



CITY OF MIAMI GARDENS

COMPREHENSIVE DEVELOPMENT MASTER PLAN

CONSERVATION ELEMENT

DATA, INVENTORY AND ANALYSIS

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CHAPTER IV – CONSERVATION ELEMENT DATA, INVENTORY AND ANALYSIS

City of Miami Gardens is a landlocked community nestled between a network of highway systems. Although the City boasts of sixteen local parks, two county parks, two major South Florida Water Management District canals and other minor canals and water bodies, there are no known wetlands, conservation areas or natural resources within the City. Pursuant to the requirements set forth in Florida Statutes and Florida Administrative Rule 9J-5, the Conservation Element Data, Inventory and Analysis talks about the natural resources existing within the City.

A. INVENTORY OF NATURAL RESOURCES

1. Air Quality Inventory

Air pollution is generally not a significant threat to the residents of Miami Gardens. Miami-Dade County Department of Environmental Resources Management (DERM) has 13 active ambient air quality monitoring stations; none of which are located in the City of Miami Gardens. See **Map CON IV-1**, Air Monitoring Sites Map.

The Air Quality Index (AQI) was developed by the Environmental Protection Agency (EPA) to provide accurate and easily understandable information to the community about daily air pollution levels. The AQI provides EPA with a uniform system of measuring pollution levels for the major air pollutants regulated under the Clean Air Act (CAA). The Clean Air Act of 1970 defined six criteria pollutants and established ambient concentration limits to protect public health and welfare. The criteria pollutants are (1) ozone, (2) carbon monoxide, (3) nitrogen dioxide, (4) particulates, (5) sulfur dioxide and (6) lead. See **Table CON IV-1** for EPA's Six Criteria Pollutants and their Corresponding Standards. Based on these criteria and the standards set by the CAA, the Florida Department of Environmental Protection (DEP) has rated the air quality throughout Miami-Dade County as good, which reflects the City of Miami Gardens' air quality as good overall.

2. Surface Water Quality Inventory

The City has two primary canals namely Canal C-9 or Snake Creek Canal and Canal C-8 or Biscayne Canal. Both are maintained and operated by South Florida Water Management District (SFWMD). Secondary canals within the City route secondary Stormwater drainage to the primary canals. Secondary canals include the Calder Canal, Carol City Canal A, Carol City Canal B, East Andover Canal, Lake Lucerne Canal, North Dade Golf Canal, NW 22nd Street Canal, Red Road Canal and West Andover Canal for C-9 and the NW 17th Avenue Canal for C-8. Surface water within the City of Miami Gardens is generated and monitored through the results of man-made drainage systems. The majority of the City is located within the C-9 Drainage Basin comprised of canals,

including the C-8 and C-9 canals. The goals, objectives and policies in this Element address the issue of surface and ground water quality to ensure that adequate regulations are maintained and enhanced.

3. Water Bodies and Wetlands Inventory

There are several water bodies in the City that are depicted on **Map FLU I – 5**. These are basically canals and ponds associated with drainage ways, creeks or drainage retention areas.

Wetlands are characterized by vegetation and animal life that is uniquely adapted to the natural fluctuations of wet and dry conditions between the open waters of streams, lakes and the adjacent wetlands. No known wetlands exist within the City of Miami Gardens per Miami-Dade County Department of Environmental Resources Management.

4. Uplands Inventory

Uplands are generally described as the grounds above a floodplain. This area of land is a zone sufficiently above and/or away from transported waters as to be dependent upon local precipitation for its water supplies. Based on this definition, there are no known uplands existing within the City of Miami Gardens. The surface features within the City are largely of marine or coastal origin with subsequent erosion and modification by non-marine waters. The features include: flat, gently sloping plains, shallow water-filled depressions, elevated sand ridges, and a limestone archipelago. The elevations of the ridges and plains are related to former higher stands of sea level. Some ridges were formed above the level of these higher seas as beach ridges while the plains developed as submarine shallow sea bottoms.

5. Ground Water Inventory

City of Miami Gardens has a high groundwater table characteristic of the Biscayne Aquifer. The Stormwater Master Plan shows groundwater table elevation data obtained from the South Florida Water Management District which is calculated based on groundwater well datasets. See **Map CON IV-2**, City of Miami Gardens Wet Season Groundwater Table Elevations.

In 1997, Miami-Dade County added the Norwood wellfield to increase the existing network to sixteen (16) additional monitoring wells. Sampling at the wellfields is conducted three (3) times per year. See **Table CON IV-2**, Wellfield Monitoring Program Summary 1995-2002, for detailed information regarding the Norwood/Offler Program.

