and are generally more stringent than occupational standards which are designed to protect healthy individuals in the work place.

The 1990 amendments to the Clear Air Act address the problem of ozone nonattainment within certain geographical regions including all of Palm Beach County. This act created a new partnership between state and federal governments, giving the states primary responsibility for directing monitoring, controlling, and preventing pollution while assigning responsibility to the federal EPA for establishing

standards the states must enforce, conducting research, and providing financial and technical assistance to the states.

b) State

The Department of Environmental Protection (DEP), Bureau of Air Quality Management, administers five (5) federal air quality programs, delegated to the state, pursuant to federal air quality laws. Under these programs, new and modified sources of air pollution in areas of the state that meet air quality standards must control emissions so air quality does not deteriorate.

The Florida Department of Environmental Protection (FDEP) has established an asbestos cleanup program to monitor building renovation and demolition projects to control airborne asbestos. About forty (40) new asbestos removal projects are begun each month statewide.

c) Local

The Air Pollution Control Section of the Palm County Health Department is responsible for the maintenance of air quality standards within Palm Beach County including the City of Greenacres. The responsibilities include permitting, monitoring, and preventative actions.

The Environmental Control Unit Monitoring Laboratory located in West Palm Beach is capable of continuously measuring stationary and mobile source related pollutants, i.e., carbon monoxide (CO), nitrogen dioxide (NO_2), and two meteorological parameters (wind speed and wind direction). The ozone monitors are located in the Village of Royal Palm Beach and at the Department's 20 mile Bend Site. Both of the ozone sites are National Air Monitoring Sites (NAMS) and are equipped with continuous meteorological sensing equipment. The sulfur dioxide (SO_2) site is located in the City of Riviera Beach. The data collected by the air monitoring network is transmitted to the Florida Department of Environmental Protection for transmission to the EPA. FDEP places it in the SAROAD (Storage and Retrieval of Aerometric Data) format for transmission to EPA.

The air quality monitoring network also has ten (10) high volume particulate sites. All analysis pertaining to air pollution is performed by Palm Beach County's Health Department chemistry laboratory located in Delray Beach.

The review of applications for state air permits is one of the many activities handled by the Air Pollution Section of the Palm Beach County Public Health Department. FDEP requires both a permit to construct and a permit to operate any air pollution source. The review of permit applications places Palm Beach County in a position to prevent the improper construction of a pollution source and to assure that adequate pollution control equipment is utilized and maintained.

Other activities of the Air Pollution Section include: consultations with industries and engineers on impending permit action; enforcement action; maintenance of monitoring network; and required compliance schedule and increments of progress surveillance.

As part of the State Air Implementation Plan, the Palm Beach County Health Department is required to conduct source inspections of existing and new sources in Palm Beach County, in order to assure that all sources are in compliance with air pollution regulations.

2. EXISTING CONDITIONS

Palm Beach County is part of the Southeast Florida Urban Airshed that includes Dade and Broward Counties. This area is presently classified by the U.S. Environmental Protection Agency as a moderate ozone nonattainment area. Based on the most recent data shown in the "Air Pollution Control 1995 Annual Report", the area is now in compliance with the ozone standard.

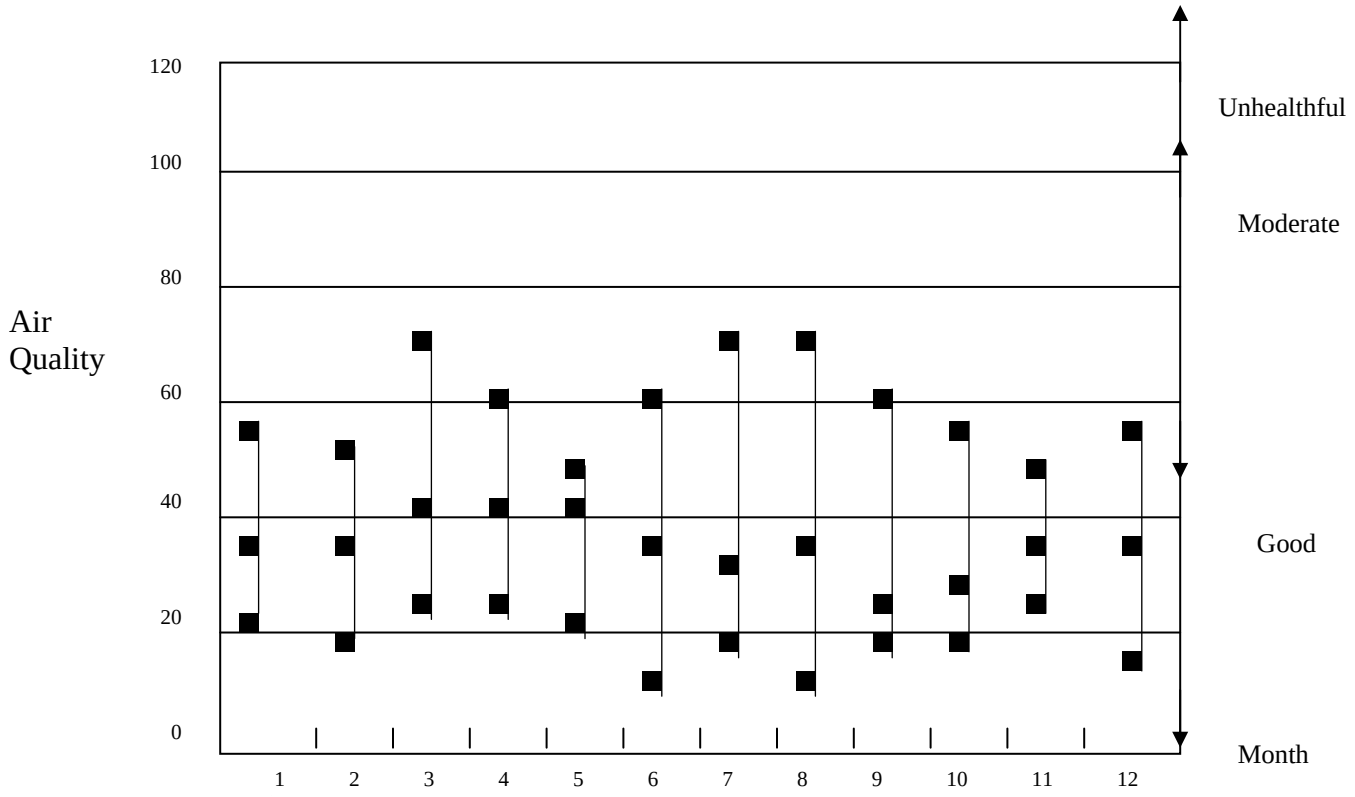
The EPA has developed a uniform standardized daily air quality reporting index, called the Pollutant Standard Index (PSI), locally called the Air Quality Index (AQI), to be used by state and local agencies.

This index is dependent upon measured concentrations of the five pollutants which have been assigned National Ambient Air Quality Standards (NAAQS); i.e. total suspended particulate, (TSP) carbon monoxide, sulfur dioxide, nitrogen dioxide and ozone. The index converts air pollution concentrations to a normalized number on a scale of zero to five hundred, with the National Ambient Air Quality Standard for each pollutant being assigned the value of 100.

Five descriptor words have been chosen to depict daily air quality: "good" (O-50), “moderate” (51-100), "poor" (101-200), “unhealthy” (201-300), and “hazardous” (301-500). If pollutant concentration warrants, the AQI report is expanded to include identification of the problem health effects.

Palm Beach County reports an air quality index to the general public on a daily basis as required by the Code of Federal regulations, 40 CFR, Part 58.40 Subpart E "Air Quality Index Reporting".

TABLE 1
AIR QUALITY INDEX



Source: Palm Beach County Health Department, Annual Air Monitoring Technical Report, 1995.

Air quality in Palm Beach County is in the "good" range 90% of the time and in the 'moderate' range less than 10%. "Moderate" air quality episodes of particulate matter may occur throughout the year, usually the result of heavy construction activity and dry weather. Ozone levels approaching the "moderate" range occur during the afternoon hours in spring, summer, and fall. Stagnant weather conditions may also contribute to 'moderate' level episodes. Table 1 shows the number of "good, moderate and unhealthy" days for the last ten years.

Air pollution is primarily caused by man's industrial and transportation activities. It is the undesired by-product of the technological advancement of our modern society. On the other hand, this modern society has also developed efficient methods to prevent and control atmospheric emissions of air pollutants. Emission contributions can be

classified by three main categories of air pollution: stationary, mobile, and air sources.

Mobile emissions are the primary cause of air pollution within the City of Greenacres. As the population continues to grow within the County, the number of automobiles on County roadways continues to increase, consequently the amount of pollutants entering the atmosphere increases.

C. WATER RESOURCES

1. Surface Water Systems

a) Topography and Physiographic Areas

"The Palm Beach County area can be divided into three general parts based on physiography and soils." These areas and their relationship to the City of Greenacres are identified on Map No. 5 and include:

1. the coastal ridge
2. the sandy flatlands
3. the Everglades marsh

The City of Greenacres lies entirely within the sandy flatland area of east central Palm Beach County. The nature of the flatland, as its name implies, is an area of very little change. "Most of this area has an elevation of ten (10) to twenty (20) feet above mean sea level."

b) Natural Drainage and Erosion

Because the City of Greenacres' topography varies only a few feet, drainage is usually a problem where there are no natural drainage courses. For this reason, the City is required to rely on an artificial canal network to provide adequate drainage to sustain development. The regional water management system which services the City is the Central and Southern Florida Flood Control Project which is operated by the South Florida Water Management District (SFWMD). These drainage features are further outlined in the Infrastructure Element of this plan.

