

**TOWN OF OCEAN RIDGE, FLORIDA  
EAR-BASED AMENDMENTS TO  
ADOPTED COMPREHENSIVE PLAN**



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Town of Ocean Ridge, Florida  
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**Adopted by Ocean Ridge Town Commission**

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# Future Land Use Element

## Data and Analysis Update

The Town of Ocean Ridge is a small residential community located in the southern portion of Palm Beach County, east of Boynton Beach. It is approximately 635.6 acres in size and located entirely on the barrier island, bordered by the Atlantic Ocean to the east and the Intracoastal Waterway to the west. To the north is unincorporated land under county jurisdiction. This land is primarily used as a water access park to the Boynton Inlet (aka Lake Worth Inlet), located just to the north of the Town. This Inlet is not within the jurisdiction of Ocean Ridge but is considered to have a major impact on, and is a key characteristic for the Town.

To the south of Ocean Ridge is the Town of Briny Breezes, which consists almost entirely of a single mobile home park. South of Briny Breezes is a similar small town to Ocean Ridge, known as Gulf Stream. These old Florida residential municipalities form a string of small residential pearls between the large cities of Boynton Beach and Delray Beach.

Ocean Ridge is a beach-oriented town characterized primarily by single family homes with lush, well maintained landscaping and extensive outdoor recreational opportunities. There are also Intracoastal and beachfront condominiums and a few multi-family buildings scattered throughout the Town. There are very little commercial improvements left in Town.

Although early houses were typically mansions, especially those with frontage on the ocean, today the town is extensively subdivided, with fewer large mansions and more moderate sized, distinguished homes. The majority of the town grew as subdivisions between the Atlantic Ocean and the Intracoastal Waterway. In an effort to maintain a tranquil setting, commercial and industrial uses have been prohibited. The approximately 25 vacant lots that remain throughout the town are designated for single family housing.

The Town has four Future Land Use designations: Single Family Residential, Multiple Family Residential, Public and Preservation/Conservation. There are no Industrial or Commercial Future Land Use designations within the Town. The Single Family Residential Future Land Use designation has a maximum density of three dwelling units per acre. The Multiple Family Residential Future Land Use designation has a maximum density of 10 dwelling units per acre.

Although there are no designated areas for Industrial or Commercial uses, the Town is located within Palm Beach County's Urban Service Boundary and all dwelling units within the town are within two miles of commercial or industrial uses. Many of the homes of less than one mile from these uses. Sidewalks connect the Town's neighborhoods with the adjacent non-residential land use. This proximity and option for alternative transportation provides for energy conservation and lower greenhouse gas emissions.

There has been little change in Ocean Ridge since the adoption of the original Comprehensive Plan. The stability of the Town is primarily due to its near built-out status, small size and water-

locked location. Since the great majority of the land is built-out, the primary concern for the Town is redevelopment. The current permanent population estimate per the 2000 census for the Town was 1,636 persons. Housing status, economic and social conditions, the provision of essential utilities and services, and the financial feasibility of accommodating the limited growth potential has incurred minimal change since the 1989 Comprehensive Plan was adopted.

The future population projections for the Town used the methodology and studies undertaken by the Shimberg Center for Affordable Housing, Rinker School of Building Construction, College of Design, Construction and Planning at the University of Florida (September 2006)

**Population Projection**

	2000	2005	2009	2014	2019	2024	2029
<b>Population Projection</b>	1,636	1,655	1,681	1,705	1,724	1,739	1,747

Source: U.S. Census, Shimberg Center, University of Florida (2006)

# Future Land Use Element

## GOALS, OBJECTIVES, & POLICIES

**GOAL: PROTECT AND ENHANCE THE RESIDENTIAL CHARACTER AND NATURAL ENVIRONMENT OF OCEAN RIDGE.**

**Objective 1: Restrict future development to vacant and upland parcels that have package sewer service or that have soil characteristics capable of supporting septic systems.**

Policy 1.1: Arrange the future land use map so that all significant development occurs on upland parcels and so that wetland areas are designated for Preservation/Conservation. Significant development shall include but not be limited to buildings, parking lots and thoroughfares.

Policy 1.2: Enforce development code regulations that require the demonstration of adequate on-site sewage disposal capabilities prior to issuance of development permits. Capabilities may include: 1) soil conditions suitable for anticipated septic tank loads; and/or 2) package treatment facilities.

Policy 1.3: Enforce developmental code regulations that permit new development to proceed only when it can be connected to central water service.

Policy 1.4: Enforce development code regulations that require installation of easily-accessible sewer system connections for future use should public sewer facilities become available in Ocean Ridge.

Policy 1.5: The Town shall retain those tracts designated Preservation/Conservation which are now in its ownership.

Policy 1.6: Enforce development code regulations that prohibit the issuance of development orders and permits which would result in a level-of-service for any public facility below the level established in this comprehensive plan.

**Objective 2: Achieve the rehabilitation or removal of unsound and poorly maintained structures wherever they occur in Ocean Ridge.**

Policy 2.1: Enforce development code regulations that require buildings and structures to be maintained in sound condition or razed.

Policy 2.2: Adopt Town administrative policies which ensure that unsound buildings, should any exist, will be identified and then razed or rehabilitated in accordance with development code regulations enacted pursuant to Policy 2.1.

**Objective 3: Eliminate all existing uses which are inconsistent with the character of Ocean Ridge and prevent such uses from being established in the future.**

Policy 3.1: Maintain the future land use map so that agriculture, commercial and industrial uses are not permitted in Ocean Ridge. The Town Commission of Ocean Ridge has determined these uses to be incompatible with the Town's existing and desired future residential character.

Policy 3.2: Maintain development code regulations that require, after a period of amortization, the removal of all hotels, motels, or other commercial uses.

Policy 3.3: Enforce development code regulations which address the location and extent of residential, public, preservation/conservation and park uses in accordance with the future land use map.

Policy 3.4: Enforce development code regulations that prohibit agricultural, commercial, and industrial land uses in accordance with the future land use map. The Town Commission of Ocean Ridge has determined these uses to be incompatible with the Town's existing and desired future residential character.

**Objective 4: Perpetually maintain or improve the current quality and extent of existing natural resources as identified in the coastal management and conservation elements of this plan.**

Policy 4.1: Land containing flora and fauna that are endangered, threatened, or of special concern shall be designated in the Preservation/Conservation land use category whenever such designation would constitute a reasonable property regulation and would be consistent with other policies and objectives of this plan.

Policy 4.2: Enforce development code regulations that limit development of areas designated on the future land use map as Preservation/Conservation in accordance with the section of this land use element entitled "Future Land Use Categories."

Policy 4.3: Enforce development code regulations that protect potable water well fields and prime aquifer recharge areas, should any be established, from adverse impacts of development.

Policy 4.4: Applications for development permits in V1 through V30 floodplains as designated by the Federal Emergency Management Agency shall be approved only if significant alteration of the functions of the flood plain will not occur and if the proposed development is consistent with the performance standards regulating development.

Policy 4.5: Enforce development code regulations that require on-site runoff management facilities sufficient to ensure that post development runoff rates, volumes and pollutant load will not exceed pre-development conditions.

Policy 4.6: Enforce development code regulations that prohibit extraction of natural resources.

Policy 4.7: Enforce development code regulations that require reasonable environmental protections attendant to all development adjacent to water bodies and Preservation/Conservation areas, including an environmental report requirement.

**Objective 5: Maintain historic property regulations that preserve historic houses or identify and preserve archaeological sites**

Policy 5.1: Maintain land development regulations to include provisions that assure special review of any renovation or demolition permit applications of any applicable historic structures in the Town.

Policy 5.2: Town staff shall work with the State Division of Historical Resources to locate archaeological sites (if possible) and assess their condition.

**Objective 6: Restrict development to 1,730 dwelling units in the entire Town.**

Policy 6.1: Arrange the future land use map so that the number of dwelling units (excluding hotels) in Ocean Ridge will not exceed 1,730.

Policy 6.2: Enforce development code regulations that limit development in areas designated on the future land use map as single-family residential and medium density multiple family residential in accordance with the section of this land use element entitled "Future Land Use Categories."

Policy 6.3: Future land use within the Town shall be depicted within four land use categories. These categories are: Single Family Residential, Multiple Family Residential, Public and Preservation/Conservation. The Single Family Residential Future Land Use designation shall have a maximum density of three dwelling units per acre. The Multiple Family Residential Future Land Use designation shall have a maximum density of 10 dwelling units per acre.

**Objective 7: Allow without unnecessary delay the maximum amount of development consistent with the goals and other objectives of this plan. For the purposes of this objective, such development is defined as that which is permitted by the future land use map.**

Policy 7.1: Arrange the future land use map to accommodate the maximum amount of residential development consistent with the goals and other objectives of this plan.

Policy 7.2: Enact and enforce development code regulations that address the locations and extent of residential, recreational, conservation, education and public land uses in accordance with the future land use map and the policies and descriptions of types, sizes, densities, and intensities of land contained in this element.

Policy 7.3: Continue policies that require the Town administrative and building officials to process all applications for development permits and orders in a timely manner, if consistent with the code. This policy is intended to facilitate development, but it shall not be interpreted to encourage or permit short cuts in the development review process or to permit or encourage any development or use of land in a manner inconsistent with this plan or the Town's Code or other applicable regulations.

**Objective 8: If any new streets are constructed, use the development code to achieve adequate rights-of-way and other easements for the underground installation, where possible, of utility lines including electric, telecommunications, water and sewer lines.**

Policy 8.1: Enforce development code regulations which require that rights-of-way on all newly platted streets be adequate to accommodate utility lines.

Policy 8.2: Enforce development code regulations which require that easements be designated within private property when such easements are necessary to the provision of utility lines.

**Objective 9: Manage future growth and development through the utilization of innovative development code regulations which implement this plan.**

Policy 9.1: Maintain the development code to contain specific and detailed regulations that implement this Comprehensive Plan, and:

- Regulate the development of land in accordance with the arrangement of land use categories articulated in the future land use map;
- Regulate the land use categories of this plan in accordance with the sections of this land use element entitled "Future Land Use Categories,"
- Regulate the subdivision of land;
- Regulate signage;
- Regulate development of areas subject to seasonal or periodic flooding and require provision of drainage and stormwater management;
- Specifically, prohibit the issuance of development orders and permits which would result in a level of service for any public facility below the level adopted in this *Comprehensive Plan*;
- Require on-site runoff management facilities sufficient to ensure that post-development runoff rate, volumes and pollutant loads will not exceed pre-development conditions;
- Require the provision of on-site open space for all development and on-site buffering where different types of development are adjacent;

- Require the provision of on-site facilities which ensure safe and convenient traffic flow and vehicle parking needs;
- Protect potable water wellfields and aquifer recharge areas, should any ever be established, from adverse impacts of development; and
- Protect environmentally sensitive land (particularly conservation areas) from the adverse impacts of development.

Policy 9.2: Enforce development code regulations that address the location and extent of residential, recreational, conservation, education, and public uses in accordance with the future land use map and the policies and descriptions of types, sizes, densities and intensities of land contained in this element.

**Objective 10: Achieve a future development and redevelopment pattern that is consistent with sound planning principles; the goals, objectives and policies of this plan, and the residential character desired for Ocean Ridge.**

Policy 10.1: Development shall be directed to upland parcels within the Town. Wetlands, as designated by the U.S. Army Corps of Engineers, shall be preserved and not developed, unless expressly permitted by the U.S. Army Corps of Engineers and the South Florida Water Management District and consistent with the Town's Policies.

Policy 10.2: Consider the enactment of flexible development code regulations including, but not necessarily limited to, planned unit developments and cluster zoning provisions.

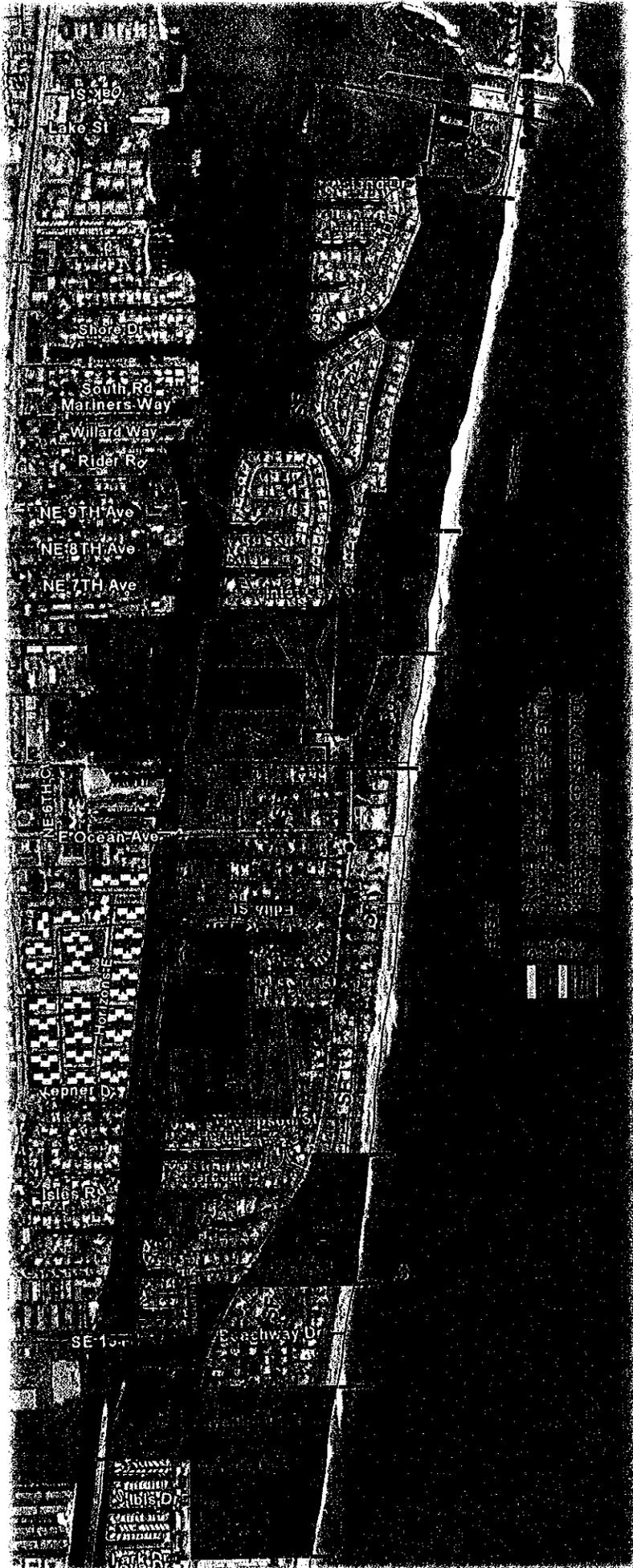
Policy 10.3: Enforce subdivision and other plat regulations that permit local streets and individual lots to have access to higher level streets including, but not limited to, State Road A1A. This policy is intended to protect the residential character of Ocean Ridge by inhibiting extraneous traffic flow.

Policy 10.4.: With any requested Future Land Use Plan amendment that would increase the intensity and density of the parcel, the applicant shall provide a justification statement to the satisfaction of the Town indicating that the increased density meets all aspects of this Comprehensive Plan and the Town's Concurrency Management program.

Policy 10.5.: Any new development or redevelopment conducted by the Town on public facilities shall incorporate, when feasible, energy-efficient design and construction techniques.

Town of  
**Ocean Ridge**  
Florida

Existing Land Use Map  
2009



urban  
design  
kilday  
STUDIOS





## Transportation Element Data and Analysis Update

There is only one main arterial roadway through the Town; State Road A1A, which bisects the Town in a north-south direction. As identified on Metropolitan Planning Organization and Palm Beach County maps, State Road A1A is a constrained roadway, limited by existing conditions to a maximum of two lanes. This constrained roadway is also identified as a shared facility, and marked with appropriate signage, for vehicular and bicycle use.

There are two arterial roadways within the Town's jurisdiction. This is the eastern terminus of East Woolbright Road and the eastern terminus of Ocean Avenue. Both roadways are two-lane facilities and are classified as urban minor arterial roadways. State Road A1A and Ocean Avenue are maintained by the State while East Woolbright Road is maintained by Palm Beach County. All three of the roadways has an adopted level of service of "D," which is reflected in the Town's Comprehensive Plan. These roadways are generally operating below this adopted level of service, as indicated in the table below.

**Traffic Counts (Daily Trips) on Arterial Roadways within Town of Gulf Stream**

	2003	2004	2005	2006	2007	2008	Level of Service "D" ADT
<b>State A1A</b>	11,787	11,457	11,224	13,261	9,606	6,802	12,300
<b>Ocean Avenue</b>	7,633	6,652	6,836	7,469	5,784	6,289	12,300
<b>East Woolbright Road</b>	12,226	11,013	12,750	13,312	10,894	10,785	12,300

**Source: Palm Beach County Engineering Department, Traffic Division**

Local roadways under the control of the Town are operating within its adopted level of service. Developments that influence overcapacity on Town roads are responsible for either mitigating their impact or demonstrating that impacts are not created. Ample opportunities exist for developers to mitigate their impacts through the Palm Beach County Concurrency regulations.

It is projected that all future land uses and associated trips can be accommodated by the existing traffic circulation network. In conclusion, the roadways within the Town's jurisdiction are satisfactory with only typical maintenance planned. There are no capital improvement projects that would incur the expenditure of Town funds projected for either the 5 or 10 year planning periods.

The Town of Ocean Ridge has a bicycle-pedestrian pathway located along the west side of State Road A1A, south side of East Woolbright Road and along both sides of Ocean Boulevard. This pathway is popular with Town residents and provide for an alternative means of transportation within the community. The pathway connects the Town to various Palm Beach County parks and adjacent municipalities and commercial areas. The use of the pathway aids in the state-mandated reduction of greenhouse gas emissions within the State.

Currently, no public transportation routes and facilities exist or are planned for the Town by the local public transportation provider, PalmTran. No public transit routes or facilities have been identified for the Town within the 2030 Palm Beach County Metropolitan Planning Organization transit map.

# Transportation Element

## GOALS, OBJECTIVES, & POLICIES

**GOAL: TO MAINTAIN A TRANSPORTATION SYSTEM THAT MEETS THE CIRCULATION NEEDS OF OCEAN RIDGE IN A SAFE AND EFFICIENT MANNER, BUT DOES NOT ADVERSELY IMPACT RESIDENTIAL, PUBLIC OR PRESERVATION/CONSERVATION USES.**

**Objective 1.1: Retain without substantial modification, the existing adequate circulation system.**

Policy 1.1.1: Utilize level of service “D” as the peak hour standard for all roadways.

Policy 1.1.2: Continue to use the development plan review process to control roadway access points and on-site traffic flow.

**Objective 1.2: By reducing land use intensities, the Town shall avoid the need for any new roadways or widenings.**

Policy 1.2.1: Retain the existing circulation system, avoiding the widening of roadways and bridges leading into the Town.

Policy 1.2.2: Retain the bicycle-pedestrian path along State Route A1A.

Policy 1.2.3: New development or redevelopment is encouraged to provide a pedestrian connection to the State Route A1A pathway.

Policy 1.2.4: The Town shall continue to work with the Florida Department of Transportation to secure and retain the pedestrian crosswalks and crosswalk signage across State Route A1A with the municipality.

Policy 1.2.5: The Town shall promote pedestrian and bicycle safety within the Town and within the State Route A1A pathway. This may include public safety programs and information on the Town’s website and/or newsletter.

**Objective 1.3: Coordinate Town transportation planning with regional and State agencies in order to retain the current roadway system characteristics.**

Policy 1.3.1: The Town Commission shall continue to coordinate with the MPO, FDOT and regional transportation planning agencies to seek viable alternatives to roadway widening or bridge relocation, as necessary.

