CHAPTER 7

POTABLE WATER SUB-ELEMENT

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A. OVERVIEW

Potable water service within the unincorporated area represents the complete spectrum of facilities, consisting of individual wells, package plants, and area-wide systems. The majority of the package plants are privately-owned. The area-wide systems serving portions of the unincorporated region include both privately-held and publicly-owned facilities. The publicly-owned systems are either operated by municipalities or the County. In accordance with the provisions of the Comprehensive Plan, the County has, and continues to negotiate water service area agreements with municipalities. Unless provisions are required to recognize any existing water lines in non-urban areas which are within municipal service areas, the County's requirements for connection to potable water service shall remain in full force and effect within these agreed upon service areas.

Throughout the planning period, potable water service issues will likely be raised with respect to:

1. Improving existing facilities to County approved service standards;

2. Expansion of the water service area to developing areas;

3. Maintaining adequate supply and pressure for fire protection;

4. Quantity and quality of water treatment;

5. Planning and funding the maintenance, repair, replacement and extension of the system; and

6. Availability of water supply sources and facilities to meet the projected potable water demand.

These issues will be addressed in conjunction with the Regional Water Supply Planning process, standards for level of service, concurrency and capital budgeting improvements. The provision of potable water is intended to adequately accommodate the projected population as addressed in the County's Water Supply Facilities Work Plan. The County's Capital Improvements Program addresses the necessary funding for improvements to existing facilities and the development of new facilities.

B. CONSISTENCY WITH OTHER COMPREHENSIVE PLAN ELEMENTS

The following Future Land Use categories are considered to be urban and require the provision of Potable Water facilities and services consistent with the Level of Service standards set out in this Sub-element and the Capital Improvements Element, unless specifically noted elsewhere in the Plan; Urban Low Intensity, Urban Medium Intensity, Urban High Intensity, Commercial, Industrial, Mixed Use, Activity Center, Planned Community, and Low Impact Urban. Each of these categories is described in the Future Land Use Element and are geographically depicted by the Future Land Use Map.

C. WATER SUPPLY FACILITIES WORK PLAN

In accordance with the State's Growth Management Act (Chapter 163, F.S.), the Water Supply Facilities Work Plan (Work Plan) is intended to strengthen the link between the County's Comprehensive Plan and the regional water supply planning process. This Work Plan projects potable water demand for the planning horizon of this Comprehensive Plan and identifies the sources of water that will be used to meet the projected demand. The Work Plan takes into account alternative sources of water identified as options for the County's Utility system by the St. Johns River Water Management District's (SJRWMD) District Water Supply Plan (DWSP). The data and analysis for the Work Plan is based on the "Volusia County Water Supply Facilities Work Plan – Support Document", March 2009 (Support Document). The Support Document contains detailed information including: service delivery arrangements, inventory of current water supply and reuse facilities, water demand projections, demand and capacity analysis, ten-year water supply facilities needs, and identifies the water supply sources the County is pursuing to meet the projected demand.

Service Delivery Arrangements

The provision of potable water within the unincorporated areas of the County falls under four categories: 1) unincorporated areas served by Volusia County Utilities; 2) unincorporated areas served by municipal water systems; 3) unincorporated areas served by private community systems or non-community systems; and 4) unincorporated areas using private individual wells. Maps depicting the County and municipal water supply planning areas are included in the Support Document.

As of 2008, there are a total of 168 existing permitted water systems within Volusia County of which 59 are community water systems that supply water to populations greater than 25 people. These water suppliers include Volusia County Utilities, various city utilities, and a significant number of private utility water systems. The County's Work Plan addresses the potable water supply sources and facilities necessary to meet the projected demand within the County's five major water supply planning areas. The projected demand for the unincorporated areas that fall within the municipal water supply planning areas will be coordinated with the preparation of the Work Plan by the respective Cities to insure that adequate water supply facilities have been planned. Within the municipal service areas, the County does not issue development orders or development permits without first consulting the appropriate utility provider to determine whether adequate water supplies and facilities to serve the new development will be available prior to the issuance of a certificate of occupancy or its functional equivalent. The municipal level of service standards are applicable within unincorporated areas located within municipal service areas.

Private Providers

The County contains 33 permitted private community systems that provide service within the unincorporated area. These systems are generally small and serve a defined community such as a mobile home park. The remaining 109 permitted water systems are private non-community water systems which are smaller systems that do not supply water to a population greater than 25 people. These non-community systems include such sites as hotels, motels, parks, food and beverage establishments, churches, convenience stores, etc. These private systems are inventoried in the Support Document; however, the projected needs and sources are not addressed due to the small size and customer base.

Private Individual Wells

Much of the population within the unincorporated area of the County utilizes private individual water wells as a water supply source. The projected demands for this category of water use are taken into

account by the SJRWMD Water Supply Assessment and are not addressed in the Support Document.

County's Utility System

The potable water supply production, treatment, storage, and distribution facilities owned and operated by Volusia County are comprised of geographically separated systems of various sizes. The County's potable water supply system is grouped into seven water supply planning areas in this Work Plan as follows:

- Northwest Water Supply Planning Area
  The County owns and operates two separate systems in the northwest area of the County which serve two small rural residential developments known as Pine Island and New Hope Villas. The existing system components are adequate to meet the projected needs of these two communities.
- Northeast Water Supply Planning Area
  The Northeast water supply planning area encompasses unincorporated area located within the northeast section of the County. Service is provided to two large, primarily single family developments known as Halifax Plantation and Plantation Oaks along with several smaller residential developments. This water supply planning area also includes the portion of the Halifax Plantation project that is located in Flagler County. An interlocal agreement exists with Flagler County to allow the County to provide utility service within the area of Flagler County that encompasses this development.
- Spruce Creek Water Supply Planning Area
  The Spruce Creek water supply planning area is comprised entirely of the Spruce Creek Fly-in community that commenced development during the 1970s. This unincorporated community consists of single family residences and is located on the west side of the municipal limits of the City of Port Orange. There are 419 vacant lots that remain to be developed within this community which will connect to the Spruce Creek potable water system.
- Southeast Water Supply Planning Area
  The Southeast water supply planning area is located on the west side of the Indian River lagoon in the southeast area of the County. This water supply planning area includes all of the City of Oak Hill and a small portion of the City of Edgewater. The County has previously executed interlocal agreements with the Cities of Edgewater and Oak Hill which defines the respective service delivery arrangements within delineated unincorporated and municipal areas. Water is provided to the County on a wholesale basis from the City of Edgewater to serve the existing and projected demand of this water supply planning area.
- Southwest Water Supply Planning Area;
  The Southwest water supply planning area includes the City of DeBary along with portions of the City of Orange City and unincorporated area. The majority of Volusia County's water system customer base is located within the Southwest water supply planning area and accounted for 60 percent of the County's total potable water consumption during 2007. The Southwest system was formerly a private system known as the West Volusia Utilities prior to its acquisition by the County.
- Deltona North Water Supply Planning Area
  The Deltona North water supply planning area serves the northeast section of the City of Deltona along with portions of the unincorporated rural community of Cassadaga and the Cities of DeLand and Lake Helen. The Deltona North water supply planning area also contains a majority of the land area (1,450 acres of the total 1800 acres) within the Southwest Activity Center which is planned for a mix of commercial, industrial, and residential uses.

- Stone Island Water Supply Planning Area
  The Stone Island water supply planning Area is located on the north side of Lake Monroe and serves a single-family residential development known as Stone Island along with a portion of the community of Enterprise. The County acquired this system in 2000 and currently purchases water to serve this area on a wholesale basis from the City of Deltona.

Water customers within the unincorporated area of Volusia County are also provided potable water service from a municipal provider. Many of these water delivery arrangements have existed for many years and developed because the County did not have an established water utility system at the time that the water need arose. The adjacent cities had established water systems which could be extended. In some cases, the water system may have started as a private utility and then was acquired by a city and integrated the system into the city's system. The municipal utilities that provide service within unincorporated areas are described in more detail in the Support Document along with map figures that depict these areas.

Existing Water System

This sub-section provides a description of the existing Volusia County potable water system which consists of supply, treatment, water storage, and distribution facilities along with reuse facilities. The County's potable system is located within distinct water supply planning areas, described above, that are geographically separated from the other water supply planning areas. These systems are not interconnected with other County systems, but interconnects are in place with adjacent City systems to meet short-term water supply needs.

Water Supply Sources
The method of water supply varies for each of the County water supply planning areas. Five of the seven water supply planning areas utilize water supply wells to produce groundwater as its water supply source. These water supply planning areas contained a total of 27 ground water wells with a total water production of 4.387 millions of gallons per day (MGD) during 2007. As noted above, the Southeast and Stone Island water supply planning areas receive its potable water through wholesale supply arrangements with adjacent city utilities.

Treatment and Storage
A summary of the existing treatment and storage of the County's system is provided below with further detail provided by the Support Document:

- Northwest Water Supply Planning Area;
  The treatment process for the two plants that serve the Pine Island and New Hope Villas communities is limited to pressurization and disinfection. The water well pumps provide the distribution system pressure. The combined plant capacity of 0.228 MGD is adequate to serve the buildout of these two communities.
- Northeast Water Supply Planning Area;
  Potable water treatment is provided by the Halifax Plantation Water Treatment Plant that uses membrane softening treatment comprised of one reverse osmosis unit rated at 0.250 MGD and one reverse osmosis unit rated 0.500 MGD. This treated water can be blended with untreated well water to increase the output of this treatment plant. Ground storage totals 500,000 gallons. During 2007, this plant produced 0.282 MGD of potable water to 1,853 metered customers.
- Spruce Creek Water Supply Planning Area;
  Treatment is provided by a membrane softening plant with a rated capacity of 0.650 MGD.

During 2007, this plant produced 0.29 MGD of treated potable water to 1,431 domestic metered customers plus 195 irrigation meters. Membrane softening concentrate is discharged to percolation ponds adjacent to the water plant site. Ground storage totals 500,000 gallons.

- Southeast Water Supply Planning Area:
  As noted above, potable water for this water supply planning area is supplied on a wholesale basis by the City of Edgewater up to a maximum of 0.450 MGD pursuant to the interlocal agreement with the City. The water supply wells and treatment plants which previously served this area have been deactivated. The County operates the distribution system that supplies potable water to the customers within this water supply planning area.
- Southwest Water Supply Planning Area;
  This water supply planning area includes the Breezewood, Highland, Four Townes, and Glenn Abbey water treatment plants which are also referred to as the "West Volusia Interconnect". These plants have a total treatment capacity of 6.089 MGD with storage capacity of 1.5 million gallons and treated an average flow of 2.660 MGD during 2007. Although the four plants are interconnected and operational, the Glen Abbey treatment plant produces and distributes most of the potable water within this system.
- Deltona North Water Supply Planning Area;
  This water supply planning area contains the larger Deltona North plant which has a treatment capacity of 1.500 MGD and the smaller Cassadaga Plant which has a treatment capacity of 0.180 MGD. The Deltona North system ground storage totals 500,000 gallons and the Cassadaga system ground storage totals 13,240 gallons. The Deltona North plant is a newer system that produced an average daily flow of 0.719 MGD during 2007 to a total of 1,550 connections. The Cassadaga plant is an older system that provides potable water service to the small rural community of Cassadaga.
- Stone Island Water Supply Planning Area;
  As noted above, potable water for this water supply planning area is supplied on a wholesale basis by the City of Deltona pursuant to an interlocal agreement with the City. The County operates the distribution system that supplies 0.130 MGD of potable water to the 420 customers within this water supply planning area. The potable water supplied through this wholesale arrangement is adequate to meet the needs of this small community.