Climatic action upon the flat terrain of the City has created few major surface water features. Small depressions found throughout the City often fill with water and form intermittent ponds that may link together during heavy rains to create slow moving waterways. These waterways drain into the existing canal

network system. The terrain lends little gravitational impetus to stream flow, causing few erosional changes.

c) Floodplains

The Federal Emergency Management Agency (FEMA) delineates surface water systems and the 100-year floodplain. Theoretically, there is a one percent (1%) chance of a 100-year flood occurring every year in a given location. Therefore, a 100-year flood occurring two or more years in a row is possible. Smaller floods (e.g. two year, five year, or ten-year floods) have a greater chance of occurring each year. Areas that would be inundated by the 100-year flood are designated by FEMA as "Areas of Special Flood Hazard".

Due to its substantial distance from the ocean and other major water bodies, the City of Greenacres has not been identified as a flood hazard area by the Federal Emergency Management Agency. The City is exempt from the National Flood Insurance Program. The City does actively participate in the program objectives. All recent developments comply with existing Federal and State laws related to flood prone areas.

d) Rivers, Bays, Lakes and Wetlands

Within the present limits of the City of Greenacres, there are no natural rivers, bays, lakes or wetlands identified by the Florida Department of Environmental Protection. However, several on-site water detention/retention ponds do exist among residential developments as drainage features. These areas are addressed in greater detail in the Future Land Use Element of this plan.

2. Groundwater Resources

Groundwater is the principal source of water supply for 1) municipal systems, 2) private industrial, agricultural and domestic use, and 3) maintaining the water level in lakes and streams.

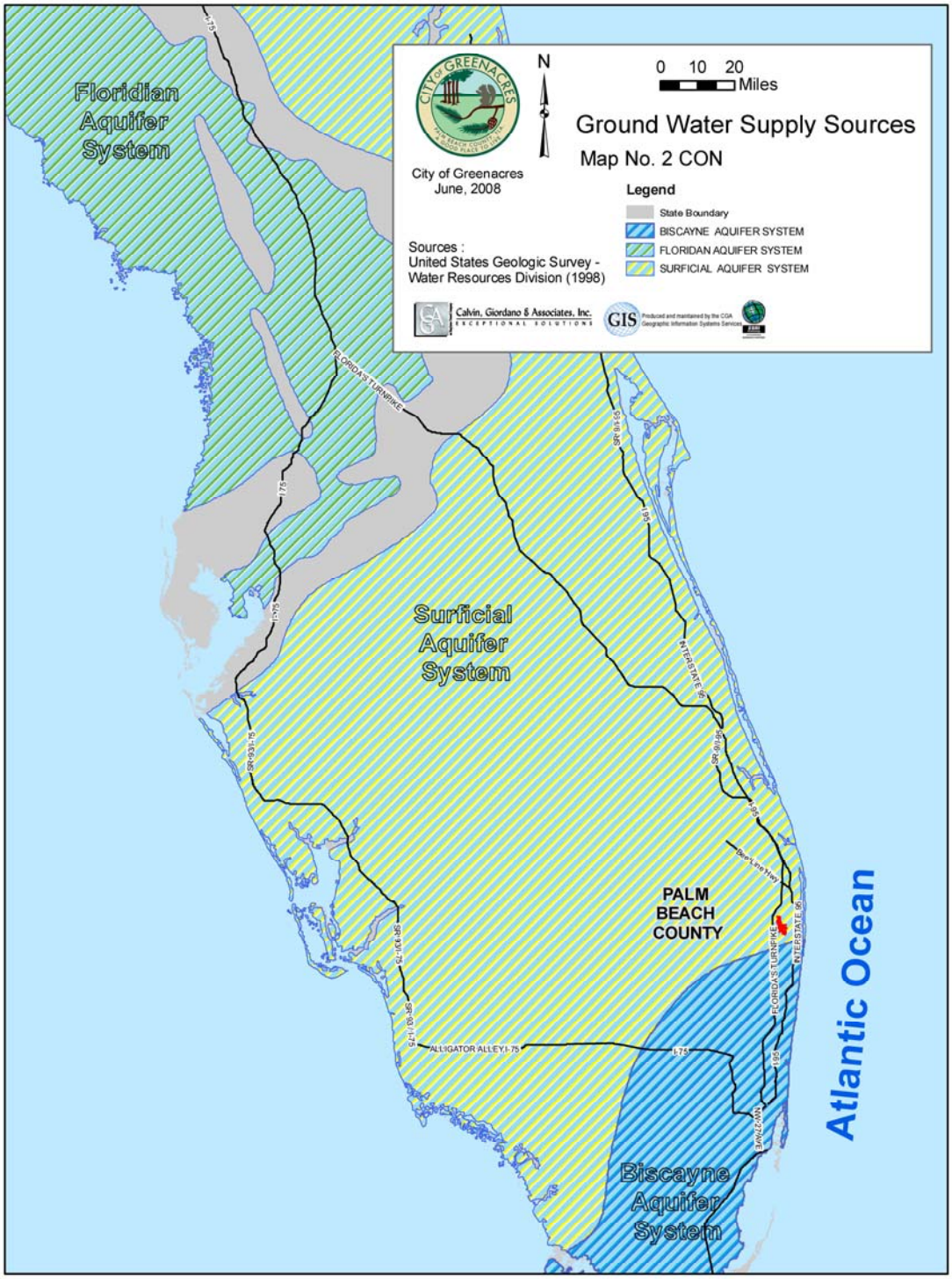
Groundwater is derived from precipitation and surface waters from streams, lakes, swamps, and ponds. This water filters into the ground where the soil is permeable, or through openings or passages in rock formations, to reach the aquifer systems. The majority of rainfall infiltrating the water table aquifer travels in a southeasterly direction from higher elevations to natural discharge areas such as lakes, streams or man-made canals. Approximately 50% of precipitation falling on the county reaches the underlying aquifer systems.

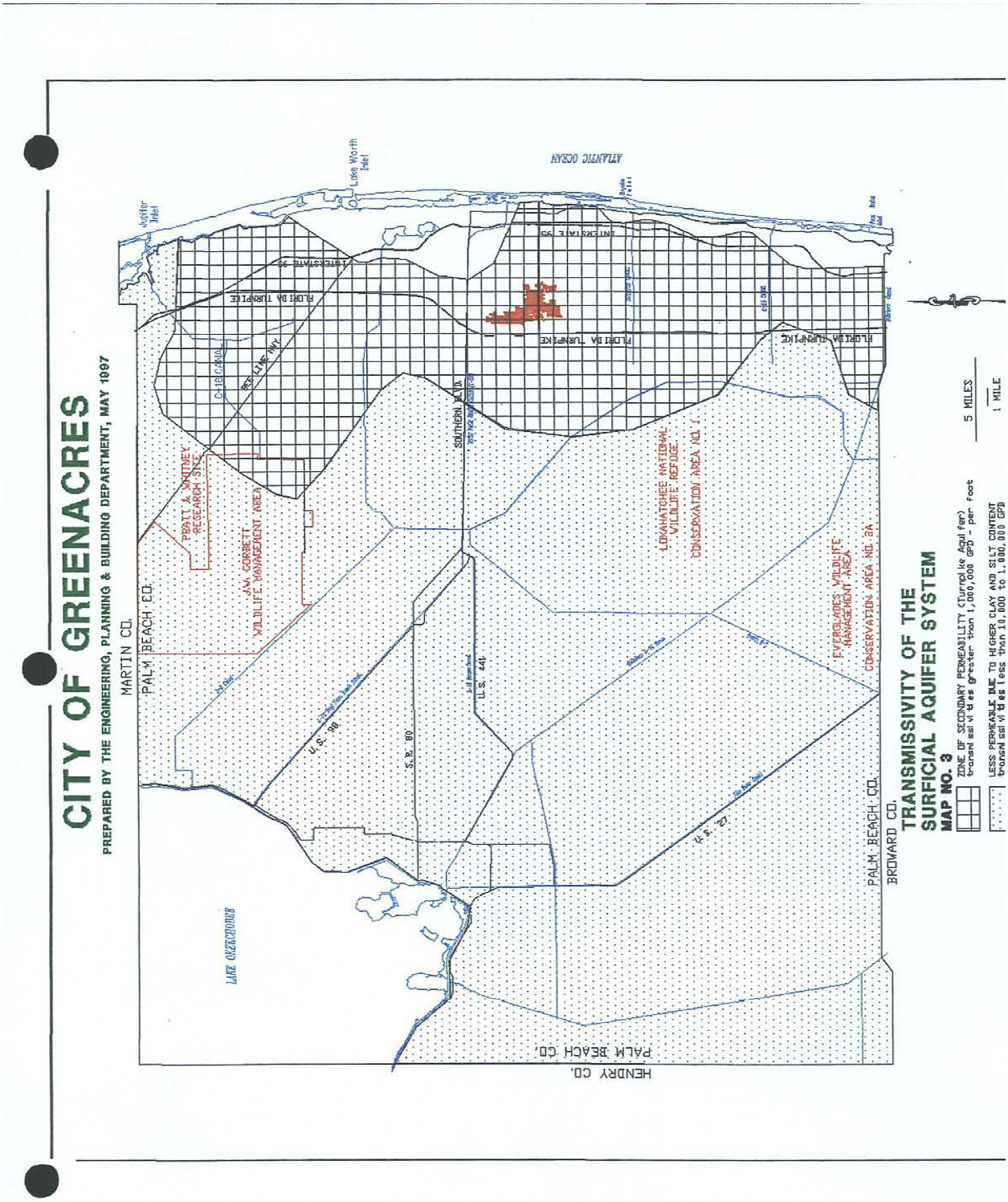
As described in the text of the Conservation Element of the Palm Beach County Comprehensive Plan (Introduction, Surface Water and Groundwater Quality and Quantity), Palm Beach County currently relies on one principal aquifer system: The Surficial Aquifer System. This aquifer contains: 1) the unconfined Biscayne Aquifer located in southern Palm Beach County and 2) the undifferentiated Water Table Aquifer located throughout the rest of the County. The Biscayne Aquifer is currently the sole source of potable water for southern Palm Beach County. It is recharged by direct infiltration of rainfall and canal inflow. In the future, the County may also rely on the Floridan Aquifer to complement future water supply needs. The Floridan Aquifer System underlies the State of Florida and portions of other states to the north and west of Florida. The Aquifer lies deep below South Florida and would require special treatment to make the brackish water in its upper layer suitable for drinking. The SFWMD's Lower East Coast Regional Water Supply Plan has suggested the Floridan Aquifer as one of the future water source options.

a) Surficial Aquifer System

"The Surficial Aquifer system provides almost all of the groundwater used in the City of Greenacres and all of Palm Beach County" and is expected to continue as the primary source of groundwater in the future.

