

PUBLIC FACILITIES ELEMENT



TOWN OF HOWEY-IN-THE-HILLS

LAKE COUNTY, FLORIDA

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CHAPTER 4 PUBLIC FACILITIES ELEMENT

A. INTRODUCTION

1. SCOPE OF THE ELEMENT

This *Element* has been prepared to meet the requirements of the Local Government Comprehensive Planning and Land Development Regulation Act, Chapter 163, Florida Statutes (F.S.). In relevant part, the Act requires comprehensive plans to describe:

- 1) sanitary sewer, solid waste, drainage, potable water and aquifer recharge protection problems and needs;
- 2) ways to provide for future requirements; and
- 3) general facilities that will be required for solution of the problems and needs.

2. ORGANIZATION OF THE ELEMENT

This *Element* is divided into sections containing:

- 1) the applicable support documents, which are the technical reports summarizing the data and analysis on which the Element is based; and
- 2) the goals, objectives and policies for the Element, as adopted in the Comprehensive Plan for the Town.

The support documents are presented as sub-elements for the different types of facilities in the *Element*. Each sub-element includes:

- 1) background information about relevant terms, concepts and regulatory provisions;
- 2) a survey of existing conditions; and,
- 3) an assessment of existing and future needs and recommendations for meeting those needs.

Population estimates were derived from the *Future Land Use* and *Housing Elements* and are presented in Table 1 below.

TABLE 1: POPULATION ESTIMATES AND PROJECTIONS 2010 -2035

POPULATION PROJECTION HOWEY-IN-THE-HILLS, FLORIDA			
Year	Resident	Seasonal	Total
2010	1098	110	1208
2015	1106	111	1217
2020	1604	160	1764
2025	1925	193	2118
2030	2118	212	2330
2035	2266	227	2493

B. SANITARY SEWER

1. INTRODUCTION

This section of the *Infrastructure Element* assesses the availability, demands, and needs of sanitary sewer in Howey-in-the-Hills. This section also presents an analysis of the soils found in Howey-in-the-Hills as they correspond to the suitability to support the use of septic tanks in Town.

2. EXISTING CONDITIONS

The Town understands that future development and redevelopment will require the provision of wastewater devices. Accordingly, Howey-in-the-Hills has adopted an interlocal agreement with neighboring local governments to provide wastewater treatment to future developments in the Town. The Town will own the collection system within the Town’s Chapter 180 Utility Service Boundary and will contract with neighboring local governments to provide wholesale wastewater treatment to designated areas. The Town understands these will need to be established prior to approving future development or redevelopment. Howey-in-the-Hills has also established a wastewater impact fee to aid in the provision of this essential service.

It is important to note that the Central Lake Community Development District (CDD) currently provides wastewater treatment for the Lake Hills School in Howey-in-the-Hills and the Venezia South residential development and will provide wastewater treatment for three new developments (the Mission Rise, The Reserve, and Venezia North) that are currently in development review. The Town is also working on a program to retrofit Central Avenue with sanitary sewer serving the core commercial area of the Town. The Town will own and maintain the collection system (mains, lift stations, etc.) within the

Town limits. This provision of services was established through an interlocal agreement which is further described in the *Intergovernmental Coordination Element*.

Regarding sanitary sewer facilities, the only current demand on the Central Lakes CDD wastewater treatment facility is the Lake County public school in Howey and the Venezia South development. The existing level of service provided by the sanitary sewer facilities is estimated at 250 GPD/ERU as outlined in the agreement between the Town and the Central Lake CDD.

With regard to sanitary sewer capacity, the Central Lake CDD received capacity reservation fees from the three Planned Unit Developments in order to expand its treatment capacity to .87 MGD. The balance of the wastewater treatment capacity expansion remains as excess capacity in place for when the Howey planned unit developments require treatment capacity.

Septic tanks will provide sanitary sewer service to development locating on a lot not less than 15,000 square feet (i.e., ¼ of an acre) if the soils have been determined adequate for the use of septic tanks. The minimum size for septic tanks in Town is 750 gallons. Such systems must provide service consistent with the adopted level of service standards and meet the guidelines established by the Lake County Health Department.

Effluent from septic tank systems is discharged to the drain field where it can percolate into the soil. Soil permeability and depth to the water table are limiting factors on septic tank performance.

The *Federal Water Pollution Control Act* (PL 92-500) is the controlling national legislation relating to the provision of sanitary sewer service. The goal of this *Act* is the restoration and/or maintenance of the chemical, physical and biological integrity of the nation's waters. The *Act* established the national policy of implementing area wide waste treatment and management programs to ensure adequate control of sources of pollutants.

The Florida Department of Health and Rehabilitation Services (DHRS) regulates septic tank and drain field installation within the state. These requirements have been adopted by rule in Chapter 10D-6, F.A.C.

The Lake County Health Department regulates and approves septic systems within the Town. A percolation test and studies of the soil are used to determine size, siting and type of individual systems.

The Town ensures that the following guidelines regarding septic tank locations are enforced during the development review process:

- 200 feet from sewage disposal system to any public water well.
- 75 feet from any sewage disposal system to any private water well.

- 75 feet from the high water line of any lake, canal, stream or other body of water. Lots created prior to 1972 require 50 feet from the high water line of any surface.
- 10 feet from any water main or service line installed below the ground.
- 5 feet from the property line and building foundations; and
- Septic tank inlet shall be within 15 feet of plumbing stub out.

Additionally, limitations are in effect relating to the size of the facilities to be constructed (i.e. number of bedrooms) including the projected volume of waste as compared to the size of the property upon which construction is to occur.

Currently, the Town does not have a systematic monitoring of septic systems. System checks are done on a compliance basis.

3. SOILS

Soils are an important aspect in land development. The physical and chemical properties of soils restrict the intensity of development through limitations on road construction, landfill siting, septic tank operation, and building placement.

There are a variety of soil types in Howey-in-the-Hills (see the Town’s *Soils Map*). The general descriptions of the soils in the Town are found below in Table 2 [9J-5.011(1)(f)(4), F.A.C.]. All upland soils are suitable for development and show little limitation for the use of septic tanks.