6. Floodplains Inventory

The Federal Emergency Management Agency (FEMA) administers the National Flood Insurance Program, which includes the creation of the Flood Insurance Rate Map (FIRM). The FIRM shows that a major portion of Miami Gardens is considered an Area of Special Flood Hazard inundated by a 100-year flood (1% annual flood). Other major portions of the City are considered to be areas of 500-year flood (0.2% annual chance

flood; areas of 1% annual chance flood with average depths of less than one foot or with drainage areas of less than 1 square mile). Remainder of the City is considered to be outside the 0.2% annual chance floodplain. Please see **Map FLU I - 5**, FEMA Flood Zones, for a visual representation of the flood zones within the City of Miami Gardens.

7. Mineral Resources Inventory

The surface features of the City are largely of marine or coastal origin with subsequent erosion and modification by non-marine waters. The topography consists mainly of flat, gently sloping plains, shallow water-filled depressions, elevated sand ridges and a limestone archipelago. There are no active mining operations within the City, nor are there any known sources of mineral deposits.

8. Soil Erosion

The City of Miami Gardens is a land locked community. Since it is not located along the Atlantic Coast soil erosion is not an acute issue with the City. Also, the topography of the City is relatively flat with gentle slopes and plains and as such has minimal effect on the soil.

9. Biological Natural Resources Inventory

There are no existing tree canopy studies for the City of Miami Gardens. However, the City has a program called Keep Miami Gardens Beautiful (KMGB) that is responsible for working with the community to promote Environmental Education, Litter Reduction and Beautification efforts. This is accomplished through the efforts of community volunteers. The City has included relevant objectives and policies in the Recreation and Open Space and Conservation Elements to further Protect and enhance the City's tree canopy environmental resource.

No known plant or animal studies have been completed for the City of Miami Gardens. **Exhibit CON IV-1** and **Exhibit CON IV-2** identify all of the endangered, threatened plant species of special concern that are native to Miami-Dade County, which may be present in the City. All development applications are required to certify that no known endangered, threatened and plant species of special concern are present on site and to obtain all required permits from the proper environmental agencies.

Miami Gardens has no known environmentally valuable wildlife habitats as per the United States Fish and Wildlife Service, the Florida Game and Freshwater Fish Commission and Miami Dade County Department of Environmental Resources Management.

10. Potable Water Sources and Current Demand Inventory

At the date of this writing, potable water was a pressing issue for all local governments in Miami Dade County. As such, the City of Miami Gardens recognizes that there is a question regarding the difference or impact upon facilities and services between the City's new Plan contained herein, and Miami Dade County's existing Plan. Given that

there are differences between the proposed City and the existing County plans, will the City's plan generate more or less development potential, and, in this case, more or less demand upon water usage? To answer that question, a comparison analysis of development potential for uncommitted vacant land is provided in the Future Land Use Element's Data and Analysis section. Calculations of uncommitted vacant land development potential for both the proposed City and the existing County plans illustrate that there is negligible difference between the two plans: 70 dwelling units. Therefore, the City of Miami Gardens' new Comprehensive Development Master Plan neither increases nor decreases the impact of development upon capital facilities and urban services in an appreciable manner.

Potable water provided to Miami Gardens is distributed through Miami-Dade County Water and Sewer Department (WASD), the City of North Miami Beach Public Services Department (NMB) and the City of Opa-Locka. The Biscayne Aquifer is the source of potable water in Miami-Dade County with approximate 347 million gallons per day (MGD) withdrawn from the aquifer to meet the demands of the entire County. Based on year 2005 data from Miami-Dade County, **Table INF III-7** shows that the Hialeah-Preston Plant has a capacity of 225 MGD through the year 2016. The City of Miami Gardens also receives water service from City of North Miami Beach from the Norwood Water Treatment Plant, located at 19150 NW 8th Avenue within Miami Gardens. Based on year 2000 data, the North Miami Beach treatment system at the Norwood Treatment Plant has a permitted annual daily capacity of 15 MGD. The facility is undergoing expansion plans to increase its capacity to 32 MGD through year 2006. The City of Opa-Locka is the third entity that provides water service to City of Miami Gardens. The total storage capacity of that system is 1.7 MGD (City of Opa-Locka Comprehensive Plan). It should be noted that, although the City of Opa-Locka owns and operates the facilities for the distribution of water, Miami-Dade County supplies the water commodity.

In that regard, the City of Miami Gardens will replace the existing Miami Dade County Plan. One question regards the difference between the two plans upon facilities and services including but limit to transportation, water, sewer, and solid waste. Given that there are differences between the proposed City and the existing County plans, will the City's plan generate more or less development potential? To answer that question, a comparison analysis of development potential for uncommitted vacant land is provided in the Future Land Use Element's Data and Analysis section. Calculations of uncommitted vacant land development potential for both the proposed City and the existing County plans illustrate that there is negligible difference between the two plans: 70 dwelling units. Therefore, the City of Miami Gardens' new Comprehensive Development Master Plan neither increases nor decreases the impact of development upon capital facilities and urban services in an appreciable manner.