Map No. 3, details the zone of secondary permeability (undifferentiated Water Table Aquifer) and the transmissivity of the surficial aquifer system underlying the City. Transmissivity is a measure of the ease with which water can move through an aquifer. As within the most productive portion of this aquifer, the zone of secondary permeability "This zone is composed of limestone, cemented shell, and sand stone in which the cementing materials have been dissolved to varying degrees."


Ground Water Supply Sources
Map No. 2 CON
City of Greenacres
June, 2008
N
0 10 20
Miles
Legend
State Boundary
BISCAYNE AQUIFER SYSTEM
FLORIDAN AQUIFER SYSTEM
SURFICIAL AQUIFER SYSTEM
Sources :
United States Geologic Survey -
Water Resources Division (1998)
Calvin, Giordano & Associates, Inc.
EXCEPTIONAL SOLUTIONS
GIS
Floridian Aquifer System
Surficial Aquifer System
Biscayne Aquifer System
PALM BEACH COUNTY
Atlantic Ocean
FLORIDA'S TURNPIKE
INTERSTATE 95
ALLIGATOR ALLEY I-75
NW 22ND AVE


CITY OF GREENACRES
PREPARED BY THE ENGINEERING, PLANNING & BUILDING DEPARTMENT, MAY 1997
MARTIN CO.
PALM BEACH CO.
HENDRY CO.
PALM BEACH CO.
BROWARD CO.
PALM BEACH CO.
LAKE OKEECHOBEE
ATLANTIC OCEAN
Lake Worth Inlet
Jupiter Inlet
INTERSTATE 95
FLORIDA TURNPIKE
C-18 CANAL
BEE LINE HWY
PRATT & WHITNEY RESEARCH SITE
JAY CORBETT WILDLIFE MANAGEMENT AREA
SOUTHERN BLVD.
LOXAHATCHEE NATIONAL WILDLIFE REFUGE
CONSERVATION AREA NO. 1
EVERGLADES WILDLIFE MANAGEMENT AREA
CONSERVATION AREA NO. 2A
U.S. 98
S.R. 80
U.S. 441
U.S. 27
TRANSMISSIVITY OF THE SURFICIAL AQUIFER SYSTEM
MAP NO. 3
ZONE OF SECONDARY PERMEABILITY (Turnpike Aquifer) transmissivities greater than 1,000,000 GPD - per foot
LESS PERMEABLE DUE TO HIGHER CLAY AND SILT CONTENT transmissivities less than 10,000 to 1,000,000 GPD
5 MILES
1 MILE

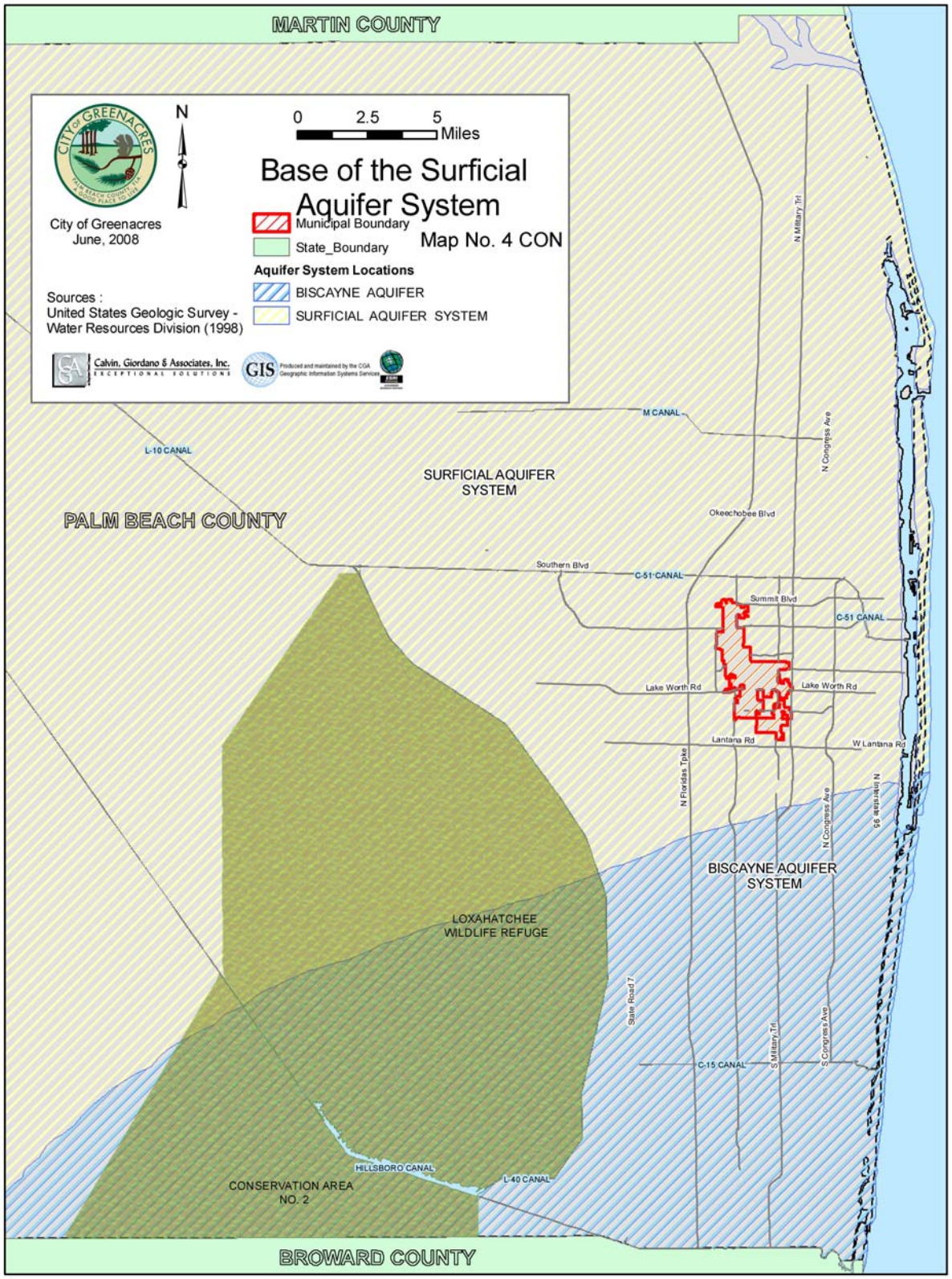
The City of Greenacres' contour elevations, referenced to by mean sea level indicates that the base of the surficial aquifer system shows a gradient decline of 290' to 260'. The base of the surficial aquifer system in the City of Greenacres is shown on Map No. 4. The origin of the base is located due west of the City at a depth of 140' feet.

Currently there are no public water supply wells within the City of Greenacres. However, just to the west of the western edge of the City, there is a well field serving Palm Beach County System No. 2 which is the source of potable water supplied to Greenacres residents.

The City has adopted a Wellfield Protection Ordinance (Ord. 88-7) that restricts land uses and regulated chemicals with zones of influence of potable water wells. This Ordinance created a permit review process through Palm Beach County and South Florida Water Management District (SFWMD) to protect and monitor our aquifer.

As of 1996, the City has engaged in the National Pollutant Discharge Elimination System (NPDES) Permit. The NPDES contains a comprehensive stormwater management program with specific requirements to address stormwater runoff from residential, commercial, industrial, and construction sites. A program to eliminate illicit discharges and improper disposal of waste is also included in the permit. The implementation of this permit will create awareness of the quality of the water entering our aquifer. Increasing water use has resulted in degraded water quality. Natural areas and other open spaces are also important as groundwater recharge areas. The preservation of recharge areas and the use of on-site stormwater retention/detention help to replenish water systems.

"Innovative and practical conservation techniques, as well as public education programs, must be utilized to conserve and provide an adequate water supply. Water conservation techniques include the use of native drought-tolerant landscaping (xeriscaping), the use of irrigation quality water reuse, limiting times of watering and the use of low flow plumbing fixtures. Public education about water conservation must be stressed at all levels."


