

TOWN OF HOWEY-in-the-HILLS

Lake County, Florida

Water Conservation Plan

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INTRODUCTION

The Town of Howey-in-the-Hills (hereafter referred to as the Town) is located in north Lake County on the western shore of Little Lake Harris. This charming community’s proximity to central Florida, large tracts of undeveloped land, and outdoor amenities offer great opportunities to developers and residents alike. Over the last four years, significant increases in population have resulted in water demand outpacing annual groundwater allocations outlined in the Town’s Consumptive Use Permit (CUP). With several planned developments in various stages of the approval and construction process, the Town recognizes the need to expand its water conservation program to adapt to the changing water use habits of its growing customer base.

The Town’s municipal limits are located within the St. Johns River Water Management District (SJRWMD), and groundwater withdrawals for public supply are permitted under CUP 2596. This water conservation plan establishes the path forward to improve water use efficiency for the Town and has been prepared to accompany the Town’s CUP renewal application that is currently under review. The selected conservation elements are intended to meet the requirements outlined in Section 2.2.2.5 of the SJRWMD CUP Applicant’s Handbook; however, it should be noted that SJRWMD may require additional conservation measures under the permit renewal process.

BACKGROUND

The Town owns and operates a public drinking water system, providing water for public supply from Floridan aquifer wells. The Town does not own or operate a wastewater treatment plant. Wastewater treatment for most of the existing residents and businesses is provided by onsite sewage treatment and disposal systems (a.k.a., septic tanks), and new planned developments will be provided with a wastewater service under an agreement with Central Lakes Community Development District. Under this agreement the Mission Inn Wastewater Treatment Plant treats effluent to public access reuse standards, and reclaimed water from this facility is beneficially reused within the Mission Inn and Las Colinas CUP service area. With the Town’s wastewater being treated by others and beneficially reused by an adjacent CUP applicant, per capita use is higher than the SJRWMD target, making water conservation critical for both short- and long-term water supply planning.

USAGE PROFILE

A review of water demand for the past five years reveals that the Town’s water demands have been steadily increasing and outpacing the annual groundwater allocation schedule in the CUP. As shown in **Figure 1**, groundwater withdrawals exceeded the CUP allocation for four of the past five years.

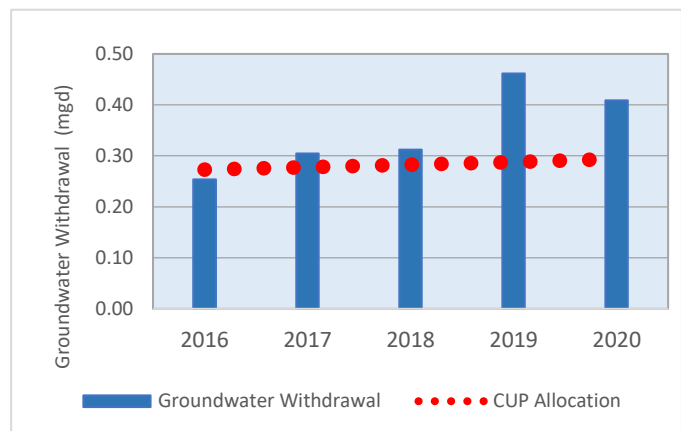


Figure 1. Summary of Groundwater Withdrawals

Town of Howey-in-the-Hills Water Conservation Plan

Tables 1 summarize gross per capita water demand based on 2.5 persons per home, and Table 2 summarizes water demand by customer category. For the five-year period of record:

- Population has increased by 30.9%
- Gross per capita has increased 23.5%
- The Town’s gross per capita exceeds the SJRWMD target of 150 GPCD for each year reviewed.