Reuse

The two common means of disposing treated wastewater by the County are reuse of reclaimed water for irrigation of landscape areas and aquifer recharge resulting from disposal via percolation ponds. In the Southwest and Deltona North water supply planning areas, the County operates several wastewater treatment facilities, with wastewater treated to public access standards either disposed of to percolation ponds or utilized for landscape irrigation. Taken together, these two water supply areas in 2007 accounted for 1.570 MGD of flow of which 77% was utilized for landscape irrigation and the remainder disposed of in percolation ponds. The Southeast water supply planning area utilizes wastewater treated to public access standards to irrigate a Volusia County owned orange grove. The Northeast water supply planning area utilizes percolation ponds to dispose treated wastewater and the Spruce Creek system wastewater flow is treated by the City of Port Orange.

Needs and Sources Assessment

The following needs and sources assessment sets the framework for determining the water supply strategies that the County will undertake to address future potable water supply and facility needs for the County's five major water supply planning areas. These include the Northeast, Spruce Creek, Southeast, Deltona North, and Southwest water supply planning areas. The Northwest and Stone

Island water supply planning areas are not included in the needs and sources assessment due to the small size and customer base of these systems. Existing water supply sources and facilities are adequate to meet future needs within these two water supply planning areas. The needs and sources assessment identifies the alternative water supply sources the County selects from the options that are identified in the SJRWMD DWSP for the County's utility system. This assessment is based on the results of a system demand and capacity analysis for each of the five-major water supply planning areas. The capital facilities that implement the water supply strategies are incorporated into the County's adopted Capital Improvements Program.

Potable Water Demand Projections

Potable water demand is projected for each of the County's five major water supply planning areas as the first step in assessing water supply source options and facility needs. The projected potable water demand is based on the increase in new equivalent residential unit (ERU) connections for each water supply planning area through the 2025 planning horizon of the Comprehensive Plan. The historic water use for each water supply planning area was analyzed to determine the average and maximum daily water use on a per ERU connection basis for use in projecting the future demand. As shown in the following Table 1, the ERU connection demand factor used to project future water needs is consistent with the adopted potable water level of service standards.

Table 1

Equivalent Residential Unit Connection Demand Factors

Service Area	Historic Demand Factor Per Residential (ERU/GPD*)	Potable Water Level of Service Standard (ERU/GPD*)	Demand Factor Per Residential Connection Used in the Work Plan (ERU/GPD*)
Deltona North	449	300	450
Southwest	360	300	365
Northeast	149	200	200
Spruce Creek	191	200	200
Southeast	170	200	200

Source – 2025 Volusia County Water Supply Facilities Work Plan – Support Document, Table IV-1
*ERU – Equivalent Residential Unit/GPD – Gallons per Day

The increase in the number of ERU connections is based on population projections used to update the County's Comprehensive Plan as part of the Evaluation and Appraisal Report (EAR) process. The population projections for each of the five water supply planning areas (see Table 2 below) were derived from the Volusia County MPO Long Range Transportation Plan updated in 2005.

Table 2

Projected Population
Volusia County Utility System Service Areas

Year	Northeast	Spruce Creek	Southeast	Southwest	Deltona North	TOTAL
2010	4,256	3,459	3,163	22,792	9,427	43,097
2015	4,766	4,024	3,308	24,149	10,785	47,032
2020	5,275	4,590	3,454	25,505	12,144	50,968
2025	5,784	5,155	3,600	26,861	13,503	54,903

Source – 2025 Volusia County Water Supply Facilities Work Plan – Support Document, Table IV-2

Demand Capacity Analysis

A demand and capacity analysis of each of the five major water supply planning areas is utilized in this Work Plan to determine any facility and supply needs based on the projected potable water demand (See the following Tables 3 through 7 for each water supply planning area). These analyses indicate that the County's water treatment, storage, and wellfield capacities are adequate to meet the future projected need for four of the five water supply planning areas. The projected demand for the Deltona North water supply planning area will exceed wellfield and plant capacity in 2021. Additionally, the CUP ground water allocation is not adequate to meet the projected need for the Deltona North and Southwest water supply planning areas.

Table 3

Northeast Water Supply Planning Area

Year	Projected Avg. Daily Demand (MGD)*	Projected Max. Daily Demand (MGD)*	Well Supply Capacity (MGD)	Treatment Plant Capacity (MGD)	CUP Allocation (MGD)
2010	0.515	0.772	1.090	1.500	0.697
2015	0.576	0.863	1.090	1.500	0.697
2020	0.636	0.954	1.090	1.500	0.697
2025	0.697	1.045	1.090	1.500	0.697

*Note: Demands adjusted to account for reject stream resulting from the R.O. treatment process.
Source: 2025 Volusia County Water Supply Facilities Work Plan – Support Document, Table V-6

Table 4

Spruce Creek Water Supply Planning Area

Year	Projected Avg. Daily Demand (MGD)	Projected Max. Daily Demand (MGD)	Well Supply Capacity (MGD)	Treatment Plant Capacity (MGD)	CUP Allocation (MGD)
2010	0.302	0.392	1.500	0.650	0.557
2015	0.334	0.434	1.500	0.650	0.640
2020	0.367	0.477	1.500	0.650	0.740
2025	0.367	0.477	1.500	0.650	0.750

Source: 2025 Volusia County Water Supply Facilities Work Plan – Support Document, Table V-7

Table 5

Southeast Water Supply Planning Area

Year	Projected Avg. Daily Demand (MGD)	Projected Max. Daily Demand (MGD)	CUP Allocation (MGD)	Max. Day CUP Allocation (MGD)
2010	0.328	0.491	0.411	0.720
2015	0.343	0.514	0.411	0.720
2020	0.358	0.536	0.411	0.720
2025	0.372	0.559	0.411	0.720

Source: 2025 Volusia County Water Supply Facilities Work Plan – Support Document, Table V-8

Table 6

Southwest Water Supply Planning Area

Year	Projected Avg. Daily Demand (MGD)	Projected Max. Daily Demand (MGD)	Well Supply Capacity (MGD)	Treatment Plant Capacity (MGD)	CUP Allocation (MGD)
2010	2.769	3.903	6.810	6.089	3.797
2015	2.967	4.184	6.810	6.089	2.466
2020	3.166	4.465	6.810	6.089	2.466
2025	3.365	4.745	6.810	6.089	2.466