B. ANALYSIS OF NATURAL RESOURCES

1. Air Quality Analysis

The closest monitoring site to Miami Gardens is for PM 2.5 (particulate matter 2.5 microns or less in size) located at 7700 NW 186th Street. The site is sampled once every three days. The closest ozone site is on Virginia Key with a second site located near SW 195th Street and Old Cutler Road. In 2005, Miami-Dade County did not have any issues of ozone exceedances. While there were exceedances of the 0.085 PPM (primary particulate matter) standard for 8-hour, the actual code states that in order for the site to be considered in attainment, the three year average of the fourth highest 8-hour average must be less than 0.085 PPM. This has not happened since this new standard went into effect in 1998.

As mentioned earlier, the air quality in the City is considered good by the Florida Department of Environmental Protection. There are two major industrial parks located just south of the Palmetto Expressway corridor that operate with wholesale manufacturing and retail uses. As such, there are no heavy industrial uses operations in the City and the only threat to air quality is the general use of automobiles.

2. Surface Water Quality Analysis

There are a number of water bodies in the City in particular the lakes and canals that are used by residents for passive recreation and fishing. Water quality analysis for the City shows that both the C-8 and C-9 canals are impaired for fecal coliforms. The C-9 canal is also impaired for chlorophylla, which is a proxy for algae formation. This indicates a high presence of nitrogen, phosphorous and nutrients. Total maximum daily load (TMDL) impairment conditions were determined by using data from water quality stations located outside of Miami Gardens. However, it is the conditions measured at these sampling stations that also reflect the condition of the canals within the City. See **Map CON IV-3** City of Miami Gardens Water Quality Stations for locations of those stations.

The most significant threat to water quality in the City is stormwater runoff. The City of Miami Gardens is nearing build-out and as such this situation regarding pollution is unlikely to change.

3. Wetlands Analysis

No known wetlands exist within the City of Miami Gardens per Miami-Dade County Department of Environmental Resources Management.

4. Uplands Analysis

As stated earlier, there are no known uplands existing within the City of Miami Gardens.

5. Groundwater Analysis

The South Florida Water Management District (SFWMD) has not identified any areas within the City of Miami Gardens as a prime groundwater recharge areas for the Biscayne aquifer. See **Exhibit INF III-2** for further details. In addition, the City of Miami Gardens has no natural drainage features.

6. Floodplains Analysis

Encroachment on flood-prone areas can occur as a result of artificial fill associated with development activity. Encroachment takes away the floodwater holding capacity of an area, resulting in an increase in flood hazards beyond existing flood-prone areas. In order to ensure public health and safety and minimize flood hazard to public and private property, the City shall adopt objectives and policies regulating encroachment within the floodplain.

7. Mineral Resources Analysis

There are no active mining operations within the City nor are there any known sources of mineral deposits.

8. Soil Erosion Analysis

While soil erosion is not considered to be a significant problem in Miami Gardens, continued enforcement of local subdivision and excavation and fill regulations, as well as other best management practices, should be maintained. Development of local programs to sod, landscape and mulch both private and public areas, which are presently devoid of ground cover, would also positively contribute in this respect.

9. Biological Natural Resources Analysis

There are no known natural resources in the City of Miami Gardens that are currently being used for commercial purposes or are planned for the future. Out of the two South Florida Pine tree stands in the City, the first is located on the Vista Verde Park owned and maintained by the City. The second stand is located on St. Thomas University Campus. These areas are protected through City of Miami Gardens as well as Miami-Dade County regulations.

As stated previously, the City of Miami Gardens has no known environmentally valuable wildlife habitats as per the United States Fish and Wildlife Service, the Florida Game and Freshwater Fish Commission and Miami Dade County Department of Environmental Resources Management. Since the City is almost fully developed and has been for years, the probability of rare and endangered species of plant and wildlife is very slim. In cases where the plant and animal life found on the parcel is unique, rare or endangered as noted on the federal, state, and local government agencies' lists, the construction of the project will be slowed or stopped until the plant or animal life can be removed and relocated to another area where it can survive.

10. Potable Water Demand Analysis

The source of potable water in Miami-Dade county is the Biscayne aquifer. However, the City depends upon the County system to receive these facilities and services. The City is served by the Miami Dade County Water and Sewer Department and the North Miami Beach Utilities Department. The North Miami Beach Utilities has potable water wells and a water treatment facility in the City of Miami Gardens. The wellhead protection area associated with the North Miami Beach wells is depicted on Map FLU I-4, Natural Resources. The wells are protected by ordinance contained in the Miami Dade County Zoning Code. The City of Miami Gardens implements that Zoning Code within the city limits.