MARTIN COUNTY
N
0 2.5 5
Miles
Base of the Surficial Aquifer System
City of Greenacres
June, 2008
Municipal Boundary
State_Boundary
Map No. 4 CON
Aquifer System Locations
BISCAYNE AQUIFER
SURFICIAL AQUIFER SYSTEM
Sources :
United States Geologic Survey - Water Resources Division (1998)
Calvin, Giordano & Associates, Inc.
GIS
M CANAL
L-10 CANAL
SURFICIAL AQUIFER SYSTEM
PALM BEACH COUNTY
Okeechobee Blvd
Southern Blvd
C-51 CANAL
Summit Blvd
C-51 CANAL
Lake Worth Rd
Lake Worth Rd
Lantana Rd
W Lantana Rd
N Military Trl
N Congress Ave
N Florida's Tpke
N Interstate 95
BISCAYNE AQUIFER SYSTEM
LOXAHATCHEE WILDLIFE REFUGE
State Road 7
C-15 CANAL
S Military Trl
S Congress Ave
HILLSBORO CANAL
L-40 CANAL
CONSERVATION AREA NO. 2
BROWARD COUNTY

D. GEOLOGIC ANALYSIS

1. Soil Formations

a) Topography and Physiographic Areas

"Palm Beach County Area can be divided into three general parts based on physiography and soils." These areas and their relationships to the City of Greenacres are identified on Map No. 5 and include:

1. the coastal ridge
2. the sandy flatlands
3. the Everglades marsh

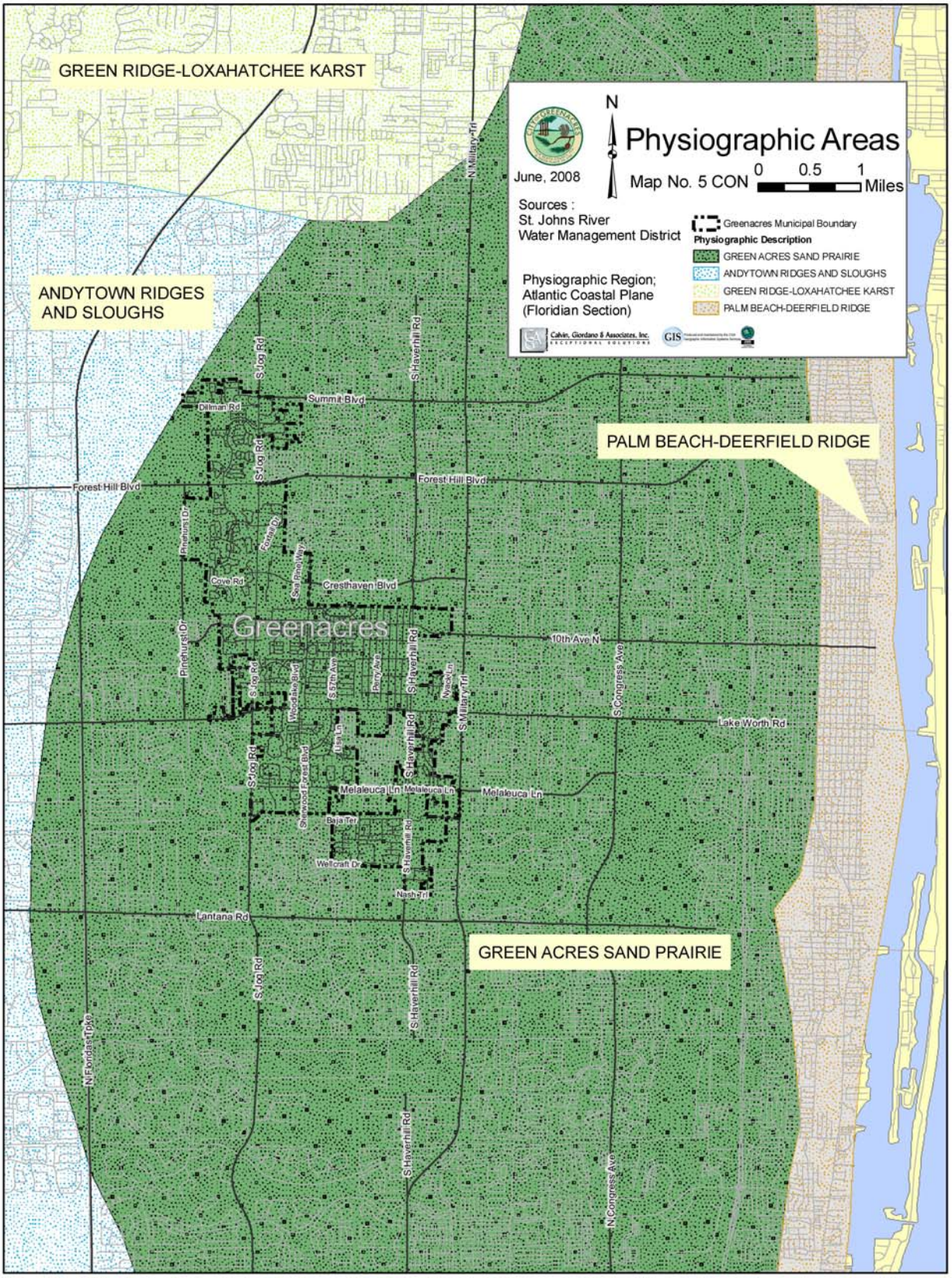
The City of Greenacres lies entirely within the sandy flatlands area of east central Palm Beach County. The sandy flatland, is an area of very little topographical change. "Most of this area has an elevation of ten (10) to twenty (20) feet above mean sea level."

The subsurface geology and the surface features of the City of Greenacres are directly related to historic fluctuations in the sea level. During the ice age of the Pleistocene Period, one million years ago, the advancing and retreating of the glaciers created tremendous fluctuations in the levels of the seas, influencing the geologic formation and topography of Florida.

The ocean currents eroded and swept much of the sand from beaches in central Florida seaward which mixed with shellfish and was deposited in an area extending from southern Palm Beach County north to St. Augustine. This deposit of sand and shell material, called the Anastasia Formation, underlies the City of Greenacres and about one-third of eastern Palm Beach County (see Map No. 6).

2. Mineral Resources

The United States Department of Agriculture, Soil Conservation Service, as well as the Florida Department of Environmental Protection have not identified any known sources of commercially valuable minerals within the City of Greenacres.


GREEN RIDGE-LOXAHATCHEE KARST
ANDYTOWN RIDGES AND SLOUGHS
PALM BEACH-DEERFIELD RIDGE
GREEN ACRES SAND PRAIRIE
Physiographic Areas
N
June, 2008
Map No. 5 CON
0 0.5 1 Miles
Sources :
St. Johns River
Water Management District
Greenacres Municipal Boundary
Physiographic Description
GREEN ACRES SAND PRAIRIE
ANDYTOWN RIDGES AND SLOUGHS
GREEN RIDGE-LOXAHATCHEE KARST
PALM BEACH-DEERFIELD RIDGE
Physiographic Region;
Atlantic Coastal Plane
(Floridian Section)
Calvin, Giordano & Associates, Inc.
Greenacres
Summit Blvd
Forest Hill Blvd
Cresthaven Blvd
10th Ave N
Lake Worth Rd
Melaleuca Ln
Lantana Rd
S Jog Rd
S Haverhill Rd
S Military Trl
S Congress Ave
N Military Trl
N Fordham Tpke
Pinehurst Dr
Dillman Rd
Cove Rd
Wedgewood Blvd
Sherwood Forest Blvd
Baja Ter
Wellcraft Dr
Nash Trl

3. Soil Erosion

Erosion factors are used to predict the erodibility of a soil and its tolerance to erosion in relation to specific kinds of land use and treatment. "The soil erodibility factor (k) is a measure of the susceptibility of the soil to erosion by water. Soils having the highest (k) values are the most erodible. K values range from 0.10 to 0.64." Factors which influence annual soil loss per acre are as follows:

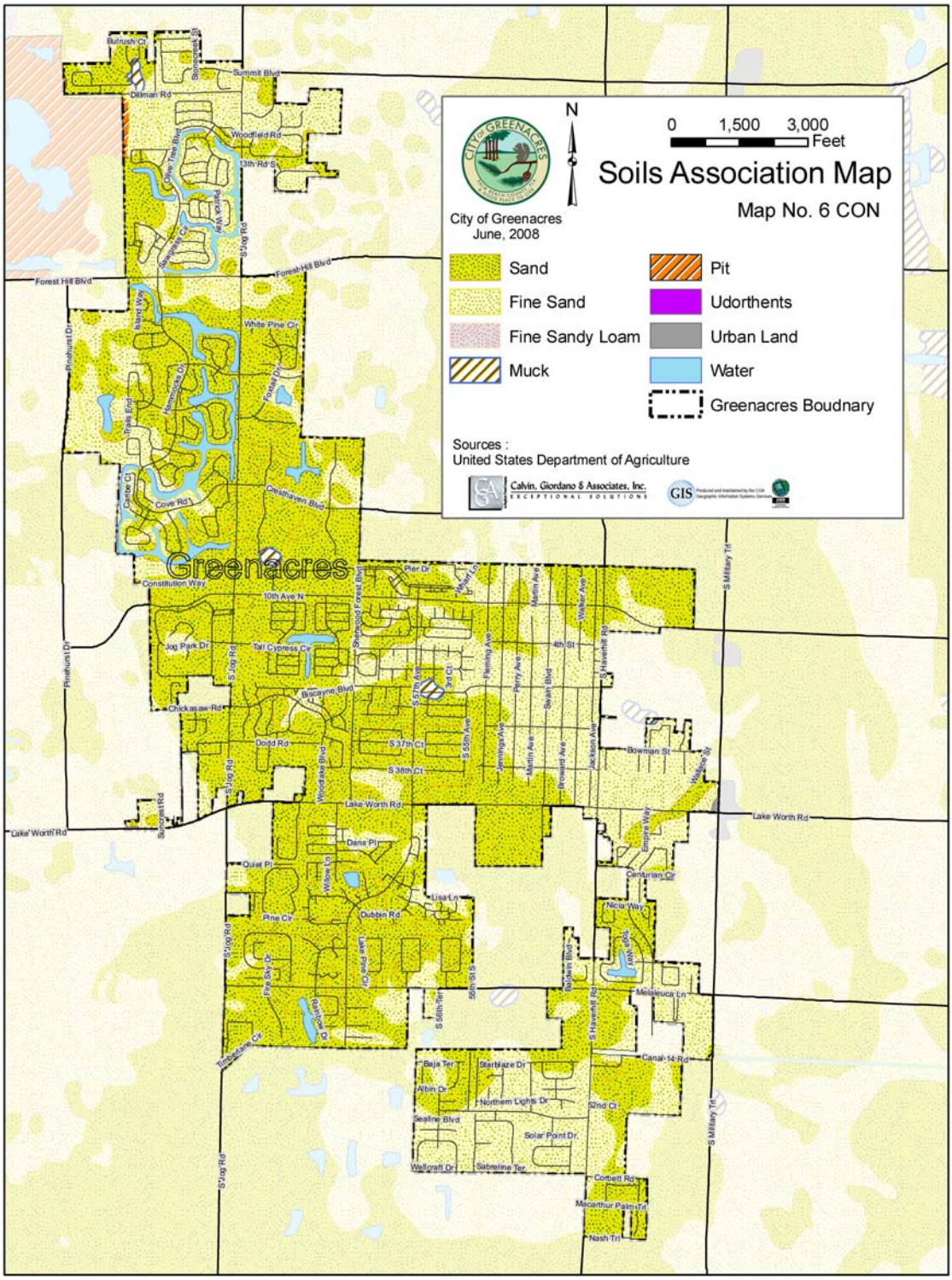
TABLE 2
SOIL EROSION FACTORS

Soil Name	Map I.D.	Permeability	Risk of Corrosion		Erosion Factors	
			Uncoated Steel	Concrete	K	T
Basinger	1	20	High	Moderate	0.1	5
Myakka	2	6.0-20	High	High	0.2	5
Riviera	3	0-28	High	High	0.17	4

Source: U.S. Department of Agriculture, Soil Conservation Service - December, 1978.

The three types of soils found in the City are Myakka, Riviera, and Basinger. The erosion factors as shown in Table No. 2 indicate that the erosion factor is low to moderate. There are no areas in the City of Greenacres known to have experienced soil erosion problems.

Soil types identified by the U.S. Dept. of Agriculture, Soil Conservation Service, in the City of Greenacres are shown on Map No. 6 and Table No. 2.


Soils Association Map
Map No. 6 CON
City of Greenacres
June, 2008
N
0 1,500 3,000
Feet
Sand
Fine Sand
Fine Sandy Loam
Muck
Pit
Udorthents
Urban Land
Water
Greenacres Boudnary
Sources :
United States Department of Agriculture
Calvin, Giordano & Associates, Inc.
EXCEPTIONAL SOLUTIONS
GIS
Greenacres
Forest Hill Blvd
Lake Worth Rd
S Military Trl
S Jog Rd
Pinehurst Dr
Summit Blvd
Woodfield Rd
Constitution Way
Jog Park Dr
Tall Cypress Cir
Biscayne Blvd
Chickasaw Rd
Dodd Rd
Bowman St
Dans Pl
Quiet Pl
Pine Cir
Dubbin Rd
Lisa Ln
Centurian Cir
Nicia Way
Melaleuca Ln
Canal 14 Rd
Baja Ter
Starblaze Dr
Albin Dr
Northern Lights Dr
Sealine Blvd
Solar Point Dr
Wallcraft Dr
Sabreline Ter
Corbett Rd
Macarthur Palm Trl
Nash Trl

E. WILDLIFE AND VEGETATIVE COMMUNITIES

1. Flora

The 2006 Evaluation and Appraisal Report indicates that the City of Greenacres consists of approximately 113 acres of vacant undeveloped land. (This does not include the City's inventory of recreation and open space sites).

Since most studies of endangered or threatened species are conducted on a regional level, it has been difficult to refine a quality study specifically for the City of Greenacres. Although no endangered plant or animal species have been identified in the City by the Florida Game and Fresh Water Fish Commission or with the United States Fish and Wildlife Service, and because of the transient nature of wildlife, Table No. 3 has been included in this element depicting those endangered or threatened species found in Palm Beach County. The Florida Natural Areas Inventory for Palm Beach County identifies animals, plants, and natural communities that are identified as imperiled.

Existing vegetative cover is typical of that found in most of South Florida away from the coast. The approximately 113 acres of vacant land in the City can be generally described as pine flatwoods. "Slash pine occupies portions of the slightly higher elevations with an understory of saw palmetto. Slightly lower areas are occupied by Melaleuca."

The invasion of the punk tree Melaleuca leucadendron, is threatening these remaining strands of pines. Because the Melaleuca tree is virtually impossible to eradicate and very difficult and expensive to control, it has been added to the list of trees not to be used in Greenacres City. The City of Greenacres Zoning Code, Sec. 16-1312 contains a complete listing of freeze sensitive and unappealing trees prohibited in the City.

The two predominant causes for loss of trees and vegetation within the City are:

1) land development and
2) disease.

2. Fauna

Conservation of ecological communities is necessary to prevent the loss of certain species and to protect threatened and endangered species. Impacts that would reduce their populations must be prevented and in some cases encourage actions that will increase their numbers.

Since most studies of endangered or threatened species are conducted on a regional level, it has been difficult to refine a quality study specifically for the City of Greenacres. Although no endangered plant or animal species have been identified in the City by the Florida Game and Fresh

Water Fish Commission or with the United States Fish and Wildlife Service, and because of the (Transient) nature of wildlife, the following Table No. 3 has been included in this element depicting those endangered or threatened species found in Palm Beach County.

TABLE NO. 3
IDENTIFIED SPECIES AND STATUS

Common Name	Designated Status Florida Game & Freshwater Fish Commission	United States Fish & Wild-life Service
Reptiles & Amphibians:		
American Alligator	S4	LT/SA)
Loggerhead	S3	LT
Green Turtle	S2	LE
Leatherback Turtle	S2	LT
Eastern Indigo Snake	S3	LT
Hawsbill	S3	LT
Gopher Tortoise	S3	C2
Atlantic Ridley	S1	LE
Florida Pine Snake	S3	C2
Florida Scrub Lizard	S3	C2
Birds:		
Florida Scrub Jay	S3	LT
Great Egret	S4	N
Little Blue Heron	S4	N
Snowy Egret	S4	N
Tricolored Heron	S4	N
White Ibis	S4	N
Florida Sandhill Crane	S2S3	N
Bald Cypress	S2S3	LE
Wood Stork	S2	LE
Yellow-crowned Night heron	S3	N
Black-crowned Night heron	S3	N
Osprey	S3S4	N
Red-cockaded Woodpecker	S2	LE

Hairy Woodpecker	S3	N
Snail Kite	S1	LE
American Redstart	S3	N
Florida Burrowing Owl	S3	N
Least Tern	S3	N
Mammals:		
Florida Panther	S1	LE
Florida Mouse	S3	C2
Sherman's Fox Squirrel	S2	C2
Manatee	S2	LE
Amphibians:		
Gopher Frog	S3	C2
Fishes:		
Striped Croaker	S2	N
Bigmouth Sleeper	S2	N
Spottail Goby	S2	N
Opossum Pipefish	S2	N
Invertebrates:		
Red Widow Spider	S?	N
Plants:		
Golden Leather Fern	S3	N
Ray Fern	S1	N
Florida Threeawn	S2	N
Curtiss Milkweed	S3	N
Four-petal Pawpaw	S1	LE
Sand Dune Spurge	S2?	N
Silver Palm	S3	C2
Large-flowered Rosemary	S3	C2
Okeechobee Gourd	S1	LE
Coastal Vervain	S2	C2
Johnson's Seagrass	S2	N
Broad-leaved Spiderlilly	S2S3	3C
Beach Jacquemontia	S1	PE
Nodding Pinweed	S3	3C
Pine Pinweed	S2	C2
Burrowing Four-o-clock	S2	N
Dancing-lady Orchid	S1	N
Hand Fern	S2	3C
Cutthroat Grass	S2	C2
Scrub Bay	S3	3C
Bahama Brake	S3	N
Beach-star	S3	N

Necklace Pod	S3	N
Coastal Hoary-pea	S1	C2
Sea Lavender	S3	N

INDEX	S1	Critically Impaired
	S2	Imperiled
	S3	Very Rare
	C1	Candidate Species
	C2	Candidate Species
	LT	Listed as Threatened Species
	LE	Listed as Endangered Species
	PE	Proposed for addition to the List of Endangered
	3B	Taxa no longer being considered because the names do not represent taxa meeting the Endangered Species Act's definition of "species".
	3C	Taxa that have proven to be more abundant than was previously believed.

SOURCE: Florida Natural Areas Inventory, March 1995

The City of Greenacres enacted Ordinance 90-42. This Ordinance called for the protection of existing trees identified as historical, valuable, endangered, or threatened. This Ordinance also calls for preservation of ecological communities, native habitats, and natural features.