Source: 2025 Volusia County Water Supply Facilities Work Plan – Support Document, Table V-9

Table 7

Deltona North Water Supply Planning Area

Year	Projected Avg. Daily Demand (MGD)	Projected Max. Daily Demand (MGD)	Well Supply Capacity (MGD)	Treatment Plant Capacity (MGD	CUP Allocation (MGD)
2010	0.802	1.131	1.535	1.500	0.749
2015	1.104	1,556	2.111	2.000	0.438
2020	1.378	1.942	2.111	2.000	0.438
2025	1.651	2.329	2.111	2.000	0.438

Source: 2025 Volusia County Water Supply Facilities Work Plan – Support Document, Table V-10
Note: Includes the Cassadaga potable water system

Needs and Sources Summary - Northeast, Spruce Creek, and Southeast Water Supply Planning Areas

The water supply needs and sources summary for the Northeast, Spruce Creek, and Southeast water supply planning areas are provided in the following Tables 8 through 10. As shown in Tables 8 and 9, the Northeast and Spruce Creek water supply planning areas will continue to use groundwater as the water supply source to meet the projected demand. The Southeast water supply planning area will continue to use treated water purchased on a wholesale basis from the City of Edgewater to meet the projected demand. Tables 8 through 10 incorporate an offset to the projected demand of 10 percent over the timeframe of the Work Plan for each of these three water supply planning areas which is anticipated to result from implementation of the County's Conservation Program. The needs and sources assessment for these water supply planning areas projects that the adjusted total water demand will be less than the permitted water use. No additional water supply facilities improvements are needed other than the ongoing expansion of the Halifax Plantation water treatment plant located in the Northeast water supply planning area which is included in the approved five-year CIP that has been incorporated into the Capital Improvements Element.

Table 8

Needs and Sources Summary for the Northeast Water Supply Planning Area

Year	Total Projected Demand (MGD)	Water Conservation Offset (MGD)	Adjusted Demand (MGD)	CUP Allocation (MGD)	Alternative Source (MGD)
2010	0.515	0.012	0.503	0.697	0.000
2015	0.576	0.035	0.541	0.697	0.000
2020	0.636	0.064	0.572	0.697	0.000
2025	0.697	0.070	0.627	0.697	0.000

Source: 2025 Volusia County Water Supply Facilities Work Plan – Support Document, Table VI-1

Table 9

Needs and Sources Summary for the Spruce Creek Water Supply Planning Area

Year	Total Projected Demand (MGD)	Water Conservation Offset (MGD)	Adjusted Demand (MGD)	CUP Allocation (MGD)	Alternative Source (MGD)
2010	0.302	0.007	0.295	0.557	0.000
2015	0.334	0.021	0.313	0.640	0.000
2020	0.367	0.037	0.330	0.740	0.000
2025	0.367	0.037	0.330	0.750	0.000

Source: 2025 Volusia County Water Supply Facilities Work Plan – Support Document, Table VI-2

Table 10

Needs and Sources Summary for the Southeast Water Supply Planning Area

Year	Total Projected Demand (MGD)	Water Conservation Offset (MGD)	Adjusted Demand (MGD)	CUP Allocation (MGD)	Alternative Source (MGD)
2010	0.328	0.008	0.320	0.411	0.000
2015	0.343	0.021	0.322	0.411	0.000
2020	0.358	0.036	0.322	0.411	0.000
2025	0.372	0.037	0.335	0.411	0.000

Source: 2025 Volusia County Water Supply Facilities Work Plan – Support Document, Table VI-3

Needs and Sources Summary - Combined Southwest and Deltona North Water Supply Planning Areas

The water supply needs and sources summary for the combined Southwest and Deltona North water supply planning areas is provided in the following Table 11. As shown in this Table, an offset to the projected potable water demand for these combined water supply planning areas will result from implementing the County's conservation program and expanding the availability of reuse. Additional reclaimed water will be available to meet landscape irrigation demand as a result of the expansion of the reuse system currently underway and incorporated into the Five-Year CIP. The alternative water source amount is derived by subtracting the projected demand, after taking into account the offsets resulting from implementing the water conservation program and increasing the availability of reuse, from the CUP groundwater allocation. As shown in Table11, the alternative water supply source is projected for years 2011 through 2025 for these combined water supply planning areas.

Table 11

Needs and Sources Summary for the Combined Southwest and Deltona North Water Supply Planning Areas

Year	Total Projected Demand (MGD)	Water Conservation Offset (MGD)	Adjusted Demand (MGD)	CUP Ground Water Allocation (MGD)	Projected Reclaimed Water Offset (MGD)	Alternative Source (MGD)
2010	3.571	0.082	3.489	4.546	0.000	0.00
2011	3.671	0.113	3.558	2.904	0.649	0.00
2015	4.071	0.251	3.820	2.904	0.729	1.19
2020	4.544	0.454	4.090	2.904	0.829	0.36
2025	5.016	0.502	4.514	2.904	0.929	0.68

Source: 2025 Volusia County Water Supply Facilities Work Plan – Support Document, Table VI-4

Water Supply Strategies

The following is a summary of the water supply source options that constitutes the County's water supply strategies based on the needs and sources assessment. These strategies are incorporated into the Goals, Objectives and Policies of this Sub-Element and other applicable Elements of the Comprehensive Plan.

1. Continue to use ground water supplies consistent with CUP constraints.

   Historically, the County's utility system has relied on the upper Floridan aquifer as the sole water supply source. The County's wellfields have been reliable and consistently produced good water quality for the west-side water supply planning areas with additional treatment necessary for the east-side water supply planning areas. This strategy anticipates that the County's Utility system will continue to use the upper Floridan aquifer based on the constraints in County's CUP.

2. Pursue an increase in the CUP ground water allocation as an interim measure to meet the projected demand for the Southwest and Deltona North water supply planning areas until such time as an alternative source becomes available.

   An alternative source will not be available by 2011 when needed based on the needs and sources assessment of the Work Plan. The interim CUP allocation will be pursued to allow time for the alternative water supply source option to become available.