Table 1. Gross Per Capita Summary

Year	Average Number of Active Residential Connections	Residential Population Served @ 2.5 pph	Groundwater Withdrawal (mgd)	Gross Per Capita (GPCD)
2016	595	1,488	0.254	170
2017	653	1,633	0.305	187
2018	691	1,728	0.312	181
2019	729	1,823	0.462	253
2020	779	1,948	0.409	210

Table 2. Water Demand By Customer Category

Year	Residential Population Served	Residential Water Use Avg Day (mgd)	Commercial Average Day (mgd)	Water Utility (mgd)	Unaccounted For (mgd)	Total Demand (mgd)
2016	1,488	0.193	0.018		0.043	0.254
2017	1,633	0.228	0.032		0.045	0.305
2018	1,728	0.239	0.024		0.050	0.312
2019	1,823	0.309	0.042		0.111	0.462
2020	1,948	0.305	0.026		0.078	0.409

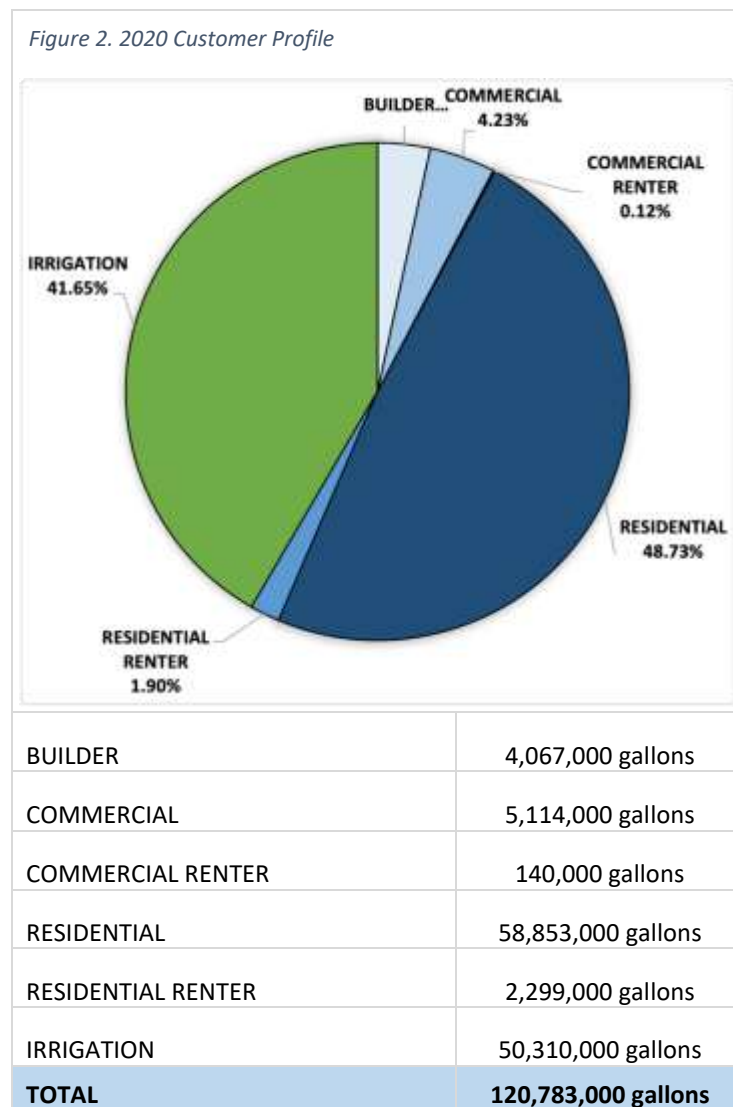
Understanding usage by customer category is the first step in developing a successful water conservation program. SJRWMD lists numerous conservation plan requirements in the CUP Applicant’s Handbook, and the degree to which these are to be implemented should be based on an individual utility’s needs while carefully taking utility size and financial and staff resources into account.

