4. INFRASTRUCTURE ELEMENT
Data, Inventory, and Analysis

This document is organized by sub-elements. Each sub-element is written to stand by itself and as such each will contain a discussion of the data and analysis appropriate to the sub-element as well as a discussion of the applicable portions of the *State Comprehensive Plan* and the East Central Florida Regional Planning Council (ECFRPC) *Strategic Regional Policy Plan*.

POTABLE WATER SUB-ELEMENT

Potable Water Service Entities, Facilities and Capacities

Potable water is available to all land uses within the City by the City of Altamonte Springs. In addition, the City's retail service area extends outside its jurisdictional boundaries. In 2009, the City had approximately 11,817 potable water service connections and a service area population of 49,757. Approximately 87 percent of the retail potable service connections are located within the City limits. In addition to the existing retail customers, the City also serves customers outside of the City limits.

Based on the City's billing records, there is only one residential customer in the City's service area with an individual well for potable water. There are also two properties within the City limits that are provided water service by another utility and include:

- Spring Lake Elementary site located at the intersection of Orange Avenue and SR 436 includes parcel numbers: 15-21-29-508-0A00-0000, 15-21-29-509-2200-0010, 15-21-29-509-2700-0010 and 15-21-29-509-210A-0000; owned by the Seminole County School Board and served by Utilities Inc. under CUP No. 8346.

- Property located just north east of Jamestown Blvd off Sanlando Rd., parcel number 04-21-29-300-031D-0000. This property is owned by Vol Enterprises Inc and served potable water by Seminole County Utilities, under CUP 8359.

Groundwater is the potable water source for the City. The City uses both upper and lower Floridan Aquifer wells to supply its customers. The City is permitted to withdraw groundwater through the St. Johns River Water Management District (SJRWMD) Consumptive Use Permit (CUP) No. 8372.

CUP No. 8372 was issued on March 7, 2006 and expires on March 8, 2026. The CUP authorizes the City to withdraw a combined maximum annual flow from 12 active wells in the Floridan Aquifer as shown in Table 4.1.

Table 4.1
Annual Permitted Groundwater Withdrawals

Year	Maximum Annual (MG)	Daily Annual Average (MGD)		Year	Maximum Annual (MG)	Daily Annual Average (MGD)
2006	2668.2	7.3		2017	3106.2	8.5
2007	2715.6	7.4		2018	3131.7	8.6
2008	2763.0	7.6		2019	3160.9	8.7
2009	2810.5	7.7		2020	3186.5	8.7
2010	2861.6	7.8		2021	3197.4	8.8
2011	2898.1	7.9		2022	3208.4	8.8
2012	2934.6	8.0		2023	3219.3	8.8
2013	2974.8	8.2		2024	3230.3	8.9
2014	3011.3	8.3		2025	3241.2	8.9
2015	3051.4	8.4		2026	3241.2	8.9
2016	3077.0	8.4				

Source: City of Altamonte Springs Water Supply Facilities Work Plan, BFA Environmental Consultants Inc., September 2010

In 2009, the City of Altamonte Spring's potable water demand was 5.30 MGD, or 2.4 MGD less than the permitted daily annual average withdrawal. The City's retail water service area is shown in Figure II-4.3.

The City owns and operates the distribution system and water treatment plants that serve the entire service area. The City operates three Water Treatment Plants (WTPs), two of which are for potable water and the third for the treatment for reclaimed augmentation.

Potable Water Demand

A. *Existing Potable Water Demand and Groundwater Withdrawals.* Information from The SJRWMD Draft Water Supply Assessment 2008, Barnes, Ferland & Associates, Inc. (BFA), and the City of Altamonte Springs Water Supply Facility Work Plan are the best available data sources to quantify the availability of groundwater resources. Estimates are based on projected demands for domestic, public, agricultural and industrial withdrawals of groundwater. According to the demand projections prepared in February 2010, the total Seminole County groundwater use in 2005 was 56.24 million gallons per day (MGD); the 2030 projection is 73.72 MGD. The City of Altamonte Springs utility had a groundwater withdrawal of 6.26 MGD in 1995 and 5.19 MGD in 2009. The projected 2030 demand is 7.64 MGD for the City's utility.

B. *Historic Water Demand Data for Water Service Area.* Based on information from Altamonte Springs, the average daily water demand per capita is 114 gallons per capita per day (gcpd). The City's average water use for the years for 2005 to 2009 is shown in Table 4.2.

Table 4.2
Historic Water Demand – Water Service Area

Year	Service Area Population[1]	Gross Per Capita Demand (gpcd)	ADF[2] Demand (MGD)	MDF[2] Demand (MGD)	MDF/ADF Ratio
2005	**48,805**	**121**	**5.92**	**8.27**	**1.40**
2006	49,043	119	5.86	8.896	1.52
2007	49,281	112	5.53	8.947	1.62
2008	49,519	112	5.57	9.595	1.72
2009	49,757	103	5.13	7.772	1.52
Average gpcd		**114**	**Average MDF/ADF Ratio**		**1.55**

Source: Barnes, Ferland & Associates, 2010
[1]Service area includes areas outside the City's jurisdictional boundaries.
[2]Source: FDEP MOR Data for Water Treatment Plant Flow (does not include groundwater used for reclaimed system augmentation.

C. *Existing Facility Design Capacities.* The average total daily water flow for the service area for the period from 2005 through 2009 was 5.60 MGD. Table 4.3 summarizes the water supply well and plant capacity and Table 4.4 illustrates the City's alternative water supply sources. Pursuant to Chapter 62-550.320(15), WTP Nos. 2 and 5 (interconnected system) have a combined capacity of 11.29 MGD based on annual average daily flow (ADF). WTP No. 4 is currently not in use and disconnected from the system. WTP No. 3 is not used for public water supply, but is used for groundwater augmentation of the reclaimed water system. The use of reclaimed water has reduced the demand on the City's potable water system significantly, from 8.0 MGD in 1990 to 6.26 MGD in 1995 and 5.13 MGD in 2009.

Based on the City's peak water demand projections and the permitted capacities identified above, the City has sufficient capacity to meet current potable water demands.

Table 4.3
Water Supply Well and Plant Capacity

FACILITY	Permitted Well Capacity (MGD)	Permitted Treatment Capacity (MGD)	Existing Demand (MGD)	Surplus Well Capacity(MGD)	Surplus Treatment Capacity(MGD)
City Plant 2	4.55	5.93	2.8	1.75	3.13
City Plant 5	4.37	5.36	2.8	1.57	2.56
City Total	8.92	11.29	5.6	3.32	5.69

Source: BFA Environmental Consultants Inc., September 2010
Note: All values are annual average daily flow.
Existing demand is based on 2005-2009 average demand

Table 4.4
Alternative Water Supply Sources, 2009

Source	Type	Permit Capacity (MGD)	Permit Minimum Elevation (FT NGVD)
Cranes Roost	Surface Water	2.0	48.0
Lake Orienta	Surface Water	2.0	59.0
Lake Maltbie	Surface Water	0.25	82.0
W. Altamonte Pond	Surface Water	0.5	54.0
Weathersfield	Stormwater	0.082	45.0

Source: City of Altamonte Springs Water Supply Facilities Work Plan, BFA Environmental Consultants Inc., September 2010

D. *Analysis of Water Conservation, Use and Protection.* The City has been expanding the reclaimed water program in order to reduce the amount of potable water used for non-potable activities.

1. *LOS Standards.* The City has established the per capita and land use LOS standards for potable water presented in Table 4.5 to ensure sufficient availability for current and future populations.

Table 4.5
Potable Water LOS Standard

City Service	LOS Standard
Potable Water	135 gallons per capita per day
Land Use Service Category	**LOS Standard**
Single Family Residential	300 gallons per day per unit
Multi-family Residential	135 gallons per day per unit
Commercial	175 gallons per day per 1,000 SF
Hotel and Motel	175 gallons per day per unit
Office	150 gallons per day per 100 SF
Industrial and Warehouse	25 gallons per day per 1,000 SF

Source: City of Altamonte Springs, 2010

2. *Agricultural Uses.* The only agricultural uses are wholesale/retail nurseries and greenhouse operations, which are more commercial than agricultural in nature. No increase in agricultural land uses is expected in the future. No potable water demand is attributed to agricultural uses, since all plant nursery and greenhouse irrigation systems use the reclaimed water.

3. *Conservation and Protection.* The City of Altamonte Springs cooperates fully with the SJRWMD in regard to water conservation during shortage situations. The City of Altamonte Springs will continue to see that its policies regarding water demand and consumption will be consistent with rules and regulations of the SJRWMD, ECFRPC and FDEP.

   With such a resource as reclaimed water, the City allows its residents and business community to irrigate with reclaimed water during water shortages since the demand for potable water has been greatly reduced.

