City of Palm Coast
Agenda
PLANNING AND LAND DEVELOPMENT REGULATION BOARD

City Hall
160 Lake Avenue
Palm Coast, FL 32164
www.palmcoastgov.com

Chair James A. Jones
Vice Chair Glenn Davis
Board Member Sybil Dodson-Lucas
Board Member Christopher Dolney
Board Member Pete Lehnertz
Board Member Jake Scully
Board Member Clinton Smith
School Board Rep David Freeman

Wednesday, January 17, 2018 **5:30 PM** **COMMUNITY WING OF CITY HALL**

RULES OF CONDUCT:

>Public comment will be allowed consistent with Senate Bill 50, codified at the laws of Florida, 2013 – 227, creating Section 286.0114, Fla. Stat. (with an effective date of October 1, 2013). The public will be given a reasonable opportunity to be heard on a proposition before the City's Planning & Land Development Regulation Board, subject to the exceptions provided in §286.0114(3), Fla. Stat.

>Public comment on issues on the agenda or public participation shall be limited to 3 minutes.

> All public comments shall be directed through the podium. All parties shall be respectful of other persons' ideas and opinions. Clapping, cheering, jeering, booing, catcalls, and other forms of disruptive behavior from the audience are not permitted.

>If any person decides to appeal a decision made by the Planning and Land Development Regulation Board with respect to any matter considered at such meeting or hearing, he/she may want a record of the proceedings, including all testimony and evidence upon which the appeal is to be based. To that end, such person will want to ensure that a verbatim record of the proceedings is made.

>If you wish to obtain more information regarding Planning and Land Development Regulation's Agenda, please contact the Community Development Department at 386-986-3736.

>In accordance with the Americans with Disabilities Act, persons needing assistance to participate in any of these proceedings should contact the City Clerk's Office at 386-986-3713 at least 48 hours prior to the meeting.

>The City of Palm Coast is not responsible for any mechanical failure of recording equipment

>All pagers and cell phones are to remain OFF while the Planning and Land Development Regulation Board is in session.

A Call to Order and Pledge of Allegiance

B Roll Call and Determination of a Quorum

C Approval of Meeting Minutes

1 MEETING MINUTES OF THE DECEMBER 20, 2017 PLANNING AND LAND DEVELOPMENT REGULATIONS BOARD

D Public Hearings

2 COMPREHENSIVE PLAN AMENDMENTS RELATED TO UPDATING THE WATER SUPPLY FACILITIES WORK PLAN (WSFWP)

3 ORDINANCE 2018-XX REPEALING CHAPTER 54 WIRELESS TELECOMMUNICATIONS OF THE CITY CODE OF ORDINANCES AND AMENDING CHAPTER 4 WIRELESS COMMUNICATION FACILITIES OF THE UNIFIED LAND DEVELOPMENT CODE

E Board Discussion and Staff Issues

F Adjournment

4 ATTACHMENTS TO MINUTES

City of Palm Coast, Florida
Agenda Item

Agenda Date: 1/17/2018 5:30:00 PM

Department	PLANNING	**Amount**	
Item Key		**Account #**	

Subject MEETING MINUTES OF THE DECEMBER 20, 2017 PLANNING AND LAND DEVELOPMENT REGULATIONS BOARD

Background :
Attached for Planning and Land Development Regulation Board (PLDRB) approval, are the minutes from the December 20, 2017 meeting.

Recommended Action :
Approve December 20, 2017 meeting minutes as presented.

City of Palm Coast
Minutes
PLANNING AND LAND DEVELOPMENT REGULATION BOARD

City Hall
160 Lake Avenue
Palm Coast, FL 32164
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Chair James A. Jones
Vice Chair Glenn Davis
Board Member Sybil Dodson-Lucas
Board Member Christopher Dolney
Board Member Pete Lehnertz
Board Member Jake Scully
Board Member Clinton Smith
School Board Rep David Freeman

Wednesday, December 20, 2017 **5:30 PM** **COMMUNITY WING OF CITY HALL**

RULES OF CONDUCT:

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A Call to Order and Pledge of Allegiance

Chair Jones called the Meeting of the PLDRB to order at 5:33PM.

B Roll Call and Determination of a Quorum

Irene Schaefer, Recording Secretary, called the roll. Vice Chair Davis, Mr. Lehnertz, and Mr. Freeman had excused absences.

C Approval of Meeting Minutes

1 Meeting Minutes for the PLDRB Meeting November 15, 2017

Pass
Motion made to approve as presented made by Board Member Smith and seconded by Board Member Scully

Approved - 5 - Board Member Christopher Dolney, Chair James Jones, Board Member Jake Scully, Board Member Clinton Smith, Board Member Sybil Dodson-Lucas

D Public Hearings

2 RESOLUTION 2018-XX APPROVING UPDATE TO 3RD AMENDED AND RESTATED PALM COAST PARK DRI

Board Member Smith recused himself from this item due to a business conflict. He submitted the required form 8B, memorandum of voting conflict, to the recording secretary and it is attached to these minutes.

Mr. Ray Tyner, Planning Manager for the City of Palm Coast, introduced this item and explained what the definition and importance of a Development of Regional Impact (DRI) is to the Planning Board Members. Mr. Tyner also clarified the proposed changes involve moving the proposed borrow pit from tract 1 &2 to tract 3. Finally, he introduced Mr. Bill Hoover, Senior Planner, who gave a presentation which is attached to these minutes.

Chair Jones: A fill pit becomes a pond?
ANS: Mr. Hoover: Yes

Chair Jones: At tract 12 & 15 (referring to the presentation)?
ANS: Mr. Hoover: Yes, actually there right down here. They are actually 10, 15 or 20 acres. The fill may be moved up to tract 1, 2 or 3, it gives them the option to take it off site.

Mr. Tyner clarified for the Board Members using I-Annotate (a highlighting tool) on the presentation the exact location of the proposed changes.

Chair Jones: Does the applicant have a presentation?
ANS: Mr. Smith: No.

Chair Jones: Would you go back to the chart in the presentation, that one right there? The white color (beige) is the borrow pit that is being moved to the yellow hatched area, is that right?
ANS: Mr. Hoover: Yes, this one is updated, actually on this new graphic there are upland preservation areas, which surprised the enviromentalist based on previous studies. So actually there are two allowable borrow pits on tract 3, but we are making exception because we are allowing it in the other area to make

sure we are not increasing the entitlements. The applicant has agreed to not do it (borrow pit) in any other area just in this one area.

Chair Jones: The applicant has agreed to not use the space that is allocated right now on tracts on 1 and 2 as a borrow pit?
ANS: Mr. Hoover: Right and additionally the tan areas on tract 3 which are right here (pointing to the presentation) would not be used, either.

Chair Jones: Then why are those 3 or 4 (sites) not being changed on the map?
ANS: Mr. Tyner: Because the areas labeled 10, 5 and 4 they can be used for mitigation areas, upland creation. When the developer comes in, if there are going to be some wetland impacts, they will be able to use those potentially, if the district (St. Johns River Management District) allows, if there is going to be wetland impacts.

Chair Jones: But we are increasing the number of borrow pits they are allowed to use.
ANS: Mr. Tyner: No, (referring to the presentation) this is what is existing now, and you can see that number 2 and number 11 and then there is another little one. You can see there are 3 areas that are allowed to be borrow pitted.
You can see there there is some yellow here and the borrow pit and the upland area is here, it might be more helpful if we had these on the same slide, but if you go to the next slide you can see how it changed. Where there are more wetlands and there are some uplands areas that previously were not considered uplands on the previous map. So basically what they are doing, if you go back one slide, instead of doing borrow pit activities in this area, next slide, there are just going to do them in this area. So this goes away (referring to the presentation) and this is where they will be doing it (borrow pit activities).

Chair Jones: But on the chart you show, it doesn't go away, it is still there?
ANS: Mr. Tyner: No, it says upland preservation, all these areas here and here, all these tan colored areas, included these, they can either be used for borrow pit, soil extractions, except tracts 1, 2 or 3, you can't do borrow pit activities but you can still do upland enhancement activities. We didn't want to remove that from them, they should be able to do enhancements if they wanted to (make enhancements).

Mrs. Lucas: Why was there no response to your outreach efforts?
ANS: Mr. Hoover: There probably isn't a house within 2 miles of the site. In fact it might be 3 miles, it is very rural out there.

Mrs. Lucas: Addresses that were direct mailed where were they (referring to the presentation)?
ANS: Mr. Hoover: Well those are big parcel owners. If you see tract 3 is the people across the street, and then west of the railroad there is a big property owner. So the people that own those big tracts are already in the DRI so they understood what is being proposed and they don't really care.

Chair Jones: So there aren't any residential areas within the required notification area?
ANS: Mr. Hoover, Yes, not even close.

ANS: Mr. Tyner: Just the big property owners and they were notified and they don't care.

Mrs. Lucas: Does any of this activity, given that it is in the wetlands, does it contribute to sink holes?
ANS: Mr. Tyner: No Ma'am, our geology here in Northeast Florida we don't have (unintelligible), geologic formations, which is typical in your Central Florida area, which is limerock. Limerock can get really weathered. If you've seen sink holes in Central Florida, that is what happened the water erodes the Limestone. Here we don't have Limestone until 300 or 400 feet down (into the earth) and even then that Limestone is so much CARS. We don't have the geographic features in our region to have sink holes. Sybil, I just want to be clear, the reason we are moving this over here (referring to the presentation) is to avoid the wetlands cause that area is all upland area where they have the pit.

Pass
Motion made to approve as presented made by Board Member Dolney and seconded by Board Member Dodson-Lucas

Approved - 4 - Board Member Christopher Dolney, Chair James Jones, Board Member Jake Scully, Board Member Sybil Dodson-Lucas

3 ORDINANCE 2018-XX TO REZONE 40 COLECHESTER LANE FROM MFR-1 TO SFR-1 AS INDICATED BY APPLICATION 3449.

Mr. Tyner, Planning Manager, introduced this agenda item to the Board Members. Also Mr. Tyner introduced Ms. Ida Meehan, Senior Planner, who gave a presentation which is attached to these minutes.

Mr. Smith: I have one question, I was trying to determine when it became mult-family, and I think it was part of a larger parcel, that was carved off and became Longs Landing?
ANS: Mr. Tyner: Yes, it you could go back to that slide, I was going to interrupt but I didn't but I will now. Everyone knows where we are, referring to the presentation, Palm Harbor Pkwy., Longs Landing, this area right here is the City owned property, it is a park. We acquired this property and at one point, this was all one piece of property, all zoned mult-family. The City had a plan that was in house, that had multi-family condominium plans for this area. So City Council, with the help of an environmental sensitive land program and the state, we ended up acquiring all of this property, with the exception of this property here (proposed rezoning agenda item). So the City rezoned this property to portions of it conservation and parks and greenways. The piece that the owner retained (remained zoned multi-family).

Mr. Scully: What is the width of the that (parcel) less the easement there?
ANS: Ms. Meehan: It is 15 feet.

Mr. Scully: Not the width of the easement, the width of the lot less the walkway easement?

ANS: Ms. Meehan: I want to say the lot is 120 feet and the pedestrian easement is 15 (feet). So he can create two 50 feet lot widths, but not 60 (feet).

Mr. Dolney: Is one (lot) flag? Are you doing one lot and one lot flag? Is that what you are thinking?
ANS: Ms. Meehan: He is actually considering doing two lots facing the pedestrian easement, using that as his front.

Mr. Tyner showed the council members how the proposed homes on the two lots would be orientated using the presentation.

Chair Jones: Why are we doing SFR (Single Family Residential) 1 and not SFR 2?
ANS: Ms. Meehan: Because of the lot width.

Chair Jones: But everything else in that area is either SFR 2 or SFR 3?
ANS: Ms. Meehan: Right. Because of the pedestrian access easement he does loose 15 feet, so the lots would be slightly smaller than SFR 2 minimum.

Chair Jones: But that is not compatible with the surrounding area, which is all SFR 2 or SFR 3.
ANS: Ms. Meehan: Arguably, it is more compatible than townhomes.

Mr. Tyner addressed the Board Members to clarify that the Staff's indention is to try to get the property to single family zoning. We would much rather have 2 single family homes on two 50 foot lots rather than 60 foot lots.

Chair Jones: What is the minimum lot width for an SFR 2?
ANS: Mr. Dolney: 60 feet.

Chair Jones: And this is 50 feet, is that the idea?
ANS: Mr. Tyner: Yes.

Chair Jones: Not 60 feet wide?
ANS: Ms. Meehan: He is probably going to do two 52 foot wide lots.

Discuss ensued to determine that actual width of the lots at 120 feet that includes the 15 foot easement.

Chair Jones: But that is ok, that would count, then why can't it be (zoned) SFR 2?
ANS: Mr. Dolney: The 120 (feet) needs to be 60 feet and the way they are orientated towards the canal.

Chair Jones: But the property is 120 feet wide, then there is no reason why they can't be 2 SFR 2 lots?
ANS: Ms. Meehan: I think the issue with the 120 feet, is that one lot would have the 15 foot easement on it and be disproportionately affected by it. I think he is trying to treat these two lots eqaully. I think he is trying to givie them equal access to the canal.

Mr. Scully: How would they access the back lot?

ANS: Chair Jones: There wouldn't be a back lot, there would be one building there and one building there.
ANS: Mr. Dolney: There would be one building here and one here. The top one is building one and the bottom one is building two, the access to building two would be over a shared driveway.

Chair Jones opened the meeting to public comment @ 6:08PM and seeing no one come forward Chair Jones closed the meeting to public comment @ 6:09PM.

Pass
Motion made to approve as presented made by Board Member Dolney and seconded by Board Member Smith

Approved - 4 - Board Member Christopher Dolney, Board Member Jake Scully, Board Member Clinton Smith, Board Member Sybil Dodson-Lucas
Denied - 1 - Chair James Jones

E Board Discussion and Staff Issues

Mr. Tyner introduced the goals of the Community Development Department and as they relate to the PLDRB members.

Mr. Tyner instructed Ms. Schaefer, the recording secretary, to email PLDRB members the Community Development End of Year Report for the fiscal year 2017.

Chair Jones: Is construction going on for the Moonrise Brewery?
ANS: Ms. Meehan: Yes, they were just issued an occupancy permit.

Chair Jones: So Ray you're going to send us this report quarterly?
ANS: Mr. Tyner: Yes.

Mr. Tyner introduced the P3 team and some of the goals of this team along with their purpose being improving the development review process from beginning to end.

Mr. Tyner instructed Ms. Schaefer, the recording secretary, to email PLDRB members the P3 (Pubic, Private Partnership Team) End of Year report for the fiscal year 2017.

Ms. Schaefer explained the plan to issue IPADS to the Planning Board members as soon as possible in an effort to eliminate the waste of paper and time.

Chair Jones asked that the IPADS that will be issued to the PLDRB members should include a link to the Land Development Code and the Comprehensive Plan.

F Adjournment

The meeting was adjourned at 6:34PM.

Respectfully Submitted by:
Irene Schaefer, Recording Secretary

4 ATTACHMENTS TO MINUTES

City of Palm Coast, Florida
Agenda Item

Agenda Date: 1/17/2018

Department	PLANNING	**Amount**	
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Subject COMPREHENSIVE PLAN AMENDMENTS RELATED TO UPDATING THE WATER SUPPLY FACILITIES WORK PLAN (WSFWP)

Background: Florida Statutes mandate a coordinated planning process between regional water supply plans prepared by the water management districts pursuant to Chapter 373, Florida Statutes (F.S.), and comprehensive plans prepared by local governments pursuant to Chapter 163. Specifically, local governments must address in their comprehensive plans the water supply sources necessary to meet and achieve existing and projected water use demand for the established planning period, considering the applicable regional water supply plan prepared pursuant Section 373.709, F.S.

In January 2017, the St. Johns River Water Management District (SJRWMD) approved the Northeast Florida Regional Water Supply Plan (NEFRWSP), as required by state statutes, the City must update the Water Supply Facilities Work Plan (WSFWP) in the Comprehensive Plan by July 2018.

As required by state statutes, the amendment consists of recognizing the current and future water demand from both within the City as well as entities with an agreement with the City for water supply. The projected water demand to 2035 is shown in the table below. These projections use the average of low and medium projections from the Bureau of Economic and Business Research (BEBR) January 2016 projections. The future year population projections represent a decrease from the projections provided in the last update of the WSFWP in 2010 (approximately 12.5% in 2035). This decrease in population projection in turn reflects the decrease in the water demand and need for alternative water supply in the updated WSFWP.

In addition to the population projections, the WSFWP update includes identifying new potential sources for the alternative water supply. In 2010, the focus of alternative water supply was the development of a seawater desalination plant that would serve other regional suppliers in addition to the City of Palm Coast (this effort was commonly known as the Coquina Coast project). It was during the second phase of planning that the Coquina Coast project was deemed to be not economically feasible and that other alternative sources should be considered prior to desalination of seawater. These alternative sources are discussed in more detail below.

		Population	Water Demand (MGD)		Water Supply (MGD)	
			Finished	Raw	Traditional[2]	Alternative[3]
2010	Within City	75,258	6.56	7.315	**7.678**	**0.00**
	Outside[1]	3,730	0.325	0.363		
	Total	**78,988**	**6.88**	**7.678**		
2015[a]	Within City	79,858	7.028	7.419	**7.813**	**0.00**
	Outside[1]	4,245	0.374	0.394		
	Total	**84,104**	**7.401**	**7.813**		
2020	Within City	90,076	7.936	8.710	**9.328**	**0.00**
	Outside[1]	6,390	0.563	0.618		
	Total	**96,466**	**8.499**	**9.328**		
2025	Within City	110,640	9.747	10.699	**12.02**	**0.00**
	Outside[1]	7,849	0.691	0.759		
	Total	**118,489**	**10.438**	**11.458**		
2030	Within City	129,064	11.371	12.480	**13.02**	**1.0**
	Outside[1]	9,156	0.807	0.885		
	Total	**138,220**	**12.177**	**13.366**		
2035	Within City	146,960	12.947	14.211	**13.02**	**2.0**
	Outside[1]	10,426	0.919	1.01		
	Total	**157,385**	**13.866**	**15.219**		

[1]The projected population and water demand figures reflect both retail customers and bulk water agreements outside city limits.
[2]Traditional water supply includes groundwater from the Confined Surficial Aquifer and Upper Floridan Aquifer and the amounts reflect the allocation requested in the CUP modification application. The existing CUP allocation for 2015 is 11.02 MGD.
[3]Alternative water supply includes brackish groundwater from the Upper Floridan Aquifer and Lower Floridan Aquifer, surface water, treated concentrate and reclaimed wastewater.
[a]The City received a CUP permit with a 2015 allocation of 11.02 MGD.

As demonstrated in the table above, the City has a Consumptive Use Permit (CUP) for 11.02 Million Gallons/Day (MGD). This CUP is adequate to serve the projected demand for water until about 2023. The City is in the process of modifying the current Consumptive Use Permit (CUP) to add an allocation of alternative supply to meet the projected demands through 2035. The plan for additional water supply includes a request for additional fresh water as safely allowed by modeling and the resulting impact analysis as well as alternative sources as described below.

As provided in the water demand table above, the City will seek to draw 1.0 MGD from alternative supply source by 2030 and 2.0 MGD by 2035. This alternative water supply source is expected to potentially include brackish groundwater from the Upper Floridan Aquifer and Lower Floridan Aquifer, surface water, treated concentrate, and reclaimed wastewater.

The City of Palm Coast staff worked very closely with St Johns River Management District staff during the development of the NEFRWSP to identify potential alternative water sources. SJRWMD staff toured the watershed area in Palm Coast and observed the 54 miles of stormwater canal systems and associated weirs in consideration of the surface water interaction with the surficial aquifer. Additionally, there were numerous discussions between the agencies to accomplish certain actions to supplement the water supply from alternative sources. Based on mutual agreement between the agencies, the following actions are on-going, or are proposed for completion within the next 10 to 15 years as needed by growth and demand.

Action 1 (On-going). Continue treatment and reuse of Drinking Water Byproduct (DWB) from

Water Treatment Plant (WTP) No. 2 and No. 3 as an additional alternative water source. Currently, the DWB is being diverted from WTP No. 3 and blended with WTP No. 1 raw water prior to treatment at WTP No. 1. At WTP No. 2, the City is treating the DWB produced from the membrane softening process with lime softening followed by microfiltration to recover the DWB as drinking water. Both projects could eliminate the wasteful discharge of DWB to surface waters and could ultimately recover up to about 1.95 MGD of water.

Action 2 (On-going). In partnership with the SJRWMD through a shared-cost agreement, the City installed a reuse irrigation system along both sides of US Highway 1 to provide up to 1 MGD of reuse for aquifer recharge. A wetland monitoring plan will be utilized to determine the success of this project. The reuse water for this system can be sourced from either WWTP No. 1 or No. 2. This project is being monitored at this time to determine the positive benefit to the wetlands in the region.

Action 3 (On-going). Completed an aquifer performance test of the brackish upper Floridan Aquifer system in the northern wellfield. The data acquired from these tests have been modeled to determine the feasibility of receiving an allocation of brackish water in the CUP. The SJRWMD is reviewing the model outcome and will complete an impact analysis in order to determine an acceptable allocation in early 2018.

Action 4 (Future Project). Investigate additional means of aquifer recharge utilizing advanced treated wastewater from WWTP No. 2. This method of indirect potable reuse has the potential of providing up to 2 MGD of additional fresh water allocation in advance of utilizing the more costly brackish water in the upper Floridan aquifer.

Action 5 (Future Project). Investigate the benefits of adding storage to the stormwater collection system in an effort to mitigate wetland impacts due to withdrawals from the Confined Surficial Aquifer.

The SJRWMD staff has been very supportive of these short and long range plans and have included them in the NEFRWSP. City staff's strategy to have multiple avenues for additional water supply provides for a reasonable and sustainable strategy to allow Palm Coast to accommodate the anticipated demand into the future.

The update of the WSFWP accomplishes the following requirements consistent with Florida Statutes:

1. Coordinate all aspects of its comprehensive plan with the appropriate water management district's regional water supply plan. [s. 163.3177(4)(a), F.S.]
2. Ensure that its future land use plan is based upon the availability of adequate water supplies and public facilities and services. [s. 163.3177(6)(a), F.S.]
3. Ensure that adequate water supplies and facilities are available to serve new development no later than the date on which the local government anticipates issuing a certificate of occupancy and consult with the applicable water supplier prior to approving a building permit, to determine whether adequate water supplies will be available to serve the development by the anticipated issuance date of the certificate of occupancy. [s. 163.3180(2)(a), F.S.]
4. Revises the Infrastructure Element to:
    a. Identify and incorporate alternative water supply projects identified in the updated regional water supply plan, or the alternative project proposed by the local

government under s. 373.0361(7), F.S. [s.163.3177(6)(c), F.S.]

b. Identify the traditional and alternative water supply projects and the conservation and reuse programs necessary to meet current and future water use demands within the local government's jurisdiction. [s. 163.3177(6)(c), F.S.]

c. Update the water supply facilities work plan for at least a 10-year planning period for construction of public, private, and regional water supply facilities, which are identified in the element as necessary to serve existing and new development. [s. 163.3177(6)(c), F.S.]

5. Revises the Five-Year Schedule of Capital Improvements to include water supply, reuse, and conservation projects and programs to be implemented during the five- year period [s. 163.3177(3)(a)4, F.S.].
6. Revises the Conservation Element to ensure that projected water needs and sources are for at least a 10-year planning period, considering the appropriate regional water supply plan(s) or, in the absence of an approved regional water supply plan, the applicable district water management plan. [s. 163.3177(6)(d), F.S.]
7. Revise the Intergovernmental Coordination Element to ensure coordination of the comprehensive plan with the applicable regional water supply plans and regional water supply authorities. [s. 163.3177(6)(h)(1), F.S.]

Recommended Action: Staff recommends that the Planning and Land Development Regulation Board (PLDRB) recommend that City Council approve and transmit the proposed comprehensive plan amendments.

CHAPTER 5
INFRASTRUCTURE ELEMENT

SUMMARY

Sanitary Sewer

Sanitary sewer service in the City is provided by the City of Palm Coast, which currently owns and operates the system. On July 24, 2003, the City reached an agreement to purchase the FWSC wastewater system. The City of Palm Coast finalized the purchase of the Utility on October 30, 2003. The central sewer system was initially established for the ITT Palm Coast development in 1973. In addition, there are approximately 36 septic systems in the City that handle wastewater flows from individual homes and businesses. The central sewer system in the City has a current permitted treatment capacity of 6.83 million gallons ~~a~~ per day. With the return of growth to the City resulting in the first wastewater treatment plant (WWTP#1) nearing its~~'~~ design capacity, a second wastewater treatment plant (WWTP#2) has been constructed. The design capacity of the plant is 6.0 million gallons per day with an initial installed capacity of 2.0 million gallons per day. The plant is scheduled to go online in early 2018 with a projection to be expanded in 2023 to 4.0 million gallons per day. The sanitary sewer sub-element's GOPs establish the minimum LOS standard to allow future development to occur when sewer facilities can accommodate the increased demand. The sanitary sewer sub-element also encourages the phasing out of the septic systems, expansion of reuse systems, and requiring connection to central sewer and reuse systems where available.

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Natural Groundwater Aquifer Recharge

The Floridan aquifer and the Confined Surficial aquifer are the primary sources of potable water for the City. Groundwater quality can be affected by many activities such as discharges from underground and aboveground petroleum and chemical ~~underground~~ storage tanks, stormwater run-off, and faulty septic tanks. The proximity of the aquifer to the land surface may also affect overlying wetland systems if water withdrawals are not properly managed. The majority of the City is located in an area of low~~-~~ to moderately-low recharge to the Floridan aquifer. The SJRWMD has completed the development of a groundwater model for the Palm Coast aquifer in order to assess the potential for current and projected hydrologic and environmental impacts. Recharge function of land can be maximized by specific land development regulations to limit impervious surfaces, protect wetlands, preserve more open space, and promote higher water quality treatment standards for stormwater where appropriate. The natural groundwater aquifer recharge sub-element's GOPs provide objectives and policies for maintaining aquifer or enhancing aquifer recharge, coordinating with SJRWMD and other regulatory agencies, and developing regulations to establish wellhead protection.

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GOAL 5.1: POTABLE WATER SERVICE

Protect the health, safety, welfare of the public while assuring a sufficient, dependable, and high-quality potable water supply, meeting the needs of Palm Coast on a timely basis, at a reasonable cost and, at a minimum, in compliance with all Federal and State regulatory requirements.

FINDING: ***The City's water system consists of three water treatment plants. The first plant, Water Treatment Plant #1, is a lime softening plant that went into operation in 1979 and expanded in 1981. It is currently permitted for 6.0 million gallons a day (mgd). A second plant, Water Treatment Plant #2, began operation in 1992 and has a FDEP permitted capacity of ~~6.38~~7.58 mgd. The third plant, Water Treatment Plant #3, came online in 2008 with an initial capacity of 3.0 mgd. Due to the age of the systems, modification, rehabilitation, renewal, and/or replacement of components of the existing water systems may be required. To meet the future potable water consumer demands, expansion of the existing system is required. This expansion program must meet the future water demands of the citizens and businesses of the City.***

***

Policy 5.1.1.4 –The City shall update and revise the WSFWP within 18 months following the district adoption~~ong~~ of~~r~~ ~~the SJRWMD District~~updating a Regional Water Supply Plan. The plan, at a minimum, shall identify new or proposed water supply facilities that are necessary to serve existing and new development through 2035 to cover at least a 10 year planning period.

***

Policy 5.1.2.1 –In coordination with the Northeast Florida Regional Council (NEFRC), Department of Economic Opportunity (~~DCA~~DEO), SJRWMD and any other pertinent entities, the City shall identify long-term water supply strategies consistent with the City's consumptive use permit, and shall consider the latest final version of the SJRWMD Water Supply Plan to develop the WSFWP.

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Policy 5.1.2.3 – The City shall coordinate with the SJRWMD and other pertinent entities to evaluate additional potential water supply sources and recovery technologies for the City potable water service area when considering new or expanding facilities. Water supply sources and recovery technologies may include, but shall not be limited to: reuse, use of surface water and stormwater (when permitted and practicable), reverse osmosis, membrane softening, and desalinization of brackish groundwater.~~.~~

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Policy 5.1.5.2 – ~~The City shall continue to participate in the Coquina Coast Cooperators~~Desalination Project ~~and, if necessary, enter into an interlocal agreement in order to investigate and develop a seawater desalination project, either land or sea based.~~ The City shall investigate the use of advanced treated wastewater as an alternative source for aquifer recharge, continue to recover and treat concentrate for delivery as potable water, to expand the reclaimed water distribution system where economically feasible and determine the degree of influence the stormwater collection system has on the wetland and aquifer systems in the Palm Coast wellfields.

***

GOAL 5.2: SANITARY SEWER FACILITIES

Protect the health, safety and welfare of the public by ensuring wastewater treatment facilities and services are environmentally sound, effective, and meet the City's current and future demands.

FINDING: ***During the first six months of 2017, the average day flow through the wastewater treatment plant was 5.9 mgd representing 86% of the plants' design capacity of 6.83 mgd. The second wastewater treatment plant began construction in October 2016 and is projected to be put online in early 2018. The initial plant capacity will be 2.0 mgd with expansion to 4.0 mgd planned for in 2023. Total system design capacity will be 8.83 mgd while average day flows are projected at 6.4 mgd. This represents approximately ~~27~~72 percent of the total permitted treatment capacity. With an additional expansion of 2.0 mgd projected for 2023, the total permitted design capacity will be 10.83 mgd so the projected Max ~~three monththree-month~~ average day flow is not expected to exceed this design capacity until 2033. Expansion of wastewater treatment plant #1 is currently planned for ~~in~~ 2031.***

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Policy 5.2.1.2 - The City shall adopt and enforce the following minimum LOS standards for wastewater as the basis for determining the availability of facility capacity and planning for the demand generated by a development:

A. An average daily flow of 82 gallons per capita per day LOS shall be utilized.
B. A maximum daily flow of 93 gallons per capita per day LOS shall be utilized.
1. The Equivalent Residential Unit (ERU) shall be based on 2.4 persons per ~~capita/day~~ERU.

***

~~**Policy 5.4.1.5** — The City shall continue to participate in the Coquina Coast CooperatorsDesalination Project and, if necessary, enter into an interlocal agreement in order to investigate and develop a seawater desalination project, either land or sea based.~~

Exhibit 5.1 – 2035 Water Supply Facilities Work Plan Update

Introduction

The City of Palm Coast adopted the 2020 Water Supply Facilities Work Plan (WSFWP) in December of 2007 as required by the Florida Legislature. The 2020 WSFWP was prepared for a 14–year (2007 – 2020) planning period. The latest University of Florida Bureau of Economic and Business (BEBR) population projections are significantly lower than the projections that were used in preparing the 2020 WSFWP in 2007. The slower growth of the area due to the recent economic conditions has resulted in significantly lower population projections. This requiresd that the 2020 WSFWP be updated to reflect the current growth conditions. Theis 2010 WSFWP update iswas prepared for a 25-year planning period to 2035 reflecting the City's long-termlong-term water supply strategy and in conjunction with the Comprehensive Plan Amendment.Amendment. This update is prepared for a 17-year17-year planning period ending in 2035 and will be adopted into the Palm Coast Comprehensive Land Use Plan as required by the 2017 North Florida Regional Drinking Water Supply Plan.

		Population	Water Demand (MGD)		Water Supply (MGD)	
			Finished	Raw	Traditional[2]	Alternative[3]
2010	Within City	75,25876,070	6.567.68	7.3158.53	**7.6788.95**	**0.00**
	Outside[1]	3,7303,723	0.3250.38	0.3630.42		
	Total	**7898879,793**	**6.888.06**	**7.6788.95**		
2015[a]	Within City	79,85893,822	7.0289.46	7.41910.51	**7.81311.02**	**0.00**
	Outside[1]	4,2454,596	0.3740.46	0.3940.51		
	Total	**84,10498,419**	**7.4019.92**	**7.81311.02**		
2020	Within City	90,076113,800	7.93611.56	8.71013.01	**9.32811.02**	**0.002.63**
	Outside[1]	6,3905,587	0.5630.57	0.6180.64		
	Total	**96,466119,387**	**8.49912.13**	**9.32813.65**		
2025	Within City	110,640133,124	9.74713.66	10.69915.50	**12.0211.02**	**0.005.24**
	Outside[1]	7,8496,546	0.6910.67	0.7590.76		
	Total	**118,489139,670**	**10.43814.33**	**11.45816.26**		
2030	Within City	129,064151,530	11.37115.68	12.48018.14	**13.0211.02**	**1.08.01**
	Outside[1]	9,1567,460	0.8070.77	0.8850.89		
	Total	**138,220158,990**	**12.17716.45**	**13.36619.03**		
2035	Within City	146,960168,999	12.94717.60	14.21120.88	**13.0211.02**	**2.010.89**
	Outside[1]	10,4268,324	0.9190.87	1.011.03		
	Total	**157,385177,323**	**13.86618.47**	**15.21921.91**		

[1]The projected population and water demand figures reflect both retail customers and bulk water agreements outside city limits.
[2]Traditional water supply includes groundwater from the Confined Surficial Aquifer and Upper Floridan Aquifer and the amounts reflect the allocation requested in the CUP modification application. The existing CUP allocation for 2015 is 11.029.51 MGD.
[3]Alertternaative water supply includes brackish groundwater from the Upper Floridan Aquifer and Lower Floridan Aquifer, surface water, treated concentrate and reclaimed or wastewatersea water.
[a]The City is currently applying for received a CUP permit with a 2015 allocation of 11.02 MGD.

***

As part of the current Consumptive Use Permit (CUP) modification application, the City is conducting a groundwater hydraulic modeling study to determine the availability of additional groundwater from existing sources and new alternative ground water supply sources, including brackish groundwater. Due to the City's designation as a Priority Water Resource Caution Area (PWRCA), the City anticipates that alternative water supplies will be needed at some point in the future to meet projected demands. The WSFWP assumes that groundwater sources, including brackish water, will be available to meet the water demands untilbeyond 20192035. The WSFWP further assumes that additional water demands beyond 20192029 will be met by alternative water supplies.

The attached 20102018-20142022 short-term work plan (Table 5.1) and the 20152023-20352027 long-term work plan (Table 5.2) lists the projects necessary to meet the projected demands based on the assumptions discussed above.

Traditional Water Supply

The City owns and operates three (3) water treatment plants (WTPs). WTP No. 1 is classified as a lime-softening treatment plant with a permitted design capacity of 6.0 MGD. WTP No. 2 is classified as a membrane softening treatment plant with a current permitted design capacity of 6.3847.58 MGD. WTP No. 3 is classified as a low pressure reverse osmosis treatment plant with a permitted design capacity of 3.0 MGD.

The current raw water source supplied to the three water treatment plants is defined as the Traditional Raw Water Supply, which consists of the confined surficial aquifer water for WTP No. 1 and WTP No. 3, and the upper Floridan aquifer water for WTP No. 2. The City is currently permitted for a total of 9.5111.02 MGD from the Traditional Supply. This allocation is only sufficient to meet the City demand until 201123. The City is in the process of modifying the current Consumptive Use Permit (CUP) to increase theadd an allocation of the Traditionalalternative Supply from 9.51 MGD to 11.023 MGD to meet the projected demands through 2013 5. Please note that while the City is currently seeking an alternative source allocation,

they plan to seek as much additional fresh water as safely allowed by modeling and the resulting impact analysis.

Reuse Water

Reuse of reclaimed water for irrigation is a form of alternative water supply which replaces ground water or potable water for irrigation of residential and other public accessible areas. The City has been implementing reclaimed water reuse projects since 1995. Currently, reclaimed water is being used for irrigation at the Hammock Dunes golf course development, Grand Haven golf course development, Town Center development, and several other residential developments along Old Kings Road along withnd miscmiscellaneous. common areas within the City.

City ordinance requires that all new residential and commercial developments use reclaimed water for landscaping irrigation if reclaimed water is available. The implementation of reclaimed water reuse has significantly reduced potable water demands. During the past three years, The City has completed a new reclaimed water pump station at WWTP No. 1 and reclaimed water mains to supply reclaimed water to the developments along Old Kings Road and to Cigar Lake. A reclaimed water distribution pump station has recently been constructed at Cigar Lake to pump the stored reclaimed water to Town Center and other reuse sites for irrigation. A reclaimed water main has been constructed along Old Kings Road to the north to provide irrigation water to the Conservatory golf course and the DCDD Creek course. The main continues along Matanzas Woods Parkway to US Highway No.1 to supply reclaimed water to future residential and commercial developments along US Highway No.1. Currently, reclaimed water from WWTP No.1 is supplied to a distributed spray irrigation system along both sides of US Highway No.1 for aquifer recharge and is designed to provide up to one million gallons per day of flow.

The WWTP No. 1 is permitted to reuse up to about 11.07 MGD of public access irrigation. The current2016 annual average day usage of reuse water by the existing developments is approximately 3.6042 MGD. An additional 879,106,000 was used for aquifer recharge. Future WWTP No. 2, which is scheduled to be under construction in the fall of 2010placed online in early 2018, will treat wastewater to advanced standards. The reclaimed water from WWTP No. 2 canwill be used for irrigation of new residential, commercial and golf course developments along US Highway 1 north of Palm Coast Parkway. The projected reclaimed water reuse capacity for WWTP No. 2 is estimated to be about 7.805.0 MGD when the facility is built out.

Alternative Water Supply

The City of Palm Coast is participateding in the Coquina Coast Seawater Desalination Alternative Water Supply Project (Coquina Coast). which plans onThe project was based on utilizing seawater as raw water source for the region. As a key member of the Coquina Coast project, the City is actively participateding in the feasibility study and the preliminary design of the project. The study and preliminary design phase of the project is was sponsored by the St. Johns River Water Management District (SJRWMD) and a group of eleven regional suppliers. The Coquina Coast project currently under study planneds to have a capacity of about 50 Million Gallons per Day (MGD) to meet the demands of the region beyond the year 2050.

After completing a one year Phase 1 study, the consultant of the Coquina Coast project recommended that a land based seawater desalination plant be designed and constructed along the Flagler County coast rather than an off-shore vessel based facility. The Coquina Coast regional suppliers, including Palm Coast, decided during the second phase of planning that the Coquina Coast project was not economically feasible and that other alternative sources should be considered prior to desalination of seawater.~~are working with its consultant to finalize the scope for Phase 2 preliminary design phase. The Phase 2 preliminary design is scheduled to be completed by 2014. The Coquina Coast project consultant suggests that the construction of the Coquina Coast project may be completed and be on-line between 2017 and 2019 to supply water. The Coquina Coast project is being included in the upcoming SJRWMD 2010 Drinking Water Supply Plan. If the Coquina Coast project is successfully implemented it is expected that it may be on-line to supply the drinking water to the region between the year 2017 and 2019. This WSFWP incorporates the potential availability of the alternative water supply from the Coquina Coast project in 2019.~~

The City has implemented ~~is also investigating~~ projects to recover the drinking water byproduct (DWB) generated from the WTP No. 2 and WTP No. 3 membrane softening process to be utilized as an additional alternative water source. The DWB is~~would then~~ being treated to be utilized as finished drinking water. The City~~ plans to investigate~~is diverting the DWB from WTP No. 3 and blending it with WTP No. 1 raw water prior to treatment at WTP No. 1. At ~~the~~ WTP No. 2, the City is ~~investigating~~ treating the DWB produced from the membrane softening process with lime softening followed by microfiltration to recover the DWB as drinking water. Both projects could eliminate the wasteful discharge of DWB to surface waters and could ultimately recover up to about 1.95 MGD of water as drinking water or as raw water.

The City has installed a reuse irrigation system along both sides of US Highway ~~No.~~ 1 in order to provide up to 1 MGD of reuse for aquifer recharge. The wetland monitoring plan will be utilized to determine the success of this project. The reuse water for this system can be sourced from either WWTP No. 1 or No. 2.

The City has completed an aquifer performance test of the brackish upper Floridan Aquifer system in the northern wellfield. The data acquired from these tests have been modeled to determine the feasibility of receiving an allocation of brackish water in the CUP. The SJRWMD is reviewing the model outcome and will complete an impact analysis in order to determine an acceptable allocation in early 2018.

The City plans to investigate additional means of aquifer recharge utilizing advanced treated wastewater from WWTP No. 2. This method of indirect potable reuse has the potential of providing up to 2 MGD of additional fresh allocation in advance of utilizing the more costly brackish water in the upper Floridan aquifer.

The City plans to investigate the benefits of adding storage to the stormwater collection system in an effort to mitigate wetland impacts due to withdrawals from the Confined Surficial Aquifer.

Conservation and Reuse Practices

The City's current per capita (88.1 gpdpc) of distributed water use is lower than the majority of jurisdictions within the St. Johns River Water Management District. The City will continue to implement the ongoing water conservation and reuse practices listed below in order to maintain the relatively low per capita use.