The Town uses Black Mountain Software for utility billing, and the following customer categories are available from this billing platform:

- Builder
- Commercial
- Commercial Renter
- Residential Renter
- Residential
- Irrigation

Based on the review of the previous five years of billing data and discussions with Town staff, 2020 usage represents both current and anticipated future water use if no additional conservation measures are implemented.

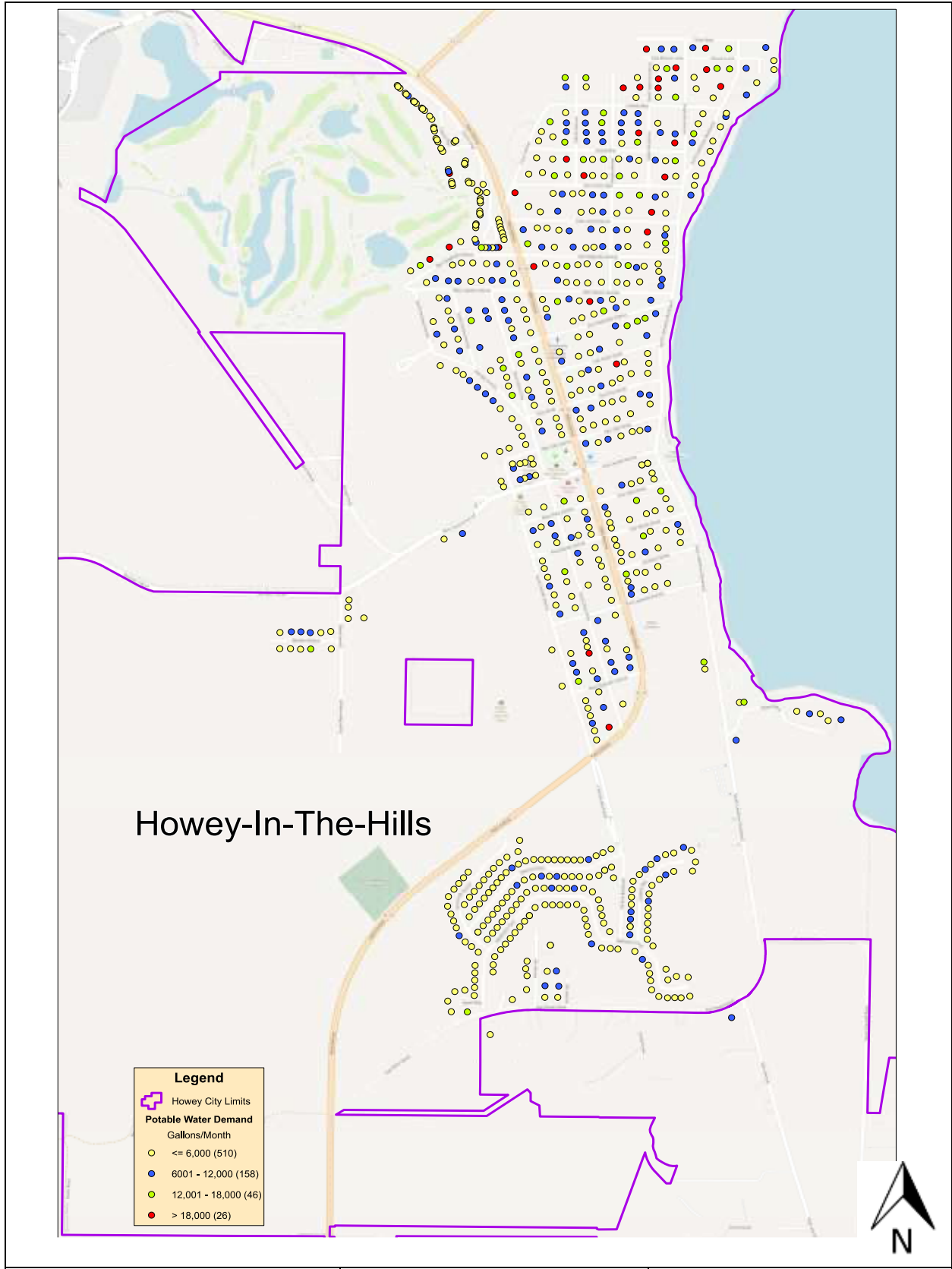
Figure 2 presents usage by customer category for the 2020 calendar year. Residential customers comprised the largest customer category (49%), followed closely by irrigation (42%), which is almost entirely comprised of residential irrigation.



