Project Name: St. Johns River/Taylor Creek Reservoir

Project Location: Osceola and Orange counties

Project Number: 126

Project Type: Surface Water

Description of project:

The proposed St. Johns River/Taylor Creek Reservoir (SJR/TCR) Water Supply Project involves the withdrawal of surface water from the St. Johns River at State Road (SR) 520 for augmentation of the Taylor Creek Reservoir. After withdrawal, the water would be treated and transmitted to the users. The project includes several components, including raw water intakes, raw water transmission mains, potable water treatment plant and storage facilities, potable water transmission mains, and potentially potable water re-treatment by the end users. The project also includes reservoir enhancements funded by the SJRWMD, such as raising and improving the L-73 berm, expanding the S-164 structure, and updating the operation schedule for the reservoir.

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

[Adding a location map.]

A conceptual-level project description was developed by SJRWMD in 2005. From 2006 to 2009, water supply entities (City of Cocoa, East Central Florida Services, Orange County, Orlando Utilities Commission, and the Tohopekaliga Water Authority), the SJRWMD, and the SFWMD funded and developed a preliminary design report (PDR) and environmental information document (PDR/EID) for this project (CH2M/PB Water JV, 2009). Based on the preliminary design, the project was determined to be feasible at an average annual daily flow (AADF) of 54 million gallons per day (mgd) above the existing permitted allocations (City of Cocoa, 8.83 mgd) from the TCR.

A preferred preliminary pumping, storage, and transmission configuration was developed as presented in Figure 1. Generally, water could be distributed directly to water users near the water treatment facility in the eastern portion of the project area. To supply users further west, approximately 25 miles of transmission piping would need to be constructed (Figure 1).

Planning-Level Project Details:

The project includes the following systems and components: river intake and pump station on the St. Johns River; reservoir intake and pump station at Taylor Creek Reservoir; water treatment facility; raw and treated water transmission lines; and potentially construction of re-treatment facilities for the end-users.

SJR Raw Water Intake and Pump Station (SJR-I/PS)
The SJR-I/PS is based on a maximum design capacity of 120 mgd.

Added Surface Water Storage Capacity
Increase surface water storage capacity will be accomplished by constructing a 10 million gallon (MG) ground storage tank at the WTP.

Raw Water Mains (delivery from St. Johns River to TCR)
Water deliveries from the St. Johns River to the TCR will be conveyed through dual 60-inch pipelines approximately 11 miles to the TCR.

TCR Raw Water Intake and Pump Station (TCR-I/PS)
The TCR-I/PS is based on 60 mgd raw water pumping capacity from the TCR to the WTP.

Raw Water Mains (delivery from TCR to WTP?)
Water deliveries from the TCR to the WTP will be conveyed through dual 42-inch pipelines 4 miles to the WTP .

Water Treatment Plant(s)
Construction of a new WTP.

Finished (Potable) Water Mains (delivery to service areas)
Treated water will be conveyed to six delivery locations identified by the partners, approximately 45 miles and using pipe sizes ranging from 16- to 54-inches in diameter.

Project Yield:

The project is not yet permitted but is estimated to produce an Average Annual Daily Flow of 60 mgd of raw water from the St. Johns River and is estimated to yield 54 mgd of finished (potable) water.

Estimated planning-level costs:

Planning level costs for a 54 mgd surface water project were made using the cost estimation (CE) tool developed for the CFWI Solutions team process (see Appendix X for details on the CE tool). **Table X** summarizes this planning-level cost estimate.

Table X. Summary of Estimated Planning-Level Costs for the St. Johns River/Taylor Creek Reservoir (SJR-TCR) Water Supply Project.

Planning Level Estimate	60 mgd max average annual daily flow (AADF)/54 mgd supply (AADF) Update with CE Tool costs
Construction costs	$566.0 million
Non-construction costs	$47.6 million
Land costs (ROW for conveyance piping)	$23.8 million
Total Capital Costs	$637.4 million
Total Annual Costs (O&M)	$47.9 million
Unit Cost of Production ($/kgal)	$2.887

These costs do not include land acquisition or wetland mitigation

Estimated Implementation Schedule:

Since 2009, consumptive use permit applications have been in review by the SJRWMD and are currently pending. It is anticipated that project detailed design and construction can be completed within 10 years.

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:

Based on results of the PDR/EID (CH2M/PB Water JV, 2009) the project is technically feasible. 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) (St. Johns River Water Supply Impact Study Technical Publication SJ2012-1) from 2007 to 2012. In the WSIS, the SJRWMD concluded that the St. Johns River could yield 55 mgd, on an average day withdrawal basis, near Lake Poinsett without unacceptable ecologic and hydrologic impacts.

The inclusion of the project in the SJRWMD District Water Supply Plan (SJRWMD District Water Supply Plan Technical Publication SJ2006-2)); confirmation through the PDR process; and examination through the WSIS indicate that the project is feasible and no project limitations due to rule inconsistencies have been identified.

Permittability:

The permit for this project is currently under review as well as three pending permit applications for TCR. Competing applications are reviewed in accordance with District rule 40C-2.311 which provides that if two or more complete applications complying with the requirements for a CUP "are pending for a quantity of water that is inadequate for both or all, or which for any other reason are in conflict, the governing board. . . shall have the right to approve or modify the application which best serves the public interest."