   The City will continue to enforce wellfield protection measures requiring a 100-foot radius protection zone around wells drilled before 1977 and a 200-foot radius protection zone around wells drilled after 1977 and restrict specific uses, such as septic tanks, within such protection zones. The City will review the wellfield protection information updated from time to time from the SJRWMD and amend the Land Development Code to enforce "state of the art" regulations.

   Various other City actions will assist the SJRWMD in implementing water conservation rules. Also, the Land Development Code requires all development or redevelopment to provide a minimum of 25 to 45 percent open space, which includes green space and amenities. The availability of green space allows, especially in the high recharge soils found in Altamonte Springs, rainfall and irrigation waters to permeate the soils.

E. *Future Potable Water Demand.* Capacity is anticipated to be available within the potable water system to meet potable water demands within the water service area through year 2030. The City's system has a total treatment capacity of 11.29 MGD ADF. Based on the current available capacity in the water system and anticipated growth and development, the City's water system in 2030 will have a surplus of 3.650 MGD.

   The City has wastewater wholesale agreements with the Cities of Eatonville, Maitland and Winter Park, Nuon (Utilities, Inc.) and Seminole County and has 0.8567 MGD ADF reserved capacity for these customers. These agreements are based on metered water usage and do not expire. The City commits to maintaining agreements indefinitely. Growth is not anticipated in these service areas. Refer to Comprehensive Plan Infrastructure Element Policy 4-1.2.5 and 4-1.5.5 regarding wastewater service for customers outside the City limits and Policy 4-1.3.3 that enables the City's current agreements.

   The City has a reclaimed water wholesale agreement with Sanlando Utilities. The agreement states that the City receives a maximum of 1.4 MGD annual average daily flow of reclaimed water from Sanlando Utilities. The City commits to maintaining this agreement as it automatically renews every 10 years. In 2009, the City received 0.63 MGD ADF to supplement the reclaimed water supply.

   The implementation of Project APRICOT has further reduced the demand for potable water. Table 4.6 shows the projected water demand and source for potable water in Altamonte Springs.

Table 4.6
Projected Water Demand and Source

Year	Population	Projected Water Demand[2] (MGD)			Water Supply Source (MGD)	
		Inside City[1]	Outside City	Total Utility[3]	Groundwater	Alternative Water
2010	**49,995**	5.837	0.872	6.709	6.709	
2011	50,470	5.893	0.880	6.773	6.754	0.019
2012	50,945	5.948	0.889	6.837	6.818	0.019
2013	51,419	6.003	0.897	6.900	6.818	0.077
2014	51,894	6.059	0.905	6.964	6.823	0.077
2015	**52,369**	6.114	0.914	7.028	6.887	0.409
2020	**54,912**	6.411	0.958	7.369	6.960	0.409
2025	**55,284**	6.455	0.964	7.419	7.010	0.409
2030	**56,928**	6.647	0.993	7.640	7.231	0.409

[1] Inside City water demand is an average 87% of total demand based on 2005-2009 billing records.
[2] Projected Water Demand based on 134.2 gpd gross per capita demand from SJRWMD Draft WSA 2009 update.
[3] Includes potable system demand and reclaimed supplemental demand.
Source: City of Altamonte Springs Water Supply Facilities Work Plan, BFA Environmental Consultants Inc., September 2010

Quantity of Available Water. A summary of the capacity analysis is provided in Table 4.7. Based on estimated consumption rates, sufficient capacity is available to meet the City's projected 20 year water demands.

Table 4.7
Capacity Analysis

Analysis Items (MGD)	2010	2015	2020	2025	2030
Total Water Demand	6.71	7.03	7.37	7.42	7.64
Total Well Production Capacity	8.92	8.92	8.92	8.92	8.92
Total Treatment Capacity	11.29	11.29	11.29	11.29	11.29
CUP Allocation	7.8	8.4	8.7	8.9	-
Well Production Capacity Surplus	*2.21*	*1.89*	*1.55*	*1.50*	*1.28*
Treatment Capacity Surplus	*4.58*	*4.26*	*3.92*	*3.87*	*3.65*

Source: City of Altamonte Springs Water Supply Facilities Work Plan, BFA Environmental Consultants Inc., September 2010

E. *Future Deficiencies and Improvements.* With the construction of the capital improvements shown in Table 4.8, no capacity deficiencies are anticipated. Sufficient capacity is anticipated to service future growth and development within the City and those areas with City's water service area. The existing water treatment plants are all performing consistent with acceptable standards. The City is moving forward with implementation of the recommendations made for system improvements as described in the 1996 Potable Water Distribution System Master Plan and the Water Supply

Facilities Work Plan including those improvements in Table 4.8.

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Table 4.8
Future Water Source and Supply Projects

Project Name	Purpose	Estimated Project Cost($)	Funding Source	Schedule			
				Planning	Engineering	Permitting	Construction
WTP 2& 5 High Service Pumps	To provide standby pumping for increased reliability of the Water Distribution System.	$438,537	WTR/SWR Fund Revenues		2010	2010	2011
Potable Water Storage Facilities at WTP 5	To provide potable water storage for system equalization and fire flow per FDEP requirements.	$1,000,000	WTR/SWR Fund Revenues				2013
Lake Orienta Surface Water Augmentation (part of LS 8 Improvements	To increase pumping capacity and reliability at LS 8, which also pumps water from Lake Orienta for reclaimed augmentation.	$400,000	WTR/SWR Fund Revenues				2011
Reclaimed Water Pocket Project at Douglas Avenue	To expand the use of reclaimed water for irrigation purposes as a means of reducing potable water usage for irrigation.	$150,000	WTR/SWR Fund Revenues				Phase 1 - 2011 Phase 2 - 2012
Reclaimed Storage and Retrieval Pond	To increase reclaimed water storage by 17 MG to manage seasonal/peak demands and reduce groundwater use for irrigation.	$6,000,000	WTR/SWR Fund Revenues	2010	2011	2011	2011-2012
Cranes Roost Integrated Stormwater and Reclaimed Water Facility Feasibility Study	To evaluate an integrated reclaimed water (stormwater) reuse system to more efficiently manage seasonal reclaimed water demands, reduce groundwater withdrawals and river discharges, and provide reclaimed water to regional partners.	$230,000	WTR/SWR Fund Revenues	2010-11			
Project APRICOT – Cranes Roost Integrated Stormwater & Reclaimed Water Facility Component	To increase effective storage capacity of Cranes Roost to 50 MG with improvements to stormwater and reclaimed pumping and transition systems and construction of new surface water treatment plant.						
Total Cost		**$8,218,537**					

Source: City of Altamonte Springs Water Supply Facility Work Plan, BFA Environmental Consultants Inc., September 2010

SANITARY SEWER SUB-ELEMENT

Sanitary Sewer Service Entities

The City of Altamonte Springs currently provides wastewater treatment services to all residents (with the exception of a handful still on septic due to undue connection hardships) at one central treatment facility known as the Regional Water Reclamation Facility (RWRF). In addition to its residents, the City provides wastewater treatment services to six entities located outside the City through wholesale agreements. These entities are the Cities of Eatonville, Maitland, and Winter Park, unincorporated areas of Seminole County, Nuon (formerly Utilities Incorporated including the acquired Sanlando Utilities), and several former Florida Water Services (formerly Southern States Utilities) areas that were transferred to Seminole County in 2005. The capacity and current average daily flows for the RWRF are shown in Table 4.9.

Table 4.9
RWRF System Capacity Year 2009

Source of Flow	Flows (mgd)
Existing Annual Average Flow (2009): City	5.10
Wholesale Customers	0.63
Subtotal Wastewater Flow:	5.74
Surface Water Augmentation	0.0276
Ground Water Augmentation	0.081
Potable Water Augmentation	0.026
Total Flow (Demand)	**5.87**
System Design Capacity	**12.50**
Available Capacity with water augmentation	**6.63**

Source: City of Altamonte Springs, 2009

Shared Facilities

As stated above, the City provides wastewater treatment services outside of its jurisdictional boundary through wholesale agreements. Wholesale agreements are generally with agencies that own and operate their own wastewater collection system, and the City only provides wastewater treatment. The City became a provider of treatment services to most of the wholesale customers due to the City's designation as a regional treatment system under the U.S. Environmental Protection Agency's Section 201 Facility Planning program under PL 92-500 in the 1970's. Some of the adjacent local governments/agencies no longer recognize Altamonte Springs as the regional treatment provider. In the year 2009, wholesale wastewater treatment at the RWRF accounted for 0.63 MGD.

Existing Facilities

The City of Altamonte Springs owns and operates the collection system and treatment plant that services the entire jurisdiction, and several retail customers outside of the city limits. A retail customer is an individual customer within the City's service area that is provided service via the City-owned and

maintained collection system and treatment plant. The City's retail service area does extend beyond the City's corporate limits. The retail sewer service area is depicted in Figure II-4.1. The City's wastewater collection consists of 73,100 lineal feet of 6-inch through 48-inch diameter gravity sewer and 74 pump stations pump the wastewater through 136,220 lineal feet of four-inch through 30-inch diameter force main to the City's 12.5 MGD wastewater treatment plant.