The 2020 account-level billing data was joined with property appraiser data to provide a spatial representation of customer usage. A limited budget allowed for one attempt at linking the billing data to the property appraiser data, with 90% of the accounts successfully linked for this first iteration. The unlinked accounts either did not have a complete address or there were discrepancies between the billing address and the property appraiser database address.

Figures 3 and 4 provide a visual representation of the Town’s consumption distribution. Should the Town wish to pursue using this as a conservation tool, additional budget and further refinement of billing data to join the remaining accounts is necessary.

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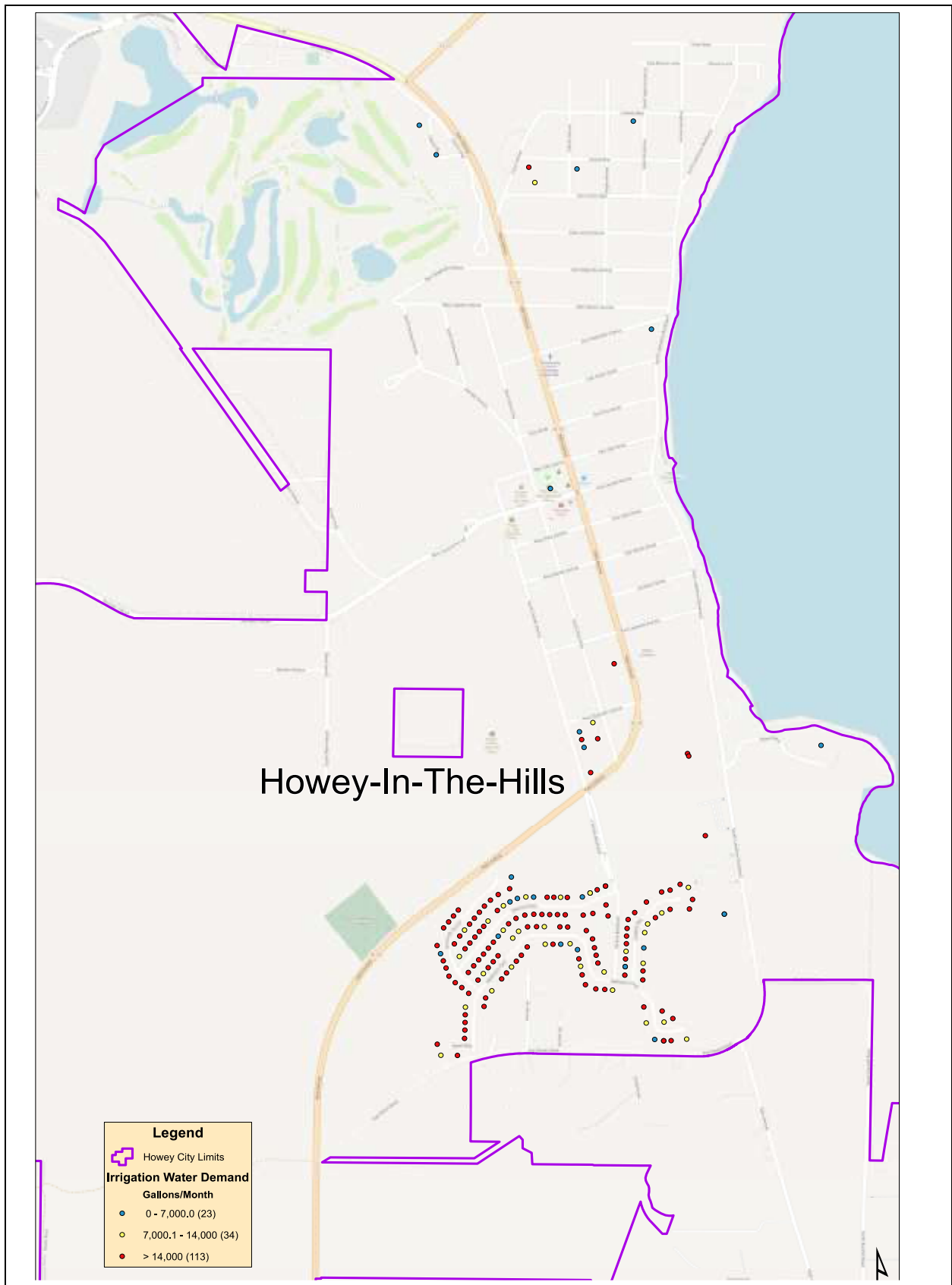