Water is delivered to users at a pressure no less than 20 pounds per square inch (psi) and no greater than 100 psi. Since all potable water facilities are provided through WASD (including the North Miami Beach Plant), Miami Gardens will adopt the LOS standards of 155 mgd per capita consistent with WASD level of service standards.

Based on year 2005 data, the countywide WASD system has a permitted annual average daily withdrawal capacity of 413.2 mgd and the maximum daily demand is 413.4 mgd. The Hialeah-Preston Treatment Plant has a permitted annual average daily withdrawal capacity of 199.19 mgd and a maximum annual daily permitted withdrawal capacity of 225 mgd. Per Miami-Dade Water and Sewer Department (WASD), the Hialeah-Preston Plant that provides potable water service to City of Miami Gardens has an estimated current level of service of 155 mgd per capita. See **Table INF III-7** for Demand Analysis (WASD).

Based on the current population growth of Miami Gardens, the average demand for year 2005 is about 16.33% (154.87 MGD) of the Miami-Dade systemwide average demand for that year. As such, the WASD demand projections show the level-of-service standards being met through the five (5) and ten (10) year planning periods and will continue to serve Miami Gardens through year 2016.

Table CON IV - 1: EPA Six Criteria Pollutants and their Corresponding Standards

POLLUTANT	UNITS	FEDERAL PRIMARY	FEDERAL SECONDARY	MIAMI-DADE COUNTY	STATE OF FLORIDA
Inhalable Particulate Matter					
PM10					
Annual Arithmetic Mean	µg/m ³	50	Same	Same	Same
Maximum 24 Hour Value	µg/m ³	150	Same	Same	Same
PM2.5					
Annual Arithmetic Mean	µg/m ³	15	Same	-----	-----
Maximum 24 Hour Value	µg/m ³	65	Same	-----	-----
Sulfur Dioxide					
Annual Arithmetic Mean	Ppm	0.03	-----	0.007	0.02
Maximum 24 Hour Value	Ppm	0.14	-----	0.040	0.10
Maximum 3 Hour Value	Ppm	-----	0.50	0.13	0.50
Carbon Monoxide					
Maximum 8 Hour Value	Ppm	9	-----	Same	Same
Maximum 1 Hour Value	Ppm	35	-----	Same	Same
Ozone					
Maximum 1 Hour Value	Ppm	0.12	Same	Same	Same
Fourth Highest 8 Hour Average	ppm	0.08	Same	Same	Same
Nitrogen Dioxide					
Annual Arithmetic Mean	ppm	0.053	Same	Same	Same
Lead					
3 Month Average	µg/m ³	1.5	Same	Same	Same

Source: Miami-Dade Department of Environmental Resources Management, Air Section, 2005

Table CON IV - 2: Wellfield Monitoring Program Summary 1995-2002

MONITORING PROGRAM	TOTAL SAMPLES (NUMBER)	FIELD SAMPLES (NUMBER)	LABORATORY SAMPLES (NUMBER)	LAB. SAMPLE EXCEEDANCES (NUMBER)	LAB SAMPLE EXCEEDANCES %
Norwood/Offler	15,655	641	15,014	45	0.30

Sources: Miami Dade Department of Environmental Resources Management, 2003

Exhibit CON IV - 1: Federal and State Designated Endangered, Threatened and Potentially Endangered Flora in Miami-Dade County