- Technological, Procedural, and/or Programmatic Improvements Management
  - Water Treatment Plant Technologies
  - Water Use Monitoring
  - Free Water Conservation Plumbing Retrofitting Kits for Residential Customers
  - Indoor Conservation Programs
  - Develop and Enforce Water Efficient Landscape Ordinance (in cooperation with SJRWMD)
  - Irrigation Design Requirements
  - Requiring Individual Metering
  - Requiring the Use of Low-Volume Plumbing Devices
- Reuse Conservation Practices
  - Requiring New Development to Install a Reuse Water Distribution System
  - Requiring Connection to the Reuse Water System
  - Requiring Individual Metering
- Customer and Employee Education
- Use of Conservation based Rate Schedule

Table 5.1 – Short Term Work Plan (FY 2018-2022)

Project Name	Purpose of Project	Responsible Party	Funding Source[1]	Fiscal Year Estimated Costs					Estimated Total Cost	Estimated Year of Operation
				2018	2019	2020	2021	2022		
GENERAL IMPROVEMENTS										
Citation/OKR/SR100 Water Main Loop	Improve and increase water distribution capacity	City of Palm Coast	UCPF	$1,500,000					$1,500,000	2018
Old Kings Road Water Main Extension to Eagle Lakes		City of Palm Coast	UCPF	$150,000					$150,000	2018
Distribution System Improvements		City of Palm Coast	UCPF	$905,000	$975,000	$1,095,000	$1,125,000	$1,275,000	$5,375,000	
Old Kings Road Water Mains (Phase 2)		City of Palm Coast	UCPF		$500,000				$500,000	2019
Malacompra Drainage Project main relocate		City of Palm Coast	UCPF	$150,000					$150,000	2018
TRADITIONAL WATER SUPPLY										
WTP No. 1										
Plant Miscellaneous Improvements (Construction)	Improve plant performance	City of Palm Coast	UCPF	$280,000	$675,000	$500,000		$500,000	$1,955,500	
Well SW-43 Replacement	Maintain well capacity	City of Palm Coast	UCPF	$480,000	$200,000				$680,000	
Replacement Well Construction	Improve well capacity	City of Palm Coast	UCPF	$300,000	$400,000	$400,000	$400,000	$500,000	$2,000,000	
WTP No. 2										
Plant Miscellaneous Improvements	Improve Plant Performance	City of Palm Coast	UCPF	$50,000	$500,000	$500,000		$300,000	$1,350,000	
Well Field Expansion – add 3 additional wells	Increase well capacity	City of Palm Coast	UCPF	$2,100,000					$2,100,000	2018
WTP No. 3										
Concentrate Pump	Maintenance of alternative supply	City of Palm Coast	UCPF	$120,000					$120,000	2018
CUP Modification for fresh water supply	Increase raw water capacity	City of Palm Coast	UCPF				$100,000		$100,000	2021

Table 5.1 – Short Term Work Plan (FY 2018-2022)- *continued*

Project Name	Purpose of Project	Responsible Party	Funding Source[1]	Fiscal Year Estimated Costs					Estimated Total Cost	Estimated Year of Operation
				2018	2019	2020	2021	2022		
ALTERNATIVE WATER SUPPLY										
CUP Modification and Alternative Water Study	Modify CUP – Add Brackish Source Allocation	City of Palm Coast	UCPF	$100,000					$100,000	2018
REUSE WATER SUPPLY										
Reclaimed water main extension to Indian Trails Sports complex	Add distribution of reuse water	City of Palm Coast	UCPF	$1,000,000					$1,000,000	2018
Aquifer Storage and Recovery Investigation and Land Acquisition		City of Palm Coast	UCPF			$750,000		$100,000	$850,000	2022
Wastewater Treatment Plant No. 2 (WWTP #2) Expansion – Planning and Engineering	Develop additional reuse water	City of Palm Coast	UCPF					$500,000	$500,000	

[1]Funding Source Acronym Definitions:
UCPF = Utility Capital Projects Fund

Table 5.2 – Long Term Work Plan (FY 2023 - 2035)*

Project Name	Purpose of Project	Responsible Party	Funding Source	Estimated Cost	Project Development Phase Timing			
					Planning	Engineering/ Design	Permitting	Construction
TRADITIONAL WATER SUPPLY COMPONENT								
WTP No. 3 Plant Expansion	Increase the treatment capacity from 3.0 MGD to 6.0 MGD; increase the storage capacity and the higher service pumping capacity and other process equipment	City of Palm Coast	TBD[1]	$4,500,000	2022	2023	2023	2024
North and South Wellfield Property Acquisition	Provide additional well-sites for capacity development	City of Palm Coast	TBD	$2,000,000	2023			
Well Construction Replacements	Maintain adequate and sustainable water supply	City of Palm Coast	UCPF	$2,500,000				
REUSE WATER COMPONENT								
WWTP No. 2 Reuse for Aquifer Recharge – Non Potable Reuse	Mitigate freshwater withdrawal impacts on wetlands	City of Palm Coast	TBD	$1,700,000	2023	2023	2024	2025
Expand Reuse Transmission to Developments of Regional Impact to the West	Distribution of additional reuse water for irrigation and aquifer recharge	City of Palm Coast	TBD	TBD	2023	TBD	TBD	TBD
Expand WWTP No. 2 to 4.0 MGD	Allow for additional advanced treated wastewater for reuse	City of Palm Coast	TBD	$13,500,000	2022	2022	2022	2023
ALTERNATIVE WATER SUPPLY COMPONENT								
Develop Brackish water supply	Increase raw water capacity	City of Palm Coast	TBD	$4,500,000	2023	2024	2025	2025-2030
WTP No. 3 Plant Expansion	Add 3.0 MGD of brackish source treatment capacity	City of Palm Coast	TBD	$4,500,000	2023	2024	2025	2025-2035

*Additional improvements to the water distribution system will be needed depending on the completion of the system hydraulic modeling.
[1]TBD: Funding source to be determined upon completion of future financial feasibility study

CHAPTER 6
CONSERVATION AND COASTAL MANAGEMENT ELEMENT

***

Policy 6.1.1.5 - The City shall support FDEP in its implementation and enforcement of the State and Federal air pollution laws, rules and regulations by placing conditions, where appropriate, on applicable development approvals, in accordance with law, to require developers to consult the FDEP on methods to control fugitive emission.

FINDING: ***Groundwater resource supply protection is becoming increasingly important because of growth and in development patterns within the City. With increased development comes the potential for increased contamination, which may threaten the drinking water quality.***

Groundwater from the Floridan and Confined surficial aquifer systems is currently the sole source of drinking water available to the residents and businesses. Flagler County, including the City, is identified by the St. Johns River Water Management District (SJRWMD) as a "Priority Water Resource Caution Area" (PWRCA) which means that

> ***"existing and reasonably anticipated sources of water may not be adequate to supply water for all existing legal uses and anticipated future needs while sustaining water resources and related natural systems".***

The City finds that it has legal rights that have vested in the City and which predate and have priority over other water users. The City has invested considerable time and resources to attain prior legal right status.

As the City continues to grow rapidly, traditional sources of water may be limited in the future. Development of alternative water supplies, expansion of reuse systems, conservation efforts, wellhead protection, and other water resource management strategies are critical to meeting future water demand needs.

***

Policy 6.1.2.4 – The City shall encourage SJRWMD, FDEP, and other applicable regulatory agencies to pursue additional groundwater monitoring studies on the quality of the Confined surficial and Floridan water resources within the City**.**

***

Policy 6.1.4.2 – The City shall continue to ~~participate in the Coquina Coast Cooperators and continue to investigate and develop a seawater desalination project, either land or sea~~

~~based~~develop reuse alternatives for treated wastewater and investigate the use of the stormwater collection and storage system as a source for aquifer recharge.

CHAPTER 7
INTERGOVERNMENTAL COORDINATION ELEMENT

***

In June 2008, the City entered into a Memorandum of Agreement to become part of the Coquina Coast Seawater Desalination Project. This multi-jurisdictional effort will analyze the feasibility of a desalination plant in order to use seawater as a long-range water supply source. The investigation of providing for a regional solution to fresh water shortages by desalination of seawater was concluded in 2010. Of the original 11 cooperators only 2 existed in 2010, being Palm Coast and Lake County. While it was determined that a land based facility was more economically feasible than a sea based vessel, it was also determined that the project was not financially supportable at this time due to the slowdown in regional growth. It was finally determined that all other fresh or brackish groundwater sources should be exhausted before pursuing a seawater conversion solution in the future. The City is located within the North Florida Regional Water Supply Plan (NFRWSP) planning area. The NFRWSP identifies solutions, including alternative water supply, water conservation and other potential project options to meet the current and future water use needs of the region.

***

Policy 7.1.3.5 – The City shall continue to participate with other local governments and utilities as part of the North Florida Regional Water Supply Plan ~~Coquina Coast Seawater Desalination Project~~ to develop ~~a desalination as a regional~~ alternative water supply sources, water reuse, and conservation projects.

Policy 7.1.3.6 – The City shall coordinate and cooperate with local governments and other entities to which the City provides potable water service by taking actions which include, but are not limited to, the following:

A. Coordinate water demand projections for those areas to which the City provides potable water service.
B. When requested, provide technical data and analysis related to water supply availability for Future Land Use Map Amendments, Rezonings, and other development approvals in those areas to which the City provides potable water service.
C. Continue to implement the numerous interlocal agreements between the City and other local governments and entities.
D. If necessary, develop intergovernmental agreements to address water supply concurrency requirements for those areas to which the City provides potable water service.
E. ~~Continue to investigate regional water supply solutions, including the Coquina Coast Seawater Desalination Project, with other local governments and entities.~~

F. Continue to share technical data and analysis with State, regional, and other local governments and entities to maximize efficient water use and conservation and minimize public expenditures.

CHAPTER 8
CAPITAL IMPROVEMENTS ELEMENT

***

Policy 8.1.1.2 - The Capital Improvements Element shall concentrate on the first five (5) years of capital needs, shall be financially feasible and shall be reviewed and updated annually by ~~December~~ October 1. (See 5-year Capital Improvements Program for the schedules of improvements for each facility element in **Exhibit 8.2, Exhibit 8.3, and Exhibit 8.4**).

Policy 8.1.1.3 - The Capital Improvements Element includes, by reference, the Flagler County School District ~~2014~~2017-201~~8~~5 Work Plan, adopted on September 1~~9~~6, ~~2014~~ 2017 by the Flagler County School Board

***

Policy 8.1.2.3 – The CIP shall be updated annually, by ~~December~~ October 1, to reflect the adopted budget and include those projects identified in the first five years of the Water Supply Facilities Work Plan.

ORDINANCE NO. 2018-___
COMPREHENSIVE PLAN AMENDMENTS TO UPDATE THE WATER SUPPLY FACILITIES WORK PLAN

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF PALM COAST, FLORIDA, PROVIDING FOR THE AMENDMENTOF THE CITY OF PALM COAST 2035 COMPREHENSIVE PLAN, AS PREVIOUSLY AMENDED, PURSUANT TO CHAPTER 163, FLORIDA STATUTES; AMENDING THE INFRASTRUCTURE, CONSERVATION AND COASTAL MANAGEMENT, INTERGOVERNMENTAL COORDINATION, AND CAPITAL IMPROVEMENTS ELEMENTS IN ORDER TO MEET STATUTORY REQUIREMENTS RELATED TO WATER SUPPLY FACILITIES PLANNING; PROVIDING FOR CONFLICTS, RATIFICATION OF PRIOR ACTS, CODIFICATION, SEVERABILITY, AND AN EFFECTIVE DATE

WHEREAS, the City Council of the City of Palm Coast enacted Ordinance 2010-07, adopting the *City of Palm Coast 2035 Comprehensive Plan;* and

WHEREAS, Section 163.3161 et seq., Florida Statutes established the Community Planning Act; and

WHEREAS, Section 163.3184, Florida Statutes, establishes a process for adoption of comprehensive plans or plan amendments; and

WHEREAS, the Legislature has established a coordinated planning process between regional water supply plans prepared by the water management districts pursuant to Chapter 373, Florida Statutes (F.S.), and comprehensive plans prepared by local governments pursuant to Chapter 163, Part II, F.S.; and

WHEREAS, under these laws, local governments must address in their comprehensive plans the water supply sources necessary to meet and achieve existing and projected water use demand for the established planning period, considering the applicable regional water supply plan prepared pursuant Section 373.709, F.S.; and

WHEREAS, Section 163.3177(6)(c)3, F.S., requires local governments within areas projected to have insufficient supplies of water from traditional sources to amend the comprehensive plan: (1) to incorporate the alternative water supply project or projects selected by the local government from those identified in the regional water supply plan pursuant to s. 373.709(2)(a) or proposed by the local government under s. 373.709(8)(b); and (2) to adopt a work plan, covering at least a 10-year planning period, for building public, private, and regional water supply facilities, including the development of alternative water supply projects and conservation and reuse, which are necessary to serve existing and new development.

WHEREAS, the work plan must be updated within 18 months after the water management district updates the regional water supply plan; and

WHEREAS, the regional water supply plan was updated on January 2017; and

WHEREAS, the City of Palm Coast Planning and Land Development Regulation Board (PLDRB) acting as the City's Local Planning Agency, considered the proposed comprehensive plan amendments at a public hearing on January 17, 2018 and voted to recommend approval of the proposed Comprehensive Plan Amendment; and

WHEREAS, on _____ and _____, 2018 the City of Palm Coast City Council held public hearings on this Comprehensive Plan amendment after due public notice and upon thorough and complete consideration and deliberation, adopted the proposed Comprehensive Plan amendment; and

WHEREAS, the Comprehensive Plan amendments adopted by this Ordinance complies with the requirements of the Community Planning Act, the State Comprehensive Plan as set forth in Chapter 187, Florida Statutes, as well as other applicable law, and is consistent with the goals, objectives, and policies and the overall land use plan of the City's *Comprehensive Plan*; and

WHEREAS, the City Council of the City of Palm Coast hereby reaffirms its commitment to the goal of enacting and implementing sound growth management practices within the City; and

WHEREAS, the City Council of the City of Palm Coast finds that this Ordinance is in the best interests of the health, safety, and welfare of the citizens of Palm Coast.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF PALM COAST, FLORIDA, THAT THE CITY'S COMPREHENSIVE PLAN IS AMENDED AS FOLLOWS:

SECTION 1. LEGISLATIVE AND ADMINISTRATIVE FINDINGS.

(a). The above recitals (whereas clauses) are hereby adopted as the legislative and administrative findings of the City Council of the City of Palm Coast.

(b). The City Council of the City of Palm Coast hereby adopts and incorporates into this Ordinance the City staff report and City Council agenda memorandum relating to the proposed amendment to the *Comprehensive Plan of the City of Palm Coast*. The exhibits to this Ordinance are hereby incorporated as if fully set forth herein verbatim.

(c). The City of Palm Coast has complied with all requirements and procedures of Florida law in processing and advertising this Ordinance.

(d). This Ordinance is internally consistent with the goals, objectives and policies of the *Comprehensive Plan of the City of Palm Coast*.

SECTION 2. INFRASTRUCTURE ELEMENT AMENDED. Amending the goals, objectives, policies, exhibits, and maps of the Infrastructure Element as indicated in "Exhibit A" which Exhibit is incorporated herein by this reference thereto as if fully set forth herein verbatim.

SECTION 3. CONSERVATION AND COASTAL MANAGEMENT ELEMENT AMENDED. Amending the goals, objectives, and policies of the Conservation and Coastal Management Element as indicated in "Exhibit B" which Exhibit is incorporated herein by this reference thereto as if fully set forth herein verbatim.

SECTION 4. INTERGOVERNMENTAL COORDINATION ELEMENT AMENDED. Amending the goals, objectives, and policies of the Intergovernmental Coordination Element as indicated in "Exhibit C" which Exhibit is incorporated herein by this reference thereto as if fully set forth herein verbatim.

SECTION 5. CAPITAL IMPROVEMENTS ELEMENT AMENDED. Amending the goals, objectives, and policies of the Capital Improvements Element as indicated in "Exhibit D" which Exhibit is incorporated herein by this reference thereto as if fully set forth herein verbatim.

SECTION 6. CONFLICTS/RATIFICATION OF PRIOR ACTIONS. All ordinances or parts of ordinances in conflict herewith are hereby repealed.

SECTION 7. CODIFICATION/INSTRUCTIONS TO CODE CODIFIER.
Upon the effective date of the Comprehensive Plan Amendment adopted by this Ordinance, said Amendment shall be incorporated into the City of Palm Cost Comprehensive Plan and any section or paragraph number or letter and any heading may be changed or modified as necessary to effectuate the foregoing.

SECTION 8. SEVERABILITY. If any section, subsection, sentence, clause, phrase or provision of this Ordinance is held to be unconstitutional or otherwise invalid by a court of competent jurisdiction, such unconstitutionality or invalidity shall not be construed as to render unconstitutional or invalid the remaining provision of the Ordinance.

SECTION 9. EFFECTIVE DATE. The effective date of this plan amendment, if the amendment is not timely challenged, shall be 31 days after the state land planning agency notifies the local government that the plan amendment package is complete. If timely challenged, this amendment shall become effective on the date the state land planning agency or the Administration Commission enters a final order determining this adopted amendment to be in compliance. No development orders, development permits, or land uses dependent on this amendment may be issued or commence before it has become effective. If a final order of noncompliance is issued by the Administration Commission, this amendment may nevertheless be made effective by adoption of a resolution affirming its effective status, a copy of which resolution shall be sent to the state land planning agency.

APPROVED on first reading after due public notice and public hearing the ____ day of July 2018.

ADOPTED on second reading after due public notice and public hearing the _____ day of _____ 2018

CITY OF PALM COAST, FLORIDA

_____
Milissa Holland, Mayor

ATTEST:

_____
Virginia Smith, City Clerk

Attachments:
1. Exhibit A – Infrastructure Element Amended
2. Exhibit B – Conservation and Coastal Management Element Amended
3. Exhibit C – Intergovernmental Coordination Element Amended
4. Exhibit D – Capital Improvements Element Amended

CITY OF PALM COAST
WATER SUPPLY FACILITIES
WORK PLAN Data and Analysis

November 2017

Prepared by:
City of Palm Coast
Division of Construction Management & Engineering
and
Department of Utilities

City Hall
160 Lake Avenue
Palm Coast, FL 32164

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1.0 INTRODUCTION AND STATUTORY REQUIREMENTS

In the St. Johns River Water Management District and three other water management districts, traditional water supply sources will not be sufficient to meet demands of the growing population and the needs of the environment, agriculture and industry. In response to this water supply issue, the Florida Legislature enacted bills in 2002, 2004, 2005, and 2011 sessions to more effectively address the state's water supply situation by improving the coordination between local land use planning and water supply planning.

The purpose of the Palm Coast Water Supply Facilities Work Plan (Work Plan) is to identify and plan for the water supply sources and facilities needed to serve existing and new development within the local government's jurisdiction. Chapter 163, Part II, Florida Statutes (F.S.), requires local governments to prepare and adopt Work Plans into their comprehensive plans within 18 months after the Water Management District (District) approves a regional water supply plan or its update. The North Regional Supply Plan was approved in January 2017 and the District requires that the City submit the updated WSFWP by July 12, 2018.

Palm Coast has considered the following statutory provisions when updating the Water Supply Facilities Work Plan (Work Plan):

1. Coordinate all aspects of its comprehensive plan with the appropriate water management district's regional water supply plan. [163.3177(4)(a), F.S.]
2. Ensure that its future land use plan is based upon the availability of adequate water supplies and public facilities and services. [s. 163.3177(6)(a), F.S.]
3. Ensure that adequate water supplies and facilities are available to serve new development no later than the date on which the local government anticipates issuing a certificate of occupancy and consult with the applicable water supplier prior to approving a building permit, to determine whether adequate water supplies will be available to serve the development by the anticipated issuance date of the certificate of occupancy. [s. 163.3180(2)(a), F.S.]
4. Revise the Infrastructure Element within 18 months after the water management district approves an updated regional water supply plan, to:
    a. Identify and incorporate alternative water supply projects identified in the updated regional water supply plan, or the alternative project proposed by the local government under s. 373.0361(7), F.S. [s. 163.3177(6)(c), F.S.]
    b. Identify the traditional and alternative water supply projects and the conservation and reuse programs necessary to meet current and future water use demands within the local government's jurisdiction. [s. 163.3177(6)(c), F.S.]

c. Update the water supply facilities work plan for at least a 10-year planning period for construction of public, private, and regional water supply facilities, which are identified in the element as necessary to serve existing and new development. [s. 163.3177(6)(c), F.S.]

5. Revise the Five-Year Schedule of Capital Improvements to include water supply, reuse, and conservation projects and programs to be implemented during the five-year period [s. 163.3177(3)(a)4, F.S.].

6. Revise the Conservation Element to ensure that projected water needs and sources are for at least a 10-year planning period, considering the appropriate regional water supply plan(s) or, in the absence of an approved regional water supply plan, the applicable district water management plan. [s. 163.3177(6)(d), F.S.]

7. Revise the Intergovernmental Coordination Element to ensure coordination of the comprehensive plan with the applicable regional water supply plans and regional water supply authorities. [s. 163.3177(6)(h)(1), F.S.]

8. Address in its Evaluation and Appraisal Report (EAR) the extent to which the local government has implemented the 10-year water supply facilities work plan, including the development of alternative water supplies, and determine whether the identified alternative water supply projects, traditional water supply projects, and conservation and reuse programs are meeting the local water use demands.

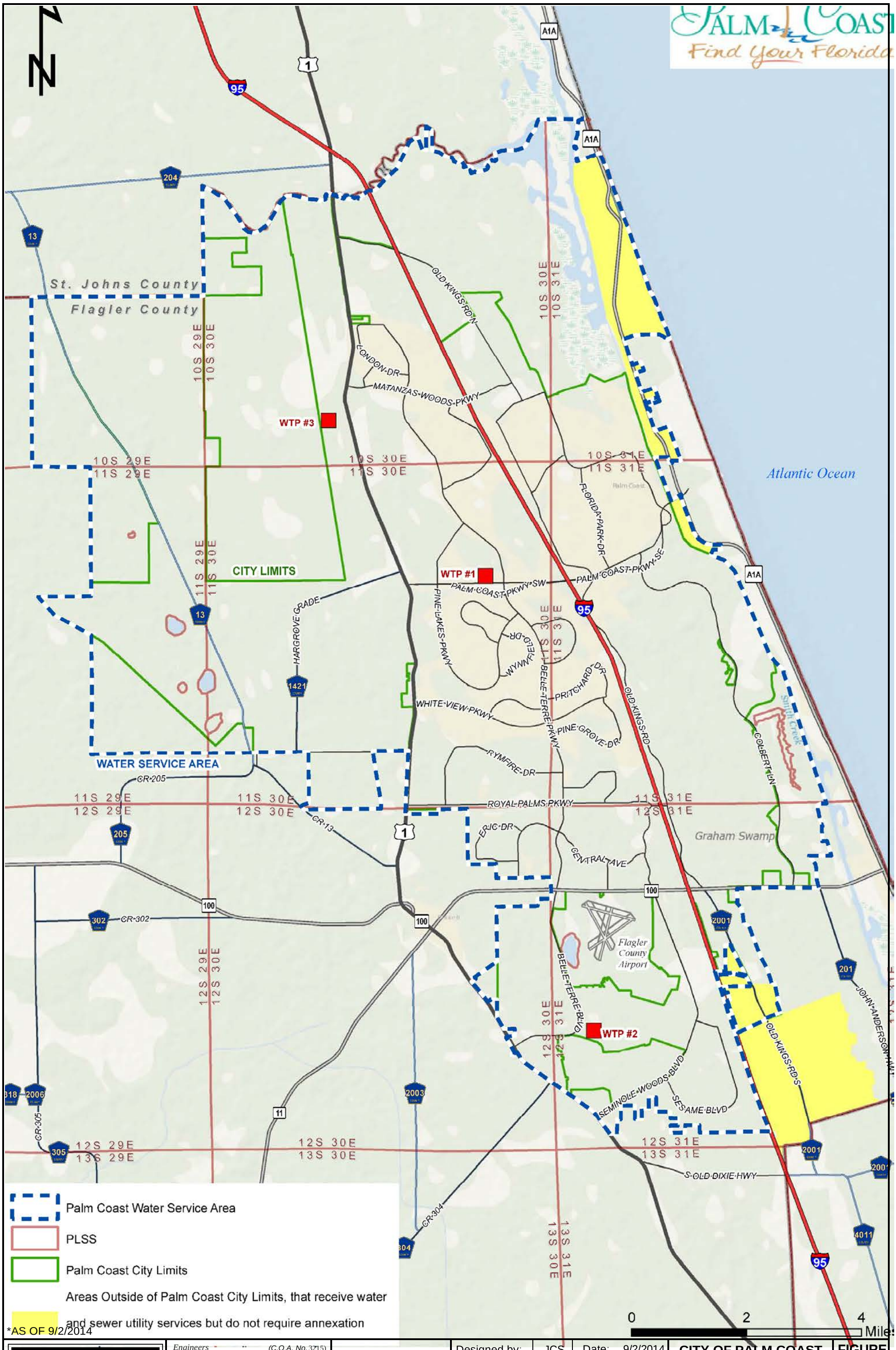
2.0 SERVICE AREA

The City of Palm Coast is located in Flagler County, Florida. The City is located in Northeast Florida along the coast of the Atlantic Ocean. The City owns and operates the Palm Coast water system which includes three (3) water treatment plants. The WTPs are interconnected and supply water to the distribution system located within the water system service area. The water system service area includes all areas within the City limits and includes areas located outside the City limits. The Palm Coast water service area is presented in **Figure 1**. The water service area is comprised of residential and commercial customers.

Flagler County Utilities (FCU) is a consecutive water system of the City's water system. FCU serves the Beverly Beach area located on the beach side north of the City of Flagler Beach by purchasing the water from the City. FCU also has an agreement in place with the City to serve the Eagle Lakes development in the future.

Marineland water system is now also a consecutive system of the City's water system. The City supplies water to Marineland by a 2" connection to the City's north end of the distribution system.

The City also has emergency interconnect agreements to provide water to the City of Bunnell, City of Flagler Beach and the Dunes Community Development District (Dunes CDD, also known as Hammock Dunes).



*AS OF 9/2/2014

cph

Engineers (C.O.A. No. 3215)
Architects (Lie. No. AA2600926)
Surveyors (L.B. No. 7143)
Landscape Arch. (Li e. No. LC0000298)
Planners
Environmental Scientists
Construction M anagem ent
Traffic I Transportation

520 Palm Coast Parkway SW
Palm Coast, Fl. 32137
Phone: 386.445.6569
Fax: 386.447.8991

Designed by:	JCS	Date: 9/2/2014	CITY OF PALM COAST WATER SERVICE AREA
Drawn by:	JCS	Job No. P61212	
Checked by:	ARB	Scale: 1" = 8000'	CITY OF PALM COAST
Approved by:	ARB	File: WS Area	PALM COAST, FLAGLER COUNTY, FLORIDA

Certificate of Authorization No. 3215

FIGURE 1

@ 2014

3.0 PERMITS

The City of Palm Coast is permitted by the Florida Department of Environmental Protection (FDEP) under Public Water System (PWS) identification number 2180863. A summary of each of the three (3) water treatment plants and PWS permit numbers are presented in **Table 1**.

Table 1: Palm Coast WTP Permits.

Name	Treatment Technology	Permitted Capacity	FDEP PWS ID No.
WTP No. 1	Lime Softening	6.0 MGD	2180863-01
WTP No. 2	Membrane Softening	7.584 MGD	2180863-02
WTP No. 3	Low Pressure Reverse Osmosis	3.0 MGD	2180863-03
Total		16.584 MGD	

Palm Coast has a St. Johns River Water Management District (SJRWMD) Consumptive Use Permit (CUP) for the withdrawal of groundwater. SJRWMD issued the City of Palm Coast a twenty-year CUP No. 1947 which will expire on August 9, 2031. The current CUP allows the City to use an annual average of 11.023 MGD (4.150 MGD from the Floridan aquifer and 6.875 MGD from the confined surficial aquifer) in 2017 through permit expiration for public supply use.

The construction permit for the WTP #2 Zero Liquid Discharge (ZLD) treatment process was issued in June of 2012. Construction of the facility was completed with startup and performance testing accepted with a Letter of Clearance issued by the FLDEP in early 2017. The ZLD is used to process the concentrate discharge from the membrane filtration system, so that it may be recovered and processed as drinking water.

WTP No.3 operates the concentrate disposal system by the Industrial Wastewater permit (FL0454451). The permit allows the City to dispose of the concentrate by three options in the following priority order:

1. Blending with raw water and treated to drinking water at the City's lime softening water treatment plant (WTP No.1);
2. Blending with reclaimed water and used for residential and golf courses irrigation;
3. Discharging to Intra-Coastal Waterway.

4.0 EXISTING WATER SYSTEM

As previously indicated the three City of Palm Coast water treatment plants have a total permitted capacity of 16.584 MGD. The three water treatment plants supply water to the distribution system which includes two (2) elevated storage tanks with capacities of 0.75 MG and 0.4 MG. The City provides fire protection to the water service area for a 1,500 gpm fire demand for four (4) consecutive hours.

4.1 Water Treatment Plant No. 1

WTP No. 1 is classified as a conventional lime softening and filtration plant, and has a permitted capacity of 6.0 MGD. Ground water to the plant is supplied by thirty-one (31)

surficial aquifer water wells. The plant consists of four (4) treatment processes, four (4) transfer pumps, two (2) ground storage tanks, and six (6) high service pumps. A flow schematic for the WTP No. 1 is presented in **Figure 2**. Equipment information for WTP No. 1 is described below and is tabulated in **Appendix A**.

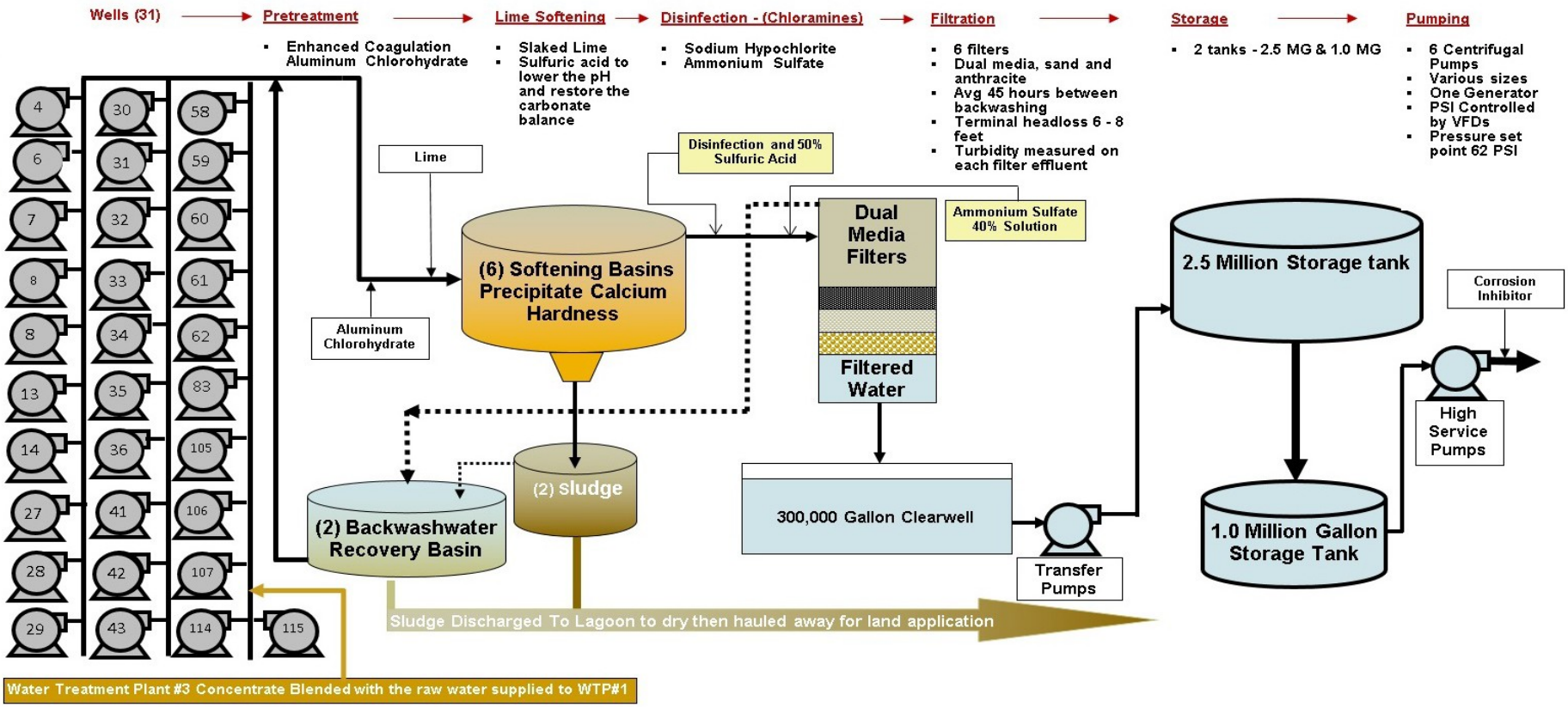


Figure 2: WTP No. 1 Flow Schematic.

4.1.1 Raw Water Wells

The thirty-one (31) shallow gravel packed wells pump the ground water from the confined surficial aquifer to the plant. Pumping rates from each well are measured once a month as part of the Raw Water Monitoring (RWM) Program. The monthly RWM well pumping rates are presented in **Appendix B**. The wells for the WTP No. 1 have been averaged to determine the current combined production. The combined production of the WTP No. 1 well field is 4.93 MGD (3,425 gpm). With the largest well out of service, the current combined production is 4.44 MGD (3,085 gpm). Seventeen (17) of the thirty-one (31) wells have auxiliary power. These seventeen (17) wells have a current combined production of 3.54 MGD (2,455gpm).

WTP No. 1 also receives concentrate from the WTP No. 3 as raw water. The concentrate is blended with the WTP No. 1 raw water and treated through the WTP No. 1 lime softening/filtration treatment process. A concentrate pre-treatment system using ozone treatment to reduce the color of the concentrate has been installed at the WTP No. 3 site. The WTP No. 1 receives 260-520 gpm of pre-treated concentrate.

4.1.2 Water Treatment

There are four (4) treatment processes at the WTP No. 1 which include lime softening, disinfection, dual media filtration, and corrosion control. The lime softening process is performed in six (6) softening basins, each rated for 1.0 MGD. The lime softening process includes chemical application of calcium hydroxide (lime slurry) to convert the dissolved hardness causing minerals, specifically calcium and magnesium to precipitate. Aluminum chlorohydrate is added to the raw water as a coagulant, by a 1.0 gal/hr pump from a 2,500 gallon storage tank. Chemical dosages are based on influent water quality. Calcium oxide is stored in three (3) 140,000 pound capacity lime silos for a total capacity of 420,000 pounds. Three (3) 1,000 lbs/hr lime slakers convert the calcium oxide to calcium hydroxide (lime slurry).

WTP No.1 generates approximately 6,000 ~ 7,500 cubic yard of lime sludge per year. The sludge is conveyed to a sludge thickener and then to an on-site sludge lagoon. The lime sludge is periodically removed from the lagoon by a hauling company under contract with the City. Due to the increasing cost of lime sludge disposal, the City is continuing to evaluate cost effective sludge disposal options.

Between the softening and filtration processes, ammonium sulfate (ammonia) and sodium hypochlorite (chlorine) are added to the water to form chloramines. The chloramines are used to disinfect the water. Ammonia is stored in two (2) 1,550 gallon tanks for a total of 3,100 gallons of storage. Ammonia is fed by two (2) pumps each with a capacity of 7.1 gph. Chlorine is stored in four (4) 1,900 gallon tanks for a total storage volume of 7,600 gallons. Each of the five (5) chlorine pumps is rated at 20 gph. Two (2) of the chlorine pumps inject chlorine just after the ammonia addition point to form chloramines. The other three (3) chlorine pumps are used for supplemental chlorination at the WTP,

primarily for the additional chlorine required during free chlorine maintenance procedures of the distribution system.

Prior to filtration, sulfuric acid is added to the water to reduce the pH and the scaling potential in the filters thereby improving filtration. Sulfuric acid is stored in three (3) 500 gallon double-walled tanks for a total of 1,500 gallons of storage. Sulfuric acid is fed by two (2) pumps each with a capacity of 2.9 gph. Following acid addition, dual media filtration is used for suspended solids removal. There are six (6) dual media filters, each with a surface area of 175.5 square feet and a filtration rate of approximately 4 gpm/ft^2, for a total filtration capacity of 6.0 MGD. The dual media filters are comprised of 20-inches of anthracite, 9-inches of sand, and 9-inches of gravel.

The final treatment process involves chemical addition to inhibit corrosion in the distribution system. Poly-orthophosphate is stored in a 1,000 gallon tank, and is added as the corrosion inhibitor by a pump with a capacity of 0.58 gph.

It should also be noted that a Contact Time evaluation was performed for the WTP No. 1 which documented that the inactivation of viruses was in excess of the four-log inactivation requirement. This level of inactivation is compliant with the Groundwater Rule.

4.1.3 Transfer Pumping

WTP No. 1 has four (4) constant speed transfer pumps, two (2) pumps each with 1,400 gpm capacity and two (2) pumps each with 2,800 gpm capacity, to convey treated water from the clearwells to the ground storage tanks. The total transfer pumping capacity with the largest pump out of service is 5,600 gpm (8.06 MGD).

4.1.4 Storage

WTP No. 1 has two (2) ground storage tanks with volumes of 2.5 MG and 1.0 MG each. This volume of storage meets the DEP requirements for storage of finished water.

4.1.5 High Service Pumping

WTP No. 1 has a total of six (6) high service centrifugal pumps. Three (3) pumps each have a capacity of 1,000 gpm and three (3) pumps each have a capacity of 2,000 gpm. The three (3) 2,000 gpm pumps have variable frequency drives (VFDs). The total high service rated pumping capacity with the largest pump out of service is 7,000 gpm (10.08 MGD). High service pumping information for WTP No. 1 is presented in **Table 2**.

Table 2: WTP No. 1 High Service Pumps.

Pump No.	Maker	Motor (HP)	Nameplate Capacity (gpm)
1	Crane	60	1,000
2	Crane	60	1,000
3	Crane	60	1,000
4	Crane	125	2,000
5	Crane	125	2,000
6	Crane	125	2,000
		Total	9,000
		With Largest Pump Out of Service	7,000

4.1.6 Standby Power

Standby power at WTP No. 1 is provided by a 600 kW generator with an automatic transfer switch. Diesel fuel for the generator is stored in a 6,000-gallon double wall underground tank. The generator is designed to provide 100% of the electrical demands of the WTP No. 1.

4.1.7 Limiting Components

The limiting components of a water treatment plant or water system are the components that limit the amount of water that can be treated or provided to the system. Limiting components can either be raw water sources, treatment processes, storage, piping, or high service pumps. These treatment plant components can limit the amount of treated water that can be conveyed to the distribution system at maximum or peak water demand times.

All the major components of WTP No. 1 are presented in **Table 3.** As presented, the raw water production is the limiting components of the WTP No. 1. Well yield may decrease with use of the well, and the City has a program to periodically rehabilitate wells.

Table 3: WTP No. 1 Major Components Capacity.

Component	Capacity
Raw Water[1]	5.19 MGD
Lime Softening	6.0 MGD
Filtration	6.0 MGD
Transfer Pumping[2]	8.06 MGD
Storage[3]	3.5 MG
High Service Pumping[4]	10.08 MGD

[1]Current average production with the largest well out of service of 4.44 MGD and a concentrate flow of 0.75 MGD from WTP No. 3.

[2]Nameplate capacity with the largest out of service

[3]Not including clearwell or elevated storage

[4]Nameplate capacity with the largest out of service

4.2 Water Treatment Plant No. 2

WTP No. 2 utilizes a nano-filtration (membrane softening) process to treat the raw water. WTP No. 2 has a permitted capacity of 7.584 MGD which includes 4.8 MGD Permeate, 1.584 MGD raw water bypass, and the recovered concentrate flow of 1.2 MGD through the zero liquid discharge (ZLD) lime/soda ash softening/ultrafiltration process. The plant contains eight (8) upper Floridan aquifer wells, four (4) membrane softening skids, three (3) transfer pumps, one (1) storage facility and six (6) high service pumps. The plant is permitted to bypass raw water (1.584 MGD) up to 33% of the permeate flow of 4.8 MGD. A flow schematic for WTP No. 2 is presented in **Figure 3**. Equipment information for WTP No. 2 is described below and is tabulated in **Appendix A**.

4.2.1 Raw Water Wells

The raw water sources for WTP No. 2 are eight (8) limestone wells from the upper Floridan aquifer. The City monitors pumping rates from each well as part of their Raw Water Monitoring (RWM) Program. Monthly RWM pumping rates presented in **Appendix B**. The wells for WTP No. 2 have been averaged to determine the current combined production. The combined production may be more or less than the actual amount of water that can be supplied to the WTP. The current combined production of WTP No. 2 wellfield is 4.61 MGD (3,200 gpm). With the largest well out of service, the current combined production is 3.53 MGD (2,450 gpm). Five (5) of the wells have auxiliary power. These five (5) wells have a current combined production of 2.88 MGD (2,000 gpm). The CUP allocation for the upper Floridan aquifer is only 4.150 MGD. Five (5) additional production wells were completed and placed into service in 2017. The purpose of the new wells is to distribute the pumping load on the aquifer in order to improve water quality, without increasing overall production or CUP allocation. Four of the five new wells has a capacity of 350 gpm and one has 200 gpm for a total of 1600 gpm or 2.31 mgd. This brings the total wellfield capacity to 6.92 mgd.

4.2.2 Water Treatment

There are five (5) treatment processes for permeate treatment at WTP No. 2 which include pre-treatment, membrane softening, aeration, disinfection, and corrosion control. Pre-treatment includes one (1) sand separator and addition of anti-scalant to extend the life of the membranes. Anti-scalant is stored in 55 gallon drums (up to 10 drums) and a 30 gallon day tank and is fed by three (3) pumps each rated at 0.39 gph. Four (4) 980 gpm variable speed high pressure membrane feed pumps boost the influent feed pressure to the membrane treatment units. An installed spare feed pump is also available and can be operated manually in the event that one of the feed pumps malfunctions. Four (4) membrane booster pumps each with a rated capacity of 450 gpm increase influent feed pressure to the second stage of the membrane treatment units.