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.

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 SJR / TCR project is conceptualized to deliver 54 mgd at a unit production cost of $2.89 per 1000 gallons.

Other Considerations:

Close coordination with SJRWMD to develop operating protocols to meet MFLs.

Water quality considerations – the proposed design is based on higher water quality so that reverse osmosis is not needed. Total dissolved solids (TDS) and bromide are especially important during bypass flows to the WTP.

Potential Partners and Governance Options:

The current project partners are the City of Cocoa, East Central Florida Services, Orange County, Orlando Utilities Commission, and the Tohopekaliga Water Authority. These partners are working on governance and the final project configuration and implementation details.

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.

Reference:

CH2M/PB Water JV, *St. Johns River/Taylor Creek Reservoir Water Supply Project Preliminary Design Report.* Prepared for City of Cocoa, City of Titusville, East Central Florida Services, Orange County Utilities, Orlando Utilities Commission, Tohopekaliga Water Authority. October 2009.

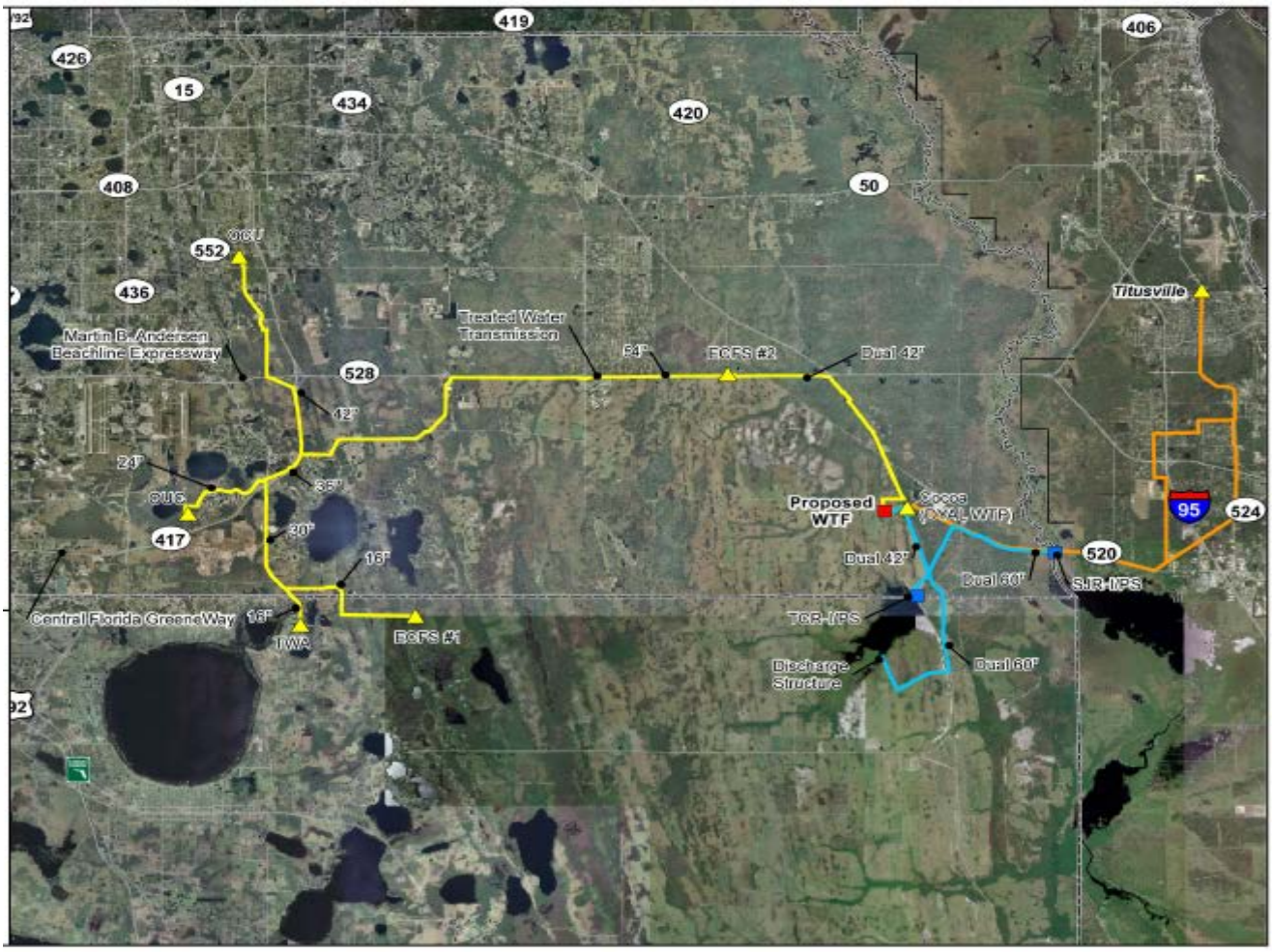

Figure 1. Proposed SJR/TCR Water Supply Project Layout (CH2M/PB Water JV, 2009)
This figure needs map scale, North indicator, and a legend explaining the red, yellow, and blue squares/triangle and the blue, yellow, and orange lines.

Regulatory Sheet Placeholder