3. Continue to obtain potable water through wholesale arrangements for the Stone Island and Southeast water supply planning areas.

   The County has interlocal agreements in place to purchase potable water on a wholesale basis from the City of Deltona for the Stone Island water supply planning area and the City of Edgewater for the Southeast water supply planning area.

4. Continue to expand the County's reuse system to reduce potable water demand.

   The County has been focusing on expanding of reuse within the Southwest and Deltona North water supply planning areas which have historically experienced higher per capita usage than other County water supply planning areas. The County has required newer subdivisions to install reuse infrastructure even if reuse is not immediately available. The goal within these two water supply planning areas is to make reclaimed water available to a sufficient number of users such that 100% of the available reclaimed water is utilized for landscape irrigation use. The net benefit of the reclaimed system is that it will lower the County's per capita potable water demands and reduce the quantity of treated ground water currently being used for landscape irrigation. The County has entered into a Joint Participation Agreement with the City of Sanford to supply non-potable water to augment the County's reclaimed water system supply during high demand periods.

5. Continue to implement the water conservation program to reduce system-wide potable water demand by 10 percent by 2020 through the following activities:

   - Promote the use of low volume fixtures through enforcement of building code requirements and use of incentive programs to encourage retrofits for older buildings;

- Enforce the County's watering restrictions along with educating residents on the benefits of reduced watering;
- Enforce the County's Waterwise landscape and irrigation ordinance to reduce the amount of water used to irrigate landscaping;
- Implement the County utility system's meter calibration, water audit, and leak detection programs to reduce the potential for any wasteful system losses; and
- Coordinate the County's conservation program with the county-wide conservation program implemented by the Water Authority of Volusia.

6. Partner with other Water Supply Entities to pursue the Yankee Lake Project as an alternative water supply source.

   The County is pursuing the Yankee Lake project alternative water supply source option that is identified in the DWSP as one of several alternative source options for the County's utility system. The Yankee Lake project is currently being undertaken by Seminole County and uses the St. Johns River as the supply source. The County, along with other water supply entities, has signed a letter of intent to enter into a Capacity Reservation Agreement to use this alternative water supply source. This alternative source option will be used to meet the projected demand for the Southwest and Deltona North water supply planning areas.

Water Supply Related Capital Facilities

The following potable water and reuse facility improvements represent the water supply related projects identified by the County to meet the 2025 projected demand addressed in the Work Plan. These Capital Improvements have been incorporated into the County's Five-Year Capital Improvements Program that has been adopted into the Capital Improvements Element. The County annually budgets for repair, maintenance, and rehabilitation of the potable water system as a non-capital related item. The County will update the Work Plan, as deemed necessary, incorporating any facility needs or other changes, into the Comprehensive Plan as part of the annual update to the Capital Improvements Element.

Northeast Water Supply Planning Area

Halifax Plantation Water Treatment Plant (WTP) Improvements
Description: Installation of additional wells and WTP improvements to expand capacity from 0.75 MGD to 1.50 MGD for the Northeast system.

Halifax Plantation Waster Water Treatment Plan Upgrade (WWTP)
Construction of a 0.4 MGD tertiary level WWTP plant to serve the Plantation Oaks development and the existing Halifax WWTP. The treated wastewater will be available for irrigation of the Plantation Oaks golf course. In the future, the Halifax WWTP will be decommissioned and completion of this upgrade will allow the Plantation Oaks WWTP to serve as the regional wastewater treatment facility for this water supply planning area.

Combined – Southwest and Deltona North Water Supply Planning Areas

Alternative Water Supply Source - Yankee Lake Project
Description: County's share of the funding to participate in the Yankee Lake project at the time that the Capacity Reservation Agreement is executed. The County and other participants will be required to pay a non-refundable contribution to Seminole County for the project development costs

that are estimated to be incurred by Seminole County.

Alternative Water Supply Source – Reclaimed Augmentation Project
Joint participation project with the City of Sanford to supply non-potable water to augment the County's reclaimed water supply during high demand periods.

Potable Water Interconnect
Construction of a 16 inch potable water main to interconnect the Southwest and Deltona North water supply planning areas.

Southwest Water Supply Planning Area

Reclaimed Water Main to Progress Energy Tank
Description: Construction of a reclaimed water main to a 12 million gallon Progress Energy storage tank to allow reclaimed water storage during wet weather periods for later use during high demand periods.

Reclaimed Water Main to Four Townes
Description: Construction of a reclaimed water main from the Southwest system to Four Townes percolation ponds to increase reclaimed water disposal capacity for this system during wet weather periods.

Reclaimed Waterline Extension to Glenn Abbey Unit 5
Description: Extension of a reclaimed water main to this subdivision along with two other subdivisions in the Southwest System to activate existing dry reuse lines with reclaimed water.

Shell Road Reclaimed Water Extension
Description: Extends a reuse transmission main from DeBary Plantation to activate existing dry reuse lines within the Reserve of DeBary with reclaimed water. This project will also allow for the provision of reuse service to the Parkview, Parkview Heights I and II, Reserve at DeBary I, II, III, and IV, and Springview I, II, III, and IV subdivisions.

DeBary Pond
Description: Partnership project with the City of DeBary to construct necessary infrastructure for a joint use stormwater and reclaimed water pond for the Southwest system.

Southwest Water Reclamation Facility Expansion
Description: Project provides for the expansion of the Southwest Waste Water Treatment facilities to increase the capacity of wastewater treated to the public use standard from 1.2 MGD to 2.2 MGD to be available for reuse.

Deltona North Water Supply Planning Area

Deltona North WTP Improvements
Description: Installation of two additional groundwater wells and upgrade to the high service pumping capabilities of the Deltona North system which will expand plant capacity from 1.5 MGD to 2.0 MGD.

Reclaimed Water Main Extension to Arbor Ridge
Description: Extension of a reclaimed water main from the Deltona North system to the Arbor Ridge

development to reduce potable water demand for landscape irrigation.