The City provides retail service to five areas outside the city limits. These areas (see Figure II-4.1) and their predominant land uses are described as follows:

1. Winwood Area - northeast of City Hall predominantly residential land with scattered commercial
2. Altamonte Elementary School - north of the Altamonte Mall
3. Spring Valley Subdivision - west of Wymore Road and I-4 - single family residential land use
4. Classic Drive area - northeast of the City - single family residential land use
5. Charlotte Street Industrial Park - northeast of the City - light industrial and warehouse land use

The Environmental Protection Agency (EPA) National Pollution Discharge Elimination System (NPDES) permit allows 12.5 MGD of treated effluent to be discharged into the Little Wekiva River. FDEP has similar treatment and disposal requirements. Treatment consists of influent screening, grit removal, primary sedimentation, anoxic/aerobic nitrification, secondary clarification, flocculation, denitrification, filtration, a chemical feed system, post aeration, chlorination, dechlorination/neutralization, and one (1) 0.25 MG effluent holding tank. Residual treatment consists of aerobic digestion followed by gravity thickening and belt filter press dewatering. Sludge produced by the treatment plant operation is thickened at the plant and transported off-site for disposal. A contract hauler takes the sludge to FDEP licensed disposal facilities.

Central wastewater service is available to the City’s entire service area; however, there are 288 residential units scattered throughout the service area that use septic tanks. The City plans to evaluate alternative solutions and programs for the elimination of existing septic tanks by requiring connection to the City’s wastewater system.

The City has established the per capita and land use LOS standards for sanitary sewer presented in Table 4.10 to ensure sufficient availability for current and future populations.

Table 4.10
Existing City Sanitary Sewer LOS

City Service	LOS Standard
Sanitary Sewer	105 gallons per capita per day
Land Use Service Category	**LOS Standard**
Single Family Residential	300 gallons per day per unit
Multi-family Residential	135 gallons per day per unit
Commercial	175 gallons per day per 1,000 SF
Hotel and Motel	175 gallons per day per unit
Office	150 gallons per day per 100 SF
Industrial and Warehouse	25 gallons per day per 1,000 SF

Source: City of Altamonte Springs, 2010

Reclaimed Water System

The City of Altamonte Springs' Project APRICOT provides reclaimed water service to virtually every property in the City of Altamonte Springs from the RWRF. The City's ordinance currently does not have provisions to provide reclaimed outside of the City limits. Figure II-4.2 is a map of the Project APRICOT reclaimed distribution system.

The Project APRICOT system conveys the highly treated wastewater treatment plant effluent in a dual water distribution system throughout the City for non-potable uses. By diverting effluent to the reclamation system, the City is decreasing the nutrient loading to the Little Wekiva River as well as augmenting groundwater resources. The Project APRICOT system has the ability to use up to 12.5 MGD of the treatment plant's effluent.

Although the reclaimed water system has been effective in reducing the City's use of high quality groundwater, the reclaimed water system supply does not meet all the irrigation demand of the City. Consequently, it has been necessary to augment the reclaimed water system with a combination of groundwater, potable water from the potable system, and surface water from several lakes and storm water sources within the city. Over the period January 2005 through January 2009, the City produced an average of6.2 MGD of reclaimed water and had to augment the reclaimed water system with an average of 0.29 MGD from the groundwater and potable water system.

Therefore, the water reclamation facility has adequate capacity to meet projected reclaimed water demands for the 10-year planning period. Groundwater use for the reclaimed system will be reduced by 0.331 MGD annual average or 4.0 percent of total usage. This annual average is achieved by installing additional reclaimed water storage, pumping and transmission piping, a surface water treatment facility and improving operational efficiencies over the next 20 years. The first project will be reclaimed water storage pond at the RWRF to be completed by FY 2013, to be confirmed once site constraints are determined. This project will reduce groundwater withdrawals for reclaimed system augmentation by 0.041 MGD annual average. The next project will be to provide storage and retrieval improvements to Cranes Roost with the goal of making the effective storage volume of 20 to 50 MG. This project will reduce groundwater withdrawals by 0.137 MGD annual average.

Projected RWRF Needs

The Altamonte Springs Regional Water Reclamation Facility (RWRF) has a permitted capacity of 12.5 MGD Average Daily Flow (ADF).

In accordance with the Wekiva Parkway and Protection Act, the Altamonte Springs RWRF is allowed to discharge up to 30 percent of its annual average daily flow to the Little Wekiva River as a wet weather discharge. For the 2002-2006 historical period, the average ADF discharged to the river was 1.32 MGD, which is 22 percent of the ADF for that period. Table 4.11 provides the projected treatment capacity and surplus for the RWRF through 2030. No collection system deficiencies exist at the present time

Table 4.11
RWRF Projected Treatment, Capacity and Surplus through 2030

YEAR	PROJECTED WASTEWATER FLOW (MGD)	TOTAL TREATMENT CAPACITY (MGD)	TREATMENT CAPACITY SURPLUS/DEFICIENCY (MGD)
2010	6.87	12.5	5.63
2015	7.09	12.5	5.41
2020	7.33	12.5	5.17
2025	7.57	12.5	4.93
2030	7.82	12.5	4.68

Source: City of Altamonte Springs, 2009; AECOM – 2006 FDEP Permit analysis

Current scheduled improvements to the sewer collection system and treatment plant are provided in Table 4.12 below.

In addition to the above, the Land Development Code addresses any localized sewer system upgrading by requiring the provision of needed localized improvements before granting a specific development approval. In addition, the City has adopted regulations in the Land Development Code that obligates new users, whether wholesale or retail, to provide whatever extensions are necessary to provide service to new development. As the City is dealing with infill development and is completely surrounded by other public and private systems, any expansion of the service area is limited and would require a comprehensive plan amendment.

Table 4.12
Sewer System – Capital Improvement Projects

Projects	Funding Source	Estimated Project Cost($)	FY 09/10	FY 10/11	FY 11/12	FY 12/13	FY 13/14
Lift station replacements (includes $400,000 in upgrades to the Lake Orienta reclaimed water augmentation pump station associated with repairs to Lift Station 8)	WTR/SWR	6,425,000	300,000	5,600,000	375,000	150,000	-
Regional wastewater treatment plant to include identification and implementation of changes to treatment process to meet TMDL requirements	WTR/SWR	14,515,000	2,075,000	2,620,000	700,000	3,280,000	5,840,000
Problem sewer line abatement	WTR/SWR	1,455,000	100,000	1,325,000	10,000	10,000	10,000
Dry well lift station conversion	WTR/SWR	2,900,000	300,000	1,500,000	-	400,000	700,000

Source: City of Altamonte Springs Capital Improvement Plan, 2010

Existing Facilities Performance Analysis

Based on the average annual increase in the demand for wastewater, capacity is shown to be available through year 2030. Surface water currently is used to augment wastewater flows entering the RWRF treatment facility. As a result of additional growth and development within the City through 2015, the volume of surface water augmentation treated at the facility will decrease and be replaced with additional wastewater flow. The City continues to expand its Project APRICOT reclaimed water distribution system to small pockets currently not served and to new developments, thereby continuing a reduction in pollutants entering the Little Wekiva River and a decline in potable water consumption.

In addition, existing development is required to tie into the reuse system. The system has the capability to divert up to 12.5 MGD of discharge, and its concomitant pollutant loading, from the River to non-potable uses. Therefore, even if only the flows from the new development were diverted from the River, the City's total pollutant loading would not increase.

The only changes which may be required at the RWRF would be those necessary to meet changes in regulatory requirements. Sludge disposal requirements are currently being examined by both EPA and FDEP. Any regulatory changes that may occur will be evaluated and the necessary corrective actions instituted by the appropriate regulatory agency.

LOS Standards Analysis

The City continually monitors its service level at the RWRF. In addition, there is an approved and required industrial pretreatment program to ensure that the effluent to the plant, including that from the wholesale customers, is essentially domestic strength. Based on available capacity and projected flows from the RWRF, the LOS indicated in Table 4.10 can be met for the long range planning period and no changes are necessary at this time.

Septic Tank Utilization

Within the City of Altamonte Springs, only a limited number of single family homes and commercial establishments are served by septic tanks. The only commercial site on septic tank is a commercial building on SR 436 near City Hall. The sites served by existing septic systems have not connected due to service either not being available or elevation deficiencies made connection impractical. The City has an ordinance that mandates connection to the City’s sewer system (Section 26-35, Ordinance 521-80).

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SOLID WASTE SUB-ELEMENT

Service Entities, Facilities and Capacities

A. *Collection.* Land uses served by the solid waste facilities include residential, commercial, industrial, institutional, recreational, and governmental. The City of Altamonte Springs collects from single-family and duplex residential customers within the City limits only. The City collects from single family and duplex units, or approximately 35 percent of the City's housing stock. Estimated population served by the City's collection service is approximately 18,180 people in 2008.