3. Analysis

Partial destruction of ecological communities is caused by breaking up wildlife areas into small isolated pockets through destruction of the vegetation which serves to link the communities together. These linkages allow the movement of wildlife throughout the City, County and/or the Region. This connected "network" of habitats reduces inbreeding, provides evacuation routes during stressful environmental events, and is needed to insure the existence of certain species.

Since the current City boundary is largely developed, any ability to link ecological communities has been greatly reduced. An overarching open space/corridor linkage plan can be addressed in the future, recognizing the potential for openspace/linkages that still exist west of the current City boundary but within our future annexation area.

A map identifying the ecological communities at a scale appropriate for site specific development is not available. The best available information is based on aerial photography which depicts vegetative cover and land use. A more comprehensive inventory of the ecological communities will help to ensure that the communities are not accidentally or needlessly destroyed by development. This inventory would form the basis of management policies and guide land development regulations for the

conservation and preservation of ecological communities and endangered and threatened species.

F. FISHERIES AND MARINE HABITATS

There are no fisheries or marine habitat under public management and ownership within City limits.

Recreational freshwater fishing opportunities in the City of Greenacres are limited to drainage canals and other water management areas.

G. WETLANDS

There are no known wetlands in the current boundaries of the City of Greenacres. Based on data obtained through maps produced by the National Wetlands Inventory (NWI), the City does not contain any natural wetlands.

At the time of any site and development order, a vegetative and ecological assessment is required. If any wetlands are identified, Environmental Resources Management (ERM) with Palm Beach County would do an assessment of the property.

The City's future annexation boundaries contain some wetlands as identified on the NWI maps. The current site and development process will ensure that any needed mitigation and/or protection of wetlands will occur.

H. POLLUTION

1. Drainage

Interconnected drainage canals in the City are all controlled and regulated by the Lake Worth Drainage District (LWDD). These canals eventually flow into Lake Worth, a regionally significant water body located approximately five miles from the City of Greenacres.

Outfall structures are designed to ensure that the first 1.5 inches of runoff are retained for five days for purposes of water quality enhancement. Outfall structures also are designed such that the discharge resulting from a 25-year, 3 day storm will not exceed the allowable discharge specified by the LWDD.

There are a few specific pollution problems relating to Palm Beach County and the City of Greenacres. The Surficial aquifer is threatened from pollution due to runoff from highways and streets. Motor oil, gases, rubber and chemicals are channeled into some swale areas where it then infiltrates into the ground, tainting the aquifer. Unless corrective

measures are taken, the problem will increase and ultimately cause health and other related damages.

A storm sewer system has been developed for some areas in the City of Greenacres. The establishment of a more complete system, would aid in the diversion of water on flooded streets and avoid stagnation of water in the swales, thus helping preserve a safer aquifer.

2. Air

The topography is of primary importance whenever meteorological aspects of a given region are to be evaluated. Palm Beach County being a "flat" and semitropical region is governed by the quasi permanent location of the "Bermuda" high pressure area, which causes our prevailing easterly surface winds in addition to supplying warm moist air.

The "Bermuda" high pressure area is also responsible and capable of causing high pollution days. This atmosphere can easily occur if cold air from the north moves underneath the warm air brought into the County by the "Bermuda" high. This results in a temperature change with height which traps pollutants near the lower levels.

3. Hazardous Waste

a) Legislation

Hazardous waste is defined in Rule 9J-5.003(34), FAC, which states:

"Hazardous waste: means solid waste, or a combination of solid wastes, which, because of its quantity, concentration, or infectious characteristics, may cause, or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness or may pose a substantial present or potential hazard to human health or the environment when improperly transported, disposed of, stored, treated, or otherwise managed."

Wastes are generated not only by large industrial firms but by hundreds of small commercial operations, by various consumer services and by individual households. The management and control of the waste problems are the concern of the federal, state, county and local governments, ranging from federal laws regarding the disposal of nuclear wastes, to local regulations banning disposal of certain waste generators (Chapter 40 CFR, Part 261-265).

4. Water Use

The Surficial Aquifer is the primary source of freshwater provided to the residents of the City of Greenacres, as supplied by the Palm Beach County Water Utilities Department. No single entity has jurisdiction over the aquifer however South Florida Water Management District does permit wells and the amount of water withdrawn from the aquifer.

The approximately 62.0 inches of rainfall which falls on the City of Greenacres annually, replenishes these water resources through infiltration. The withdrawal of water from the Surficial Aquifer is restricted by permits issued by the South Florida Water Management District.

Additional information related to water use can be found in the Drainage or Potable Water Elements of this Plan.

IV. THE PLAN

These recommendations are designed to provide direction and a course for future action. Proper management and control of natural resources are essential for economic well-being and continued high quality of life.

A. AIR QUALITY

The air quality in the City of Greenacres is considered quite good, notwithstanding those minor problems outlined earlier. To ensure the continuation of good air quality, it is recommended that:

1) a plan be established to monitor current air quality; and
2) actions be initiated to assure that the air quality will not be degraded.

Greenacres will continue to assist the DEP in their Air Pollution Inventory Source (APIS) program. Additionally, the City will report suspected violations to the DEP.

The impact that future growth may have on local air quality should be considered during the approval process. Emission data for new industries should be required as part of the development review process and when issuing development orders or permits. This could help evaluate potential problems before development decisions are finalized.

Countywide land use patterns and transportation systems should be compatible with a desired level of air quality. Automobile emissions on major thoroughfares such as SR. 44l, the Turnpike and I-95 near the City of Greenacres should be monitored to maintain an acceptable air quality standard. Whenever possible,

urban land uses should be buffered from stationary and linear sources of emissions with open space. Dense vegetation can be utilized in intense industrial and commercial areas.

Facilities that house the young, elderly, and sick should be located away from emission sources. These facilities include Adult Congregate Living Facilities (ACLF), day care centers and recreation. Designs featuring planned unit development, multi-use centers and other innovative cohesive development forms should be encouraged to reduce the need to travel.

B. WATER QUALITY

In order to protect the quality of water, the City will need to:

1) carefully monitor development activities to protect natural water-cleansing features; and

2) reduce or prevent discharges of contaminants from commercial and residential land uses.

It is recommended that the City continue to implement and enforce Ordinance 93-05 the Comprehensive Stormwater Management Ordinance, establishing, monitoring and regulating of:

1) canal bank and shoreline buffer zones adjacent to surface water bodies to preserve natural vegetation, which provides filtration of future stormwater runoff;

2) general design and construction standards for on-site stormwater management systems for new development to ensure that post-development runoff rates, volumes and pollutant loads do not exceed predevelopment conditions; and

3) cooperation with Palm Beach County Department of Environmental Resources to implement the Wellfield Protection Ordinance.

C. PROTECTING ALL ECOLOGICAL COMMUNITIES

In conjunction with acquisition of ecological communities most in need of preservation, the City should recommend as part of the land development regulations, provisions to conserve ecological communities. Such provisions would address the need to:

1) preserve the most sensitive portions of the community;
2) provide for a development plan which promotes clustering of dwelling units away from sensitive portions of the ecological community;
3) provide for adequate Greenspace/Open Space areas within the development; and
4) provide for buffering adjacent to the ecological community.

D. MAINTAINING A NATURAL AREAS NETWORK

A natural areas network can enhance the movement of wildlife throughout the region. A management plan should be developed to guide future acquisitions develop strategies to maintain and conserve natural areas and establish coordination and support from private landowners and governmental agencies. Also, cooperative efforts with landowners should be pursued to encourage voluntary protection of the natural area network.

The City will strive to maintain and conserve natural areas through the implementation of the landscape code.

E. PROTECTING ENDANGERED SPECIES

Greenacres' species having protection status designated by the state and federal government, should be evaluated for appropriate protective status. The City should develop performance standards in its land development regulations to protect species-specific habitats by regulating building in or near these areas. The performance standards should be similar to those for ecological communities.

The City should assist the state and federal agencies responsible for enforcing regulations concerning rare and endangered species.

On those lands that are privately owned, landowners should be encouraged to use the best management practices in leaving the species' most desirable habitats.

F. WATER CONSERVATION

As indicated previously, the principal water conservation opportunities available to the City involve maximizing the use of existing sources and supplies as well as eliminating unnecessary uses. The City will implement the water shortage plan developed by the SFWMD when necessary. The City of Greenacres will continue to work with the LWDD and the SFWMD to develop a water conservation plan which adequately meets the needs of the City of Greenacres.

G. HAZARDOUS WASTE MANAGEMENT

1. State Level

Statewide regulations which affect the handling of hazardous waste generated in Greenacres are managed through the Florida Department of Environmental Protection (DEP) as contained in Chapter 17-7, Florida Administrative Code (FAC). In addition, the Florida Resource Recovery and Management Act (Sec. 403.7, F.S.), which was passed in 1980, adopted federal guidelines and directed DEP to develop and implement a hazardous waste management program. This act provided for:

1) adoption of federal hazardous waste definitions;
2) a system to monitor hazardous waste from generation to disposal;
3) an annual inventory of large hazardous waste generators;
4) permit requirements regulating treatment, storage and disposal of hazardous waste;
5) funds for hazardous waste spill and site clean-up;
6) hazardous waste management facility site selection procedures; and
7) fines and penalties for violators.

Amendments to the Florida Act in 1983 provided directions and funds to establish a cooperative hazardous waste management program between local, regional and state levels of government. These changes included provisions for county levels of hazardous waste management assessments, regional and statewide facility needs assessments, and site selection for hazardous waste management facilities at the county, region and state levels.