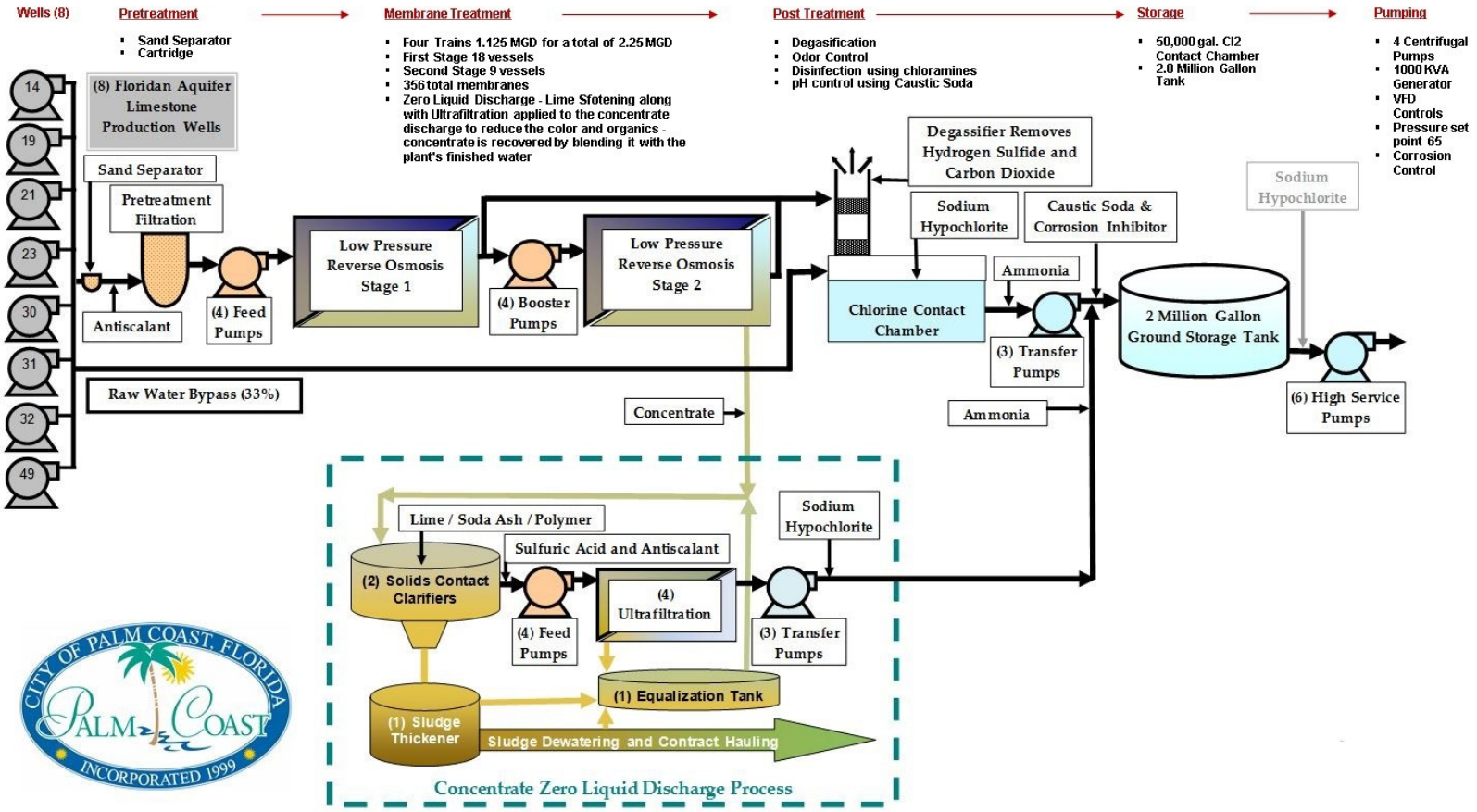


Figure 3: WTP No. 2 Flow Schematic.

There are four (4) membrane treatment trains, each with a permeate production capacity of 1.2 MGD for a total of 4.8 MGD. Membrane treatment is accomplished in two-stages. Each train consists of 18 vessels in the first stage and 9 vessels in the second stage for a total of 27 vessels. Each vessel contains 7 membrane elements for a total of 189 membranes per train or a total of 756 membranes for the four trains. The membranes are Hydranautics ESPA -4LD and each have a surface area of 400 ft^2.

The permeate from the membrane treatment is then treated by aeration for removal of hydrogen sulfide and carbon dioxide. Two (2) packed tower aerators, each with a capacity of 2.4 MGD, have the ability to degasify the entire permitted permeate flow of 4.8 MGD.

After the permeate exits the aerators it enters the clearwell where it is blended with the raw water bypass flow (up to 33% of the permeate flow). The blended water is then disinfected with the addition of sodium hypochlorite (chlorine) and ammonium sulfate (ammonia) which form chloramines. Sodium Hypochlorite is stored in three (3) 2,550 gallon tanks. There are three (3) hypochlorite feeders: two (2) each rated at 20.0 gph and one (1) rated at 8.5 gph for a total of 48.5 gph. The 8.5 gph chlorine feeder provides supplemental chlorination at the WTP, primarily for the additional chlorine required during free chlorine burnouts of the distribution system. Ammonia sulfate is stored in two (2) 2,000 gallon tanks.

The final treatment process involves chemical addition to inhibit corrosion in the distribution system. Caustic soda is used for pH stabilization and poly-orthophosphate is added for corrosion control. The alkalinity of the raw water bypass is also used to stabilize the degasified permeate. Caustic soda is stored in two (2) tanks with a total volume of 13,500 gallons and is fed by three (3) pumps each with a capacity of 11.6 gph. The corrosion inhibitor is stored in two (2) 300 gallon tanks for a total storage capacity of 600 gallons. Three (3) pumps each rated at 0.6 gph feed the corrosion inhibitor.

It should also be noted that a Contact Time evaluation was performed for WTP No. 2 which documented that the inactivation of viruses was in excess of the required four-log inactivation requirement. This level of inactivation is compliant with the Groundwater Rule.

4.2.3 Concentrate Recovery

The concentrate produced at WTP No. 2 is treated and recovered through the Zero Liquid Discharge (ZLD) process. The process recovers approximately 98.5% of the concentrate stream (1.5% of water captured in lime sludge). This process begins with organic removal of the concentrate stream by feeding Aluminum Chlorohydrate (ACH) as the first step in the ZLD process. ACH is stored in one (1) 4,050 gallon double walled contained tank and is fed with two (2) pumps, each with a capacity of 12.95 gph. The concentrate (ZLD) feed water then enters the lime softening process. The lime softening

process is performed in two (2) reactor basins, each rated for 0.9 MGD of flow. The lime softening process includes chemical application of calcium hydroxide (lime slurry) to convert the dissolved hardness causing minerals, specifically calcium and magnesium to undissolved suspended solids that will precipitate. The precipitates are removed from the bottom of the basin by two (2) 100 gpm progressive cavity pumps. An anionic polymer is fed into the basin to aid in settling of the flocculated particles. Calcium oxide is stored in three (3) 140,000 pound capacity lime silos. Two (2) 1,200 lbs/hr lime slakers convert the calcium oxide to calcium hydroxide (lime slurry). The anionic polymer is fed into the basin from a 265 gallon tote and dosed with a Prominent pump rated at 1.01 gallons per hour.

The softened (ZLD) water is then stabilized in the Ultra-Filtration (UF) Feed Tank with a 93% solution of sulfuric acid. A PAX mixer has also been installed inside the UF feed tank for blending purposes. The Sulfuric Acid is stored in two (2) Bulk storage tanks with a total volume of 15,000 gallons and then transferred into a 1,000 gallon day tank. Sulfuric is fed by three (3) pumps each with a capacity of 4.5 gph for stabilization. Sodium Hypochlorite is also fed by two (2) 7.75 gph pumps into the UF feed tank to aid in bacteria removal by producing chloramines by blending with existing ammonia in the ZLD water. The stabilized (ZLD) stream is then fed into the Ultra-Filtration (UF) process for suspended solids removal. The ZLD Ultra-filtration process utilizes dead end filtration through hollow fine fiber membranes and is fed by four (4) 340 gpm variable speed high pressure feed pumps that boost the influent feed pressure to the UF membrane treatment skids. The UF system consist of (4) skids, each with 24 UF modules (Pentair Aqua flex 55). The surface area of each membrane is 55 m^2. This equates to a total area of 56,828.60 square feet for all four (4) UF skids. The Ultra-filtration process achieves 2-log credit for filtration due to turbidity removal rates being less than 0.15ntu's after filtration.

The UF skids require a hydraulic cleaning every 30 minutes of operation and routine Cleaning Enhanced Backwashes (CEB) to restore permeability. The backwash pump system consist of two (2) 1,800 gpm pumps. Cleaning Enhanced Backwashed consist of Sulfuric Acid / Sodium Hydroxide / Sodium Hypochlorite cleanings). The Cleaning Enhanced Backwashes are performed after the 20^{th} hydraulic cleaning of each UF skid and can be adjusted if permeability is reduced. All spent backwash water is then delivered into a 90,000 gallon Equalization Tank and then returned to the beginning of the softening process. The bulk storage of each (CEB) cleaning chemical has been mentioned in other WTP No. 2 processes. Sulfuric Acid is fed into the (CEB) process by two (2) pumps each with a capacity of 20 gph for cleaning. Sodium Hydroxide is also fed into the (CEB) process by two (2) pumps each with a capacity of 20 gph for cleaning. Sodium Hypochlorite is also fed into the (CEB) process by two (2) pumps each with a capacity of 90 gph for cleaning.

The filtered ZLD water (Filtrate) is then disinfected with sodium hypochlorite. This is accomplished through the use of (2) 12.95 gph pump system. The ZLD filtrate disinfection process achieves 2-log credit for filtration due to maintaining a 0.5mg/l level of free chlorine at the mixing station to receive proper Contact Time. The ZLD filtrate is

then converted to a chloramine residual when it blends with the slightly increased ammoniated Nano-Filtration stream.

WTP No. 2 generates approximately 5,000 ~ 7,500 cubic yard of lime sludge per year. The sludge is conveyed to a sludge thickener (from the Lime softening process) and then pumped by three (3) 100 gpm rotary lobe pumps to the belt press process for dewatering. The dewatering process requires an anionic polymer to be fed for lime sludge conditioning. This is accomplished by a 265 gallon tote system and dosed with a LMI pump that utilizes a 2.5 gph pump system. Due to the increasing cost of lime sludge disposal, the City is continuing to evaluate cost effective sludge disposal options.

4.2.4 Transfer Pumping

WTP No. 2 has three (3) constant speed transfer pumps to convey water from the three-cell 125,400 gallon (41,800 gallons per cell) clearwell to the ground storage tank. Each transfer pump is rated for 2,250 gpm. With one of the pumps out of service the total transfer pumping capacity is 4,500 gpm (6.48 MGD).

WTP No. 2 Zero-Liquid Discharge process has three (3) constant speed transfer pumps to convey water from the two (2) 6,000 gallon filtrate tanks to the ground storage tank. Each transfer pump is rated for 625 gpm. With one of the pumps out of service the total transfer pumping capacity is 1250 gpm (1.8MGD).

4.2.5 Storage

WTP No. 2 has one (1) ground storage tank with a volume of 2.0 MG. A PAX mixing system is installed in the tank and placed in service in February 2014. The mixing system actively mixes the water in the ground storage tank allowing no stratification. This also will allow the water from the membrane treatment process and the water from the ZLD process to mix together and provide a more consistent water quality.

4.2.6 High Service Pumping

WTP No. 2 has a total of six (6) high service pumps, one (1) pump with a capacity of 700 gpm, two (2) pumps each with a capacity of 1,050 gpm and three (3) pumps each with a capacity of 2,000 gpm. The total high service pumping capacity with the largest pump out of service is 6,800 gpm (9.79 MGD). High service pumping information for WTP No. 2 is presented in **Table 4**.

Table 4: WTP No. 2 High Service Pumps.

Pump No.	Maker	Motor (HP)	Nameplate Capacity (gpm)
1	Worth	50	700
2	Worth	75	1,050
3	Worth	75	1,050
4	Worth	125	2,000
5&6	Worth	125	2,000 each

Total	8,800
With Largest Pump Out of Service	6,800

4.2.7 Standby Power

Standby power at WTP No. 2 is provided by a 600 kW and 800 kW generator, both with an automatic transfer switch. Diesel fuel for both generators is stored in an 8,000-gallon double walled underground fiberglass tank. The generators are designed to provide more than 50% of the electrical demands of WTP No. 2 including the ZLD process.

4.2.8 Limiting Components

The major treatment components of WTP No. 2 are presented in **Table 5**. As presented, the raw water supply is considered the limiting component of WTP No. 2. The raw water average production with the largest well out of service is 3.53 MGD which limits the amount of water that can be treated and distributed to the water system at the permitted maximum capacity of the WTP. Additional raw well construction is needed and has been planned to increase the raw water capacity of WTP No. 2.

Table 5: WTP No. 2 Major Components Capacity

Component	Capacity
Raw Water[1]	3.53 MGD
Membrane Softening	4.8 MGD
Aeration	4.8 MGD
ZLD	1.2 MGD
Total Treatment Capacity*	7.584 MGD
Transfer Pumping[2]	6.48 MGD
Storage[3]	2.0 MGD
High Service Pumping[4]	9.79 MGD
*Including 33% raw water bypass	
[1]Current average production with the largest well out of service	
[2]Nameplate capacity with the largest out of service	
[3]Not including clearwell or elevated storage	
[4]Nameplate capacity with the largest out of service	

4.3 Water Treatment Plant No. 3

WTP No. 3 utilizes low pressure reverse osmosis (LPRO) to treat water. WTP No. 3 has a permitted capacity of 3.0 MGD and contains twenty (20) source water wells, five (5) treatment processes, two (2) transfer pumps, one (1) storage facility and four (4) high service pumps. The plant is permitted to bypass raw water (0.75 MGD) up to 33.3% of the permeate flow of 2.25 MGD for a total plant production capacity of 3.0 MGD. A flow schematic for the WTP No. 3 is presented in **Figure 4**. Equipment information for WTP No. 3 is described below and tabulated in **Appendix A**. The WTP has been designed for a total future treatment capacity of 9.0 MGD (including 33.3% raw water bypass).

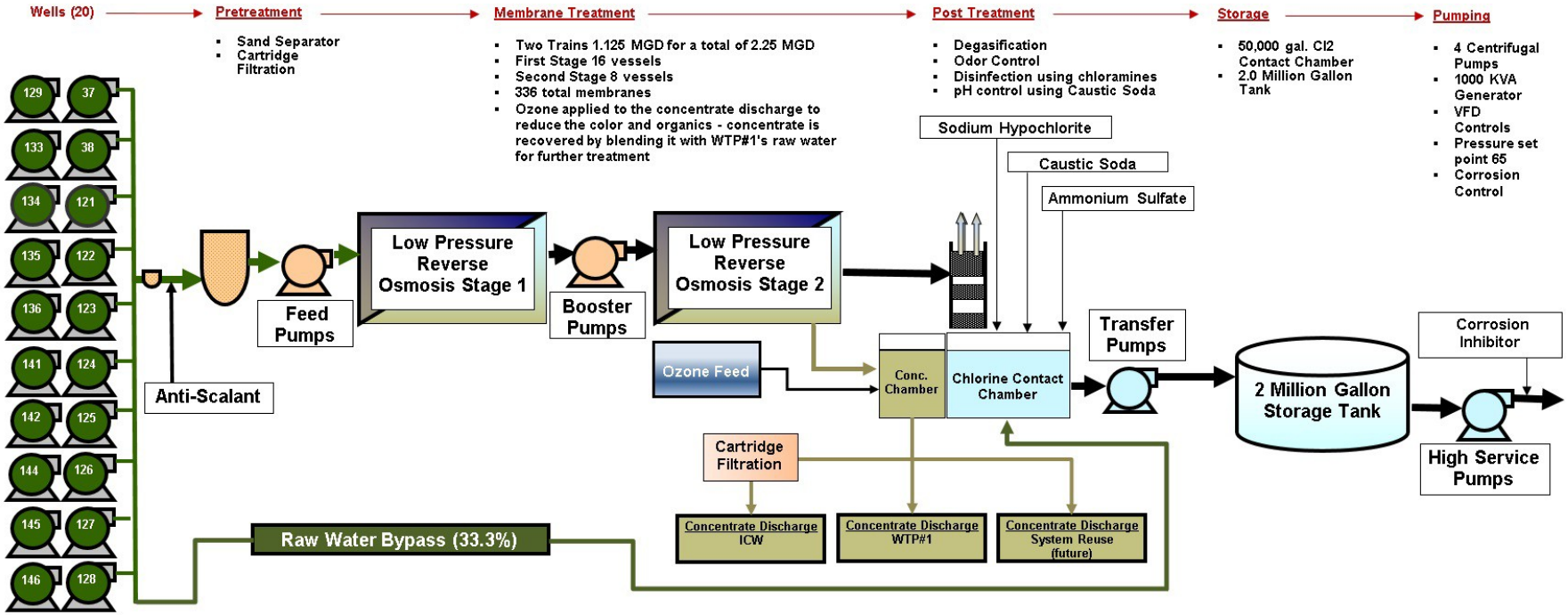


Figure 4: WTP No. 3 Flow Schematic.

4.3.1 Raw Water Wells

The raw water sources for the WTP No. 3 are twenty (20) shallow packed wells from the confined surficial aquifer, including the twelve (12) wells west of the railroad track completed in June 2013, the six (6) wells along the eastside of railroad track, and SW-37 and SW-38 from WTP No. 1. The City monitors pumping rates from each well as part of their Raw Water Monitoring (RWM) Program. Monthly RWM pumping rates are presented in **Appendix B**. The wells for WTP No. 3 have been averaged to determine the current combined production. The combined production may be more or less than the actual amount of water that can be supplied to the WTP. The current combined production of WTP No. 3 wellfield is 7.88 MGD (5,475 gpm). With the largest well out of service, the current combined production is 7.02 MGD (4,875 gpm). Ten (10) of the wells are equipped with auxiliary power. These ten (10) wells have a current combined production of 5.05 MGD (3,505 gpm).

4.3.2 Water Treatment

The five (5) treatment processes at WTP No. 3 include pre-treatment, low pressure reverse osmosis, degasification, disinfection, and corrosion control. Pre-treatment includes a sand separator, and the addition of an anti-scalant to extend the life of the membranes. Sulfuric acid is stored in two (2) 275 gallon tanks for a total capacity of 550 gallons. Acid is fed by two (2) pumps, each rated at 5 gph. Anti-scalant is stored in 55 gallon drums (up to 10 drums) and is fed by two (2) pumps each rated at 2 gph. Each of the two (2) membrane treatment trains has one (1) 1,042 gpm cartridge filter and one (1) 976-1,042 gpm variable speed high pressure pump to boost the influent feed pressure to the membrane treatment unit. It should be noted that the acid feed system is not currently in use. It will be required if and when a brackish water source is developed and supplied to the facility.

There are two (2) membrane treatment trains, each with a permeate production capacity of 1.125 MGD for a total of 2.25 MGD. Membrane treatment is accomplished in two-stages. Each train consists of 16 vessels in the first stage and 8 vessels in the second stage for a total of 24 vessels. Each vessel contains 7 membrane elements for a total of 168 membranes per train, or 336 total membranes for two trains. The membranes are 8-inch Dow Filmtec XLE-440 with an individual rating of 12,700 gpd permeate flow and 99.0% salt rejection. Each train has a 175.5 gpm centrifugal inter-stage pump to boost the pressure in the second stage.

After the membrane treatment process, the permeate is treated by degasification to remove hydrogen sulfide and carbon dioxide. The degasification system is designed based on an installed treatment plant capacity of 3.375 MGD including raw water bypass. The air from the degasification process is then treated by an odor control scrubber system. Sodium hydroxide is added to the odor control unit with three (3) pumps each rated at 10 gph. Sodium hydroxide is stored in two (2) 6,500 gallon tanks for a total

capacity of 13,000 gallons. If needed, Sulfuric acid can be fed to the degasification towers with two (2) pumps each rated at 5 gph. The City also has the ability to feed sodium hypochlorite to the odor control unit with two (2) pumps each rated at 15 gph.

Following degasification, the treated water is blended with the raw water bypass flow (33.3% of the permeate flow) in the clearwell. Sodium hydroxide is added to the permeate to increase the pH with two (2) pumps each rated at 10 gph. Sodium hypochlorite (chlorine) and ammonia sulfate (ammonia) are added to form chloramines to disinfect the blended water. The ammonia in the raw water bypass is utilized to lower the required ammonia dose for chloramination. Sodium Hypochlorite is stored in two (2) 6,500 gallon tanks for a total capacity of 13,000 gallons. There are two (2) finished water sodium hypochlorite pumps each rated at 20 gph. The sodium hypochlorite pumps can also provide supplemental chlorination at the WTP, primarily for the additional chlorine required during free chlorine burnouts of the distribution system. Ammonium Sulfate is fed by two (2) pumps each rated at 2.8 gph. Ammonium sulfate is stored in two (2) 800 gallon tanks for a total capacity of 1,600 gallons.

The final treatment process involves chemical addition to inhibit corrosion in the distribution system. Sodium Hydroxide is used for pH stabilization and poly-orthophosphate is added for corrosion control. The alkalinity of the raw water bypass is also used to stabilize the degasified permeate. As stated in the description of the degasification system, Sodium Hydroxide is stored in two (2) tanks with a total volume of 13,000 gallons. Sodium Hydroxide is fed at the clearwell by two (2) pumps each with a capacity of 10 gph. The corrosion inhibitor is stored in two (2) 400 gallon tanks for a total storage capacity of 800 gallons. Two (2) pumps each rated at 2 gph feed the corrosion inhibitor.

4.3.3 Concentrate Treatment and Disposal

The concentrate at WTP No. 3 is disposed of in one of three options. The primary disposal is blending with the WTP No.1 raw water for treatment at WTP No. 1. An ozone system has been installed to reduce the color of the concentrate prior to sending to WTP No. 1. The secondary disposal consists of blending the concentrate with reclaimed water for irrigation purposes. The third option for concentrate disposal is discharging to the Intra-Coastal Waterway through a pipeline.

Two (2) vertical turbine concentrate discharge pumps, each with an operating capacity of 600 gpm convey the concentrate to the selected disposal option. A concentrate pre-treatment system using ozone or cartridge filtration has been installed. The ozone treatment system reduces the color of the concentrate for recovery at WTP No. 1. The cartridge filtration system is used for iron reduction if the concentrate is discharged to the Intra-Coastal Waterway.

4.3.4 Transfer Pumping

WTP No. 3 has two (2) variable speed vertical turbine transfer pumps which convey water from the clearwell to the ground storage tank. Each transfer pump has an operating capacity of 2,100 gpm. With one of the pumps out of service the total transfer pumping capacity is 2,100 gpm (3.02 MGD).

4.3.5 Storage

WTP No. 3 has one (1) ground storage tank with a volume of 2.0 MG. FDEP requires the total useful finished water storage capacity be at least equal to 25% of the systems maximum day water demand, excluding design fire-flow demands or fire protection storage capacity. Since the WTP is permitted for a maximum production of 3.0 MGD, the 2.0 MG of storage provided is more than the amount of storage required by FDEP.

4.3.6 High Service Pumping

WTP No. 3 has a total of four (4) horizontal centrifugal high service pumps. One (1) pump has a capacity of 1,400 gpm, two (2) pumps each have a capacity of 2,100 gpm and one (1) standby pump has a capacity of 2,800 gpm. The total high service pumping capacity with the largest pump (standby pump) out of service is 5,600 gpm (8.06 MGD). The standby pump is the largest pump for the water system. High service pumping information for WTP No. 3 is presented in **Table 6**.

Table 6: WTP No. 3 High Service Pumps.

Pump No.	Maker	Motor (HP)	Nameplate Capacity (gpm)
1	Peerless	100	1,400
2	Peerless	125	2,100
3	Peerless	125	2,100
4*	Peerless	150	2,800
		Total	8,400
		With Largest Pump Out of Service	5,600
*Largest high service pump for the entire water system			

4.3.7 Standby Power

Standby power at WTP No. 3 is provided by a 1,000 kW generator with a 480 volt switchgear. Diesel fuel for the generator is stored in a 12,000-gallon double wall tank. The generator is designed to provide 100% of the electrical demands of WTP No. 3.

4.3.8 Limiting Components

The major components of WTP No. 3 are presented in **Table 7**. As presented, there is no limiting component at WTP No. 3.

Table 7: WTP No. 3 Major Components Capacity.

Component	Capacity
Raw Water[1]	7.02 MGD
Reverse Osmosis	2.25 MGD
Degasification	3.375 MGD
Total Treatment Capacity	3.0 MGD*
Transfer Pumping[2]	3.02 MGD
Storage[3]	2.0 MG
High Service Pumping[4]	8.06 MGD
Concentrate Pretreatment	0.75 MGD
*Including 33.3% MGD raw water bypass	
[1]Current average production with the largest out of service	
[2]Nameplate capacity with the largest out of service	
[3]Not including clearwell or elevated storage	
[4]Nameplate capacity with the largest out of service	

4.4 System Storage

WTP No. 1 has two (2) ground storage tanks with volumes of 2.5 MG and 1.0 MG each. WTP No. 2 has one (1) ground storage tank with a volume of 2.0 MG. WTP No. 3 has one (1) ground storage tank with a volume of 2.0 MG. The City also owns two (2) elevated storage tanks. One elevated storage tank is located in the central portion of the distribution system and has a storage capacity of 750,000 gallons. The second storage tank is located east of the Intra-Coastal Waterway and has a storage capacity of 400,000 gallons. The total designed storage capacity is 8.65 MG. Assuming the useful storage capacity is 75% of the designed capacity, the Palm Coast storage tanks provide a useful storage capacity of 6.5 MG. FDEP requires the total useful finished water storage capacity be at least equal to 25% of the systems maximum day water demand, excluding design fire-flow demands or fire protection storage capacity. The system's current useful storage is 39% of the total permitted system capacity of 16.584 MGD.

4.5 Distribution System

As discussed previously, the water distribution system has two (2) elevated storage tanks. The elevated storage tanks supplement the distribution system during peak water demands and fire scenarios. Both elevated tanks are equipped with generators which are designed to provide 100% of their electrical demands.

Currently, the City has the ability to re-chlorinate the beachside distribution system at the 400,000 gallon storage tank. An 8-inch line with no service connections was routed from the northern end of the 16-inch beachside distribution main to the elevated storage tank to reduce flushing requirements on the north end. A recirculation pump at the elevated tank creates a continuous circulation. Chlorine and ammonia are injected into the 16-inch water main as the stored flow is discharged back into the distribution system.

The City provides fire protection to the water service area for a 1,500 gpm fire demand for four (4) consecutive hours. FDEP requires systems that provide fire protection to be able to supply the systems maximum day water demand plus the fire demand for the fire duration, and to meet peak hour water demands for at least four (4) hours with high service pumping (excluding standby pumps) and elevated storage.

With the largest pump out of service for the system (2,800 gpm standby pump at WTP No. 3), the combined high service pumping capacity from WTP Nos. 1, 2 and 3 is 23,400 gpm. Assuming 80% pump efficiency when they are in operation at the same time, the actual high service pumps can provide a pumping flow of 18,720 gpm. With both of the elevated storage tanks full and including system pressure and headloss, they can supply 3,392 gpm for four (4) hours. Combined, the high service pumps and elevated storage can supply 22,112 gpm currently.

The maximum day demand for 2016 was 10.255 MGD, or 7,121 gpm. Adding a fire flow of 1,500 gpm, the 2016 maximum day plus fire flow demand is 8,621 gpm. For peak hour demand, using a factor of 1.5 times the maximum day, the peak hour demand in 2016 was 10,682 gpm. The high service pumps and elevated storage can provide 22,112 gpm which is greater than the required flow of fire flow plus the peak hour demand.

5.0 POPULATIONS AND WATER DEMANDS

The 2017 Bureau of Economic and Business Research (BEBR), population estimates from 2020 to 2040, indicate a reduction in the rate of growth for Flagler County versus the 2016 estimates. The previous Water System Capacity Analysis was based upon the 2016 estimates. The reduced estimated growth rate for the current 2017 projections is not being used in this update since ample residential and commercial development has been occurring within the City for the past three (3) years and it is anticipated that the 2016 growth rate will be applicable for several more years. A comparison of the 2017 vs. 2016 projections is provided in **Appendix C**. Historical populations and water demands were analyzed to project future populations and water demands for the entire Palm Coast water system. Historical and projected populations for Flagler County were provided by the Bureau of Economic and Business Research (BEBR) at the University of Florida. Based on the 2016 BEBR information, as of April 1, 2016, the City represents 78.0% of the total Flagler County Population. The projection structure for Palm Coast population share out of the 2016 April BEBR Flagler County projection is tabulated in **Table 8**.

Table 8. Palm Coast Population Projection Structure.

BEBR **Volume 49, Bulletin 174, January 2016** **FLAGLER COUNTY**						
Population Estimates (April 1)	**YEAR**	**2020**	**2025**	**2030**	**2035**	**2040**
Low		109,400	118,400	126,800	133,500	137,200
Average of Low and Medium		114,750	128,350	141,200	152,850	161,550
Medium		120,100	138,300	155,600	172,200	185,900
High		127,700	151,500	176,900	203,600	229,200

CITY POPULATION ESTIMATES					
Palm Coast Projected % of Flagler County Population	**YEAR**				
	2020-24	**2025-29**	**2030-34**	**2035-39**	**2040**
% of BEBR Average of Low and Medium	78.0%				
% of BEBR Medium		80%			
% of BEBR Medium			82.5%	85%	85%
Mid-Year Adjustment	July 1	July 1	July 1	July 1	July 1
Year	2020	2025	2030	2035	2040
Palm Coast Estimated Population	**90,076**	**110,640**	**129,064**	**146,960**	**158,577**

BEBR reported population for City of Palm Coast as of April 1, 2016 is 81,184 (adjusted to mid-year: 81,523)

The BEBR provided population number and Comprehensive Plan Level of Service value of 2.43 capita per ERU has been used to determine the ERU's. The ERU's have been estimated based on population. The historical and projected populations for the Palm Coast water service area (inside and outside the City limits) are presented in **Figure 5** and **Table 9**. The City's historical mid-year population and water demands from 2010 through 2016 are presented in **Table 10.** Historical water demands were used to determine the historical per capita demands and maximum day / average day demand factors. The past seven-year (2010-2016) historical finished water average per capita usage was 88.1 gallons per capita day (gpcd), including water usage for residential, flushing, fire-fighting, commercial and system water loss. And the historical source water average per capita usage was 96.7 gpcd. The historical maximum day to average day peaking factor was 1.355 over the past seven years. It should be noted that the difference between finished water demands and source water demands are due to treatment process usage and concentrate flows. It is expected that finished water and source water demand will get closer because the City can recover all the concentrate from WTP No. 2 and WTP No. 3 unless a brackish water source is developed and supplied to WTP No. 3. Based on the historical data, projected finished water and source water demands were developed. The projected water service area populations and water demands are presented in **Table 11** and **Figure 6**.

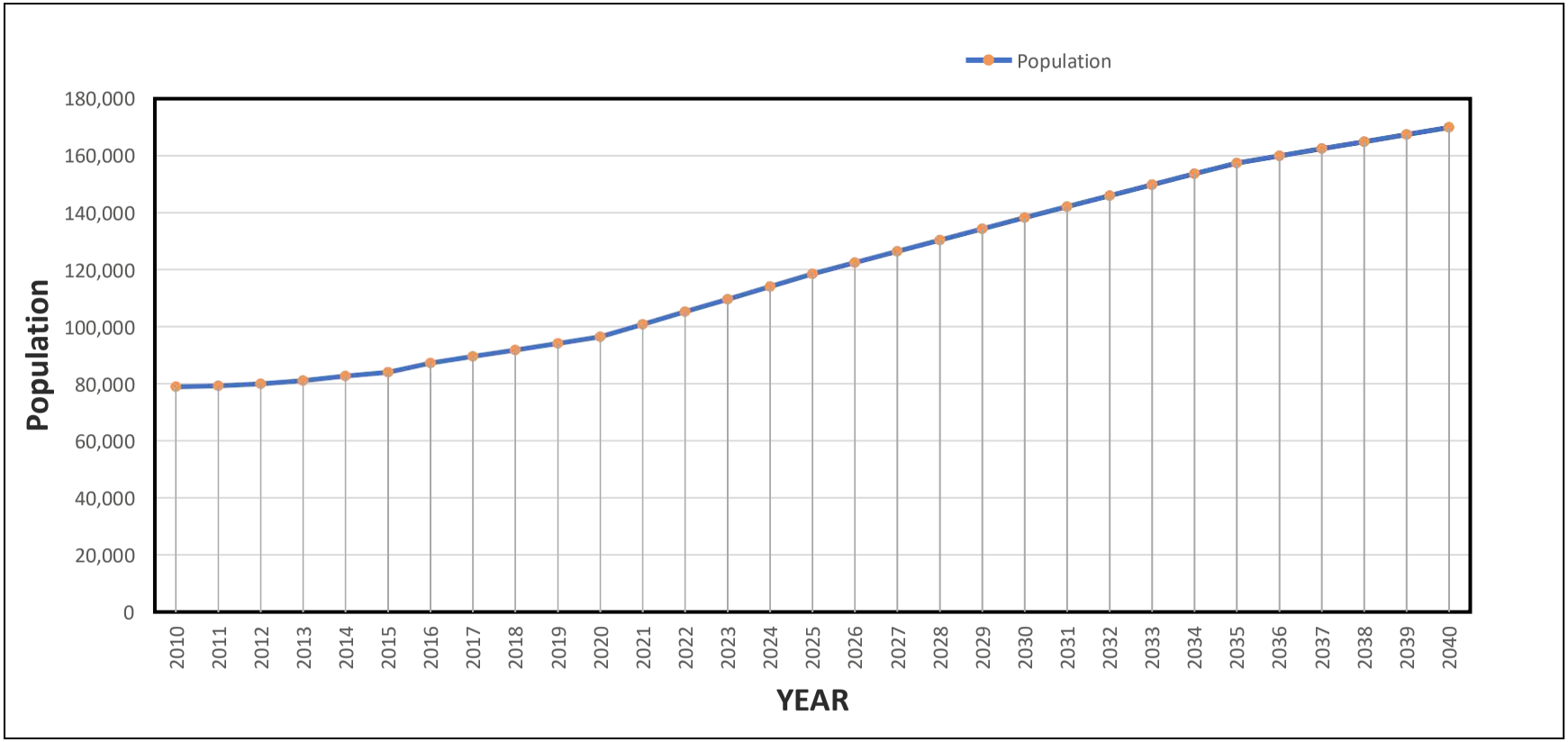


Figure 5: Palm Coast Water Service Population (Mid-Year).

Table 9: Mid-Year Population Projections							
	Inside City Limits		Outside City Limits		Total Water Service Area		Percent Change
Year	ERU	Population	ERU	Population	ERU	Population	
2010	31,357	75,258	1,554	3,730	32,912	78,988	2.41%
2011	31,504	75,609	1,561	3,745	33,064	79,355	0.46%
2012	31,766	76,240	1,570	3,769	33,337	80,009	0.82%
2013	32,214	77,313	1,582	3,797	33,796	81,110	1.38%
2014	32,734	78,561	1,740	4,176	34,474	82,737	2.01%
2015	33,274	79,858	1,769	4,245	35,043	84,104	1.65%
2016	33,549	81,523	2,380	5,783	35,929	87,306	3.81%
2017	34,428	83,661	2,442	5,935	36,871	89,596	2.62%
2018	35,308	85,799	2,505	6,087	37,813	91,886	2.56%
2019	36,188	87,938	2,567	6,238	38,756	94,176	2.49%
2020	37,068	90,076	2,630	6,390	39,698	96,466	2.43%
2021	38,761	94,189	2,750	6,682	41,510	100,871	4.57%
2022	40,453	98,301	2,870	6,974	43,323	105,275	4.37%
2023	42,146	102,414	2,990	7,265	45,136	109,680	4.18%
2024	43,838	106,527	3,110	7,557	46,948	114,084	4.02%
2025	45,531	110,640	3,230	7,849	48,761	118,489	3.86%
2026	47,047	114,325	3,338	8,110	50,385	122,435	3.33%
2027	48,564	118,010	3,445	8,372	52,009	126,381	3.22%
2028	50,080	121,694	3,553	8,633	53,633	130,327	3.12%
2029	51,596	125,379	3,660	8,895	55,257	134,274	3.03%
2030	53,113	129,064	3,768	9,156	56,881	138,220	2.94%
2031	54,586	132,643	3,872	9,410	58,458	142,053	2.77%
2032	56,058	136,222	3,977	9,664	60,035	145,886	2.70%
2033	57,531	139,801	4,081	9,918	61,613	149,719	2.63%
2034	59,004	143,380	4,186	10,172	63,190	153,552	2.56%
2035	60,477	146,960	4,290	10,426	64,768	157,385	2.50%
2036	61,433	149,283	4,358	10,590	65,792	159,874	1.58%
2037	62,390	151,607	4,426	10,755	66,816	162,362	1.56%
2038	63,346	153,930	4,494	10,920	67,840	164,850	1.53%
2039	64,302	156,254	4,562	11,085	68,864	167,339	1.51%
2040	65,258	158,577	4,630	11,250	69,888	169,827	1.49%

Table 10: Water System Historic Populations and Water Demands (Mid-Year).

		Finished Water Demand				Source Water	
Year	**Population**	**AADF (MGD)**	**Gal/Capita**	**Max Day (MGD)**	**Peaking Factor [Max Day/AADF]**	**AADF (MGD)**	**Gal/Capita**
2010	78,988	6.876	87.1	9.698	1.410	7.678	97.2
2011	79,355	7.575	95.5	11.141	1.471	8.181	103.1
2012	80,009	7.262	90.8	9.436	1.299	8.035	100.4
2013	81,110	7.106	87.6	9.436	1.328	7.825	96.5
2014	82,737	6.888	83.3	9.423	1.368	7.849	94.9
2015	84,104	6.9	82.0	9.055	1.312	7.813	92.9
2016	87,306	7.9	90.5	10.255	1.298	8.028	92.0
		Average	**88.1**		**1.355**		**96.7**

Table 11: City of Palm Coast Water Demand Projections (Mid-Year)

Year	Population	AADF, MGD	AADF/Capita	Max Day, AADF	Max Day/AADF	Source Water, AADF
2016	87,306	7.69	88.1	10.424	1.355	8.443
2017	89,596	7.89	88.1	10.697	1.355	8.664
2018	91,886	8.09	88.1	10.970	1.355	8.886
2019	94,176	8.30	88.1	11.244	1.355	9.107
2020	96,466	8.50	88.1	11.517	1.355	9.328
2021	100,871	8.89	88.1	12.043	1.355	9.754
2022	105,275	9.27	88.1	12.569	1.355	10.180
2023	109,680	9.66	88.1	13.095	1.355	10.606
2024	114,084	10.05	88.1	13.621	1.355	11.032
2025	118,489	10.44	88.1	14.147	1.355	11.458
2026	122,435	10.79	88.1	14.618	1.355	11.840
2027	126,381	11.13	88.1	15.089	1.355	12.221
2028	130,327	11.48	88.1	15.560	1.355	12.603
2029	134,274	11.83	88.1	16.031	1.355	12.985
2030	138,220	12.18	88.1	16.502	1.355	13.366
2031	142,053	12.51	88.1	16.960	1.355	13.737
2032	145,886	12.85	88.1	17.418	1.355	14.107
2033	149,719	13.19	88.1	17.875	1.355	14.478
2034	153,552	13.53	88.1	18.333	1.355	14.849
2035	157,385	13.86	88.1	18.790	1.355	15.219
2036	159,874	14.08	88.1	19.088	1.355	15.460
2037	162,362	14.30	88.1	19.385	1.355	15.701
2038	164,850	14.52	88.1	19.682	1.355	15.941
2039	167,339	14.74	88.1	19.979	1.355	16.182
2040	169,827	14.96	88.1	20.276	1.355	16.423

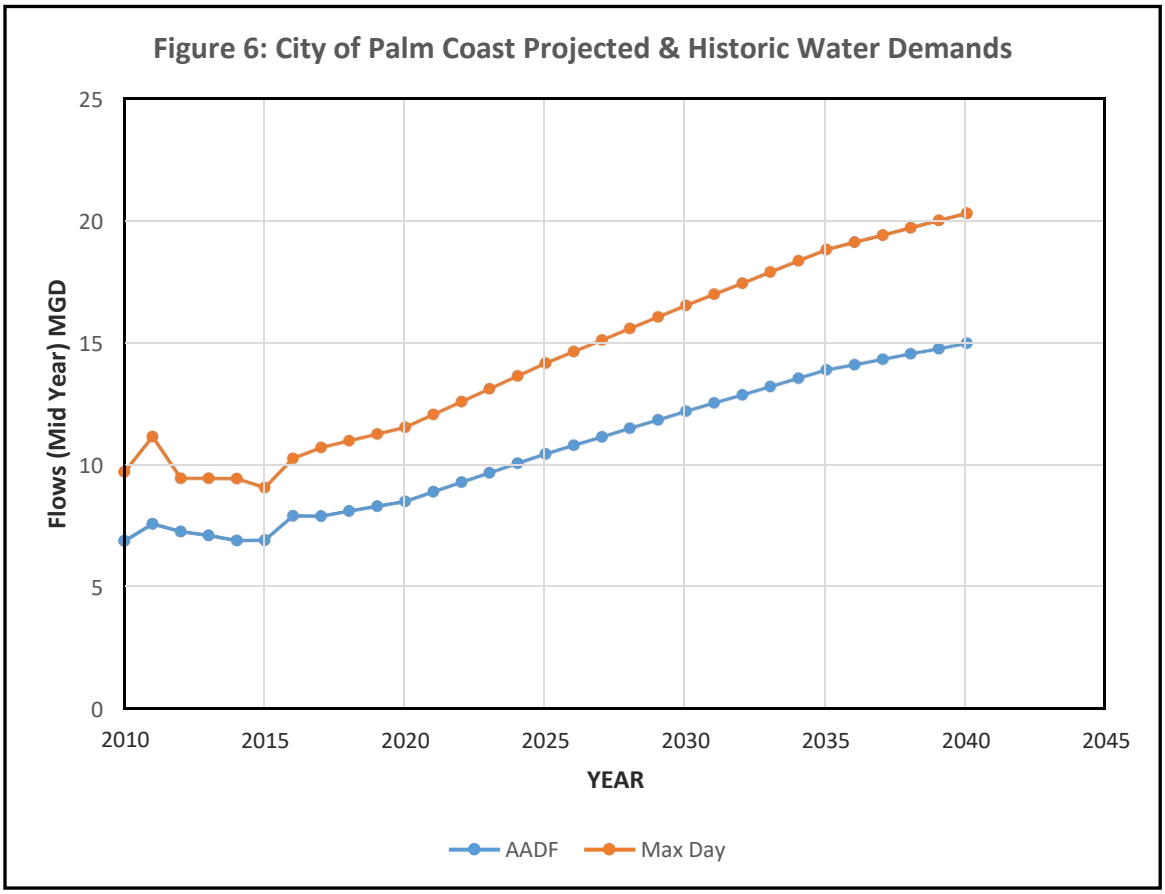


Figure 6: City of Palm Coast Projected & Historic Water Demands
Flows (Mid Year) MGD
25
20
15
10
5
0
2010
2015
2020
2025
2030
2035
2040
2045
YEAR
AADF
Max Day

6.0 WATER SYSTEM IMPROVEMENTS

The City must expand the source, treatment, storage and pumping facilities to meet projected water demands. Based on the projected populations and water demands, a proposed implementation schedule has been developed. The projected permitted capacities of the City's WTPs are presented in **Table 12** and **Figure 7**. WTP No. 3 will be expanded to 6.0 MGD in 2029 and again in 2035 to 9.0 MGD. By 2035, WTP Nos. 1, 2, and 3 are projected to have capacities of 6.0 MGD, 7.584 MGD (including ZLD), and 9.0 MGD, respectively. The implementation schedule will depend on water demands and source water availability and is subject to change.