The City has two household refuse, one yard waste, and one recycling pickups per week. Mandatory garbage collection within the City keeps illegal dumping at a minimum. City crews pick up litter on state arterial roadways two times per week and routinely on local roads. Other City solid waste management programs offered to our residential customers include:

- Curbside recycling
- Christmas tree recycling
- Mulch giveaway
- Scrap metal recycling
- Magazine recycling
- Spring Cleanup

Spring Cleanup is the collection of large household items and tree cuttings that cannot be collected during normal residential service. Items collected have included appliances (such as refrigerators, stoves, washers, dryers, and dishwashers), furniture, and tree trunks. Starting October 2001 a new program expands the drop-off recycling program to include home and small office paper waste. With the implementation of all the above recycling programs, more than 6,000 tons of recycled material is diverted from the landfill every year.

Multi-family residential, commercial and industrial solid waste is collected by private vendors who have franchise agreements on file with the City. As part of their conditions for a franchise within the City, the franchised refuse haulers are required to provide at least one weekly pickup for each customer and a recycling program. The haulers are also required to dispose of the refuse at a site that is legally empowered to receive it for treatment, transfer and/or disposal. The City must approve the disposal site.

B. *Central Transfer Station.* The County opened the Central Transfer Station in 1992 to handle waste from around the County. The transfer station is located in Sanford at US 17-92 and SR 419. The transfer station handles garbage, yard waste and recycling. The capacity of the transfer station is 1,900 tons per day.

C. *Osceola Road Landfill.* As of 2006, the County's Osceola Road Landfill had 23,900,000 tons of capacity available. The 6,000 acre Osceola Landfill is a class I facility which receives all garbage and trash, household hazardous waste from all over the County, including Altamonte Springs. The residences in the City of Altamonte Springs generate approximately two percent of the total solid waste disposed of at the County landfill.

Facility Capacity/Performance Analysis

Solid Waste facility capacity is managed on a countywide basis for the County landfill and the central transfer station. The County maintains the data for its entire service area and its transfer station and sets County LOS based on that analysis. The projected demand will not exceed capacity within either the current planning period or the long range planning period. Table 4.13 shows the current and projected solid waste generation of the City of Altamonte Springs for the customers served by the City's waste collection services. Since the City is able to accurately identify only solid waste generated by the single family and duplex dwelling units it collects from, the projected demand is based upon this continuing in the future. Therefore, the figures below do not include any solid waste projections for multi-family, commercial, or industrial establishments.

In 2006, 420,667 tons of solid waste was disposed of in the Osceola Road Landfill. The Central Transfer Station received 900 tons per day. Solid waste generation for years 2010, 2015 and 2030 applied the LOS experienced. Population served by the City waste collection service for future years was determined by applying the average persons per households from the 2000 Census to the number of homes anticipated to receive service. The number of homes receiving services is estimated by applying the year 2010 rate (i.e., 35 percent) to the total number of housing units.

Table 4.13
Solid Waste Generation 2010-2030

Year	LOS (Lbs/Cap/Day)	Population Served	Total Demand (Tons/Year)
2010	4.3	17,170	13,474
2015	4.3	17,375	13,635
2030	4.3	18,320	14,377

Source: Seminole County Comprehensive Plan, Evaluation and Appraisal Report-based Amendments, Solid Waste Element, 2008.

The City has entered into an interlocal agreement with Seminole County to participate in the countywide recycling program. The County's multi-material program and includes the collection of aluminum cans, steel, plastics, glass and newspaper. The City collects the above materials from the Altamonte Springs residential solid waste customers.

The City's LOS for solid waste is generally 4.3 pounds per capita per day. This is for single family residential only. The adopted LOS is based on the solid waste facilities LOS standard in the Seminole County Comprehensive Plan Solid Waste Element, as follows:

Table 4.14
Solid Waste LOS Standards

Solid Waste Facility	LOS Standard
Osceola Road Landfill	4.2
Central Transfer Station	4.3

NATURAL GROUNDWATER AQUIFER RECHARGE SUB-ELEMENT

The purpose of this section is to identify and analyze natural ground water aquifer recharge areas for the Floridan Aquifer that may be present in the City. The existing regulations and programs that govern land use and development in groundwater recharge areas will be identified and assessed for their strength, or weakness, in maintaining the natural recharge function of the area.

Natural Groundwater Aquifers

Groundwater in Seminole County is composed of two aquifer systems of different geologic composition: The Floridan Aquifer, and the non-artesian aquifer, which is referred to as the water table. The Floridan Aquifer is still the principal source of potable water supply for most of central and northern Florida.

Aquifer Recharge Areas

The Middle St. Johns Ground Water Basin is one five ground water basins within the St. Johns River system. It is located entirely within northern Orange, Seminole, Lake and Marion counties. All areas of the City lay inside this basin.

The SJRWMD has indicated that areas in the City range from good (the northwest section) to very good (the central and southwest portions) to excellent (the southeast area). The current natural ground water recharge areas for the Floridan Aquifer area shown in Figure II-4.4.

Within the City, the potentiometric surface ranged between 35 and 50 feet above sea level. The potentiometric surface is the height to which water will rise in a cased well and is a measure of ground water pressure. If the potentiometric surface is above the surface of the ground, water will discharge in the form of springs, or flowing wells. The ground water flow, i.e., the underground flow of the water within the City, is northeastward toward Lake Jessup and Lake Harney. The ground water moves from areas of higher pressure to areas of lower pressure.

Water Quality of Ground Water Resources

The quality of the ground water resources within the City is an important consideration. The U.S. Environmental Protection Agency (EPA) has established a recommended limit of 250 milligrams per liter for chloride and sulfate in ground water resources used for public water supplies.

Regulations Analysis

Existing regulations governing aquifer recharge are:

A. *Federal*:
- Federal Safe Drinking Water Act, 1988 amendment
- Resource Conservation and Recovery Act of 1976
- Water Pollution Control Act
- Sole Source Aquifer designation

B. *State:*
- Section 17.2.4.03, F.A.C.
- Chapters 17-20 to 17-22, F.A.C.

C. *Regional:*
- Section 373.216, F.S.
- Rule 40C-21.251, F.A.C.
- Rules 40C-41.041 and 40C, F.A.C.

D. *City:*
- Wellfield Protection Criteria
- Chapter 28, City Code, “Land Development Code”
- Ordinance 954-88 “Project APRICOT”

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DRAINAGE SUB-ELEMENT

Drainage Entities

The drainage service area includes the entire City of Altamonte Springs, and consists of numerous drainage pipes and culverts connecting to 73 City maintained detention/retention ponds and/or lakes. The City is located within the St. Johns River and the Little Wekiva River drainage basins. Each drainage basin is further divided into sub-basins. The City's consists of 17 drainage sub-basins:

- Lake Florida
- Lake Adelaide
- Cranes Roost
- Lake Orienta
- Prairie Lake
- Little Wekiva
- Pot Lake
- Lake Roy
- Lake Ruby
- Lake Maltbie
- North Lake
- Pearl Lake
- Lake Lotus
- Spring Lake
- Lake Tillie
- Trout Lake
- Weathersfield Avenue

The drainage system also includes 113 privately owned ponds and facilities owned by Seminole County and FDOT. Additionally, the drainage system contains natural drainage features such as the Little Wekiva River which technically does not have a single owner.

Drainage Facilities

There are no City operated facilities outside the City limits. The City has prepared an inventory of all state, county and city drainage facilities and those private facilities located within the City limits. The retention ponds which are not maintained by the City are required to be maintained by the property owner per the City's Land Development Code.

The City has approximately 47 control structures that include baffle boxes, vaults, infiltration systems, CDS vaults and one weir. A large exfiltration system was installed at Florida Boulevard and Cluff Avenue in 2007, and the weir was replaced at Lake Adelaide and Palm Springs Road in 2009. Over the past 10 years, the Crane's Roost Lake has had significant drainage improvements including installation of an exfiltration system, trench drains, swales, and continuous deflection separator units. Major outfall is in Lake Adelaide were dug out in 2009/2010. The City's 1706 curb inlets are maintained on a rotating basis. Two street sweepers run daily routes and sweep approximately 2,600 miles annually.

Between May 1, 2008 and June 30, 2009, 4,418 inlets, catch basins, grates, and manholes were

inspected, and 2,538 were maintained, and approximately 5,642 linear feet of stormwater pipe were cleaned/repaired.

The drainage basins wholly, or partially, within the City are shown in Figure II-4.5. The proportional area of these basins within the City is shown in Table 4.15. Lakes Florida, Adelaide and Cranes Roost are hydraulically connected. The predominant land use in the City's sub-basins is a combination of commercial and residential.