TABLE 2: SOILS

Map Unit Name	Hydric Soil	Drainage Class	Steel Corrosion	Concrete Corrosion	Acres
Anclote and Myakka Soils	Yes	Very Poorly Drained	High	Moderate	0.21
Apopka Sand	No	Well Drained	Moderate	High	31.28
Arents	No	Somewhat Poorly Drained	Unranked	Unranked	83.35
Borrow Pits	Partially Hydric	Unranked	Unranked	Unranked	2.78
Candler Sand, 0 to 5 Percent Slopes	No	Excessively Drained	Low	High	698.59
Candler Sand, 12 to 40 Percent Slopes	No	Excessively Drained	Low	High	3.16
Candler Sand, 5 to 12 Percent Slopes	No	Excessively Drained	Low	High	259.16
Immokalee Sand	Partially Hydric	Poorly Drained	High	High	7.31
Kendrick Sand, 5 to 8 Percent Slopes	No	Well Drained	Moderate	High	6.24
Lake Sand, 0 to 5 Percent Slopes	No	Excessively Drained	Low	High	114.40
Lake Sand, 5 to 12 Percent Slopes	No	Excessively Drained	Low	High	12.98
Lochloosa Sand	No	Somewhat Poorly Drained	High	High	5.20
Myakka Sand	Partially Hydric	Poorly Drained	High	High	85.87
Ocoee Mucky Peat	Yes	Very Poorly Drained	High	High	4.11

Map Unit Name	Hydric Soil	Drainage Class	Steel Corrosion	Concrete Corrosion	Acres
Oklawaha Muck	Yes	Very Poorly Drained	High	Low	6.14
Placid and Myakka Sands, Depressional	Yes	Very Poorly Drained	High	High	17.30
Pompano Sand	Partially Hydric	Poorly Drained	High	Moderate	8.62
Sparr Sand, 0 to 5 Percent Slopes	No	Somewhat Poorly Drained	Moderate	High	14.50
Swamp	Yes	Very Poorly Drained	Unranked	Unranked	53.97
Tavares Sand, 0 to 5 Percent Slopes	No	Moderately Well Drained	Low	High	278.99
Water	Unranked	Unranked	Unranked	Unranked	281.87

Notes: Drainage Class - Identifies the natural drainage conditions of the soil and refers to the frequency and duration of wet periods.

Concrete Corrosion - Susceptibility of concrete to corrosion when in contact with the soil.

Steel Corrosion - Susceptibility of uncoated steel to corrosion when in contact with the soil.

Source: U.S. Department of Agriculture, Natural Resources Conservation Service’s Orange County Soils Geographic Information Systems database March 2010.

4. ANALYSIS

As previously noted, there are agreements in place for wastewater treatment for certain properties in the development review process and discussions with neighboring cities to enter interlocal agreements for future wastewater treatment provisions. The Central Lakes Community Development District also currently treats the wastewater from the one public school in Howey-in-the-Hills. The Town understands the need to continue to analyze the appropriateness and feasibility of wastewater treatment for future growth

The soils in Town are overall suitable for septic tanks. The Town shall continue to prohibit septic tanks to be located in environmentally sensitive areas or within 200 feet of a public potable water well or within 75 feet of a private potable water well. The Town shall also continue to enforce the water and sewer concurrency standards

The Central Lake CDD has the capacity to treat the wastewater that will be generated by the three planned unit developments and the Lake County public school. The off-site improvements for connection to the wastewater treatment facility have been designed and constructed. Each development will design and construct the collection systems for their developments and the Town will own and maintain the collection system. This will ensure capacity for these developments through the planning period

For future growth in the Town and in the Town’s Utility Service Area for the long-range planning period, wastewater treatment will be provided through interlocal agreements with surrounding local governments. Both the City of Groveland and the City of Leesburg have surplus capacity that is available. The current wastewater agreements

provide the necessary treatment for the projected population over the long-range planning period. The anticipated wastewater agreements to serve beyond the planning period will be in place prior to the approval of any final development orders for growth beyond the 1,528 residential units and 385,000 square feet of commercial development

C. SOLID WASTE

1. INTRODUCTION

Solid waste is defined as "any garbage, refuse, sludge...and any other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from residential, industrial, commercial, mining, and agricultural operation, and from community activities". Hazardous waste is defined as "a solid waste, or combination of solid waste which because of its quantity, concentration, or physical, chemical, or infectious attributes, may:

- (a) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness, or
- (b) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed" (U.S.C. 6903 (5)).

This section of the *Public Facilities Element* assesses the Town's needs for solid waste disposal and the adequacy of the existing disposal method.

2. EXISTING CONDITIONS

The Town provides twice weekly curbside garbage collection through a contract with a private hauler. In 2009, Lake County completed the construction of the landfill cells that are anticipated to handle the demand over the short term. Lake County also has planned expansions, permitted through FDEP that will provide sufficient capacity through the long term.

Lake County maintains and operates 5 residential drop-off (RDO) facilities throughout the County and a Citizen Convenience Center at the Astatula Landfill where residents can self-haul their solid, hazardous, recycling materials and special wastes. Special wastes consist of used motor oil, furniture, waste tires, white goods, and electronic wastes. Each RDO handles different amounts and types of waste depending on its size and location. Collectively, they receive on average 3,000 tons per year. The Citizen Convenience Center at the Astatula Landfill is the closest RDO to the Town.

The Town’s population in 2015 was 1,217. With 565 solid waste customers, that would equate to 2.15 persons per household. (The 2010 Census estimated the number of persons per household in Howey-in-the-Hills was 2.42) Using the 2.15 persons per household, and the average of 4.14 pounds of solid waste per customer per day, each person in Town generated an average of 1.93 pounds per day. The Town’s adopted level of service for solid waste is a maximum of 6 pounds per person per day. So, the current LOS of 1.92 pounds per day meets the Town’s adopted concurrency standard.

The Town shall continue to cooperate with the County to comply with the latest State regulations regarding the disposal of solid waste. The Town Clerk is the Town liaison with the County.

3. ANALYSIS

As previously noted, the solid waste generated in Town is currently meeting the adopted level of service standard of 6 pounds per person per day. the Town has assessed the projected solid waste needs based on the 2035 population projections.

The adopted solid waste level of service is 6 pounds per person per day. As such, the Town is expected to generate about 15,000 pounds a day of garbage in 2035 (see Table 3). The Town shall continue to monitor the adopted LOS standards through the annual concurrency review and identify and address all deficiencies during the planning period.

TABLE 3: SOLID WASTE LEVEL OF SERVICE PROJECTIONS, 2020-2035

Year	Population	Adopted LOS Standard	Pounds per Year	Pounds per Day
2020	1,764	6 pounds per person per day	3,863,160	10,584
2025	2,118	6 pounds per person per day	4,638,420	12708
2030	2,330	6 pounds per person per day	5,102,700	13,980
2035	2,493	6 pounds per person per day	5,459,670	14,958

Sources: Town of Howey-in-the-Hills and TMH Consulting, Inc., March 2010.

Like all local governments in Lake County, Howey-in-the-Hills uses the Lake County landfill for its solid waste needs. At the current time, the Town has no plans to change its solid waste collection methods. The Town shall continue to cooperate with the County on recycling efforts. There is sufficient capacity to support the Town’s solid waste disposal needs through the end of the planning period.

Hazardous wastes are corrosive, toxic, flammable, or reactive substances that may harm public health and the environment. Some examples of hazardous wastes are motor oil, paints, pesticides, fluorescent light bulbs, and pool chemicals. Hazardous wastes are collected at the Household Chemical Collection Center, near the Phase II landfill, or at the residential drop-off facilities. The County also operates a mobile hazardous waste

disposal unit. The 302 Facilities in Town are presented in Table 4 below. A detailed inventory of the facilities with small quantity generators in and/or adjacent to the Town is available from the County.

TABLE 4: 302 FACILITIES IN TOWN

SERC ID	Facility Name
5817	Silver Springs Citrus
8283	Town of Howey-in-the-Hills – Well 2
8444	Bella Vista Golf and Yacht Club
23119	Town of Howey-in-the-Hills – Well 2

Source: East Central Florida Local Emergency Planning Committee Hazardous Materials Emergency Response Plan 2008 Current Revision.