<u>Scientific Name</u>	<u>Common Name</u>	<u>Designated State</u>	<u>Status Federal</u>
<i>Amorpha crenulata</i>	Crenulate (=Miami) lead plant	E	E
<i>Asimina tetramera</i>	Four-pedal paw paw	E	NL
<i>Bourreria cassinifolia</i>	Little strongback	E	NL
<i>Brassia caudata</i>	Long-tailed spider orchid	T	NL
<i>Brickellia eupatorioides</i> var. <i>floridana</i> (=B mosieri)	Florida brickell-brush; Florida boneset	E	C2
<i>Calyptanthus zuzygium</i>	Myrtle-of-the-river	E	NL
<i>Campanula robinsiae</i>	Brooksville bellflower	E	NL
<i>Campyloneurum angustifolium</i>	Marrow strip fern	E	NL
<i>Canella winterana</i>	Wild cinnamon bark	E	NL
<i>Cassia keysensis</i> (=Chaemecrista)	Big Pine partridge pea	T	NL
<i>Catopsis berteroniana</i>	Powdery catopsis	E	NL
<i>Centrogenium setaceum</i>	Spurred neottia	E	NL
<i>Cereus eriophorus</i> var. <i>Fragrans</i>	Fragrant prickly apple	E	NL
<i>Cereus robinii</i>	Key tree cactus	E	NL
<i>Chamaesyce deltoidea deltoidea</i>	Deltoid Spurge	E	E
<i>Chamaesyce garberi</i>	Garber's spurge	E	T
<i>Chionanthus pygmaeus</i>	Pygmy fringe-tree	E	NL
<i>Chrysopsis floridana</i>	Florida goleen aster	E	NL
<i>Cladonia perforata</i>	Florida perforate cladonia	E	NL
<i>Clitoria fragrans</i>	Pigeon wings	T	NL
<i>Conradina brevifolia</i>	Short-leaved rosemary	E	C2
<i>Conradina etonia</i>	Etonia rosemary	E	NL
<i>Conradina glabra</i>	Apalachicola rosemary	E	NL
<i>Crotalaria avonensis</i>	Avon park harebells	E	NL
<i>Cucurbita okeechobeensis</i>	Okeechobee gourd	E	E
<i>Deeringothamnus pulchellus</i>	Beautiful paw paw	E	NL
<i>Deeringothamnus rugelii</i>	Rugel's paw paw	E	NL
<i>Dicerandra christmanii</i>	Garett's mint	E	NL
<i>Dicerandra cornutissima</i>	Longspurred mint	E	NL
<i>Dicerandra frutescens</i>	Scrub mint	E	NL
<i>Dicerandra immaculata</i>	Lakela's Mint	E	NL
<i>Erigonum longifolium gnaphalifolium</i>	Scrub buckwheat	T	NL
<i>Eryngium cuneifolium</i>	Snakeroot	E	NL
<i>Euphorbia telephoides</i>	Telephus spurge	T	NL
<i>Galactia smallii</i>	Small's milkpea	E	E
<i>Halophila johnsonii</i>	Johnson's seagrass	T	NL
<i>Harperocallis flava</i>	Harper's beauty	E	NL
<i>Hypericum cumulicola</i>	Highlands scrub hypericum	E	NL
<i>Jacquemontia reclinata</i>	Beach Jacquemontia	E	E
<i>Justicia cooleyi</i>	Cooley's water-willow	E	NL
<i>Lindera melissifolia</i>	Pondberry	E	NL
<i>Lupinus aridorum</i>	Scrub Lupine	E	NL
<i>Macbridea alba</i>	White birds-in-a-nest	T	NL
<i>Nolina brittoniana</i>	Britton's Beargrass	E	NL
<i>Paronychia chartacea</i>	Papery whitlow-wort	T	NL
<i>Pilosocereus robinii</i>	Key Tree Cactus	E	NL
<i>Pinguicula ionantha</i>	Godfrey's butterwort	T	NL
<i>Polygala lewtonii</i>	Lewton's polygala	E	NL
<i>Polygonella basiramia</i>	Wireweed	E	NL

Exhibit CON IV – 1: Federal and State Designated Endangered, Threatened and Potentially Endangered Flora in Miami-Dade County (con’t)

Polygonella myriophylla	Sandlace	E	NL
Polygala smallii	Tiny Polygala	E	E
Prunus geniculata	Scrub plant	E	NL
Rhododendron chapmanii	Chapman rhododendron	E	NL
Ribes echinellum	Miccosukee Gooseberry	T	NL
Schwalbea Americana	American chaffseed	E	NL
Scutellaria floridana	Florida Skullcap	T	NL
Silene polypetala	Fringed campion	E	NL
Spigelia gentianoides	Pinkroot gentian	E	NL
Thalictrum cooleyi	Cooley’s meadowrue	E	NL
Torreya taxifolia	Florida Torreya	E	NL
Warea wide-leaf	Warea amplexifolia	E	NL
Warea carteri	Carter’s mustard	E	E
Ziziphus celata	Florida ziziphus	E	NL

Key:

NL = Not Listed

State Listing:

E= Listed as Endangered Plants in the Preservation of Native Flora of Florida Act. Defined as species of plants native to the State that are in imminent danger of extinction within the State, the survival of which is unlikely if the causes of a decline in the number of plants continue, and includes all species determined to be endangered or threatened pursuant to the Federal Endangered Species Act of 1973, as amended.

T= Listed as Threatened Plants in the Preservation of Native Flora of Florida Act. Defined as species native to the State that are in rapid decline in the number of plants within the State, but which have not so decreased in such number as to cause them to be endangered.

CE= Listed as Commercially Exploited Plant in the Preservation of Native Flora of Florida Act. Defined as species native to the State which are subject to being removed in significant numbers from native habitats in the State and sold or transported for sale.

Federal Listing:

E= Listed as Endangered Species in the List of Endangered and threatened Wildlife and Plants under the provisions of the Endangered Species Act. Defined as any species which is in danger of extinction throughout all or a significant portion of its range.

T= Listed as Threatened Species. Defined as any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

C1= Candidate Species for addition to the List of Endangered and Threatened Wildlife and Plants, Category 1. Taxa for which the US Fish and Wildlife Service (USFWS) currently has substantial information on hand to support the biological appropriateness of proposing to list the species as endangered or threatened.