Table 12: Projected Water Treatment Plant Rated Capacity.

Year	Finished Water		Treatment Plant Capacities			Total Capacity (MGD)
	ADF (MGD)	MDF (MGD)	WTP #1 (MGD)	WTP #2 (MGD)	WTP #3 (MGD)	
2016	7.69	10.424	6.0	7.584	3.0	16.584
2017	7.89	10.697	6.0	7.584	3.0	16.584
2018	8.09	10.970	6.0	7.584	3.0	16.584
2019	8.30	11.244	6.0	7.584	3.0	16.584
2020	8.50	11.517	6.0	7.584	3.0	16.584
2021	8.89	12.043	6.0	7.584	3.0	16.584
2022	9.27	12.569	6.0	7.584	3.0	16.584
2023	9.66	13.095	6.0	7.584	3.0	16.584
2024	10.05	13.621	6.0	7.584	3.0	16.584
2025	10.44	14.147	6.0	7.584	3.0	16.584
2026	10.79	14.618	6.0	7.584	3.0	16.584
2027	11.13	15.089	6.0	7.584	3.0	16.584
2028	11.48	15.560	6.0	7.584	3.0	16.584
2029	11.83	16.031	6.0	7.584	6.0	19.584
2030	12.18	16.502	6.0	7.584	6.0	19.584
2031	12.51	16.960	6.0	7.584	6.0	19.584
2032	12.85	17.418	6.0	7.584	6.0	19.584
2033	13.19	17.875	6.0	7.584	6.0	19.584
2034	13.53	18.333	6.0	7.584	6.0	19.548
2035	13.86	18.790	6.0	7.584	9.0	22.584
2036	14.08	19.088	6.0	7.584	9.0	22.584
2037	14.30	19.385	6.0	7.584	9.0	22.584
2038	14.52	19.682	6.0	7.584	9.0	22.584
2039	14.74	19.979	6.0	7.584	9.0	22.584
2040	14.96	20.276	6.0	7.584	9.0	22.584

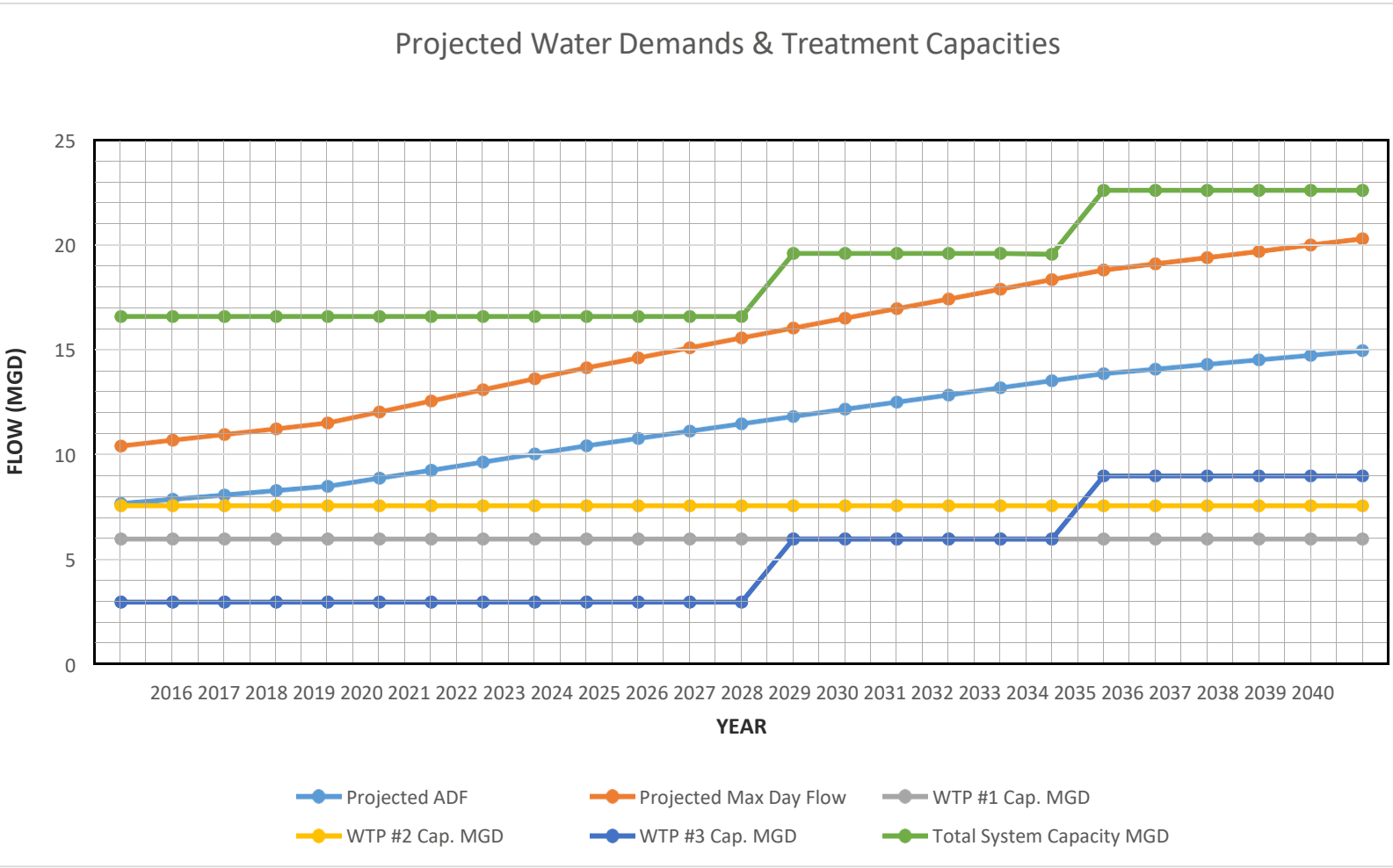


Figure 7: Projected Water Demands and Treatment Capacities

6.1 System Source Water

The systems total raw water sources must be capable of handling the raw water requirements of each WTP including process water and concentrate to meet the systems projected finished water demands. Based on the projected WTP capacities, the projected theoretical raw water demands required the largest well of the total system to be out of service as presented in **Table 13** and **Figure 8**. As presented in the table, the City's CUP allocation can only supply sufficient source water to meet the AADF till 2026 assuming all the concentrate from WTP No. 3 is recovered. The City shall plan on CUP modification to request more source water allocation to meet the finished water demand.

Table 13: Projected Water Treatment Plant Source Capacity Required.

Year	Finished Water		Current CUP Allocation AADF (MGD)	Raw Water Source Required			Total Raw Water Required to Meet Capacity(MGD)
	AADF (MGD)	MDF (MGD)		WTP #1 (MGD)	WTP #2 (MGD)	WTP #3 (MGD)	
2016	7.69	10.424	11.023	6.06	7.584	3.750	17.394
2017	7.89	10.697	11.023	6.06	7.584	3.750	17.394
2018	8.09	10.970	11.023	6.06	7.584	3.750	17.394
2019	8.30	11.244	11.023	6.06	7.584	3.750	17.394
2020	8.50	11.517	11.023	6.06	7.584	3.750	17.394
2021	8.89	12.043	11.023	6.06	7.584	3.750	17.394
2022	9.27	12.569	11.023	6.06	7.584	3.750	17.394
2023	9.66	13.095	11.023	6.06	7.584	3.750	17.394
2024	10.05	13.621	11.023	6.06	7.584	3.750	17.394
2025	10.44	14.147	11.023	6.06	7.584	3.750	17.394
2026	10.79	14.618	11.023	6.06	7.584	3.750	17.394
2027	11.13	15.089	11.023	6.06	7.584	3.750	17.394
2028	11.48	15.560	11.023	6.06	7.584	3.750	17.394
2029	11.83	16.031	11.023	6.06	7.584	7.500	21.144
2030	12.18	16.502	11.023	6.06	7.584	7.500	21.144
2031	12.51	16.960	11.023	6.06	7.584	7.500	21.144
2032	12.85	17.418	11.023	6.06	7.584	7.500	21.144
2033	13.19	17.875	11.023	6.06	7.584	7.500	21.144
2034	13.53	18.333	11.023	6.06	7.584	7.500	21.144
2035	13.86	18.790	11.023	6.06	7.584	11.25	24.894
2036	14.08	19.088	11.023	6.06	7.584	11.25	24.894
2037	14.30	19.385	11.023	6.06	7.584	11.25	24.894
2038	14.52	19.682	11.023	6.06	7.584	11.25	24.894
2039	14.74	19.979	11.023	6.06	7.584	11.25	24.894
2040	14.96	20.276	11.023	6.06	7.584	11.25	24.894

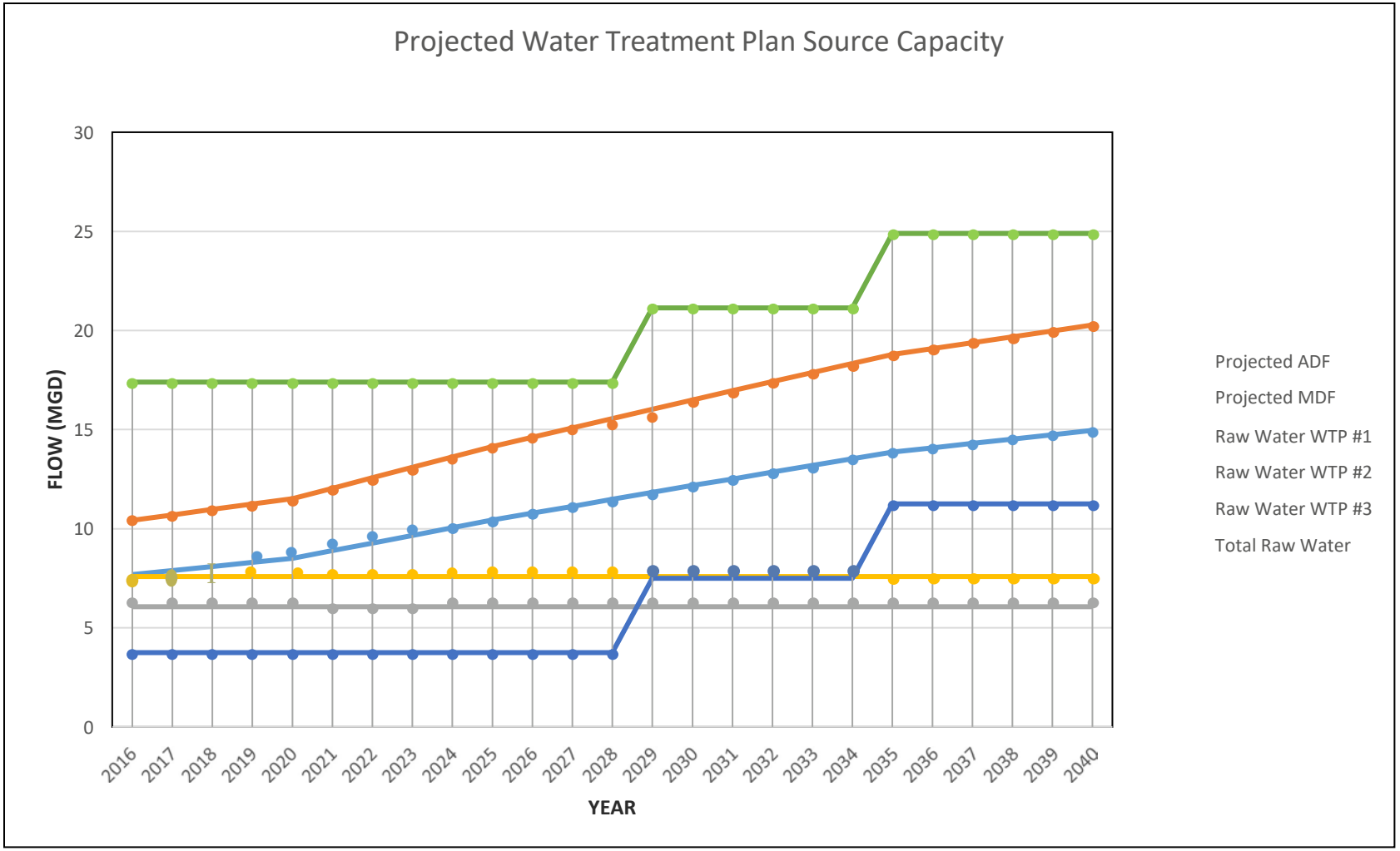


Figure 8: Projected Water Treatment Plant Source Capacity Required.

6.2 System Storage

As discussed earlier, the systems total finished water storage shall at least equal to 25% of the systems maximum day water demands. Based on the projected water demands, the projected finished water storage is presented in **Table 14** and **Figure 9**. The existing storage capacity is sufficient in the planning period.

Table 14: Projected Water Treatment Plant Storage Capacity.

Year	Finished Water		Projected Storage Capacity			Elevated Storage (MG)	Required Storage Capacity (MG)	Total Useful Capacity * (MG)	Percent Capacity Useful Storage/ MDF
	ADF (MGD)	MDF (MGD)	WTP #1 (MGD)	WTP #2 (MGD)	WTP #3 (MGD)				
2016	7.69	10.424	3.5	2.0	2.0	1.15	2.606	6.49	62.2%
2017	7.89	10.697	3.5	2.0	2.0	1.15	2.674	6.49	60.6%
2018	8.09	10.970	3.5	2.0	2.0	1.15	2.743	6.49	59.1%
2019	8.30	11.244	3.5	2.0	2.0	1.15	2.811	6.49	57.7%
2020	8.50	11.517	3.5	2.0	2.0	1.15	2.879	6.49	56.3%
2021	8.89	12.043	3.5	2.0	2.0	1.15	3.011	6.49	53.9%
2022	9.27	12.569	3.5	2.0	2.0	1.15	3.142	6.49	51.6%
2023	9.66	13.095	3.5	2.0	2.0	1.15	3.274	6.49	49.5%
2024	10.05	13.621	3.5	2.0	2.0	1.15	3.405	6.49	47.6%
2025	10.44	14.147	3.5	2.0	2.0	1.15	3.537	6.49	45.9%
2026	10.79	14.618	3.5	2.0	2.0	1.15	3.654	6.49	44.4%
2027	11.13	15.089	3.5	2.0	2.0	1.15	3.772	6.49	43.0%
2028	11.48	15.560	3.5	2.0	2.0	1.15	3.890	6.49	41.7%
2029	11.83	16.031	3.5	2.0	2.0	1.15	4.008	6.49	40.5%
2030	12.18	16.502	3.5	2.0	2.0	1.15	4.126	6.49	39.3%
2031	12.51	16.960	3.5	2.0	2.0	1.15	4.240	6.49	38.3%
2032	12.85	17.418	3.5	2.0	2.0	1.15	4.354	6.49	37.2%
2033	13.19	17.875	3.5	2.0	2.0	1.15	4.469	6.49	36.3%
2034	13.53	18.333	3.5	2.0	2.0	1.15	4.583	6.49	35.4%
2035	13.86	18.790	3.5	2.0	2.0	1.15	4.698	6.49	34.5%
2036	14.08	19.088	3.5	2.0	2.0	1.15	4.772	6.49	34.0%
2037	14.30	19.385	3.5	2.0	2.0	1.15	4.846	6.49	33.5%
2038	14.52	19.682	3.5	2.0	2.0	1.15	4.920	6.49	33.0%
2039	14.74	19.979	3.5	2.0	2.0	1.15	4.995	6.49	32.5%
2040	14.96	20.276	3.5	2.0	2.0	1.15	5.069	6.49	32.0%

*Calculated as 75% of the system total design storage capacity

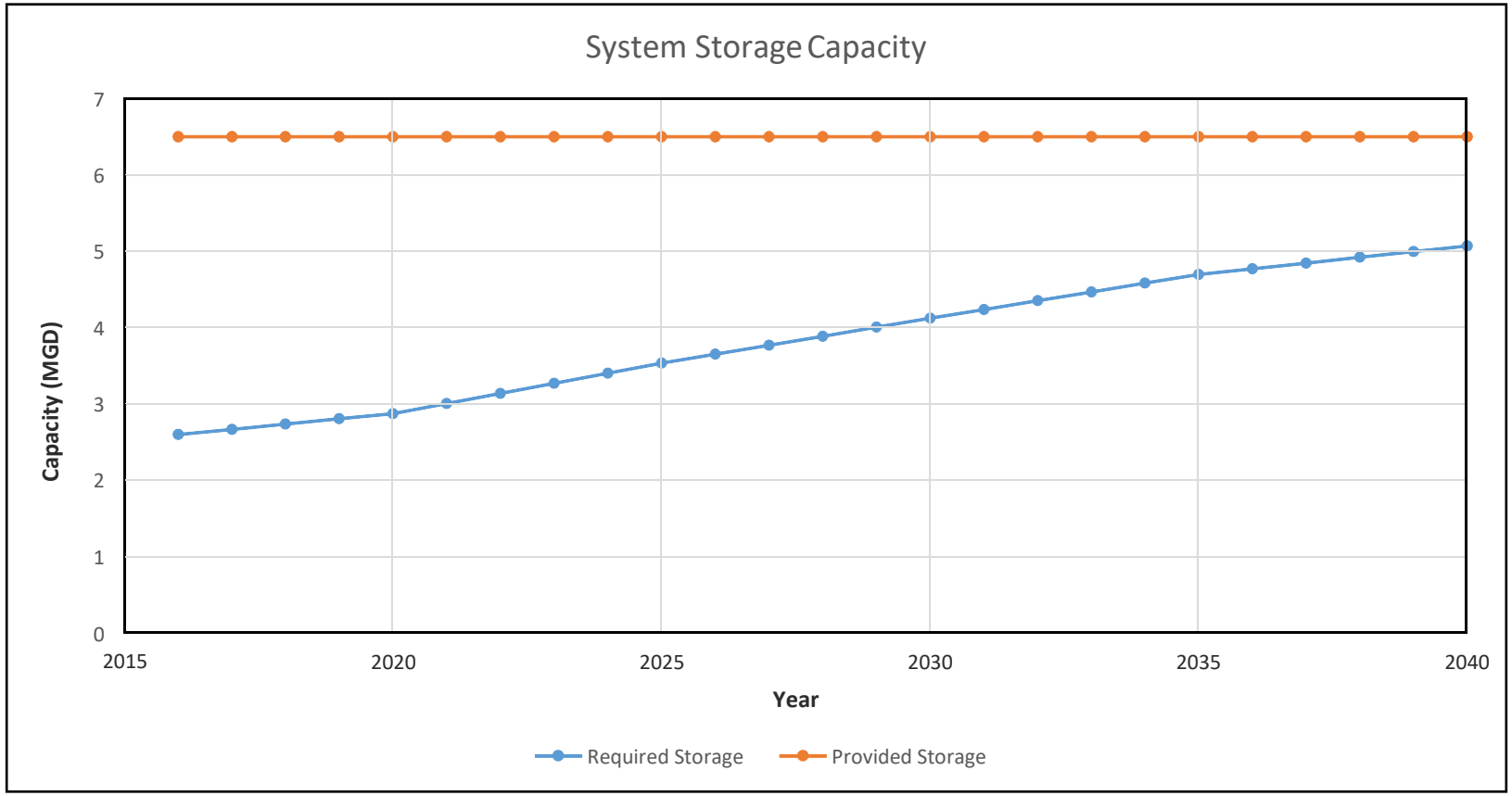


Figure 9: Water Treatment System Storage Capacity.

6.3 System High Service Pumping

The system's total high service pumping capacity must meet the requirements of DEP 62-555.320 (15)(b) and be at least equal to the systems maximum day demand including design fire flow demand while maintaining 20 psi throughout the distribution system. For water systems with interconnected pumping stations, FDEP allows the system to have one standby pump with a capacity equal to the largest high service pump. The Palm Coast standby pump is the 2,800 gpm pump located at WTP No. 3. Based on the projected WTP capacities, the projected high service pumping capacities with the standby pump out of service is presented in **Table 15** and **Figure 10**. As shown in **Table 15** and **Figure 10**, the high service pumping capacity at WTP No. 3 will be increased to 8,400 gpm by adding one 2,800 gpm pump when the plant is expanded to 6.0 MGD in 2029 and an additional 2,800 gpm pump in 2035 to WTP No. 3 with expansion to 9.0 MGD. Assuming 80% efficiency when all the pumps are in operation, the actual pumping capacity is sufficient to meet the max day demand during the planning period.

Table 15: Projected Water Treatment Plant High Service Pumping Capacity.

Year	Finished Water		Nameplate Rated High Service Pumping Capacity[1]			Total Nameplate Capacity[1] (gpm)	80% of the Nameplate Capacity (gpm)
	MDF (MGD)	MDF (gpm)	WTP #1 (gpm)	WTP #2 (gpm)	WTP #3 (gpm)		
2016	10.424	7,239	9,000	8,800	5,600	23,400	18,720
2017	10.697	7,429	9,000	8,800	5,600	23,400	18,720
2018	10.970	7,618	9,000	8,800	5,600	23,400	18,720
2019	11.244	7,808	9,000	8,800	5,600	23,400	18,720
2020	11.517	7,998	9,000	8,800	5,600	23,400	18,720
2021	12.043	8,363	9,000	8,800	5,600	23,400	18,720
2022	12.569	8,728	9,000	8,800	5,600	23,400	18,720
2023	13.095	9,094	9,000	8,800	5,600	23,400	18,720
2024	13.621	9,459	9,000	8,800	5,600	23,400	18,720
2025	14.147	9,824	9,000	8,800	5,600	23,400	18,720
2026	14.618	10,151	9,000	8,800	5,600	23,400	18,720
2027	15.089	10,478	9,000	8,800	5,600	23,400	18,720
2028	15.560	10,806	9,000	8,800	5,600	23,400	18,720
2029	16.031	11,133	9,000	8,800	8,400	26,200	20,960
2030	16.502	11,460	9,000	8,800	8,400	26,200	20,960
2031	16.960	11,778	9,000	8,800	8,400	26,200	20,960
2032	17.418	12,096	9,000	8,800	8,400	26,200	20,960
2033	17.875	12,413	9,000	8,800	8,400	26,200	20,960
2034	18.333	12,731	9,000	8,800	8,400	26,200	20,960
2035	18.790	13,049	9,000	8,800	8,400	26,200	20,960
2036	19.088	13,255	9,000	8,800	11,200	29,000	23,200
2037	19.385	13,462	9,000	8,800	11,200	29,000	23,200
2038	19.682	13,668	9,000	8,800	11,200	29,000	23,200
2039	19.979	13,874	9,000	8,800	11,200	29,000	23,200
2040	20.276	14,081	9,000	8,800	11,200	29,000	23,200

[1]With the largest pump for the system out of service (2,800 gpm pump at WTP No. 3)

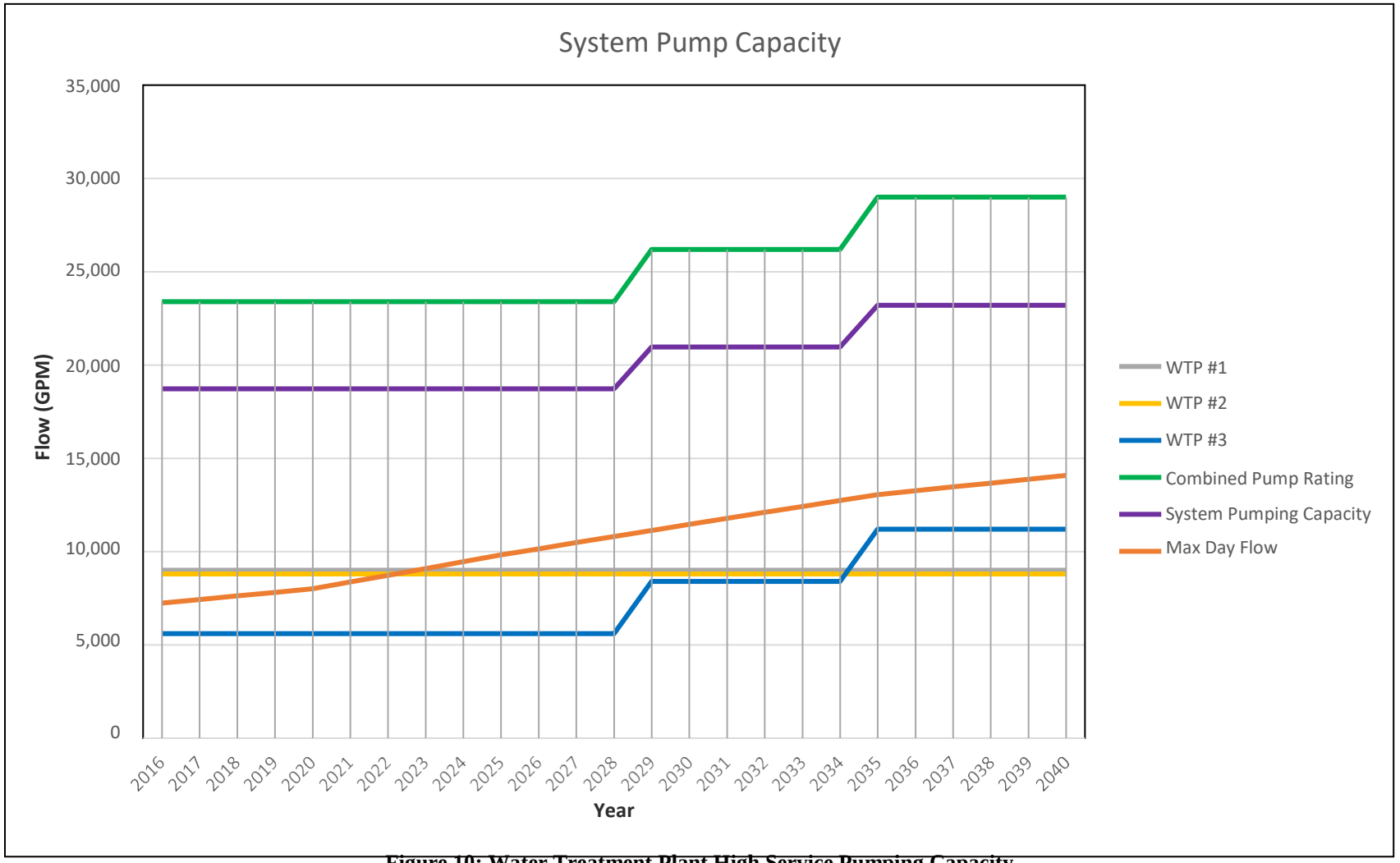


Figure 10: Water Treatment Plant High Service Pumping Capacity

6.4 Fire Demands and Peak Hour Demands

The City provides fire protection to the water service area for a 1,500 gpm fire demand for four (4) consecutive hours. FDEP requires systems that provide fire protection to be able to supply the systems maximum day water demand plus the fire demand for the fire duration, and to meet peak hour water demands for at least four (4) hours with high service pumping (excluding standby pumps) and elevated storage. Based on the projected WTP capacities, the projected high service pumping and storage capacity compared to projected fire demands and peak hour demands are presented in **Table 16** and **Figure 11**.

Table 16: Projected Water System Peak Hour Demand and Available Flow.

Year	Finished Water		Nameplate Rated High Service Pumping Capacity[2]			Total Pumping Capacity (gpm)	Elevated Storage[3] (gpm)	Available Flow for PHF (gpm)[4]	Required Flow for PHF[5] (gpm)
	MDF (MGD)	PHF[1] (gpm)	WTP #1 (gpm)	WTP #2 (gpm)	WTP #3 (gpm)				
2016	10.424	10,858	9,000	8,800	5,600	23,400	3,392	22,112	12,358
2017	10.697	11,143	9,000	8,800	5,600	23,400	3,392	22,112	12,643
2018	10.970	11,428	9,000	8,800	5,600	23,400	3,392	22,112	12,928
2019	11.244	11,712	9,000	8,800	5,600	23,400	3,392	22,112	13,212
2020	11.517	11,997	9,000	8,800	5,600	23,400	3,392	22,112	13,497
2021	12.043	12,545	9,000	8,800	5,600	23,400	3,392	22,112	14,045
2022	12.569	13,093	9,000	8,800	5,600	23,400	3,392	22,112	14,593
2023	13.095	13,640	9,000	8,800	5,600	23,400	3,392	22,112	15,140
2024	13.621	14,188	9,000	8,800	5,600	23,400	3,392	22,112	15,688
2025	14.147	14,736	9,000	8,800	5,600	23,400	3,392	22,112	16,236
2026	14.618	15,227	9,000	8,800	5,600	23,400	3,392	22,112	16,727
2027	15.089	15,718	9,000	8,800	5,600	23,400	3,392	22,112	17,218
2028	15.560	16,208	9,000	8,800	5,600	23,400	3,392	22,112	17,708
2029	16.031	16,699	9,000	8,800	8,400	26,200	3,392	24,352	18,199
2030	16.502	17,190	9,000	8,800	8,400	26,200	3,392	24,352	18,690
2031	16.960	17,667	9,000	8,800	8,400	26,200	3,392	24,352	19,167
2032	17.418	18,143	9,000	8,800	8,400	26,200	3,392	24,352	19,643
2033	17.875	18,620	9,000	8,800	8,400	26,200	3,392	24,352	20,120
2034	18.333	19,097	9,000	8,800	8,400	26,200	3,392	24,352	20,597
2035	18.790	19,573	9,000	8,800	11,200	29,000	3,392	24,352	21,073
2036	19.088	19,883	9,000	8,800	11,200	29,000	3,392	26,592	21,383
2037	19.385	20,192	9,000	8,800	11,200	29,000	3,392	26,592	21,692
2038	19.682	20,502	9,000	8,800	11,200	29,000	3,392	26,592	22,002
2039	19.979	20,811	9,000	8,800	11,200	29,000	3,392	26,592	22,311
2040	20.276	21,121	9,000	8,800	11,200	29,000	3,392	26,592	22,621

[1]Projected peak hour flows calculated using a peaking factor of 1.5 times the projected max daily flows

[2]With the largest pump for the system out of service

[3]Available flow from both elevated storage tanks in a four hour time period, per FAC 62-555.320(15)(b)

[4]Equal to Elevated Storage (gpm) + 80% of Total Pumping Capacity

[5]Including a fire flow based on 1,500 gpm

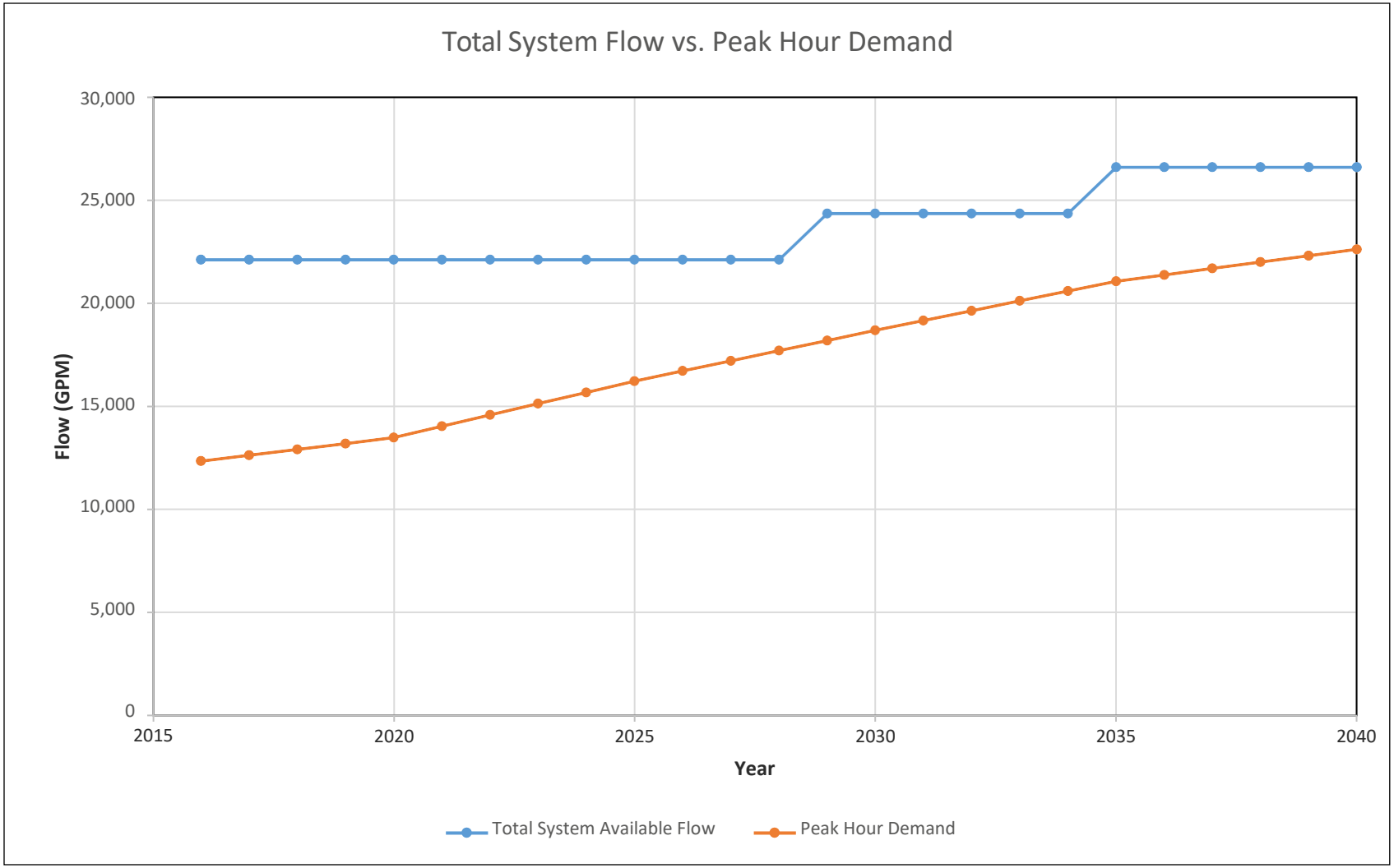


Figure 11: Projected Available and Required Peak Hour Flows.

6.5 WTP Improvements

To meet the projected implementation schedule, improvements will be required at each of the WTPs. The projected improvements planned or required at each WTP are as follows:

WTP No. 1

The City plans to maintain the current 6.0 MGD permitted capacity of WTP No. 1. No major improvements are planned for WTP No. 1, but the City does plan to make some improvements. The City's planned minor improvements include:

- Continue to rehabilitate wells as needed to maintain well capacity
- Replace 240 volt three-phase electrical system for high service pump Nos. 1, 2 and 3 with a 480 volt three-phase power supply (in progress 2017)
- Replace the facility Auxiliary Power Supply (Generator) and complete associated electrical upgrades (in progress 2017)

WTP No. 2

WTP No. 2 has been designed for an ultimate membrane treatment capacity of 9.576 MGD. In the current planning period until 2040, expansion of WTP No. 2 is not needed to meet the projected future demands.

As stated in the evaluation of the existing water system, WTP No. 2 is limited by its raw water sources. The City plans to rehabilitate wells and add additional wells to maintain and or increase the production capacity. The City has developed five (5) additional wells (completed in 2017), which are being used to redistribute pumping load with no increase to the CUP allocation. An additional three (3) wells are scheduled to be installed within the next 2 years. Upon completion the wellfield will have 16 wells and will have twice the pumping capacity of the original wellfield.

The City is also planning on obtaining more source water allocation from the upper Floridan aquifer to allow WTP No. 2 to produce its current design capacity and for future needs.

The City plans to replace the existing membranes when they reach the end of their useful life. Trains A and B were replaced in 2017. Trains C and D are planned to be replaced in 2023.

WTP No. 3

WTP No. 3 has been designed for an ultimate capacity of 9.0 MGD. The City plans to expand the WTP accordingly to meet future demands. The capacity will be increased to 6.0 MGD in the estimated year of 2029 and to 9.0 MGD in 2035.

Improvements to the source, treatment process, storage capacity, and high service pumping are required to expand the WTP capacity accordingly.

Planned WTP No. 3 expansions are based on adding additional 2.25 MGD membrane trains (two membrane skids). With raw water bypass equal to 33% of the permeate flow, planned expansions are expected to increase the overall treatment capacity by 3.0 MGD for a total capacity of 6.0 MGD in 2029 and an additional 3.0 MGD in 2035 to a total capacity of 9.0 MGD for WTP No. 3.

In order to meet future water demands, the City is studying the feasibility of using brackish water for treatment at WTP No. 3. Aquifer Performance Tests (APTs) have been completed on the upper Floridan Aquifer at two locations near the north and northwest Flagler County lines. The data from the APTs have been modeled and submitted to the St Johns River Water Management District for their review and evaluation. Once satisfied with the outcome of the model the District will complete an impact analysis and establish a safe withdrawal allocation. WTP No. 3 was designed for treatment of both fresh water, as currently derived from the confined surficial aquifer and in the future, brackish water, from the upper Floridan Aquifer within the same general wellfield area.