The Town has no hazardous waste landfill or any hazardous waste management personnel. No system for household collection of such waste has yet been established, however as County regulations are formulated, the Town will comply and citizens are urged to use County facilities and collection days.

D. DRAINAGE

1. INTRODUCTION

Drainage is the conveyance, treatment and attenuation of water generated from storm events. Drainage systems are designed to safely and efficiently manage stormwater to reduce the threat to human safety and property from flooding caused by stormwater. The adequacy and efficiency of a drainage system depends upon variables such as:

- system capacity,
- intensity and duration of a storm event,
- topography, and
- soil permeability, and level of the water table.

Drainage systems designed to accommodate stormwater from a rainfall event of average intensity and duration may be unable to accommodate stormwater generated by an exceptionally intense or long rainfall event. These variables, as well as physical limitations such as elevation and available land, and cost are considered in the planning of drainage systems.

This section addresses major natural drainage features, existing facilities and programs, and opportunities for stormwater management in Howey-in-the-Hills.

2. EXISTING CONDITIONS

The Town regulates and enforces stormwater drainage through its Land Development Regulations and the concurrency requirements of this *Comprehensive Plan*. The Town has established the minimum drainage level of service standard for water quality as:

Facility Type	Pollution Abatement Treatment
Retention with Percolation or Detention with filtration	Runoff from first inch of rainfall or one-half inch of runoff if it has less than 50% impervious surface and less than 100 acres, whichever is greater
Detention without filtration or wet detention	The first inch of runoff from the site or 2.5 inches times the site’s impervious surface, whichever is greater

In addition, the Town’s land development code requires that stormwater management systems be designed based on the 10-year, 24-hour storm at minimum, but must also address the effects of the 25-year, 24-hour storm.

Stormwater drainage within the Town is currently accommodated by both natural and man-made drainage features. Although culverts and drainage pipes comprise a large portion of the stormwater system, the Town does not know where the underground pipes lead and where their outfalls are located. This system was installed decades ago and no engineering studies or plans for the drainage system are available to determine the design capacity of the system. In addition to these features, there are private retention/detention areas which were constructed to provide fill for the Mission Inn Complex. These ponds provide on-site retention/detention and a certain amount of percolation of runoff to the aquifer.

Increased development and land coverage could increase the need to construct additional drainage facilities to protect Little Lake Harris from nutrient runoff. Drainage problems do exist with stormwater runoff believed to be discharging directly into Little Lake Harris. The Town has received one grant to install a baffle box to collect materials and allows for sediment removal before the water gets to the lake. The Town intends to apply for similar grants in the future. Most of this runoff is a result of the construction of State Road 19 through Howey-in-the-Hills years ago. There are no major flooding problems associated with stormwater runoff.

Level of service standards established in the *Comprehensive Plan* will continue to remain consistent with State statutes pertaining to the performance of drainage systems. The Town ensures the provision of adequate stormwater drainage systems through the development review process. Permits are also required from all applicable State, Federal,

and local agencies with regard to stormwater. No development is approved or is allowed to begin construction until all such permits are received by the Town.

The guidelines established in the Town's Land Development Regulations are consistent with the applicable stormwater drainage requirements of the County, State, and Federal agencies. The Town's drainage facilities are operated (maintained) by Town staff or by Homeowners' Associations.

The Town is situated in the Ocklawaha River watershed in the Howey Slough, Lake Harris and Eustis, Little Lake Harris, and Little Everglades drainage basins. The Ocklawaha River watershed covers 2,769 square miles from the Green Swamp in Polk County and Lake Apopka sub-basins north through the Rodman Reservoir to the river's discharge into the St. Johns River near the town of Welaka. Along the way the river receives water from Silver Springs via Silver River and Orange Creek. It is the largest tributary watershed of the St. Johns River.

The Town lies on the Lake Wales Ridge, a physiographic high that has a high potential for aquifer recharge to the Floridan Aquifer. There is little topographic relief within the Town (90 feet). The upper limit is approximately 150 feet above sea level and drops to near 60 feet at Little Lake Harris. Neither differential creates serious problems in the Town. An extract of the U.S. Geological Survey topographical map is featured on the Town's *Contour Map*.

Palm Avenue (State Road 19) has storm sewers along both sides of the street with sewer openings approximately every 200 feet. The concrete pipe carrying stormwater measures 15" inside diameter. Additional stormwater openings are located at the following intersections with Lakeshore Drive:

- East Croton Way
- East Laurel Avenue
- East Magnolia Avenue
- East Pine Street
- East Oak Street
- East Central Avenue
- East Myrtle Street
- East Lakeview Avenue

Stormwater enters these sewer openings and is believed to exit directly into Little Lake Harris further down the slope to the east. The remaining stormwater percolates into the soil or runs over the surface to the lowest point, Little Lake Harris. These systems were constructed several decades ago, and the Town does not have access to those construction plans. As such, information on the design capacity of the system is unknown.

There is a 4'x 25'x100' retention basin behind the post office located on West Central Avenue. This system was designed to capture the stormwater runoff from the impervious surfaced parking lot in front of the building.

There has been no backup of the system from Palm Avenue down toward Lakeshore Blvd. during precipitation events in the past 25 years. There has also been no flooding in Town.

3. ANALYSIS

The Town requires that all new development provide evidence to show that level of service (LOS) ratings in stormwater conveyances serving the new development will not be degraded to an LOS lower than currently exists as a result of the new development's construction and stormwater runoff contribution.

The Town is concerned about the stormwater runoff into Little Lake Harris. As stated earlier, the Town was awarded a grant to address this issue and plans to install additional improvements as funds become available. Howey-in-the-Hills shall also work with Lake County in an educational and enforcement program regarding measures to conserve and protect the water quality of Little Lake Harris.

Due to the terrain which slopes towards Little Lake Harris, run-off in the eastern areas of Town quickly enter the lake. As such, Lakeshore Blvd. is subject to heavy silting after storms. To preserve and restore the water quality of Lake Little Harris, a berm and swale drainage facility parallel to the shoreline would retard flow and catch soils and contaminants carried by runoff.

A Stormwater Master Plan for the Downtown area is currently underway. This Plan will address current and future stormwater needs as development and redevelopment occurs along Central Avenue and State Road 19 and down to Little Lake Harris.

The Town shall continue to enforce the stormwater standards established in the Town's Land Development Regulations and this *Comprehensive Plan*. Once the *Downtown Stormwater Master Plan* is completed, projects will be included in the Town's *Capital Improvements Program* as funds become available.

E. POTABLE WATER

1. INTRODUCTION

The source of Howey-in-the-Hills's potable water is the Floridan Aquifer. The Town's potable water system provides water for both residential and non-residential purposes, including fire-fighting demands.

This section presents the existing conditions and capacity of the water treatment, storage and distribution components in the system, calculates the current level of service, and uses it to determine future growth demand on the potable water system.

