

Project Name: St. Johns River Near State Road 46 Project

Project Location: Seminole and Orange counties

Project Number: 135

Project Type: Surface Water

Description of project:

The St. Johns River (SJR) near State Road (SR) 46 project involves the withdrawal of surface water from the SJR for potable consumption and potential augmentation of reclaimed water systems. After withdrawal, the water would be treated and transmitted to the users. The project includes several components, including raw water intake, raw water transmission mains, potable water treatment and storage, potable water transmission, and potentially potable water re-treatment by the end users. The project also may include potential treatment to reclaimed water augmentation standards and a separate transmission system for this quality of water.

This project is an alternative water supply (AWS) project that will develop surface water of variable quality (from fresh to slightly brackish) from a nontraditional supply source. It also could involve the addition of new storage capacity for surface water and will utilize surface water captured predominantly during wet-weather flows.

A conceptual-level project description was developed by the St. Johns River Water Management District (SJRWMD) in 2007 and included in the SJRWMD District Water Supply Plan. In 2007 and 2008, interested water suppliers met with the SJRWMD to further refine the project concept. As part of those meetings, the project was conceptualized by the SJRWMD to provide an average annual daily flow (AADF) of up to 63.1 million gallons per day (mgd). However, subsequent to the conceptual project development, the District completed the St. Johns River Water Supply Impact Study (WSIS) (2012) with an expected yield at this location of up to 50 mgd.

A conceptual transmission configuration was developed by potential project participants as presented in Figure 1. Generally, water could be distributed directly to water users using two separate transmission systems for both potable and reclaimed water.

Planning-Level Project Details:

The project includes the following systems and components: river intake and pump station on the St. Johns River; new water treatment facility, Lower Floridan aquifer (LFA) injection well for Reverse Osmosis (RO) concentrate disposal; finished water storage, and treated water transmission pipelines.

SJR Raw Water Intake and pump station (SJR PS)

The SJR PS is based on a design capacity of 50 mgd.

Water Treatment Plant

Construction of a new 50 mgd brackish water SWTP

RO concentrate disposal

Construction of a 10 mgd injection well for RO concentrate discharge

Potable Water Storage

Construction of 31.57 MG of end-user system storage

Finished Water Mains (transmission to end-user storage tanks)

Treated water will be conveyed to 12 point of connection ground storage tanks via approximately 66 miles of distribution system piping.

Project Yield:

The project is expected to produce a maximum daily withdrawal rate of 50 mgd from the SJR and is estimated to yield 40 mgd of finished (potable) water.

Estimated planning-level costs:

Planning level costs for 50 mgd SJR withdrawal/40 mgd AADF of supply were made using the cost estimation (CE) tool developed for the CFWI Solutions team process. Table X summarizes the preliminary estimated planning-level costs.

Table X. Summary of Estimated Planning-Level Costs for the Alternative Water Supply Project near State Road 46.

Planning Level Estimate	50 mgd average annual daily flow (AADF)/40 mgd supply (AADF)
Construction costs	\$464.98 million
Non-construction costs	\$92.99 million
Land Value	\$26.9 million
Total Capital Costs	\$584.87 million
Total Annual Costs (O&M)	\$18.61 million
Unit Cost of Production (\$/kgal)	\$4.681

Costs include right-of-way land value for transmission piping and for the SWTP. Costs for wetland mitigation are not included.”

Estimated Implementation Schedule:

There is not a specific schedule for implementation at this time. However, within approximately five years of project initiation, the preliminary design could be completed. In the second five years of the project, the final design, permitting and land acquisition could be completed. In the third five years of the project, construction could be completed.

Water resource constraints:

Minimum flows and levels (MFLs) have been established for the St. Johns River at SR 50, the St. Johns River at Lake Monroe, the St. Johns River at SR 44, and Taylor Creek. The MFLs at all four of these locations apply for the SJR/TCR project. In addition, the SJRWMD is in the process of adopting an MFL for Lake Poinsett, just downstream of the confluence of Taylor Creek with the St. Johns River, which will also apply once adopted by rule. In addition to compliance with MFLs, ecological effects, if any, must be reduced to the extent feasible.

Project feasibility:

The project is technically feasible with appropriately designed components to treat potentially variable water quality from the SJR. Potential environmental effects can be managed by proper intake design and by appropriate timing of withdrawals from the SJR. However, some stakeholders have expressed concerns for the potential environmental effects of withdrawals from the SJR. To address these concerns, the District conducted the St. Johns River Water Supply Impact Study (WSIS) from 2007 to 2012. In the WSIS, the SJRWMD concluded that the St. Johns River could yield at least 50 mgd, on a maximum annual average day withdrawal basis, at this location without unacceptable ecologic and hydrologic impacts.

The inclusion of the project in the SJRWMD District Water Supply Plan and confirmation through the WSIS indicate that the project is feasible and no project limitations due to rule inconsistencies have been identified.

Permittability:

Permitting challenges are likely considering past permitting efforts for SJR withdrawals and the interests and concerns of stakeholders. Stakeholder concerns related to SJR withdrawals include potential environmental effects to wetland vegetation and wildlife, effects to aquatic vegetation, fish, plankton and macroinvertebrates; and changes in downstream salinity and water elevations....etc.....etc....