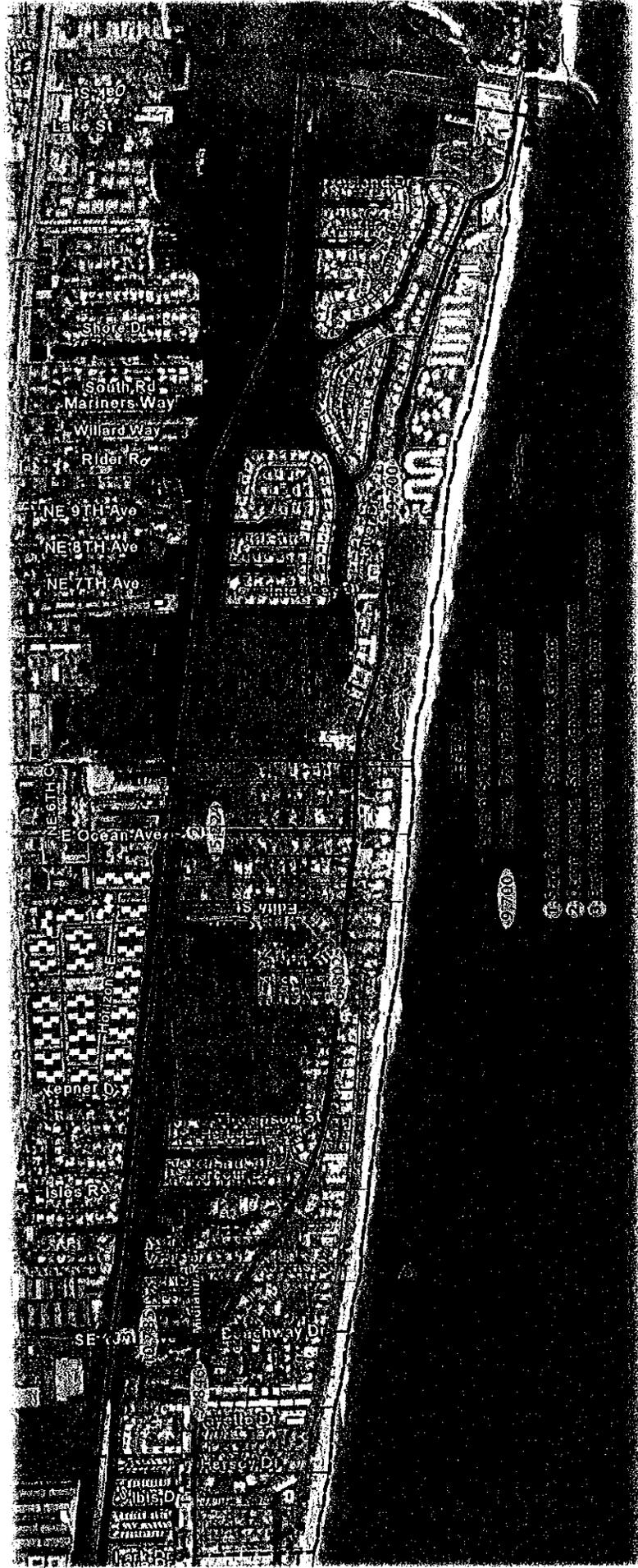
Policy 1.3.2: Resist through litigation , if necessary, all attempts by MPO, FDOT, and others to force roadway or bridge widening and bridge relocation.

Policy 1.3.3: The Town shall continue to coordinate with MPO, Palm Beach County, Palm Tran and surrounding communities to identify any potential alternative transportation opportunities within the area.

**Objective 1.4: Use the development code to protect existing street rights-of-way for which the Town Commission determines there exists a present or potential future need.**

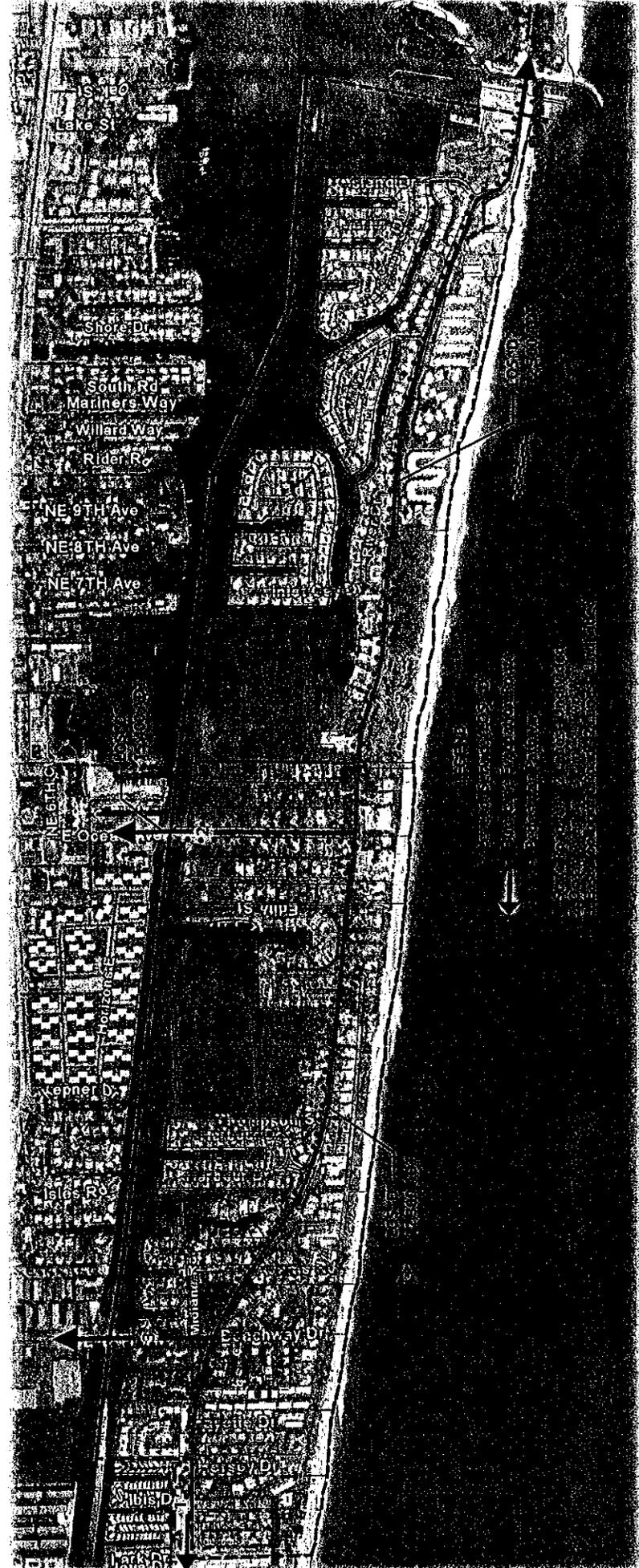
Policy 1.4.1: Use the development review process to protect the existing major street rights-of-way. No additional rights-of-way are needed or desired.

Town of  
**Ocean Ridge**  
Florida  
Existing Conditions for Roadways  
2009



Town of  
**Ocean Ridge**  
Florida

Future Transportation Map  
2029



urban  
design  
killday  
STUDIOS



# Housing Element

## Data and Analysis Update

The Town of Ocean Ridge is a small residential community located in the southern portion of Palm Beach County. It is approximately 635.6 acres in size and located entirely on the barrier island, bordered by the Atlantic Ocean to the east and the Intracoastal Waterway to the west.

Ocean Ridge is a beach-oriented town characterized primarily by single family homes with lush, well maintained landscaping and extensive outdoor recreational opportunities. There are also Intracoastal and beachfront condominiums and a few multi-family buildings scattered throughout the Town. There are very little commercial improvements left in Town.

Although early houses were typically mansions, especially those with frontage on the ocean, today the town is extensively subdivided, with fewer large mansions and more moderate sized, distinguished homes. The majority of the town grew as subdivisions between the Atlantic Ocean and the Intracoastal Waterway. In an effort to maintain a tranquil setting, commercial and industrial uses have been prohibited. The approximately 25 vacant lots that remain throughout the town are designated for single family housing.

The stability of the Town is primarily due to its near built-out status, small size and water-locked location. The future population projections for the Town used the methodology and studies undertaken by the Shimberg Center for Affordable Housing, Rinker School of Building Construction, College of Design, Construction and Planning at the University of Florida (September 2006)

### Population Projection

	2000	2005	2009	2014	2019	2024	2029
<b>Population Projection</b>	1,636	1,655	1,681	1,705	1,724	1,739	1,747

Source: U.S. Census, Shimberg Center, University of Florida (2006)

According to the 2000 Census, the median age for the Town is 56.7 years old. The median age for Palm Beach County is 41.8 and for the U.S. the average is 35.3. The number of persons over 65 in the Town was 586 or 35.8% of the population. The percentage of population over 65 in Palm Beach County is 23.2%, with the national percentage being 12.4% by comparison. This indicates that the Town has a significantly older population base than the County and the Nation.

The average household size for the Town is 1.87 persons and an average family size of 2.41. The total number of households for the Town is 875 with 404 or 46.2% of the households having individuals over 65 years of age. Palm Beach County has an average

household size of 2.34 persons, and an average family size of 2.89. The total number of households for the County is 474,175 with 37.6% of the households having individuals over 65 years of age. This is further indication of the older retirement status of the Town in comparison with the County.

The total number of housing units for the Town is 1,449, with occupied housing units being 875 or 60.4%. The percentage of high school graduates or higher in the Town is 94.3% with the percentage of persons with a bachelor's degree or higher being 42.9%. The County's percentage of high school graduates or higher is 83.8% with 27.7% with a bachelors degree or higher. The median household income in 1999 was \$70,625 while the median family income was \$99,184 and the per capita income was \$76,088.

Within the original 1989 Comprehensive Plan, two potential historical structures were identified. Since the Comprehensive Plan was adopted, the structures have been redeveloped during the past 10 years. There are no historic structures identified within the Town. A new policy has been added to provide for a process of identifying historic and/or significant structures in the future.

The Town's demographics, when compared to the federal average household income in 1999 of \$41,994, median family income of \$50,046 and per capita of \$21,587 is significantly higher. The median income per household for the County was \$45,062 and a median family income of \$53,701. The median per capita income for Palm Beach County was \$28,801.

There were 454 owner-occupied single family homes in the town in 2000 with an average value of \$433,300, as compared to the federal average of \$119,600 and the 2000 County average of \$135,320. The current average house value in the County per current Palm Beach County Property Appraiser's estimates is just under \$400,000. The increase in value of County properties would also apply to the properties within the Town.

These statistics clearly indicate the average resident of Ocean Ridge is older, in a higher income bracket and owns a higher value home than that of the typical American family and also higher than the typical Palm Beach County resident.

# Housing Element

## GOALS, OBJECTIVES, & POLICIES

**GOAL: TO ASSURE THE AVAILABILITY OF A MIX OF HOUSING TYPES IN SOUND CONDITION.**

**Objective 1.1: Assist the private sector in providing the “in-fill” housing that Ocean Ridge can accommodate. “In-fill” housing is new housing on scattered vacant lots in neighborhoods which are largely developed.**

Policy 1.1.1: Utilize the Future Land Use Plan and zoning map as the criteria to achieve a diversity of housing types consistent with the established character and scale of the Town of Ocean Ridge.

Policy 1.1.2: Continue a municipal development application review process that minimizes delay yet assures quality control.

**Objective 1.2: Continue to maintain a housing stock with no structurally substandard units.**

Policy 1.2.1: The building inspector shall enforce the Town ordinance on “unsafe buildings” to prevent substandard housing; this also provides demolition program techniques and the basis for rehabilitation.

Policy 1.2.2: The Town shall support energy efficiency and the use of renewable energy resources in existing housing and in the design and construction of new housing.

Policy 1.2.3: New housing within the Town is encouraged to incorporate energy and resource efficient fixtures into its construction, such as low flow shower heads.

**Objective 1.3: Achieve quality multifamily development that is affordable to families with moderate incomes and authorize manufactured housing, if required by State law, in the land development regulations.**

Policy 1.3.1: The Town staff shall make a special effort to provide timely and technically helpful development reviews of plans submitted by any developer that intends to provide quality multifamily units at densities consistent with the future land use element of this plan in order to facilitate moderate income housing. This includes any developer using public authority financing or other subsidies, although given the Town’s land costs, housing for low income housing would require rent subsidies greater than those currently available from State or Federal agencies. For this reason, non-profit or governmental housing does not appear feasible. Low and moderate income housing is available in nearby areas.

Policy 1.3.2: Retain the multifamily land use designation in southern Ocean Ridge.

**Objective 1.4: Where feasible, accommodate a fair share of the County's group homes and manufactured housing.**

Policy 1.4.1: The Town shall continue to work with Palm Beach County and State agencies to a) permit group and foster care homes in all residential districts if State HRS and Town site plan review standards are met, b) to permit manufactured or prefabricated housing that meets the building code and c) to enact multifamily zoning provisions that bring new construction within reach of moderate income households.

**Objective 1.5: Historic resources listed in the National Register of Historic Places shall be subject to all applicable Town, State and federal legislation.**

Policy 1.5.1: Prior to designating any structure or archaeological site as significant and worthy of the protection, the Town Commission shall consider, but not be limited to, the following standards:

- a. The significance of the site as a landmark;
- b. The role of the site in the Town's history or archaeological past.

The Town shall encourage that these sites be maintained in their historic and/or archaeologically significant state, and not be significantly altered, threatened, or removed.

# **Wastewater, Solid Waste, Drainage, Potable Water and Natural Groundwater Aquifer Recharge Element**

## **Data and Analysis Update**

### **Sanitary Sewer**

The Town is not currently serviced by a central wastewater treatment facility. However, approximately 40% of the town's dwelling units receive its wastewater treatment services from individual package plants. These package plants serve 11 multifamily projects within the Town. These package plants are monitored by the Palm Beach County Health Department for consistency with all applicable state and local regulations. With the existing Future Land Use designations and the analysis regarding the existing vacant land within the Town, it is estimated that the Town will be able to build out with 26 multifamily homes and 58 single family homes. It is assumed that the future multifamily project would use a package plan for wastewater treatment and the single family home would use septic systems, much like the existing homes in the Town. The acceptable soil conditions within the Town allows for septic systems to be provided.

The septic systems and small private sewer systems in place are able to handle the wastewater adequately at this time. Since the remaining developable land is minimal and primarily single family lots, septic systems would handle any new development as well. Developers are responsible for the cost of wastewater improvements necessary for their project.

The will continue to evaluate the current conditions of the existing sanitary sewer facilities and explore ways to improve the existing services through technological advancements or upgrades to the existing system.

### **Potable Water**

The Town is a part of the City of Boynton Beach potable water service area. The Town of Ocean Ridge purchases water from the City of Boynton Beach, but owns and maintains the water lines and finances improvements to these water lines. The City of Boynton Beach bills individual residents based on their water consumption. The agreement with Boynton Beach (an attachment to the Town's Water Supply Plan, was signed in 1990 and has 30 year timeframe. At that time, the agreement would continue until it is terminated by either party or extended through an amended agreement. The Town will continue to work closely with the City with regards to the provision of potable water to the Town's residents.

According to the City of Boynton Beach's Evaluation and Appraisal Report, the City's Utilities Department provides potable water services for an estimated 100,000 people within Boynton Beach, Ocean Ridge, the Town of Briny Breezes, and portions of the unincorporated areas of Palm Beach County.

The City of Boynton Beach operates two water treatment facilities: the West Water Plant and the East Water Plant. In addition, the City has an interlocal agreement with Palm Beach County Water Utilities for the purchase up to 5 MGD of potable water if ever needed. It is estimated now that the Town's potable water demand is 0.33 MGD based upon the City of Boynton Beach's potable water level of service of 200 gallons per day per capita.

Policy 1.2.3. of the Town's Comprehensive Plan states, "In cooperation with Boynton Beach, the Town's water distribution system shall provide 189 gallons per person per day." The Town's level of service should be revised to reflect the level of service used by the water provider, the City of Boynton Beach. The Town will continue to assess its potable water system and investigate new technologies which will result in a lower rate of consumption.

### **Solid Waste**

The Solid Waste Authority (SWA) of Palm Beach County accepts all waste generated in the County. All SWA facilities are located outside of the Town and operated by SWA. According to Palm Beach County's EAR (approved October 19, 2004), the County and thereby the Town of Ocean Ridge meet the requirements of CH. 403 F.S. through the Integrated Solid Waste Management Plan (ISWMP).

The Town contracts with Waste Management Inc. to provide pick-up and disposal of all solid waste. All Town residents are required to use this service. All waste collected is transported to the South County Transfer Station located in the City of Delray Beach.

The Town's long range planning for this sub-element is addressed within the County's adoption of the ISWMP. The Town will have adequate solid waste collection capacity for new development. The service is funded on a cost recovery basis by the users. Regional solid waste disposal and recovery facilities serve the Town. There are no capital improvement projects that would incur the expenditure of Town funds projected for either the 5 or 10 year planning periods.

### **Drainage**

The drainage system for the Town has developed during the past 80 years and continues to be an area for continued maintenance and improvement. The Town adopted a Level of Service Standard of 24 hour/3 year return storm water event and has adopted a storm water retention level of service standard for new development and major redevelopment which requires the retainment of the first one inch of runoff on the development site per hour.

The existing drainage facilities within the Town are swales and exfiltration trench design. The Town has undergone and continues to make significant improvements to its stormwater facilities. For example, the Town recently completed a 2.59 acre drainage/retention facility at the northwest corner of Woolbright Road and Ocean Boulevard. Additional improvements have been provided within the southern portion of the Town and along Coconut Lane.

### Infrastructure Level of Service Analysis

LOS/Year	2009	2014	2019	2024	2029
Population Projection	1,681	1,705	1,724	1,739	1,747
Potable Water, 200 gallons per capita per day, 175 gallons per capita per day after 2013	336,200 gal/day	298,375 gal/day	301,700 gal/day	304,325 gal/day	305,725 gal/day
Sanitary Sewer, 115 per gallons per capita per day*	193,315 gal/day	196,075 gal/day	198,260 gal/day	199,985 gal/day	200,905 gal/day
Solid Waste, 9.54 pounds per capita per day	16,036 lbs/day	16,265 lbs/day	16,446 lbs/day	16,590 lbs/day	16,666 lbs/day
Drainage, 24 hour, 3 year storm event and rainfall of one inch in one hour	Requirement placed on all development and redevelopment in the Town.				

- \* Sanitary Sewer service in the Town is provided through private septic systems and package plants. The LOS analysis applies to all systems.

# **Wastewater, Solid Waste, Drainage, Potable Water and Natural Groundwater Aquifer Recharge Element**

## **GOALS, OBJECTIVES, & POLICIES**

**GOAL: TO PROVIDE AND MAINTAIN THE PUBLIC INFRASTRUCTURE IN A MANNER THAT WILL ENSURE PUBLIC HEALTH, SAFETY, AND QUALITY OF LIFE.**

**Objective 1.1: Monitor and continue to upgrade the Town's existing potable water system through a program of facility replacement.**

Policy 1.1.1: Continue the program of monitoring and assessing the Town's water lines in order identify areas for functional upgrades.

**Objective 1.2:** The city shall provide an adequate level of service during the planning period including new facilities (as needed) concurrent with new development; see policies for measurability.

Policy 1.2.1: Drainage: Drainage facilities for new development and redevelopment shall accommodate a 24 hour, 3 year storm event and rainfall of one inch in one hour.

Policy 1.2.2: Sewage: Septic systems shall be the level of service except in case of package treatment plants where the level of service shall be at least 115 gallons per person per day.

Policy 1.2.3: Potable Water: In cooperation with Boynton Beach, the Town's water distribution system shall provide 200 gallons per person per day and shall be reduced to a Level of Service standard of 175 gallons per person per day by 2013. Prior to the issuance of a building permit, the Town shall confirm with the City of Boynton Beach that adequate water supplies to serve the new development will be available no later than the anticipated date of issuance of the certificate of occupancy.

Policy 1.2.4: Solid Waste: Provide collection capacity of 9.54 pounds of solid waste per person per day, consistent with Solid Waste Authority waste generation rate estimates.

Policy 1.2.5: Coordinate activities with the Solid Waste Authority to maximize recycling efforts and provide public information to the Town's residents regarding the disposal of hazardous household waste.

**Objective 1.3:** The Town shall encourage water conservation through the installation of water-saving plumbing fixtures on new development and redevelopment.

Policy 1.3.1: By 2013, The Town shall investigate, evaluate and adopt any necessary building code plumbing provisions to achieve water conservation practices.

Policy 1.3.2: In its capital budgets, the Town shall evaluate and implement, when feasible, water conserving techniques within its facilities. These techniques may include drought-tolerant landscaping, rain sensors on irrigation systems and low-use plumbing devices.