APPENDIX A

Water Treatment Plant Nos. 1, 2 & 3 Equipment

WTP #1

PUMPS		
Transfer Pump No.1	20HP	1400GPM
Transfer Pump No.2	20HP	1400GPM
Transfer Pump No.3	30HP	2800GPM
Transfer Pump No.4	30HP	2800GPM
High Service Pump No.1	60HP	1000GPM
High Service Pump No.2	60HP	1000GPM
High Service Pump No.3	60HP	1000GPM
High Service Pump No.4	125HP	2000GPM
High Service Pump No.5	125HP	2000GPM
High Service Pump No.6	125HP	2000GPM
Plant water pump #1	7.5HP	
Plant water pump #2	7.5HP	
Backwash pump #1	50HP	4400GPM
Backwash pump #2	50HP	4400GPM
Ach metering pump		1 GPH
Corrosion Inhibitor metering pump		12 GPD
East Sodium Hypochlorite Pump		20 GPD
West Sodium Hypochlorite Pump		20 GPD
Pre tank Sodium Hypochlorite Pump		20 GPD
Post tank Sodium Hypochlorite Pump		20 GPD
Raw bypass Sodium Hypochlorite Pump		20 GPD
South thickener discharge pump #1	3 HP	Flygt
South thickener discharge pump #2	3 HP	Flygt
North thickener discharge pump #1	5 HP	Rellance
North thickener discharge pump #2	5 HP	Rellance
South washwater recovery pump #1	10 HP	Flygt
South washwater recovery pump #2	10 HP	Flygt
North washwater recovery pump #1	10 HP	Flygt
north washwater recovery pump #2	10 HP	Flygt
South washwater basin sludge pump #1	5 HP	Rellance
South washwater basin sludge pump #2	5 HP	Rellance
North washwater basin sludge pump #1	5 HP	Rellance
North washwater basin sludge pump #2	5 HP	Rellance
Basin #3 sludge recirculation pump		
Basin #4 sludge recirculation pump		
Basin #5 sludge recirculation pump		
Basin #6 sludge recirculation pump		

CHEMICALS		
		Feed Pump Rating
		GPH
East naocl pump		20
West naocl pump		20
Pre tank naocl pump		20
Post tank naocl pump		2.0
Raw bypass naocl pump		2.0
Corrosion Inhibitor pump		0.58
Polyaluminum Chloride pump		1
Ammonium Sulfate, 2 pumps		7.1
Lime		N/A
Sulfuric Acid 50% 2 pumps		2.9
		Typical dose
Sodium Hypochlorite (naocl)		8.0 mg/l
Polyaluminum Chloride (Aluminum Chlorhydrate)		4.5 - 5.0 mg/l
Corrosion Inhibitor		1.0 mg/l
Ammonium Sulfate		1.1 mg/l
Lime		230 - 270 mg/l
		Full Stored
	Volume	**Type**
Sodium Hypochlorite (naocl) (4 @ 1900)	7600 gals	Polyethylene
Ammonium Sulfate (2 @ 1550)	3100 gals.	Polyethylene
Polyaluminum Chloride	2500 gals	Polyethylene
Corrosion Inhibitor	1000 gals	Polyethylene
Lime	420,000 lbs	steel
Sulfuric Acid 50% (3 @ 500)	1500 gals	Polyethylene

Miscellaneous
Rotary screw compressor
Air compressor #1
Air compressor #2
Slaker #1
Slaker #2
Slaker #3
Plant water pump #1
Plant water pump #2
Basin #1 turbine unit
Basin #2 turbine unit
Basin #1 speed reducer
Basin #2 speed reducer
Basin #3 speed reducer
Basin #4 speed reducer
Basin #5 speed reducer
Basin #6 speed reducer
Basin #3 worm gear unit
Basin #4 worm gear unit
Basin #5 worm gear unit
Basin #6 worm gear unit
South sludge thickener worm gear
South sludge thickener worm gear motor
South thickener speed reducer
North sludge thickener worm gear
North sludge thickener worm gear motor
North thickener speed reducer

WTP #2

PUMPS

High Pressure Membrane Feed Pump No.1	100 Hp	980 GPM
High Pressure Membrane Feed Pump No.2	100 Hp	980 GPM
High Pressure Membrane Feed Pump No.3	100 Hp	980 GPM
High Pressure Membrane Feed Pump No.4	100 Hp	980 GPM
Train A Booster Pump	15 Hp	450 GPM
Train B Booster Pump	15 Hp	450 GPM
Train C Booster Pump	15 Hp	450 GPM
Train D Booster Pump	15 Hp	450 GPM
Transfer Pump No.1	25 Hp	2250 GPM
Transfer Pump No.2	25 Hp	2250 GPM
Transfer Pump No.3	25 Hp	2250 GPM
High Service Pump No.1	50 Hp	700 GPM
High Service Pump No.2	75 Hp	1050 GPM
High Service Pump No.3	75 Hp	1050 GPM
High Service Pump No.4	125 Hp	2000 GPM
High Service Pump No.5	125 Hp	2000 GPM
Sodium Hypochlorite Pump No. 1	12.0 HP	12.0 GPH
Sodium Hypochlorite Pump No. 2	12.0 HP	12.0 GPH
Sodium Hypochlorite Post Pump	8.5 HP	8.5 GPH
Sulfuric Acid Metering Pump A		53 GPH
Sulfuric Acid Metering Pump B		53 GPH
Sulfuric Acid Transfer Pump No.1	2 HP	
Sulfuric Acid Transfer Pump No.2	2 HP	
Caustic Metering Pump No.1		17.6 GPH
Caustic Metering Pump No.2		17.6 GPH
Caustic Metering Pump No.3		17.6 GPH
Caustic Transfer Pump No.1	2 HP	
Caustic Transfer Pump No.2	2 HP	
Scale Inhibitor Metering Pump A		0.39 GPH
Scale Inhibitor Metering Pump B		0.39 GPH
Scale Inhibitor Metering Pump C		0.39 GPH
Corrosion Inhibitor Metering Pump No.1		14.4 GPD
Corrosion Inhibitor Metering Pump No.2		14.4 GPD
Corrosion Inhibitor Metering Pump No.3		1.0 GPH
Cleaning Pump	40 HP	720 GPM

CHEMICALS

	Feed pump rating GPH	
Sulfuric Acid (2)	63	ea.
Caustic Soda (3)	17.6	ea.
Scale Inhibitor (Aquafeed 1025) (3)	0.39	ea.
Corrosion Inhibitor (3)	0.6	ea.
Sodium Hypochlorite (2)	8.5	ea.
Sodium Hypochlorite ((post treatment pump)	5.5	ea.
Ammonia	N/A	
Sodium Lauryl Sulfate	N/A	
EDTA	N/A	

	Typical dose
Sulfuric Acid	200 mg/L
Caustic Soda	100 mg/L
Scale Inhibitor (Aquafeed 1025)	3 mg/L
Corrosion Inhibitor	1.5 mg/L
Sodium Hypochlorite	6 mg/L
Sodium Hypochlorite *(during a free chlorine burnout)*	10 mg/L
Ammonia (Annhydrous)	0.6 mg/L
Sodium Lauryl Sulfate	N/A
EDTA	N/A

	Volume	Full Stored Type
Sulfuric Acid (2)	16900 gals.	Polyethylene
Caustic Soda (2)	13500 gals.	Polyethylene
Scale Inhibitor (Aquafeed 1025) 55 gal. Drums	550 gals.	polylite
Corrosion Inhibitor (2 @ 300)	600 gals.	Molded plastic
Sodium Hypochlorite	3800 gals.	Polyethylene
Ammonia	*1000 gals.*	Steel
Sodium Lauryl Sulfate	55 gals.	Plastic drum
EDTA	*300 lbs.*	Drum

Miscellaneous

Chemical Pretreatment Inline Static Mixer	KOCH
Cartridge Can Filter No. 1	Max Design
Cartridge Can Filter No. 2	Operating
Cartridge Can Filter No. 3	Pressure 150
Cartridge Can Filter No. 4	PSI
Air Compressor for concentrate aeration treatment	
Air Blower No.1	
Air Blower No.2	
Degasser	5400 CFM

WTP #2 (ZLD)

PUMPS		
UF Feed Pump #1	20HP	339GPM
UF Feed Pump #2	20HP	339GPM
UF Feed Pump #3	20HP	339GPM
UF Feed Pump #1	20HP	339GPM
UF (CEB) Backwash pump #1	75HP	1815GPM
UF (CEB) Backwash pump #2	75HP	1815GPM
UF (CIP) Backwash pump	7.5HP	
Filtrate Transfer Pump #1	15HP	625GPM
Filtrate Transfer Pump #2	15HP	625GPM
Filtrate Transfer Pump #3	15HP	625GPM
LST Rotary Lobe Pump #1	15HP	100GPM
LST Rotary Lobe Pump #2	15HP	100GPM
LST Rotary Lobe Pump #3	15HP	100GPM
SCC Sludge Pump#1	7.5GPM	90GPM
SCC Sludge Pump#1	7.5GPM	90GPM
Equalization Tank Recycle pump #1	5HP	
Equalization Tank Recycle pump #2	5HP	
Equalization Tank Recycle pump #3	5HP	
Equalization Tank mixing pump	7.5HP	320GPM

MISCELLANEOUS		
UF Skid #1 Pentair Aquaflex 55	24 UF membranes	
UF Skid #2 Pentair Aquaflex 55	24 UF membranes	
UF Skid #3 Pentair Aquaflex 55	24 UF membranes	
UF Skid #4 Pentair Aquaflex 55	24 UF membranes	
Belt Filter Press #1 Ashbrook KP94 = 1.0M		
Belt Filter Press #2 Ashbrook KP94 = 1.0M		
Catapillar C27 Generator (moved to the membrane build		800 kW
Old Catapillar 3412 Generator (moved to the ZLD proce		600 kW
UF skid #1 HYDAC sand separator		
UF skid #2 HYDAC sand separator		
UF skid #3 HYDAC sand separator		
UF skid #4 HYDAC sand separator		
Lime Silo Capacity	140,000	Lb
Lime Slaker #1	1200	PPH
Lime Slaker #2	1200	PPH
Soda Ash Silo		

TANKS		
Solids Contact Clarifier (SCC) tank #1	115,087	GALS
Solids Contact Clarifier (SCC) tank #1	115,087	GALS
Equalization Tank	90,320	GALS
Ultra-filtration Feed Tank	37,400	GALS
Filtrate Tank #1	6,000	GALS
Filtrate Tank #2	6,000	GALS
Lime sludge Thickening tank	115,087	GALS
Ammonium Sulfate tank #1	2,000	GALS
Ammonium Sulfate tank #2	2,000	GALS
Sodium Hypchlorite Tank #1	2,550	GALS
Sodium Hypchlorite Tank #1	2,550	GALS
Sodium Hypchlorite Tank #1	2,550	GALS
Soda Ash Mix Tank #1	350	GALS
Soda Ash Mix Tank #2	350	GALS
Lime Slurry Mix Tank	500	GALS

CHEMICALS		
Lime Slurry Centrifugal pump#1	2HP	
Lime Slurry Centrifugal pump#2	2HP	
Lime Slurry Centrifugal pump#3	2HP	
Soda ash Paristaltic Pump #1	7.5HP	35GPM
Soda ash Paristaltic Pump #2	7.5HP	35GPM
Soda ash Paristaltic Pump #3	7.5HP	35GPM
Filtrate Sodium Hypochlorite Pump #1		7.7 GPH
Filtrate Sodium Hypochlorite Pump #2		7.7 GPH
Filtrate Sodium Hypochlorite Pump #3		7.7 GPH
(CEB) Sodium Hypochlorite Pump #1	1/4HP	127GPH
(CEB) Sodium Hypochlorite Pump #2	1/4HP	127GPH
(CEB) Sodium Hydroxide Pump#1	1/4HP	127GPH
(CEB) Sodium Hydroxide Pump#2	1/4HP	127GPH
(CEB) Sodium Hydroxide Pump#3	1/4HP	127GPH
(CEB) Sulfuric Acid Pump#1	1/4HP	25GPH
(CEB) Sulfuric Acid Pump #2	1/4HP	25GPH
Ammonium Sulfate pump#1		13GPH
Ammonium Sulfate pump#2		13GPH
Ammonium Sulfate pump#3		13GPH
SCC Polymer Feed Pump #1		2.5 GPH
SCC Polymer Feed Pump #2		2.5 GPH
Belt Press Polymer Feed Pump #1		2.5 GPH
Belt Press Polymer Feed Pump #2		2.5 GPH
UF Feed Tank Sulfuric Acid Pump #1		4GPH
UF Feed Tank Sulfuric Acid Pump #1		4GPH
UF Feed Tank Sulfuric Acid Pump #1		4GPH
UF Feed Tank Orthophosphate Pump #1		.21GPH
UF Feed Tank Orthophosphate Pump #2		.21GPH
SCC Ploymer activation system #1 (Paradyne)		
SCC Ploymer activation system #2 (Paradyne)		
BFP Ploymer activation system #1 (Paradyne)		
BFP Ploymer activation system #2 (Paradyne)		

CHEMICAL DOSING		
Sulfuric Acid (UF Feed)	31	Mg/l
Sulfuric Acid (CEB)	200	Mg/l
Sodium Hydroxide (CEB)	300	Mg/l
Sodium Hypchlorite (Filtrate)	10.5	Mg/l
Sodium Hypchlorite (CEB)	200	Mg/l
Polymer (SCC Basins)	1	Mg/l
Polymer (Belt Filter Press)	1	Mg/l
Corrosion Inhibitor	1	Mg/l
Ammonium Sulfate	1.5	Mg/l
Lime	824	Mg/l
Soda Ash	272	Mg/l

WTP #3

PUMPS

Process Pumps	GPM	HP
Transfer Pump	2,100	40
Transfer Pump	2,100	40
Concentrate Pump	600	40
Concentrate Pump	600	40
High Service Pump 1	1,400	100
High Service Pump 2	2,100	125
High Service Pump 3	2,100	125
High Service Pump 4	2,800	150

RO Skids

Cartridge Filters (2 vessels)
72 40-inch cartridges e a
High Pressure Feed Pumps (2)
976-1042 gpm ea
100 HP ea

Interstage Booster Pumps (2)
440 gpm ea
40 HP ea
Cleaning Pump (1)
400 gpm
30 HP ea
Cleaning Cartridge Filters (1 vessel)
40 40-inch cartridges
Membrane Cleaning Tanks (2)
3,000 gal ea

Miscellaneous

Odor Control Scrubber System			
Air Flow	12,500	cfm	
Circulation Pumps (4)	200	gpm ea	7.5 HP ea
Concentrate Degasification Tower			
Air Flow	2,500	cfm	
Blowers (1)	7.5	HP	
Permeate Degasification			
Air Flow	10,000	cfm	
Blowers (1)	25	HP	
Blend Water Cartridge Filter	1 vessel w/52 40-inch cartridges		

CHEMICALS

		Feed pump rating GPH	
Sodium Hypochlorite - finished water (2)		7.7	ea.
Sodium Hypochlorite - odor control (2)		24	ea.
Sodium Hydroxide - finished water (2)		24	ea.
Sodium Hydroxide - odor control (2)		24	ea.
Ammonia Feed Pumps (2)		3.67	ea.
Acid Feed Pumps (2)		5.06	ea.
Corrosion Control (2)		2.37	ea.
Anti-Scalant Feed Pumps		2.37	ea.

		Typical Dose	
Sodium Hypochlorite - finished		7.0-10.0	mg/L
Sodium Hypochlorite - odor		off-line	(low H2S conc)
Sodium Hydroxide - finished		40-60	mg/L
Sodium Hydroxide - odor	Stage 1	1.0	gph
	Stage 2	0.1	gph
Ammonium Sulfate		1.3	mg/L
Acid		off-line	(low H2S conc)
Corrosion Control		3.0-5.0	mg/L
Anti-Scalant		2.0-4.0	mg/L

	Volume (gal)	
Sodium Hypochlorite (2)	6,500	ea
Sodium Hyroxide (2)	6,500	ea
Sulfuric Acid (2)	275	ea
Scale Inhibitor (1)	65	
Purchased in 55-gal drums. Max amt is 10 drums + 65 gal tank =615 gal		
Corrosion Control (2)	400	
Ammonia (2)	800	ea

Concentrate Pre-Treatment

Concentrate Iron Removal Stage 1	(35) -	5-µm cartridge filter vessel 40-in. long
Concentrate Iron Removal Stage 2	(35) -	1-µm cartridge filter vessel 40-in. long
Ozone Generator - Mod. QB20-XXXM-BFD		150 PPD
Ozone Generator Intercooler - Mod. EXW50U12220040A 7035		
Oxygen Generator - Mod. # DOCS 500-55		
Chiller (1)	Color Analyzer	Ozone Destruction Unit
Injection Pump (3)	10 HP Each	Ambient Ozone Analyzer (3)

APPENDIX B

Raw Water Monitoring Program Well Production Data

CITY OF PALM COAST
WATER TREATMENT PLANTS #1, 2 & 3
RAW WATER MONITORING PROGRAM, HYDROLOGIC DATA
July 2016 through June 2017

WELL #	RECOM. YIELD (GPM)	12 MONTH AVERAGE YIELD (GPM)	PEAK MONTH YIELD (GPM)	AUX POWER PROVIDED
GROUP 1				
SW-8	125	0	0	
SW-14 ss	120	41	48	
SW-32 sl	120	26	31	
SW-33 ss	200	63	88	Y
SW-36	200	184	170	Y
SW-58	275	216	245	Y
SW-60	100	46	88	
SW-41 ss	200	87	80	Y
SW-62 ss	200	38	50	Y
SW-106	140	29	44	
GROUP 2				
SW-4R ss	200	98	103	
SW-6R ss	300	73	90	Y
SW-27 ss	275	82	105	Y
SW-29R ss	150	94	130	
SW-34	250	78	115	Y
SW-59 p	225	201	200	Y
SW-105	100	75	75	
SW-83 ss	500	189	195	Y
SW-107	200	19	31	
SW-114 ss	250	53	65	Y
GROUP 3				
SW-5 ss	250	80	97	Y
SW-7	150	54	60	
SW-13 ss	80	73	90	
SW-28 ss	250	109	105	Y
SW-30 sl	125	20	23	
SW-31ss	250	76	72	Y
SW-35 ss	200	91	100	Y
SW-61	60	32	38	
SW-115 ss	400	120	140	Y
SW-42 ss	150	97	100	
SW-43 p	300	40	130	Y
TOTAL CAPACITY (GPM)	**6,345**	**2,482**	**2,908**	
TOAL CAPACITY (MGD)	**9.14**	**3.57**	**4.19**	
CAPACITY WITH LARGEST WELL OUT (GPM) SW-83/58	**5,845**	**2,266**	**2,663**	
TOAL CAPACITY (MGD)	**8.42**	**3.26**	**3.83**	
WELLS WITH AUX. POWER (GPM)	**4,525**	**1,780**	**2,047**	
WELLS WITH AUX. POWER (MGD)	**6.52**	**2.56**	**2.95**	

WTP#2 LIMESTONE WELLS				
LW-14	200	228	0	
LW-19	350	360	370	
LW-21	833	294	630	
LW-23	833	585	630	Y
LW-30	450	398	600	Y
LW-31	833	269	340	Y
LW-32	350	247	278	Y
LW-49	451	302	350	Y
TOTAL CAPACITY (GPM)	**4,300**	**2,682**	**3,198**	
TOAL CAPACITY (MGD)	**6.19**	**3.86**	**4.61**	
CAPACITY WITH LARGEST WELL OUT (GPM) LW-23	**3,467**	**2,097**	**2,568**	
TOAL CAPACITY (MGD)	**4.99**	**3.02**	**3.70**	
WELLS WITH AUX. POWER (GPM)	**2,917**	**1,800**	**2,198**	
WELLS WITH AUX. POWER (MGD)	**4.20**	**2.59**	**3.17**	

WTP#3 CONFINED SURFICIAL WELLS				
SW-37 ss	250	66	75	Y
SW-38 ss	250	78	80	Y
SW-121 ss	175	96	95	
SW-122 ss	200	136	144	
SW-123 ss	250	210	220	
SW-124 ss	250	195	220	
SW-125 ss	275	163	185	Y
SW-126 ss	175	123	0	Y
SW-127 ss	250	335	340	
SW-128 ss	250	88	0	
SW-129 ss	250	185	203	
SW-133 ss	300	82	85	Y
SW-134 ss	250	21	89	
SW-135 ss	200	58	100	
SW-136 ss	250	244	265	
SW-141 ss	600	441	545	Y
SW-142 ss	600	336	370	Y
SW-144 ss	400	315	360	Y
SW-145 ss	600	331	370	Y
SW-146 ss	600	419	580	Y
TOTAL CAPACITY (GPM)	**6,375**	**3,922**	**4,326**	
TOAL CAPACITY (MGD)	**9.18**	**5.65**	**6.23**	
CAPACITY WITH LARGEST WELL OUT (GPM) SW=141	**5,775**	**3,481**	**3,781**	
TOAL CAPACITY (MGD)	**8.32**	**5.01**	**5.44**	
WELLS WITH AUX. POWER (GPM)	**4,050**	**2,354**	**2,650**	
WELLS WITH AUX. POWER (MGD)	**5.83**	**3.39**	**3.82**	

1	2	3	4	5	6	7	8	9	10	11	12
					2016						2017
7	8	9	10	11	12	1	2	3	4	5	6
CURR. YIELD (GPM)	CURR. YIELD (GPM)	CURR. YIELD (GPM)	CURR. YIELD (GPM)	CURR. YIELD (GPM)	CURR. YIELD (GPM)	CURR. YIELD (GPM)	CURR. YIELD (GPM)	CURR. YIELD (GPM)	CURR. YIELD (GPM)	CURR. YIELD (GPM)	CURR. YIELD (GPM)
0	0	0	0	0	0	0	0	0	0	0	0
48	45	37	50	48	43	35	40	30	32	38	46
31	30	31	31	31	31	31	0	0	30	30	31
88	65	68	87	95	68	53	68	60	55	45	0
170	170	195	208	205	180	180	215	175	160	175	170
245	235	235		235	235	240	240	235	235	230	225
88	57	48	37	50	43	43	45	43	42	30	28
80	75	155	79	80	88	50	70	57	80	140	95
50	42	45	64	52	40	35	43	0	0	45	42
44	40	38	40	42	25	22	25	25	25	20	0
844	**759**	**852**	**596**	**838**	**753**	**689**	**746**	**625**	**659**	**753**	**637**
103	88	88	92	90	95	100	100	100	105	105	105
90	74	85	70	70	60	60	62	65	54	60	128
105	84	90	90	90	85	80	80	80	65	70	65
130	128	120	128	130	0	0	0	135	125	115	115
115	89	90	82	80	77	70	70	60	70	72	65
200	200	200	212	210	200	205	200	200	195	195	195
75	70	72	80	80	70	70	78	78	75	73	73
195	210	200	218	215	180	180	180	180	155	170	185
31	30	28	0	0	0	0	0	35	38	35	25
65	40	60	57	68	65	55	55	39	45	45	40
1109	**1013**	**1033**	**1029**	**1033**	**832**	**820**	**825**	**972**	**927**	**940**	**996**
97	80	80	88	85	80	80	68	80	75	75	68
60	54	54	58	57	53	55	56	53	52	53	47
90	78	80	75	80	75	65	69	68	68	63	60
105	105	107	120	115	100	115	100	110	120	105	103
23	20	16	22	26	20	19	21	20	21	18	18
72	72	72	90	100	60	78	60	72	0	121	115
100	104	95	97	100	90	90	90	85	85	85	75
38	37	30	30	35	30	30	30	30	30	32	30
140	120	130	145	0	140	140	135	125	120	128	115
100	72	70	84	105	40	115	115	110	130	112	110
130	143	0	0	0	0	0	0	0	208	0	0
955	**885**	**734**	**809**	**703**	**688**	**787**	**744**	**753**	**909**	**792**	**741**
2908	**2657**	**2619**	**2434**	**2574**	**2273**	**2296**	**2315**	**2350**	**2495**	**2485**	**2374**

Peak Month 2908

0	0	0	0	305	350	310	350	285	400	380	355
380	370	365	370	350	365	380	360	350	325	350	350
468	630	610	615	625	580	0	0	0	0	0	0
390	630	620	655	680	580	310	585	600	700	650	620
680	600	425	545	0	0	0	510	300	525	560	635
340	340	300	0	0	370	335	330	290	310	300	310
215	278	220	270	277	250	250	250	153	265	260	270
262	350	310	318	315	220	300	330	355	380	265	215
2735	**3198**	**2850**	**2773**	**2552**	**2715**	**1885**	**2715**	**2333**	**2905**	**2765**	**2755**

Peak Month 3198

72	47	65	75	55	58	73	65	78	70	75	60
78	78	80	80	80	75	80	75	80	78	75	75
97	92	98	95	100	95	98	100	95	92	95	95
140	135	138	144	153	140	138	140	140	0	180	185
218	195	200	220	215	210	220	210	190	218	210	210
218	190	200	220	0	218	220	220	195	225	225	210
177	140	150	185	170	160	170	175	140	155	175	160
139	125	130	0	138	138	142	130	120	138	137	133
305	335	335	340	340	335	335	340	335	340	335	340
163	0	0	0	0	110	160	125	160	125	110	108
205	200	200	203	0	210	202	200	200	200	200	200
100	100	105	85	0	108	90	75	66	90	95	75
0	0	0	89	78	82	0	0	0	0	0	0
53	55	58	100	67	65	60	55	50	43	50	44
290	265	260	265	265	260	255	265	255	232	158	160
435	430	460	545	550	500	395	460	510	478	0	530
0	280	370	370	400	390	380	360	365	370	380	365
305	310	310	360	288	295	320	320	310	325	345	295
380	380	375	370	380	370	0	350	335	345	345	340
515	450	0	580	395	395	500	440	400	465	480	405
3890	**3807**	**3534**	**4326**	**3674**	**4214**	**3838**	**4105**	**4024**	**3989**	**3670**	**3990**

Peak Month 4326

APPENDIX C

2017 vs. 2016 Population Projection Comparison

POPULATION PROJECTION COMPARISON 2017 vs. 2016

Previous Capacity Analysis Reports for the City, have determined projected water demands, based upon the Bureau of Economic and Business Research (BEBR), Florida Population Studies. BEBR offers population estimates which are categorized as low, medium and high, occurring in five year increments. The City has been using the average of the low and medium estimates to project population numbers for estimated future water demands and ultimately, determining when treatment plant and well field expansions would be needed. This is a reasonable methodology which accounts for a realistic growth rate, giving an appropriate amount of time to accumulate capital funding for future facility expansion needs.

According to Census information, in 2010, the City had a population of 75,180 and was estimated to have a population of 79,821 in 2015. This is a 6.2% increase over a five year period, or approximately 1.23% increase per year. In 2016, the City's population was estimated to be 81,184. This represented 78% of the total population within Flagler County. A comparison of the 2016 and 2017 BEBR population projections and corresponding City of Palm Coast population estimates are shown in Exhibit 1-A. For the period of time from 2020 to 2040, the difference between the 2016 and 2017 estimates is that there is a steady decline in growth rate, with the 2017 projections to be the lesser of the two. This does not imply a decrease in population, rather a lowering of the rate of population increase over time. For the purpose of the Water System Capacity Analysis, the greater growth rate as predicted by the 2016 data is recommended until at least two (2) consecutive years of BEBR data showing a reduced rate and then the capacity analysis report would be adjusted accordingly.

City of Palm Coast, Population Projections for Capacity Analysis Report, 2016 & 2017

Projections of Florida Population by County
2020–2045

4/1/2020 4/1/2025 4/1/2030 4/1/2035 4/1/2040 4/1/2045

BEBR
Volume 49, Bulletin 174, January 2016
FLAGLER COUNTY

Population Estimates	YEAR	2020	2025	2030	2035	2040	2045
Low		109,400	118,400	126,800	133,500	137,200	139,200
Low Medium Average		114,750	128,350	141,200	152,850	161,550	169,150
Medium		120,100	138,300	155,600	172,200	185,900	199,100
High		127,700	151,500	176,900	203,600	229,200	255,400

Beginning of Year	1/1/2020	1/1/2025	1/1/2030	1/1/2035	1/1/2040	
Mid Year	7/1/2020	7/2/2025	7/2/2030	7/2/2035	7/1/2040	
Data Shift (days)	91.5	92.5	92.5	92.5	91.5	
	Mid Year Conversion					
Low	109,851	118,826	127,139	133,687	137,300	
Low Medium Average	115,431	129,001	141,790	153,290	161,931	
Medium	121,012	139,176	156,441	172,894	186,561	
High	128,893	152,787	178,253	204,896	230,513	

ESTIMATE DATE	4/1/2015	4/1/2010	4/1/2000
ERU	2.43	2.42	2.32
Households	41,411	39,186	21,294

City Estimates
Choose a city: PALM COAST
2010 Census Count: 75,180
2015 Estimate: 79,821

	BEBR 4/1/2015	**BEBR 4/1/2016**	Estimated 7/1/2016
Palm Coast Population	79,821	**81,184**	81,523
Flagler County	101,353	**104,037**	
	78.8%	**78.0%**	

Service Territory:

Active Customers Outside City	2,380 (Num of ERUs)
Equivalent Population	5,783
Outside Population % of City and Oustide Customer Combined	**6.62%**

CITY POPULATION ESTIMATES					
Palm Coast Projected % of Flagler County Population	**YEAR**				
	2020-2024	2025-2029	2030-2034	2035-2039	2040
% of BEBR Low and Medium Average	78.0%				
% of BEBR Medium		80%			
% of BEBR Medium			82.5%	85%	85%
Mid Year Adjustment	**July**	**July**	**July**	**July**	**July**
Year	**2020**	**2025**	**2030**	**2035**	**2040**
Palm Coast Estimated Population	**90,076**	**110,640**	**129,064**	**146,960**	**158,577**

Projections of Florida Population by County
2020–2045

4/1/2020 4/1/2025 4/1/2030 4/1/2035 4/1/2040 4/1/2045

BEBR
Volume 50, Bulletin 177, April 2017
FLAGLER COUNTY

Flagler Current 103,095

Population Estimates	YEAR	2020	2025	2030	2035	2040	2045
Low		106,700	114,000	120,500	125,900	130,200	133,500
Low Medium Average		111,000	122,000	131,950	140,950	149,050	156,200
Medium		115,300	130,000	143,400	156,000	167,900	178,900
High		122,100	141,700	161,900	183,000	205,100	227,900

Beginning of Year	1/1/2020	1/1/2025	1/1/2030	1/1/2035	1/1/2040	
Mid Year	7/1/2020	7/2/2025	7/2/2030	7/2/2035	7/1/2040	
Data Shift (days)	91.5	92.5	92.5	92.5	91.5	
	Mid Year Conversion					
Low	107,066	114,329	120,774	126,118	130,365	
Low Medium Average	111,551	122,504	132,406	141,360	149,408	
Medium	116,037	130,679	144,038	156,602	168,451	
High	123,082	142,723	162,969	184,119	206,242	

ESTIMATE DATE	4/1/2015	4/1/2010	4/1/2000
ERU	2.43	2.42	2.32
Households	41,411	39,186	21,294

City Estimates
Choose a city: PALM COAST
2010 Census Count: 75,180
2015 Estimate: 79,821

	BEBR 4/1/2015	**BEBR 4/1/2016**	Estimated 7/1/2017
Palm Coast Population	79,821	**81,184**	82,882
Flagler County	101,353	**103,095**	
	78.8%	**78.7%**	

Service Territory:

Active Customers Outside City	2,380 (Num of ERUs)
Equivalent Population	5,783
Outside Population % of City and Oustide Customer Combined	**6.52%**

CITY POPULATION ESTIMATES					
Palm Coast Projected % of Flagler County Population	**YEAR**				
	2020-2024	2025-2029	2030-2034	2035-2039	2040
% of BEBR Low and Medium Average	78.7%				
% of BEBR Medium		80%			
% of BEBR Medium			82.5%	85%	85%
Mid Year Adjustment	**July**	**July**	**July**	**July**	**July**
Year	**2020**	**2025**	**2030**	**2035**	**2040**
Palm Coast Estimated Population	**87,843**	**104,000**	**118,832**	**133,112**	**143,184**
% Change 2016 to 2017	-3%	-6%	-9%	-10%	-11%

City of Palm Coast, Florida
Agenda Item

Agenda Date: 01/17/2018

Department	PLANNING	**Amount**	
Item Key		**Account #**	

Subject ORDINANCE 2018-XX REPEALING CHAPTER 54 WIRELESS TELECOMMUNICATIONS OF THE CITY'S CODE OF ORDINANCES AND AMEND CHAPTER 4 WIRELESS COMMUNICATION FACILITIES OF THE UNIFIED LAND DEVELOPMENT CODE

Background :

UPDATE FROM THE JANUARY 9, 2018 WORKSHOP

This item was heard by City Council at their January 9, 2018 Workshop. There were no changes suggested to this item. However, there were some final legal revisions made to the Ordinance.

ORIGINAL BACKGROUND FROM THE JANUARY 9, 2018 WORKSHOP

The wireless communications project under consideration consists of three components: a revised Wireless Communication Facilities Ordinance in the City's Land Development Code, proposed amendments to the City's ROW Ordinance to regulate small cell facilities in the ROW, and a proposed Wireless Master Plan.

This item is to repeal Chapter 54 "Wireless Telecommunications" of the Code of Ordinances and amend Section 4-20, "Wireless Communication Facilities" of Chapter 4, "Conditions for limited specific uses and activities" in the City's Unified Land Development Code.

The proposed revisions to Section 4.20 of the City's Unified Land Development Code includes the following changes:

1) Allowance for administrative review for specified applications, included recommended sites within the City's proposed Wireless Master Plan (WMP);
2) Promote publically-owned properties identified in the WMP as the most suitable for siting telecommunication facilities and create incentives for their use;
3) Provide renewed guidance and assistance to telecommunication applicants in the siting and design of proposed facilities.

Recommended Action :

Planning Staff recommends that the Planning and Land Development Regulation Board (PLDRB) recommend to the City Council approval of Ordinance 2018-XX repealing Chapter 54 Wireless Telecommunications of the City's Code of Ordinances and amend Chapter 4 Wireless Communication Facilities of the Unified Land Development Code to the City Council.

ORDINANCE 2018-____
AMENDING THE UNIFIED LAND DEVELOPMENT CODE

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF PALM COAST, FLORIDA REPEALING CHAPTER 54 "WIRELESS TELECOMMUNICATIONS" OF THE CODE OF ORDINANCES OF THE CITY OF PALM COAST; AMENDING THE UNIFIED LAND DEVELOPMENT CODE OF THE CITY OF PALM COAST BY AMENDING CHAPTER 3, "ZONING, USES, AND DIMENSIONAL STANDARDS", SECTION 3.02.01 "RESIDENTIAL ZONING DISTRICTS", TABLE 3-2, TO CROSS REFERENCE SECTION 4.20 RELATING TO WIRELESS COMMUNICATION FACILITIES; AND AMENDING SECTION 3.03.02 "NONRESIDENTIAL AND MIXED USE DISTRICTS – ALLOWABLE USES", TABLE 3-4, TO CROSS REFERENCE SECTION 4.20 RELATING TO WIRELESS COMMUNICATION FACILITIES; REPEALING AND REPLACING SECTION 4-20, "WIRELESS COMMUNICATION FACILITIES" OF CHAPTER 4, "CONDITIONS FOR LIMITED SPECIFIC USES AND ACTIVITIES" TO AMEND AND UPDATE REGULATIONS REGARDING COMMUNICATIONS FACILITIES CONSISTENT WITH APPLICABLE STATE AND FEDERAL LAW, AND TO RENAME SECTION 4.20 TO READ "WIRELESS TELECOMMUNICATIONS"; AMENDING SECTION 14.02, "GLOSSARY" TO UPDATE DEFINITIONS RELATING TO WIRELESS COMMUNICATION FACILITIES; PROVIDING FOR SEVERABILITY; PROVIDING FOR CODIFICATION; PROVIDING FOR CONFLICTS; AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, advances in telecommunications infrastructure have been developed which help to meet wireless system capacity demands in dense areas through the deployment of localized networks of antennas; and

WHEREAS, the provisions of the City of Palm Coast Unified Land Development Code regulating communication towers and communication antennas require updating to address current technology and practices utilizing wireless communication facilities on real property and in the public rights-of-way; and

WHEREAS, it is in the best interests of the citizens, business, and visitors in the City of Palm Coast to ensure there is sufficient wireless communication service; and

WHEREAS, the City of Palm Coast has a substantial and significant public interest in regulating the siting of communication towers, communication antennas, and wireless communication facilities to promote the public health, safety, aesthetics, and general welfare; and

WHEREAS, the City of Palm Coast has a substantial and significant public interest in protecting residential areas and land uses from potential adverse impacts of communication towers, communication antennas, and wireless communication facilities; and

WHEREAS, the City of Palm Coast desires to avoid potential damage to adjacent properties from tower or wireless communication facility failure through engineering and careful siting; and

WHEREAS, the City of Palm Coast desires to accommodate the growing need and demand for communication services while minimizing visual and other impacts of wireless communication facilities on surrounding areas by establishing standards for location, design, landscape screening, and compatibility; and

WHEREAS, the Emergency Communications Number E911 Act, Chapter 365, Florida Statutes, (the "Act") addresses, inter alia, local governments' regulation of the placement, construction or modification of wireless communications facilities; and

WHEREAS, the Act establishes parameters for the regulation of communications facilities, and allows local governments to review any applicable land development or zoning issue, including, but not limited to, aesthetics, landscaping, land use based location priorities, structural design, and setbacks; and

WHEREAS, Section 337.401 et seq., Florida Statutes, addresses, inter alia, the authority of municipalities to regulate the placement and maintenance of communications facilities in the public rights-of-way; and

WHEREAS, the Florida Legislature has adopted, and on June 23, 2017, the Governor signed into law, effective July 1, 2017, the Advanced Wireless Infrastructure Deployment Act codified at Section 337.401(7), Florida Statutes, which places certain limitations on local government authority to regulate the collocation of small wireless facilities within the public rights-of-way; and

WHEREAS, courts applying Florida and federal law have held that a municipality may impose reasonable design limitations on communications facilities that deal directly with a concern for aesthetics and may regulate the placement of wireless facilities where such regulation does not prohibit or effectively prohibit the provision of wireless services; and

WHEREAS, the City Council of the City of Palm Coast desires to establish uniform standards and guidelines for the siting, design, and permitting of communication towers, communication antennas, and wireless communication facilities in the City of Palm Coast and to establish review procedures to ensure that applications for same are acted upon consistent with state and federal law; and

WHEREAS, at a regularly scheduled meeting on January 17, 2018, the City's Planning and Land Development Regulation Board voted in favor of the proposed revisions; and

WHEREAS, the City Council hereby finds this Ordinance consistent with the Comprehensive Plan of the City of Palm Coast, and in the best interest of the public health, safety, and welfare of the public and citizens of the City of Palm Coast, Florida, while complying with the Act and all other state and federal laws and regulations governing communications facilities; and

WHEREAS, words with <u>double underlined</u> type shall constitute additions to the original text and ~~strike through~~ type shall constitute deletions to the original text, and asterisks (* * *)

indicate that text shall remain unchanged from the language existing prior to adoption of this Ordinance.

NOW, THEREFORE, IT IS HEREBY ORDAINED BY THE CITY OF PALM COAST, FLORIDA:

SECTION 1. LEGISLATIVE AND ADMINISTRATIVE FINDINGS. The above recitals (whereas clauses) are hereby adopted as the legislative and administrative findings of the City Council.

SECTION 2. REPEALING CHAPTER 54, WIRELESS TELECOMMUNICATIONS. That Chapter 54, Wireless Telecommunications, of the City of Palm Coast Code of Ordinances, is hereby repealed in its entirety.

SECTION3. AMENDING TABLE 3-2 OF SECTION 3.02.02. That Table 3-2, of Section 3.02.02, Residential Districts—Allowable Uses, of Chapter 3, Zoning, Uses, and Dimensional Standards, of the Unified Land Development Code of the City of Palm Coast is hereby amended to read as follows:

Table 3-2. Residential Zoning Districts—Use Table

* * *

USES	SFR-1	SFR-2	SFR-3	SFR 4 & 5	EST-1	EST-2	AGR	DPX	MFR 1 & 2	MHD	MPD
Veterinary Clinics and Services	-	-	-	-	-	S	P	-	-	-	P
Wholesale/Retail Fertilizer Sales	-	-	-	-	-	-	P	-	-	-	-
Wireless Communication Facilities **(L)**	~~P~~ L	~~P~~ L	~~P~~ L	~~P~~ L	~~P~~ L	~~P~~ L	~~P~~ L	~~P~~ L	~~P~~ L	~~P~~ L	~~P~~ L

SECTION 4. AMENDING TABLE 3-4 OF SECTION 3.03.02. That Table 3-4, of Section 3.03.02, Nonresidential and Mixed Use Districts – Allowable Uses, of Chapter 3, Zoning, Uses, and Dimensional Standards, of the Unified Land Development Code of the City of Palm Coast is hereby amended to read as follows:

Table 3-4. Nonresidential and Mixed Use Zoning Districts – Use Table

* * *

Specific Use Type	COM-1	COM-2	COM-3	OFC-1	OFC-2	IND-1	IND-2	PSP	P & G	PRS	MPD 1
Wastewater Treatment Facilities	-	-	-	-	-	-	-	S	-	-	-
Water Supply Plants	-	-	-	-	-	-	-	S	-	-	P
Wireless Communication Facilities (L)	~~P~~ L	~~P~~ L	~~P~~ L	~~P~~ L	~~P~~ L	~~P~~ L	~~P~~ L	~~P~~ L	~~P~~ L	~~P~~ L	~~P~~ L

* * *

SECTION 5. REPEAL AND REPLACEMENT OF SECTION 4.20, WIRELESS COMMUNICATION FACILITIES. That Section 4.20, Wireless Communication Facilities, of Chapter 4, Conditions for Limited Specific Uses and Activities, of the City of Palm Coast Unified Land Development Code is hereby repealed and reestablished as shown in Attachment "A".

SECTION 6. AMENDMENT OF SECTION 14.02, GLOSSARY. That Section 14.02 of Chapter 14, Glossary, of the City of Palm Coast Unified Land Development Code is hereby amended as shown in Attachment "B".

SECTION 7. SEVERABILITY. It is hereby declared to be the intention of the City Council that the sections, paragraphs, sentences, clauses and phrases of this Code are severable, and if any phrase, clause, sentence, paragraph or section of this Code shall be declared unconstitutional by the valid judgment or decree of a court of competent jurisdiction, such unconstitutionality shall not affect any of the remaining phrases, clauses, sentences, paragraphs and sections of this Code.

SECTION 8. CODIFICATION. It is the intention of the City Council of the City of Palm Coast, Florida, and it is hereby ordained that the provisions of this Ordinance shall become and be made a part of the Code of Ordinances of the City of Palm Coast, Florida; that the Sections of this Ordinance may be renumbered or re-lettered to accomplish such intention; that the word, "Ordinance" may be changed to "Section," "Article," or other appropriate word.

SECTION 9. CONFLICTS. All ordinances or parts of ordinances in conflict with this Ordinance are hereby repealed.

SECTION 10. EFFECTIVE DATE. This Ordinance shall become effective immediately upon its passage and adoption.

Approved on first reading this ___ day of _____ 2018.

Adopted on second reading after due public notice and hearing this ___ day of _____ 2018.

CITY OF PALM COAST, FLORIDA

ATTEST:

MILISSA HOLLAND, MAYOR

VIRGINIA A. SMITH, CITY CLERK

Approved as to form and legality

William E. Reischmann Jr. Esq.

ATTACHMENT "A"

SECTION 4.20 - WIRELESS TELECOMMUNICATIONS

Sec. 4.20.01. - Legislative purposes.

A. The legislative purposes of this section are to:

(1) Promote the health, safety, and general welfare of the public by regulating the siting of wireless communication facilities.

(2) Minimize the impacts of wireless communication facilities on surrounding areas by establishing standards for location, structural integrity and land use compatibility.

(3) Establish standards for preferred siting, design and screening by requiring consistency with the City's Wireless Master Plan, consistent with the Telecommunications Act of 1996, and Section 6409(a) of the Middle Class Tax Relief and Job Creation Act of 2012 ("Spectrum Act").

(4) Encourage the use of public lands, buildings, and structures as locations for wireless telecommunications infrastructure thereby establishing more ability to manage selected sites identified in the City's Wireless Master Plan.

(5) Encourage coordination and collocation of antennas on existing structures to meet coverage needs and promote the efficient use of existing infrastructure.

(6) Accommodate the growing need and demand for wireless communications services in a manner that ensures the placement, construction or modification of wireless communication facilities complies with all applicable state and federal laws.

(7) Ensure there is sufficient wireless infrastructure to support public safety communication services throughout the City, including times of evacuation and disaster response.

(8) Encourage providers of wireless communication facilities to locate wireless communication facilities in areas where the need is demonstrated and planned for and adverse impacts on the community is minimal.

(9) Respond to the rational policies embodied in the Telecommunications Act of 1996 in such a manner as not to unreasonably discriminate between providers of functionally equivalent personal wireless services or to prohibit or have the effect of prohibiting personal wireless services.

(10) Ensure that land use decisions are made in consideration of, and in compatibility with, the goals, objectives and policies of the City of Palm Coast Comprehensive Plan and its land development regulations as set forth in the Land Development Code (LDC).

B. It is the intent of this section that all actions of the City be consistent with controlling federal and state law.

C. The City Council of the City of Palm Coast hereby finds and determines that this section is consistent with the goals, objectives and policies of the City of Palm Coast Comprehensive Plan and other controlling law.

Sec. 4.20.02. - Definitions.

Ancillary structure means, for the purposes of this section, any form of development associated with a WCF including, but not limited to: foundations, concrete slabs on grade, guy anchors, generators, and transmission cable supports; provided, however, specifically excluding equipment cabinets.

Anti-climbing device means a piece or pieces of equipment, which are either attached to an antenna support structure, or which are freestanding and are designed to prevent people from climbing the structure. These devices may include, but are not limited to, fine mesh wrap around structure legs, "squirrel-cones," or other approved devices, but excluding the use of barbed or razor wire.

Antenna means any apparatus designed for the transmitting and/or receiving of electromagnetic waves including, but not limited to: telephonic, radio or television communications. Types of elements include, but are not limited to: omni-directional (whip) antennas, sectionerized (panel) antennas, multi or single bay (FM and TV), yagi, or parabolic (dish) antennas.

Antenna array means a single or group of antenna elements and associated mounting hardware, transmission lines, or other appurtenances which share a common attachment device such as a mounting frame or mounting support structure for the sole purpose of transmitting or receiving electromagnetic waves.

Antenna element means any antenna or antenna array.

Freestanding WCF or collocations means those where the antenna or antenna array is located on towers, concealed or nonconcealed, together with the ancillary structures, feed lines, equipment shelters, and other necessary facilities, which may be located either on or in the tower.

Attached WCF means an antenna or antenna array that is secured to an existing base station with any accompanying pole or device which attaches it to the building or structure, together with transmission cables, and an equipment cabinet, which may be located either on the roof or inside/outside of the building or structure. An attached WCF is considered to be an accessory use to the existing principal use on a site.

Base Station means a structure or equipment at a fixed location that enables FCC-licensed or authorized wireless communications between user equipment and a communications network. The term does not encompass a tower as defined herein, or any equipment associated with a tower. “Base station” includes, without limitation:

(1) Equipment associated with wireless communications services such as private, broadcast, and public safety services, as well as unlicensed wireless services and fixed wireless services such as microwave backhaul.