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Figure 3. 2020 Potable Water Map

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Figure 4. 2020 Irrigation Map

WATER CONSERVATION PLAN

Public Education and Outreach

Media Campaign

The Town's water conservation media campaign provides water use efficiency information to customers through a variety of platforms to maximize message exposure.

The Town maintains a partnership with other Lake County municipalities to provide water conservation programming on LakeFront TV through an annual financial contribution. LakeFront TV broadcasts across four local cable channels and live streams on [The Lake Front TV Website](#). Programming is also available for streaming on the Roku Channel and Apple TV using the free Cablecast App. The below screen from the LakeFront TV website presents several videos from the currently streamed water conservation programming.



Figure 5. Examples of LakeFront TV Programming

Lakefront TV is run by the City of Leesburg. Water conservation public service announcements are aired throughout each month and videos are available for viewing 24/7 online.

Water Conservation Events

Water conservation events allow the Town to communicate with its residents more effectively in a personal setting. The Town sponsors a minimum of three water conservation events each year. Two of these events are held in conjunction with Town events, Founders Day in May, and Christmas in December. The date for the third event is selected annually, with this event to occur in April, July, or November. Events include water conservation displays and guest speakers.

Water Conservation Bill Messages and Brochures

Water conservation messages promoting irrigation restrictions and leak detection are provided on water bills at least three times per year, through utility bill direct mailings also at least three times per year, and through an ongoing distribution of water conservation brochures at Town Hall and community events.



Figure 6. Example Conservation Brochure

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Website

Water conservation information is posted on the Town's website. In August 2021 the website was redesigned to include water conservation tips and web resources for EPA WaterSense, SJRWMD irrigation restrictions, and Florida Yards and neighborhoods. Each web page also includes Town contact information.



Figure 7. Water Conservation Web Page

Water conservation web content is periodically updated to highlight national conservation events such as Fix a Leak Week in March, and Water Conservation Month in April. Furthermore, the Town reviews conservation content annually in April and updates posted information as needed to ensure content remains relevant.

New Resident Package

All new residents receive a welcome package with information about Town services. Included in this package is information on irrigation restrictions. Town staff also personally discuss the importance of checking irrigation controllers with new residents at the time that they move in and reprogramming as necessary to comply with irrigation restrictions when they open water accounts.

Promotion of the Landscape Irrigation Rule (Watering Restrictions)

Irrigation restrictions are codified in Chapter 171 of the Town's Code of Ordinances. These restrictions are promoted through direct mailings, distribution of literature at the Town Hall and at Town events, on the Town's website, through public service announcements on LakeFront TV, periodic messaging on the water bill and as part of the customer water audit program.