Policy 1.3.3.:In compliance with Chapter 163, Part II, F.S., the Town shall adopt the Water Supply Facilities Work Plan (attached).

Policy 1.3.4: The Town's Water Supply Facilities Work Plan shall be updated within 18 months after South Florida Water Management Districts updates its Lower East Coast Regional Water Supply Plan.

**Objective 1.4: Protect the adjacent natural drainage feature (Intracoastal Waterway) and groundwater recharge by reviewing the development code provisions and revising as necessary.**

Policy 1.4.1: Through land development code techniques, 1) protect the natural drainage feature (Intracoastal) by supplementing the Corps of Engineers controls with setback and vegetation retention provisions and 2) assure adequate pervious or recharge areas in conjunction with new development.

**Objective 1.5: The Town shall continue to assess the status of the sanitary sewer system and its infrastructure.**

Policy 1.5.1: The Town shall consider innovations in technology when developing maintenance programs for the sanitary sewer system.

# **TOWN OF OCEAN RIDGE, FLORIDA**

## **WATER SUPPLY FACILITIES WORK PLAN**

**Prepared For:**

**Florida Department of Community Affairs**

**Prepared By:**

**Town of Ocean Ridge, Florida  
Urban Design Kilday Studios, Planning Consultant**

**March 25, 2009**

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### 4.0 CAPITAL IMPROVEMENTS

## **1.0 INTRODUCTION**

The purpose of the Town of Ocean Ridge Water Supply Facilities Work Plan (Work Plan) is to identify and plan for the water supply sources and facilities needed to serve existing and new development within the local government's jurisdiction. Chapter 163, Part II, F.S., requires local governments to prepare and adopt Work Plans into their comprehensive plans.

Residents of the Town of Ocean Ridge obtain their water directly from the City of Boynton Beach, which is responsible for ensuring that enough capacity is available for existing and future customers.

The Town of Ocean Ridge Water Supply Facilities Work Plan (Work Plan) will reference the initiatives already identified in Boynton Beach's Work Plan since the Town is a retail buyer. According to state guidelines, the Work Plan and the comprehensive plan amendment must address the development of traditional and alternative water supplies, bulk sales agreements and conservation and reuse programs that are necessary to serve existing and new development.

The City's Work Plan is divided into four sections:

Section 1 – Introduction

Section 2 – Background Information

Section 3 – Data and Analysis

Section 4 – Work Plan Projects/Capital Improvement Element/Schedule

### **1.1 Statutory History**

The Florida Legislature has enacted bills in the 2002, 2004, and 2005 sessions to address the state's water supply needs. These bills, especially Senate Bills 360 and 444 (2005 legislative session), significantly changed Chapter 163 and 373 Florida Statutes (F.S.) by strengthening the statutory links between the regional water supply plans prepared by the water management districts and the comprehensive plans prepared by local governments. In addition, these bills established the basis for improving coordination between the local land use planning and water supply planning.

### **1.2 Statutory Requirements**

Each local government must comply with the following requirements:

1. Coordinate appropriate aspects of its comprehensive plan with the appropriate water management district's regional water supply plan, [163.3177(4)(a), F.S.]
2. Ensure that its future land use plan is based upon availability of adequate water supplies and public facilities and services [s.163.3177(6)(a), F.S., effective July 1, 2005]. Data and analysis demonstrating that adequate water supplies and associated public facilities will be available to meet projected growth demands must accompany all proposed Future Land Use Map amendments submitted to the Department for review. The submitted package must also include an amendment to the Capital Improvements Element, if necessary, to demonstrate that adequate

public facilities will be available to serve the proposed Future Land Use Map modification.

3. Ensure that adequate water supplies and facilities area available to serve new development no later than the date on which the local government anticipates issuing a certificate of occupancy and consult with the applicable water supplier prior to approving building permit, to determine whether adequate water supplies will be available to serve the development by the anticipated issuance date of the certificate of occupancy [s.163.3180 (2)(a), F.S., effective July 1, 2005]. This "water supply concurrency" is now in effect, and local governments should be complying with the requirement for all new development proposals. In addition, local governments should update their comprehensive plans and land development regulations as soon as possible to address these statutory requirements. The latest point at which the comprehensive plan must be revised to reflect the concurrency requirements is at the time the local government adopts plan amendments to implement the recommendations of the Evaluation and Appraisal Report (EAR).
4. For local governments subject to a regional water supply plan, revise the General Sanitary Sewer, Solid Waste, Drainage, Potable Water, and Natural Groundwater Aquifer Recharge Element (the "Infrastructure Element"), within 18 months after the water management district approves an updated regional water supply plan, to:
  - a. Identify and incorporate the alternative water supply project(s) selected by the local government from projects identified in the updated regional water supply plan, or the alternative project proposed by the local government under s. 373.0361(7), F.S. [s. 163.3177(6)(c), F.S.];
  - b. Identify the traditional and alternative water supply projects, bulk sales agreements, and the conservation and reuse programs necessary to meet current and future water use demands within the local government's jurisdiction [s. 163.3177(6)(c), F.S.]; and
  - c. Include a water supply facilities work plan for at least a 10-year planning period for constructing the public, private, and regional water supply facilities identified in the element as necessary to serve existing and new development. [s. 163.3177(6)(c), F.S.] Amendments to incorporate the water supply facilities work plan into the comprehensive plan are exempt from the twice-a-year amendment limitation. [s. 163.3177(6)(c), F.S.]
5. Revise the Five-Year Schedule of Capital Improvements to include any water supply, reuse, and conservation projects and programs to be implemented during the five-year period.
6. To the extent necessary to maintain internal consistency after making changes described in Paragraph 1 through 5 above, revise the Conservation Element to assess projected water needs and sources for at least a 10-year planning period, considering the appropriate regional water supply plan, the applicable District Water Management Plan, as well as applicable consumptive use permit(s). [s.163.3177 (6)(d), F.S.]

If the established planning period of a comprehensive plan is greater than ten years, the plan must address the water supply sources necessary to meet and achieve the

existing and projected water use demand for established planning period, considering the appropriate regional water supply plan. [s.163.3167 (13), F.S.]

7. To the extent necessary to maintain internal consistency after making changes described in Paragraphs 1 through 5 above, revise the Intergovernmental Coordination Element to ensure coordination of the comprehensive plan with applicable regional water supply plans and regional water supply authorities' plans. [s.163.3177(6)(h)1., F.S.]
8. Address in the EAR, the extent to which the local government has implemented the 10-year water supply facilities work plan, including the development of alternative water supplies, and determine whether the identified alternative water supply projects, traditional water supply projects, bulk sales agreements, and conservation and reuse programs are meeting local water use demands. [s.163.3191 (2)(1), F.S.]

## **2.0 BACKGROUND INFORMATION**

### **2.1 Overview**

The Town of Ocean Ridge was incorporated in 1931, as a small, seasonal, beachfront community in southern Palm Beach County, east of the City of Boynton Beach. The Town is characterized primarily by single family homes with lush, well maintained landscaping and extensive outdoor recreational opportunities. There are also Intracoastal and beachfront condominiums and a few multi-family buildings scattered throughout the Town. There are very little commercial improvements left in Town. The Town is approximately 635.6 acres in size and located entirely on the barrier island, bordered by the Atlantic Ocean to the east and the Intracoastal Waterway to the west. To the north is unincorporated land under county jurisdiction. This land is primarily used as a water access park to the Boynton Inlet (aka Lake Worth Inlet), located just to the north of the Town. This Inlet is not within the jurisdiction of Ocean Ridge but is considered to have a major impact on, and is a key characteristic for the Town. To the south of Ocean Ridge is the Town of Briny Breezes, which consists almost entirely of a single mobile home park. South of Briny Breezes is a similar small town to Ocean Ridge, known as Gulf Stream.

Within the Town, there are 17.92 acres of developable vacant land which would allow to a maximum of 84 maximum new dwelling units in the Town.

As indicated above, the Town of Ocean Ridge is substantially built-out. Between 1990 and 2000, the Town of Ocean Ridge's population grew from 1,570 to 1,636. It is estimated that the population will increase to 1,785 in 2010, which is an increase from the 1,655 in 2005. By the year 2029, the population is projected to reach 1,747.

### **2.2 Relevant Regional Issues**

As the state agency responsible for water supply in the Lower East Coast planning area, the South Florida Water Management District (SFWMD) plays a pivotal role in resource protection, through criteria used for Consumptive Use Permitting. As pressure increased on the Everglades ecosystem resource, the Governing Board initiated rule making to limit increased allocations dependent on the Everglades system. As a result, the Regional Water Availability Rule was adopted by the Governing Board on February 15, 2007 as part

of the SFWMD's water use permit program. This reduced reliance on the regional system for future water supply needs, mandates the development of alternative water supplies, and increasing conservation and reuse.

### **3. DATA AND ANALYSIS**

#### **3.1 Population Information**

The Town's existing and future population figures are derived from U.S. Census figures, the Palm Beach County Planning and Zoning Department, and the Shimberg Center at the University of Florida. Between 1990 and 2000, the Town of Ocean Ridge's population grew from 1,570 to 1,636. In 2005, it was estimated that the Town's population had increased to 1,655 residents. By 2009, the Town's population is anticipated to increase to 1,681; 2024 to 1,739 and by 2029 to 1,747. This minor population growth is reflective of the fact that the Town is substantially built-out, with future development potential and population growth limited by the scarcity of vacant and developable land.

#### **3.2 Maps of Current and Future Areas Served**

The map depicting current Town boundaries and Future Land Use Plan designation served by the City of Boynton Beach's Water System Service Area map for potable water distribution is provided.

#### **3.3 Potable Water Level of Service Standard**

In its 1989 Comprehensive Plan for the Town, a potable water level of service of 189 gallons per capita per day was established. Currently, the Town's average potable water demand is 0.33 million gallons per day.

This average level of service demand is consistent with the existing Water Service Agreement between the City of Boynton Beach, which is the Town's potable water provider, and the Town, which is the consumer. This agreement requires the City to provide the Town with 2,000 gallons of potable water per minute.

Based on the City of Boynton Beach's Water Supply Plan, the Level of Service for the Town shall be revised to 200 gallons per day per capita, with a provision that requires a reduction in the Level of Service in 2013 to 175 gallons per day per capita.

#### **3.4 Population and Potable Water Demand Projections by Each Local Government or Utility**

See Tables below.

TABLE 1 - POPULATION & DEMANDS [ TOWN OF OCEAN RIDGE WATER SUPPLY FACILITIES WORK PLAN ]

WATER SUPPLY UTILITY SERVICE WITHIN LOCAL GOVERNMENT'S JURISDICTION											
UTILITY SERVICE AREA	POPULATION PROJECTIONS						WATER SUPPLY DEMAND (MGD)				
	YEAR ▶	2005	2009	2014	2019	2024	2005	2010	2015	2020	2025
TOTAL Population (Shimberg Center, University of Florida/Town of Ocean Ridge)		1,655	1,681	1,705	1,724	1,739	.30	.30	.30	.30	.30
City of Boynton Beach							15.7	16.5	17.5	19.0	20.5

TABLE 2 - OUTSIDE JURISDICTION SERVICE & BULK SALES AGREEMENTS TOWN OF OCEAN RIDGE WORK PLAN

BULK SALES TO LOCAL GOVERNMENT UTILITY BY OTHERS					
UTILITY PROVIDING	BULK SALES WATER RECEIVED (MGD)				
YEAR ▶	2005	2010	2015	2020	2025
City of Boynton Beach	0.27	0.28	0.3	0.3	0.3
Calculated Total	-----	-----	-----	-----	-----

### **3.5 Water Supply Provided by Other Entities**

The City of Boynton Beach Water Supply Facilities Work Plan is attached as Appendix A. The intent of the City of Boynton Beach's Work Plan is to meet the statutory requirements mentioned in subsection 1.2 of this plan and to coordinate the City Work Plan's water supply initiatives with the SFWMD's *Lower East Coast Water Supply Plan Update*.

The City has two Water Treatment plants. The East Water Treatment Plant is currently rated a 19.2 Million Gallons per Day (MGD) treatment facility. The Town of Ocean Ridge owns and maintains its transmission lines.

### **3.6 Conservation**

The Town will coordinate future water conservation efforts with the City of Boynton Beach and the SFWMD to ensure that proper techniques are applied. In addition, the Town will continue to support and expand existing goals, objectives and policies in the comprehensive plan that promotes water conservation in a cost-effective and environmentally sensitive manner. The Town will continue to actively support the SFWMD and the City of Boynton Beach in the implementation of new regulations or programs that are design to conserve water during the dry season.

### **3.7 Reuse**

State law supports reuse efforts. For the past years, Florida's utilities, local governments, and water management districts have led the nation in implementing water reuse programs that increase the quantity of reclaimed water used and public acceptance of reuse programs. Section 373.250(1) F.S. provides that "water reuse programs designed and operated in compliance with Florida's rules governing reuse are deemed protective of public health and environmental quality." In addition, Section 403.064(1), F.S., provides that "reuse is a critical component of meeting the state's existing and future water supply needs while sustaining natural systems." The Town of Ocean Ridge supports water reuse initiatives under consideration by both the SFWMD and the City of Boynton Beach.

## **4.0 CAPITAL IMPROVEMENTS**

There are no Potable Water Capital Improvements planned by the Town during the next five years. Only routine maintenance of the Town's water distribution lines paid for by general revenues are anticipated during the next five years. There is an annual maintenance budget for the water distribution system of \$10,000.

**CITY OF BOYNTON BEACH  
10-YEAR WATER SUPPLY FACILITIES WORK PLAN**

**APRIL 2008**

**BROWN AND CADWELL**

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# 1 INTRODUCTION

The City of Boynton Beach (City) provides potable water to its residents and to an extended service area of customers in a dedicated water service area. The City's Utilities Department is charged with producing, treating and distributing drinking water within this service area. The service area consists of the City of Boynton Beach, portions of unincorporated Palm Beach County, the Village of Hypoluxo, and the Towns of Ocean Ridge and Briny Breezes. The total population served by the Utilities Department is approximately 100,000 customers.

## 1.1 Purpose and Objectives

The purpose of this Water Supply Facilities Work Plan is to summarize the City's water supply systems and to provide a plan for implementing improvements to meet future potable water demand. These improvements may include the implementation of projects utilizing traditional (surficial aquifer system) and alternative water sources, bulk sales and conservation to meet the existing and future water demands. All or portions of this document will be included in the City's Comprehensive Plan to ensure internal consistency and document the City's water planning process.

This Water Supply Facilities Work Plan was prepared in cooperation with the City of Boynton Beach Planning and Zoning Department and those of Palm Beach County, the Village of Hypoluxo and the Towns of Ocean Ridge and Briny Breezes. Population data and future land use was coordinated to ensure that future water demand will be met with the projects identified in this report.

This Water Supply Facilities Plan includes the following sections:

- **Section 2 - Water Service Area Boundaries** - this section summarizes and illustrates the service area served by the City of Boynton Beach and the locations of self served systems within the service area boundary.
- **Section 3 - Existing Water Supply Facilities** - this section itemizes the components of the water supply facilities for the City including water production, treatment, storage and distribution. This section documents the quantity of water that the City can produce and the limitations based on the existing facilities and permits. In addition to potable water supplies, this section also addresses re-use water and water from other sources.
- **Section 4 - Population and Water Demand Projections** - this section presents the population projections for the City, summarizes the conservation and reuse programs, discusses projected per capita usage and projects future water demand. An analysis is also performed to compare water supply and demand to identify potential deficiencies.
- **Section 5 - Proposed Water Supply Projects** - this section summarizes proposed water supply projects that the City plans to implement to address deficiencies in water supply. This section addresses project descriptions, schedules, budgets and funding sources.

This Work Plan will be revised within 18 months after the SFWMD approves updates to the LEC Regional Water Supply Plan. This current modification addresses updates to the plan that was adopted on February 15, 2007.

## 2 WATER SERVICE AREA BOUNDARIES

This section presents a description of the City of Boynton Beach's potable water and reuse service area boundaries.

### 2.1 City of Boynton Beach Potable Service Area Boundary

The City's potable water service area is shown in Figure 2-1. The potable water service area is approximately 16,066 acres of which roughly 10,160 acres are within the municipality of Boynton Beach. The approximate boundaries of the City of Boynton Beach are Hypoluxo Road to the north, the Lake Worth Drainage District (LWDD) L-30 Canal to the south, the LWDD E-3 Canal to the West and the Intra Costal Water Way to the east. The approximate population served within the City of Boynton Beach is 67,885.

#### 2.1.1 Areas Served Outside of Local Jurisdiction

The City's water utility also serves portions of unincorporated Palm Beach County, as well as the Town of Briny Breezes, the Town of Ocean Ridge, and parts of the Village of Hypoluxo. The potable water service area extends roughly from Hypoluxo Road south to the City of Delray Beach from the Atlantic Ocean west to the E-3 Canal west of Military Trail. Roughly one-third of the City's service area (5,906 acres) and one third of the population (33,598) lie outside the jurisdictional limits of the City of Boynton Beach.

#### 2.1.2 City of Boynton Beach Reuse Service Area Boundary

The City of Boynton Beach distributes a portion of the re-use water produced by the South-Central Water Reclamation Facility (SCRWRF) to customers within its water service area. The SCRWRF is jointly owned and operated by the Cities of Boynton Beach and Delray Beach. The reuse water is also jointly shared between the two municipalities. Currently, reuse water is conveyed into Boynton Beach along a single corridor along Congress Avenue. This line serves a number of public and private facilities (discussed in Section 3) and terminates at Woolbright Road (just west of Congress Avenue). It is anticipated that the "reuse service area" will be expanded in the near future. Plans to extend the reuse line along Golf Road, Seacrest Avenue, Woolbright Road and Federal Highway (to Boynton Beach Boulevard) are currently being implemented. Figure 2-2 illustrates the existing and proposed expansions to the reuse distribution system. Existing and future end users, along with anticipated average volume of reuse water consumed is discussed in Section 3.1.3.

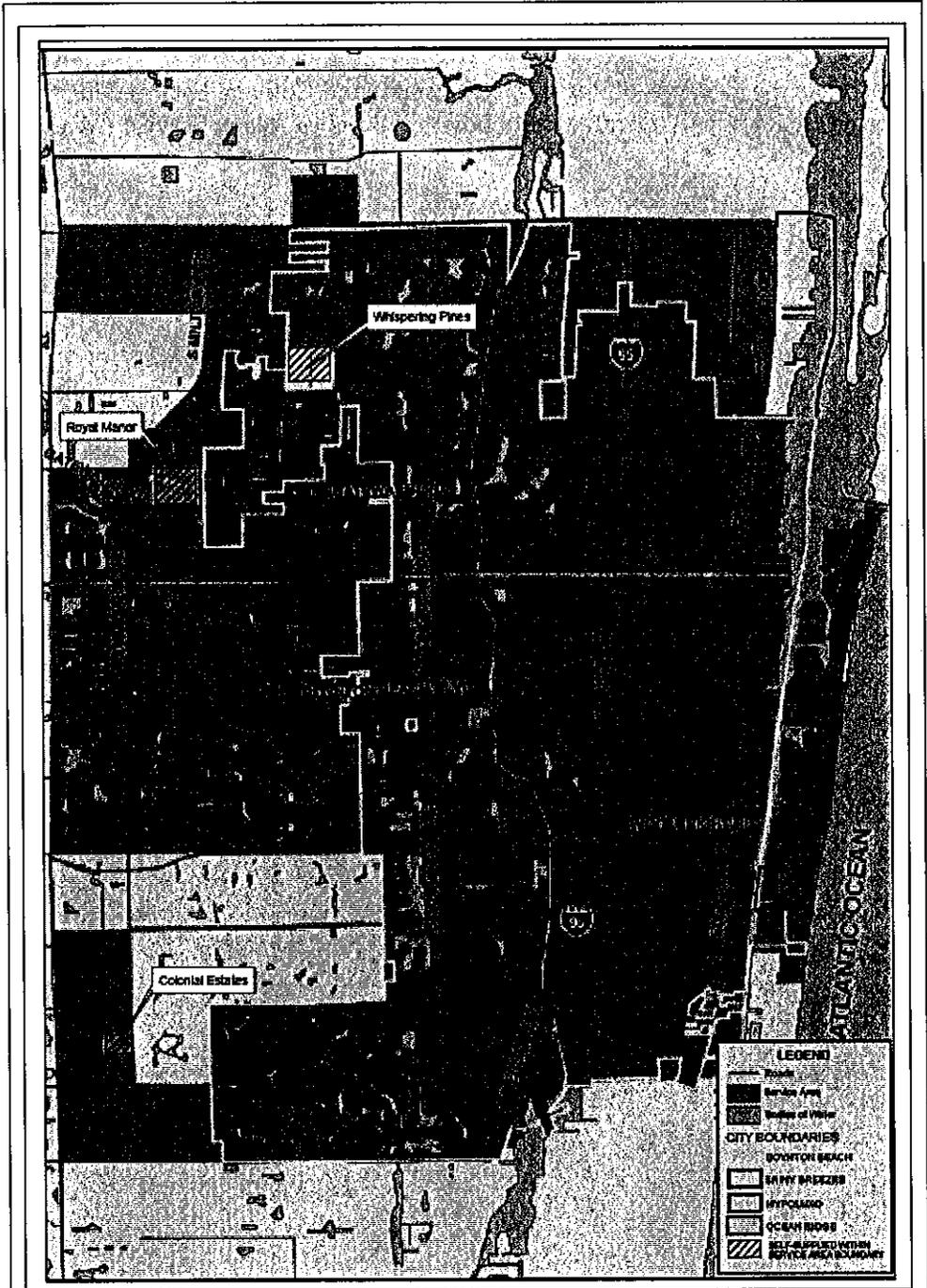
#### 2.1.3 City of Boynton Beach Self Supplied Systems

The City of Boynton Beach has identified two communities within the prescribed Water Service Area that are self supplied. These communities include the following:

- Royal Manor Estates Trailer Park - this is a small private water supply system serving approximately 700 people. Per capita usage is projected to be 85 gallons per day. Royal Manor Estates operates under Consumptive Use Permit #50-03348-W which was issued by SFWMD on October 5<sup>th</sup> 1994.
- Colonial Estates Trailer Park - this is a small private water supply system serving approximately 635 people. Per capita usage is projected to be 46 gallons per day.