(2) Radio transceivers, antennas, coaxial or fiber-optic cable, regular and backup power supplies, and comparable equipment, regardless of technological configuration (including distributed antenna systems (“DAS”) and small-cell networks).

(3) Any structure other than a tower that, at the time the relevant application is filed with the City under this subsection, supports or houses equipment described in subsections (1) and (2) of this definition that has been reviewed and approved under the applicable zoning or siting process, or under another state or local regulatory review process, even if the structure was not built for the sole or primary purpose of providing that support.

The term does not include any structure that, at the time the relevant application is filed with the City under this subsection, does not support or house equipment described in subsections (1) and (2) of this definition.

Breakpoint technology means the engineering design of a monopole wherein a specified point on the monopole is designed to have stresses concentrated so that the point is at least five percent more susceptible to failure than any other point along the monopole so that in the event of a structural failure of the monopole, the failure will occur at the breakpoint rather than at the base plate, anchor bolts, or any other point on the monopole.

Collocation means the situation in which a second or subsequent communications services provider or a pass-through provider uses an existing structure to locate a second or subsequent antenna or wireless communication facility. The term includes the ground, platform, or roof installation of equipment enclosures, cabinets, or buildings, and cables, brackets, and other equipment associated with the location and operation of a communication antenna.

Combined antenna means an antenna or an antenna array designed and utilized to provide services for more than one wireless provider for the same or similar type of services.

Concealed means a tower, base station, ancillary structure, or equipment compound that is not readily identifiable as a wireless communication facility, and is designed to be aesthetically compatible with existing and proposed building(s) and uses on a site or in the neighborhood or area. There are two types of concealed facilities:

(1) Concealed base stations may include painted antenna and feed lines to match the color of a building or structure, faux parapets, windows, dormers, or other architectural features that blend with an existing or proposed or structure.

(2) Concealed freestanding towers which look like something else that is common in the region such as a church steeple, bell tower, clock tower, light standard, flagpole with a flag that is proportional in size to the height and girth of the tower, or tree that grows naturally or is commonly found in the area.

Development area means the area occupied by a WCF including, but not limited to, areas inside or under the following: an antenna-support structure's framework, equipment cabinets, ancillary structures and access ways.

Eligible Facilities Request means any request for modification of an existing tower or base station that, in accordance with the definitions contained in FCC regulations codified at 47 C.F.R. § 1.40001, does not substantially change the physical dimensions of the existing support structure and is requesting:

(1) Collocation of new transmission equipment;
(2) Removal of existing transmission equipment; or
(3) Replacement of existing transmission equipment.

Eligible support structure means any tower or base station that is existing at the time the relevant application is filed with the City under this subsection.

Environmentally Sensitive Lands are as provided in Chapter 10 of the Unified Land Development Code-Environmental and Cultural Resource Protection.

Equipment cabinet means any structure above the base flood elevation including, but not limited to, cabinets, shelters, pedestals, and other similar structures. Equipment cabinets are used exclusively to contain radio or other equipment necessary for the transmission or reception of wireless communication signals.

Equipment compound means the fenced area surrounding the ground-based wireless communication facility including, but not limited to, the areas inside or under the following: the tower's framework and ancillary structures such as equipment necessary to operate the antenna on the WCF that is above the base flood elevation including: cabinets, shelters, pedestals, and other similar structures.

Equipment facility means a room, cabinet, shelter, pedestal, build-out of an existing structure, building, or similar structure used to house ancillary equipment for a communication tower or antenna. Each such cabinet, shelter, or building shall be considered a separate equipment facility.

Existing means a constructed tower or base station existing for purposes of this section that has been reviewed and approved under the applicable zoning or siting process, or under another State or local regulatory review process, provided that a tower that has not been reviewed because it was not in a zoned area when it was built, but was lawfully constructed, is existing for purposes of this subsection.

Expedited collocation application means collocation applications, or portions thereof, on towers or base stations, excluding collocations on a historic building, structure, site, object, or district, that meet the criteria set forth in Section 365.172(13)(a), F.S., as amended.

FAA means the Federal Aviation Administration.

FCC means the Federal Communications Commission.

Feed lines means cables used as the interconnecting media between the transmission/receiving base station and the antenna.

Flush-mounted means any antenna or antenna array attached directly to the face of the support structure or building such that no portion of the antenna extends above the height of the support structure or building. Where a maximum flush-mounting distance is given, that distance shall be measured from the outside edge of the support structure or building to the inside edge of the antenna.

Guyed structure (see tower). Guyed structures for new WCFs are prohibited within the City.

Geographic search ring means an area designated by a wireless provider or operator for a new base station, produced in accordance with generally accepted principles of wireless engineering.

Handoff candidate means a wireless communication facility that receives call transference from another wireless facility, usually located in an adjacent first "tier" surrounding the initial wireless facility.

Lattice structure (see Tower). Lattice structures for new WCFs are prohibited within the City.

Least visually obtrusive profile means the design of a wireless communication facility intended to present a visual profile that is the minimum profile necessary for the facility to properly function.

Level I refers to a wireless communication facility permit subject to administrative review and approval by the Land Use Administrator or designee, with no public hearing requirement.

Level II refers to wireless communication facility permit subject to the special exception approval process set forth in Section 2.07 of the Land Development Code, except that the application review and approval timeframes set forth in Section 4.20.10 shall apply. New towers proposed in non-Wireless Master

Plan Sites shall require Level II permits. All other installations only require Level I permits.

Micro Wireless Facility (see Section 42-103).

Modification means a modification of an existing tower or base station to increase the height, or to improve its integrity, by replacing or removing one or several tower(s) located in proximity to a proposed new tower in order to encourage compliance with this section or improve aesthetics or functionality of the overall wireless network.

Monopole structure (see Tower).

Non-concealed WCF means a wireless communication facility that is readily identifiable as such and can be either freestanding or attached.

Personal wireless service means commercial mobile services, unlicensed wireless services, and common carrier wireless exchange access services, as defined in the Telecommunications Act of 1996.

Public safety communications equipment means all communications equipment utilized by a public entity for the purpose of ensuring the safety of the citizens of the City and operating within the frequency range of 700 MHz and 1,000 MHz and any future spectrum allocations at the direction of the FCC.

Public View means a non-amplified visual range of site from rights-of-ways, sidewalks, adjacent properties, or other publically accessible vantage points.

Radio frequency (RF) emissions means any electromagnetic radiation or other communications signal emitted from an antenna or antenna-related equipment on the ground, antenna support structure, building, or other vertical projection.

Radio frequency (RF) propagation means wireless telecommunications signal service area as shown on maps.

Satellite Earth Station means a single or group of parabolic (or dish) antennas are mounted to a support device that may be a pole or truss assembly attached to a foundation in the ground, or in some other configuration. A satellite earth station may include, but is not limited to, the associated separate equipment cabinets necessary for the transmission or reception of wireless communications signals with satellites.

Site means for towers other than towers in the public rights-of-way, the current boundaries of the leased or owned property surrounding the tower, and any access or utility easements currently related to the site, and, for other eligible support structures, further restricted to that area in proximity to the structure and to other transmission equipment already deployed on the ground.

Small wireless facility (See Section 42-103).

Substantial Change means a modification that substantially changes the physical dimensions of an eligible support structure if it meets any of the following criteria:

(1) For towers other than towers in the public rights-of-way, it increases the height of the tower by more than 10 percent or by the height of one additional antenna array with separation from the nearest existing antenna not to exceed 20 feet, whichever is greater; for other eligible support structures, it increases the height of the structure by more than 10 percent or more than 10 feet, whichever is greater. Changes in height should be measured from the original support structure in cases where deployments are or will be separated horizontally, such as on buildings' rooftops; in other circumstances, changes in height should be

measured from the dimensions of the tower or base station, inclusive of originally approved appurtenances and any modifications that were approved prior to the passage of the Spectrum Act;

(2) For towers other than towers in the public rights-of-way, it involves adding an appurtenance to the body of the tower that would protrude from the edge of the tower more than 20 feet, or more than the width of the tower structure at the level of the appurtenance, whichever is greater; for other eligible support structures, it involves adding an appurtenance to the body of the structure that would protrude from the edge of the structure by more than six feet;

(3) For any eligible support structure, it involves installation of more than the standard number of new equipment cabinets for the technology involved, but not to exceed four cabinets; or, for towers in the public rights-of-way and base stations, it involves installation of any new equipment cabinets on the ground if there are no preexisting ground cabinets associated with the structure, or else involves installation of ground cabinets that are more than 10 percent larger in height or overall volume than any other ground cabinets associated with the structure;

(4) It entails any excavation or deployment outside the current site;

(5) It would defeat the concealment elements of the eligible support structure; or

(6) It does not comply with conditions associated with the siting approval of the construction or modification of the eligible support structure or base station equipment; provided, however, that this limitation does not apply to any modification that is noncompliant only in a manner that would not exceed the thresholds identified in subsections (1) through (4) of this definition.

Tower means any structure built for the sole or primary purpose of supporting any FCC- licensed or authorized antennas and their associated facilities, including structures that are constructed for wireless communications services including, but not limited to, private, broadcast, and public safety services, as well as unlicensed wireless services and fixed wireless services such as microwave backhaul, and the associated site. Towers do not include any device used to attach antennas to an existing building, unless the device extends above the highest point of the building by more than 20 feet. A tower may be concealed or non-concealed. Non-concealed towers include:

(1) *Guyed structure* means a style of tower consisting of a single truss assembly composed of sections with bracing incorporated. The sections are attached to each other, and the assembly is attached to a foundation and supported by a series of wires that are connected to anchors placed in the ground or on a building. Guyed structures for new WCFs are prohibited within the City.

(2) *Lattice structure* means a self-supporting tapered style of tower that consists of vertical and horizontal supports with multiple legs and cross-bracing, and metal crossed strips or bars to support antennas. Lattice structures for new WCFs are prohibited within the City.

(3) *Monopole structure* means a style of freestanding tower consisting of a single shaft usually composed of two or more hollow sections that are in turn attached to a foundation. This type of tower is designed to support itself without the use of guy wires or other stabilization devices. These facilities are mounted to a foundation that rests on or in the ground or on a building's roof. All feed lines shall be installed within the shaft of the structure.

Transmission Equipment means equipment that facilitates transmission for any FCC- licensed or authorized wireless communication service, including, but not limited to, radio transceivers, antennas, coaxial or fiber-optic cable, and regular and backup power supply. The term includes equipment associated with

wireless communications services including, but not limited to, private, broadcast, and public safety services, as well as unlicensed wireless services and fixed wireless services such as microwave backhaul.

WCF (see Wireless Communication Facility).

Wireless communications means any personal wireless service, which includes but is not limited to, cellular, personal communication services (PCS), specialized mobile radio (SMR), enhanced specialized mobile radio (ESMR), unlicensed spectrum services utilizing devices described in Part 15 of the FCC's regulations (e.g., wireless internet services and paging).

Wireless communication facility (WCF) means any staffed or unstaffed location for the transmission and/or reception of radio frequency signals, or other personal wireless communications, as defined in the Telecommunications Act of 1996, and usually consisting of an antenna or antenna array, transmission cables, feed lines, equipment cabinets, towers, cabling, antenna brackets, and other such equipment. The following shall be deemed a wireless communication facility: new, replacement, or existing towers, government-owned towers, modified towers, collocation on existing towers or base stations, attached concealed and non-concealed antenna, dual purpose facilities, DAS, small cell, concealed towers, and non-concealed towers, so long as those facilities are used in the provision of personal wireless services as that term is defined in the Telecommunications Act.

Wireless Master Plan means the Wireless Telecommunications Master Plan developed and adopted by the City, as amended from time to time, to enforce applicable development standards, land development regulations, state law and federal law related to the deployment of wireless telecommunications infrastructure.

Sec. 4.20.03. - Applicability.

A. Except as provided in section 4.20.04, the following shall apply to the development activities including, but not limited to, installation, construction or modification of the following wireless communications facilities:

(1) Existing towers.

(2) Proposed towers.

(3) Public towers.

(4) Replacement of existing towers.

(5) Collocation on towers and base stations.

(6) Attached WCF.

(7) Concealed WCF.

B. These regulations are subject to state and federal law limitations.

Sec. 4.20.04. - Exempt installations.

The following uses are exempt from the provisions of this section notwithstanding any other provision of the City's land development regulations, but are subject to all applicable building code compliance and building permit reviews:

(1) Non-commercial, amateur radio antennas as provided for in Section 125.561, Florida Statutes.

(2) Satellite earth stations that are one meter (39.37 inches) or less in diameter in all residential districts and two meters or less in all other zoning districts and which are not greater than 20 feet above grade in residential districts and 35 feet above grade in all other zoning districts.

(3) A government-owned WCF, upon the declaration of a state of emergency by federal, state, or local government, and a written determination of public necessity by the City; except that such WCF must comply with all federal and state requirements. This exemption shall terminate upon the state of emergency ending.

(4) A government-owned WCF erected for the purposes of installing antenna(s) and ancillary equipment necessary to provide communications for public health and safety.

(5) A temporary, commercial WCF, upon the declaration of a state of emergency by federal, state or local government, or determination of public necessity by the City, and approval by the City; except that such WCF must comply with all federal and state requirements. The exemption may be permitted by the City to continue to three months after the duration of the state of emergency.

(6) A temporary, commercial WCF for the purposes of providing coverage of a special event such as news coverage or sporting event, subject to approved by the City, except that such WCF must comply with all federal and state requirements. Said WCF may be exempt for a period of up to one week after the duration of the special event.

(7) Antenna support structures, antennas, and/or antenna arrays for AM/FM/TV/HDTV broadcasting transmission facilities that are licensed by the FCC shall be regulated in accordance with federal, state and other applicable regulations.

Sec. 4.20.05. – Wireless Master Plan

A. The City has adopted a Wireless Master Plan by Resolution of the City Council. The Wireless Master Plan identifies existing or proposed City or publicly owned sites for wireless communication infrastructure and service.

B. Design standards for proposed towers in the Wireless Master Plan shall be consistent with this Ordinance and the Wireless Master Plan but may be further detailed and addressed through the required lease terms for use of any public property.

C. The Wireless Master Plan was adopted by the City Council by Resolution No. _____, as may be amended by City Council resolution hereafter. And, by this reference, the Wireless Master Plan is incorporated herein.

D. The Land Use Administrator or designee may waive application requirements in Section 4.20.09 for sites within the Wireless Master Plan. The applicable requirements are listed in Section 4.20.09.

E. If an applicant receives a permit to develop a site on City-owned property, the permit shall not become effective until the applicant and the City have executed a written agreement or lease setting forth the applicable terms and provisions.

F. No permit granted under this section shall convey an exclusive right, privilege, permit, or franchise to occupy or use the publicly owned sites of the jurisdiction for delivery of wireless communications services or any other purpose.

G. No permit granted under this section shall convey any right, title or interest in the public lands, but shall be deemed a permit only to use and occupy the public lands for the limited purposes and term stated in the agreement between the lessor and lessee.

H. Sites located within the Wireless Master Plan may utilize a standard landscape plan, approved by the Land Use Administrator or designee.

I. Sites within the Wireless Master Plan may utilize alternative compliance standards to access a WCF site, if approved by the Land Use Administrator or designee.

Sec. 4.20.06. – Preferred siting locations.

A. All new WCFs and any supporting structures, except for those proposed within the public rights-of-way, shall generally adhere to the following siting preferences, in order of preference:

(1) City-owned property identified in the Wireless Master Plan;
(2) Other public property identified in the Wireless Master Plan;
(3) Other City owned or public property not identified in the Wireless Master Plan;
(4) Privately owned property not identified in the Wireless Master Plan.

B. If the proposed location for the new WCF is not consistent with the preferred hierarchy and the Wireless Master Plan, the applicant must file relevant information as indicated in Section 4.20.09 with the siting application including, at minimum, the following:

(1) An affidavit by a radio frequency engineer demonstrating that despite diligent efforts to adhere to the geographic preferences established in the wireless master plan, wireless master plan options are not technically infeasible, practical or justified given the location of the proposed WCF;
(2) An affidavit demonstrating that the proposed site will not adversely affect existing or future single-family uses or environmentally sensitive areas and is not contrary to the City's Comprehensive Plan and Unified Land Development Code; and
(3) The existing land uses of the subject and surrounding properties within 300 feet of the proposed site.

C. This section shall not be interpreted to require applicants to locate on publicly-owned sites when lease negotiation processes are prohibitively lengthy or expensive relative to those of the private sector as determined by the Land Use Administrator or designee, based upon competent substantial evidence. The applicant is considered justified in selecting a lower-ranked privately-owned property option if the government entity fails to approve a memorandum of agreement or letter of intent to lease a specified publicly-owned site within 90 days of the application date or if it is demonstrated that the proposed lease rate for the specified public-owned site significantly exceeds the market rate for comparable privately-owned sites.

Sec. 4.20.07. - Permitted uses.

A. The placement, maintenance or modification of WCFs shall be permitted only in accordance with the wireless communication permit, and the land development requirements of this Code. The placement or maintenance of wireless communication facilities in the public rights-of-way shall comply with the regulations of Chapter 42 of the Code of Ordinances:

B. Applicable permits.

All applications shall meet the review timeframes as shown in Section 4.20.10.

(1) Level I wireless communication facility permit. All applicable non-exempt applications to place, maintain, modify, or collocate wireless communications facilities, not subject to special exception use approval, shall be subject to administrative review and approval by the Land Use Administrator or designee, with no public hearing requirement.

(2) Level II wireless communication facility permit. All applicable non-exempt applications to place, maintain, or substantially change wireless communications facilities that do not qualify for an administrative permit shall be subject to the special exception approval process set forth in Section 2.07 of the Land Development Code, except that the application review and approval timeframes set forth in Section 4.20.10 shall apply. New towers proposed in non-master planned sites shall require Level II permits. All other installations only require Level 1 permits.

(3) Communications Rights-of-Way Permit. All non-exempt applications to place, maintain, modify, or collocate wireless communications facilities within the public rights-of-way shall be subject to the review and approval requirements set forth in Chapter 42, Code of Ordinances, and the applicable land development regulations set forth herein. Wireless communication facilities, other than small wireless facilities and micro wireless facilities, are prohibited within the public rights-of-way.

(4) Eligible facilities requests. Any request for modification of an existing tower or base station involving collocation of new transmission equipment; removal of transmission equipment; or replacement of transmission equipment that does not substantially change the physical dimensions of such tower or base station shall be reviewed and processed in accordance with the provisions set forth in Section 4.20.12.

C. Expedited collocation applications.

(1) Expedited collocation applications for antenna on towers. In accordance with Section 365.172, F.S., collocation of antenna on towers, including nonconforming towers, are subject only to building-permit review, which may include a review for compliance with this section, if the applicants meet the following requirements:

a. The collocation does not increase the height of the tower to which the antennae are to be attached, measured to the highest point of any part of the tower or any existing antenna attached to the tower; and

b. The collocation does not increase the ground space area, commonly known as the compound, approved in the site plan for equipment facilities and ancillary facilities, except as allowed under this section; and

c. The collocation consists of antennas, equipment facilities, and ancillary facilities that are of a design and configuration consistent with all applicable regulations, restrictions, or conditions, if any, applied to the initial antennas placed on the tower and to its accompanying equipment facilities and ancillary facilities and, if applicable, applied to the tower supporting the antennas. Such regulations may include the design and aesthetic requirements but not procedural requirements, other than those authorized by this subsection, of the applicable land development code in effect at the time the initial antenna's placement was approved.

Such collocations shall not be subject to the design or placement requirements of the land development code in effect at the time of the collocation that are more restrictive than those in effect at the time of the initial antenna placement approval, to any other portion of the land development code, or to public hearing review. Such collocation applications shall be decided by the Land Use Administrator or designee.

(2) Expedited collocation applications for antenna on base stations. In accordance with Section 365.172, F.S., except for an historic building, structure, site, object, or district, the following collocation applications on all other existing base stations shall be subject to no more than administrative review for compliance with this section and building permit standards if they meet the following requirements:

a. The collocation does not increase the height;

b. The collocation does not increase the existing ground space area, otherwise known as the compound, if any, approved in the site plan for the equipment facility and ancillary facilities.

c. The collocation consists of antennas, equipment facility and ancillary facilities that are of a design and configuration consistent with any applicable structural or aesthetic design requirements and any requirements for location on the structure in effect at the time of approval of the structure, but not prohibitions or restrictions on the placement of additional collocations on the existing structure or procedural requirements, other than those authorized by this subsection at the time of the collocation application; and

d. The collocation consists of antennas, equipment facility and ancillary facilities that are of a design and configuration consistent with all applicable restrictions or conditions, if any, that do not conflict with subsection (c), and were applied to the initial antennas placed on the structure and to its accompanying equipment facility and ancillary facilities and, if applicable, applied to the structure supporting the antennas.

(3) If only a portion of the collocation does not meet the requirements of any of the above subsections, such as an increase in the height or a proposal to expand the ground space approved in the site plan for the equipment facility by more than 400 square feet or 50 percent, where all other portions of the collocation meet the requirements of this subsection, that portion of the collocation only may be reviewed as set forth in subsection (6) below. A collocation proposal under this subsection that increases the ground space area approved in the original site plan, for equipment facilities and ancillary facilities, by no more than a cumulative amount of 400 square feet or 50 percent of the original compound size, whichever is greater, shall require no more than administrative review for compliance with the City's regulations; including, but not limited to, land development code and building permit review; provided, however, that any collocation proposal that increases the original compound size more than such greater cumulative amount shall be reviewed as if it were a new communications facility.

(4) Any existing tower, including a nonconforming tower, may be structurally modified to permit collocation, or may be replaced through no more than administrative review and building permit review, and is not subject to public hearing review, if the overall height of the tower is not increased and, if the replacement tower is a monopole tower, or if the pre-existing tower is a stealth tower, the replacement tower is a similar stealth tower.

(5) The owner of the existing tower on which the proposed antennas are to be collocated shall remain responsible for compliance with any applicable condition or requirement of a permit or agreement, or any applicable condition or requirement of the land development code to which the pre-existing tower must comply, including any aesthetic requirements, provided the condition or requirement is consistent with this subsection.

(6) Colocations or portions of colocations that are not exempt from this section and do not fall under the provisions of subsections 4.20.07.C(1) through (4), shall be reviewed through a full permitted use review. Those located on historic structures or in historic districts, shall be reviewed through the review processes for historic structures or districts indicated in the LDC.

Sec. 4.20.08. - Development standards.

A. *General:*

(1) All development standards and land development code regulations relating to the property upon which the WCF is located shall apply. Additionally, where permitted as provided in Section 4.20.07, the following development standards apply to all attached collocations and all new, modified, or combined WCF installations. Where any environmentally sensitive lands, historic or scenic overlay districts or corridor plans also apply, the most restrictive standards shall govern.

(2) Cabinets shall be provided within the principal building, behind a screen on a rooftop or on the ground within the fenced-in and screened equipment compound. This is not required if out of the public view.

(3) All equipment compounds shall be enclosed with a wood/brick/masonry fence or otherwise secured and screened with opaque landscaping. Fencing shall be subject to the requirements as outlined in the LDC.

(4) WCF equipment compounds shall be landscaped as required in Chapter 11 of the LDC. Wireless Master Plan sites may utilize a standard alternative landscape plan approved by the Land Use Administrator or designee.

(5) Attaching commercial messages for off-site and on-site advertising to a WCF is prohibited and unlawful. The placement of a religious symbol as part of the concealment of a WCF shall not be considered prohibited commercial messages or signage. The only signage that is permitted upon a tower, equipment cabinet, or fence shall be informational, and for the purpose of identifying the tower (such as ASR registration number), as well as the party responsible for the operation and maintenance of the facility, its current address and telephone number, security or safety signs, and property manager signs (if applicable). On permitted signs which are not located on a tower, cabinet or fence, a WCF may be concealed inside such signage, provided that all applicable standards for both the signage and the concealed WCF are met.

(6) Lighting on WCFs, if required by the FAA, shall not exceed the FAA minimum standards. Any lighting required by the FAA must be of the minimum intensity and number of flashes per minute (i.e., the longest duration between flashes) allowable by the FAA to minimize the potential attraction to migratory birds. Dual lighting standards are required and strobe light standards are prohibited unless required by the FAA. The lights shall be oriented so as not to project directly onto surrounding residential property, consistent with FAA requirements. Any security lighting for on-ground facilities and equipment shall be in compliance with the LDC.

(7) Each WCF and its equipment compounds shall be constructed and maintained in conformance with all applicable building code requirements.

(8) Equipment compounds shall not be used for the storage of any excess equipment or hazardous waste (e.g., discarded batteries). It is prohibited and unlawful to allow an outdoor storage yard in a WCF equipment compound or to use the equipment compound as habitable space.

(9) The WCF shall comply with all applicable federal, state and local regulations.

(10) The WCF applicant shall comply with all applicable American National Standards Institute (ANSI) standards as adopted by the FCC.

(11) Each WCF shall be designed to ensure that no sound emissions from machinery, alarms, bells, buzzers, or similar noise making devised are audible beyond the perimeter of the equipment compound and shall comply with the City of Palm Coast Code of Ordinances.

(12) Building permits. A building permit shall be required for the construction, modification, and collocation of all WCFs, including any accessory structures or equipment, as provided in Section 4.20.07 above.

(13) The WCF and its equipment compound shall be subject to the setbacks of the underlying zoning district. Antennas may extend a maximum of 30 inches into the setback. However, no antenna or portion of any structure shall extend into any easement.

B. *Attached WCFs:*

(1) Attached WCF's may be permitted in all zoning districts. The top of the attached WCF shall not be more than 20 feet above the existing or proposed building or structure.

(2) Feed lines and antennas shall be designed to architecturally match the facade, roof, wall, or structure on which they are affixed in order to blend with the existing structural design, color, and texture and in order to provide the least visually obtrusive profile.

C. *Freestanding WCFs:*

(1) All new freestanding WCFs shall meet minimum lot size standards of the underlying zoning district and are subject to the LDC.

(2) New freestanding towers shall be configured and located in a manner that shall minimize adverse effects including, but not limited to, visual impacts on the landscape and adjacent properties. New freestanding WCFs shall be designed to match adjacent structures and landscapes with specific design considerations such as architectural design, height, scale, color and texture, and shall have the least visually obtrusive profile.

(3) Grading shall be minimized and limited only to the area necessary for the new WCF as approved by the Land Use Administrator or designee.

(4) All support structures shall be certified to comply with the safety standards contained in the Electronics Industries Association/Telecommunications Industries Association (EIA/TIA) Document 222-F, Structural Standards For Steel Antenna Towers and Supporting Structures, as amended, by a Florida professional engineer.

(5) Freestanding towers may only be permitted as monopole towers. Guyed and lattice structures are prohibited, unless the applicant demonstrates to the City by clear and convincing evidence that monopole towers are not feasible to accommodate the intended uses. Freestanding monopoles are prohibited from single-family or multi-family residential districts unless the applicant can conclusively demonstrate to the satisfaction of the City that it cannot reasonably provide its service to the residential zone from outside of the district. The City shall cooperate to determine an appropriate location for the freestanding tower of an appropriate design within the residential district. The applicant shall reimburse the City for all reasonable costs incurred by the City for this cooperative determination.

(6) The height of a new monopole tower shall not exceed the heights provided in the table below:

Freestanding Non-Wireless Master Plan Sites	
Zone	**Maximum Height WCF**
Single family Residential	Not permitted unless applicant can conclusively demonstrate to the satisfaction of the City that it cannot reasonably provide its service to the residential zone from outside of the district.

Multifamily Residential	Not permitted unless applicant can conclusively demonstrate to the satisfaction of the City that it cannot reasonably provide its service to the residential zone from outside of the district.
MPD	As determined by the MPD ordinance, unless within a Wireless Master Plan
All other districts	Up to 150 feet.
Wireless Master Plan Sites	
All districts	Up to 150 feet.

(7) In calculating the height limit, above ground foundation shall be included, but lightning rods or lights required by the FAA that do not provide any support for antennas shall be excluded. If the freestanding WCF is located within the Wireless Master Plan, the maximum height may be up to 150 feet.

(8) A freestanding monopole and its equipment compound shall be subject to the land development code regulations applicable to the underlying zoning district. The minimum setback distance for a freestanding tower shall be 150 feet from any residentially zoned or platted property. Freestanding monopoles are not allowed in residentially zoned or platted property. In the event of any conflict between this section and the Land Development Code, this section shall control.

(9) New towers shall maintain a galvanized gray finish or other approved contextual or compatible color and provide the least visually obtrusive profile, except as required by Federal regulations. The level of required concealment for antenna placement shall be determined based upon the visibility and location of the proposed tower and the network objectives of the desired coverage area.

(10) All new or modified freestanding WCFs shall be engineered to maximize colocation.

D. *Attached Collocation or Combined WCFs:*

(1) An attached collocation or combined WCF shall not increase the height of an existing tower or base station by more than 20 feet, unless required by Federal law. The maximum total height shall be 150 feet.

(2) The City may require new antenna to be flush-mounted or concealed on a case by case basis, if it is determined that a practical visual and aesthetic benefit can be achieved if in the public view. If the applicant demonstrates through RF propagation analysis that flush-mounted or concealed antennas will not meet the network objectives of the desired coverage area, this requirement shall not apply.

Sec. 4.20.09. - Submittal requirements for Level I and Level II permits.

A. Application form. Requests for Level I and Level II wireless communication permits shall be made only on application forms approved by the City. Applications shall contain all information required by this land development code and other City regulations, and shall be reviewed for completeness.

B. Application materials. In addition to the application materials specified in this code for the appropriate type of review, all applications shall provide sufficient materials (plans, graphics, narratives, or expert statements) to demonstrate compliance with all applicable requirements of this section.

(1) Level I and Level II applications shall contain the following:

a. Application.
b. A site plan addressing the development standards of the LDC. If applicable, an application meeting the special exception requirements of Section 2.07 of the LDC shall be submitted.
c. An affidavit by a RF engineer demonstrating compliance with Section 4.20.05. If a non-master plan site is proposed, the affidavit must address why master plan sites are not technically feasible, practical or justified given the location of the proposed WCF communications facility.
d. FCC documentation including a copy of FCC license submittal or registration, and FCC license or registration
e. Proposed maximum height of the WCF including, but not limited to, individual measurement of the base, the tower or base station, and lightning rod.
f. Photo-simulated post-construction renderings of the completed proposed tower, base station, equipment cabinets, and ancillary structures from locations to be determined during a mandatory pre-application conference. The renderings shall, at a minimum, include renderings from the vantage point of any adjacent roadways and occupied or proposed non-residential or residential structures, proposed exterior paint and stain samples for any items to be painted or stained, exterior building material and roof samples.
g. If the proposed WCF is subject to FAA regulation, then, prior to issuance of a building permit, evidence of compliance with applicable FAA requirements under 14 C.F.R. § 77 et seq., as amended, together with any FAA "no hazard" determinations concerning the WCF (if applicable) shall be timely provided by the applicant to the City.
h. In order to facilitate the regulation, placement, and construction of WCFs and to ensure that all parties comply with the rules, regulations and applicable guidelines of the FCC, each owner of a WCF or applicant for a WCF shall provide an affirmative statement that it will comply with all applicable federal, state and local statutory and regulatory requirements.
i. For applications for new towers or other freestanding WCFs, as necessary to determine that there is no other existing structure that could reasonably be used for the placement of the proposed antennas, or for applications for new WCFs or attached collocations that increase the height of an existing structure, as needed to determine if the proposed height is necessary to provide the carrier's designed service, materials detailing the locations of existing WCFs to which the proposed antenna will be candidate for

placement, including, but not limited to, latitude and longitude of the proposed and existing antenna. This material is not required for Wireless Master Plan sites.

j. For applications for new towers or other freestanding WCFs, as necessary to determine that there is no other existing structure that could reasonably be used for the placement of the proposed antennas, a map showing the designated search ring. This map is not required for Wireless Master Plan sites.

k. A compliance letter from the State Historic Preservation Office of Cultural and Historic Programs of the Florida Department of State.

l. With regard to attached colocations, attached and combined WCFs, the applicant shall also submit:

i. Certification furnished by a Florida registered professional engineer that the WCF has sufficient structural integrity to support the proposed antenna and feed lines in addition to all other equipment located or mounted on the structure.

m. With regard to freestanding concealed or non-concealed WCFs, and modification of WCFs, for non-Wireless Master Plan sites only, the applicant shall also submit:

i. A report and supporting technical data demonstrating that all antenna attachments and colocations, including all potentially useable utility distribution poles or transmission towers and other elevated structures within the proposed geographic search ring, and alternative antenna configurations have been examined, and found unacceptable. The report shall include reasons that existing facilities such as utility distribution poles and transmission towers and other elevated structures are not acceptable alternatives to a new freestanding WCF. The report regarding the adequacy of alternative existing WCFs or the mitigation of existing WCFs to meet the applicant's need or the needs of service providers indicating that no existing WCF could accommodate the applicant's proposed WCF shall demonstrate any of the following:

a. No existing WCFs located within the geographic search ring meet the applicant's engineering requirements, and why.
b. Existing WCFs are not of sufficient height to reasonably meet the applicant's engineering requirements, and cannot be increased in height.
c. Existing WCFs do not have sufficient structural integrity to support the applicant's proposed WCFs and related equipment, and the existing WCF cannot be sufficiently improved.
d. Other limiting factors that render existing WCFs unsuitable.

ii. The applicant shall provide simulated photographic evidence of the proposed WCFs appearance from four vantage points chosen by the City with consultation with the applicant, including the facility types the applicant has considered and the impact on adjacent properties including, but not limited to:

a. Overall height.
b. Configuration.

c. Physical location.
d. Mass and scale.
e. Materials and color.
f. Illumination.
g. Architectural design.

This does not apply to Wireless Master Plan sites.

iii. If applicable, the applicant shall provide a statement as to the potential visual and aesthetic impacts of the proposed WCF on all adjacent properties assigned a residential land use designation or zoning district. This does not apply to Wireless Master Plan sites.

iv. A certification by a Florida professional engineer that the WCF has sufficient structural integrity to accommodate the required and a proposed number of colocations.

v. A certification by a Florida professional engineer specifying the design structural failure modes of the proposed WCF, if applicable.

vi. Identification of the proposed intended service providers of the WCF.

n. With regard to antenna element replacements.

i. Any repair or replacement of an existing antenna or antenna array with another of equal number that does not increase the number and/or size of transmission lines, and that is not readily discernibly different in size, type and appearance when viewed from ground level from surrounding properties, as reasonably determined by the City, and which will not alter the structural integrity of the support structure, is exempt from further review, provided that a notarized certification is submitted by a qualified technician stating that the replacement will not alter the structural integrity of the support structure and that any changes will not affect electrical specifications.

ii. For any repair or replacement of an existing antenna or antenna array on a WCF that changes the mechanical, structural or electrical specifications of the WCF, but does not increase the number and/or size of feed lines and does not increase the number and/or size of antenna elements to the existing WCF, the applicant must, prior to making such modifications, apply for a new building permit review for such requested changes, and, for structural changes to freestanding WCFs, shall provide, in addition to any other documentation necessary for building permit review, a stamped or sealed structural analysis of the existing freestanding WCF prepared by a Florida professional engineer indicating that the existing tower or base station as well as all existing and proposed appurtenances meets the City and Florida Building Code requirements (including, but not limited to, wind loading) for the tower or base station.

o. With regard to the replacement of or modification to an existing WCF, except a tower.

The replacement of or modification to a WCF, except a tower, that results in a WCF facility not readily discernibly different in size, type and appearance, when viewed from ground level from surrounding properties, and the replacement or modification of

equipment that is not visible from surrounding properties, all as reasonably determined by the Land Use Administrator, are subject only to building permit review.

(2) Level II applications

a. A completed special exception approval application, and all items required pursuant to Section 2.07, including compliance with all applicable special exception requirements.

C. Disclosure of ownership. A notarized affidavit from all owners having a legal, equitable, or beneficial ownership interest in the tower or base station, or privately owned real property upon which a facility is or will be located or collocated, granting permission to the applicant to locate upon such real property, or attach to the tower or base station being collocated upon or attached to.

D. Submission of fee. All applications must be accompanied by the permit fee as established by resolution of the City Council.

Sec. 4.20.10. – Application Review Process.

A. A pre-application conference is required. To minimize issues related to permit application, prior to submitting materials for a permit application, an applicant must request a pre-submittal meeting with the Land Use Administrator or designee. The City shall undertake efforts to accommodate an applicant's request for a pre-application conference within ten (10) business days of a request.

B. Expert review. The City may require that all wireless communications permit applications be reviewed by a third-party consultant or expert at the expense of the applicant for compliance with the requirements set forth herein. No permit shall be issued to any applicant that has not fully reimbursed the City for the third-party review fees, which shall be limited to the specifically identified reasonable expenses incurred in the review.

C. Application Review Timeframes: "shot clock". The City's action on proposals to place, maintain, modify, or collocate wireless communications facilities shall be subject to the applicable standards and time frames set out in Section 365.172, Florida Statutes, 47 U.S.C. § 1455 (a) and Orders issued by the FCC, as same may be amended from time to time. All Federal and State "shot clock" timeframe guidelines that apply to any particular permit are hereby recognized by the City, and the City will make all reasonable efforts to comply. Except for eligible facilities request applications reviewed in accordance with Section 4.20.12, the following procedures apply to installation of a new WCF or modification:

(1) Notification of completeness. The Land Use Administrator or designee shall notify the applicant within 20 business days after the date the application is submitted as to whether the application is, for administrative purposes only, properly completed and has been properly submitted in accordance with the requirements set forth above. However, such determination shall not be deemed as an approval of the application. Such notification shall indicate with specificity any deficiencies which, if cured, could make the application properly completed.

(2) Expedited collocation applications. The City shall grant or deny each properly completed expedited collocation application for collocation based on the application's compliance with this section, applicable provisions of the City Code and any other applicable regulations, and within the normal timeframe for a similar building permit review, but in no case later than 45 business days after

the date the application is determined to be properly completed. This timeframe shall not apply to lease negotiations for collocation on City-owned property.

(3) All other applications. The City shall grant or deny each properly completed application for any other non-exempt WCF, including special exception approvals and collocations that do not qualify for an expedited collocation, based on the application's compliance with this section and any other applicable law, including but not limited to the City Code, and within the normal timeframe for a similar type of review, but in no case later than 90 business days after the date the City determines the application is completed. This timeframe shall not apply to lease negotiations for wireless communications facilities on City-owned property. Collocations located on historic base stations, or within a historic district, shall be reviewed through the review processes for historic structures or districts indicated in the LDC.

(4) An application is deemed submitted or resubmitted on the date the application is received by the City. If the City does not notify the applicant in writing that the application is not completed in compliance with the City's regulations within 20 business days after the date the application is initially submitted or additional information resubmitted, the application is deemed, for administrative purposes only, to be properly completed and properly submitted. However, the determination shall not be deemed as an approval of the application. If the application is not completed in compliance with the City's regulations, the City shall so notify the applicant in writing indicating with specificity any deficiencies in the required documents or deficiencies in the content of the required documents which, if cured, would make the application properly completed. Upon resubmission of information to cure the stated deficiencies, the City shall notify the applicant, in writing, within the normal timeframes of review, but in no case longer than 20 business days after the additional information is submitted, of any remaining deficiencies that must be cured. However, if applicant does not cure the application deficiencies within 20 business days after receiving the notice of deficiencies, the application shall be considered withdrawn or closed unless an extension, due to reasonable circumstances, of the time to cure is requested by the applicant prior to the expiration of the 20-day period, and such extension is granted by the Land Use Administrator or designee.

(5) The timeframes specified above may be extended, but in no case longer than 90 calendar days for collocations, and 150 calendar days for new installations, and only to the extent that the application has not been granted or denied because the City's procedures generally applicable to all other similar types of applications require action by the City Council or Planning and Land Development Regulation Board, and such action has not taken place within the specified timeframes. Under such circumstances, the City Council or Planning and Land Development Regulation Board, as applicable, shall either grant or deny the application at its next regularly scheduled meeting, or, otherwise, the application shall be deemed automatically approved; accordingly, the Land Use Administrator or designee may by letter to the applicant extend the timeframe for a decision until the next available scheduled meeting date of the City Council or Planning and Land Development Regulation Board as to whether to grant or deny an application for a permit. To be effective, a waiver of the timeframes set forth herein must be voluntarily agreed to by the applicant and the City. The City may request, but not require, a waiver of the timeframes by the applicant, except that, with respect to a specific application, the City may require a one-time waiver in the case of a declared local, state, or federal emergency that directly affects the administration of all permitting activities of the City. Notwithstanding the foregoing, the City and an applicant may voluntarily agree to waive the timeframes set forth above.

D. Appeals. Any person aggrieved by an administrative decision rendered by the Land Use Administrator regarding the provisions of this Section 4.20 may appeal such decision to the Planning and Land Development Regulation Board in accordance Section 2.16.01 of the LDC.

Sec. 4.20.11. - Interference with public safety communications.

A. The City adopts a policy of requesting prior notification of activation or modification of WCF facilities as provided for in 47 C.F.R. §22.973 and 47 C.F.R. § 90.675 and in accordance with those provisions, WCF providers shall notify the Land Use Administrator or designee prior to a new site activation or existing site modification and provide the information required by the federal regulations.

B. Whenever the City has encountered radio frequency interference with its public safety communications equipment, and it believes that such interference has been or is being caused by one or more WCFs, the following steps shall be taken:

(1) The City shall provide notification to all WCF service providers operating within 5,000 feet of the public safety communications equipment at issue, in accordance with the procedures indicated in 47 C.F.R. § 22.972 and 47 C.F.R. § 90.674, using the website www.Publicsafety800mhzinterference.com. Upon such notification, the owners shall use their best efforts to cooperate and coordinate with the City and among themselves to investigate and mitigate the interference, if any, utilizing the procedures set forth in 47 C.F.R. § 22.972 and 47 C.F.R. §90.674 and following the applicable FCC adopted Best Practices Guide, as may be amended or revised by the FCC from time-to-time.

(2) If any WCF owner fails to cooperate with the City in complying with the owner's obligations under this section and if the FCC makes a determination of radio frequency interference with the City public safety communications equipment, an owner who fails to cooperate and/or the owner of the WCF which caused the interference, shall be responsible, upon FCC determination of radio frequency interference, for reimbursing the City for all reasonable costs associated with ascertaining and resolving the interference including, but not limited to, any engineering studies obtained by the City to determine the source of the interference. For the purposes of this subsection, failure to cooperate shall include failure to initiate any response or action as described in 47 C.F.R. § 22.972 and 47 C.F.R. § 90.674.