2. EXISTING CONDITIONS

The Town's water system consists of two water plants located approximately one mile apart with a total of three active wells, one out-of-service well, one 500,000 gallon ground storage tank and one 15,000 gallon hydropneumatic tank. The elevated storage tank remains in place but is not active.

The oldest water plant is located on Central Avenue west of State Road 19 in the central part of town. The roughly triangular-shaped parcel upon which this plant is located is bounded on the east by Grant Street, on the south by West Central Avenue and on the north by Lake Illinois.

The second water plant is located in the north part of town at the intersection of State Road 19 and County Road 48 and is referred to as the "North plant".

Florida Department of Environmental Protection records indicate that the design capacities for two plants are 1.8 million gallons per day (mgd) 0.72 mgd respectively, for a combined design capacity of 2.52 mgd. In 2017 the system pumped 314,000 gallons on the average day and the peak day in March was 792,400 gallons. The Town holds a current consumptive use permit for 10 MGD and is the process of amending its CUP as the Town current supplies volumes in excess of this level with consumption reaching 12 MGD.

The Town's Public Works Department is responsible for ensuring the minimum line pressure is maintained or exceeded. Digital electronic pressure recording devices monitor and record pressure readings. In addition to these measures, electronic pressure monitors that display the distribution pressure 24-hours-per-day are located at the water production facilities. The Town is currently meeting the 20 pounds per inch adopted level of service standard.

The Town provides water to all residential and non-residential uses within the Town limits as well as within its Utility Service Area (see the Town's *Utility Service Area Map*). There are no private water treatment plants in Town. There are 2 private wells for the Mission Inn complex located in the unincorporated enclave surrounded by the Town along County Road 48. The one well is used for irrigating the golf course and the other well is for drinking water. The Town has enacted an ordinance to prohibit the installation of any new private wells for drinking or watering vegetation. The Town requires all new subdivision developments to tie into the Town's water system. There are no records indicating the number of private wells in the Town since no permits were required if wells were less than 4 inches in size. A large percentage of the private wells are under this size. Those private, commercial or agricultural wells that may exist and may be in use are not connected to, nor are they intended or allowed to be connected to the Town's water distribution system.

The Town has periodically made improvements to the potable water system and is now in the process of doing a comprehensive evaluation and master plan update including full modeling. The plan update is expected to be completed in late 2018 and will provide recommendations for system improvements. Once complete, this study will be used to identify prioritized projects for inclusion in the capital improvements program.

3. ANALYSIS

The Town will continue to be the supplier of potable water within the Town limits as well as within the Town's Utility Service Area. The Town will also continue to monitor and maintain the potable water services provided in the Town's Utility Service Area during the planning period.

The Town shall continue to enforce the guidelines established in the Town's Cone of Influence and Wellhead Protection Areas. The Town's Wellhead Protection Areas are featured on the Town's *Existing Land Use Map* and *Future Land Use Map*.

The Town shall continue to promote the following principles of xeriscape landscaping to be used for new developments or for new houses in older portions of the Town:

- appropriate planning and design.
- use of soil amendments.
- efficient irrigation.
- practical turf areas.
- use of drought tolerant plants.
- use of mulches; and
- appropriate maintenance.

The Town shall continue to work with Lake County and the St Johns River Water Management District to encourage water conservation through a combined program of public education and plumbing and irrigation system retrofits and refinements.

The Town shall continue to enforce the standards established in the adopted *Water Conservation Ordinance* and *Landscaping Ordinance* as strategies to conserve water in the Town's Utility Service Area. Additionally, the Town has adopted an inclined block rate structure in order to provide a financial incentive to its customers to conserve water.

In order to meet long term needs the Town will need to make adjustments to the water supply and distribution system as well as increase its consumptive use permit. The ongoing potable water master plan will provide the specific guidance on improvements necessary to meet future demands.

F. NATURAL GROUNDWATER AQUIFER RECHARGE

1. INTRODUCTION

Recharge is a process whereby rainfall percolates downward through the soil to reach the underlying aquifers. Indicators which help to identify recharge areas are soil type, texture, slope and land use. Water percolates more efficiently through soils with coarse texture than through clay and organic textured soils.

The slope and land use affect the length of time that water is retained. Therefore, these factors affect how much water will percolate or run off the surface. If land is covered by impervious surfaces such as buildings, parking lots and roads, then little recharge can occur. Lateral seepage must occur under these areas for any recharge function to exist. Recharge can be preserved either through land use intensity controls or design requirements for maintaining or improving recharge.

The geology in Lake County is similar to other areas in Central Florida. At the surface are deposits of sands. These sands grade to finer materials and contain more silts and clays with depth. These surficial deposits range in thickness from a few feet to hundreds of feet. Underlying the sands in most areas of the County is a confining bed of clay. These clays are generally considered a part of the Hawthorn formation. Below the clay are thick sequences of carbonate rocks -- limestone, dolomitic limestones, and dolomite.

The St Johns River Water Management District has designated a large portion of Lake County as a “Priority Water Resource Caution Areas”. These are areas where existing and reasonably anticipated sources of water and conservation efforts may not be adequate (1) to supply water for all existing legal uses and reasonably anticipated future needs and (2) to sustain the water resources and related natural systems.

The Floridan aquifer is the principal source of drinking water for Lake County. Most of the water in the Floridan aquifer is derived from the County’s average annual rainfall of approximately 48 inches. The County’s annual recharge rate to the Floridan aquifer averages about 7 inches per year (in/yr). Recharge rates range from as high as 20-30 in/yr or greater on the Lake Wales and Mount Dora Ridges to 0 in/yr in the area along the St. Johns River and the Ocala National Forest. Additional recharge also occurs through drainage wells drilled into the Floridan aquifer to dispose of excess surface water in Ocala and western Orange County. Recharge to the surficial aquifer system, and consequently to the FAS, is augmented locally by artificial recharge - wastewater land application, rapid-infiltration basins, and septic systems. The recharge rate in Howey-in-the-Hills and the surrounding area is 1 to 10 inches per year and the discharge rate is less than 1 inch per year.

2. Analysis

The Town enforces recharge provisions through the guidelines and standards established in this *Comprehensive Plan*.

The Town shall continue to protect the groundwater and aquifer recharge by enforcing the standards established in the Town's Cone of Influence and Wellhead Protection Areas. The Town shall also continue to protect and conserve the groundwater by restricting development on environmentally sensitive lands.

The Town's well drained sandy soils, lakes and ponds, wooded areas, and grassy yards contribute to water recharge. The larger residential lots also contribute to the water recharge in the area. The Town's stormwater regulations have been identified and discussed earlier and contribute to recharge.

There are no known groundwater recharge problems in Howey-in-the-Hills. The Town shall continue to protect the quality of groundwater recharge through enforcing the Town's Land Development Regulations. The quality of groundwater recharge shall also be protected by ensuring that all stormwater conveyances serving new development does not degrade the LOS lower than currently exists as a result of the new development's construction and stormwater runoff contribution.

The Town's Land Development Regulations and the *Goals, Objectives* and *Policies* in this *Comprehensive Plan* are adequate measures focused on the protection of the ground water and aquifer recharge in the Howey-in-the-Hills area.

