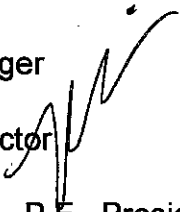




**CITY OF DANIA BEACH
COMMUNITY DEVELOPMENT DEPARTMENT
STAFF REPORT**

DATE: June 23, 2015

TO: Robert Baldwin, City Manager

VIA: Marc LaFerrier, AICP, Director 

FROM: Frederick Bloetscher, Ph.D., P.E., President, Public Utility Management and Planning Services, Inc.

RE: **CD-036-15:** City of Dania Beach Comprehensive Plan Amendments to the water supply facilities work plan to strengthen the coordination between water supply and local land use planning by amending the Sanitary Sewer, Solid Waste, Drainage, Potable Water, Natural Groundwater Aquifer Recharge Element, the Capital Improvements Element, the Conservation Element and the Intergovernmental Coordination Element. **(First Reading)**

The South Florida Water management District approved its 2011-2014 Water Supply Plan update in September 2013. All utilities are required to update their plans within 18 months of that date. The intent to the District's water supply plan is to coordinate with local utilities to identify future water supplies. The need to plan for water supply needs has been an issue for many years.

In this latest plan, the District raises water source options and water conservation. This chapter outlines a number of water supply sources, along with some related costs, including:

1. Groundwater Sources - Water withdrawn from beneath the surface of the ground, primarily from the surficial aquifer system (SAS), intermediate aquifer system (IAS), and Floridan aquifer system (FAS).
2. Surface Water - Lakes, rivers, and canals are surface water bodies used to supplement water supply.
3. Seawater - Sources of desalinated water in south Florida are the Atlantic Ocean and Gulf of Mexico.

4. Reclaimed Water - Water reused after receiving at least secondary treatment and basic disinfection, flowing out of a domestic wastewater treatment facility.
5. Storage Solutions - Three major types of potential storage options in the SFWMD are Aquifer Storage and Recovery (ASR), regional and local retention, and reservoirs.
6. Utility Interconnects - Public Water Supply interconnection of treated or raw water distribution system as a means to address shortfalls.

The City of Dania Beach has considered all of these options as included in more detail herein. In summary, the results are:

1. Groundwater Sources – the City relies of water from its wells and the County’s wells drilled into the Biscayne aquifer, a surficial aquifer system (SAS). The intermediate aquifer system (IAS) is not available. The Floridan aquifer system (FAS) would require a deep injection well for concentrate and as a result does not make economic sense.
2. Surface Water – The City has no lakes, rivers, and canals are surface water bodies used to supplement water supply. One option for water supply is an infiltration gallery that could pull water from a rock pit.
3. Seawater – The City is not in a location to take advantage of this option and the energy and concentrate disposal costs are prohibitive.
4. Reclaimed Water – The City does not operate a wastewater treatment facility. The City has discussed reclaimed water with Hollywood, and has installed piping in the event Hollywood extends pipelines to the City limits. However, Hollywood has limited freshwater supplies
5. Storage Solutions – The City has remained a partner of the C51 reservoir. There are no other reservoir options. The City has limited means for retention locally. ASR does not appear to have a very successful track record in much of southeast Florida (Boynton Beach being the biggest success) and the scale of the operation required would make the City a bigger water user than it is now.
6. Utility Interconnects – The City has interconnects with Hollywood and Broward County.

Attached are the proposed amendments for the City’s comprehensive plan. Many of the changes are simply to update the documents to the current situation.

For water supply development beyond 2030, the City will implement the following to secure additional water:

- Groundwater Sources – the City relies of water from its wells and the County’s wells drilled into the Biscayne aquifer, a surficial aquifer system (SAS). The intermediate aquifer system (IAS) is not available. The Floridan aquifer system (FAS) would require a deep injection well for concentrate and as a result does not make economic sense.
- Investigate additional well locations in the City’s current wellfield. This will require drilling of test wells, additional monitoring wells (completed 2007) and modeling of proposed locations to determine if additional raw water is available in Dania Beach. This investigation was complete in 2011.
- Assuming direct rainfall harvesting is demonstrated with the Ranney Well concept, the City will proceed with permitting and construction by 2030. The horizontal well concept is direct rain harvesting as it is shallow (above the Biscayne aquifer). In addition the concept could be applies to the rock pits along I-95 as a surficial supply (subject to riverbank filtration rules under the LT2 surface water rules.
- Participate in the southeast Broward County modeling project with the County that should be completed by 2015. The intent of this modeling is to determine that rue safe yield of the County wellfield and potential supplies in Dania and other cities.
- Participate with the County on efforts to recharge the County wellfield on a utilization basis. This may include additional wells, storm water recharge or reuse recharge. At this time, the appropriate solution cannot be determined, since the solution is within the County’s purview. While the City does not need additional water supplies until 2030. As a result, the City is in the process of working with Broward County and internally on creative solutions to resolve any future shortfalls. Alternative water sources are to be pursued, but the City has no ability to pursue desalination or reuse (no injection well and no wastewater treatment plant).
- The City has neither effluent nor a wastewater treatment plant to address the water supply issue. However, the City has installed pipelines that can be converted to reclaimed water if lines are extended to the City by Hollywood. The City has discussed the potential to irrigate two cemeteries, the US 1 median, linear park and potentially Frost Park. The total reclaimed water use is under 0.2 MGD. The current pipes are over 2 miles away so the cost of this option is not appealing to the City. Also, note that the City’s residents rely on irrigation wells versus potable water

so reclaimed water use will have limited impact of the City's potable water use.

- The City will remain involved in the C-51 project. This is a multi-jurisdictional project that is expected to provide long-term benefits by recharging canal systems in the western part of the County, including the County wellfield. The ongoing efforts remain in the planning stages. The City does not anticipate needing this water, but remains involved as a backup to other options with the County and the horizontal collector.
- ASR does not appear to have a very successful track record in much of southeast Florida (Boynton Beach being the biggest success). The typical ASR well injects 1 MGD. That is 50% of the City's current output. The recovery in southeast Florida is poor 20-40%. This would mean the City is a net user of water due to water losses. This is not in keeping with water supply goals. ASR is not of a scale that makes sense for the City.

Several new objectives were included to address coordination with the County on sea level rise issues:

- Policy 4.9 Potable water facilities shall be designed, constructed, maintained and operated in such a manner as to protect the functions of natural groundwater recharge areas and natural drainage features and not exacerbate saltwater intrusion. Without inducing the inland movement or upwelling of saline water into Underground Sources of Drinking Water (USDW) as defined in Chapter 62-528, FAC, and SFWMD Basis of Review for Water Use as referenced in Chapter 40E-2, FAC
- Policy 4.10 The City of Dania Beach will protect existing wellfields, surface or subsurface storage facilities, control structures, water and wastewater treatment plants and transmission infrastructure from increased coastal flooding, sea level rise, saltwater intrusion, and other potential future climate change impacts, and plan for infrastructure replacement and relocation as needed to maintain the current level of service to customers
- Policy 4.11 The City of Dania Beach will collaborate with local, regional, state and federal partner agencies on potential impacts of climate change on the region's water resources and support the development of local integrated models and continuous data collection, to help predict and track the impacts of sea level rise on groundwater levels, saltwater intrusion, and drainage

infrastructure.

Policy 4.12 The City of Dania Beach will collaborate with local, regional, state and federal partner agencies study whether to build, modify or relocate water, wastewater and stormwater transmission infrastructure to allow for strategic retreat from areas at risk to sea level rise.

Revisions made to the City's Comprehensive Plan elements are provided as attachments identified below:

- Attachment 1 – Sanitary Sewer, Solid Waste, Drainage, Potable Water, Natural Groundwater Aquifer Recharge Element
- Attachment 2 – Capital Improvements Element
- Attachment 3 – Conservation Element
- Attachment 4 – Intergovernmental Coordination Element

LOCAL PLANNING AGENCY RECOMMENDATION

On April 15, 2015 the Planning and Zoning Board, sitting as the Local Planning Agency, reviewed the proposed comprehensive plan amendments and forwarded a recommendation of approval.

STAFF RECOMMENDATION

Approval.