C2= Candidate Species, Category 2. Taxa for which information now in possession of the USFWS indicates that proposing to list the species as endangered or threatened is possibly appropriate, but for which conclusive data on biological vulnerability and threat(s) are not currently available to support proposed rules at this time.

PE= Proposed Endangered

PT= Proposed Threatened

Exhibit CON IV - 2: Federal and State Designated Endangered, Threatened and Potentially Endangered Fauna in Miami-Dade County

<u>Scientific Name</u>	<u>Common Name</u>	<u>Designated State</u>	<u>Status Federal</u>
<i>FISH</i>			
Acipenser oxyrinchus	Atlantic Sturgeon	SSC	T
Acipenser brevirostrum	Shortnose Sturgeon	E	E
Cyprinodon variegatus hubbsi	Lake Eustis pupfish	SSC	NL
Etheostoma histrio	Harlequin darter	SSC	NL
Fundulus jenkinsi	Saltmarsh topminnow	SSC	NL
Mendia conchorum	Key silverside	T	NL
Micropterus notius	Suwannee Bass	SSC	NL
Notropis melanostomus	Blackmouth shiner	E	NL
Pteronotopis welaka	Bluenose shiner	SSC	NL
Rivulus marmoratus	Mangrove rivulus	SSC	NL
Starksia starcki	Key blenny	SSC	NL
<i>AMPHIBIANS & REPTILES</i>			
Ambystoma cingulatum	Flatwoods salamander	SSC	T
Alligator mississippiensis	American Alligator	SSC	T
Crocodylus acutus	American crocodile	E	E
Drymarchon corais couperi	Eastern indigo snake	T	T
Elaphe guttata	Red rat snake	T	T
Eumeces egregius lividus	Bluetail mole skink	T	T
Eumeces egregius egregius s	Florida key mole sink	SSC	NL
Gopherus polyphemus	Gopher Tortoise	SSC	C2
Graptemys barbouri	Barbour's map turtle	SSC	NL
Haideotriton wallacei	Georgia blind salamander	SSC	NL
Hyla andersonii	Pine barrens treefrog	SSC	NL
Rana okaloosae	Florida bogfrog	SSC	NL
Rana capito	Gopher frog	SSC	NL
Kinosternon bauri	Striped mud turtle	E	NL
Lepidochelys Kempii	Atlantic ridley turtle	E	E
Macrolemys temminckii	Alligator snapping turtle	SSC	NL
Nerodia clarkii taeniata	Atlantic salt marsh water snake	T	T
Neoseps reynoldsi	Sand skink	T	T
Pituophis melanoleucus mugitus	Florida pine snake	SSC	C2
Pseudobranchius striatus lustricolus	Gulf hammock dwarf siren	NL	C2
Pseudemys concinna suwanniensis	Suwannee cooter	SSC	NL
Sitlosoma extenuatum	Short-tailed snake	T	NL
Storeria dekayi victa	Florida brown snake	T	NL
Tantilla ooltica	Rim Rock Crowned Snake	T	C2
Thamnophis sauritus sackeni	Florida Ribbon Snake	T	NL
<i>BIRDS</i>			
Ammodramus maritimus mirabilis	Cape sable seaside sparrow	E	E
Ammodramus savannarum floridanus	Florida grasshopper sparrow	E	E
Ammodramus maritimes pennisulae	Scott's seaside sparrow	SSC	NL
Ammodramus maritimus juncicolus	Wakulla seaside sparrow	SSC	NL
Aphelocoma coerulescens coerulescens	Florida scrub jay	T	T
Aramus guarauna	Limpkin	SSC	NL
Athene cunicularia	Florida burrowing owl	SSC	NL
Campephilus principalis	Ivory-billed wood pecker	E	E
Caracara cheriway	Crested caracara	T	T
Charadrius melodus	Piping plover	T	T
Charadrius alexandrinus	Cuban snowy plover	T	NL
Cistothorus palustris marianae	Marian's marsh wren	SSC	NL

Exhibit CON IV – 2: Federal and State Designated Endangered, Threatened and Potentially Endangered Fauna in Miami-Dade County (con't)