Reclaimed Water Interconnect with Southwest Water Supply Planning Area
Description: Installation of infrastructure to interconnect the Southwest with the Deltona North reclaimed water distribution system to supplement reclaimed water for the Deltona North system.

The adopted components of the Potable Water Sub-element include the above Overview, Consistency with Other Comprehensive Plan Elements, and Water Supply Facilities Work Plan sub-sections along with the following Goals, Objectives and Policies. Additional requirements regarding potable water service are found in the Future Land Use (Chapter 1), Conservation (Chapter 12), Coastal Management (Chapter 11), and Capital Improvements (Chapter 15) Elements of the Comprehensive Plan.

D. GOALS, OBJECTIVES AND POLICIES

GOAL:

7.1 Ensure that an adequate public supply, treatment, and distribution of potable water to areas appropriate for service within the unincorporated area of Volusia County.

OBJECTIVE:

7.1.1 Volusia County shall require that the following policies which establish minimum level of service standards are met when planning capital improvements and reviewing applications for development approval.

POLICIES:

7.1.1.1 Volusia County adopts level of service standards providing for an annual average daily volume applicable for each of the unincorporated service areas as depicted in the following table:

	Potable Water		
	Residential Connection (ERU/GPD*)	Non-Residential	
		Office	Retail, Institutional, & Industrial
Deltona North	300	0.15 GPD per sq. ft. of Building Area	0.10 GPD per sq. ft. of Building Area
Southwest	300		
Northeast	200		
Spruce Creek	200		
Southeast	200		

*ERU – Equivalent Residential Unit/GPD - Gallons per Day

Within unincorporated areas encompassed by an adopted service area agreement with a municipality, the municipal level of service standards shall be applicable.

7.1.1.2 Except as may be allowed by this Sub-element, Volusia County shall require the installation of both a central potable water system and potable water treatment plant in accordance with County land development regulations where connection to a central

potable water system is not available and connection to a central potable water system when said system is available within areas designated for urban uses by the Future Land Use Map.

7.1.1.3 Volusia County shall require the construction of facilities for providing a minimum fire flow as a condition of development approval. Applicable fire flow rates for individual land uses shall be required as provided for by the Land Development Code.

7.1.1.4 Volusia County may require the developer to provide and dedicate to the County the potable water distribution system and treatment facilities within any new development as provided for in the County's land development regulations. The design criteria and construction standards for any addition to the water system shall be in conformance with County design and construction standards.

7.1.1.5 Volusia County shall treat its water supply at a minimum, in accordance with State and Federal water quality standards.

7.1.1.6 Volusia County shall require that all new development which is located within an area encompassed by an adopted municipal water service area agreement shall comply with the Potable Water Sub-element and the level of service standards adopted by said municipality.

7.1.1.7 Except as may be otherwise permitted by this Sub-element, the extension of water lines or establishment of central systems of potable water outside of the water service areas (County, municipal, or other established by an adopted service area agreement) shall be prohibited unless said extension or facility construction will mitigate existing or potential problems of public health, safety, or welfare or other exceptions under the guidelines delineated in the Future Land Use Element.

7.1.1.8 Volusia County may negotiate agreements with developers for the County to provide potable water facilities for the affected service area and the County's design and construction standards.

7.1.1.9 Existing privately-owned potable water systems that are not located in an area encompassed by an adopted water service area agreement, a County water service area, Rural Community, Rural Village, or Rural Recreational area, may expand only so long as said expansion is for the purpose of correcting existing or potential conditions which have been determined to be a hazard to the public health, safety or welfare. Expansion of said systems will require that the facility comply with the appropriate level of service standards and other applicable County rules and regulations.

7.1.1.10 Central potable water systems may be installed in Rural Communities, Rural Village, and Rural Recreational areas that are established in the Comprehensive Plan provided that said systems are designed to serve only the development within the geographic area encompassed by the Rural Community or Rural Recreational area.

7.1.1.11 Central water is not required for non-urban areas. Lines should only be extended if the absence of such facilities would result in a threat to the public health or safety or a designated rural area is inside an approved water service area with an agreement that

describes the method and timing of when these services would be provided, or the Comprehensive Plan is amended to change rural areas to urban areas.

7.1.1.12 Individual potable water wells are only allowed under any one of the following applicable circumstances provided that the well has been approved by the Volusia County Environmental Management Services Group or other agencies, as appropriate;

a. the lot is not designated for urban land uses by the Future Land Use Map, or

b. the lot is two and a half (2-1/2) acres in size or larger and is designated as either Low Impact Urban or Urban Low Intensity by the Future Land Use Map and the lot is within a single family subdivision (new or previously approved under Volusia County Ordinance 72-2 or 88-3, as amended), or

c. The potable water well is installed in conjunction with the construction of a single family residence on an existing single family lot or a new subdivision of six (6) lots or less in size, (exempt or approved under Volusia County Ordinance 72-2 or 88-3, as amended) which is designated for urban land uses by the Future Land Use Map and which the lots are less than two and a half (2-1/2) acre in size provided that;

I) that central service is currently not available to the lot. Connection to central water service is required when said service becomes available, and

ii) the lot is not located within a Special Assessment District which has been established for the purpose of installing a potable water system.

or

d. The potable water well is installed in conjunction with non-residential construction on an existing lot (exempt or approved under Volusia County Ordinance 72-2 or 83-3, as amended) which is designated for urban land uses by the Future Land Use Map, provided that central potable water service is not currently available and said well complies with applicable provisions as specified in Chapter 62-532, Florida Administrative Code. When a central system becomes available, connection to said system is required.

7.1.1.13 An existing potable water well may be upgraded, provided that a central potable water system is not available. However, connection to a central potable water system is required where said system is available in lieu of upgrading an existing potable water well.

7.1.1.14 The establishment of package treatment plants outside of water service areas is prohibited except for Rural Communities and Rural Recreational Areas may otherwise be permitted by this Sub-element or where the Florida Department of Environmental Protection, or other appropriate agency, has determined that such a facility is necessary to correct existing or potential problems of public health, safety, or welfare.