Colonial Estates Trailer Park operates under Consumptive Use Permit # 88-00083-W which was issued by SFWMD on March 17<sup>th</sup> 1988.

Figure 2-1 illustrates the locations of Royal Manor Estates and Colonial Estates. No other self supplied systems are known to operate within Boynton Beaches' Water Service Area.

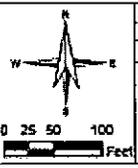


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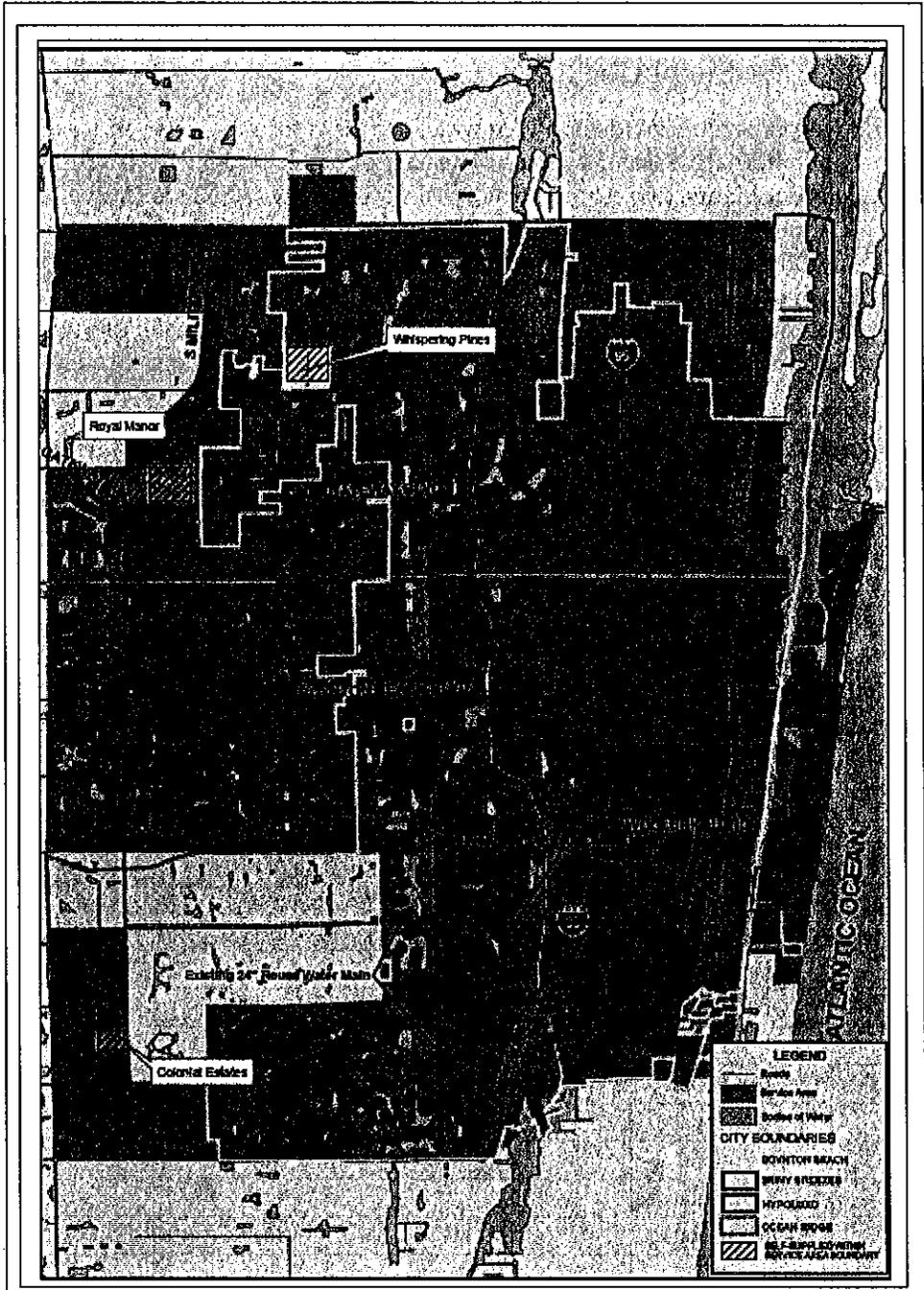
City of Boynton Beach  
 10 Year Water Supply Plan

Prepared for:  
 City of Boynton Beach  
 UTILITIES DEPARTMENT

**FIGURE 2-1**  
**Water System Service Area**



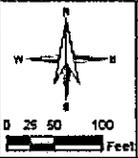
Date: 2/11/2008  
 Project: 134527  
 Scale: 1" = 100'  
 Note: GIS data provided by  
 City of Boynton Beach



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City of Boynton Beach  
 10 Year Water Supply Plan  
 Prepared for:  
 City of Boynton Beach  
 Utilities Department

**FIGURE 2-2**  
**Existing and Proposed**  
**Reuse Water Corridor**



Date: 2/14/2008  
 Project: 134527  
 Scale: 1" = 100'  
 Note: GIS data provided by  
 City of Boynton Beach

### 3 WATER SUPPLY FACILITIES

#### 3.1 Existing Water Supply Facilities

The City of Boynton Beach provides potable water for the residents of its service area from conventional and alternative water sources. The City operates two Surficial aquifer well fields, two water treatment plants, two Aquifer Storage and Recovery (ASR) wells, five storage facilities, a reclaimed water distribution system and over 315 miles of potable water distribution mains. Although the entire water system is interconnected through the distribution system, raw water can not be shared between the City’s wellfields or water treatment plants. A complete system integration (including direct communication and transfer of raw water between the East and West Water Treatment Plants and Wellfields) is proposed as part of this plan.

This section discusses the current permitted capacity of the production, treatment and distribution systems.

##### 3.1.1 Surficial Wells

The City of Boynton Beach water supply system is comprised of two major wellfields, the East Wellfield and the West Wellfield. The East Wellfield contains a total of twenty wells, nineteen of which are operational. Table 3-1 provides the well construction and operational details. The West Wellfield contains a total of eleven wells, which are all operational. Table 3-2 provides construction and operational details. The existing water supplies serving these two wellfields originate from the Surficial Aquifer System which occurs just below land surface and extends to a depth of approximately 250 feet.

Well Number	Status	Well Diameter (inches)	Total Well Depth (feet)	Design Pump Capacity (GPM)
1E	Operational	8	54	115
2E	Operational	8	60	87
3E	Abandoned	8	62	850
6E	Operational	12	76	550
7E	Operational	12	74	500
8E	Operational	12	70	500
9E	Operational	12	103	700
10E	Operational	16	104	1000
11E	Operational	16	104	1100
12E	Operational	16	125	1100
13E	Operational	16	75	1100
14E	Operational	16	273	1100
15E	Operational	12	233	700
16E	Operational	12	233	700
17E	Operational	12	201	500

**Table 3-1: East Wellfield Wells**

18E	Operational	12	200	500
19E	Operational	12	205	500
20E	Operational	12	203	500
21E	Operational	12	203	500
22E	Operational	12	203	500

**Table 3-2: West Wellfield Wells**

Well Number	Status	Well Diameter (inches)	Total Well Depth (feet)	Design Pump Capacity (GPM)
1W	Operational	16	163	1500
4W	Operational	16	159	1500
5W	Operational	16	150	1500
6W	Operational	16	161	1500
7W	Operational	16	161	1500
8W	Operational	16	151	1500
9W	Operational	16	167	1500
10W	Operational	16	160	1500
11W	Operational	16	153	1500
12W	Operational	16	163	1500
13W	Operational	30	235	1500

Water consumption within the City is governed by Consumptive Use Permit 50-00499-W. The permit was issued by the South Florida Water Management District in August 15, 2003 and will expire on August 14, 2010. Although the City has operational capacity to pump over 27,000 gallons per minute, production is limited by a number of "Limiting Conditions" contained in the CUP.

Specific limitations include the following:

- Annual Allocation shall not exceed 7844 MG (21.5 MGD)
- Monthly allocation shall not exceed 741.1 MG (24.7 MGD)
- Monthly allocation from the East Well Field shall not exceed 240 MG (8 MGD)
- Upon completion of the proposed RO treatment facility (on or before July 1, 2008) the City shall limit the dry season withdrawal from the Biscayne Aquifer wells (January through May) to 2325 MG (less than 465 MG/month). During the wet season (June through December) withdrawal may be increased to 5522 MG (less than 771 MG/month)

### 3.1.2 Aquifer Storage and Recovery

The City's East Plant is the site of an existing operational Aquifer Storage and Recovery (ASR) well. The existing well is approximately 835 feet deep and is used to store excess treated potable water. During the wet season excess water from the Surficial Aquifer is treated and stored in the ASR well. During the dry season, water is pumped from the ASR to supplement water from the Surficial aquifer. Typically, the existing ASR well will store up to 150 million gallons (MG). When the well has been recharged, the City uses the well on a daily basis (at a recovery rate of up to 2 mgd) to supplement Surficial aquifer supplies. A second ASR well has also been constructed at the City's East Water Treatment Plant. The well was completed in 2006. The City submitted a permit application to the Florida Department of Environmental Protection in September 2007. It is anticipated that the well will not begin a recharge cycle until at least June 2008 with potential recovery during early 2009. ASR-2 was constructed to operate at 4 mgd bringing the total ASR capacity to 6 mgd. It has not been confirmed whether the well will operate at this level. Additionally, with increased regulation on the Surficial aquifer, the City may need to transport water from the Western Wellfield to recharge the well.

### 3.1.3 Reuse

The City of Boynton Beach is served by the South Central Regional Wastewater Treatment and Disposal Board (SCRWTDB), which was founded in 1974. The facility is operated under an interlocal agreement between the Cities of Boynton Beach and Delray Beach to treat and dispose of sanitary wastewater. The South Central Regional Wastewater Reclamation Facility (SCRWRF) currently has a treatment capacity of 24 MGD and provides secondary treatment with flow equalization through an ocean outfall between the two cities. The SCRWRF also provides tertiary treatment of up to 10 MGD of flow for reclaimed water use for irrigation. The reuse water is used on-site and in the two cities for irrigation of golf courses and green spaces. The plant is currently undergoing an expansion to increase its reclaimed treatment and pumping capacity to 16 MGD.

	Water	Average Daily Flow (GPD)
1	Country Club of Florida	900,000
2	Quail Ridge Home Owners' Assoc.	2,090,000
3	Quail Ridge Country Club	1,600,000
4	Pine Tree	800,000
5	Delray Dunes	800,000
6	Hunters Run Country Club	500,000
	Total	6,690,000

Six end users adjacent to or within the City's Water Service Area are currently accepting approximately 6.7 MGD of reclaimed water. Reuse is not currently mandated in the City's CUP and most of the water is not a direct off-set of potable water usage. Each of the six users had water use permits to provide irrigation water for their respective golf courses. Although this water does not reduce potable demand, it has reduced demand on the regional system

withdrawals by 6.7 MGD. Table 3-3 contains a list of users currently receiving reuse water along with average daily usage.

A corridor analysis has recently been completed and a design is being prepared to extend the reuse distribution force main within Boynton Beach. The goal of this program will to offset potable water usage and to dispose of the water in an environmentally acceptable manner. It is anticipated that Phase I expansion of the Reclaimed water system will come on line by 2010. This will reduce potable water demand (currently being used for irrigation) by approximately 0.5 MGD. Table 3-4 summarizes the end users that will be incorporated into the Phase I expansion of the reclaimed water system. It is estimated that 50% of the reuse water will offset demand on the potable water system.

	PHASE I USER	Average Daily Flow (MGD)
1	Bethesda Services	17,900
2	Caloosa Park	124,530
3	South Technical Education Center	154,207
4	Congress Avenue Park	41,000
5	Crosspointe Elementary School	107,000
6	Highpoint Residential	182,000
7	Boynton Beach East Water Treatment Plant	4,000
8	Boynton Beach Cemetery	70,000
9	Little League Park	49,000
10	Forest Park Elementary	47,000
11	Snug Harbour	34,000
12	Sterling Village	77,000
13	Pence Park	15,000
14	Boynton Beach Civic Center / Administrative Campus	43,000
	Total Average Daily Flow	965,637

#### 3.1.4 Bulk User Agreement

The City entered into agreement with Palm Beach County on December 21, 2004, for the purchase and sale of bulk potable water. On October 2<sup>nd</sup> 2007 the Board of County Commissioners approved the First Amendment to the Interlocal agreement between Palm Beach County and the City for the purchase and sale of bulk potable water. Copies of the above agreement and amendment are enclosed in Appendix A. The agreement includes the purchase of 1 MGD of firm capacity from Palm Beach County Water Utilities Department and provides the City with the flexibility to purchase an additional 4 MGD as needed. The duration on the optional 4 MGD will extend through 2012. Water purchased from Palm Beach County will be integrated into the City's distribution system to supplement available water for the entire service area.

#### 3.1.5 Other User Agreements

The City of Boynton Beach has identified one additional geographic area within the City's Water Service Area that receives water from sources other than the City. Whispering Pines Trailer Park is located on Gateway Boulevard between Lawrence Road and Military Trail. The

community has a population of approximately 300 people and has water provided through an agreement with the Town of Lake Clark Shores. The Town of Lake Clark Shores provides water to Whispering Pines through a bulk user agreement with the City of Lake Worth's water system. The Town of Lake Clark Shores was contacted during the development of this Water Supply Plan and is aware of their commitment to supply water to Whispering Pines Trailer Park. In addition, the Town is in the process of preparing a Water Supply Facilities Work Plan and will indicate that they have sufficient water to meet Town demand (including Whispering Pines Trailer Park C) through 2018.

### 3.2 Water Treatment and Storage Facilities

The City of Boynton Beach supplies water from two water treatment facilities including the East and West Water Treatment Plants. Although the system is interconnected by the finished water distribution system, there is not direct linkage between the City's water treatment plants or between the two wellfields. In order to maintain sustainable operation, both plants must be operational.

#### 3.2.1 East Water Treatment Plant

The City's East Water Treatment plant is located at 124 East Woolbright Road and uses conventional lime softening to treat water from the East Wellfield. The location of the East Water Treatment Plant is illustrated in Figure 3-1. The plant was originally constructed in 1963 and expanded in 1978. The Plant is currently rated by the Palm Beach County Health Unit (PBCHU) and the Florida Department of Environmental Protection at 19.2 MGD. Plant output, however, is limited by the amount of raw water available from the existing Surficial wellfield supply. The PBCHU currently considers that extraction from the Surficial wellfield is limited to a maximum of 12 MGD based on the capacity of existing equipment. The South Florida Water Management District (SFWMD), however, limits the amount of water available to this plant from the existing Surficial well field to 240 MG per month (8 MGD). The East Plant also has an ASR well that can provide an additional 2 MGD of capacity. During periods of exceptional water demand, the East Water Treatment Plant can produce nearly one million gallons per hour through a combination of Surficial aquifer wells, ASR and storage. A second ASR well (ASR-2) is planned to come on line in 2009. This well is discussed later in the report.

#### 3.2.2 West Water Treatment Plant

The City's West Water Treatment Plant is located west of the City on Boynton Beach Boulevard just east of the Lake Worth Water Management District's E-4 Canal. The location of the West Water Treatment Plant is illustrated in Figure 3-1. The plant was built in 1993 and utilizes nano filtration or membrane softening to treat water from the Surficial (Biscayne) aquifer water. The membrane softening process reduces hardness and total organic carbon content. The plant was recently re-rated to a capacity of 10.4 MGD and with a treatment efficiency of 85-percent. In addition to the permeate, the West Water Treatment Plant is permitted to blend up to 1.7 MGD (up to 20%) of filtered water from the Surficial aquifer with the membrane plant

throughput. The combined output (up to 10.4 MGD of finished water) results from approximately 11.9 MGD of raw water.

### 3.2.3 Water Storage Facilities

The City has a variety of water storage facilities to meet the needs of the community. At the East Water Plant there is a clearwell beneath the filter building. The clearwell is approximately 10-feet deep and stores up to 1.2 MG of finished water prior to distribution. In addition, there is also a 1.5 MG elevated concrete water storage tank at the East Water Treatment Plant. The elevated tank is approximately 165 feet tall and helps maintain system pressure.

The City has three concrete ground storage tanks with a combined capacity of 7 MG. The tanks include the following:

- 3 MG tank located at the West Water Treatment Plant - The tanks is used for blending water purchased from Palm Beach County Utilities. This storage tank also helps achieve the chlorine contact time required fro proper disinfection of the water treated at this location.
- 3 MG tank located on Minor Road between Congress Avenue and Lawrence Road - This tank is used to balance water production and peak demand.
- 1 MG tank located west of Congress Avenue on Woolbright Road - This tank is used to balance water production and peak demand.