Table 4.15
Drainage Basin Areas

Drainage Basin	Basin Area In Acres	
	Total	Amount within the City
Lakes Florida	717	215
Lake Adelaide	433	390
Cranes Roost	641	577
Lake Orienta	916	783
Prairie Lake	454	272
Little Wekiva	28,800	2,400
Pot Lake	54	54
Lake Roy	50	35
Lake Ruby	66	59
Lake Maltbie	133	133
North Lake	370	296
Pearl Lake	328	205
Lake Lotus	1109	56
Spring Lake	751	263
Lake Tillie	46	37
Trout Lake	167	84
Weathersfield Ave	112	78

Source: City of Altamonte Springs, 2010.

Natural Drainage Features

The most important natural drainage feature in Altamonte Springs continues to be the Little Wekiva River. Additionally, the City's 17 lakes are also major natural drainage features. The City has ensured the preservation of two wetlands areas, around Lake Lotus and northeast of Lake Florida, including their natural drainage features.

Drainage LOS

The City's current and recommended LOS standards are comprised of three following components:

A. *Flood Prevention.* The City's Flood Hazard Avoidance Ordinance does not allow development below the flood elevation resulting from a 100-year, 24-hour storm event. This elevation is determined by the Federal Emergency Management Agency (FEMA) and is shown on the City's Flood Insurance Rate Maps. Specifically, the lowest floor elevation of a habitable structure must be

at least one foot above the 100-year flood elevation; no structure shall cause a reduction in the storage capacity of a lake to store the stormwater runoff from a 100-year, 24-hour storm event. In addition, construction shall not cause a reduction in the capacity of a floodway to discharge the runoff resulting from a 100-year, 24-hour storm event or cause a cumulative increase in the water surface elevation of the floodway by more than one foot.

In general, structures in the City are situated outside flood prone areas. There are a few flood prone areas where structures were constructed in a manner which causes them to be affected by the 100-year flood. These structures existed before FEMA identified the 100-year flood zones. The City is participating in a program under the Community Rating System (CRS) in order to provide information to these property owners regarding various options for the protection of their homes against the effects of flooding.

B. *Street Drainage.* The City's standards for providing drainage of City streets are as follows:

All street drainage shall be diverted to natural percolation areas or artificial seepage basins designed to accommodate the flood prevention and land development criteria and are designed to convey the stormwater runoff from the peak intensity of the 10-year frequency storm event.

- *Principal arterial.* Flooding of principal arterial roadways shall be limited to one half of the outer travel lane width using the flood prevention and land development criteria. Reconstruction of the City's major arterial roadways in recent years has resulted in nearly all major street segments meeting this standard.

- *Minor arterial and collector roadways.* Flooding of collector and minor arterial roadways shall be limited to one half of the outer travel lane width using the flood prevention and land development criteria. The City's collector arterial are allowed to have standing water in the outside lanes during heavy rainfall, but this condition will be short term and will not prevent travel.

- *Local streets.* Local streets shall be limited from exceeding one-inch of flooding above the crown of the road using the flood prevention and land development criteria and shall be passable for emergency vehicles.

C. *Land Development Standards.* A complete stormwater management system shall be provided for an entire project to handle the stormwater runoff flowing into and across the site from outside without causing additional flooding of neighboring properties. Sites that have the provision for a positive outfall, shall have a system designed to retain the differences between the pre-development and post development runoff volume and rate resulting from a 10-year, three hour storm event. If there is no provision for a positive outfall, the site shall retain the difference of the post development less the pre-development runoff volume resulting from a storm of a 100-year frequency 24-hour duration storm for new development and redevelopment and 25-year frequency, 6-hour duration for infill development. All of the above are in addition to meeting the criteria established by the SJRWMD.

LOS Standards for Drainage

The following standards have been adopted by the City as the LOS for drainage facilities in Altamonte Springs.

A. The lowest floor elevation of a habitable structure must be at least one foot above the 100-year, Base Flood Elevation (BFE) flood plain as set by FEMA. In areas designated as flood hazard areas but where a BFE has not been established by FEMA, a flood study by a Florida registered Professional Engineer and accepted by the City is required to determine the 100-year flood plan. No portion of any structure which reduces the storage capacity of the flood hazard area may be constructed within the limits of the flood hazard area unless equal replacement storage volume is provided by acceptable stormwater construction techniques. No construction shall result in a rise in floodways established by FEMA.

B. Sites shall conform to the following design standards:

1. Landlocked drainage basin-primary system design standard:

- *New Development and Redevelopment:* Retain the difference in pre-development versus post development run-off volume during the 100-year, 24-hour storm event and the SJRWMD criteria for water quality treatment, independent of project size.

2. Positive Outfall (Riverine) drainage basin-primary system design standard:

- *New Development and Redevelopment:* Detain the difference in pre-development versus post development runoff volume and rate of the 10-year, 3-hour storm event and the SJRWMD criteria for water quantity and quality, independent of project size.

3. For secondary system such as roads and storm sewer systems, the design storm shall be the 10-year storm event, using the "Rational method."

C. Flooding of major arterial roadways shall be limited to one half of the outer travel lane width using peak intensity for the 10-year storm.

D. Flooding of local streets shall be limited from exceeding one-inch above the crown of the road.

E. Local streets shall not flood to such an extent that they become impassable to emergency vehicles.

F. Any existing structure with a first floor elevation below the 100-year floor elevation will be treated as a nonconforming use.

G. Any new development will be built in such a manner that the development will not exceed the downstream capacity for rate and volume of runoff for the storm events listed above.

H. Discharge to natural water bodies shall be consistent with state standards as stated in 62.302.560, F.A.C., and the NPDES Stormwater Standards.

Drainage Facilities Performance

The City stormwater facilities are performing adequately but do require routine maintenance. The City's Public Works Department routinely sweeps streets preventing many particulates from entering the stormwater system eventually polluting lakes and streams. Street sweeping removed 1,101,820 pounds of debris and cumulatively swept 2,298.5 curb miles in fiscal year 2004 -2005. The City's Stormwater Division stenciled a blue fish that says, "No Dumping! Drains to Waterway" near all storm sewer inlets. Marking the inlets brings attention to the storm drains, and how they are directly connected to the quality of water in the City's lakes and water bodies.

Drainage Improvements

The City is working in conjunction with the SJRWMD to continue improving water quality in the Little Wekiva River and to enhance aquifer recharge. The City's stormwater facilities are performing adequately.

Drainage Regulations

Drainage regulations are as follows:

A. *Federal:*
- Section 208, Federal Water Pollution Control Act
- Section 405 Federal Clean Water Act, 1987

B. *State:*
- Chapter 17-25, F.A.C.
- Chapter 17-40, F.A.C.

C. *Regional:*
- Chapter 40C-42, F.A.C.

D. City:
- Section 6.1.11 of the LDC "Stormwater Management"
- Altamonte Springs Code of Ordinances, Chapter 26, Section 26-140 "Creation of Stormwater Management Utility"

STATE POLICY PLAN CONSISTENCY

Introduction

As part of their compliance review, the Department of Community Affairs (DCA) will review local government comprehensive plans for consistency with the State Comprehensive Plan (SCP) (Chapter 187, F.S.). Plans found not to be sufficiently consistent with the SCP will receive a determination of non-compliance from DCA. The Plan must then be brought into compliance to avoid the sanctions available pursuant to Chapter 163.3184 (11), F.S.

In order to assist the City in developing goals, objectives and policies for the Infrastructure Element of its Plan that are consistent with the SCP, the SCP was analyzed to determine which of its policies are applicable to the City's Infrastructure Element. The SCP policies applicable to each sub-element are included as part of the discussion for the sub-element. Each SCP Goal is listed with its associated policies. The Goal is reproduced verbatim. The policies are summarized enough to give a sense of the subject matter. The policy number refers to a specific SCP policy and may therefore appear out of sequence. The list should not be considered as complete or the final authority of the applicability to the Infrastructure Element. The DCA has the final authority to determine the City's compliance with the State Comprehensive Plan.

Sanitary Sewer Sub-Element

GOAL 18 -- FLORIDA SHALL PROTECT THE SUBSTANTIAL INVESTMENTS IN PUBLIC FACILITIES THAT ALREADY EXIST, AND SHALL PLAN FOR AND FINANCE NEW FACILITIES TO SERVE RESIDENTS IN A TIMELY, ORDERLY AND EFFICIENT MANNER.

Policy 1 - Provide incentives for developing land in a way that maximizes the use of existing public facilities

Policy 2 - Promote rehabilitation and reuse of existing facilities as an alternative to new construction

Policy 3 - Allocate the costs of new public facilities on the basis of benefit received by existing and future residents

Policy 6 - Identify and implement innovative cost-effective techniques for financing public facilities

Policy 7 - Encourage the development of capital improvement plans by all levels of government techniques

Policy 10 - Encourage the use of graywater and/or reclaimed water systems to extend existing sewerage capacity

GOAL 21 -- FLORIDA GOVERNMENTS SHALL ECONOMICALLY AND EFFICIENTLY PROVIDE THE AMOUNT AND QUALITY OF SERVICES REQUIRED BY THE PUBLIC.