G. GOALS, OBJECTIVES AND IMPLEMENTING POLICIES

GENERAL APPLICATIONS

GOAL 1: Assure provision of sanitary sewer, solid waste, potable water, and drainage facilities and services that efficiently maximize capacity of existing facilities, promote managed growth, protect public health and safety, and maintain environmental quality, with consideration to limited financial resources.

OBJECTIVE 1.1: *Implement a Capital Improvement Schedule.* The Town's *Five-Year Capital Improvement Schedule* established within the *Capital Improvements Element* shall adequately time improvement needs with available funding and location of development. This *Improvement Schedule* shall be consistent with public facility improvement needs identified within this *Comprehensive Plan*.

POLICY 1.1.1: *Evaluation of Capital Improvement Schedule.* The Town shall annually evaluate (during the annual concurrency review established in the *Capital Improvements Element*) the implementation of capital improvements proposed within the *Capital Improvement Program* and rank improvements according to priority of need.

POLICY 1.1.2: *Criteria for Ranking and Evaluating Capital Improvements.* Proposed Capital Improvement Projects shall be evaluated and ranked according to the following priority level guidelines:

- 1.) *Indicated Need:* Implementation is needed to:
 - Protect public health, safety, and environmentally sensitive natural resources;
 - Comply with State or Federal requirements to provide facilities and services;
 - Preserve or maximize the use of existing facilities; and
 - Improve efficiency of existing facilities.

- 2.) *Additional Facility Needs:* Implementation is needed to:
 - Eliminate facility or capacity deficiencies for service provided to existing developed areas; and
 - Extend facilities and expand capacities in a manner consistent with the Future Land Use Element goals, objectives, and policies and the Future Land Use Map.

- 3.) ***Adequate Funding:*** Adequate Funding for a project shall be available prior to its commencement, and project cost shall not cause accrued debt obligation to exceed beyond the limits of the Town's debt capacity.

POLICY 1.1.3: ***Deficiencies of Capital Improvements.*** In the event deficiencies should develop in the provision of public facilities, the Town shall grant existing deficiencies priority among capital improvements scheduled within the *Capital Improvement Program*. The Town shall issue no development permits for new development that will result in an increase in demand on deficient facilities.

SANITARY SEWER FACILITIES

OBJECTIVE 1.2: ***Assure Availability of Capacity.*** Assure that adequate sanitary sewer capacity is available to support demands generated by existing and new development during the planning period concurrent with the issuance of a development permit or at the time service will be demanded.

POLICY 1.2.1: ***Level of Service Standards.*** The Town hereby adopts the following level of service standard for sanitary sewer by which development shall be evaluated for demand generation:

Dwelling Unit - 120 gallons per day, per resident

POLICY 1.2.2: ***Minimum Design Capacity of On-Site Septic Tank Systems.*** The Town shall allow septic tanks that are designed in accordance with the criteria established and enforced by the Lake County Health Department.

POLICY 1.2.3: ***Compliance with Levels of Service.*** During the development review process, the Town shall require new development and redevelopment projects to provide written evidence of compliance with the sanitary sewer level of service standards and with the minimum design capacity for on-site septic tank systems.

POLICY 1.2.4: ***Compliance with State and County Regulations.*** During the development review process, the Town shall require applicants for development orders or permits to demonstrate compliance with applicable State permit requirements for on-site septic tanks, as administered by the Florida Department of Health and Rehabilitative Services in conjunction with the Lake County Health Department.

- POLICY 1.2.5:** ***Concurrency Management System: Wastewater.*** The Town’s *Concurrency Management System* shall be used as a measure to monitor the sanitary sewer system, evaluate compliance with the adopted level of service standards, and ensure consistency with the *Future Land Use Element* and *Future Land Use Map* in order to assure that septic tank systems, as well as any other sanitary sewer system which may be installed, comply with goals, objectives, and policies set forth herein. The *Concurrency Management System* shall be reviewed and updated to indicate current capacity conditions during the annual concurrency review.
- POLICY 1.2.6:** ***Provision of Wastewater Treatment.*** The Town shall maintain its agreement with the Central Lake Community Development District for the provision of sanitary sewer treatment services and coordinate with the Central lake CDD on system capacities and connections.
- POLICY 1.2.7:** ***Wholesale Wastewater Treatments.*** The Town shall continue to monitor and enforce the guidelines provided in the wholesale wastewater treatment agreements established with the Central Lake Community Development District. The Town shall also provide coordination with any future wastewater treatment providers established within the Town’s Utility Service Area Boundary.
- OBJECTIVE 1.3:** ***Deficiencies in Sanitary Sewer and Septic Tank Services.***
Identify and correct any deficiencies in the operation of sanitary sewer/septic tank systems.
- POLICY 1.3.1:** ***Identify and Correct Existing Deficiencies.*** The Town shall notify the Lake County Health Department of any complaints registered by citizens or businesses pertaining to any septic tanks not functioning properly. The Town shall request that the Lake County Health Department notify them of any septic tanks found not to be performing properly.
- OBJECTIVE 1.4:** ***Meet Future Demands.*** Provide additional facilities and capacities to meet demands generated by future development during the planning period.
- POLICY 1.4.1:** ***Establishing Interlocal Agreements with Wastewater Treatment Providers.*** The Town shall maintain its agreement with the Central Lake Community Development District for the provision of sanitary sewer treatment services and coordinate with the Central lake CDD on system capacities and connections. The Town shall own and maintain the collection system of such

wastewater treatment facilities. The Town may also investigate the option of establishing its own wastewater treatment plant.

POLICY 1.4.2: *Provision of Facilities.* All development shall be required to have on-site sanitary sewer or septic tank services operating prior to the issuance of a certificate of occupancy.

POLICY 1.4.3: *State Grant Funds.* The Town shall continue to research available State grant funds applicable for infrastructure needs/feasibility studies for local governments.

SOLID WASTE

OBJECTIVE 1.5: *Assure Availability of Capacity.* Assure that adequate solid waste collection and disposal capacities are available to support demands generated by existing and new development concurrent with the issuance of a development permit or at the time service will be demanded.

POLICY 1.5.1: *Level of Service Standards.* The Town hereby adopts a minimum level of service standard for solid waste collection services of 6 pounds per day per resident.

POLICY 1.5.2: *Collection of Solid Waste.* The Town shall annually evaluate the performance of services provided by commercial solid waste collection businesses which hold an established franchise agreement to provide such services to customers in Howey-in-the-Hills.

POLICY 1.5.3: *Disposal of Solid Waste.* The Town shall continue to use Lake County landfills and the trash burning facility, or other County disposal facilities, through year 2025 for final disposal of solid waste.

POLICY 1.5.4: *Coordinate Solid Waste Programs with Lake County.* The Town shall coordinate with Lake County on an annual basis to:

- a.) assure that Howey-in-the-Hills is allocated a proportional share of capacity in County-operated land fills, or other disposal facilities;
- b.) reduce solid waste disposal levels through recycling programs administered by Lake County;
- c.) offer assistance to Lake County in the management of hazardous waste as pursuant to State regulations (403.7265, F.S.).