The Solid Waste Authority, together with the Treasure Coast Regional Planning Council, completed the Hazardous Waste Management Assessment in May, 1985 by interlocal agreement.

2. Local Level

Hazardous waste, as defined in this element, cannot be finally disposed of in Palm Beach County, but must be transferred to a federally qualified hazardous waste disposal facility or be recycled The Palm Beach County Health Department has the responsibility of ensuring that any producer of hazardous waste over 25 kilograms (55 lbs) a month are inspected and permitted. Producers of hazardous waste under 25 kilograms a month are inspected but are not required to obtain an additional permit from Palm Beach County Health Department.

The transfer facility which handles the potential hazardous temporary waste storage for the City of Greenacres is the North County Regional Resources Recovery Facility identified in the Solid Waste Sub-Element of this Plan.

H. CURRENT AND PROJECTED WATER NEEDS

According to the Palm Beach County Water Utilities Department, the supplier of drinking water to the City of Greenacres, the demand per capita is 126 gallons per day. By applying this rate to the projected population for the City, water use can be projected through the year 2025. Table 4 gives a summary of these projections. Additional information can be found in the Water Supply and Potable Water sub-element of the Infrastructure Element of the Greenacres Comprehensive Plan.

TABLE 4
PROJECTED POTABLE WATER USE

Year	Population	Rate (gpd) (3)	Total Usage (annual gallons)
2007	32,105 (1)	126	1,476,508,950
2010	32,688 (2)	126	1,503,321,120
2015	33,718 (2)	126	1,550,690,820
2020	35,926 (2)	126	1,652,236,740
2025	36,105 (2)	126	1,660,468,950

Source: (1) April 1, 2007 estimate by University of Florida Bureau of Economic and Business Research (BEBR).
(2) Palm Beach County Planning Division Allocation Model of March 2008 BEBR projections.
(3) Palm Beach County Water Utilities Department April 11, 2008 Water Supply Work Plan, Table 6-1.

I. NATURAL DISASTERS

1. Overview

The City of Greenacres is not located in a coastal zone or identified by the Federal Emergency Management Agency (FEMA) as a flood prone area. Because of the existing and continued possibility of the occurrence of emergencies of unprecedented size and destructiveness resulting from natural causes, the need to address these issues still exists.

In 2004 and 2005, 3 hurricanes directly affected Palm Beach County (Hurricanes Frances, Jeanne and Wilma). Busy hurricane seasons are predicted for the coming years as we enter an active cycle. Palm Beach County has full responsibility for coordination of all evacuation procedures during a natural disaster through the "Palm Beach County Peacetime Emergency Plan." The Emergency Management Division is the county entity responsible for the coordination of the evacuation of the population at risk during a hurricane event.

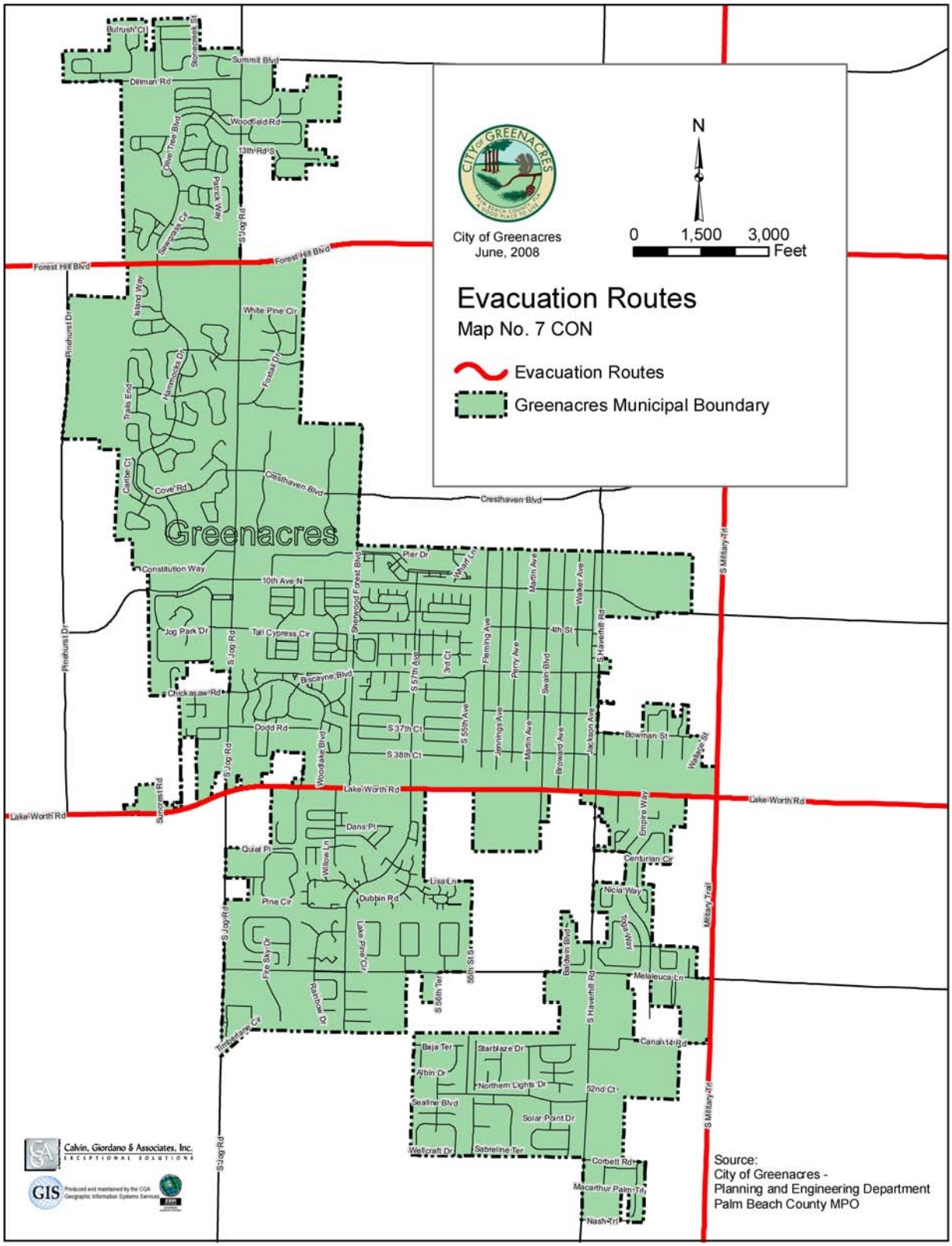
2. Shelters

A Memorandum of Understanding exists between the State of Florida and the American Red Cross. The American Red Cross assumes the responsibility for opening and staffing all hurricane shelters required to provide refuge for those who must evacuate during a hurricane event. Hurricane shelters are not opened automatically at the issuance of a hurricane warning by the National Weather Service. Announcements on openings of Red Cross shelters are made by the Emergency Management Division (the old Civil Defense) on all TV and radio stations.

There are two Red Cross shelters within the City of Greenacres. They are John I. Leoanard High School at 4701 10th Avenue North and Heritage Elementary School at 5100 Melaleuca Lane.

3. Evacuation Routes

In order to provide for the safety of the general public during a hurricane event, the County provides evacuation routes and shelter spaces so that an evacuation time standard of eight daylight hours and ten hours during darkness is met. In an effort to protect life and property and to reduce evacuation times, the County has established criteria for the elimination of hazardous tree fall conditions along identified hurricane evacuation routes that are County-owned or County-maintained. Additionally, Palm Beach County has the responsibility of updating its Peacetime Emergency Plan in order to reflect the rapid growth rate. Map No. 7 identifies the presently approved evacuation routes with required traffic control points, which would affect the residents of the City of Greenacres.


City of Greenacres
June, 2008
N
0 1,500 3,000
Feet
Evacuation Routes
Map No. 7 CON
Evacuation Routes
Greenacres Municipal Boundary
Greenacres
Forest Hill Blvd
Lake Worth Rd
S Jog Rd
S Military Trl
Cresthaven Blvd
Summit Blvd
Dillman Rd
Woodfield Rd
13th Rd S
Pinehurst Dr
Constitution Way
10th Ave N
Jog Park Dr
Tall Cypress Cir
Biscayne Blvd
Chickasaw Rd
Dodd Rd
S 37th Ct
S 38th Ct
Woodlake Blvd
Sunset Rd
Dans Pl
Quiet Pl
Pine Cir
Dublin Rd
Lisa Ln
Five Sky Dr
Rainbow Dr
Timberlane Cir
Baja Ter
Albin Dr
Starblaze Dr
Northern Lights Dr
Sealine Blvd
Solar Point Dr
Wellcraft Dr
Sabreline Ter
52nd Ct
Corbett Rd
Macarthur Palm Trl
Nash Trl
Melaleuca Ln
Canal 14 Rd
Nicia Way
Centurian Cir
Empire Way
Bowman St
Wallace St
Calvin, Giordano & Associates, Inc.
EXCEPTIONAL SOLUTIONS
GIS
Source:
City of Greenacres -
Planning and Engineering Department
Palm Beach County MPO

V. GOALS, OBJECTIVES AND POLICIES

A. GOAL: The City of Greenacres shall conserve, protect and appropriately manage the natural resources of the City of Greenacres to ensure the highest possible environmental quality.

A.1 AIR QUALITY OBJECTIVE AND POLICIES

Objective 1

The City shall work cooperatively with Palm Beach County in meeting the air quality levels established by DEP.