Sec. 4.20.12. – Eligible Facilities Requests.

A. Applicability and Intent. This section implements Section 6409(a) of the Middle Class Tax Relief and Job Creation Act of 2012 (“Spectrum Act”) as interpreted by the Federal Communications Commission’s (“FCC”) Acceleration of Broadband Deployment Report & Order dated October 21, 2014, which requires local governments to approve any eligible facilities request for modification of an existing tower or base station that does not result in a substantial change to the physical dimensions of such tower or base station. This section shall apply only to eligible facilities requests for an eligible support structure that is a legal conforming or legal nonconforming structure at the time a completed eligible facilities request is submitted to the City. To the extent that the nonconforming structures and use provisions of the City of Palm Coast LDCs would operate to prohibit or condition approval of an eligible facilities request otherwise allowed under this section, such provisions are superseded by this section. This subsection shall not apply to an eligible facilities request

replacement of the existing tower or base station. This subsection shall also not apply where the WCF requested to be modified is located upon a City-owned structure, or upon non-right-of-way property which is either City-owned or City-leased.

B. Sole and Exclusive Procedure. Except as may otherwise be provided in this section, and notwithstanding any other provisions in the City Code, the provisions of this section shall be the sole and exclusive procedure for review and approval of an eligible facilities request which the applicant asserts is subject to review under the Spectrum Act. To the extent that other provisions of the City Code establish a parallel process for review and approval of a project application for a proposed eligible facilities request, the provisions of this section shall control. In the event that an application for a project approval incudes a proposal to modify an eligible support structure, and the applicant does not assert in the application that the proposal is subject to review under Section 6409 of the Spectrum Act, such proposal shall not be entitled to review under this section and may be subject to review under other applicable provisions of the City Code.

C. Application Requirements. No eligible facilities request shall be deemed complete unless it is in writing, accompanied by the application fee, includes the required submittals, and is attested to by the authorized person submitting the application on behalf of the applicant. The application shall be submitted on a form prepared by the City. The applicant shall be obligated to demonstrate conclusively that the proposed modification satisfies the standards set forth herein and that the modification shall meet all applicable building codes.

D. Review of Application. The City shall review an eligible facilities request application to determine if the proposed modification is subject to this section, and if so, if the proposed modification will result in a substantial change to the physical dimensions of an eligible support structure.

E. Timeframe for Review. Within forty-five (45) calendar days of the date on which an applicant submits a request seeking approval under this subsection, the City shall approve, and may not deny, an eligible facilities request, unless it determines that the application is not covered by this section or proposes a substantial change to the physical dimensions of the eligible support structure.

F. Tolling of Timeframe for Review. The 45-day period begins to run when the application is filed with the Land Use Administrator or designee in person during the City's regular business hours, and may be tolled only by mutual agreement, or in cases where the City determines that the application is incomplete.

(1) To toll the time frame for incompleteness, the City must provide written notice to the applicant within thirty (30) calendar days of receipt of the application, clearly and specifically delineating all missing documents or information.

(2) The time frame for review begins running again when the applicant makes a supplemental submission in response to the City's notice of incompleteness.

(3) Following a supplemental submission, the City shall have ten (10) calendar days to notify the applicant that the supplemental submission did not provide the information identified in the original notice delineating missing information. The time frame is tolled in the case of second or subsequent notices pursuant to the same procedure used for the first notice of incompleteness. Except as may be otherwise agreed to by the applicant and the City, second or subsequent notices of incompleteness may not specify missing documents or information that were not delineated in the original notice of incompleteness.

(4) Notices of incompleteness from the City shall be deemed received by the applicant upon the earlier of personal service upon the applicant, three days from deposit of the notice in the U.S.

Mail, postage prepaid, to the applicant, or by electronic mail if the applicant has agreed to receive notices in such a manner.

(5) If after submittal of the application the applicant modifies the eligible facilities request, the modified application shall be considered a new application subject to commencement of a new application review period.

G. Approval or Denial. An eligible facilities request shall be approved, and an eligible facilities permit issued, upon determination by the City that the proposed modification is subject to this section and that it does not substantially change the physical dimensions of an eligible support structure. An eligible facilities request shall be denied upon determination by the City that the proposed modification is not subject to this section or will substantially change the physical dimensions of an eligible support structure.

H. Denial. A denial of an eligible facilities request shall be in writing and shall set forth the reasons for the denial.

I. Remedies. Applicant and City retain any and all remedies that are available at law or in equity and any action challenging a denial of an application or notice of a deemed approved remedy, may be brought in a court of competent jurisdiction within thirty (30) days following the date of the denial or following the date of notification of the deemed approved remedy.

J. Applicable Code Requirements. Nothing in this section shall relieve the applicant from compliance with applicable building, structural, electrical, and safety codes and with other laws codifying objective standards reasonably related to health and safety. Any approved eligible facilities request may be conditioned upon compliance with such codes and other laws.

K. Expiration of Approval. An approved eligible facilities request shall be valid for a term of 180 days from the date of approval or the date the application is deemed approved.

L. Not Covered as an Eligible Facilities Request. Should the City determine that an applicant's request is not covered by Section 6409(a) of the Spectrum Act, the presumptively reasonable time frame under 47 U.S.C. § 332(c)(7), as prescribed by the FCC's Shot Clock order, will begin to run from the issuance of the City's decision that the application is not a covered request. To the extent such information is necessary, the City may request additional information from the applicant to evaluate the application under 47 U.S.C. § 332(c)(7), pursuant to the limitations applicable to other reviews under that statute.

M. Failure to Act. In the event the City fails to approve or deny a request under this section within the timeframe for review, accounting for any tolling, the request shall be deemed granted. The application deemed granted does not become effective until the applicant notifies the City in writing after the review period has expired, accounting for any tolling, that the application has been deemed granted.

Sec. 4.20.13. – Abandonment.

Any WCF and equipment compound that is not operated for a continuous period of 210 days shall be considered abandoned. The Land Use Administrator may require removal of the WCF and equipment compound under the following circumstances, which are deemed detrimental to the health, safety and welfare interests of the City:

(1) The WCF has not been operated for a continuous period of 210 days, except for periods caused by force majeure, in which case, repair or removal shall commence within 90 days or within such other reasonable time approved by the Land Use Administrator;
(2) The WCF creates a public health or safety hazard, which shall be deemed a nuisance per se; or
(3) The WCF has been located, constructed, or modified without obtaining all permits and approvals required by law, or located, constructed, or modified in a manner inconsistent with applicable permit requirements and state or federal law.

If the Land Use Administrator makes such a determination the owner of such WCF and equipment compound shall remove the same, at the owner's expense, within 90 days of receipt of notice from the City notifying the owner of such abandonment. An owner may apply to extend the time for removal or reactivation by submitting an application stating the reason for such extension. The City may extend the time for removal or reactivation up to 90 days upon a showing of good cause. If the WCF or equipment compound is not removed in accordance with the requirements of this section, the City may give notice that it will contract for removal within 90 days following written notice to the owner. Thereafter, the City may cause removal of the WCF and equipment compound with all costs being borne by the owner. The City may record a lien against the property in the amount of all costs and expenses of the City. Upon removal of the WCF, the equipment compound and the foundations, including two feet below ground level, the development area shall be returned to its natural state and topography and vegetated consistent with the natural surroundings or consistent with the current use of the land at the time of removal. The cost of rehabilitation shall be borne by the owner. Except as provided herein, the abandonment of WCFs within public rights-of-way shall be managed in accordance with the procedures set forth in Section 42-123, City Code of Ordinances. Any special exception approval for a WCF shall automatically expire 210 days from the date of abandonment without reactivation, or upon completion of dismantling and removal, whichever is first, or pursuant to the notice required by Section 42-123 of the City Code of Ordinances.

Sec. 4.20.14. - Code enforcement.

A. The City may enforce the provisions of this section in accordance with the provisions of applicable state law and pursue any and all available legal remedies.

B. The City shall engage in a program of periodic inspections to ensure continuing adherence to the standards of this section and to ensure that WCFs are being appropriately maintained.

Sec. 4.20.15. – Compliance with state and federal regulations; preemption.

In implementing this section and the provisions set forth herein, the City shall comply with applicable state and federal regulations, and the provisions of this section shall be given force to the maximum amount and greatest extent permissible under state and federal law. Except as authorized pursuant to state and federal law, in the event of any conflict between the terms of this section and state or federal law, state and federal law shall control. In the event any provision of this section is specifically preempted, or judicially determined to be preempted by state or federal law, then the preempted provision shall automatically be deemed null and void and the superseding provision of state or federal law shall prevail.

ATTACHMENT “B”

Sec. 14.02. - Glossary.

* * *

~~*Antenna support structure:* A vertical projection composed of metal or other material, with or without a foundation, designed for the express purpose of accommodating antennas at a desired height. Antenna support structures do not include any device used to attach antennas to an existing building, unless the device extends above the highest point of the building by more than 20 feet. Types of support structures include the following:~~

~~(1) *Base station:* The electronic equipment utilized by the wireless providers for the transmission and reception of radio signals.~~

~~(2) *Guyed structure:* A style of antenna support structure consisting of a single truss assembly composed of sections with bracing incorporated. The sections are attached to each other, and the assembly is attached to a foundation and supported by a series of wires that are connected to anchors placed in the ground or on a building. Guyed structures for new wireless communication facilities are prohibited within the City.~~

~~(3) *Lattice structure:* A tapered style of antenna support structure that consists of vertical and horizontal supports with multiple legs and cross-bracing and metal crossed strips or bars to support antennas.~~

~~(4) *Monopole structure:* A style of freestanding antenna support structure consisting of a single shaft usually composed of two or more hollow sections that are in turn attached to a foundation. This type of antenna support structure is designed to support itself without the use of guy wires or other stabilization devices. These facilities are mounted to a foundation that rests on or in the ground or on a building's roof.~~

. * * *

~~*Collocation:* The practice of installing and operating multiple wireless carriers, service providers, and/or radio common carrier licensees on the same antenna support structure or freestanding wireless communication facility, concealed or nonconcealed, or as attached wireless communication facilities using different and separate antenna, feed lines, and radio frequency generating equipment. Specific types of collocations include:~~

~~(1) *Attached collocations:* Those using attached wireless communication facilities on other types of existing structures.~~

~~a. *Combined antenna:* An antenna or an antenna array designed and utilized to provide services for more than one wireless provider for the same or similar type of services.~~

~~(2) *Free standing collocations:* Those where the antennas are located on antenna support structures or other freestanding wireless communication facilities, concealed or nonconcealed, together with the ancillary structures, feed lines, equipment shelters, and other necessary facilities, which may be located either on or in the antenna support structure or freestanding wireless communication facility, inside a building or structure, or on the ground; or~~

* * *

~~*Equipment compound:* The fenced area surrounding the ground-based wireless communication facility including, but not limited to, the areas inside or under the following: an antenna support structure's framework and ancillary structures such as equipment necessary to operate the antenna on the wireless communication facility that is above the base flood elevation including: cabinets, shelters, pedestals, and other similar structures.~~

* * *

Mitigation: An action or series of actions to offset the adverse wetland impacts. Mitigation usually consists of restoration, enhancement, creation, preservation, or a combination thereof. Mitigation also refers to the required replacement of protected trees that are removed for multi-family, institutional, commercial, and industrial development and residential lots. ~~Relating to wireless communication facilities, mitigation means a modification of an existing antenna support structure to increase the height, or to improve its integrity, by replacing or removing one or several antenna support structure(s) located in proximity to a proposed new antenna support structure. This is to encourage compliance with this Code or improve aesthetics or functionality of the overall wireless network.~~

* * *

Wireless communication facilities: ~~The equipment and associated structures needed to transmit and/or receive electromagnetic signals. A wireless communication facility typically includes antennas, supporting structures, enclosures, and/or cabinets housing associated equipment, cable, access roads, and other accessory development. Receive-only radio and television antennas and satellite dishes or antennas are excluded from this definition.~~ Any staffed or unstaffed location for the transmission and/or reception of radio frequency signals, or other personal wireless communications, as defined in the Telecommunications Act of 1996, and usually consisting of an antenna or antenna array, transmission cables, feed lines, equipment cabinets, towers, cabling, antenna brackets, and other such equipment. The following shall be deemed a wireless communication facility: new, replacement, or existing towers, government-owned towers, modified towers, collocation on existing towers or base stations, attached concealed and non-concealed antenna, dual purpose facilities, DAS, small cell, concealed towers, and non-concealed towers, so long as those facilities are used in the provision of personal wireless services as that term is defined in the Telecommunications Act.

* * *

ATTACHMENT "A"

SECTION 4.20 - WIRELESS TELECOMMUNICATIONS

Sec. 4.20.01. - Legislative purposes.

A. The legislative purposes of this section are to:

(1) Promote the health, safety, and general welfare of the public by regulating the siting of wireless communication facilities.

(2) Minimize the impacts of wireless communication facilities on surrounding areas by establishing standards for location, structural integrity and land use compatibility.

(3) Establish standards for preferred siting, design and screening by requiring consistency with the City's Wireless Master Plan, consistent with the Telecommunications Act of 1996, and Section 6409(a) of the Middle Class Tax Relief and Job Creation Act of 2012 ("Spectrum Act").

(4) Encourage the use of public lands, buildings, and structures as locations for wireless telecommunications infrastructure thereby establishing more ability to manage selected sites identified in the City's Wireless Master Plan.

(5) Encourage coordination and collocation of antennas on existing structures to meet coverage needs and promote the efficient use of existing infrastructure.

(6) Accommodate the growing need and demand for wireless communications services in a manner that ensures the placement, construction or modification of wireless communication facilities complies with all applicable state and federal laws.

(7) Ensure there is sufficient wireless infrastructure to support public safety communication services throughout the City, including times of evacuation and disaster response.

(8) Encourage providers of wireless communication facilities to locate wireless communication facilities in areas where the need is demonstrated and planned for and adverse impacts on the community is minimal.

(9) Respond to the rational policies embodied in the Telecommunications Act of 1996 in such a manner as not to unreasonably discriminate between providers of functionally equivalent personal wireless services or to prohibit or have the effect of prohibiting personal wireless services.

(10) Ensure that land use decisions are made in consideration of, and in compatibility with, the goals, objectives and policies of the City of Palm Coast Comprehensive Plan and its land development regulations as set forth in the Land Development Code (LDC).

B. It is the intent of this section that all actions of the City be consistent with controlling federal and state law.

C. The City Council of the City of Palm Coast hereby finds and determines that this section is consistent with the goals, objectives and policies of the City of Palm Coast Comprehensive Plan and other controlling law.

Sec. 4.20.02. - Definitions.

Ancillary structure means, for the purposes of this section, any form of development associated with a WCF including, but not limited to: foundations, concrete slabs on grade, guy anchors, generators, and transmission cable supports; provided, however, specifically excluding equipment cabinets.

Anti-climbing device means a piece or pieces of equipment, which are either attached to an antenna support structure, or which are freestanding and are designed to prevent people from climbing the structure. These devices may include, but are not limited to, fine mesh wrap around structure legs, "squirrel-cones," or other approved devices, but excluding the use of barbed or razor wire.

Antenna means any apparatus designed for the transmitting and/or receiving of electromagnetic waves including, but not limited to: telephonic, radio or television communications. Types of elements include, but are not limited to: omni-directional (whip) antennas, sectionerized (panel) antennas, multi or single bay (FM and TV), yagi, or parabolic (dish) antennas.

Antenna array means a single or group of antenna elements and associated mounting hardware, transmission lines, or other appurtenances which share a common attachment device such as a mounting frame or mounting support structure for the sole purpose of transmitting or receiving electromagnetic waves.

Antenna element means any antenna or antenna array.

Freestanding WCF or collocations means those where the antenna or antenna array is located on towers, concealed or nonconcealed, together with the ancillary structures, feed lines, equipment shelters, and other necessary facilities, which may be located either on or in the tower.

Attached WCF means an antenna or antenna array that is secured to an existing base station with any accompanying pole or device which attaches it to the building or structure, together with transmission cables, and an equipment cabinet, which may be located either on the roof or inside/outside of the building or structure. An attached WCF is considered to be an accessory use to the existing principal use on a site.

Base Station means a structure or equipment at a fixed location that enables FCC-licensed or authorized wireless communications between user equipment and a communications network. The term does not encompass a tower as defined herein, or any equipment associated with a tower. “Base station” includes, without limitation:

(1) Equipment associated with wireless communications services such as private, broadcast, and public safety services, as well as unlicensed wireless services and fixed wireless services such as microwave backhaul.

(2) Radio transceivers, antennas, coaxial or fiber-optic cable, regular and backup power supplies, and comparable equipment, regardless of technological configuration (including distributed antenna systems (“DAS”) and small-cell networks).

(3) Any structure other than a tower that, at the time the relevant application is filed with the City under this subsection, supports or houses equipment described in subsections (1) and (2) of this definition that has been reviewed and approved under the applicable zoning or siting process, or under another state or local regulatory review process, even if the structure was not built for the sole or primary purpose of providing that support.

The term does not include any structure that, at the time the relevant application is filed with the City under this subsection, does not support or house equipment described in subsections (1) and (2) of this definition.

Breakpoint technology means the engineering design of a monopole wherein a specified point on the monopole is designed to have stresses concentrated so that the point is at least five percent more susceptible to failure than any other point along the monopole so that in the event of a structural failure of the monopole, the failure will occur at the breakpoint rather than at the base plate, anchor bolts, or any other point on the monopole.

Collocation means the situation in which a second or subsequent communications services provider or a pass-through provider uses an existing structure to locate a second or subsequent antenna or wireless communication facility. The term includes the ground, platform, or roof installation of equipment enclosures, cabinets, or buildings, and cables, brackets, and other equipment associated with the location and operation of a communication antenna.

Combined antenna means an antenna or an antenna array designed and utilized to provide services for more than one wireless provider for the same or similar type of services.

Concealed means a tower, base station, ancillary structure, or equipment compound that is not readily identifiable as a wireless communication facility, and is designed to be aesthetically compatible with existing and proposed building(s) and uses on a site or in the neighborhood or area. There are two types of concealed facilities:

(1) Concealed base stations may include painted antenna and feed lines to match the color of a building or structure, faux parapets, windows, dormers, or other architectural features that blend with an existing or proposed or structure.

(2) Concealed freestanding towers which look like something else that is common in the region such as a church steeple, bell tower, clock tower, light standard, flagpole with a flag that is proportional in size to the height and girth of the tower, or tree that grows naturally or is commonly found in the area.

Development area means the area occupied by a WCF including, but not limited to, areas inside or under the following: an antenna-support structure's framework, equipment cabinets, ancillary structures and access ways.

Eligible Facilities Request means any request for modification of an existing tower or base station that, in accordance with the definitions contained in FCC regulations codified at 47 C.F.R. § 1.40001, does not substantially change the physical dimensions of the existing support structure and is requesting:

(1) Collocation of new transmission equipment;
(2) Removal of existing transmission equipment; or
(3) Replacement of existing transmission equipment.

Eligible support structure means any tower or base station that is existing at the time the relevant application is filed with the City under this subsection.

Environmentally Sensitive Lands are as provided in Chapter 10 of the Unified Land Development Code-Environmental and Cultural Resource Protection.

Equipment cabinet means any structure above the base flood elevation including, but not limited to, cabinets, shelters, pedestals, and other similar structures. Equipment cabinets are used exclusively to contain radio or other equipment necessary for the transmission or reception of wireless communication signals.

Equipment compound means the fenced area surrounding the ground-based wireless communication facility including, but not limited to, the areas inside or under the following: the tower's framework and ancillary structures such as equipment necessary to operate the antenna on the WCF that is above the base flood elevation including: cabinets, shelters, pedestals, and other similar structures.

Equipment facility means a room, cabinet, shelter, pedestal, build-out of an existing structure, building, or similar structure used to house ancillary equipment for a communication tower or antenna. Each such cabinet, shelter, or building shall be considered a separate equipment facility.

Existing means a constructed tower or base station existing for purposes of this section that has been reviewed and approved under the applicable zoning or siting process, or under another State or local regulatory review process, provided that a tower that has not been reviewed because it was not in a zoned area when it was built, but was lawfully constructed, is existing for purposes of this subsection.

Expedited collocation application means collocation applications, or portions thereof, on towers or base stations, excluding collocations on a historic building, structure, site, object, or district, that meet the criteria set forth in Section 365.172(13)(a), F.S., as amended.

FAA means the Federal Aviation Administration.

FCC means the Federal Communications Commission.

Feed lines means cables used as the interconnecting media between the transmission/receiving base station and the antenna.

Flush-mounted means any antenna or antenna array attached directly to the face of the support structure or building such that no portion of the antenna extends above the height of the support structure or building. Where a maximum flush-mounting distance is given, that distance shall be measured from the outside edge of the support structure or building to the inside edge of the antenna.

Guyed structure (see tower). Guyed structures for new WCFs are prohibited within the City.

Geographic search ring means an area designated by a wireless provider or operator for a new base station, produced in accordance with generally accepted principles of wireless engineering.

Handoff candidate means a wireless communication facility that receives call transference from another wireless facility, usually located in an adjacent first "tier" surrounding the initial wireless facility.

Lattice structure (see Tower). Lattice structures for new WCFs are prohibited within the City.

Least visually obtrusive profile means the design of a wireless communication facility intended to present a visual profile that is the minimum profile necessary for the facility to properly function.

Level I refers to a wireless communication facility permit subject to administrative review and approval by the Land Use Administrator or designee, with no public hearing requirement.

Level II refers to wireless communication facility permit subject to the special exception approval process set forth in Section 2.07 of the Land Development Code, except that the application review and approval timeframes set forth in Section 4.20.10 shall apply. New towers proposed in non-Wireless Master

Plan Sites shall require Level II permits. All other installations only require Level I permits.

Micro Wireless Facility (see Section 42-103).

Modification means a modification of an existing tower or base station to increase the height, or to improve its integrity, by replacing or removing one or several tower(s) located in proximity to a proposed new tower in order to encourage compliance with this section or improve aesthetics or functionality of the overall wireless network.

Monopole structure (see Tower).

Non-concealed WCF means a wireless communication facility that is readily identifiable as such and can be either freestanding or attached.

Personal wireless service means commercial mobile services, unlicensed wireless services, and common carrier wireless exchange access services, as defined in the Telecommunications Act of 1996.

Public safety communications equipment means all communications equipment utilized by a public entity for the purpose of ensuring the safety of the citizens of the City and operating within the frequency range of 700 MHz and 1,000 MHz and any future spectrum allocations at the direction of the FCC.

Public View means a non-amplified visual range of site from rights-of-ways, sidewalks, adjacent properties, or other publically accessible vantage points.

Radio frequency (RF) emissions means any electromagnetic radiation or other communications signal emitted from an antenna or antenna-related equipment on the ground, antenna support structure, building, or other vertical projection.

Radio frequency (RF) propagation means wireless telecommunications signal service area as shown on maps.

Satellite Earth Station means a single or group of parabolic (or dish) antennas are mounted to a support device that may be a pole or truss assembly attached to a foundation in the ground, or in some other configuration. A satellite earth station may include, but is not limited to, the associated separate equipment cabinets necessary for the transmission or reception of wireless communications signals with satellites.

Site means for towers other than towers in the public rights-of-way, the current boundaries of the leased or owned property surrounding the tower, and any access or utility easements currently related to the site, and, for other eligible support structures, further restricted to that area in proximity to the structure and to other transmission equipment already deployed on the ground.

Small wireless facility (See Section 42-103).

Substantial Change means a modification that substantially changes the physical dimensions of an eligible support structure if it meets any of the following criteria:

(1) For towers other than towers in the public rights-of-way, it increases the height of the tower by more than 10 percent or by the height of one additional antenna array with separation from the nearest existing antenna not to exceed 20 feet, whichever is greater; for other eligible support structures, it increases the height of the structure by more than 10 percent or more than 10 feet, whichever is greater. Changes in height should be measured from the original support structure in cases where deployments are or will be separated horizontally, such as on buildings' rooftops; in other circumstances, changes in height should be

measured from the dimensions of the tower or base station, inclusive of originally approved appurtenances and any modifications that were approved prior to the passage of the Spectrum Act;

(2) For towers other than towers in the public rights-of-way, it involves adding an appurtenance to the body of the tower that would protrude from the edge of the tower more than 20 feet, or more than the width of the tower structure at the level of the appurtenance, whichever is greater; for other eligible support structures, it involves adding an appurtenance to the body of the structure that would protrude from the edge of the structure by more than six feet;

(3) For any eligible support structure, it involves installation of more than the standard number of new equipment cabinets for the technology involved, but not to exceed four cabinets; or, for towers in the public rights-of-way and base stations, it involves installation of any new equipment cabinets on the ground if there are no preexisting ground cabinets associated with the structure, or else involves installation of ground cabinets that are more than 10 percent larger in height or overall volume than any other ground cabinets associated with the structure;

(4) It entails any excavation or deployment outside the current site;

(5) It would defeat the concealment elements of the eligible support structure; or

(6) It does not comply with conditions associated with the siting approval of the construction or modification of the eligible support structure or base station equipment; provided, however, that this limitation does not apply to any modification that is noncompliant only in a manner that would not exceed the thresholds identified in subsections (1) through (4) of this definition.

Tower means any structure built for the sole or primary purpose of supporting any FCC- licensed or authorized antennas and their associated facilities, including structures that are constructed for wireless communications services including, but not limited to, private, broadcast, and public safety services, as well as unlicensed wireless services and fixed wireless services such as microwave backhaul, and the associated site. Towers do not include any device used to attach antennas to an existing building, unless the device extends above the highest point of the building by more than 20 feet. A tower may be concealed or non-concealed. Non-concealed towers include:

(1) *Guyed structure* means a style of tower consisting of a single truss assembly composed of sections with bracing incorporated. The sections are attached to each other, and the assembly is attached to a foundation and supported by a series of wires that are connected to anchors placed in the ground or on a building. Guyed structures for new WCFs are prohibited within the City.

(2) *Lattice structure* means a self-supporting tapered style of tower that consists of vertical and horizontal supports with multiple legs and cross-bracing, and metal crossed strips or bars to support antennas. Lattice structures for new WCFs are prohibited within the City.

(3) *Monopole structure* means a style of freestanding tower consisting of a single shaft usually composed of two or more hollow sections that are in turn attached to a foundation. This type of tower is designed to support itself without the use of guy wires or other stabilization devices. These facilities are mounted to a foundation that rests on or in the ground or on a building's roof. All feed lines shall be installed within the shaft of the structure.

Transmission Equipment means equipment that facilitates transmission for any FCC- licensed or authorized wireless communication service, including, but not limited to, radio transceivers, antennas, coaxial or fiber-optic cable, and regular and backup power supply. The term includes equipment associated with

wireless communications services including, but not limited to, private, broadcast, and public safety services, as well as unlicensed wireless services and fixed wireless services such as microwave backhaul.

WCF (see Wireless Communication Facility).

Wireless communications means any personal wireless service, which includes but is not limited to, cellular, personal communication services (PCS), specialized mobile radio (SMR), enhanced specialized mobile radio (ESMR), unlicensed spectrum services utilizing devices described in Part 15 of the FCC's regulations (e.g., wireless internet services and paging).

Wireless communication facility (WCF) means any staffed or unstaffed location for the transmission and/or reception of radio frequency signals, or other personal wireless communications, as defined in the Telecommunications Act of 1996, and usually consisting of an antenna or antenna array, transmission cables, feed lines, equipment cabinets, towers, cabling, antenna brackets, and other such equipment. The following shall be deemed a wireless communication facility: new, replacement, or existing towers, government-owned towers, modified towers, collocation on existing towers or base stations, attached concealed and non-concealed antenna, dual purpose facilities, DAS, small cell, concealed towers, and non-concealed towers, so long as those facilities are used in the provision of personal wireless services as that term is defined in the Telecommunications Act.

Wireless Master Plan means the Wireless Telecommunications Master Plan developed and adopted by the City, as amended from time to time, to enforce applicable development standards, land development regulations, state law and federal law related to the deployment of wireless telecommunications infrastructure.

Sec. 4.20.03. - Applicability.

A. Except as provided in section 4.20.04, the following shall apply to the development activities including, but not limited to, installation, construction or modification of the following wireless communications facilities:

(1) Existing towers.

(2) Proposed towers.

(3) Public towers.

(4) Replacement of existing towers.

(5) Collocation on towers and base stations.

(6) Attached WCF.

(7) Concealed WCF.

B. These regulations are subject to state and federal law limitations.

Sec. 4.20.04. - Exempt installations.

The following uses are exempt from the provisions of this section notwithstanding any other provision of the City's land development regulations, but are subject to all applicable building code compliance and building permit reviews:

(1) Non-commercial, amateur radio antennas as provided for in Section 125.561, Florida Statutes.

(2) Satellite earth stations that are one meter (39.37 inches) or less in diameter in all residential districts and two meters or less in all other zoning districts and which are not greater than 20 feet above grade in residential districts and 35 feet above grade in all other zoning districts.

(3) A government-owned WCF, upon the declaration of a state of emergency by federal, state, or local government, and a written determination of public necessity by the City; except that such WCF must comply with all federal and state requirements. This exemption shall terminate upon the state of emergency ending.

(4) A government-owned WCF erected for the purposes of installing antenna(s) and ancillary equipment necessary to provide communications for public health and safety.

(5) A temporary, commercial WCF, upon the declaration of a state of emergency by federal, state or local government, or determination of public necessity by the City, and approval by the City; except that such WCF must comply with all federal and state requirements. The exemption may be permitted by the City to continue to three months after the duration of the state of emergency.

(6) A temporary, commercial WCF for the purposes of providing coverage of a special event such as news coverage or sporting event, subject to approved by the City, except that such WCF must comply with all federal and state requirements. Said WCF may be exempt for a period of up to one week after the duration of the special event.

(7) Antenna support structures, antennas, and/or antenna arrays for AM/FM/TV/HDTV broadcasting transmission facilities that are licensed by the FCC shall be regulated in accordance with federal, state and other applicable regulations.

Sec. 4.20.05. – Wireless Master Plan

A. The City has adopted a Wireless Master Plan by Resolution of the City Council. The Wireless Master Plan identifies existing or proposed City or publicly owned sites for wireless communication infrastructure and service.

B. Design standards for proposed towers in the Wireless Master Plan shall be consistent with this Ordinance and the Wireless Master Plan but may be further detailed and addressed through the required lease terms for use of any public property.

C. The Wireless Master Plan was adopted by the City Council by Resolution No. _____, as may be amended by City Council resolution hereafter. And, by this reference, the Wireless Master Plan is incorporated herein.

D. The Land Use Administrator or designee may waive application requirements in Section 4.20.09 for sites within the Wireless Master Plan. The applicable requirements are listed in Section 4.20.09.

E. If an applicant receives a permit to develop a site on City-owned property, the permit shall not become effective until the applicant and the City have executed a written agreement or lease setting forth the applicable terms and provisions.

F. No permit granted under this section shall convey an exclusive right, privilege, permit, or franchise to occupy or use the publicly owned sites of the jurisdiction for delivery of wireless communications services or any other purpose.

G. No permit granted under this section shall convey any right, title or interest in the public lands, but shall be deemed a permit only to use and occupy the public lands for the limited purposes and term stated in the agreement between the lessor and lessee.

H. Sites located within the Wireless Master Plan may utilize a standard landscape plan, approved by the Land Use Administrator or designee.

I. Sites within the Wireless Master Plan may utilize alternative compliance standards to access a WCF site, if approved by the Land Use Administrator or designee.

Sec. 4.20.06. – Preferred siting locations.

A. All new WCFs and any supporting structures, except for those proposed within the public rights-of-way, shall generally adhere to the following siting preferences, in order of preference:

(1) City-owned property identified in the Wireless Master Plan;
(2) Other public property identified in the Wireless Master Plan;
(3) Other City owned or public property not identified in the Wireless Master Plan;
(4) Privately owned property not identified in the Wireless Master Plan.

B. If the proposed location for the new WCF is not consistent with the preferred hierarchy and the Wireless Master Plan, the applicant must file relevant information as indicated in Section 4.20.09 with the siting application including, at minimum, the following:

(1) An affidavit by a radio frequency engineer demonstrating that despite diligent efforts to adhere to the geographic preferences established in the wireless master plan, wireless master plan options are not technically infeasible, practical or justified given the location of the proposed WCF;
(2) An affidavit demonstrating that the proposed site will not adversely affect existing or future single-family uses or environmentally sensitive areas and is not contrary to the City's Comprehensive Plan and Unified Land Development Code; and
(3) The existing land uses of the subject and surrounding properties within 300 feet of the proposed site.

C. This section shall not be interpreted to require applicants to locate on publicly-owned sites when lease negotiation processes are prohibitively lengthy or expensive relative to those of the private sector as determined by the Land Use Administrator or designee, based upon competent substantial evidence. The applicant is considered justified in selecting a lower-ranked privately-owned property option if the government entity fails to approve a memorandum of agreement or letter of intent to lease a specified publicly-owned site within 90 days of the application date or if it is demonstrated that the proposed lease rate for the specified public-owned site significantly exceeds the market rate for comparable privately-owned sites.

Sec. 4.20.07. - Permitted uses.

A. The placement, maintenance or modification of WCFs shall be permitted only in accordance with the wireless communication permit, and the land development requirements of this Code. The placement or maintenance of wireless communication facilities in the public rights-of-way shall comply with the regulations of Chapter 42 of the Code of Ordinances:

B. Applicable permits.

All applications shall meet the review timeframes as shown in Section 4.20.10.

(1) Level I wireless communication facility permit. All applicable non-exempt applications to place, maintain, modify, or collocate wireless communications facilities, not subject to special exception use approval, shall be subject to administrative review and approval by the Land Use Administrator or designee, with no public hearing requirement.

(2) Level II wireless communication facility permit. All applicable non-exempt applications to place, maintain, or substantially change wireless communications facilities that do not qualify for an administrative permit shall be subject to the special exception approval process set forth in Section 2.07 of the Land Development Code, except that the application review and approval timeframes set forth in Section 4.20.10 shall apply. New towers proposed in non-master planned sites shall require Level II permits. All other installations only require Level 1 permits.

(3) Communications Rights-of-Way Permit. All non-exempt applications to place, maintain, modify, or collocate wireless communications facilities within the public rights-of-way shall be subject to the review and approval requirements set forth in Chapter 42, Code of Ordinances, and the applicable land development regulations set forth herein. Wireless communication facilities, other than small wireless facilities and micro wireless facilities, are prohibited within the public rights-of-way.

(4) Eligible facilities requests. Any request for modification of an existing tower or base station involving collocation of new transmission equipment; removal of transmission equipment; or replacement of transmission equipment that does not substantially change the physical dimensions of such tower or base station shall be reviewed and processed in accordance with the provisions set forth in Section 4.20.12.

C. Expedited collocation applications.

(1) Expedited collocation applications for antenna on towers. In accordance with Section 365.172, F.S., collocation of antenna on towers, including nonconforming towers, are subject only to building-permit review, which may include a review for compliance with this section, if the applicants meet the following requirements:

a. The collocation does not increase the height of the tower to which the antennae are to be attached, measured to the highest point of any part of the tower or any existing antenna attached to the tower; and

b. The collocation does not increase the ground space area, commonly known as the compound, approved in the site plan for equipment facilities and ancillary facilities, except as allowed under this section; and

c. The collocation consists of antennas, equipment facilities, and ancillary facilities that are of a design and configuration consistent with all applicable regulations, restrictions, or conditions, if any, applied to the initial antennas placed on the tower and to its accompanying equipment facilities and ancillary facilities and, if applicable, applied to the tower supporting the antennas. Such regulations may include the design and aesthetic requirements but not procedural requirements, other than those authorized by this subsection, of the applicable land development code in effect at the time the initial antenna's placement was approved.

Such collocations shall not be subject to the design or placement requirements of the land development code in effect at the time of the collocation that are more restrictive than those in effect at the time of the initial antenna placement approval, to any other portion of the land development code, or to public hearing review. Such collocation applications shall be decided by the Land Use Administrator or designee.

(2) Expedited collocation applications for antenna on base stations. In accordance with Section 365.172, F.S., except for an historic building, structure, site, object, or district, the following collocation applications on all other existing base stations shall be subject to no more than administrative review for compliance with this section and building permit standards if they meet the following requirements:

a. The collocation does not increase the height;

b. The collocation does not increase the existing ground space area, otherwise known as the compound, if any, approved in the site plan for the equipment facility and ancillary facilities.

c. The collocation consists of antennas, equipment facility and ancillary facilities that are of a design and configuration consistent with any applicable structural or aesthetic design requirements and any requirements for location on the structure in effect at the time of approval of the structure, but not prohibitions or restrictions on the placement of additional collocations on the existing structure or procedural requirements, other than those authorized by this subsection at the time of the collocation application; and

d. The collocation consists of antennas, equipment facility and ancillary facilities that are of a design and configuration consistent with all applicable restrictions or conditions, if any, that do not conflict with subsection (c), and were applied to the initial antennas placed on the structure and to its accompanying equipment facility and ancillary facilities and, if applicable, applied to the structure supporting the antennas.

(3) If only a portion of the collocation does not meet the requirements of any of the above subsections, such as an increase in the height or a proposal to expand the ground space approved in the site plan for the equipment facility by more than 400 square feet or 50 percent, where all other portions of the collocation meet the requirements of this subsection, that portion of the collocation only may be reviewed as set forth in subsection (6) below. A collocation proposal under this subsection that increases the ground space area approved in the original site plan, for equipment facilities and ancillary facilities, by no more than a cumulative amount of 400 square feet or 50 percent of the original compound size, whichever is greater, shall require no more than administrative review for compliance with the City's regulations; including, but not limited to, land development code and building permit review; provided, however, that any collocation proposal that increases the original compound size more than such greater cumulative amount shall be reviewed as if it were a new communications facility.

(4) Any existing tower, including a nonconforming tower, may be structurally modified to permit collocation, or may be replaced through no more than administrative review and building permit review, and is not subject to public hearing review, if the overall height of the tower is not increased and, if the replacement tower is a monopole tower, or if the pre-existing tower is a stealth tower, the replacement tower is a similar stealth tower.

(5) The owner of the existing tower on which the proposed antennas are to be collocated shall remain responsible for compliance with any applicable condition or requirement of a permit or agreement, or any applicable condition or requirement of the land development code to which the pre-existing tower must comply, including any aesthetic requirements, provided the condition or requirement is consistent with this subsection.

(6) Colocations or portions of colocations that are not exempt from this section and do not fall under the provisions of subsections 4.20.07.C(1) through (4), shall be reviewed through a full permitted use review. Those located on historic structures or in historic districts, shall be reviewed through the review processes for historic structures or districts indicated in the LDC.

Sec. 4.20.08. - Development standards.

A. *General:*

(1) All development standards and land development code regulations relating to the property upon which the WCF is located shall apply. Additionally, where permitted as provided in Section 4.20.07, the following development standards apply to all attached collocations and all new, modified, or combined WCF installations. Where any environmentally sensitive lands, historic or scenic overlay districts or corridor plans also apply, the most restrictive standards shall govern.

(2) Cabinets shall be provided within the principal building, behind a screen on a rooftop or on the ground within the fenced-in and screened equipment compound. This is not required if out of the public view.

(3) All equipment compounds shall be enclosed with a wood/brick/masonry fence or otherwise secured and screened with opaque landscaping. Fencing shall be subject to the requirements as outlined in the LDC.

(4) WCF equipment compounds shall be landscaped as required in Chapter 11 of the LDC. Wireless Master Plan sites may utilize a standard alternative landscape plan approved by the Land Use Administrator or designee.

(5) Attaching commercial messages for off-site and on-site advertising to a WCF is prohibited and unlawful. The placement of a religious symbol as part of the concealment of a WCF shall not be considered prohibited commercial messages or signage. The only signage that is permitted upon a tower, equipment cabinet, or fence shall be informational, and for the purpose of identifying the tower (such as ASR registration number), as well as the party responsible for the operation and maintenance of the facility, its current address and telephone number, security or safety signs, and property manager signs (if applicable). On permitted signs which are not located on a tower, cabinet or fence, a WCF may be concealed inside such signage, provided that all applicable standards for both the signage and the concealed WCF are met.

(6) Lighting on WCFs, if required by the FAA, shall not exceed the FAA minimum standards. Any lighting required by the FAA must be of the minimum intensity and number of flashes per minute (i.e., the longest duration between flashes) allowable by the FAA to minimize the potential attraction to migratory birds. Dual lighting standards are required and strobe light standards are prohibited unless required by the FAA. The lights shall be oriented so as not to project directly onto surrounding residential property, consistent with FAA requirements. Any security lighting for on-ground facilities and equipment shall be in compliance with the LDC.

(7) Each WCF and its equipment compounds shall be constructed and maintained in conformance with all applicable building code requirements.

(8) Equipment compounds shall not be used for the storage of any excess equipment or hazardous waste (e.g., discarded batteries). It is prohibited and unlawful to allow an outdoor storage yard in a WCF equipment compound or to use the equipment compound as habitable space.

(9) The WCF shall comply with all applicable federal, state and local regulations.

(10) The WCF applicant shall comply with all applicable American National Standards Institute (ANSI) standards as adopted by the FCC.

(11) Each WCF shall be designed to ensure that no sound emissions from machinery, alarms, bells, buzzers, or similar noise making devised are audible beyond the perimeter of the equipment compound and shall comply with the City of Palm Coast Code of Ordinances.

(12) Building permits. A building permit shall be required for the construction, modification, and collocation of all WCFs, including any accessory structures or equipment, as provided in Section 4.20.07 above.

(13) The WCF and its equipment compound shall be subject to the setbacks of the underlying zoning district. Antennas may extend a maximum of 30 inches into the setback. However, no antenna or portion of any structure shall extend into any easement.

B. *Attached WCFs:*

(1) Attached WCF's may be permitted in all zoning districts. The top of the attached WCF shall not be more than 20 feet above the existing or proposed building or structure.

(2) Feed lines and antennas shall be designed to architecturally match the facade, roof, wall, or structure on which they are affixed in order to blend with the existing structural design, color, and texture and in order to provide the least visually obtrusive profile.

C. *Freestanding WCFs:*

(1) All new freestanding WCFs shall meet minimum lot size standards of the underlying zoning district and are subject to the LDC.