POLICY 1.5.5: *Concurrency Management System: Solid Waste.* The Town shall monitor performance of solid waste collection services, available capacities, and compliance with levels of service through its *Concurrency Management System*.

OBJECTIVE 1.6: *Deficiencies in the Solid Waste Services.* Identify and correct any deficiencies in the provision of solid waste collection and disposal facilities and services.

POLICY 1.6.1: *Existing Landfill Deficiencies.* The Town shall coordinate with Lake County to confirm the County's progress relating to alternative disposal facilities needed to replace the Astatula landfill.

POLICY 1.6.2: *Coordinate with Lake County Hazardous Waste Management.* The Town shall coordinate with Lake County Environmental Utilities Department regarding hazardous waste management to reduce potential threat to public health and safety, and to environmental quality.

OBJECTIVE 1.7: *Maximize Use of Existing Facilities.* Prevent the formation of unauthorized dumping sites within the Town to maximize use of existing facilities and to protect public health and safety.

POLICY 1.7.1: *Removal of Unauthorized Dumping Sites.* The Town shall remove, or require landowners to remove, any unauthorized dumping sites that may gather on private property. The Town shall remove any unauthorized dump sites on public property.

POTABLE WATER

OBJECTIVE 1.8: *Assure Availability of Capacity.* Assure that adequate potable water capacities are available to support demands generated by new development concurrent with the issuance of a development permit or at the time service will be demanded.

POLICY 1.8.1: *Level of Service Standards.* The Town hereby adopts the following overall potable water level of service standards by which development shall be evaluated for demand on the water system capacity and for demands generated by development:

Overall System Demand - 242.0 gallons per day per capita
Residential Uses: 150.8 gallons per day per resident

POLICY 1.8.3: *Minimum Storage Capacity.* Minimum storage capacity of the Town water system shall provide the following gallons:

Year	Gallons
2010	500,000
2015	520,000
2020	530,000
2025	530,000

POLICY 1.8.4: *Minimum Line Pressure.* The Town potable water distribution system shall provide a minimum pressure of 20 pounds per square inch (p.s.i.) to provide adequate service for potable water demands and to meet fire flow pressure requirements. Maximum pressure will not exceed 100 p.s.i.

POLICY 1.8.5: *Compliance with Minimum Level of Service, Storage Capacity, and Line Pressure.* The Town shall issue development orders or permits predicated on demonstrated compliance with the potable water level of service standards, minimum line pressure standards, and available storage capacity. All development or redevelopment projects, with regards to potable water, shall comply with all relevant federal, state, and local permit requirements.

POLICY 1.8.6: *Concurrency Management System: Potable Water.* The Town shall enforce the guidelines established in its *Concurrency Management System* regarding potable water facilities and services provided to the Town of Howey-in-the-Hills.

OBJECTIVE 1.9: *Deficiencies in the Water System.* Identify and correct any deficiencies in the water system, including storage and distribution facilities.

POLICY 1.9.1: *Identify and Correct Existing Deficiencies.* The Town shall evaluate available capacity and performance of the water system on an annual basis, during the Town's *Concurrency Management System* review.

OBJECTIVE 1.10: *Meet Future Potable Water Demands.* Provide additional facilities and capacities to meet water demands generated by future development during the short-range (2011-2015) and long-range (2025) planning period.

POLICY 1.10.1: *Mandatory Connection to System.* The Town shall require all new development to connect to the Town's Water System.

POLICY 1.10.2: *Available Capacity Prior to Development.* The Town shall assure adequate water capacity is available prior to the issuance of a development order or permit. The evaluation of adequate water capacity shall be based on procedures established within the Town's *Concurrency Management System*.

POLICY 1.10.3: *Developing Cost-effective and Technically Feasible Water Resources.* The Town shall coordinate with the St. Johns River Water Management District, Lake County, and other local governments or private utility providers to develop cost-effective and technically feasible water resources that will satisfy and supplement future demands without causing adverse impacts to water quality and quantity, wetlands, aquatic systems, or the environment.

OBJECTIVE 1.11: *Maximize Use of Existing Facilities and Minimize Urban Sprawl.* Direct growth to areas currently serviced by the water system to maximize use of existing facilities and to minimize urban sprawl.

POLICY 1.11.1: *Coordination with the Future Land Use Map.* The extension of potable water services shall be consistent with land use allocations delineated on the *Future Land Use Map*; with goals, objectives, and policies established in the *Future Land Use Element* of the Town's *Comprehensive Plan*; and with the plans and policies of the St. Johns River Water Management District.

POLICY 1.11.2: *Availability of Adequate Water Supplies to Serve Development.* The Town shall issue no development orders or development permits without first consulting with the utility service provider (Town of Howey in the Hills Public Works Department) to determine whether adequate water supplies to serve the development will be available no later than the anticipated date of issuance by the Town of a certificate of occupancy or its functional equivalent. The Town will also ensure that adequate water supplies and facilities are available and in place prior to issuing a certificate of occupancy or its functional equivalent.

OBJECTIVE 1.12: *Conservation of Potable Water Supplies.* The Town shall promote the conservation and responsible use of its potable water resources.

POLICY 1.12.1: *Conservation of Potable Water Supplies.* The Town shall conserve its potable water supplies through the implementation of water conservation techniques and programs. Such techniques and programs may include, but are not limited to:

1. Requiring installation of water conserving plumbing fixtures in new and renovated buildings which are, at minimum, consistent with the requirements of the State Water Conservation Act (s. 553.14, F.S.). The development review process shall include a review of development applications to assure such fixtures will be installed. No certificate of occupancy shall be issued unless such fixtures are in place concurrent with deadlines established for water facilities within the Town's Concurrency Management System.
2. Implementing a soil moisture monitoring and rain sensor device distribution program.
3. Promoting native and drought tolerant landscaping that incorporates the principles of design, appropriate plant selection, soil improvement, efficient irrigation, mulching, turf concentration, and proper maintenance.
4. Promoting water reuse and/or reclamation, where appropriate, for landscape and farm irrigation, and other appropriate applications.
5. Distribute educational materials provided by the St. Johns River Water Management District to residents and businesses through water bill mailings which describe sources of water consumption and opportunities for conservation.
6. Implementation of a leak detection program in order to discover and curtail wasteful losses of potable water from the public water supply delivery network.
7. Check the performance of water meters connected to the Town's well system on a regular basis to assure proper functioning. Replace malfunctioning system meters.
8. Encouraging residents to use sensors and controls such as rain shutoff sensors, soil moisture sensors, or evapotranspiration controllers for in-ground irrigation systems.