7.1.1.15 Within the County water service areas, package water treatment plants may be permitted as an interim measure, provided that said plants are constructed and designed to County standards including provisions to allow the interim system to be connected to a central water system when said connection is available. Interim water package treatment plants serving residential developments shall be dedicated to the County. When the interim facility is located within an area encompassed by an adopted water service area agreement, the plant may be dedicated to the entity providing water service to the region.

7.1.1.16 When an existing privately-owned package treatment facility is phased out and connected to a central public potable water system, the owner of said private plant shall be required to assume the cost of the connection.

7.1.1.17 The County shall not approve interim package treatment facilities within the boundaries of an adopted service area agreement unless the facilities are approved by both the County and the appropriate entity responsible for providing the service. As a result of the policy, the Interlocal Agreements shall also require that the County and a municipality shall develop a set of criteria to address the following items for interim treatment facilities: system design operation, construction standards, future dedication/acquisition and payment of capital charges.

7.1.1.18 The County will ensure that adequate water supplies and facilities are available and in place within the County's service areas consistent with the level of service standards established in Policy 7.1.1.1 prior to issuing a certificate of occupancy or its functional equivalent.

7.1.1.19 Within unincorporated areas, the County shall not issue development orders or development permits without first consulting the appropriate provider to determine whether adequate water supplies and facilities to serve the new development will be available no later than the anticipated date of issuance by the County of a certificate of occupancy or its functional equivalent.

OBJECTIVE:

7.1.2 Throughout the planning period, Volusia County shall correct or provide for the correction of, through the County's land development regulations, specific locations where the County water systems have unacceptable supply, storage, treatment, and/or distribution facilities.

POLICIES:

7.1.2.1 Volusia County shall designate a portion of its annual budget to be used for the correction of existing deficiencies in its potable water systems.

7.1.2.2 The County may create Special Assessment districts encompassing existing lots or subdivisions in the manner prescribed by County rules and regulations for the purposes of installing central potable water systems.

OBJECTIVE:

7.1.3 Volusia County shall provide adequate (meeting the level of service standard) public potable water sources commensurate with growth to service the needs of Volusia County.

POLICIES:

7.1.3.1 Volusia County shall maintain a Water Supply Facilities Work Plan and support document that is coordinated with the most recently adopted St. Johns River Water Management District (SJRWMD) District Water Supply Plan to address water supply facilities necessary to meet the existing and projected demand within the County's water supply planning areas.

7.1.3.2 Volusia County adopts the following water supply strategies consistent with the Water Supply Facilities Work Plan and the Goals, Objectives, and Policies in this Sub-Element and the other Elements of the Comprehensive Plan:

a. Continue to use ground water supplies to meet projected potable water demands consistent with CUP constraints;

b. Pursue an increase in the CUP ground water allocation as an interim measure to meet the projected demand for the Southwest and Deltona North water supply planning areas until such time as an alternative source becomes available;

c. Continue to obtain potable water through wholesale arrangements for the Stone Island and Southeast water supply planning areas;

d. Continue to implement the water conservation program to reduce system-wide potable water demand by 10 percent by 2020 consistent with Objective 7.1.5;

e. Continue to expand the County's reuse system to reduce potable water demand consistent with Objective 6.1.3 of the Sanitary Sewer Sub-Element; and

f. Partner with other Water Supply Entities to pursue withdrawal of surface water as an alternative water supply source consistent with Objective 7.1.10.

7.1.3.3 Volusia County shall annually review and update, as deemed necessary, the Water Supply Facilities Work Plan incorporating any changes, into this sub-element.

7.1.3.4 Facility improvements in the first five-years of the Water Supply Facilities Work Plan shall be incorporated into the County's five-year capital improvements program and annual update to the Capital Improvements Element.

7.1.3.5 The Water Supply Facilities Work Plan shall include an assessment of the long-term potable water needs and sources consistent with the time horizon of the Comprehensive Plan.

OBJECTIVE:

7.1.4 Provide water facility extensions and/or expand the treatment capacity of Volusia County water supply systems to meet the demands of future growth within the respective service areas.

POLICIES:

7.1.4.1 Volusia County shall develop sufficient water treatment capacity to meet the projected demand consistent with the most recently adopted Water Supply Facilities Work Plan.

7.1.4.2 Volusia County shall collect and use impact fees to offset the cost of the capacity necessitated by the impact of new users.

7.1.4.3 County water service areas may include undeveloped land inside existing unincorporated urban areas where the developer agrees to provide necessary urban services. In this instance the necessary facilities and services are to be guaranteed by an enforceable development agreement. An enforceable development agreement may include, but is not limited to, development agreements pursuant to County land development/utility regulations or an agreement or development order issued pursuant to Chapter 380, Florida Statutes (F.S.).

7.1.4.4 The County may seek alternative sources of funding, (i.e., grants and loans) to finance potable water system construction and/or expansion.

OBJECTIVE:

7.1.5 Volusia County shall continue to expand its program of water conservation to reduce system-wide potable water demand by 10% by the year 2020.

POLICIES:

7.1.5.1 Volusia County shall permit the installation of individual shallow wells on residential and commercial lots for landscape irrigation, subject to specific County regulations in effect. This policy shall not apply to those areas where wastewater reuse facilities are available or can become readily available by identifying the customer demand.

7.1.5.2 Volusia County shall maintain the customer rate structure, such that the unit cost of water will not decrease with increased usage, subject to County regulations in effect for the purpose of reducing demand for potable water.

7.1.5.3 Volusia County shall continue to require the use of water-conserving plumbing fixtures in all new development, subject to County regulations in effect and use of incentive programs to encourage retrofits for older buildings.

7.1.5.4 The Waterwise landscape and irrigation ordinance shall continue to be enforced to reduce the amount of potable water used for landscape irrigation.

7.1.5.5 Volusia County shall maintain its leak detection program for County-owned potable water facilities and distribution systems.

7.1.5.6 The County shall continue to enforce watering restrictions along with educating residents of the benefits of reduced watering for landscaping.