Policy 8 - Replace multiple, small scale, economically inefficient local public facilities with regional facilities whenever appropriate

GOAL 8 -- FLORIDA SHALL ASSURE THE AVAILABILITY OF ADEQUATE WATER FOR ALL COMPETING USES DEEMED REASONABLE AND BENEFICIAL AND SHALL MAINTAIN THE FUNCTIONS OF NATURAL SYSTEMS AND THE OVERALL PRESENT LEVEL OF SURFACE AND GROUNDWATER QUALITY. FLORIDA SHALL IMPROVE AND RESTORE THE QUALITY OF WATERS NOT PRESENTLY MEETING WATER QUALITY STANDARDS.

Policy 12 - Eliminate the discharge of inadequately treated wastewater and stormwater runoff into the waters of the state

Policy 13 - Identify and develop alternative methods of wastewater treatment, disposal and reuse of wastewater to reduce degradation of water resources

Solid Waste Sub-Element

GOAL 13 -- ALL SOLID WASTE, INCLUDING HAZARDOUS WASTE, WASTEWATER AND ALL HAZARDOUS MATERIALS SHALL BE PROPERLY MANAGED AND THE USE OF LANDFILLS SHALL BE EVENTUALLY ELIMINATED.

Policy 1 - Reduce the volume of non-hazardous solid waste disposed of in landfills to 55 percent of the 1985 volume

Policy 2 - Encourage and expedite development of hazardous waste treatment and disposal facilities

Policy 6 - Require hazardous waste generators to manage their own wastes

Policy 7 - Encourage the recycling of wastes

Policy 8 - Encourage coordination of intergovernmental and interstate waste management efforts

Policy 10 - Develop a disposal system for small volume hazardous waste generators

Natural Groundwater Aquifer Recharge Sub-Element

GOAL 8 -- FLORIDA SHALL ASSURE THE AVAILABILITY OF AN ADEQUATE SUPPLY OF WATER FOR ALL COMPETING USES DEEMED REASONABLE AND BENEFICIAL AND SHALL MAINTAIN THE FUNCTIONS OF NATURAL SYSTEMS AND THE OVERALL PRESENT LEVEL OF SURFACE AND GROUNDWATER QUALITY. FLORIDA SHALL IMPROVE AND RESTORE THE QUALITY OF WATERS NOT PRESENTLY MEETING WATER QUALITY STANDARDS.

Policy 2 - Identify and protect the functions of recharge areas

Policy 3 - Encourage development of local and regional water supplies

Policy 5 - Ensure that new development is compatible with existing and regional water supplies

Policy 9 - Protect aquifers from Depletion

Policy 10 - Protect surface and groundwater quality and quantity

Policy 11 - Promote water conservation and reuse

REGIONAL POLICY PLAN CONSISTENCY

As part of their compliance review, the Department of Community Affairs (DCA) will review local government comprehensive plans for consistency with the *Strategic Regional Policy Plan* (SRPP) adopted by the East Central Florida Regional Planning Council (ECFRPC) in 1998. The ECFRPC also reviews the Plan and makes a consistency recommendation to DCA. This consistency recommendation is based on the relationship of the City's Plan to the SRPP as a whole.

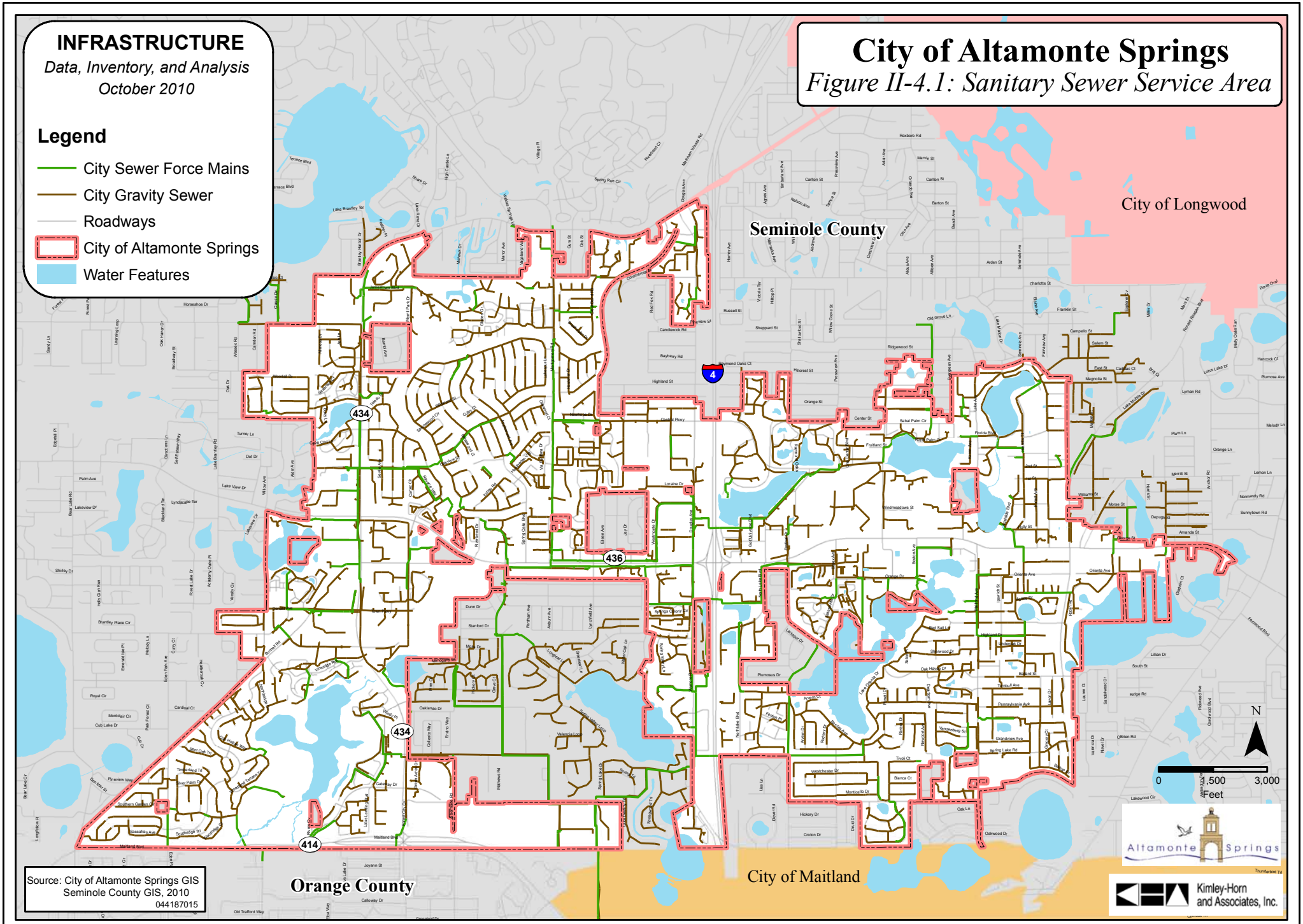
In addition, the City's Comprehensive Plan is striving to be consistent with the regional vision – "2050 How Shall We Grow". The City's Plan supports the "4 C's" of the regional vision as stated below.