POLICY 1.12.2: *Protection and Conservation of Water Supplies and Future Demand.* The Town shall continue to implement development regulations to further the protection and conservation of potable

water supplies and delay the future demand for alternative water supplies. Such strategies shall include, at minimum, the following programs or standards:

- Water wise principles and site design standards.
- Appropriate plant selection and location standards.
- Encouraging new residential, commercial, and mixed-use developments to incorporate programs such as Florida Water StarSM, ENERGY STAR, the Florida Green Building Coalition's Green Home and Development Standards, Florida Yards and Neighborhood Program, and the U.S. Green Building Council's LEED program that encourages water efficiency in household appliances, plumbing fixtures, irrigation systems, and landscapes;
- Promotion of Low Impact Development standards.
- Irrigation design and installation standards; and
- Establishing incentives for developments that incorporate strategies that promote the reduction in the use of water and the protection of the environment and natural resources.

POLICY 1.12.3: *Alternative Water Supply Efforts.* To further reduce the demand for potable water, the Town shall explore all financially feasible alternative water supply efforts that can be implemented by the Town.

POLICY 1.12.4: *Coordination with Appropriate Agencies.* The Town shall coordinate with appropriate agencies regarding the identification and implementation of alternative water supply projects, resource allocations, and changes in the Town's Utility Service Area.

POLICY 1.12.5: *Potable Water Service Connection Meters.* The Town shall ensure that all potable water service connections are metered.

POLICY 1.12.6: *Water Conservation Plan.* The Town shall implement all features established in the Water Conservation Plan submitted to the St. Johns River Water Management District as part of the Consumptive Use Permit process.

POLICY 1.12.7: *Leak Detection and Repair Program.* The Town shall conduct an annual water audit of the Town's water system and implement a leak detection and repair program if the system losses and unaccounted for water utility uses exceed 10 percent.

- POLICY 1.12.8:** *Maintaining an Overall Water Conservation Program.* The Town shall maintain an overall water conservation program that includes an educational program, periodic revisions to the Town’s Water Conservation and Landscape Ordinances, and other innovative measures.
- POLICY 1.12.9:** *Maintaining a Progressive Water Rate Schedule.* The Town shall maintain a progressive water rate structure to encourage the conservation of potable water. The Town will implement the water rate structure consisting of a base rate and six increasing rate blocks as adopted in Resolution #2007-001. This rate structure will be reviewed periodically and revised as needed to continue to serve as a financial incentive to conserve water.
- POLICY 1.12.10:** *Metering all Irrigation Water Uses.* The Town shall establish a program to meter all irrigation water uses, regardless of source.
- POLICY 1.12.11:** *Sub-metering of Large Water Customers.* The Town will continue to require sub-metering of all large water customers such as shopping centers and apartment complexes. Large meters will not be allowed for multiple-unit developments.
- POLICY 1.12.12:** *Including Specific Data on Monthly Water Bills.* The Town will continue to include on monthly water bills, information showing previous usage and current usage, and will print water conservation tips on the water bills on a quarterly basis.
- POLICY 1.12.13:** *Supporting Water Shortage and Conservation Plans and Monitoring Irrigation Use.* The Town will continue to support District-promulgated water shortage and water conservation plans. The Town will continue to monitor irrigation use and will notify users of irrigation systems when improper watering practices are observed.
- POLICY 1.12.14:** *Providing Potable Water Interconnection for Emergency Purposes.* The Town shall continue to provide potable water interconnection with the Central Lake Community Development District, the Mission Inn, and adjacent municipalities for emergency purposes.
- POLICY 1.12.15:** *Coordinating with Adjacent Utility Service Providers.* The Town shall coordinate with adjacent utility service providers to establish

interlocal agreements for the supply of non potable water within the Town's Utility Service Area.

OBJECTIVE 1.13: *Consistency of Town's Water Supply Plan.* Ensure consistency with the Town's adopted *Water Supply Facilities Work Plan*, the *Comprehensive Plan*, and the St. Johns River Water Management District's *Water Supply Facilities Plan*.

POLICY 1.13.1: *Adoption of Water Supply Work Plan.* The Town hereby adopts by reference the goals, objectives, and policies in the Town's *10-year Water Supply Facilities Work Plan (2010-2020)* to ensure that the adopted *Comprehensive Plan* is consistent with and compatible to the adopted *Work Plan*.

POLICY 1.13.2: *Assessing SJRWMD's Water Supply Facilities Work Plan.* The Town of Howey-in-the-Hills' *Water Supply Facilities Work Plan (Work Plan)*, shall assess existing and projected water sources and needs for at least a 10-year planning period and consider the *Regional Water Supply Plan* of the St. Johns River Water Management District. The *Work Plan* shall identify traditional and alternative water supply sources that the Town may use to meet existing and projected water demands. The alternative water supply projects in the *Work Plan* will be selected from the applicable District's *Regional Water Supply Plans* or otherwise proposed by the Town.

POLICY 1.13.3: *Update of the Town's Water Supply Facilities Work Plan.* Howey-in-the-Hills shall coordinate with the St. Johns River Water Management District during updates to their *Regional Water Supply Plan*, to identify potentially feasible alternative water supply projects in the Town and to ensure that alternative water supply options for the Town are included in the forthcoming *District Water Supply Plan 2010*. Within 18 months of the adoption of the St. Johns River Water Management District's *Water Supply Plan*, the Town shall complete updates of the appropriate elements and adopt related plan amendments in order to address all of the 10-year water facilities supply work plan components of Chapter 163, F.S. The Town shall also update its *Water Supply Facilities Work Plan* every five years, within 18 months of the adoption of the South Florida Water Management District *Regional Water Supply Plan*.

POLICY 1.13.4: *Development, Support, and Priority of the Regional Water Supply Plan.* The Town will continue to participate in the development of the St. Johns River Water Management District's

Regional Water Supply Plan (RWSP), support the recommendations of the *RWSP*, and prioritize projects identified in the *RWSP* that are within the Town’s limits.

DRAINAGE

GOAL 2: Assure adequate drainage capacity to protect public health and safety, and investment in property against flood conditions and to prevent deterioration of ground and surface water quality.

OBJECTIVE 2.1: *Assure Available Drainage Capacity.* Assure that available natural and man-made drainage features provide adequate capacity to receive, retain, detain, and release stormwater in a timely manner.

POLICY 2.1.1: *Minimum Drainage Level of Service – Water Quantity.* The Town hereby adopts, for existing as well as new development, the following minimum stormwater drainage level of service standards for retention volume and design storm:

- a. Retention Volume – Complete retention of the post-development minus the pre- development run off occurring at the established design storm.
- b. Design Storm – The following interim level of service standards will be used until the *Comprehensive Plan* is amended to incorporate findings and recommendations of the *Storm Water Master Plan* update:

Facility Type	Design Storm
Canals, ditches, roadside swales, or culverts for stormwater external to the development	25 Year
Canals, ditches, roadside swales, or culverts for stormwater internal to the development	10 Year
Crossdrains	25 Year
Storm sewers	10 Year
Major Detention/Retention Structures ¹	For the Probable Maximum Precipitation as required by SJRWMD
Minor Detention/Retention	25 Year

Structures ¹	
Development occurring in the 100-year Flood Zone must elevate the first floor 18” above the 100-year Flood Elevation	

¹ Major/Minor Detention/Retention Structures are based on Hazard Classification for Dams and Impoundments as defined by the SJRWMD.