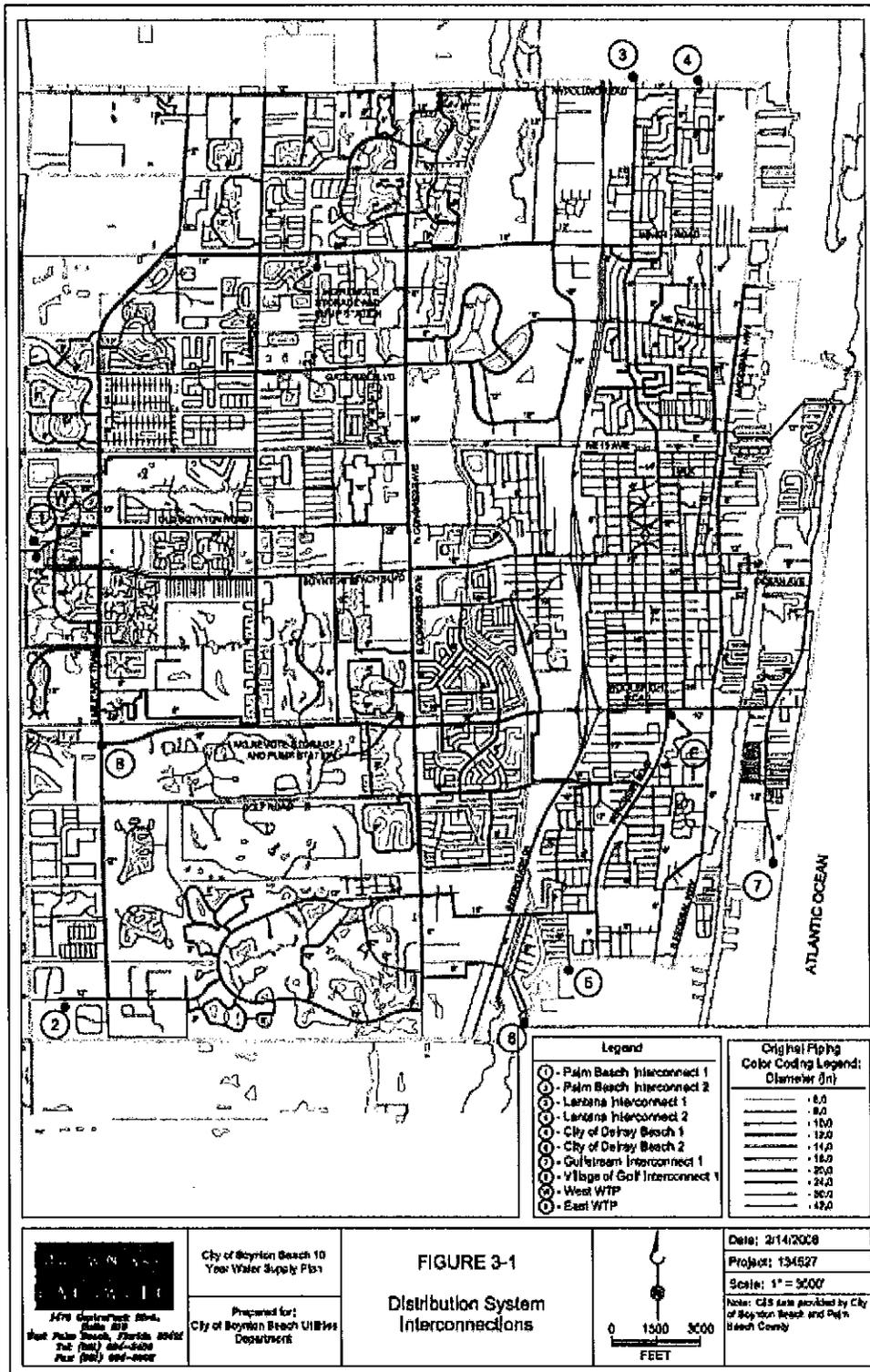


Figure 3-1 illustrates the locations of the two water treatment plants and the two remote ground storage tanks. It is anticipated that an additional 1.5 MG of storage will be added to the system by 2010 to meet FDEP peak hour storage requirements. The new storage and pumping facility will most probably be located in the north-east quadrant of the City.

### 3.3 Water Distribution Facilities

The water distribution system has over 315 miles of water mains (see Figure 3-1). The largest main is 42-inches in diameter and serves as the discharge of the West Water Treatment Plant. This main divides into two 30-inch lines which support the western grid and eventually the entire network. The East Plant has 30-inch and 24-inch mains leaving the site. On the east side of the City, the largest mains run north and south and are on or near First Street and also Seacrest Boulevard. These mains are 23-inch and 20-inch at Woolbright Road, and other major arteries that constitute the backbone of the water pipe network.

The existing water mains are constructed of a variety of materials and are up to 50 years old. Most new mains are ductile iron, but some C-900 PVC has been used east of U.S. 1 on a limited basis in areas that may be subject to aggressive and salty soil conditions. There are also small sections of HDPE pipe. One section of HDPE pipe is owned by the Town of Ocean Ridge and functions as the northern intracoastal connection from Boynton Beach to Ocean Ridge. The pipe system in the Town of Ocean Ridge is owned by the Town, but the City provides the water, owns and reads the meters, and provides some reimbursable maintenance and water quality services for the Town system. There is also HDPE pipe on the south end of Seacrest Boulevard where the City utilized a directional driller to install pipes to reduce the disruption of traffic on this busy thoroughfare.

The City currently has emergency interconnect agreements with Palm Beach County, the City of Delray Beach, the Town of Gulfstream, the Village of Golf, and the Town of Lantana.

**Table 3-5: Distribution System Interconnections**

Description	Location	Reference # in Figure 3-1	Size of Pipe
Palm Beach Interconnect 1	5469 West Boynton Beach Boulevard	1	12" pipe w / 8" meter
Palm Beach Interconnect 2	Flavor Pict Road west of Military Trail	2	12" pipe w / 8" meter
Lantana Interconnect 1	Hypoluxo and Seacrest	3	6" meter
Lantana Interconnect 2	Hypoluxo/San Castle	4	6" meter
City of Delray Beach	South Swinton Avenue	5	6" meter
City of Delray Beach	South Lake Drive-Lake Ida	6	6" meter
Town of Gulfstream (one way feed only)	A1A-Little Club	7	6" meter
Village of Golf	Military Trail and Woolbright Road	8	8" meter

The agreement with Palm Beach County Utilities is a five year agreement to provide between two to five MGD to the City as supplemental supply. This supply is mixed with City water at the West Water Plant and re-pumped into the City system. There is a second interconnection

with the County at Flavor Pict Road if additional water is required. These interconnections allow the City to supply or receive water from the County in the event of an emergency on their system.

The other named interconnects are for emergency or maintenance needs only and the pipes are valved and normally closed. They are opened only at the direction of Directors from both entities and/or their designees. The interconnections are metered to measure and invoice the flow of water.

The location of these interconnects are listed in Table 3-5 and shown in Figure 3-1.

## Summary

The City of Boynton Beach produces water from a number of different sources. This summary presents existing potable water available from the various sources under the existing regulatory environment. Table 3-6 summarizes the existing capacity of the City to produce water under both the wet and dry seasons. This data is revisited in Section 5 to discuss the adequacy of supply to meet projected demands.

**Table 3-6: Current Average Day Potable Water Production Capabilities**

Wellfield Installed Capacity (MGD)	Wet Season (June - December)	Dry Season (January - May)
East Wellfield	17.6	17.6
West Wellfield	23.7	23.7
Combined	41.3	41.3
<b>Regulated Wellfield Capacity (MGD)</b>		
East Wellfield [a]	8.0	8.0
West Wellfield	17.7	7.5
Combined [b]	25.7	15.5
<b>Treatment Plant Capacity (MGD) [c]</b>		
East WTP	8.0	8.0
West WTP [d]	10.4	6.6
Combined	18.4	14.6
<b>Aquifer Storage and Recover (ASR)</b>		
ASR-1 (MGD) [e]	-2.0	2.0
ASR-2 (MGD) [f]	-3.0	3.0
<b>Bulk Water Purchases from PBC (MGD) [g]</b>		
Potable Water Available (MGD)	18.4	14.6

Notes:

- [a] - East Wellfield withdrawal limited to 8.0 MGD
  - [b] - Combined Surficial aquifer withdrawal limited to 15.5 MGD (dry season) / 25.7 MGD (wet season)
  - [c] - Plant capacity represents the lesser of treatment plant capacity or regulated wellfield capacity
  - [d] - Represents 85% membrane efficiency plus 20% of unfiltered water
  - [e] - ASR well requires recharge during wet season resulting in a negative water availability
  - [f] - ASR-2 is proposed to come on line in 2009.
  - [g] - Bulk Purchase from Palm Beach County Water Utilities Department - 5 MGD through 2012
- MGD - million gallons per day

## 4 POPULATION AND WATER DEMAND PROJECTIONS

This section provides historical and projected population projections from the year 2000 through 2025 for the City of Boynton Beach service area. Population projections for the City and the City's water service area come from two sources: Palm Beach County Planning Division and the Metropolitan Center of the Florida International University. The Palm Beach County arrives at the municipal projection figures by disaggregating county-level forecasts produced by the Bureau of Economic and Business Analysis of the University of Florida.

### 4.1 Historical Population

Historical populations for the City of Boynton Beach are shown in Table 4-1 in one year increments from the year 2000 through 2007.

	2000	2001	2002	2003	2004	2005	2006	2007
Population 2000-2007	60,389	61,816	62,847	64,593	65,208	65,601	67,071	66,872
% Annual Increase		2.4%	1.7%	2.8%	1.0%	0.6%	2.2%	-0.3%

**Notes:**

[a] - Source of City's population figures 2000-2007: U.S. Census 2000 and estimates by University of Florida's Bureau of Economic and Business Analysis.

[b] - Average annual population increase during 2000-2007 period: 1.47%

In 2007 Boynton Beach population fell by 0.3%. As other municipalities in the Palm Beach County either lost population or experienced flat growth, and the Palm Beach County School District student enrollment fell for the second straight year, the small population loss by the City appears to be a part of a general trend.

### 4.2 Population Projections for City of Boynton Beach Service Area

Projected populations for the City of Boynton Beach and the municipalities that make up the service area are shown in Table 4-2 in one year increments from the year 2008 through 2025. Given the prolonged downturn in residential markets and the overall economic climate, the population growth over the next 5 years is likely to be weaker than previously thought, and the population projections for this period have to be adjusted slightly downward from the Metropolitan Center of FIU projections. Since the 2000 Census, the City grew on average about 1.5% per year. Staff used this annual increase to produce a short-term, 5-year adjustment to the population projections.

The adjusted 5-year population projections are used for the level-of-service standards calculations for public facilities and services provided within city's boundaries. For water and sanitary sewer facility planning within the entire service area, the City has used estimates slightly lower than those developed by the Metropolitan Center housing unit-based projections (which, in case of the total service area, constitute a low scenario). This lower projection was developed to reflect the recent changes in the economy and in the construction industries. These projected populations, although lower than those estimated by Palm Beach County have been approved by DCA for water planning purposes.

**Table 4-2: Population Projections for City of Boynton Beach Service Area**

Year		Projected Population	Interpolated Population
2005	2005	98,998	
	2006		100,317
	2007		101,637
	2008	100,485	
	2009		101,409
2010	2010	102,332	
	2011		103,625
	2012		104,918
	2013		106,210
	2014		107,503
2015	2015	108,796	
	2016		111,300
	2017		113,804
	2018	116,307	
	2019		118,811
2020	2020	121,315	
	2021		123,924
	2022		126,532
	2023		129,141
	2024		131,749
2025	2025	134,358	

Note: Population estimates based on modified FIU Metropolitan Center Low Projections (2006)

**Table 4-3: Projected Service Area Population Growth**

	2003	2010	2015	2018	2020
Boynton Beach <i>(adjusted for slowdown - 1.5% growth until 2015 and 2% thereafter)</i>	67,855	69,865	75,153	79,753	82,975
Unincorporated Palm Beach County <i>(per County TAZ data for utilities)</i>	30,049	29,807	30,735	33,536	35,261
Village of Hypoluxo <i>(per County TAZ data for utilities)</i>	432	495	557	666	727
Town of Ocean Ridge <i>(per county TAZ data for utilities)</i>	1,713	1,733	1,918	1,918	1,918
Town of Briny Breezes <i>(per county TAZ data for utilities)</i>	436	432	433	434	434
<b>Total Population Based Upon Jurisdictional Population Figures</b>	<b>100,485</b>	<b>102,332</b>	<b>108,796</b>	<b>116,307</b>	<b>121,315</b>
<i>Metropolitan Center (FIU) – Low Scenario Projection (approved by DCA for water planning in CIE) (NOI February 2008)</i>		102,941	112,384		122,923

Five-year population projections presented in Table 4-2, have been presented and approved by the DCA.

Table 4-3 further subdivides service area growth by municipality. Within the service area most of the growth is anticipated within Boynton Beach and unincorporated Palm Beach County. The Villages of Ocean Ridge and Briny Breezes are virtually built out and have no opportunities for population growth without significant zoning changes. Table 4-3 summarizes population growth by individual municipality served by Boynton Beach's water utility. Total population numbers, although not identical to those projected by Metropolitan Center at FIU are consistent for planning purposes. These population projections were reviewed with the planning departments from their respective municipalities.

### 4.3 Historical Water Use

Historic water use figures reflect water provided by the City of Boynton Beach Water Utilities. These water use figures provide the basis for forecasting future water demands for the City's service area. Table 4-4 shows the City's historical raw and finished water use and population served from the year 2000 through 2007.

Year	Population Served	Per Capita Demand (GPCPD)	Finished Water Demand (MGD)
2000	91,959	145	13.3
2001	93,367	145	13.5
2002	94,775	145	13.7
2003	96,182	145	13.9
2004	97,590	145	14.2
2005	98,998	159	15.7
2006	100,317	159	16.0
2007	101,637	159	16.2

*Note: Per capita demand (GPCPD) is defined by average daily demand by the permanent population. The City's Level of Service is defined by Policy 3C.1.1 as the maximum day demand flow provided to the peak population.*

### 4.4 Water Demand Projections

Water demand projections were calculated based on the City's population projections multiplied by its projected per capita demands. Table 4-5 provides the projected finished water use for the year 2008 through 2025.

**Table 4-5: Water Demand Projections for City of Boynton Beach Service Area**

Year	Projected Population	Interpolated Population	Per Capita Demand (GPCPD)	Average Daily Water Demand (MGD)
2008	100,485		159.3	16.0
2009		101,409	159.0	16.1
2010	102,332		158.8	16.3
2011		103,625	158.5	16.4
2012		104,918	158.3	16.6
2013		106,210	158.0	16.8
2014		107,503	157.8	17.0
2015	108,796		157.5	17.1
2016		111,300	157.3	17.5
2017		113,804	157.0	17.9
2018		116,307	156.8	18.2
2019		118,811	156.5	18.6
2020	121,315		156.3	19.0
2021		123,924	156.0	19.3
2022		126,532	155.8	19.7
2023		129,141	155.5	20.1
2024		131,749	155.3	20.5
2025	134,358		155.0	20.8

*Note: Per capita demand (GPCPD) is defined by average daily demand of the permanent population. The City's Level of Service is defined by Policy 3C.1.1 as the maximum day demand flow provided to the peak population.*

The City has a single per capita average day demand (PCADD) in aggregate of 160 gallons per capita per day. This value combines industrial, commercial and residential usage because water usage can not be separated by sector classification by the City's billing system. Overall, it is anticipated that all future growth will match the current use distribution (residential versus non-residential). The current per capita average day demand represents finished water and combines system losses, production in efficiency, and the variations of water use by the different geographic areas. Table 4-6 projects the overall system per capita average day demand onto the component municipalities to project future water demand. Although it is not possible to isolate individual water demand, it is anticipated that the City, unincorporated Palm Beach County and the Town of Ocean Ridge will continue to use a similar, higher per capita usage while the Village of Hypoluxo and the Town of Briny Breezes will have a lower per capita usage because of the distribution of small homes, small lots and the percentages of multi-family dwellings.

Table 4-6: Projected Water Demand by Municipality Served

	2008			2015			2018			2020		
	Population	PCADD (gpd)	Demand (MGD)									
Boynton Beach (adjusted for slowdown - 1.5% growth until 2015 and 2% thereafter)	67,855	159.3	10.81	75,153	157.5	11.84	79,753	156.8	12.51	82,975	156.3	12.97
Unincorporated Palm Beach County (per County TAZ data for utilities)	30,049	159.3	4.79	30,735	157.5	4.84	33,536	156.8	5.26	35,261	156.3	5.51
Village of Hypoluxo (per County TAZ data for utilities)	432	159.3	0.07	557	157.5	0.09	666	156.8	0.10	727	156.3	0.11
Town of Ocean Ridge (per County TAZ data for utilities)	1,713	159.3	0.27	1,918	157.5	0.30	1,918	156.8	0.30	1,918	156.3	0.30
Town of Briny Breezes (per County TAZ data for utilities)	436	159.3	0.07	433	157.5	0.07	434	156.8	0.07	434	156.3	0.07
Total Population (Based Upon Jurisdictional Population Figures)	100,485		16.01	108,796		17.14	116,307		18.24	121,315		18.96
Total projected from Metropolitan Center (FLU) for Boynton Beach Service Area (low scenario) approved by DCA for water planning in CIE(MCI) February 2008)				112,384								

PCADD: Per capita average daily demand; gpd: gallon per day; MGD: Million gallons per day. Please note that the City's LOS is defined as a maximum daily demand per peak population. Please also note that, since the two water treatment facilities are interconnected via the distribution system, the same LOS applies.

#### 4.5 Water Conservation

The City is implementing several conservation programs to actively and passively reduce per capita water demand. The City Commission passed ordinances restricting irrigation, mandating low flow fixtures and identifying and repairing internal waste and losses. The following actions have been implemented in an attempt to reduce per capita usage from over 160 gallons per capita per day (gpcd) to 155 gpcd:

- A. Permanent Irrigation Ordinance - Palm Beach County Ordinance 93-3 applies within the City's service area. It is enforced by the County and the City of Boynton Beach.
- B. Xeriscape (Waterwise) Program - The City has significantly reduced the planting of annuals at city facilities and landscape medians by increasing the use of permanent native vegetation. The City's Landscape Code requires that 50% of all new landscaping consist of native / Xeriscape / Waterwise plant species.
- C. Ultra-low Volume Plumbing Fixture Ordinance - The city has adopted Ordinances No. 092-41 and 092-42, requiring new and replacement toilets, showerheads, and other fixtures to be low flow. These ordinances adopt the Standard Building Codes, and Uniform countywide Amendments.
- D. Water Conservation Rate Structure - In 1990, the City Commission adopted an eight tier conservation-based rate ordinance, whereby the more water used, the higher the rate per thousand gallons, as a means of reducing demands. In 2002 the Commission amended this ordinance to adjust the conservation based rate structure. Under these amendments, the rate of the highest tier increased by 17%.
- E. Leak Detection Program - As a result of the implementation of replacing customer meters and old two-inch galvanized distribution lines, the City's unaccounted-for water is currently approximately 12%. The City is scheduled to spend an additional 5.2 million dollars over the next three years to replace most of its remaining galvanized piping. Therefore, a formal leak detection program is not required. However, the City will continue to put forth an effort in keeping the unaccounted-for water losses to a minimum.
- F. Rain Sensor Device - The City enforces Section 373.62, Florida Statutes, requiring rain sensor devices on all new automatic irrigation systems.
- G. Water Conservation Education Program - The Utility Department has promoted water conservation by providing tours at both water plants to school groups, youth organizations, homeowner associations, and other interested parties, with water conservation being an integral part of the tour, distributing flow restrictors, toilet dams, dye kits, and "Save Water" bumper stickers, displaying conservation signs, and making presentations to various civic groups.
- H. Wastewater treatment is provided for the City by the South County Regional Wastewater Treatment Plant. The City of Boynton Beach as co-owner of the South Central Regional Wastewater Treatment Facility has co-funded the existing 10 MGD reclaimed water facilities that serves irrigation systems at the Village of Golf, Pine Tree Golf Club, Quail Ridge, Delray Dunes and Hunters Run. Additionally, the City is co-founding expansion of the reclaimed water treatment facility to match the full 24 MGD of treatment plant

capacity. The City will work to encourage the more effective use of reclaimed water by existing users, and will be expanding its reclaimed water distribution system to new users in 2008 and 2009.

The per capita average-day water usage within the City has fallen to a current level of approximately 160 gallons per person per day (gpd). By continuing to implement the re-use guidelines previously summarized and by increasing public awareness, it is anticipated that the City will further reduce per capita average-day usage to 155 gpd by 2026. The City's Level of Service standard for potable water is defined as 200 gallons maximum daily flow per capita of peak population; conservation measures will reduce this LOS to 175 gallons by 2013.

The City has assigned the responsibility of implementing the Conservation Plan to the Conservation Officer. This role is executed by the existing Water Quality Supervisor. The conservation plan is reviewed, assessed, and improved regularly. Each facet of this plan is implemented and reviewed as part of the City's continuous improvement program.