<i>Cistothorus palustris griseus</i>	Worthington's marsh wren	SSC	NL
<i>Dendroica Kirtlandii</i>	Kirtland's warbler	E	NL
<i>Egretta caerulea</i>	Little blue heron	SSC	NL
<i>Egretta rufescens</i>	Reddish egret	SSC	C2
<i>Egretta thula</i>	Snowy egret	SSC	NL
<i>Egretta tricolor</i>	Tricolored heron	SSC	NL
<i>Eudocimus albus</i>	White ibis	SSC	NL
<i>Falco peregrinus</i>	Peregrine falcon	E	NL
<i>Falco sparverius paulus</i>	Southeastern American kestrel	T	C2
<i>Grus Canadensis pratensis</i>	Florida sandhill crane	T	NL
<i>Grus Americana</i>	Whooping crane	SSC	XN
<i>Haliaeetus leucocephalus</i>	Bald eagle	T	E
<i>Mycteria amaericana</i>	Wood stork	E	E
<i>Pandion haliaetus</i>	Osprey	SSC	NL
<i>Platalea ajaja</i>	Roseate spoonbill	SSC	NL
<i>Picoides borealis</i>	Red-cockaded woodpecker	SSC	E
<i>Rostrhamus sociabilis</i>	Snail kite	E	E
<i>Rynchops niger</i>	Black skimmer	SSC	NL
<i>Sterna antillarum</i>	Least tern	T	NL
<i>Sterna dougalli</i>	Roseate tern	T	T
<i>Vermivora bachmanii</i>	Bachman's warbler	E	E
MAMMALS			
<i>Balaenoptera borealis</i>	Sei whale	E	NL
<i>Balaenoptera physalus</i>	Finback whale	E	E
<i>Blarina carolinensis shermani</i>	Sherman's short-tailed shrew	SSC	C2
<i>Eumops glaucinus floridanus</i>	Florida mastiff bat	E	C1
<i>Eubalaena glacialis</i>	North atlantic right whale	E	NL
<i>Megaptera novaeangliae</i>	Humpback whale	E	E
<i>Monachus tropicalis</i>	Caribbean monk seal	NL	NL
<i>Neotoma floridana smalli</i>	Key largo woodrat	E	E
<i>Odocoileus virginianus clavium</i>	Key deer	E	E
<i>Peromyscus polionotus niveiventris</i>	Southeastern beach mouse	T	T
<i>Peromyscus gossypinus allapaticola</i>	Key Largo Cotton Mouse	E	E
<i>Peromyscus polionotus allophrys</i>	Choctawhatchee beach mouse	E	E
<i>Peromyscus polionotus trissyllepsis</i>	Perdido Key mouse	E	E
<i>Peromyscus polionotus phasma</i>	Anastasia Island Beach mouse	E	E
<i>Physeter catodon</i>	Sperm whale	E	E
<i>Physter macrocephalus</i>	Sperm whale	E	NL
<i>Podomys floridanus</i>	Florida mouse	SSC	C2
<i>Sciurus niger avicennia</i>	Big Cypress fox squirrel	SSC	C2
<i>Sciurus niger shermani</i>	Sherman's fox squirrel	SSC	C2
<i>Trichechus manatus latirostris</i>	Florida manatee	E	E
INVERTEBRATES			
CRUSTACEANS			
<i>Palaemonetes cummingi</i>	Squirrel chimney cave shrimp	NL	T
<i>Procambarus econfinae</i>	Panama city crayfish	SSC	NL
<i>Procambarus erythroptus</i>	Sims sink crayfish	SSC	NL
<i>Procambarus Pictus</i>	Black creek crayfish	SSC	NL
INSECTS			
<i>Cyclargus thomasi bethunebakeri</i>	Miami blue butterfly	E	NL
<i>Heraclides aristodemus ponceanus</i>	Schaus swallowtail butterfly	E	E
MOLLUSCS			
<i>Amblema neislerii</i>	Fat three-ridge	NL	T

Exhibit CON IV– 2: Federal and State Designated Endangered, Threatened and Potentially Endangered Fauna in Miami-Dade County (con’t)

Elliptio chipolaensis	Chipola slabshell	NL	T
Elliptoideus sloarianus	Purple bankclimber	NL	T
Lampsilis subangulata	Shinyrayed Pocketbook	NL	T
Medionidus penicillatus	Gulf moccasinshell	NL	E
Medionidus simpsonianus	Ochlockonee moccasinshell	NL	E
Pleurobema pyriforme	Oval pigtoe	NL	E

Key:

NL = Not Listed

State Listing:

E= Listed as Endangered Species by the Florida Game and Freshwater Fish Commission (FGFWFC). Defined as a species, subspecies, or isolated population which is so rare or depleted in number or so restricted in range of habitat due to any man-made or natural factors that it is in immediate danger of extinction or extirpation from the State, or which may attain such a status within the immediate future.

T= Listed as Threatened Species by the FGFWFC. Defined as a species, subspecies, or isolated population which is acutely vulnerable to environmental alteration, declining in number at a rapid rate, or whose range or habitat is declining in area at a rapid rate and as a consequence is destined or very likely to become an endangered species within the foreseeable future.

SSC= Listed as Species of Special Concern by the FGFWFC. Defined as a species, subspecies, or isolated population which warrants special protection, recognition, or consideration because it has an inherent significant vulnerability to habitat modification, environmental alteration, human disturbance, or substantial human exploitation which, in the foreseeable future, may result in becoming a threatened species.