7.1.5.7 The County shall comply with conservation efforts outlined in the Consumptive Use Permit issued by the St Johns River Water Management District.

7.1.5.8 The County shall continue to undertake meter calibration, water audit, and leak detection programs to reduce the potential for any wasteful system losses.

7.1.5.9 The County shall continue to participate in the Water Authority of Volusia (WAV) conservation program.

7.1.5.10 The County shall continue to explore and study methods to reduce the average potable water demand with particular emphasis placed on reducing landscape irrigation demand.

7.1.5.11 The County shall regularly monitor conservation programs to assess success with achieving this objective and the above policies,

OBJECTIVE:

7.1.6 Throughout the planning period Volusia County shall maximize the use of existing facilities in the water service areas, so as to discourage urban sprawl.

POLICIES:

7.1.6.1 Acquire and upgrade available water systems and consolidate them by interconnecting service area water systems (where feasible) to eliminate water service voids in water service areas.

7.1.6.2 Provide the major water facilities supplying water to a new development in accordance with the adopted Capital Improvements Program and Budget, as amended on an annual basis.

7.1.6.3 Volusia County shall develop strategies, as needed, to balance fluctuation in water demand, safeguard continuance of supply in case of plant or water main breakdown, and to provide required fire flow.

7.1.6.4 The "infilling" of urban areas shall be directed to locations where an existing central system of potable water is available and where capacity is adequate to service the intended development or to those areas where funds have been committed for the provision of adequate capacity, unless otherwise vested under the County's Concurrency Management Ordinance, Vested Rights Ordinance, or Land Development Regulations as may be determined by the County Council.

7.1.6.5 Volusia County shall continue to implement its established programs and schedules (i.e., continuing education for plant operators and schedules of routine maintenance) that are intended to promote facility longevity and optimum operating levels.

7.1.6.6 Volusia County shall require connection to a central water system where available. The use of existing wells serving land uses within the water service areas may continue in the manner consistent with the County's Comprehensive Plan and applicable local and state regulations.

OBJECTIVE:

7.1.7 Plan and budget on an annual basis the necessary funds to maintain, repair and replace water system components owned and operated by Volusia County.

POLICIES:

7.1.7.1 The Volusia County Water & Utilities Services Group shall maintain records and procedures for identifying needed repairs, their cost and subsequent implementation.

7.1.7.2 The Volusia County Water & Utilities Services Group shall meter all water customers for billing purposes.

7.1.7.3 The Volusia County Water & Utilities Services Group shall maintain a water conserving rate schedule based upon the cost of providing service and adjust rates and fees periodically to produce sufficient water revenues to finance existing operations, repair and replacement and future expansion that also encourages a reduction in demand.

7.1.7.4 Volusia County shall begin planning for expanded or replacement treatment facilities on or before the annual average water flow meets 80% of the permitted capacity.

OBJECTIVE:

7.1.8 Throughout the planning period, Volusia County shall coordinate the provision of potable water service to the unincorporated area so as to ensure the efficient and economical delivery of this service.

POLICIES:

7.1.8.1 Negotiate necessary interlocal agreements with adjacent cities for the purpose of establishing interconnections with the municipalities' water systems to achieve:

a. Improvement of system reliability in the event of diminished water supplies, line breaks, or excessively high localized, water demand conditions.

b. The option of purchasing water by "wholesale agreement" from adjacent water systems or regional water supply authorities, should this alternative prove to be more economically desirable than developing additional County water supply wells and transmission lines, for developing areas.

7.1.8.2 Volusia County shall negotiate water service area agreements with adjacent municipalities to better coordinate the orderly, efficient, and economical distribution of water throughout the County.

7.1.8.3 Volusia County shall coordinate the utility and transportation planning efforts to take advantage of the most economical construction and maintenance costs possible when installing utility lines and roads.

7.1.8.4 All affected utility providers, having established interlocal agreements, in cooperation with Volusia County, will develop conceptual potable water facility plans for areas at the periphery of the utility provider's jurisdiction consistent with the County's Future Land Use Element. As long as such services can be provided by extension of existing central systems, the County shall not propose to construct any new interim facilities without completing an analysis documenting that such construction is more cost-effective than extension of existing central systems.

7.1.8.5 If the County is unable to establish an agreement with a municipality for the provision of potable water, the County will be responsible for providing water service within the service area through enforceable development agreements. Said agreements may include, but are not necessarily limited to, development agreements pursuant to County land development/utility regulations or an agreement or development order issued pursuant to Chapter 380, Florida Statutes (F.S.)

7.1.8.6 Notwithstanding the provisions of Policy 7.1.1.16, the County may provide, or allow the provision of, potable water service within agreed upon municipal or private utility service areas in a manner which is consistent with the adopted interlocal agreement. Should any existing interlocal agreement be amended or any new interlocal agreement be structured, the provisions of Policy 7.1.1.16 shall be included in the provisions of said interlocal agreement.

7.1.8.7 The duties and responsibilities which flow from an interlocal agreement previously entered into between the County and a municipality shall prevail over subsequent amendments to the Comprehensive Plan until and unless such interlocal agreement is renegotiated as deemed appropriate by the County and a municipality.

7.1.8.8 The County shall initiate a program with the owners of the various privately-held potable water systems (especially the area-wide systems) serving portions of the unincorporated region. The purpose of this program will be to foster coordination and may include the submission of periodic reports by the utility to the Growth Management Services Group.

7.1.8.9 The County shall seek to establish and strengthen ties to the Florida Public Service Commission and other appropriate regulatory agencies.

OBJECTIVE:

7.1.10 Volusia County, in partnership with SJRWMD and other utility service providers, shall pursue development of an alternative water supply source or sources to meet the projected demand consistent with the Water Supply Facilities Work Plan.

POLICIES:

7.1.10.1 Volusia County shall participate with the SJRWMD, Seminole County, and other regional partners, to assess the feasibility of utilizing the St. Johns River near Yankee

Lake Project as a water supply source and will actively pursue entering into a Capacity Reservation Agreement with Seminole County to obtain treated surface water for potable use.