## 5 WATER SUPPLY PROJECTS

### 5.1 Water Supply Projects

This section details the water supply projects that will be implemented in order to meet the City of Boynton Beach water demands through 2025. The City will be actively engaged in diversifying its sources of water supply over the next planning period. At present, the City is totally dependent upon the Surficial aquifer as a supply, but also has one Aquifer Storage and Recovery (ASR) well in operation. The overall goal of the City's plan is to significantly reduce dependence on the Surficial aquifer during the dry season of the year, while maximizing availability of Surficial aquifer water during the wet season. Anticipating additional restrictions on the Surficial aquifer, the City has developed a Water Supply Plan that calls for the following actions:

- Bring ASR-2 on-line to produce an additional 3 MGD during the dry season (2009)
- Expand the reuse system distribution network into Boynton Beach increasing reuse by 1 MGD (2010)
- Interconnect the City's two water treatment plants (east and west) so as to supplement the eastern wellfield with additional water from the west. The withdrawal from the eastern field is limited due to its proximity to the Atlantic Ocean while the East Water Treatment Plant has idle capacity.
- Constructing up to 5 new Floridan aquifer supply wells.
- Retrofit the West Water Treatment Plant (WTP) to treat brackish water from the upper Floridan Aquifer - +5 MGD
- Continue to increase efforts to conserve ultimately reaching a per capita usage of 155 gpcpd by 2025

The sections below summarize the proposed projects by the City to meet future potable water demand. Projects schedules are included in Appendix A. They have been approved by the City Commission and funds for their execution have been committed. The projects have been incorporated into the City's Five-Year Capital Improvement Schedule (CIS). A copy of the CIS is included in the Capital Improvements Element of the Comprehensive Plan.

5.1.1 Aquifer Storage and Recovery (ASR) Well 2 (2009 / 3 MGD Alternative Supply)

The City completed the construction of ASR-2 in 2007. The City has applied for an operational testing permit to the Florida Department of Environmental Protection in September 2007. It is anticipated that recharge of the well will begin during the wet season in 2008 and that water will be made available in early 2009. Although the well was designed for a capacity of 4 MGD, a more conservative value of 3 MGD was used for the capacity analysis. Future use of the City's two ASR wells will be dependant upon other projects proposed to bring Surficial aquifer water to the City's East Water Treatment Plant. This project is ongoing and fully funded.

5.1.2 Expansion of Reuse Water Systems Project (2010 / 0.5 MGD demand offset)

Phase 1 of the expansion to the City's Reuse distribution system is currently underway. The construction documents have been prepared and it is anticipated that construction will begin on Phase 1 by the end of 2008. This project will extend the reuse main from Golf Road and Military Trail into the City of Boynton Beach. Public and Private clients have been identified and it is anticipated that this project will deliver an additional 1 MGD of reuse water in 2010.

**Table 5-1: Summary of Expansion of Reuse Water System Project**

*Project Name:* Expansion of Reuse Water System; CIS Projects # 1, 2 and 3

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*Project Location:* SE 23<sup>rd</sup> Ave., Seacrest Blvd., SE 4<sup>th</sup> Street

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*Project Description:* The City of Boynton Beach, as a co-owner of the facility, is in the process of increasing the capacity of filters and disinfection units at the regional wastewater treatment plant. Eventually, the plant entire wastewater stream will be treated as irrigation-quality water. This project will include the expansion of the distribution system for reclaimed water.

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*Project Justification:* The City intends to use expansion of the reclaimed water system as a means of securing additional water allocations from the Surficial aquifer. (UE Obj. 3.C.3)

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*Funding Source:* Capital Facilities Fund (expansion-related)

Estimated Cost	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
SCRWRF - plant expansion						
Design	516,109					
Construction	2,973,069					
Other						
<b>TOTAL</b>	<b>3,489,178</b>					
Reuse - distribution						
Design	311,819					
Construction	3,568,017	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000
Other						
<b>TOTAL</b>	<b>3,879,836</b>	<b>2,000,000</b>	<b>2,000,000</b>	<b>2,000,000</b>	<b>2,000,000</b>	<b>2,000,000</b>
<b>GRAND TOTAL FOR REUSE SYSTEM</b>	<b>7,369,014</b>	<b>2,000,000</b>	<b>2,000,000</b>	<b>2,000,000</b>	<b>2,000,000</b>	<b>2,000,000</b>

This alternative supply will offset potable water demand by 0.5 MGD. This project is being executed and is funded in the City's CIP. Table 5-1 summarizes the project description and anticipated expenditures by year. In addition to the reuse distribution system, the SCRWRF was

expanded in 2007 - 2008 to 24 MGD. This work is identified in Table 5-1 and fully funded. Work on the SCRWRF will be complete and the capacity expanded when the distribution system is in place.

5.1.3 Wellfield Interconnection Project (2012 / 7.3 MGD - Wet Season)

Beginning in August 2008, the City will have additional restrictions placed on the operation of its Wellfields by the SFWMD. During the Dry Season (January - May), total Surficial Aquifer production will be limited to 15.5 MGD. During the Wet Season (June - December) Surficial Aquifer production will be permitted to increase to 25.7 MGD. Unfortunately, the seasonal allocation will be available in a location where the City does not have additional treatment capacity. By interconnecting the two water treatment plants, the city will be able to take full advantage of the wet season allocation by pumping water from the West Wellfield to the East Water Treatment Plant. In this location, the City has additional treatment capacity and can store the water in their two ASR wells. This project will include the construction of a pumping station at the West Water Treatment Plant, approximately 7-miles of raw water piping, and preliminary treatment at the City's East Water Treatment Plant to remove color and naturally occurring organic content prior to lime softening.

Table 5-2 provides a summary of the project, funding source and expenditure by year. This project has been approved and funded by the City Commission. It is anticipated that this project will start in 2008 and will yield an additional 7.3 MGD of water during the wet season in 2012.

**Table 5-2: Summary of Wellfield Interconnection Project**

*Project Name:* Wellfield Interconnection; CIS Project # 109

*Project Location:* From West Wellfield to East Wellfield

*Project Description:* This project involves constructing approximately 7 miles of large diameter water main from the western boundary to the eastern boundary of our service area.

*Project Justification:* It will allow the City to utilize water from the western well field at both treatment plants, and reduce long-term demands at the eastern wellfield. The eastern field is limited due to its proximity to the Atlantic Ocean. (UE Obj. 3C.1, Policy 3C.1.10, 3D.1.1)

*Funding Source:* Mixed: Capital Facilities and Reserve funds

Estimated Cost	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
Design		901,000				
Construction		2,000,000	7,701,000	7,701,000	7,701,000	4,701,000
Other						
<b>TOTAL</b>		2,901,000	7,701,000	7,701,000	7,701,000	4,701,000

5.1.4 Construction of up to 5 New Floridan Aquifer Supply Wells Project (2012 - Combined with Project 5.1.5)

The City plans to construct up to 5 new Upper Floridan Aquifer supply wells to feed the modified West WTP. The wells will be constructed to a depth of approximately 1,100 feet below land surface and will each yield 1,500 gpm (2.16 million gallons per day). The Floridan well sites will then be connected to West WTP via new raw water pipelines.

Table 5-3 provides a summary of the project, funding source, estimated cost and expenditure by year. It is anticipated that this project will commence in 2009 and will yield an additional 5 MGD of water from the Floridan Aquifer by 2012. This project has been approved by the City Commission and is funded in the City's CIP.

**Table 5-3: Summary of Construction of up to 5 New Floridan Aquifer Supply Wells Project**

*Project Name:* Construction of up to 5 New Floridan Aquifer Supply Wells; CIS Project # 110

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*Project Location:* Western portion of service area

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*Project Description:* The City is planning to construct up to 5 new Floridan aquifer supply wells in the western portion of its service area, so as to extract a potential 10-12 MGD of brackish water from the Floridan aquifer, for treatment at the West Water Treatment Plant. This project will include constructing the necessary pipelines to connect the new wells to the Treatment Plant site, and also construct a required monitoring well.

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*Project Justification:* The Floridan aquifer is a confined aquifer, and although brackish in nature, it is not impacted by droughts increasing demands on the Surficial aquifer system. The added capacity afforded by these wells will be necessary to meet buildout demands. This new source of supply will require modifications to the West Treatment Plant, in order to successfully treat the higher salinity water found in the Floridan aquifer. (UE Obj. 3C.1)

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*Funding Source:* Mixed: Capital Facilities and Reserve funds

Estimated Cost	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
Design			500,000			
Construction			5,433,000	5,933,000	5,933,000	3,683,000
Other						
<b>TOTAL</b>			<b>5,933,000</b>	<b>5,933,000</b>	<b>5,933,000</b>	<b>3,683,000</b>

5.1.5 Retrofit West Water Treatment Plant to Treat Brackish Water from the Upper Floridan Aquifer (2012 / 5 MGD)

To treat the brackish water from the new Floridan aquifer, a low pressure reverse osmosis (LPRO) treatment system is required. The City is proposing to modify the existing nano-filtration system to treat brackish water from the upper Floridan Aquifer. This plant will provide 5 MGD of finished water. This option allows the existing nano-filtration treatment trains to remain in place and permit reuse of many of the existing system components. Additional expansion or blending may also be possible for this system in the future. Table 5-4 summarizes the project description, funding source and expenditure by year.

**Table 5-4: Summary of West Water Treatment Plant Re-Design and Modification to Treat Brackish Water Project**

*Project Name:* West Water Treatment Plant Re-Design and Modification to Treat Brackish Water; CIS Project # 111

*Project Location:* West Water Treatment Plant - 5469 W. Boynton Beach Blvd.

*Project Description:* This project is coupled with water supply projects to interconnect the two existing wellfields, and install new Floridan aquifer wells. The plant will be re-designed and modified to remove the additional dissolved solids found in the brackish water of the Floridan aquifer.

*Project Justification:* See above (UE Obj. 3C.1, Policy 3.C.1.3)

*Funding Source:* Mixed: Capital Facilities and Reserve funds

Estimated Cost	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
Design						500,000
Construction						1,150,000
Other						
<b>TOTAL</b>						<b>1,650,000</b>

## 5.2 Water Supply - Demand Analysis

The City's water supply-demand analysis is somewhat complex. The system is complicated by seasonal limitations in Wellfield production, limitations in treatment plant capacities, and the fact that available water is seasonally "consumed" to recharge the ASR wells.

Tables 5-5 and 5-6 summarize potable water availability based on restrictions imposed by the SFWMD and operational issues for both the East and West Water Treatment Systems during the Wet and Dry seasons through 2025. This information is presented graphically in Figures 5-1 (Wet Season) and Figure 5-2 (Dry Season) incorporating the planned projects and the potable water demand. When these projects are implemented, a surplus will be made available each year throughout the planning window.

## 5.3 Conclusion

In conclusion, Table 5-7 illustrates that the City of Boynton Beach has prepared a Work Plan that demonstrates to the SFWMD and DCA that water supply facilities are planned and will be available to meet future growth and water demands. This plan builds upon District sponsored goals of increasing reuse, reducing per capita water demand (conservation) and reducing the reliance on the regional water supply system (Surficial Aquifer). The resulting system will be more diverse and flexible to take full advantage of the most abundant and cost effective water resources.

Table 5-5  
Water Supply vs. Water Demand  
Average Day - Dry Period (January - May)

Year	East Plant Capacity (MGD)			West Plant Capacity (MGD)				Water Purchase From PBC (MGD) (j)	Phase 1 Additional Reuse (MGD)(k)	Total Capacity (MGD)	Adjusted Average Day Demand (MGD)		
	Eastern Surficial Aquifer (a)	Western Surficial Aquifer (b)	ASR (c)	Total East Plant To System (d)	Western Surficial Aquifer Treated at West WTP		Proposed Floridan					Total West Plant To System (i)	
					Raw (e)	Finished (f)	Well Field + LPRO Treatment						Finished (h)
2007	8.0		2.0	10.0	11.9	10.4				10.4	16.2		
2008	8.0		2.0	10.0	11.9	10.4				10.4	16.0		
2009	8.0		5.0	13.0	7.5	6.6				6.6	15.9		
2010	8.0		5.0	13.0	7.5	6.6				6.6	15.8		
2011	8.0		5.0	13.0	7.5	6.6				6.6	15.9		
2012	8.0	7.5	5.0	20.5	-	-	6.7	5.0	1.0	5.0	16.1		
2015	8.0	7.5	5.0	20.5	-	-	6.7	5.0	1.0	5.0	16.6		
2020	8.0	7.5	5.0	20.5	-	-	6.7	5.0	1.0	5.0	18.5		
2025	8.0	7.5	5.0	20.5	-	-	6.7	5.0	1.0	5.0	20.3		

Limiting Conditions

Total East Wellfield Withdrawal - 8.0 MGD

Total Surficial Withdrawal Dry Season (8/08) - 15.5 MGD

Total Surficial Withdrawal Wet Season (8/08) - 25.7 MGD

East Plant Lime Softening (surficial) - 100% recovery efficiency

West Plant Nano Treatment (Surficial) - 85% recovery efficiency + 20% bi-pass/blending

West Plant LPRO Treatment (Floridan) - 75% recovery efficiency

(a) - East wellfield is limited to 8.0 mgd withdrawal.

(b) - Beginning 2010, available Surficial Aquifer water from Western Wellfield is pumped to the East WTP for treatment and distribution

(c) - During dry season (January - May), ASR represents a contribution to the system as the water is recovered and available for distribution. Limit ASR recovery 5 mgd

(d) - Total water available to system - surficial treatment plus ASR recovery

(e) - Beginning 2008, dry season Surficial Aquifer recover is limited to 15.5 MGD combined east and west wellfields

(f) - Existing Finished capacity = (6.3 mgd raw water) x (0.85 membrane efficiency) + 1.3 mgd bi-pass / blending (20%)

(g) - Floridan Aquifer - quantity not limited

(h) - Proposed West Floridan Finished Capacity = 6.7 mgd x 0.75 (LPRO membrane efficiency) = 5.0 mgd

(i) - Total West Plant contribution - West Plant converted to LPRO beginning 2012

(j) - Bulk purchase from Palm Beach County - 5 MGD / 1 MGD after 2012

(k) - Reuse water reduces water demand by 50% (Adjusted = Average - 50% of Reuse)

Table 5-6  
Water Supply vs. Water Demand  
Average Day - Wet Period (June - December)

Year	East Plant Capacity (MGD)			West Plant Capacity (MGD)				Phase 1 Additional Reuse (MGD)(k)	Water Purchase From PBC (MGD) (j)	Total Capacity (MGD)	Adjusted Average Day Demand (MGD)		
	Eastern Surficial Aquifer (a)	Western Surficial Aquifer (b)	ASR (c)	Total East Plant To System (d)	Western Surficial Aquifer Treated at West WTP		Proposed Floridan					Total West Plant To System (i)	
					Raw (e)	Finished (f)	Well Field + LPRO Treatment Raw (g)						Finished (h)
2007	8.0		(2.0)	6.0	11.9	10.4			5.0	21.4	16.2		
2008	8.0		(2.0)	6.0	11.9	10.4			5.0	21.4	16.0		
2009	8.0		(5.0)	3.0	11.9	10.4			5.0	18.4	15.6		
2010	8.0		(5.0)	3.0	11.9	10.4			5.0	18.4	15.8		
2011	8.0		(5.0)	3.0	11.9	10.4			5.0	18.4	15.9		
2012	8.0	17.7	(5.0)	20.7	-	-	6.7	5.0	1.0	26.7	16.1		
2015	8.0	17.7	(5.0)	20.7	-	-	6.7	5.0	1.0	26.7	16.6		
2020	8.0	17.7	(5.0)	20.7	-	-	6.7	5.0	1.0	26.7	18.5		
2025	8.0	17.7	(5.0)	20.7	-	-	6.7	5.0	1.0	26.7	20.3		

Limiting Conditions

Total East Wellfield Withdrawal - 8.0 MGD

Total Surficial Withdrawal Dry Season (8/08) - 15.5 MGD

Total Surficial Withdrawal Wet Season (8/08) - 25.7 MGD

East Plant Lime Softening (surficial) - 100% recovery efficiency

West Plant Nano Treatment (Surficial) = 85% recovery efficiency + 20% bi-pass/blending

West Plant LPRO Treatment (Floridan) - 75% recovery efficiency

(a) - East wellfield is limited to 8.0 mgd withdrawal.

(b) - Beginning 2010, available Surficial Aquifer water from Western Wellfield is pumped to the East WTP for treatment and distribution

(c) - During dry season (January - May), ASR represents a contribution to the system as the water is recovered and available for distribution. Limit ASR recovery 5 mgd

(d) - Total water available to system - surficial treatment plus ASR recovery

(e) - Beginning 2008, dry season Surficial Aquifer recover is limited to 15.5 MGD combined east and west wellfields

(f) - Existing Finished capacity = (6.3 mgd raw water) x (0.85 membrane efficiency) + 1.3 mgd bi-pass / blending (20%)

(g) - Floridan Aquifer - quantity not limited

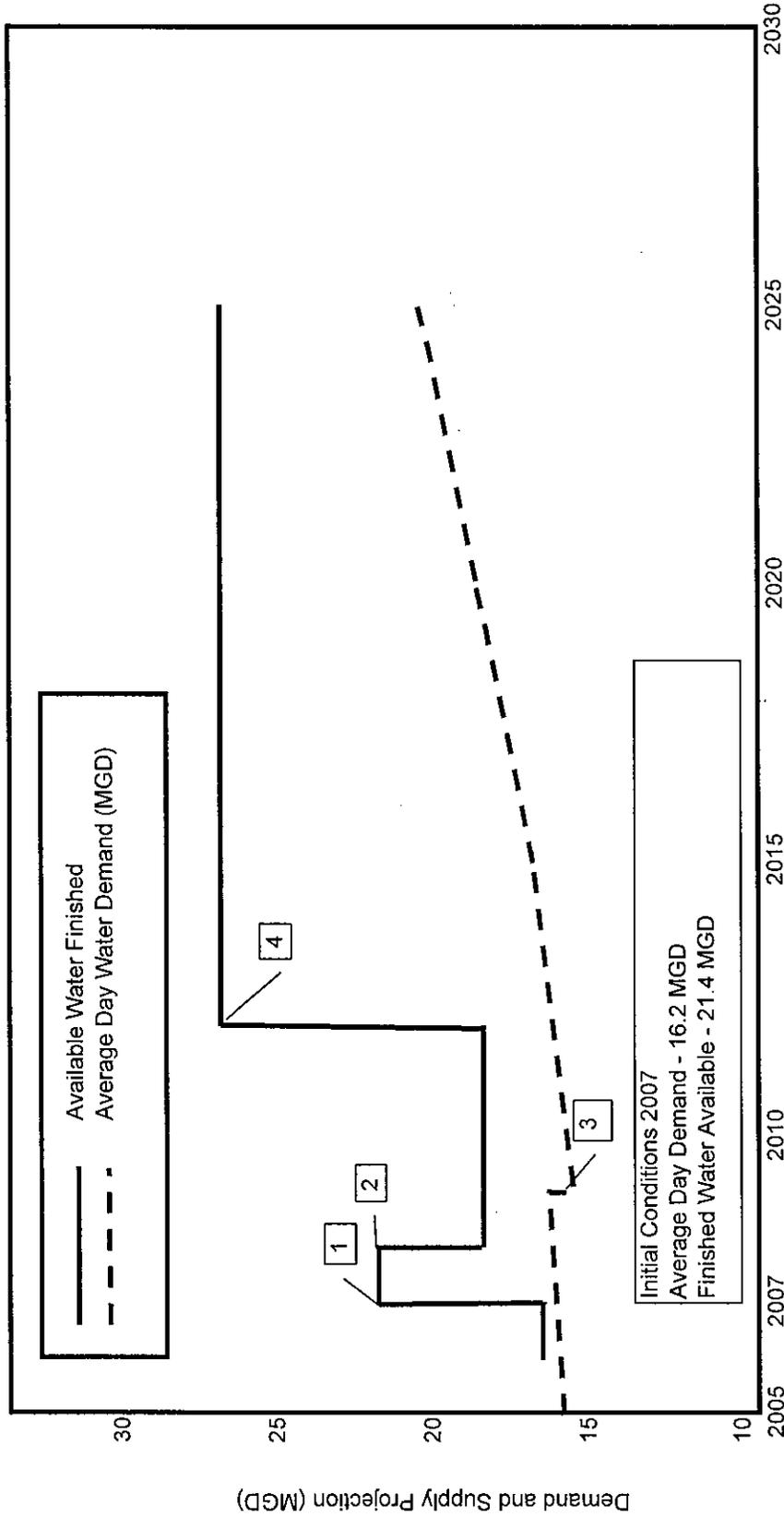
(h) - Proposed West Floridan Finished Capacity = 6.7 mgd x 0.75 (LPRO membrane efficiency) = 5.0 mgd