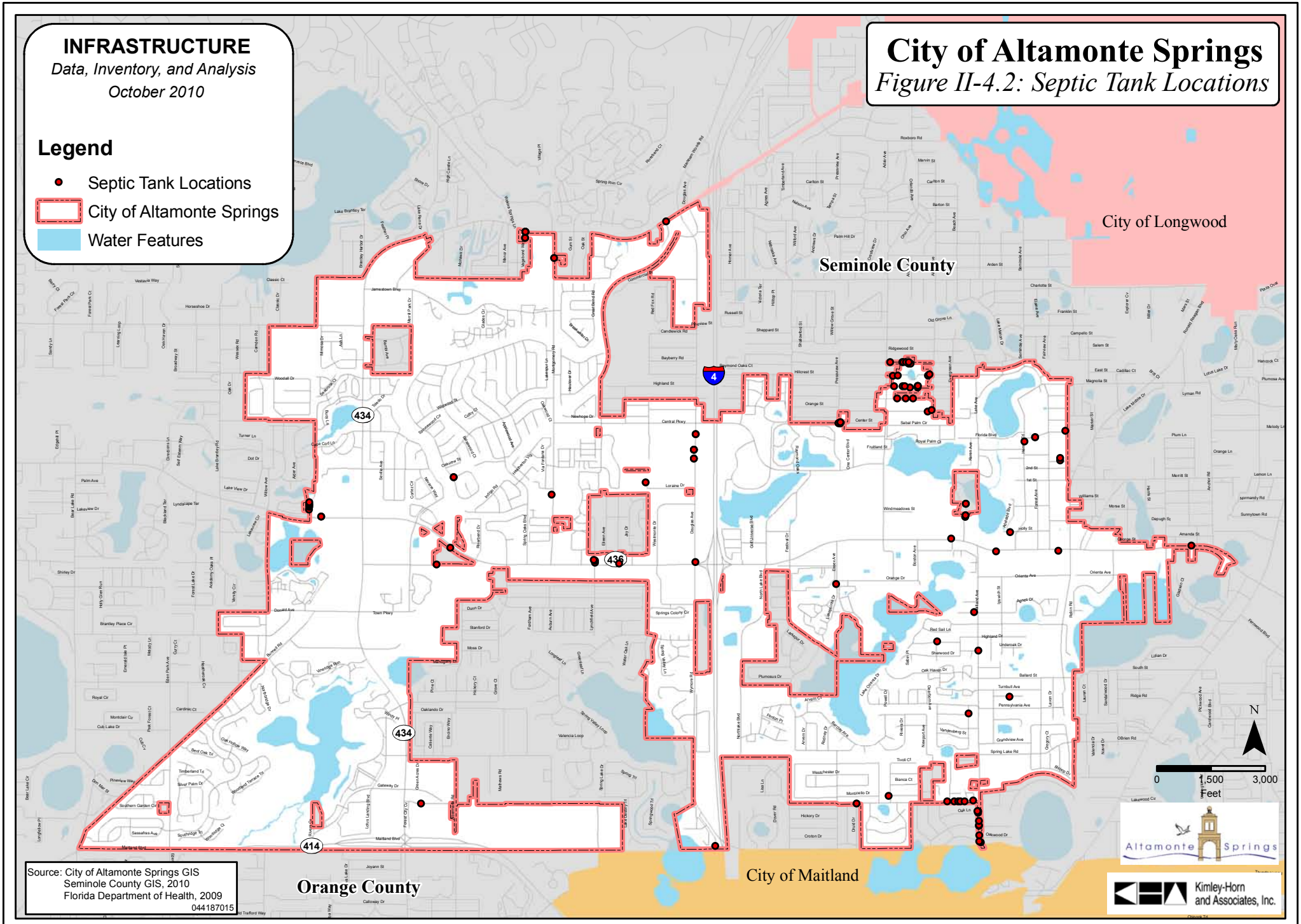
The "4 C's" of the Regional Vision stand for:

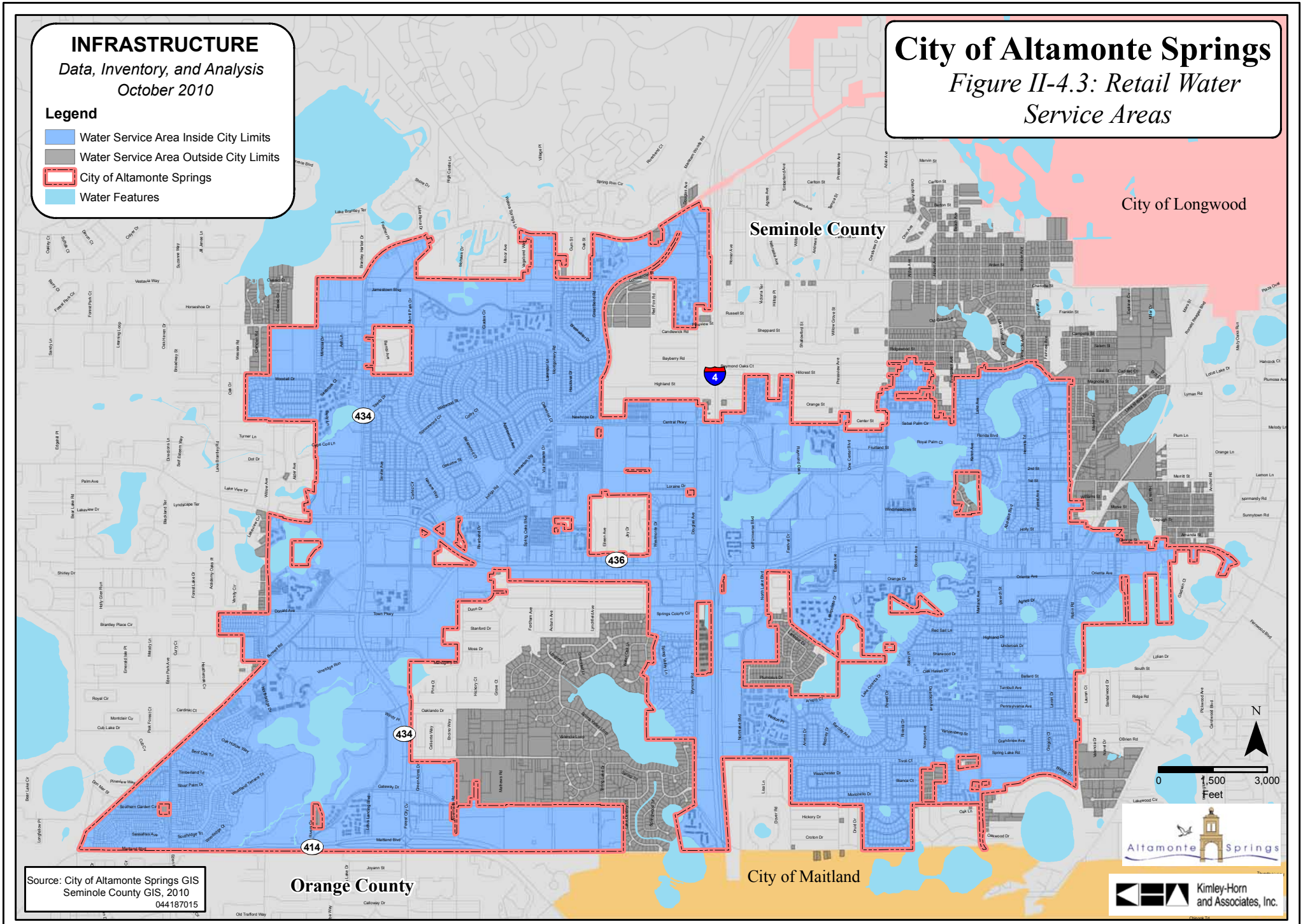
- *Conservation*- Identifying and protecting our most critical natural resources of regional significance, and doing this first.
- *Centers*- Promoting more future growth and development in compact urban centers with great amenities (great places to live, work, shop and recreate in a more pedestrian-friendly setting).
- *Corridors*- Connecting centers with mixed-use corridors served by multi-modal (motor vehicles, light rail, commuter rail, bus, bus rapid transit, bike lanes and pedestrian trails) transportation systems.
- *Countryside*- Taking the pressure off countryside by increasing the density and intensity of great urban centers, and thus deferring the need for more sprawl into the countryside.

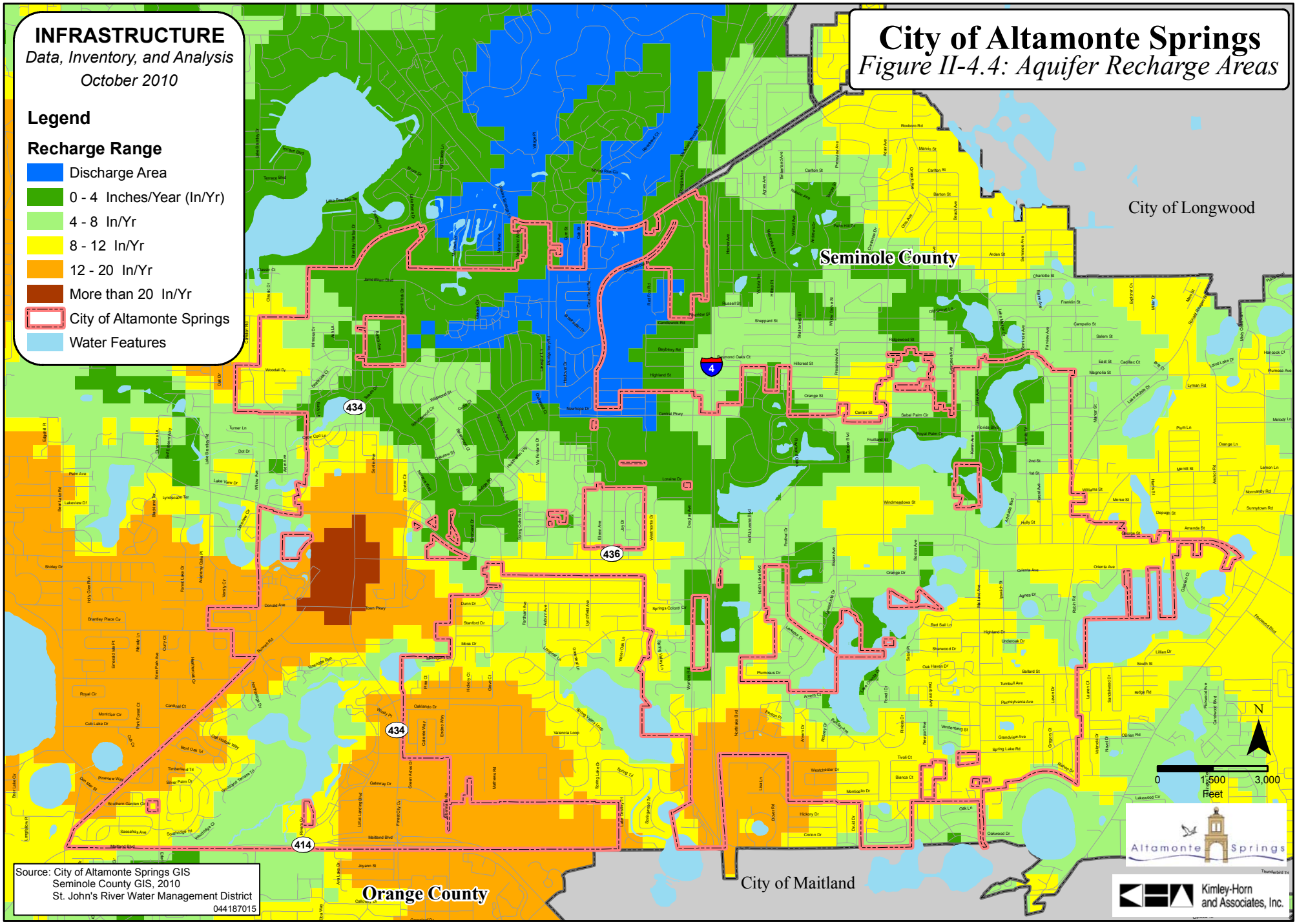
In order to assist the City in developing goals, objectives and policies for the Future Land Use Element consistent with the SRPP, the SRPP was reviewed to determine which of its policies were applicable to the City. The SRPP policies applicable to this Element are shown below.