Cost-Benefit Analysis of Yield:

As an alternative water supply (AWS) project, this project is intended to provide potable water to meet future water demands in the CFWI planning area. The project is conceptualized to deliver 40 mgd at a unit production cost of \$4.68 per 1000 gallons.

Other Considerations:

Potential partners and governance options:

The project partners, Altamonte Springs, Casselberry, Maitland, Orange County, Oviedo, Sanford and Winter Springs executed an Agreement to conduct a PDR in 2009. However, the Agreement has been on hold since 2011. Potential governance options may include the partners entering into a memorandum of understanding, where each partner is proportionally responsible for project decisions, funding and management; or developing a water supply authority or a facility management board where one partner is responsible for oversight of operations and capital outlay and becomes a water supplier through contractual commitments with the other entities.

Funding sources:

Significant funds will be required to support implementation of this project. Possible funding sources include the project partners, State of Florida, SJRWMD, and federal revenues. Challenges/obstacles to funding include numerous projects and entities competing for the same funding; long-term funding commitments needed by local partners.

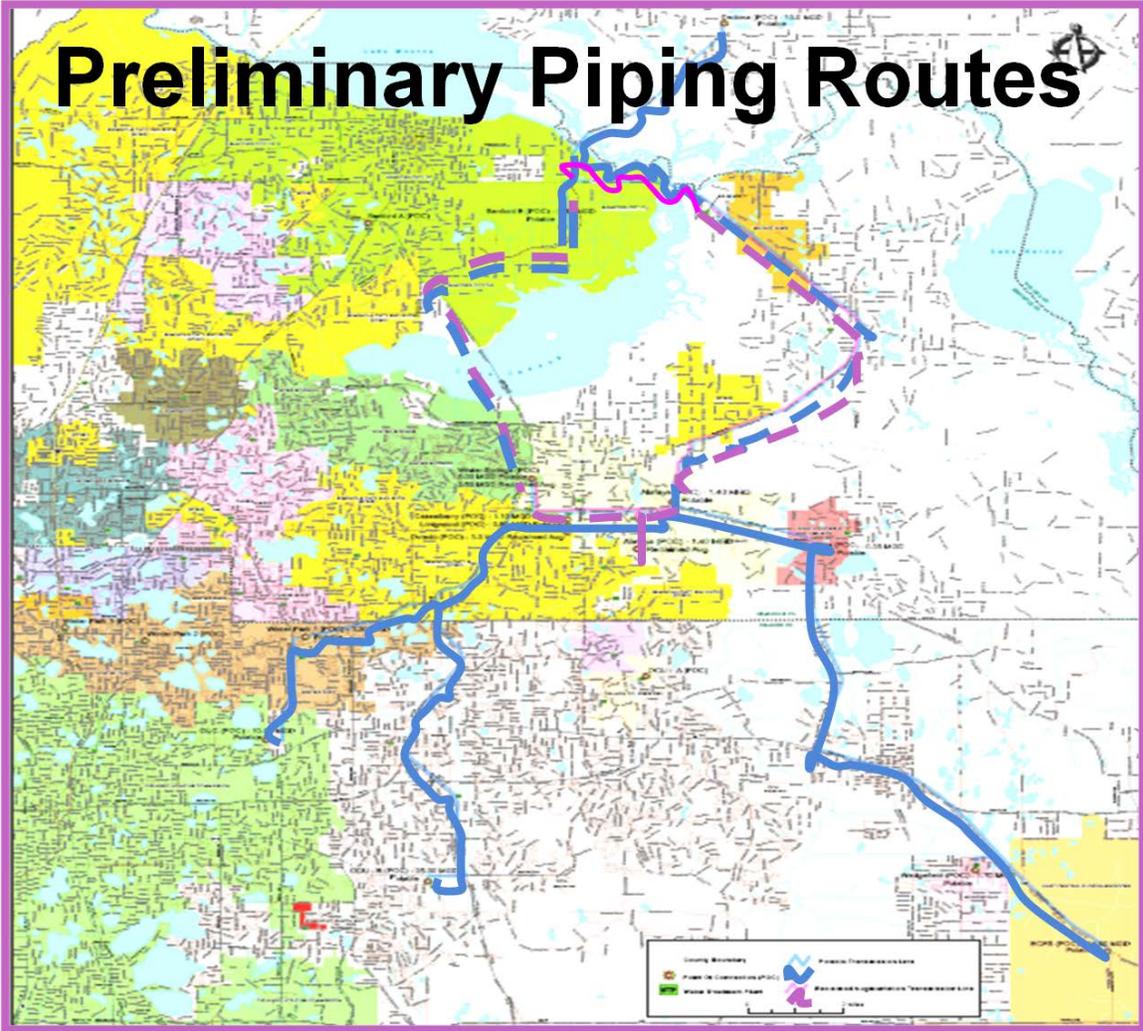


Figure 1. Conceptual AWS Project near SR 46 Transmission Layout