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Historically, the Town has focused on public education and outreach since prior to the construction of the Venezia South development most customers did not irrigate. Recent customer data however shows that irrigation now comprises of over 40% of the Town's water demand, with most of this irrigation demand at this time coming from a single residential development, Venezia South. In response to this change in customer usage, the Town is enforcing irrigation restrictions through Code Enforcement as outlined in Chapter 171 of the Town's Code of Ordinances. Customers found in violation of irrigation restrictions receive a warning for the first violation. Subsequent violations result in a fine posted to the water bill.

Customer Leak Detection and High Water User Program

Utility billing staff review customer water consumption monthly for each billing cycle, and meter reread work orders are issued for suspect water use (usage is significantly higher than previous use). As part of the meter reread process, the meter technician checks the meter for continuous flow alarms, and when detected, the customer is contacted via phone call or a door tag is left at the front door of the home or business. To help customers identify if a toilet leak is present, the Town also provides toilet leak detection tablets at the Town Hall and distributes these at Town events.

Staff also periodically call high water users to provide tips on how to reduce water use or leave a door tag at the front door to provide the high usage notice. Upon request, hourly water consumption data is downloaded from the meter and reviewed with the customer to help the customer identify the cause of high usage.

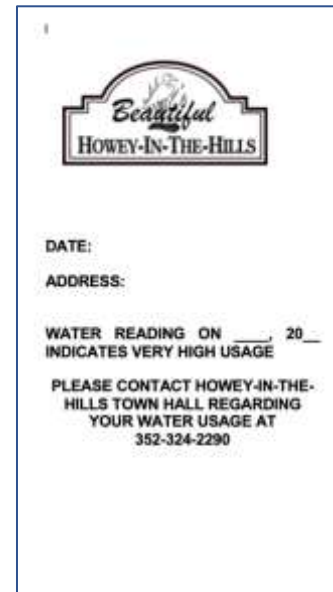


Figure 8. Door Tag

Landscape Demonstration Garden

The Town maintains a landscape demonstration garden around the Town Hall. The garden is also promoted during conservation events. Recent photos of the garden are shown below.

Figure 9. Landscape Demonstration Garden



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Irrigation Standards

In June 2020, the Town’s Land Development Code (LDC) was updated to include design standards consistent with the Florida Water StarSM program that require certification of irrigation system design and installation. The proposed changes were reviewed by Deirdre Irwin/SJRWMD before being incorporated into the LCDs. Applicable sections of the LCD are provided below.

7.04.00 LANDSCAPING

7.04.01 Florida Water Star Program/Florida Friendly Landscaping

- A. All required landscaping and irrigation shall be installed and maintained to be consistent with the water-efficient landscaping requirements established herein. Landowners are additionally encouraged to follow Waterwise Florida Landscapes, Florida Water Star Program, and Florida Irrigation Society Standards.
- B. Landscape plants shall be selected based on appropriateness to the site considering conditions such as soil type, moisture, and sunlight using the principal of “right plant – right place,” as described by the Florida Friendly Landscaping program. The plants shall be grouped and irrigated by hydrozone in accordance with their respective water needs. A list of appropriate plants and plant resources is contained in The Plant List for Lake County.
- C. Synthetic Lawns and Plants: Synthetic or artificial turf, trees and plants shall be prohibited from use in lieu of required live plantings.
- D. Limit irrigated lawn areas. Irrigation is not mandated by the Town. The use, type and location of irrigated lawn area in the landscape shall be selected in a planned manner and used as a fill-in material. Since most lawn varieties used in landscape require supplemental watering more frequently than other types of landscape plants, turf shall be placed so that it can be irrigated separately. The installation of turf grass shall be subject to the following:

- 1. Irrigated turf grasses may be installed on a maximum of sixty (60) percent of the pervious (landscape) area of any lot or parcel as follows:

TURF GRASS TABLE	
Site Size	Irrigated Turf Area
< 5 Acres	60% of the pervious landscaped areas
5 to 10 Acres	60% of the pervious landscaped area, not to exceed 5 acres, whichever is less.
>10 acres	60% of the pervious landscaped area, not to exceed 10 acres, whichever is less

- 2. Exemptions:
 - (a) Unirrigated turf having an excellent drought tolerance rating, such as Bahia grass, may be used on the entire site and is not subject to this limitation.
 - (b) Agricultural uses, commercial golf courses greens and fairways, cemeteries, and public or private active recreation fields such as ball fields are exempt from this limitation.