Policy a)

Facilitate efforts of the Air Pollution section of the Palm Beach County Public Health Department and the Florida Department of Environmental Protection to administer the Air Pollution Inventory Source Program and to identify emissions violators within the City.

Policy b)

Reduce the potential for automobile emission pollution by:

1) increasing the volume of vegetation along arterial roadways; and

2) promoting alternative transportation such as car pooling, public transit and bicycle and pedestrian paths.

Policy c)

Continue to work with Palm Beach County Health Department to ensure required permits are obtained by all businesses in the City.

Policy d)

Work with County and State agencies to establish development review procedures which eliminate or mitigate adverse atmosphere pollution impacts on or from the City of Greenacres.

A.2 WATER QUALITY OBJECTIVES & POLICIES

Objective 2

The City of Greenacres shall work cooperatively with Palm Beach County, South Florida Water Management (SFWMD), and Lake Worth Drainage District (LWDD) in protecting

the quality and quantity of current and projected water sources that flow into estuarine and/or oceanic waters and in conserving water resources.

Policy a)

Continue to require developments to obtain Environmental Resource Permits (ERP) addressing water quality and quantity for compliance with all State regulations as a condition for development approval pursuant to Chapter 373 F.S. and Chapters 40E-4, 40, 41, 400 F.A.C.

Policy b)

Promote and actively seek the planting of desirable vegetation along drainage features to act as cleansing agents for the water through the use of upland buffer and littoral plantings.

Policy c)

Cooperate with Palm Beach County, South Florida Water Management District and Lake Worth Drainage District to impose and enforce protection measures and to monitor contamination levels and flow rates in order to maintain or improve the quality and quantity of water resources in the City for consumption, aesthetic and recreational purposes.

Policy d)

Continue to ensure that development complies with the provisions of the Palm Beach County Wellfield Protection Ordinance.

Policy e)

Seek opportunities through the development review process, Intergovernmental Plan Amendment Review Committee (IPARC), Metropolitan Planning Organization (MPO) and interlocal agreements to conserve, appropriately use and protect subsurface water quality and supply.

Policy f)

Discourage withdrawal of subsurface water in excess of recharge and replenishment capabilities through continued cooperation with the South Florida Water Management District (SFWMD).

Policy g)

Meet on a regular basis with representatives of the Palm Beach County Water Utilities Department, South Florida Water Management District, and Lake Worth Drainage District to discuss issues of mutual concern, including water quality and quantity issues.

Policy h)

In accordance with the City's Ordinance No. 85-27, the City shall continue to implement the water shortage plans of the South Florida Water Management District.

Policy i)

To conserve water resources, the City shall continue to implement the rainfall sensor requirement for all new irrigation systems in accordance with City Ordinance No. 90-42.

Policy j)

The City of Greenacres shall continue the implementation of the provisions of the City's Landscape Code that require proper plant selection and siting, preservation of existing native vegetation, use of native plants, xeriscaping, efficient irrigation systems, and appropriate maintenance procedures.

Policy k)

The City of Greenacres shall support Palm Beach County Water Utilities Department's efforts to encourage the continuation of existing water conservation programs as directed by various public and private agencies and organizations through the distribution of information provided by those entities.

Policy l)

The City of Greenacres shall support Palm Beach County Water Utilities Department's prohibition of water-only meters used strictly for irrigation, where reasonable alternative irrigation sources exist.

Policy m)

The City of Greenacres shall support Palm Beach County Water Utilities Department's efforts to promote water conservation through the use of increasing block utility rate structures.

Policy n)

The City of Greenacres shall support Palm Beach County Water Utilities Department's efforts to use innovative alternative technologies to augment water resources including: conventional reclaimed water irrigation piping systems, constructed wetlands, aquifer storage and recovery (ASR), groundwater recharge, and indirect reuse systems.

Policy o)

In the event that irrigation quality reclaimed water becomes available adjacent to or within the City of Greenacres, the City shall cooperate with Palm Beach County Water Utilities Department to create a Mandatory Reclaimed Water Service Area, as described in Policy 2.1-b of the Palm Beach County Comprehensive Plan, to encourage the use of reclaimed wastewater for irrigation.

Policy p)

To protect the water resources of the City and Palm Beach County, the City hereby adopts Chapter 62-25 F.A.C. as water quality standards for stormwater discharge.

Policy q)

The City shall continue to participate in the National Pollutant Discharge Elimination System (NPDES) permit program as authorized by the Clean Water Act, which controls water pollution by regulating point sources that discharge pollutants into Florida waters.

A.3 LAND, SOILS, MINERALS - OBJECTIVE AND POLICIES

Objective 3

The City of Greenacres shall regulate and control all activities which affect the surface of the land and the minerals beneath the land's surface.

Policy a)

Base land use decisions, in part, on consideration of the limitations, capabilities and potential of the soils.

Policy b)

Consider the merits and needs, in the future, of guiding new urban and residential development to areas with suitable soils.

Policy c)

Encourage conservation and protection of areas suitable for mineral extraction, and encourage land alteration techniques that control and minimize erosion if at some future time these issues are deemed to be a matter of concern.

Policy d)

Remove invasive exotic vegetation (e.g., Brazilian Pepper, Melaleuca and Australian Pine) in such a manner to minimize seed dispersal of such species, according to the following:

1) Privately owned lands at the time of development or redevelopment, as a condition of development approval, or sooner when voluntary service may be offered; and

2) Publicly owned lands at the time of development, or sooner when economically feasible.

Policy e)

Continue to require a written assessment of the ecological and/or environmental impacts of any new development, including a soil suitability analysis, as part of the development approval process.

Policy f)

Continue to provide credit for preservation of native, historic, unique, endangered or threatened trees.

Policy g)

Continue to promote and actively seek clustering and other innovative development techniques to protect native, rare and unique natural features.

Policy h)

Continue to implement and enforce Ordinance 94-04 of the Land Clearing and Grubbing Code to prevent unauthorized land clearing to protect natural vegetative communities.

Policy i)

Continue to require native species to satisfy at least 50% of the required tree count as a condition of site plan approval.

Policy j)

Continue to coordinate with various agencies through the Intergovernmental Plan Amendment Review Committee (IPARC) and the Treasure Coast Regional Planning Council (TCRPC).

A.4 NATURAL ENVIRONMENTS OBJECTIVES AND POLICIES

Objective 4

Develop the City of Greenacres in a manner consistent with the maintenance of ecological communities and the capabilities of the natural environment.

Policy a)

Obtain and apply current environmental information which identifies opportunities and constraints to the distribution of land use and development.

Objective 5

Provide proper planning and management of the natural resources, including the conservation and protection of wildlife and habitats of wildlife and marine communities and wetlands.

Policy a)

Create awareness regarding environmental problems and issues related to the City of Greenacres.

Policy b)

Seek the assistance of the Florida Game and Freshwater Fish Commission, IPARC, and other state, county and local agencies during the process to identify significant ecological communities and wetlands, and strengthen the City's regulations regarding the construction, appropriate use or protection of such sites.

Policy c)

Support legislation which serves to enhance the natural environment when consistent with other development goals.

Policy d)

Develop the local enforcement of regulatory controls in special areas of environmental concern such as hazardous waste management, flood prone areas,

recreational water bodies, native vegetation areas, major waterways, wetlands and other environmentally sensitive areas.

Policy e)

The City will continue, through its land development regulations, to enforce open space and retention basin requirements for new developments in order to maximize percolation and filtration of water runoff through the earth's surface.

Policy f)

To protect the City's natural resources, the City hereby adopts the South Florida Water Management District basis of review for Environmental Resource permit applications to ensure the protection of natural systems including wetlands in accordance with Chapter 40 E-4.205 through 40E-4.451 F.A.C

Objective 6

The City of Greenacres shall continue to require proposed developments to provide flood protection measures to safeguard human life and welfare in accordance with the adopted levels of service.

Policy a)

The City should continue to monitor the latest land use control criteria relating to flood prone development for possible inclusion in the existing zoning ordinance, subdivision regulations or other applicable development codes.

VI. NOTES

1. Florida Dept. of Community Affairs, Chapter 9J-5, F.A.C. Minimum Criteria For Review of Local Government Comprehensive Plans and Determination of Compliance.

2. Florida Department of Environmental Regulation, Florida: State of the Environment.

3. State of Florida, Florida Statutes, Chapter 372.

4. State of Florida, Florida Statutes, Chapter 373.

5. Palm Beach County Comprehensive Plan - 1989, Coastal Zone Management, HURRICANE EVACUATION.

6. Draft amendment to the EAR based on the Palm Beach County Conservation Element of the Comprehensive Plan.

7. Palm Beach County Health Department, Division of Environmental Science and Engineering, Annual Report 1995.

8. Palm Beach County Wellfield Protection Ordinance.

9. Federal Emergency Management Agency, LETTERS TO THE CITY OF GREENACRES.

10. S.F.W.M.D., Water Resources Data and Related Technical Information to Assist Local Government Planning In Palm Beach County, July 30, 1987.

11. S.F.W.M.D., District Water Management Plan, Vol. 1, April 1995.

12. South Florida Water Management District, Xeriscape Plant Guide, 1987.

13. South Florida Water Management District, Chapter 40E-21, Water Shortage Plan.

14. U.S. Dept. of Agriculture, Soil Conservation Service, Soil Survey of Palm Beach County Area, Florida.

REVISION HISTORY

September 15, 2008	Ord. 2008-03
December 1, 2008	Ord. 2008-19