Federal Listing:

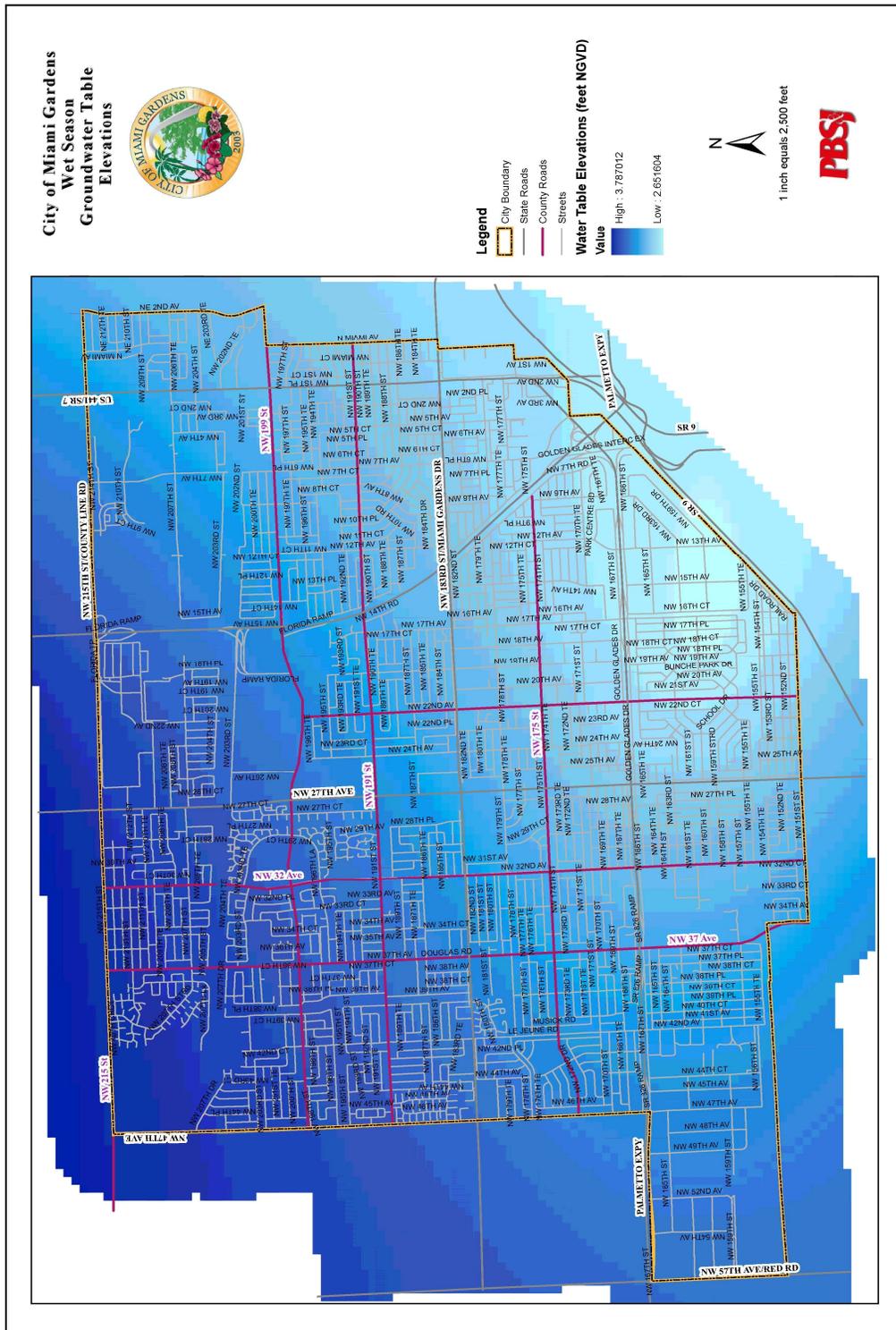
E= Listed as Endangered Species in the List of Endangered and Threatened Wildlife and Plants under the provisions of the Endangered Species Act. Defined as any species which is in danger of extinction throughout all or a significant portion of its range.

T= Listed as Threatened Species. Defined as any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

C1= Candidate Species for addition to the List of Endangered and Threatened Wildlife and Plants, Category 1. Taxa for which the US Fish and Wildlife Service (USFWS) currently has substantial information on hand to support the biological appropriateness of proposing to list the species as endangered or threatened.

C2= Candidate Species, Category 2. Taxa for which information now in possession of the USFWS indicates that proposing to list the species as endangered or threatened is possibly appropriate, but for which conclusive data on biological vulnerability and threat(s) are not currently available to support proposed rules at this time.

Map CON IV - 2: City of Miami Gardens Wet Season Groundwater Table Elevations



Map CON IV - 3: City of Miami Gardens Water Quality Stations