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- (c) *Existing Development: Property owners shall be encouraged to replace lawns and plants with Florida-Friendly Landscaping and drought tolerant turf for development existing as of June 14, 2021.*
- (d) *The percentage of micro irrigation and/or non-irrigated areas shall be no less than 40 percent of the total irrigable area.*

7.06.02 Irrigation Design Standards

- A. *All irrigation systems shall be designed in accordance with one of the following standards:*
 - 1. *Florida Water Star Program; or.*
 - 2. *Adhere to the following standards:*
 - a. *Sprinkler irrigation area shall not exceed 60% of the irrigated area. Other irrigation shall consist of low volume irrigation or micro-irrigation systems. This standard is applicable on residential and commercial lots over 1/8th acre. This requirement applies to common areas and open space in developments.*
 - b. *Sprinkler irrigation shall not be installed in narrow areas that are four (4) feet or less in width unless correctly installed micro-irrigation is used.*
 - c. *Sprinkler irrigation shall not be used for trees, shrubs, and groundcover beds. Permanent low volume or micro-irrigation systems may be used in these areas, but the Town encourages the use of temporary establishment irrigation systems which may be removed after the vegetation is established.*
 - d. *Irrigation zones shall be divided according to vegetated groupings (i.e., turfgrass, shrubs, trees, etc.) and the water requirements of the plants.*
 - e. *Sprinkler head types, such as spray heads and rotors, shall not be mixed in the same zone.*
 - f. *Distribution equipment in a given zone shall have matched precipitation rates.*
 - g. *Rotors and spray heads in turfgrass areas shall be spaced to provide head-to-head coverage.*
 - h. *A minimum separation of four inches is required between distribution equipment and the pavement.*
 - i. *A minimum separation of 24 inches is required between distribution equipment and buildings and other vertical structures.*
 - j. *A rain shut-off device shall be required on all irrigation systems to avoid irrigation during periods of sufficient rainfall. The rain sensor device shall consist of an automatic sensing device or switch that will override the irrigation cycle when adequate rainfall has occurred. It shall be placed where it is exposed to unobstructed natural rainfall and in compliance with Section 373.62, Florida Statutes, as amended.*
 - k. *Irrigation systems equipped with an automatic control system shall, at a minimum, provide the following capabilities:*
 - (1) *Ability to be programmed in minutes, by day of week, season, and time of day or by inches of water, by day of week, and time of day.*
 - (2) *Ability to accommodate multiple start times and programs.*
 - (3) *Automatic shutoff after adequate rainfall*
 - (4) *Ability to maintain time during power outages for a minimum of three days, and*

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- (5) *Operational flexibility to meet the applicable water management district's year-round water conservation requirements and water shortage order restrictions.*
- l. Check valves or similar devices which are capable of holding a minimum of a five-foot head shall be used in low-lying areas to prevent head drainage unless using valve-in-head sprinklers.*
 - m. Irrigation system equipment shall be installed in accordance with manufacturer's specifications.*
 - n. Sprinkler heads shall not spray onto walkways, buildings, roadways, and driveways.*
 - o. Pipes shall have a flow velocity of five-feet per second or less.*
 - p. Pipelines shall be designed to provide the system with the appropriate pressure required for maximum irrigation uniformity.*
 - q. All irrigation system underground piping shall have minimum soil cover of six inches.*

