

Project Name: Reedy Creek Recharge (RCR)

Project Location: Orange

Project Number:

Project Type: Stormwater

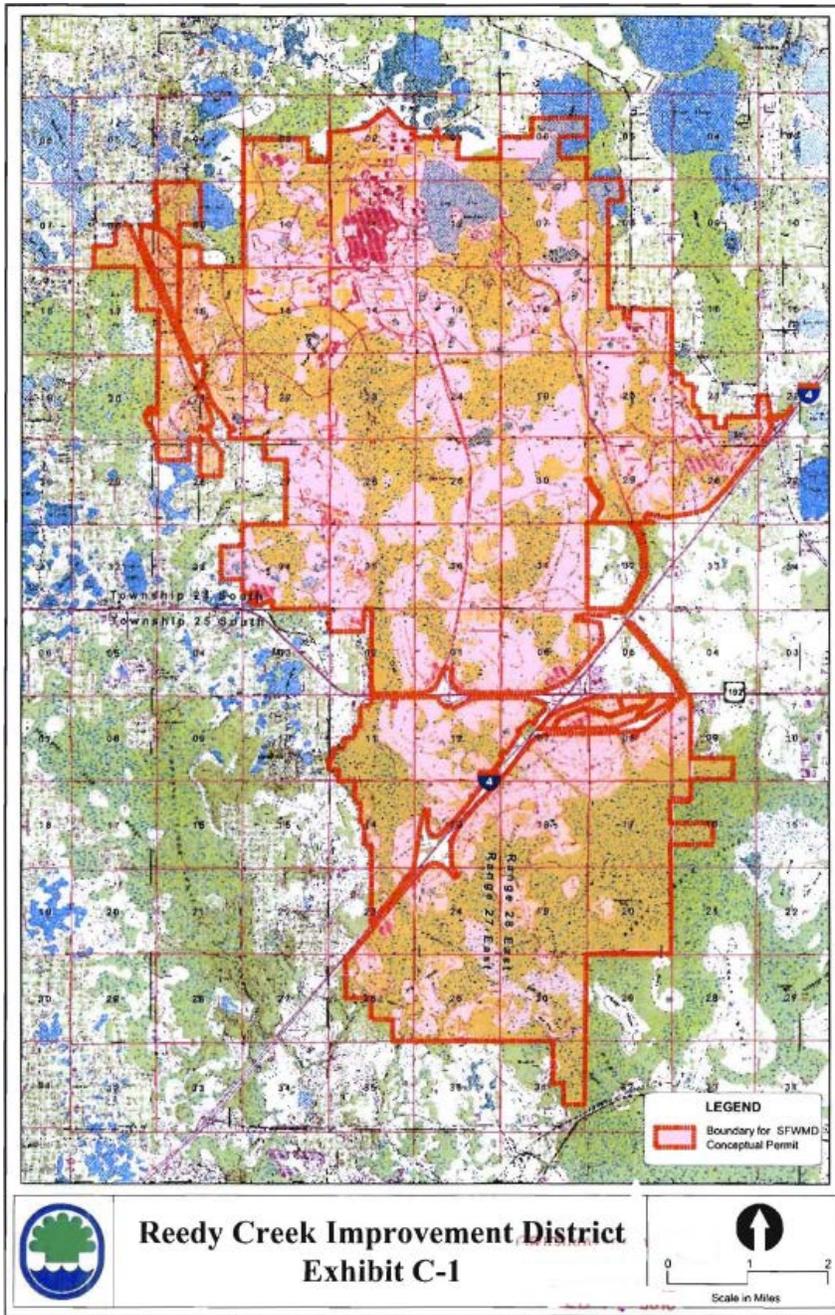
Description of Project:

The RCR project includes several components, including stormwater compensatory treatment, flood protection and surficial aquifer recharge. This effort meets multiple outcomes in flood protection, water quality, natural systems and water supply.

The project is a stormwater treatment project that initially focuses 4 MGD of recharge to areas that are shown in the regional groundwater model to have lower surficial aquifer conditions now that are projected to worsen in the future. This project will develop-protect existing groundwater withdraws in the vicinity of the enhanced recharge while providing quantifiable water quality compensatory treatment alternative for future or in-lieu of existing stormwater treatment.

The project components include a water elevation control weir to protect the area from flooding; an intake structure and low-head pump; and receiving wetlands/surface water storage areas where the recharge can take place. Permit authorization will be sought through the Environmental Resource Permitting (ERP) process. Further, an applicant may pursue options to modify existing groundwater withdraw permits in the area to recognize the resulting enhanced recharge conditions that become apparent with the operation of the system. The ultimate finished water capacity of the entire watershed area is in the range of 60-70 MGD.