(2) New freestanding towers shall be configured and located in a manner that shall minimize adverse effects including, but not limited to, visual impacts on the landscape and adjacent properties. New freestanding WCFs shall be designed to match adjacent structures and landscapes with specific design considerations such as architectural design, height, scale, color and texture, and shall have the least visually obtrusive profile.

(3) Grading shall be minimized and limited only to the area necessary for the new WCF as approved by the Land Use Administrator or designee.

(4) All support structures shall be certified to comply with the safety standards contained in the Electronics Industries Association/Telecommunications Industries Association (EIA/TIA) Document 222-F, Structural Standards For Steel Antenna Towers and Supporting Structures, as amended, by a Florida professional engineer.

(5) Freestanding towers may only be permitted as monopole towers. Guyed and lattice structures are prohibited, unless the applicant demonstrates to the City by clear and convincing evidence that monopole towers are not feasible to accommodate the intended uses. Freestanding monopoles are prohibited from single-family or multi-family residential districts unless the applicant can conclusively demonstrate to the satisfaction of the City that it cannot reasonably provide its service to the residential zone from outside of the district. The City shall cooperate to determine an appropriate location for the freestanding tower of an appropriate design within the residential district. The applicant shall reimburse the City for all reasonable costs incurred by the City for this cooperative determination.

(6) The height of a new monopole tower shall not exceed the heights provided in the table below:

Freestanding Non-Wireless Master Plan Sites	
Zone	**Maximum Height WCF**
Single family Residential	Not permitted unless applicant can conclusively demonstrate to the satisfaction of the City that it cannot reasonably provide its service to the residential zone from outside of the district.

Multifamily Residential	Not permitted unless applicant can conclusively demonstrate to the satisfaction of the City that it cannot reasonably provide its service to the residential zone from outside of the district.
MPD	As determined by the MPD ordinance, unless within a Wireless Master Plan
All other districts	Up to 150 feet.
Wireless Master Plan Sites	
All districts	Up to 150 feet.

(7) In calculating the height limit, above ground foundation shall be included, but lightning rods or lights required by the FAA that do not provide any support for antennas shall be excluded. If the freestanding WCF is located within the Wireless Master Plan, the maximum height may be up to 150 feet.

(8) A freestanding monopole and its equipment compound shall be subject to the land development code regulations applicable to the underlying zoning district. The minimum setback distance for a freestanding tower shall be 150 feet from any residentially zoned or platted property. Freestanding monopoles are not allowed in residentially zoned or platted property. In the event of any conflict between this section and the Land Development Code, this section shall control.

(9) New towers shall maintain a galvanized gray finish or other approved contextual or compatible color and provide the least visually obtrusive profile, except as required by Federal regulations. The level of required concealment for antenna placement shall be determined based upon the visibility and location of the proposed tower and the network objectives of the desired coverage area.

(10) All new or modified freestanding WCFs shall be engineered to maximize colocation.

D. *Attached Collocation or Combined WCFs:*

(1) An attached collocation or combined WCF shall not increase the height of an existing tower or base station by more than 20 feet, unless required by Federal law. The maximum total height shall be 150 feet.

(2) The City may require new antenna to be flush-mounted or concealed on a case by case basis, if it is determined that a practical visual and aesthetic benefit can be achieved if in the public view. If the applicant demonstrates through RF propagation analysis that flush-mounted or concealed antennas will not meet the network objectives of the desired coverage area, this requirement shall not apply.

Sec. 4.20.09. - Submittal requirements for Level I and Level II permits.

A. Application form. Requests for Level I and Level II wireless communication permits shall be made only on application forms approved by the City. Applications shall contain all information required by this land development code and other City regulations, and shall be reviewed for completeness.

B. Application materials. In addition to the application materials specified in this code for the appropriate type of review, all applications shall provide sufficient materials (plans, graphics, narratives, or expert statements) to demonstrate compliance with all applicable requirements of this section.

(1) Level I and Level II applications shall contain the following:

a. Application.
b. A site plan addressing the development standards of the LDC. If applicable, an application meeting the special exception requirements of Section 2.07 of the LDC shall be submitted.
c. An affidavit by a RF engineer demonstrating compliance with Section 4.20.05. If a non-master plan site is proposed, the affidavit must address why master plan sites are not technically feasible, practical or justified given the location of the proposed WCF communications facility.
d. FCC documentation including a copy of FCC license submittal or registration, and FCC license or registration
e. Proposed maximum height of the WCF including, but not limited to, individual measurement of the base, the tower or base station, and lightning rod.
f. Photo-simulated post-construction renderings of the completed proposed tower, base station, equipment cabinets, and ancillary structures from locations to be determined during a mandatory pre-application conference. The renderings shall, at a minimum, include renderings from the vantage point of any adjacent roadways and occupied or proposed non-residential or residential structures, proposed exterior paint and stain samples for any items to be painted or stained, exterior building material and roof samples.
g. If the proposed WCF is subject to FAA regulation, then, prior to issuance of a building permit, evidence of compliance with applicable FAA requirements under 14 C.F.R. § 77 et seq., as amended, together with any FAA "no hazard" determinations concerning the WCF (if applicable) shall be timely provided by the applicant to the City.
h. In order to facilitate the regulation, placement, and construction of WCFs and to ensure that all parties comply with the rules, regulations and applicable guidelines of the FCC, each owner of a WCF or applicant for a WCF shall provide an affirmative statement that it will comply with all applicable federal, state and local statutory and regulatory requirements.
i. For applications for new towers or other freestanding WCFs, as necessary to determine that there is no other existing structure that could reasonably be used for the placement of the proposed antennas, or for applications for new WCFs or attached collocations that increase the height of an existing structure, as needed to determine if the proposed height is necessary to provide the carrier's designed service, materials detailing the locations of existing WCFs to which the proposed antenna will be candidate for placement, including, but not limited to, latitude and longitude of the proposed and existing antenna. This material is not required for Wireless Master Plan sites.

j. For applications for new towers or other freestanding WCFs, as necessary to determine that there is no other existing structure that could reasonably be used for the placement of the proposed antennas, a map showing the designated search ring. This map is not required for Wireless Master Plan sites.

k. A compliance letter from the State Historic Preservation Office of Cultural and Historic Programs of the Florida Department of State.

l. With regard to attached colocations, attached and combined WCFs, the applicant shall also submit:

i. Certification furnished by a Florida registered professional engineer that the WCF has sufficient structural integrity to support the proposed antenna and feed lines in addition to all other equipment located or mounted on the structure.

m. With regard to freestanding concealed or non-concealed WCFs, and modification of WCFs, for non-Wireless Master Plan sites only, the applicant shall also submit:

i. A report and supporting technical data demonstrating that all antenna attachments and colocations, including all potentially useable utility distribution poles or transmission towers and other elevated structures within the proposed geographic search ring, and alternative antenna configurations have been examined, and found unacceptable. The report shall include reasons that existing facilities such as utility distribution poles and transmission towers and other elevated structures are not acceptable alternatives to a new freestanding WCF. The report regarding the adequacy of alternative existing WCFs or the mitigation of existing WCFs to meet the applicant's need or the needs of service providers indicating that no existing WCF could accommodate the applicant's proposed WCF shall demonstrate any of the following:

a. No existing WCFs located within the geographic search ring meet the applicant's engineering requirements, and why.
b. Existing WCFs are not of sufficient height to reasonably meet the applicant's engineering requirements, and cannot be increased in height.
c. Existing WCFs do not have sufficient structural integrity to support the applicant's proposed WCFs and related equipment, and the existing WCF cannot be sufficiently improved.
d. Other limiting factors that render existing WCFs unsuitable.

ii. The applicant shall provide simulated photographic evidence of the proposed WCFs appearance from four vantage points chosen by the City with consultation with the applicant, including the facility types the applicant has considered and the impact on adjacent properties including, but not limited to:

a. Overall height.
b. Configuration.
c. Physical location.
d. Mass and scale.

e. Materials and color.
f. Illumination.
g. Architectural design.

This does not apply to Wireless Master Plan sites.

iii. If applicable, the applicant shall provide a statement as to the potential visual and aesthetic impacts of the proposed WCF on all adjacent properties assigned a residential land use designation or zoning district. This does not apply to Wireless Master Plan sites.

iv. A certification by a Florida professional engineer that the WCF has sufficient structural integrity to accommodate the required and a proposed number of colocations.

v. A certification by a Florida professional engineer specifying the design structural failure modes of the proposed WCF, if applicable.

vi. Identification of the proposed intended service providers of the WCF.

n. With regard to antenna element replacements.

i. Any repair or replacement of an existing antenna or antenna array with another of equal number that does not increase the number and/or size of transmission lines, and that is not readily discernibly different in size, type and appearance when viewed from ground level from surrounding properties, as reasonably determined by the City, and which will not alter the structural integrity of the support structure, is exempt from further review, provided that a notarized certification is submitted by a qualified technician stating that the replacement will not alter the structural integrity of the support structure and that any changes will not affect electrical specifications.

ii. For any repair or replacement of an existing antenna or antenna array on a WCF that changes the mechanical, structural or electrical specifications of the WCF, but does not increase the number and/or size of feed lines and does not increase the number and/or size of antenna elements to the existing WCF, the applicant must, prior to making such modifications, apply for a new building permit review for such requested changes, and, for structural changes to freestanding WCFs, shall provide, in addition to any other documentation necessary for building permit review, a stamped or sealed structural analysis of the existing freestanding WCF prepared by a Florida professional engineer indicating that the existing tower or base station as well as all existing and proposed appurtenances meets the City and Florida Building Code requirements (including, but not limited to, wind loading) for the tower or base station.

o. With regard to the replacement of or modification to an existing WCF, except a tower.

The replacement of or modification to a WCF, except a tower, that results in a WCF facility not readily discernibly different in size, type and appearance, when viewed from ground level from surrounding properties, and the replacement or modification of equipment that is not visible from surrounding properties, all as reasonably determined by the Land Use Administrator, are subject only to building permit review.

(2) Level II applications

a. A completed special exception approval application, and all items required pursuant to Section 2.07, including compliance with all applicable special exception requirements.

C. Disclosure of ownership. A notarized affidavit from all owners having a legal, equitable, or beneficial ownership interest in the tower or base station, or privately owned real property upon which a facility is or will be located or collocated, granting permission to the applicant to locate upon such real property, or attach to the tower or base station being collocated upon or attached to.

D. Submission of fee. All applications must be accompanied by the permit fee as established by resolution of the City Council.

Sec. 4.20.10. – Application Review Process.

A. A pre-application conference is required. To minimize issues related to permit application, prior to submitting materials for a permit application, an applicant must request a pre-submittal meeting with the Land Use Administrator or designee. The City shall undertake efforts to accommodate an applicant's request for a pre-application conference within ten (10) business days of a request.

B. Expert review. The City may require that all wireless communications permit applications be reviewed by a third-party consultant or expert at the expense of the applicant for compliance with the requirements set forth herein. No permit shall be issued to any applicant that has not fully reimbursed the City for the third-party review fees, which shall be limited to the specifically identified reasonable expenses incurred in the review.

C. Application Review Timeframes: "shot clock". The City's action on proposals to place, maintain, modify, or collocate wireless communications facilities shall be subject to the applicable standards and time frames set out in Section 365.172, Florida Statutes, 47 U.S.C. § 1455 (a) and Orders issued by the FCC, as same may be amended from time to time. All Federal and State "shot clock" timeframe guidelines that apply to any particular permit are hereby recognized by the City, and the City will make all reasonable efforts to comply. Except for eligible facilities request applications reviewed in accordance with Section 4.20.12, the following procedures apply to installation of a new WCF or modification:

(1) Notification of completeness. The Land Use Administrator or designee shall notify the applicant within 20 business days after the date the application is submitted as to whether the application is, for administrative purposes only, properly completed and has been properly submitted in accordance with the requirements set forth above. However, such determination shall not be deemed as an approval of the application. Such notification shall indicate with specificity any deficiencies which, if cured, could make the application properly completed.

(2) Expedited collocation applications. The City shall grant or deny each properly completed expedited collocation application for collocation based on the application's compliance with this section, applicable provisions of the City Code and any other applicable regulations, and within the normal timeframe for a similar building permit review, but in no case later than 45 business days after the date the application is determined to be properly completed. This timeframe shall not apply to lease negotiations for collocation on City-owned property.

(3) All other applications. The City shall grant or deny each properly completed application for any other non-exempt WCF, including special exception approvals and collocations that do not qualify for an expedited collocation, based on the application's compliance with this section and any other applicable law, including but not limited to the City Code, and within the normal timeframe for a similar type of review, but in no case later than 90 business days after the date the City determines the application is completed. This timeframe shall not apply to lease negotiations for wireless communications facilities on City-owned property. Collocations located on historic base stations, or within a historic district, shall be reviewed through the review processes for historic structures or districts indicated in the LDC.

(4) An application is deemed submitted or resubmitted on the date the application is received by the City. If the City does not notify the applicant in writing that the application is not completed in compliance with the City's regulations within 20 business days after the date the application is initially submitted or additional information resubmitted, the application is deemed, for administrative purposes only, to be properly completed and properly submitted. However, the determination shall not be deemed as an approval of the application. If the application is not completed in compliance with the City's regulations, the City shall so notify the applicant in writing indicating with specificity any deficiencies in the required documents or deficiencies in the content of the required documents which, if cured, would make the application properly completed. Upon resubmission of information to cure the stated deficiencies, the City shall notify the applicant, in writing, within the normal timeframes of review, but in no case longer than 20 business days after the additional information is submitted, of any remaining deficiencies that must be cured. However, if applicant does not cure the application deficiencies within 20 business days after receiving the notice of deficiencies, the application shall be considered withdrawn or closed unless an extension, due to reasonable circumstances, of the time to cure is requested by the applicant prior to the expiration of the 20-day period, and such extension is granted by the Land Use Administrator or designee.

(5) The timeframes specified above may be extended, but in no case longer than 90 calendar days for collocations, and 150 calendar days for new installations, and only to the extent that the application has not been granted or denied because the City's procedures generally applicable to all other similar types of applications require action by the City Council or Planning and Land Development Regulation Board, and such action has not taken place within the specified timeframes. Under such circumstances, the City Council or Planning and Land Development Regulation Board, as applicable, shall either grant or deny the application at its next regularly scheduled meeting, or, otherwise, the application shall be deemed automatically approved; accordingly, the Land Use Administrator or designee may by letter to the applicant extend the timeframe for a decision until the next available scheduled meeting date of the City Council or Planning and Land Development Regulation Board as to whether to grant or deny an application for a permit. To be effective, a waiver of the timeframes set forth herein must be voluntarily agreed to by the applicant and the City. The City may request, but not require, a waiver of the timeframes by the applicant, except that, with respect to a specific application, the City may require a one-time waiver in the case of a declared local, state, or federal emergency that directly affects the administration of all permitting activities of the City. Notwithstanding the foregoing, the City and an applicant may voluntarily agree to waive the timeframes set forth above.

D. Appeals. Any person aggrieved by an administrative decision rendered by the Land Use Administrator regarding the provisions of this Section 4.20 may appeal such decision to the Planning and Land Development Regulation Board in accordance Section 2.16.01 of the LDC.

Sec. 4.20.11. - Interference with public safety communications.

A. The City adopts a policy of requesting prior notification of activation or modification of WCF facilities as provided for in 47 C.F.R. §22.973 and 47 C.F.R. § 90.675 and in accordance with those provisions, WCF providers shall notify the Land Use Administrator or designee prior to a new site activation or existing site modification and provide the information required by the federal regulations.

B. Whenever the City has encountered radio frequency interference with its public safety communications equipment, and it believes that such interference has been or is being caused by one or more WCFs, the following steps shall be taken:

(1) The City shall provide notification to all WCF service providers operating within 5,000 feet of the public safety communications equipment at issue, in accordance with the procedures indicated in 47 C.F.R. § 22.972 and 47 C.F.R. § 90.674, using the website www.Publicsafety800mhzinterference.com. Upon such notification, the owners shall use their best efforts to cooperate and coordinate with the City and among themselves to investigate and mitigate the interference, if any, utilizing the procedures set forth in 47 C.F.R. § 22.972 and 47 C.F.R. §90.674 and following the applicable FCC adopted Best Practices Guide, as may be amended or revised by the FCC from time-to-time.

(2) If any WCF owner fails to cooperate with the City in complying with the owner's obligations under this section and if the FCC makes a determination of radio frequency interference with the City public safety communications equipment, an owner who fails to cooperate and/or the owner of the WCF which caused the interference, shall be responsible, upon FCC determination of radio frequency interference, for reimbursing the City for all reasonable costs associated with ascertaining and resolving the interference including, but not limited to, any engineering studies obtained by the City to determine the source of the interference. For the purposes of this subsection, failure to cooperate shall include failure to initiate any response or action as described in 47 C.F.R. § 22.972 and 47 C.F.R. § 90.674.

Sec. 4.20.12. – Eligible Facilities Requests.

A. Applicability and Intent. This section implements Section 6409(a) of the Middle Class Tax Relief and Job Creation Act of 2012 (“Spectrum Act”) as interpreted by the Federal Communications Commission’s (“FCC”) Acceleration of Broadband Deployment Report & Order dated October 21, 2014, which requires local governments to approve any eligible facilities request for modification of an existing tower or base station that does not result in a substantial change to the physical dimensions of such tower or base station. This section shall apply only to eligible facilities requests for an eligible support structure that is a legal conforming or legal nonconforming structure at the time a completed eligible facilities request is submitted to the City. To the extent that the nonconforming structures and use provisions of the City of Palm Coast LDCs would operate to prohibit or condition approval of an eligible facilities request otherwise allowed under this section, such provisions are superseded by this section. This subsection shall not apply to an eligible facilities request

replacement of the existing tower or base station. This subsection shall also not apply where the WCF requested to be modified is located upon a City-owned structure, or upon non-right-of-way property which is either City-owned or City-leased.

B. Sole and Exclusive Procedure. Except as may otherwise be provided in this section, and notwithstanding any other provisions in the City Code, the provisions of this section shall be the sole and exclusive procedure for review and approval of an eligible facilities request which the applicant asserts is subject to review under the Spectrum Act. To the extent that other provisions of the City Code establish a parallel process for review and approval of a project application for a proposed eligible facilities request, the provisions of this section shall control. In the event that an application for a project approval incudes a proposal to modify an eligible support structure, and the applicant does not assert in the application that the proposal is subject to review under Section 6409 of the Spectrum Act, such proposal shall not be entitled to review under this section and may be subject to review under other applicable provisions of the City Code.

C. Application Requirements. No eligible facilities request shall be deemed complete unless it is in writing, accompanied by the application fee, includes the required submittals, and is attested to by the authorized person submitting the application on behalf of the applicant. The application shall be submitted on a form prepared by the City. The applicant shall be obligated to demonstrate conclusively that the proposed modification satisfies the standards set forth herein and that the modification shall meet all applicable building codes.

D. Review of Application. The City shall review an eligible facilities request application to determine if the proposed modification is subject to this section, and if so, if the proposed modification will result in a substantial change to the physical dimensions of an eligible support structure.

E. Timeframe for Review. Within forty-five (45) calendar days of the date on which an applicant submits a request seeking approval under this subsection, the City shall approve, and may not deny, an eligible facilities request, unless it determines that the application is not covered by this section or proposes a substantial change to the physical dimensions of the eligible support structure.

F. Tolling of Timeframe for Review. The 45-day period begins to run when the application is filed with the Land Use Administrator or designee in person during the City's regular business hours, and may be tolled only by mutual agreement, or in cases where the City determines that the application is incomplete.

(1) To toll the time frame for incompleteness, the City must provide written notice to the applicant within thirty (30) calendar days of receipt of the application, clearly and specifically delineating all missing documents or information.

(2) The time frame for review begins running again when the applicant makes a supplemental submission in response to the City's notice of incompleteness.

(3) Following a supplemental submission, the City shall have ten (10) calendar days to notify the applicant that the supplemental submission did not provide the information identified in the original notice delineating missing information. The time frame is tolled in the case of second or subsequent notices pursuant to the same procedure used for the first notice of incompleteness. Except as may be otherwise agreed to by the applicant and the City, second or subsequent notices of incompleteness may not specify missing documents or information that were not delineated in the original notice of incompleteness.

(4) Notices of incompleteness from the City shall be deemed received by the applicant upon the earlier of personal service upon the applicant, three days from deposit of the notice in the U.S.

Mail, postage prepaid, to the applicant, or by electronic mail if the applicant has agreed to receive notices in such a manner.

(5) If after submittal of the application the applicant modifies the eligible facilities request, the modified application shall be considered a new application subject to commencement of a new application review period.

G. Approval or Denial. An eligible facilities request shall be approved, and an eligible facilities permit issued, upon determination by the City that the proposed modification is subject to this section and that it does not substantially change the physical dimensions of an eligible support structure. An eligible facilities request shall be denied upon determination by the City that the proposed modification is not subject to this section or will substantially change the physical dimensions of an eligible support structure.

H. Denial. A denial of an eligible facilities request shall be in writing and shall set forth the reasons for the denial.

I. Remedies. Applicant and City retain any and all remedies that are available at law or in equity and any action challenging a denial of an application or notice of a deemed approved remedy, may be brought in a court of competent jurisdiction within thirty (30) days following the date of the denial or following the date of notification of the deemed approved remedy.

J. Applicable Code Requirements. Nothing in this section shall relieve the applicant from compliance with applicable building, structural, electrical, and safety codes and with other laws codifying objective standards reasonably related to health and safety. Any approved eligible facilities request may be conditioned upon compliance with such codes and other laws.

K. Expiration of Approval. An approved eligible facilities request shall be valid for a term of 180 days from the date of approval or the date the application is deemed approved.

L. Not Covered as an Eligible Facilities Request. Should the City determine that an applicant's request is not covered by Section 6409(a) of the Spectrum Act, the presumptively reasonable time frame under 47 U.S.C. § 332(c)(7), as prescribed by the FCC's Shot Clock order, will begin to run from the issuance of the City's decision that the application is not a covered request. To the extent such information is necessary, the City may request additional information from the applicant to evaluate the application under 47 U.S.C. § 332(c)(7), pursuant to the limitations applicable to other reviews under that statute.

M. Failure to Act. In the event the City fails to approve or deny a request under this section within the timeframe for review, accounting for any tolling, the request shall be deemed granted. The application deemed granted does not become effective until the applicant notifies the City in writing after the review period has expired, accounting for any tolling, that the application has been deemed granted.

Sec. 4.20.13. – Abandonment.

Any WCF and equipment compound that is not operated for a continuous period of 210 days shall be considered abandoned. The Land Use Administrator may require removal of the WCF and equipment compound under the following circumstances, which are deemed detrimental to the health, safety and welfare interests of the City:

(1) The WCF has not been operated for a continuous period of 210 days, except for periods caused by force majeure, in which case, repair or removal shall commence within 90 days or within such other reasonable time approved by the Land Use Administrator;
(2) The WCF creates a public health or safety hazard, which shall be deemed a nuisance per se; or
(3) The WCF has been located, constructed, or modified without obtaining all permits and approvals required by law, or located, constructed, or modified in a manner inconsistent with applicable permit requirements and state or federal law.

If the Land Use Administrator makes such a determination the owner of such WCF and equipment compound shall remove the same, at the owner's expense, within 90 days of receipt of notice from the City notifying the owner of such abandonment. An owner may apply to extend the time for removal or reactivation by submitting an application stating the reason for such extension. The City may extend the time for removal or reactivation up to 90 days upon a showing of good cause. If the WCF or equipment compound is not removed in accordance with the requirements of this section, the City may give notice that it will contract for removal within 90 days following written notice to the owner. Thereafter, the City may cause removal of the WCF and equipment compound with all costs being borne by the owner. The City may record a lien against the property in the amount of all costs and expenses of the City. Upon removal of the WCF, the equipment compound and the foundations, including two feet below ground level, the development area shall be returned to its natural state and topography and vegetated consistent with the natural surroundings or consistent with the current use of the land at the time of removal. The cost of rehabilitation shall be borne by the owner. Except as provided herein, the abandonment of WCFs within public rights-of-way shall be managed in accordance with the procedures set forth in Section 42-123, City Code of Ordinances. Any special exception approval for a WCF shall automatically expire 210 days from the date of abandonment without reactivation, or upon completion of dismantling and removal, whichever is first, or pursuant to the notice required by Section 42-123 of the City Code of Ordinances.

Sec. 4.20.14. - Code enforcement.

A. The City may enforce the provisions of this section in accordance with the provisions of applicable state law and pursue any and all available legal remedies.

B. The City shall engage in a program of periodic inspections to ensure continuing adherence to the standards of this section and to ensure that WCFs are being appropriately maintained.

Sec. 4.20.15. – Compliance with state and federal regulations; preemption.

In implementing this section and the provisions set forth herein, the City shall comply with applicable state and federal regulations, and the provisions of this section shall be given force to the maximum amount and greatest extent permissible under state and federal law. Except as authorized pursuant to state and federal law, in the event of any conflict between the terms of this section and state or federal law, state and federal law shall control. In the event any provision of this section is specifically preempted, or judicially determined to be preempted by state or federal law, then the preempted provision shall automatically be deemed null and void and the superseding provision of state or federal law shall prevail.

City of Palm Coast, Florida
Agenda Item

Agenda Date : 1/17/2018

Department PLANNING **Item Key**	**Amount** **Account #**
Subject ATTACHMENTS TO MINUTES	
Background :	
Recommended Action : Presentation purposes only	

Comprehensive Plan Amendment

Update of the Water Supply Facilities Work Plan (WSFWP)

Planning and Land Development Regulation Board Public Hearing

January 17, 2018

WSFWP Amendment Background

- Florida Statutes require coordination of Regional Water Supply Plan and Comprehensive Plan

- Within 18 months of approval of Regional Water Supply Plan, local government must amend Water Supply Facilities Work Plan (WSFWP)

- The WSFWP must cover at least 10 years, identify traditional and alternative water supply projects, conservation and reuse activities to meet future demand

WSFWP Amendment Background

- WSFWP first adopted in Comprehensive Plan in 2008
- Updated in 2010

WSFWP Update

- Update of Population Projections for Service Area (Demand)
  - Use average of Low and Medium BEBR estimates
- Identify alternative source of water supply
  - On-going and Future Actions
- Identify and incorporate alternative water supply projects identified in the regional water supply plan
  - Projects included in adopted 5-year CIP
- Identify conservation and reuse programs (On-going)

WSFWP Update – Service Area

- Include areas outside of City municipal boundaries

WSFWP Update – Population Projections

		Population	Water Demand (MGD)		Water Supply (MGD)	
			Finished	Raw	Traditional	Alternative
2015	Within City	79,858	7.028	7.419	7.813	0.0
	Outside	4,245	0.374	0.394		
	Total	84,104	7.401	7.813		
2020	Within City	90,076	7.936	8.710	9.328	0.0
	Outside	6,390	0.563	0.618		
	Total	96,466	8.499	9.328		
2025	Within City	110,640	9.747	10.699	12.02	0.0
	Outside	7,849	0.691	0.759		
	Total	118,489	10.438	11.458		
2030	Within City	129,064	11.371	12.480	13.02	1.0
	Outside	9,156	0.807	0.885		
	Total	138,220	12.177	13.366		
2035	Within City	146,960	12.947	14.211	13.02	2.0
	Outside	10,426	0.919	1.01		
	Total	157,385	13.866	15.209		

WSFWP Update – Alternative Water Supply Source Projects

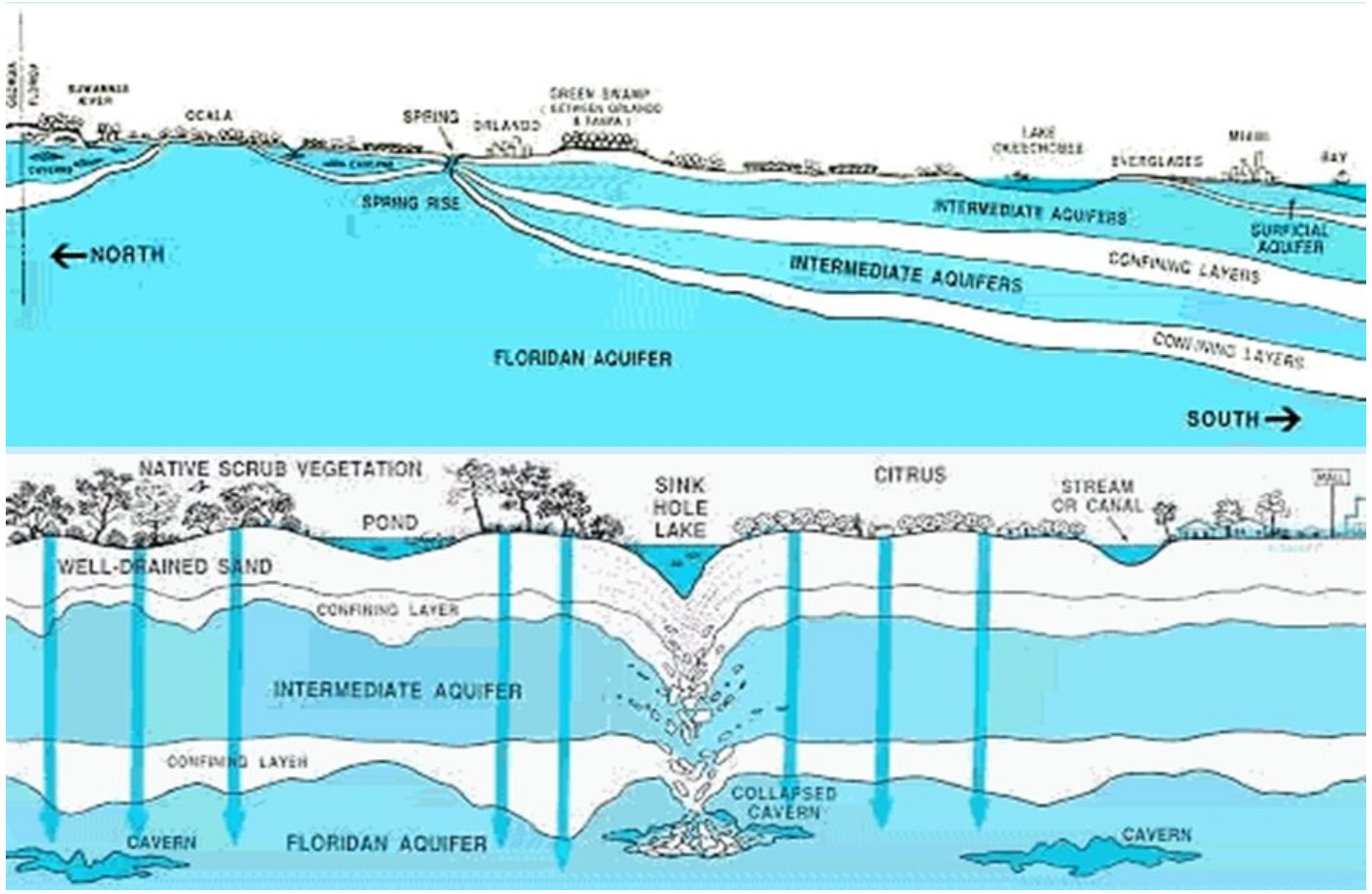
- Developed in coordination with SJRWMD
- Includes On-going Projects and Future Projects to develop alternative sources of water

WSFWP Update – Alternative Water Supply Source Projects

On-going. Use of Drinking Water Byproduct (DWB) from Water Treatment Plant (WTP) No. 2 and No. 3.

- DWB from WTP No. 3 and blended with WTP No. 1 raw water
- DWB from WTP No. 2, is recovered through lime softening followed by microfiltration
- Both projects could eliminate the wasteful discharge of DWB to surface waters and ultimately recover up to 1.95 MGD of water.

WSFWP Update – Alternative Water Supply Source Projects



- On-going and Upcoming Aquifer recharge projects
  - Confined Surficial
  - Upper Floridan

WSFWP Update – Alternative Water Supply Source Projects

On-going. Reuse Water for Aquifer Recharge

- Partnership with the SJRWMD to install reuse irrigation system along both sides of US Highway 1 to provide up to 1 MGD of reuse for aquifer recharge

- Wetland monitoring plan will be utilized to determine the success of this project (positive benefit to the wetlands in the region)

WSFWP Update – Alternative Water Supply Source Projects

On-going. Aquifer Performance Test of Brackish Upper Floridan Aquifer

- The data acquired from these tests have been modeled to determine the feasibility of receiving an allocation of brackish water in the CUP. The SJRWMD is reviewing the model outcome and will complete an impact analysis in order to determine an acceptable allocation in early 2018.

WSFWP Update – Alternative Water Supply Source Projects

Future Project. Investigate additional means of aquifer recharge utilizing advanced treated wastewater from WWTP No. 2.

- This method of indirect potable reuse has the potential of providing up to 2 MGD of additional fresh water allocation in advance of utilizing the more costly brackish water in the upper Floridan aquifer.

Future Project. Investigate the benefits of adding storage to the stormwater collection system in an effort to mitigate wetland impacts due to withdrawals from the Confined Surficial Aquifer.

WSFWP Update – Capital Projects for Alternative Water Supply

Short Range Projects

Project Name	Purpose of Project	Responsible Party	Funding Source[1]	Fiscal Year Estimated Costs					Estimated Total Cost	Estimated Year of Operation
				2018	2019	2020	2021	2022		
TRADITIONAL WATER SUPPLY										
CUP Modification for fresh water supply	Increase raw water capacity	City of Palm Coast	UCPF				$100,000		$100,000	2021

Project Name	Purpose of Project	Responsible Party	Funding Source[1]	Fiscal Year Estimated Costs					Estimated Total Cost	Estimated Year of Operation
				2018	2019	2020	2021	2022		
ALTERNATIVE WATER SUPPLY										
CUP Modification and Alternative Water Study	Modify CUP – Add Brackish Source Allocation	City of Palm Coast	UCPF	$100,000					$100,000	2018
REUSE WATER SUPPLY										
Reclaimed water main extension to Indian Trails Sports complex	Add distribution of reuse water	City of Palm Coast	UCPF	$1,000,000					$1,000,000	2018
Aquifer Storage and Recovery Investigation and Land Acquisition		City of Palm Coast	UCPF			$750,000		$100,000	$850,000	2022
Wastewater Treatment Plant No. 2 (WWTP #2) Expansion – Planning and Engineering	Develop additional reuse water	City of Palm Coast	UCPF					$500,000	$500,000	

WSFWP Update – Capital Projects for Alternative Water Supply

Long Range Projects

Project Name	Purpose of Project	Responsible Party	Funding Source	Estimated Cost	Project Development Phase Timing			
					Planning	Engineering/ Design	Permitting	Construction
REUSE WATER COMPONENT								
WWTP No. 2 Reuse for Aquifer Recharge – Non Potable Reuse	Mitigate freshwater withdrawal impacts on wetlands	City of Palm Coast	TBD	$1,700,000	2023	2023	2024	2025
Expand Reuse Transmission to Developments of Regional Impact to the West	Distribution of additional reuse water for irrigation and aquifer recharge	City of Palm Coast	TBD	TBD	2023	TBD	TBD	TBD
Expand WWTP No. 2 to 4.0 MGD	Allow for additional advanced treated wastewater for reuse	City of Palm Coast	TBD	$13,500,000	2022	2022	2022	2023
ALTERNATIVE WATER SUPPLY COMPONENT								
Develop Brackish water supply	Increase raw water capacity	City of Palm Coast	TBD	$4,500,000	2023	2024	2025	2025-2030
WTP No. 3 Plant Expansion	Add 3.0 MGD of brackish source treatment capacity	City of Palm Coast	TBD	$4,500,000	2023	2024	2025	2025-2035

WSFWP Update – Reuse and Conservation Programs

- Technological, Procedural, and/or Programmatic Improvements Management
  - Water Treatment Plant Technologies
  - Water Use Monitoring
  - Free Water Conservation Plumbing Retrofitting Kits for Residential Customers
  - Indoor Conservation Programs
  - Develop and Enforce Water Efficient Landscape Ordinance (in cooperation with SJRWMD)
  - Irrigation Design Requirements
  - Requiring Individual Metering
  - Requiring the Use of Low-Volume Plumbing Devices

- Reuse Conservation Practices
  - Requiring New Development to Install a Reuse Water Distribution System
  - Requiring Connection to the Reuse Water System
  - Requiring Individual Metering

- Customer and Employee Education
- Use of Conservation based Rate Schedule

RECOMMENDATION

- Staff recommends that the PLDRB recommend City Council Approve and transmit the proposed amendments

Next Steps

- 2 City Council Public Hearings

- Transmittal to Department of Economic Opportunity and other State Agencies between 1st and 2nd readings

Questions?

Proposed Wireless Communication Facilities Ordinance

Fiber and Cell Tower (FACT) Team

FIBER AND CELL TOWER TEAM

- The team is made up of a diverse group of employees with different professional backgrounds

- The Fiber and Cell Tower (FACT) team was established to accomplish Council goals

  - City Council Goal 2: To develop and maintain a strong economy
  - City Council Goal 3: Leverage financial strengths, deliver value-added services to residents and businesses

Wireless Master Plan

January 16th, 2018

Diamond Communications

Wireless Master Plan Objectives

Master Plan Wireless Solutions

Diamond Communications

Current Coverage for One Carrier	Existing Tower Solutions	Service Gap Solutions for All Carriers

Diamond Communications

Identify Properties

- Palm Coast Owned
- Location
- Size
- Setbacks
- Use
- Visual Impact

Proposed Wireless Communication Facilities Ordinance

January 16, 2018

Times have changed since 2005

- 2005 YouTube was founded;
- No Facebook or Twitter or iPhone or the advent of phone apps;
- Palm Coast had 52,000 people.
- Tablets not yet mainstream;

Why Update the Ordinance?

- Decrease reliance on landlines, down to 49%;
- Demonstrated public safety and emergency need;
- Improve cell service for all carriers;
- More consistent user experience;
- Promote resiliency.

"Good stay but bad cell phone reception!"
Review of Holiday Inn Express Palm Coast

Key Ordinance Provisions

1. Supports an inventory of preferred City and public sites;
2. Administrative approval for WMP sites - other sites may apply as a Special Exception.
3. Maximum of up to 150 feet in height;
4. Includes a 150 foot setback from residentially zoned or platted property.
5. Monopole is preferred standard.

Key Ordinance Provisions

1. Supports an Inventory of Preferred Sites

- City-owned property identified in the Wireless Master Plan;
- Other public property identified in the Wireless Master Plan;
- Other City owned or public property not identified in the Wireless Master Plan;
- Privately owned property not identified in the Wireless Master Plan.

Key Ordinance Provisions

1. Supports an inventory of preferred City and public sites;
2. Administrative approval for WMP sites - other sites may apply as a Special Exception.

Key Ordinance Provisions

2. Administrative approval for WMP sites; other sites allowed with Special Exception approval;
    - Administrative approval streamlines and incentivizes WMP sites;
    - Expands the options available under current ordinance for non WMP sites;
    - Creates a consistent height standard for both options;
    - WMP sites will have lease provisions;
    - Special Exception sites may have conditions applied via S2.07 ULDC.

Key Ordinance Provisions

1. Creates an inventory of preferred City and public sites;
2. Administrative approval for WMP sites; other sites may apply as a Special Exception;
3. Maximum of up to 150 feet in height;

Key Ordinance Provisions

3. Allows up to 150 feet in height.
    - Above the tree line;
    - Allows up to 4 carriers;
    - Increases coverage;
    - Efficient use of infrastructure;

Distance Propagated: 1.2 Miles
Area Covered: 4.5 sq. miles

Distance Propagated: 0.75 Miles
Area Covered: 1.76 sq. miles

Key Ordinance Provisions

1. Supports an inventory of preferred City and public sites;
2. Administrative approval for WMP sites; other sites may apply as a Special Exception.
3. Maximum of up to 150 feet in height;
4. Includes a 150 foot setback from residentially zoned or platted property.

Key Ordinance Provisions

4. Includes a 150 foot setback from residentially zoned or platted property.

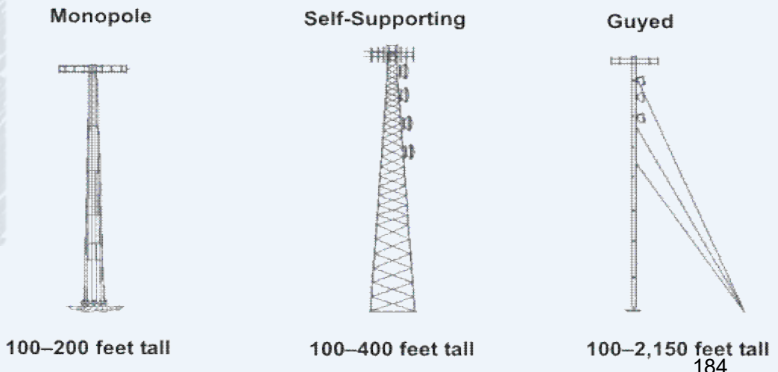
- Standard set for the Palm Coast Parkway Overlay;
- Wireless Master Plan sites do not include any residentially zoned properties;
- Ordinance establishes extra justification requirements for towers proposed in residential;
- Added safety component;
- Wireless Master Plan sites allow for an inventory of suitable solutions.

Key Ordinance Provisions

1. Supports an inventory of preferred City and public sites;
2. Administrative approval for WMP sites; other sites may apply as a Special Exception.
3. Maximum of up to 150 feet in height;
4. Includes a 150 foot setback from residentially zoned or platted property;
5. Monopole is preferred standard.

Key Ordinance Provisions

5. Monopole is preferred standard;
   - Monopoles are recommended in Wireless Master Plan;
   - Lattice and Guyed towers are prohibited;
   - Monopoles have a smaller footprint, more compact.



Key Ordinance Provisions

1. Supports an inventory of preferred City and public sites;
2. Administrative approval for WMP sites; other sites may apply as a Special Exception;
3. Maximum of up to 150 feet in height;
4. Includes a 150 foot setback from residentially zoned or platted property;
5. Monopole is preferred standard;

Comparison of Existing and Proposed Ordinance

Existing Ordinances

- Predates our 2008 ULDC;
- Two locations - overlapping and conflicting;
- Very prescriptive;
- Out of date;
- No incentives.

Proposed Ordinance

- Consolidated to current ULDC, removes conflicting provisions;
- Establishes two clear pathways for a tower;
- Incorporate new legislative requirements;
- Update definitions;
- Incentivize development of new towers located on WMP sites;
- More flexible.