7.06.03 Irrigation Design and Installation Affidavits

- A. An irrigation plan and Irrigation Design Affidavit demonstrating how the irrigation system will comply with the standards of the Section, signed and sealed by a landscape architect licensed to practice in the State of Florida shall be included with the development application for all planned development.*
- B. An irrigation plan and Irrigation Design Affidavit demonstrating how the irrigation system will comply with the standards of this Section, signed by a landscape architect licensed to practice in the State of Florida, builder, owner, or experienced irrigation professional shall included with all building permits where a permanent irrigation system shall be installed on the property.*
- C. Within thirty (30) days of any irrigation system installed pursuant to this Section, the permittee or property owner shall submit to the Town a written self-certification from a Florida Water Star inspector, accredited professional, licensed irrigation contractor, or licensed landscape professional that the irrigations system on property meets the requirements of this Section. The owner, acting as owner-builder, may certify the irrigation system for a building permit as meeting the requirements herein.*
 - 1. All properties subject to this irrigation certification may be inspected to ensure compliance with the requirements of this Section.*
 - 2. Contractors and/or property owners shall be accountable for proper installation and compliance through self-certification.*
 - 3. The Town may conduct random inspection to ensure compliance with the code.*
 - 4. No Certificate of Occupancy for any development or building permit subject to the requirements of this Section shall be issued until the applicant has installed irrigation in compliance with e requirements of this Section.*

Indoor Conservation

The Town’s indoor conservation program is similar to its outdoor conservation program. When suspect usage is identified by Town staff or if customers call for assistance with high use, the meter technician downloads hourly consumption data from the meter and usage is reviewed with the customer. If continuous use is detected, a leak alert can be seen, and this is also shared with the customer.



Figure 10. Toilet Dye tablets

The customer profile created as part of this conservation plan effort indicates that currently the primary focus for conservation should be outreach and education to reduce irrigation demand. Therefore, the Town’s indoor conservation program will focus on promoting higher efficiency plumbing fixtures and appliances on its website, water audit assistance using hourly consumption data downloaded from water meters, and through the distribution of toilet dye tablet to help customers find leaking toilet flappers.

Water Conservation Rate Structure

The Town maintains a water conservation rate structure to encourage the efficient use of water by sending a price signal for high use. Current rates are provided in Table 3.

Table 3. Water Rates

Water Block Rate (gallons)			Rate
Block 1		5,000	included in Base
Block 2	5,001	– 9,000	\$2.17
Block 3	9,001	– 14,000	\$2.39
Block 4	14,001	– 20,000	\$2.59
Block 5	20,001	– 30,000	\$3.65
Block 6	30,001	– 60,000	\$10.54
Block 7	> 60,000		\$13.79

Water Loss Control Program

Historically, the Town’s water audits were performed as required by the CUP. The most recent water audits were completed for the 2012 and 2020 calendar years using the St. Johns River Water Management District audit form. Unaccounted-for water loss (UFW) was estimated to be 9.9 % for the 2012 calendar year and 17% for the 2020 calendar year.

SJRWMD requires corrective actions if a water audit demonstrates that UFW loss is greater than 10%. The Town has selected the following water loss control practices to address UFW loss:

- Inspect each water meter and repair or replace as necessary (initiated in 2019 and completed in spring 2021).

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- Continue to perform flow meter verifications on well-production meters and repair within 30 days if flow meter accuracy exceeds 5%.
- Maintain watermain break and leak records estimating quantity of unmetered water.
- Perform water audits annually until water loss drops below 10% and then perform audits every two years at a minimum.

CLOSING

This water conservation plan establishes the path forward to improve water-use efficiency for the Town. It is prepared to accompany the Town's CUP application currently under review for renewal by SJRWMD. The selected program elements are intended to meet the requirements outlined in Section 2.2.2.5 of the SJRWMD CUP Applicant's Handbook. This plan should be treated as a living document and be reviewed annually and updated as needed to meet changing customer water use patterns, utility management, financial and staff resources, and water source availability.