POLICY 2.1.2: *Minimum Drainage Level of Service – Water Quality.* The Town hereby adopts, for existing as well as new development, the following minimum stormwater drainage level of service standards for pollution abatement treatment:

Facility Type	Pollution Abatement Treatment ²
Retention with percolation or Detention with filtration	Runoff from first inch of rainfall or one-half inch of runoff if it has less than 50% impervious surface and less than 100 acres, whichever is greater.
Detention without filtration or wet detention	The first inch of runoff from the site or 2.5 inches times the site’s impervious surface, whichever is greater.

² If the site’s runoff directly discharges to Class I, Class II, or Outstanding Florida Waters (OFW), then the Pollution Abatement Treatment Requirements shall be increased an additional fifty percent (50%) more than described, an off-line retention or off-line detention with filtration of the first inch of runoff shall be required. The Town shall discourage the use of detention with filtration pollution abatement systems due to their high failure rate and costly maintenance; thus, the Town shall allow detention with filtration only if detention without filtration cannot be used.

POLICY 2.1.3: *Erosion and Sediment Controls.* The provisions in the Land Development Regulations regarding erosion and sediment controls for construction occurring in all areas and soils throughout the Town, particularly areas adjacent to surface waters and natural drainage ways shall be enforced by the Town.

OBJECTIVE 2.2: *Existing Drainage Deficiencies.* Identify and correct any deficiencies in the natural and man-made drainage features.

POLICY 2.2.1: *Correct Identified Drainage Deficiencies.* Upon completion of the Town's *Town Center Stormwater Master Plan*, the Town shall amend the *Comprehensive Plan* to include any recommended drainage improvements or deficiencies. Recommended improvements shall be added to the Town's *5-year Schedule of Capital Improvements* as funds become available.

POLICY 2.2.2: *Use of Retention Ponds in Stormwater Management.* The Town shall utilize retention ponds, or other methods as recommended by the Town's *Stormwater Management Master Plan*, to abate the flow of untreated stormwater run-off.

OBJECTIVE 2.3: *Control Impacts of Future Stormwater Runoff.* Control impacts of future stormwater runoff and associated impacts to water quality.

POLICY 2.3.1: *Protect Natural Drainage Ways.* The Town shall protect natural drainage ways by managing development with the following requirements:

- a. *Shoreline Protection Zone.* To protect the lakefront from the encroachment of development, the Town shall establish a shoreline protection zone for Little Lake Harris and Lake Illinois. Development within the shoreline protection zone, as described in Policy 1.2.3 of the *Conservation Element*, shall be limited to recreation, conservation, or other open space land uses.
- b. *Protection of Floodplain.* The Town shall restrict future development with the 100-year flood zones to recreation and conservation land uses. The Town shall also restrict alteration of floodplain and major drainage ways, the establish conditions on existing undeveloped, platted and subdivided land uses within such areas.
- c. *Open Space Requirements.* The *Future Land Use Element* and the *Future Land Use Map* shall establish land use types and densities which are compatible to the preservation of permeable ground surface areas. Impervious surface ratios and open space requirements shall be established by the Town, which in turn shall be consistent with hydrogeological and soil characteristics controlling development densities. The *Future Land Use Element* shall include open space and impervious surface ratios for all land use categories.

- d. ***Promote On-Site Retention and Natural Percolation of Surface Water to Groundwater Aquifers.*** The Town shall require developments to install on-site retention structures that promote percolation of surface water to the groundwater aquifer.

POLICY 2.3.2: ***Coordinate Watershed Management with Federal, State, and Local Agencies.*** Assure coordination of watershed management plans and policies with the Lake County, St. Johns River Water Management District, East Central Regional Planning Council, Florida Department of Environmental Protection, Florida Department of Agriculture, and the U.S. Corp. of Engineers, and other appropriate agencies.

OBJECTIVE 2.4: ***Integration of Natural Drainage Features.*** Maximize the integration of existing natural drainage ways and retention ponds to assist in the management of stormwater runoff.

POLICY 2.4.1: ***Wetlands for On-Site Stormwater Storage and Natural Drainage.*** Wetlands serve as natural collectors of stormwater and as natural filters of sediments and contaminants carried in such waters. The Town shall review proposed developments for best applicable integration of natural drainage features and wetland storage areas as contributing components to on-site stormwater management. Primary on-site stormwater management will consist of constructed facilities.

GROUNDWATER AQUIFER RECHARGE

GOAL 3: Protect and maintain groundwater aquifer high recharge areas.

OBJECTIVE 3.1: ***High Recharge of Stormwater to Groundwater Aquifers.*** Promote high recharge of stormwater to groundwater aquifers with consideration to retention time to reduce potential for downward percolation of contaminants into groundwater supplies.

POLICY 3.1.1: ***Preserving Permeable Surface Area.*** The *Future Land Use Element* and the *Future Land Use Map* shall establish land use types and densities which are compatible to the preservation of permeable ground surface areas. Impervious surface ratios and minimum open space requirements are discussed in Policy 1.1.2 in the *Future Land Use Element*.

POLICY 3.1.2: ***On-Site Stormwater Retention.*** On-site retention structures for new development shall be designed for net retention and

infiltration of pre-development recharge to groundwater aquifers. Chapter 40C-42, FAC calls for retention of the first one (1) inch of rainfall.

POLICY 3.1.3: ***Compatible Land Use for Preservation of Ground Water Quality.***
To protect against potential contamination of ground water supplies, the *Future Land Use Element* shall not permit heavy industrial uses.

POLICY 3.1.4: ***Wellfield Protection.*** In order to protect the quality and quantity of Howey-in-the-Hills potable water supply, a wellfield protection zone shall be established within a radius distance of one-hundred and fifty, two hundred, and five hundred feet from potable water wells. The following land uses are prohibited within these zones.

- No new development (except facilities related to the public water system) shall be permitted within one-hundred and fifty feet from a well.
- Within a two-hundred foot radius distance, septic tanks, sanitary sewer facilities, or solid waste disposal facilities shall be prohibited.
- Within a five hundred foot radius of a well, manufacturing or light industrial uses shall be prohibited, including activities that require the storage, use, handling, production or transportation of restricted substances on the Florida Substance List, and agricultural chemicals, petroleum products, hazardous/toxic wastes, industrial chemicals, etc. In addition, wastewater treatment plants, percolation ponds, mining activities and similar activities are prohibited. Low density single family, commercial, retail and office land uses shall be allowed within the 500-foot zone for potable water wells.
- All wells and wellhead protection zones shall be delineated on the Town's *Existing* and *Future Land Use Maps*.

UTILITY SERVICE AREA BOUNDARY

GOAL 4: Maintain and protect the Town's Utility Service Area Boundary.

OBJECTIVE 4.1: *Ensuring Consistency with the Utility Service Area Boundary.*
Provide a utility service area boundary that is consistent with the utility service boundaries of adjacent local governments.

POLICY 4.1.1: *Local Government Coordination and Overlapping of Utility Service Area Boundaries.* The Town shall continue to ensure that the overlapping of utility service area boundaries with adjacent local governments is avoided by coordinating with the adjacent local governments and maintaining and abiding by the established interlocal agreements for municipal services.