(i) - Total West Plant contribution - West Plant converted to LPRO beginning 2012

(j) - Bulk purchase from Palm Beach County - 5 MGD / 1 MGD after 2012

(k) - Reuse water reduces water demand by 50% (Adjusted = Average - 50% of Reuse)

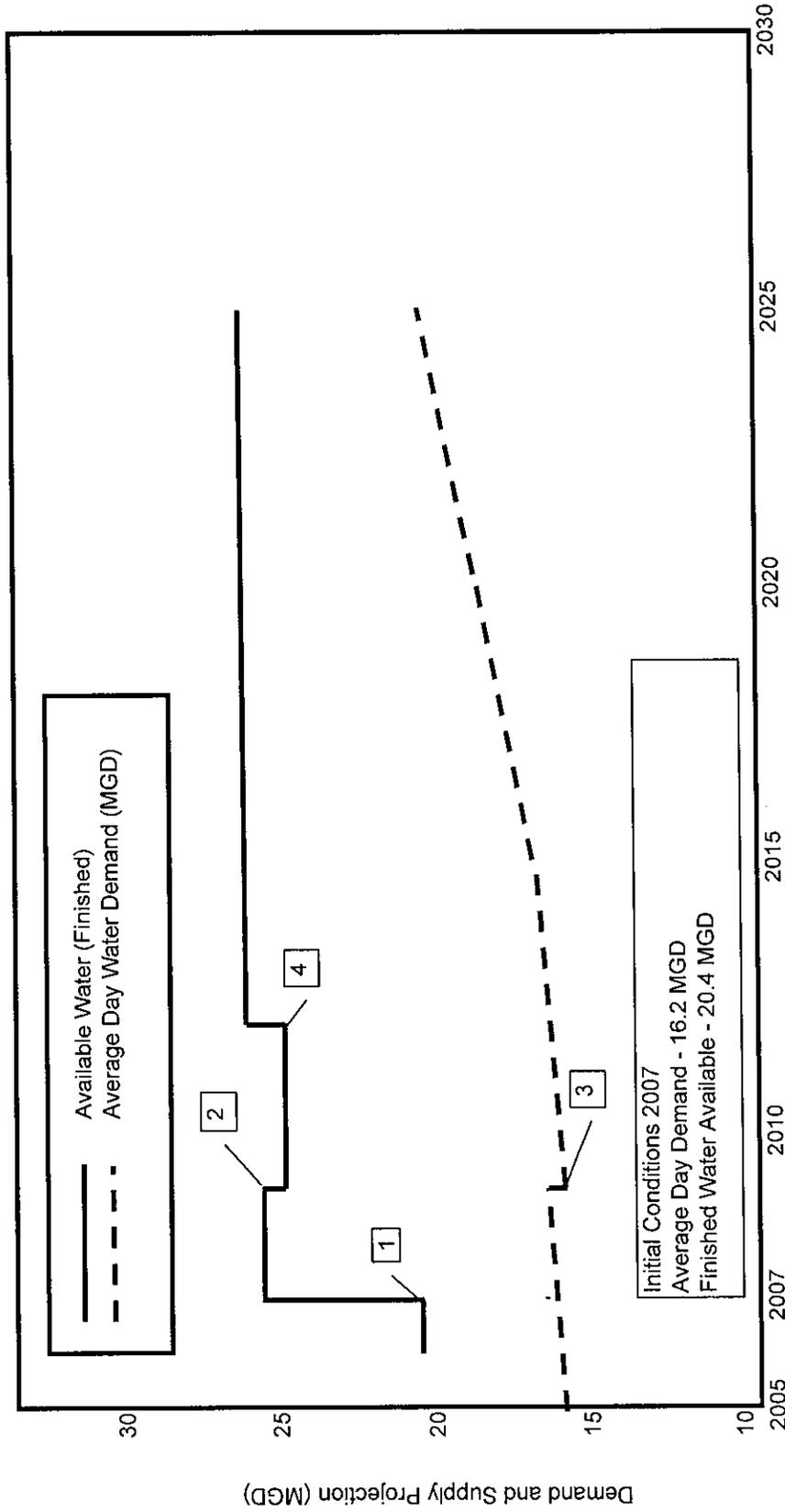
Figure 5-1  
 City of Boynton Beach Potable Water Service Area  
 Projected Water Supply and Demand  
 Wet Season - (June - December)



**Proposed Projects**

1. 5 MGD Available from PBC WJUD (+5 MGD)
2. ASR-2 Comes on line requiring an additional 3 MGD during wet season to recharge (-3 MGD)
3. Additional 1 MGD from Phase 1 Reuse Project (+0.5 MGD Demand Offset)
- 4a. Interconnect East and West Water Treatment Plants - Increasing Wet Season capacity (+7.3 MGD)
- 4b. New Floridan Aquifer Wellfield
- 4c. Convert West Water Treatment Plant from Nano Filtration to Low Pressure Reverse Osmosis (+5 MGD)
- 4d. Bulk user agreement with PBC WJUC reduces to 1 MGD (-4 MGD)

Figure 5-2  
 City of Boynton Beach Potable Water Service Area  
 Projected Water Supply and Demand  
 Dry Season - (January - May)



**Proposed Projects**

1. 5 MGD Available from PBC WUD - Decreases to 1 MGD after 2012 (+5 MGD)
- 2a. Season Surficial Aquifer Restrictions begin limiting total withdrawal to 15.5 MGD (-3.8 MGD)
- 2b. ASR-2 Comes on line producing an additional 3 MGD during dry season (+3 MGD)
3. Additional 1 MGD from Phase 1 Reuse Project (+0.5 MGD demand offset)
- 4a. Interconnect East and West Water Treatment Plants - Increasing Dry Season capacity (+0.6 MGD)
- 4b. New Floridan Aquifer Wellfield
- 4c. Convert West Water Treatment Plant from Nano Filtration to Low Pressure Reverse Osmosis (+5 MGD)
- 4d. Bulk user agreement with PBC WUC reduces to 1 MGD (-4 MGD)

**Table 5-7  
Boynnton Beach Water Service Area  
Potable Water Supply-Demand Analysis**

Year	Estimated Population	Per Capita Demand (gpd)	Average Daily		Adjusted Average Day Water Demand (MG)	Available Facility Capacity		Facility Capacity Surplus (Deficit)	
			Water Demand (MG)	(MG)		Dry Season (MGD)	Wet Season (MGD)	Dry Season (MGD)	Wet Season (MGD)
2008	100,485	159.3	16.0	16.0	25.4	21.4	9.4	5.4	
2010	102,332	158.8	16.3	15.8	24.6	18.4	8.8	2.6	
2013	106,210	158.0	16.8	16.3	26.5	26.7	10.2	10.4	
2018	116,307	156.8	18.2	17.7	26.5	26.7	8.8	9.0	
2020	121,315	156.3	19.0	18.5	26.5	26.7	8.0	8.2	
2025	134,358	155.0	20.8	20.3	26.5	26.7	6.2	6.4	

## APPENDIX

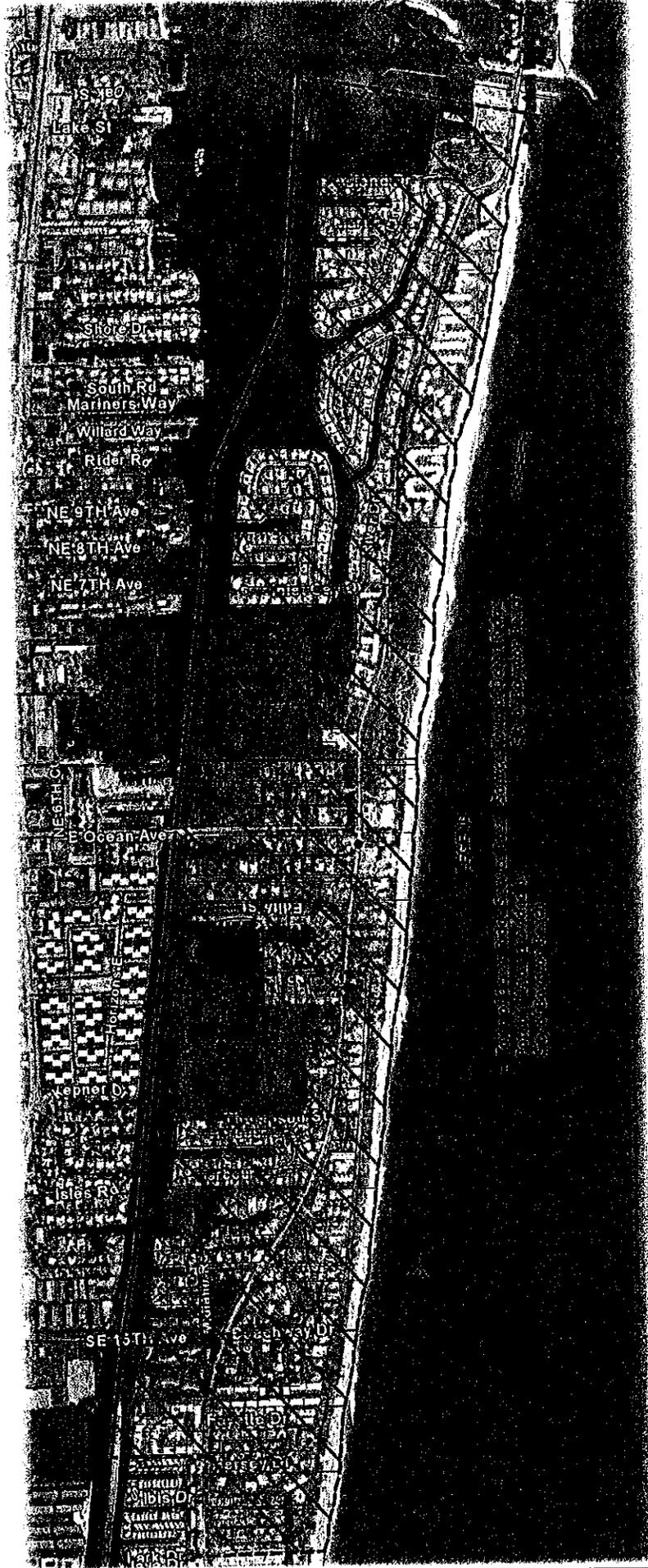
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### Water Supply Project Schedules



Town of  
**Ocean Ridge**  
Florida

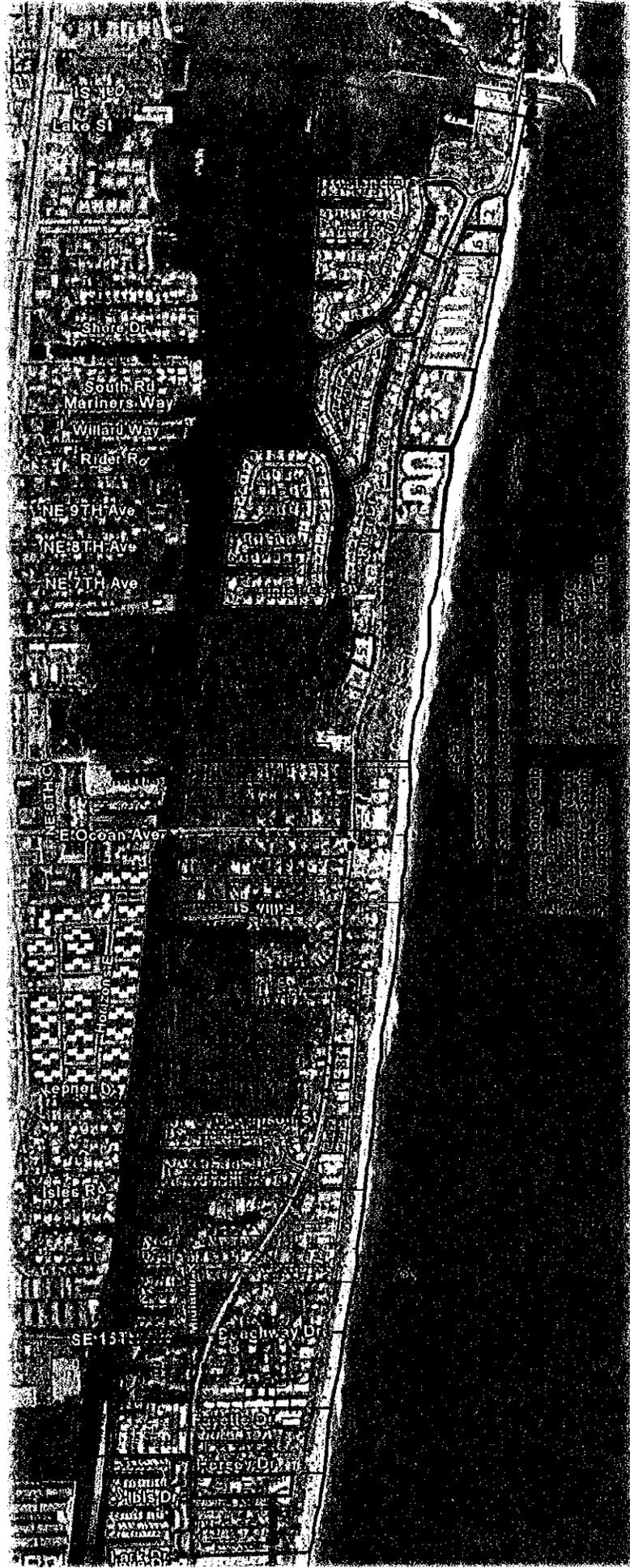
Potable Water Service Areas



urban  
design  
killday  
STUDIOS

Town of  
**Ocean Ridge**  
Florida

Wastewater Service Areas



# Coastal Management Element

## Data and Analysis Update

The Town is located within the Coastal High Hazard Area, as defined by Chapter 163.3178, Florida Statutes, and identified on the Palm Beach County Coastal High Hazard Map. As a result, the Town's residents are required to evacuate when the area is threatened by a Category 1 or higher hurricane.

Only a couple dozen single family lots remain vacant and available for new development. Because of the near built-out nature of the Town, no future significant impact to the Town's hurricane preparedness and evacuation activities are anticipated.

# Coastal Management Element

## GOALS, OBJECTIVES, & POLICIES

**GOAL 1: TO CONSERVE, MANAGE AND SENSITIVELY USE THE ENVIRONMENTAL ASSETS OF OCEAN RIDGE'S COASTAL ZONE LOCATION.**

**Objective 1.1: Retain most of the mangroves, and all of the hardwood hammock and beach dunes resulting in no net loss of public open space vegetative cover and an enhancement of marine resources.**

Policy 1.1.1: Continue to review development applications to assure adequate on-site drainage retention and vegetative cover preservation (particularly mangroves).

Policy 1.1.2: Coordinate with Palm Beach County officials to protect the coastal hardwood hammock from park or other facility intrusion.

Policy 1.1.3: Preserve the publicly-owned mangrove and hammock areas in a manner that enhances their wildlife habitat and marine nursery functions.

Policy 1.1.4: Monitor and preserve the public beach dune vegetation in southern Ocean Ridge by plantings as necessary.

**Objective 1.2: Maintain the current estuarine protection policies by permitting no new direct drainage outfalls into the Intracoastal. Improve the water quality by outfall elimination and possible public sewer line extension.**

Policy 1.2.1: Since the entire Intracoastal Waterway frontage is either residentially developed or under a public natural resource protection policy, continue to enforce development code provisions that protect vegetation, control run-off and marina sewage practices.

Policy 1.2.2: Cooperate with County and State agencies in their efforts to address the water quality of the Intracoastal Waterway by monitoring the private development permit requirements of their agencies.

Policy 1.2.3: The Town shall continue its investigation into the necessity and feasibility of a public sewer line.

**Objective 1.3: Continue the current pattern of shore-line uses, all of which are water-related or dependent or otherwise utilize their waterfront location.**

Policy 1.3.1: Maintain the zoning and conservation policies whereby all shoreline use is in mangroves (or other environmentally important vegetation), beach, park or residential with boat dock capability.

Policy 1.3.2: Use the mechanisms outlined in the Intergovernmental Element to coordinate Intracoastal estuary policies with the City of Boynton Beach, Palm Beach County and the Town of Manalapan.

**Objective 1.4: Achieve more adequate renourishment of beaches to the south of the South Lake Worth Inlet through coordination with the applicable agencies; otherwise continue to protect the beach and dune system by development code setback requirements.**

Policy 1.4.1: Continue to urge County, State and Inlet District officials to implement the Corps of Engineers plan for increased sand pumping capability at the sand transfer pumping station.

Policy 1.4.2: Continue to use land use controls to prevent construction that impacts the dune and its vegetation system.

**Objective 1.5: Preserve both resident and general public access to the beach.**

Policy 1.5.1: Coordinate with the City of Boynton Beach and the County to maintain general public parking and access via the two parks.

Policy 1.5.2: Maintain access points at the end of the street rights-of-way for local pedestrian and bicycle access.

**GOAL 2: TO MINIMIZE HURRICANE HAZARDS TO HUMANS AND PROPERTY.**

**Objective 2.1: Continue the current Town policy of avoiding an increase in infrastructure capacity unless public safety so requires in order to direct future population concentrations away from “vulnerability” and in particular, “high-hazard” areas, and thus maintain hurricane evacuation times.**

Policy 2.1.1: The Town shall not program any infrastructure capacity increase that would induce and subsidize development. This shall not preclude the Town from 1) upgrading its waterlines, 2) installing sanitary sewers if deemed necessary for sanitary/environmental reasons and 3) replacing direct storm sewer outfalls with filtration structures.

Policy 2.1.2: Maintain the current basic density controls so that the Town will experience only minor new residential development and thereby not jeopardize hurricane evacuation times.

Policy 2.1.3: The Town shall maintain its building code, flood plain controls and coastal setback regulations to assure maximum protection of new development from hurricane

damage. This shall be done in coordination with similar efforts by the County and the County Comprehensive Emergency Management Plan.

Policy 2.1.4: The Town shall work with the multifamily complex managers to identify those elderly or infirm individuals that may need special assistance early in the hurricane evacuation process in order to facilitate evacuation time.

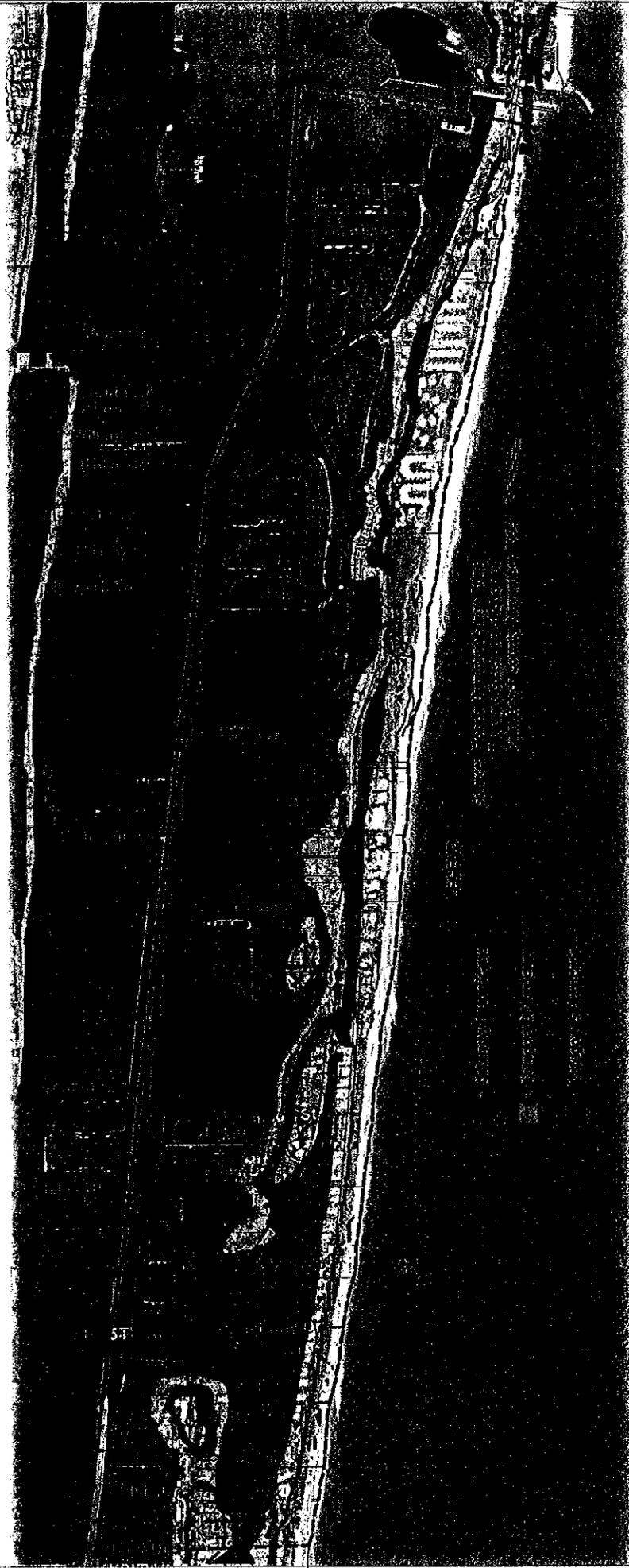
Policy 2.1.5: The coastal high-hazard area is the area below the elevation of the category 1 storm surge line as established by a Sea, Lake, and Overland Surges from Hurricane (SLOSH) computerized storm surge model. Under the latest storm surge model, much of the Town is located in a coastal high-hazard area.