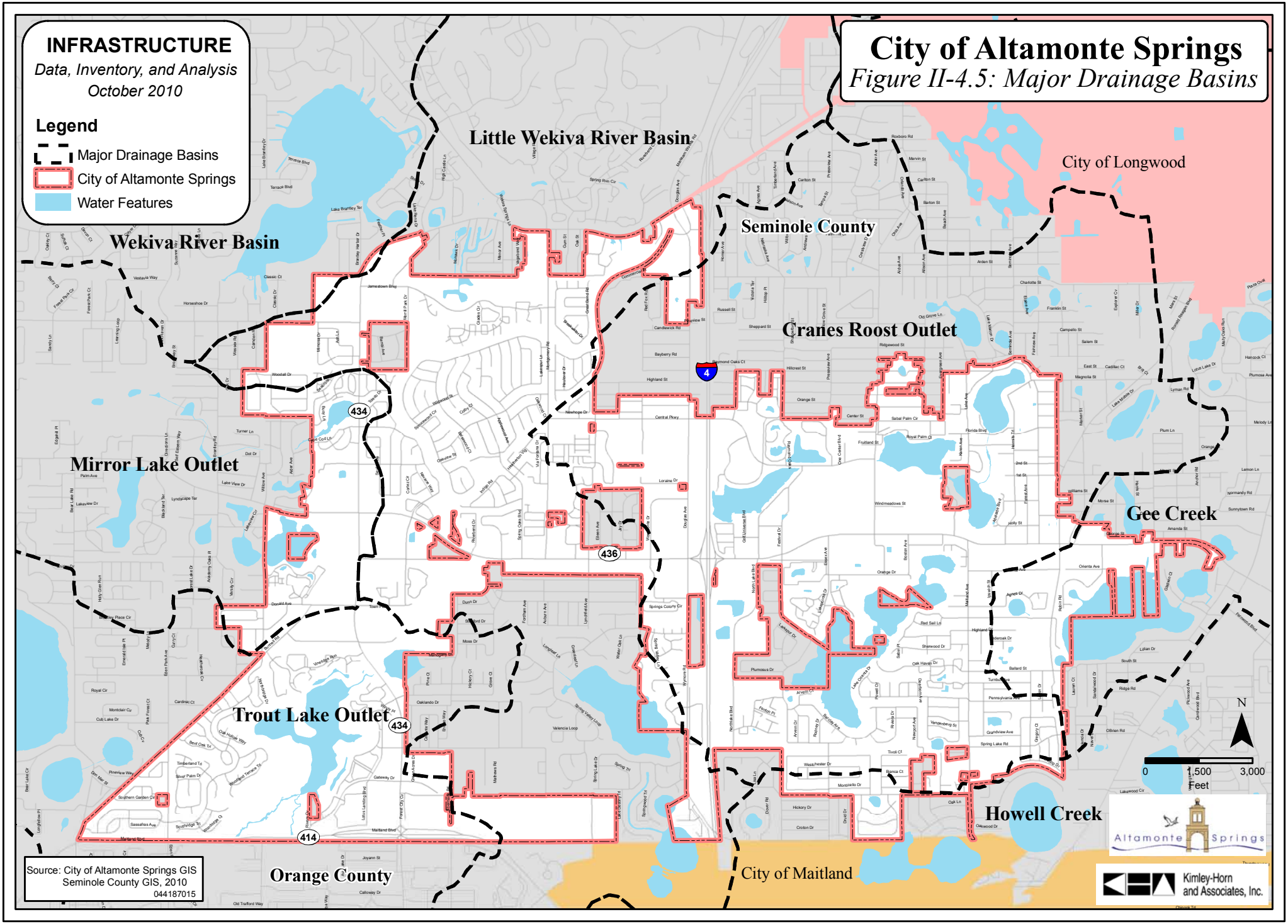
SRPP Sections	Policies
Economic Development	n/a
Emergency Management	2.1, 2.3
Housing	n/a
Natural Resources	4.1-4.16, 4.23-4.33, 4.35, 4.36
Transportation	5.25, 5.26
Land Use	n/a
Public Facilities	7.1-7.19


INFRASTRUCTURE
Data, Inventory, and Analysis
October 2010
Legend
City Sewer Force Mains
City Gravity Sewer
Roadways
City of Altamonte Springs
Water Features
City of Altamonte Springs
Figure II-4.1: Sanitary Sewer Service Area
Seminole County
City of Longwood
Orange County
City of Maitland
Source: City of Altamonte Springs GIS
Seminole County GIS, 2010
044187015
N
0
1,500
3,000
Feet
Altamonte Springs
Kimley-Horn and Associates, Inc.


INFRASTRUCTURE
Data, Inventory, and Analysis
October 2010
Legend
Septic Tank Locations
City of Altamonte Springs
Water Features
City of Altamonte Springs
Figure II-4.2: Septic Tank Locations
City of Longwood
Seminole County
City of Maitland
Orange County
Source: City of Altamonte Springs GIS
Seminole County GIS, 2010
Florida Department of Health, 2009
044187015
N
0
1,500
3,000
Feet
Altamonte Springs
Kimley-Horn and Associates, Inc.


INFRASTRUCTURE
Data, Inventory, and Analysis
October 2010
Legend
Water Service Area Inside City Limits
Water Service Area Outside City Limits
City of Altamonte Springs
Water Features
City of Altamonte Springs
Figure II-4.3: Retail Water Service Areas
Seminole County
City of Longwood
Orange County
City of Maitland
434
436
414
4
N
0
1,500
3,000
Feet
Source: City of Altamonte Springs GIS
Seminole County GIS, 2010
044187015
Altamonte Springs
Kimley-Horn and Associates, Inc.


INFRASTRUCTURE
Data, Inventory, and Analysis
October 2010
Legend
Recharge Range
Discharge Area
0 - 4 Inches/Year (In/Yr)
4 - 8 In/Yr
8 - 12 In/Yr
12 - 20 In/Yr
More than 20 In/Yr
City of Altamonte Springs
Water Features
City of Altamonte Springs
Figure II-4.4: Aquifer Recharge Areas
City of Longwood
Seminole County
City of Maitland
Orange County
Source: City of Altamonte Springs GIS
Seminole County GIS, 2010
St. John's River Water Management District
044187015
N
0
1,500
3,000
Feet
Altamonte Springs
Kimley-Horn and Associates, Inc.


INFRASTRUCTURE
Data, Inventory, and Analysis
October 2010
Legend
Major Drainage Basins
City of Altamonte Springs
Water Features
City of Altamonte Springs
Figure II-4.5: Major Drainage Basins
Little Wekiva River Basin
Wekiva River Basin
Seminole County
City of Longwood
Cranes Roost Outlet
Mirror Lake Outlet
Gee Creek
Trout Lake Outlet
Howell Creek
Orange County
City of Maitland
Source: City of Altamonte Springs GIS
Seminole County GIS, 2010
044187015
N
0
1,500
3,000
Feet
Altamonte Springs
Kimley-Horn and Associates, Inc.