Project Map



Planning-Level Project Details:

The project includes the following systems and components:

Added Surface Water Storage Capacity

Increase surface/stormwater water storage capacity will be accomplished by pumping water back up into the contributing drainage area. The sites selected will be based on an optimum cost/benefit basis. In general, the locations could be: existing wetlands, stormwater treatment ponds or other water feature that would enhance recharge into this area predicted to be and verified by field reconnaissance to have depressed surficial aquifer conditions. There will not be a need for property acquisition and will likely enhance existing property value.

Water Treatment

This project is; by its nature, a water quality treatment system. The design principal: develop operating protocols for intake structures on a ditch systems that were constructed below historic seasonal high groundwater elevation for flood control. In the Orange County area, these drainage conveyance ditches bleed off the surficial aquifer nearly year round (typically 330-360 days a year). The design approach removes the water that flows in an un-natural condition and pumps it upstream to stormwater treatment areas or other low lying areas where the surficial aquifer has increased storage capacity due to the dewatering effects of the bleed down condition. The owner of the system gains a water quality compensatory treatment consideration within its watershed and the surficial aquifer receives increased recharge in areas of stress (potential wetland ecosystem impacts).

Raw Water Mains

Raw water is pumped upstream relatively short distances into the watershed under low pressure (head) conditions. Water is allowed to return to the surficial aquifer in a manner that more closely mimics the natural condition compared to the developed condition where the Directly Connected Impervious Area (DCIA) has increased discharge rates and volumes over various temporal scales. Getting the system back into a temporal harmonic more akin to the natural condition also requires increased monitoring and management actions likely through the use of Supervisory Control And Data Acquisitions (SCADA) systems to protect the area from flood conditions.

Project Yield:

The RCR project will yield water and value for the owner in water quality compensatory treatment and possibly through enhanced groundwater withdraw performance. The owner will make the determination on these combined resource values at a later date. Preliminary project evaluations of the altered annual hydrographs in the area have shown that approximately 4 MGD of water may be available with this approach at this location, at this time.

Estimated planning-level costs:

The applicant will not be pursuing external funding for this project. Cost estimates are proprietary.

Estimated Implementation Schedule:

Design, permitting and construction based on financial resources of the potential partners.

Water Resource Constraints:

The final evaluation of the watershed hydrographs and resulting operating protocols will be developed by the design team. This will include a consideration of the altered downstream ecosystems. These considerations will include evaluating the enhanced wetland system performance upstream as well as a view of any potential effects to the altered ecosystems downstream.

The watershed has an upper limit on yield that can be used for these restorative efforts so that the downstream conditions can be maintained at a level consistent with a historic condition. This approach could be considered as an entrepreneurial effort; the first applicant that evaluates the watershed and implements a project through the permitting process will create a new paradigm in the hydrograph. Any subsequent property owners in the watershed will use this as a new “baseline” condition.

Project Feasibility:

This project is feasible and is in consideration by the project partners. No project limitations due to rule inconsistencies have been identified.

Permittability:

This project is considered to be “permissible” through conventional compensatory treatment considerations in the Environmental Resource Permit (ERP) process. Adjustments to Consumptive Use Permits (CUP) in the area will be evaluated by the team during design and likely after performance is evaluated in the operational phase.

Cost-Benefit Analysis of Yield:

As an alternative water supply (AWS) project, the RCR is intended to extend the usefulness of the existing groundwater withdraws in the area.

Other Considerations:

The project when implemented may limit other applicants from being able to do similar efforts in this particular watershed. Please note that the use of compensatory treatment mechanisms in this approach is limited by the total runoff volumes and the need to maintain some flow at the right times of the year to the downstream ecosystems. Therefore, there is a natural limit to the number of parties that could pursue this compensatory design alternative.

This approach increases recharge in a stressed ecosystem environment. It is well suited to protecting wetlands at this location. This approach is under consideration in areas of the CFWI where the enhanced recharge could have other water resource benefits like enhanced recharge for springs protection (Wekiwa Spring) and oligohaline ecosystem enhancement and restoration (Indian River Lagoon).

Potential Partners and Governance Options:

The project is under consideration by some of the entities that have enough land ownership to have value for the compensatory treatment option. These include but are not limited to: Town of Celebration (CDD), Reedy Creek Improvement District (298 District), Town of Windermere, Orange County, Celebration Central Florida Expressway Authority, FDOT and other private property interests. With the powers afforded to the RCID, they would have initial review of ERP permit applications for the areas depicted in Figure 1. After their review, it would go to the SFWMD for consideration. Areas in the Reedy Creek watershed outside of the area in Figure 1, would be reviewed by the SFWMD.

There may interest in seeking other partnerships with groundwater permit holders in the region as the benefits to the surficial aquifer may enhance their respective ability to withdraw water. This would likely be one of the partners in STOPR (St Cloud, Toho Water, Orange County, Polk County, RCID).

Funding Sources:

This project is currently under consideration consistent with existing ERP rules and criteria. Implementation of the approach will be conducted by an entity that has an appropriate financial interest in the outcome. The result will be a financially sustainable approach with beneficial outcomes in water quality, flood protection, natural systems and water supply.

Regulatory Sheet Placeholder