**Objective 2.2: The Town shall continue to coordinate with the Palm Beach County Comprehensive Emergency Management Plan to achieve a post-disaster redevelopment plan.**

Policy 2.2.1: The Town shall maintain a post-disaster redevelopment plan in concert with the Countywide Post Disaster Redevelopment Plan.

Town of  
**Ocean Ridge**  
Florida

Coastal High Hazard Area



urban  
design  
KILDAY  
STUDIOS

# Conservation Element

## GOALS, OBJECTIVES, & POLICIES

### **GOAL 1: TO PRESERVE AND ENHANCE THE SIGNIFICANT NATURAL FEATURES IN OCEAN RIDGE.**

#### **Objective 1.1: Maintain the “good” air quality rating 97 percent of the time, based on County Pollution Standards Index.**

Policy 1.1.1: Continue to require landscaping as a part of new private development, adding single family residential to the code requirements, and to landscape public areas.

Policy 1.1.2: The Town shall continue to seek and develop opportunities to implement sustainability practices regarding, but not limited to, water conservation and reuse, recycling, waste and energy reduction, reuse of resources, reduction of greenhouse gas emissions, greater operational efficiency, pollution prevention and environmental improvements.

#### **Objective 1.2: Review and revise as needed, the development code to assure drainage practices and programs that minimize ground and surface water pollution.**

Policy 1.2.1: Continue to review development plans in order to require on-site detention of stormwater runoff, particularly near the Intracoastal Waterway.

Policy 1.2.2: Review the existing emergency water conservation program based upon the South Florida Water Management District model.

Policy 1.2.3: Review and revise as needed, the flood plain provisions.

Policy 1.2.4: Supplement the code provisions with an in-depth look at both sanitary sewer installation and storm sewer direct outfall elimination.

#### **Objective 1.3: Continue to protect existing vegetative and wildlife communities, experiencing no net loss in public open space vegetation.**

Policy 1.3.1: Continue to review all development applications in the context of the pervious cover and landscaping provisions of the development code; be particularly diligent in a) the review of any development in the vicinity of mangrove areas where some selective clearance is considered appropriate (with mitigation) but in general, is to be avoided and b) the removal of exotic vegetation.

Policy 1.3.2: Coordinate with County officials to 1) assure that any public open space improvements are sensitive to the hardwood hammock and other vegetative/wildlife/marine habitats, and 2) through the Town police, inform County marine patrols of boat speed violations that may threaten manatees.

Policy 1.3.3: Preserve the hardwood hammock, mangroves and dune vegetation now under public (Town and County) regulation in order to help preserve many of the threatened and endangered species.

# Recreation and Open Space Element

## Data and Analysis Update

The Town has approximately 31.8 acres of public recreation and passive open space within the community. The vast majority of this public lands are owned by other governmental entities, specifically Palm Beach County and the City of Boynton Beach.

Palm Beach County owns 19.93 acres within the Town for its Ocean Inlet Park and its ocean-front Ocean Ridge Hammock Park. The 11.39 acre Ocean Inlet Park is a popular, active beach park which features guarded beach frontage, a marina, rental boat slips, picnic shelters, snack bar, pavilions, a jetty and ocean overlook. The park is located at the Boynton Inlet. The Ocean Ridge Hammock Park is 8.54 acres is a resource-based, passive park, which does feature saltwater fishing, an unguarded beach, limited parking and an outdoor shower.

The Boynton Beach Oceanfront Park, located at 6415 N. Ocean Boulevard, is owned by the City of Boynton Beach and is one of the more popular beach parks in Palm Beach County. The park features guarded beaches, rental pavilions, playground, boardwalk and sand volleyball courts. The City also charges for admission into Oceanfront Park.

The sole Town owned recreation facility is John F. Kennedy Park, which is a 0.8 acre natural area fronting on the Intracoastal Waterway. The Town does feature 10 beach access points. These 10 points are through the three oceanfront parks listed above and seven points located at the end of public streets.

In June 2001, a lease agreement with the Town of Ocean Ridge was approved for Palm Beach County to restore mangrove wetlands, create recreational amenities, and provide for the long term management of 12.35 acres owned by the Town along the Intracoastal Waterway. This parcel, the Ocean Ridge Natural Area, is connected to a 12.5 acre mangrove mitigation project. Both parcels comprise a 25-acre nature preserve located just south of the Ocean Avenue bridge.

The Ocean Ridge Natural Area project consists of: 5 acres of enhanced existing mangroves; creating 4.5 acres of mangroves, open water habitat, and maritime hammock uplands; and building public facilities. The site has a concrete access path from Ocean Blvd (A1A) to a boardwalk through existing mangrove wetlands to the created upland hammock area where a concrete nature trail leads to a two story observation tower, a kiosk, and a boat docking facility.

The adopted Level of Service for Recreation and Open Space within the Town is 1 acre per 5,000 residents.

**Level of Service Analysis**

<b>LOS/Year</b>	<b>2009</b>	<b>2014</b>	<b>2019</b>	<b>2024</b>	<b>2029</b>
<b>Population Projection</b>	<b>1,681</b>	<b>1,705</b>	<b>1,724</b>	<b>1,739</b>	<b>1,747</b>
<b>Recreation and Open Space. 1 acre per 5,000 residents.</b>	<b>0.33 acres</b>	<b>0.34 acres</b>	<b>0.34 acres</b>	<b>0.35 acres</b>	<b>0.35 acres</b>

The existing recreation facilities found in the Town meet the demands of current residents and services residents from neighboring communities. Since the vacant developable land with the Town is minimal, the available parks and recreation facilities are more than adequate for existing and future populations. There are no capital improvement projects that would incur the expenditure of Town funds projected for either the 5 or 10 year planning periods.

# Recreation and Open Space Element

## GOALS, OBJECTIVES, & POLICIES

**GOAL 1: TO PROVIDE RECREATION AND OPEN SPACE FACILITIES WHICH ARE RESPONSIVE TO THE LEISURE-TIME AND ECOLOGICAL DESIRES OF COMMUNITY RESIDENTS.**

**Objective 1.1:** Preserve existing access to the Intracoastal Waterway (including Lake Worth) and the ocean i.e. no reduction in the 2,500 lineal feet of public access.

Policy 1.1.1: Work with the Palm Beach County and the City of Boynton Beach to assure retention of their two park areas as a means of preserving shoreline access for the public.

Policy 1.1.2: Preserve the Town park on the Intracoastal Waterway.

Policy 1.1.3: Preserve the seven public beach access points at the end of the streets.

**Objective 1.2:** Continue the current mix of private facilities that supplement the public inventory as evidenced by an annual inventory.

Policy 1.2.1: The Town Commission shall ~~annually~~ monitor private recreational facilities and programs to make certain that they continue to meet a major portion of resident needs.

**Objective 1.3:** Retain the existing recreation facilities, experiencing no net loss of the ~~19~~ public areas.

Policy 1.3.1: Retain the existing municipal and County public recreation and open space facilities thereby providing a Level of Service standard of at least 1 acre per 5,000 population.

Policy 1.3.2: The Town shall continue to work with the City of Boynton Beach and Palm Beach County to minimize adverse impacts from their regional parks on the Town. Otherwise, there are no “deficiencies.”

**Objective 1.4:** Ensure the preservation of public and private open space.

Policy 1.4.1: The Town shall maintain its land development regulations to assure adequate private open space requirements, definitions and standards.

Policy 1.4.2: The Town shall continue to coordinate with Palm Beach County to assure preservation of the hardwood hammock in its natural state.

Policy 1.4.3: The Town shall work in tandem with the State to preserve the 75 acres of prime mangrove area.

# Intergovernmental Coordination Element

## GOALS, OBJECTIVES, & POLICIES

**GOAL 1: TO MAINTAIN OR ESTABLISH PROCESSES TO ASSURE COORDINATION WITH OTHER GOVERNMENTAL ENTITIES WHERE NECESSARY TO IMPLEMENT THIS PLAN.**

**Objective 1.1: Achieve formal coordination mechanisms with regional, municipal, County and State agencies that assure implementation of this plan.**

Policy 1.1.1: The Town, in conjunction with the Palm Beach Countywide Intergovernmental Coordination Program, shall be responsible for ensuring an effective intergovernmental coordination program.

Policy 1.1.2: The Manager shall work through the MPO to achieve coordination of such planning issues as the Town's opposition to the widening of State Road A1A and the Boynton Beach Inlet bridge.

Policy 1.1.3: The Town shall use the Treasure Coast Regional Planning Council mediation process should any conflicts arise such as street widenings.

**Objective 1.2: Coordinate the impact of the Town's comprehensive plan and development applications upon adjacent areas by maintaining direct liaison with adjacent municipal managers/planners as well as participation in the Palm Beach County-wide Intergovernmental Plan Amendment Review Committee.**

Policy 1.2.1: Town officials shall maintain liaison with the adjacent municipalities relative to any land use or major development impacts along the common boundaries (recognizing that the Town is surrounded on three sides by water); the County-wide Planning Council is also critical to this task.

Policy 1.2.2: The Manager or his designee shall review the comprehensive plans (and plan amendments) of Palm Beach County, Manalapan, Boynton Beach and Briny Breezes to assure mutual compatibility, particularly in the areas of land use and roadways.

Policy 1.2.3: Coordinate with the Intergovernmental Plan Amendment Review Committee to provide formal written notification to adjacent municipalities and the county announcing the review of proposed Comprehensive Plan amendments.

Policy 1.2.4: The Town shall work with Boynton Beach, Manalapan, the County and the Corps. of Engineers on joint policies relative to the beach renourishment project, the mangrove hammocks and other estuarine/marine issues.

Policy 1.2.5: The Town shall provide formal written notification to adjacent municipalities and the county announcing the review of proposed Zoning Map

amendments if the subject site is within one mile or within the annexation area of a municipality.

Policy 1.2.6: The Town Manager or his designee shall annually meet with a representative from the City of Boynton Beach on water supply planning issues. This discussion should address the water planning issues such as:

- a) Coordinating information on water supply needs;
- b) Water conservation methods; and
- c) Coordination on revising the potable water level of service standard.

**Objective 1.3: Assure level of service standards coordination with other governmental entities by formal agreements with the County and the City of Boynton Beach.**

Policy 1.3.1: In particular, Town officials shall work with County MPO officials to agree upon acceptable roadway level of service standards, and the County and City of Boynton Beach relative to parks, the City of Boynton Beach relative to water and the County Solid Waste Authority for solid waste.

# Capital Improvement Element

## Data and Analysis Update

Ocean Ridge is a beach-oriented town characterized primarily by single family homes with lush, well maintained landscaping and extensive outdoor recreational opportunities. There are also Intracoastal and beachfront condominiums and a few multi-family buildings scattered throughout the Town. There are very little commercial improvements left in Town.

There has been little change in Ocean Ridge since the adoption of the original Comprehensive Plan. The stability of the Town is primarily due to its near built-out status, small size and water-locked location. Since the great majority of the land is built-out, the primary concern for the Town is redevelopment. The current permanent population estimate per the 2000 Census for the Town was 1,636 persons. Housing status, economic and social conditions, the provision of essential utilities and services, and the financial feasibility of accommodating the limited growth potential has incurred minimal change since the 1989 Comprehensive Plan was adopted.

The future population projections for the Town used the methodology and studies undertaken by the Shimberg Center for Affordable Housing, Rinker School of Building Construction, College of Design, Construction and Planning at the University of Florida (September 2006) The projections and level of service analysis are provided below. As indicated in the analysis, there is minimal impacts to the Town's levels of service. As such, the Town's Capital Improvement budget for the next five years do not introduce any new capital improvements, but it does provide for the continued maintenance of the Town's facilities.

LOS/Year	2009	2014	2019	2024	2029
Population Projection	1,681	1,705	1,724	1,739	1,747
Potable Water, 200 gallons per capita per day, 175 gallons per capita per day after 2013	336,200 gal/day	298,375 gal/day	301,700 gal/day	304,325 gal/day	305,725 gal/day
Sanitary Sewer, 115 per gallons per capita per day*	193,315 gal/day	196,075 gal/day	198,260 gal/day	199,985 gal/day	200,905 gal/day
Solid Waste, 9.54 pounds per capita per day	16,036 lbs/day	16,265 lbs/day	16,446 lbs/day	16,590 lbs/day	16,666 lbs/day
Drainage, 24 hour, 3 year storm event and rainfall of one inch in one hour	Requirement placed on all development and redevelopment in the Town.				

Recreation and Open Space. 1 acre per 5,000 residents.	0.33 acres	0.34 acres	0.34 acres	0.35 acres	0.35 acres
Transportation, Level of Service "D"	State Road A1A, which bisects the Town, is a constrained roadway and is limited by the existing conditions to a maximum of two lanes. All roadways meet the adopted Level of Service of "D" and are not projected to exceed that amount during the planning timeframes.				

\* Sanitary Sewer service in the Town is provided through private septic systems and package plants. The LOS analysis applies to all systems.

# Capital Improvement Element

## GOALS, OBJECTIVES, & POLICIES

**GOAL 1: TO UNDERTAKE CAPITAL IMPROVEMENTS WHEN NECESSARY TO KEEP ITS PRESENT PUBLIC FACILITIES IN GOOD CONDITION AND TO ACCOMMODATE ANY MAJOR NEW DEVELOPMENT, WITHIN SOUND FISCAL PRACTICES.**

**Objective 1.1: Achieve compliance with public facility standards through use of the capital improvement programming and budgeting mechanisms.**

Policy 1.1.1: The operating budget shall continue to fund annual systematic replacements.

Policy 1.1.2: Staff and engineering studies shall form the basis for the annual preparation of a five year capital improvement program. Systematic renovation/replacement criteria shall be used in this process.

Policy 1.1.3: Overall priority for fiscal planning shall be those projects that enhance residential neighborhoods, upgrade infrastructure and minimize traffic volumes, as per other plan elements.

Policy 1.1.4: In setting priorities, the following kinds or criteria will be used:

1. Public safety implications: a project to address a threat to public safety will receive first priority.
2. Level of service or capacity problems: next in priority would be projects needed to maintain the stated Level of Service.
3. Ability to finance: A third criteria is the budgetary impact; will it exceed budget projections?
4. State and regional plans: the Town will devote resources to support those projects with which it agrees (e.g. sand transfer) but not those harmful to the Town (e.g. Ocean Avenue Bridge).
5. Quality of life projects: lowest priority would be those projects not in categories 1 or 2 but that would enhance the quality of life.

Policy 1.1.5: Continue to pursue a prudent policy in terms of borrowing for major capital improvements; in no case borrow more than one percent of the total assessed value in any one bond issue.

Policy 1.1.6: The Town shall create a Capital Improvements Fund (by amending the Town Charter) to facilitate capital expenditures by using this fund to carry over funds from one fiscal year to another.

Policy 1.1.7.: The Town shall undertake a comprehensive study of municipal services, including Police and Fire Protection services, to ensure that services are being provided in the most efficient, economical and desired manner.

**Objective 1.2: Use both the Future Land Use Plan and financial analysis of the kind contained herein as a basis for reviewing development applications, in order to maintain an adequate facility level of service.**

Policy 1.2.1: The potable water Level of Service Standard shall be 200 gallons per person per day and 175 gallons per person per day by 2013 in cooperation with the City of Boynton Beach.

Policy 1.2.2: The sewage disposal level of service shall be septic systems except in the case of package treatment plants where the level of service shall be at least 115 gallons per person per day.

Policy 1.2.3: The drainage Level of Service Standard shall accommodate a 24 hour, 3 year storm event and to adequately detain runoff from one inch of rain in one hour.

Policy 1.2.4: The municipal recreation and open space Level of Service Standard in the Recreation Element (1 acre per 5,000 population) shall form the basis for assessing park improvement needs keeping in mind the role of the Boynton Beach and County parks plus public access beach all within Ocean Ridge.

Policy 1.2.5: The roadway Level of Service Standards of "D" shall be used in reviewing land use and development proposals.

Policy 1.2.6: The solid waste Level of Service shall be the ability to collect 9.54 pounds of solid waste per capita per day, consistent with Solid Waste Authority waste generation rate estimates.

**Objective 1.3: Major future development projects shall pay their fair share of the public improvement needs they generate.**

Policy 1.3.1: The building permit review process shall continue to require on-site detention and drainage structures acceptable to regional environmental agencies and all applicable municipal codes.

Policy 1.3.2: The development code review shall include the consideration of impact fees for new housing construction.

**Objective 1.4: Public facility requirements generated by new development shall be adequately funded in a timely manner, including a concurrency management system to assure compliance.**

Policy 1.4.1: The development code shall be amended to specify that no development permit shall be issued unless assurance is given that the public facilities necessitated by the project (in order to meet level of service standards) will be in place concurrent with the impacts of the development.

**Objective 1.5: Avoid any new public infrastructure construction that would induce any new development in the high hazard area.**

Policy 1.5.1: Plan all water, sewer and street improvements with capacities to serve existing development intensities (including vacant lots) but not development intensity increases or new development in the FEMA flood map V8 zone (Figure 6.3).

**Objective 1.6: The Town shall adopt a Capital Improvements Program covering at least 5 fiscal years and shall adopt a Capital Budget on an annual basis as part of the Town's budgeting process.**

Policy 1.6.1.: The Town shall include in the Five-Year Schedule of Capital Improvements all publicly funded projects which are over \$50,000.00 necessary to ensure that adopted level-of-service standards are achieved and maintained. Improvements may include developer-funded for which the Town has no fiscal responsibility. For capital improvements that will be privately funded by the developer, financial feasibility shall be demonstrated by being guaranteed in an enforceable development agreement, interlocal agreement, or other enforceable agreement.

Policy 1.6.2.: The Schedule of Capital Improvements in Table 9A is hereby adopted as the Town's Five-Year Capital Improvement Plan.

Table 9A Town of Ocean Ridge Five-Year Capital Improvement Plan					
Improvement	2009/2010	2010/2011	2011/2012	2012/2013	2013/2014
Maintenance of Town facilities	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000
Coconut Road Drainage improvements	\$500,000				

The Island Drive Bridge repair, the Inlet Cay Seawall repair and Coconut Road Drainage improvements are being funded through existing balance reserves. Funding for Maintenance activities is from the Town's General Operating Revenue. Funding amounts are estimates. If additional Capital Improvement work is anticipated, the above Table 9A shall be updated to reflect the planning and funding of such activities

Policy 1.6.3.: This element and the Five-Year Schedule of Capital Improvements shall be reviewed each year during preparation of the Annual Capital Budget. The review shall include an analysis of the Town's financial condition and an updated projection of revenues which takes into account any changes in potential revenue sources that had been anticipated to fund scheduled improvements. In addition, it will incorporate any new capital improvement needs that have arisen since the last update and shall include a discussion of any change in the prioritization of the proposed improvements

Policy 1.6.4.: Prior to the adoption of the Annual Capital Budget, the Town will review all existing and potential revenue sources and take the necessary actions to balance budget.

