

**CONSUMPTIVE USE PERMIT EXECUTIVE SUMMARY:
AN OVERVIEW OF GRU'S APPLICATION TO RENEW CUP NO. 11339**

CUP RENEWAL REQUEST

In 2009, the St. Johns River Water Management District (SJRWMD) issued Gainesville Regional Utilities (GRU) consumptive use permit (CUP) no. 11339 authorizing the use of 10,950.0 million gallons per year (30.0 million gallons per day (average)) of groundwater from the Floridan aquifer for public supply type use (which includes household, irrigation, commercial/industrial, water utility, and unaccounted for uses), and 84.0 million gallons per day of groundwater from the Floridan aquifer for essential use (fire protection). This CUP expires on August 11, 2014.

With this expiration date in mind and with the need to continue its operations after 2014, in early 2012, GRU evaluated how to meet its future water demands in the context of its historic use, regional water supply, and environmental issues. GRU also met with local elected officials, environmental stakeholders, and business leaders to discuss this issue. Based on this evaluation and considering input from these meetings, GRU made a commitment to stay within its currently allocated 30 million gallons per day (MGD) despite projections which show that GRU's demand will increase beyond these limits.

As explained further in its application, GRU has proposed a Standard Water Conservation Plan with a defined goal. GRU will employ adaptive measures and innovative technologies to reduce demands and allow GRU to stay within the requested allocation. In addition, GRU has committed to expand its existing reclaimed water program and implement additional Impact Offset recharge projects which allow it to meet both current and proposed minimum flow and level (MFL) rules.

EXTENSIVE PRE-APPLICATION REVIEWS WITH BOTH SJRWMD AND SRWMD STAFF

A portion of GRU's service area is located within the Suwannee River Water Management District (SRWMD). To avoid duplication in permitting, in 2006, SJRWMD and SRWMD entered into an interagency agreement delegating authority for consumptive use permitting review of GRU's permit to SJRWMD. In August 2013, the SRWMD and SJRWMD entered into another interagency agreement renewing this delegation to SJRWMD. Thus, the SJRWMD has the sole responsibility and authority to review and act on this application, and only the SJRWMD's rules apply to GRU's renewal application.

Notwithstanding the SJRWMD's sole authority to review and act on GRU's renewal application, since late 2012, GRU's staff and consultants have met jointly with staff from the SJRWMD and the SRWMD on dozens of occasions to discuss and refine details of GRU's CUP renewal. GRU actively sought out input and feedback from both SRWMD and SJRWMD staff on preparing its CUP renewal application prior to filing this application. We feel strongly that there has been an

extraordinary level of interagency coordination and openness by all parties involved in these discussions.

As a result, the CUP renewal application and supporting information has been developed to address permitting criteria and issues raised by staff during this process to facilitate the CUP approval process. In an effort to further speed CUP approval, GRU has developed the following summary which outlines the detailed information contained in the CUP renewal application.

GRU BACKGROUND

Gainesville Regional Utilities (GRU) is a multiservice utility owned by the City of Gainesville. GRU's potable water service area is located in Alachua County and encompasses approximately 75,000 acres located both within and outside the City of Gainesville municipal boundary. Both Interstate 75 and U.S. Hwy. 441 run north-south through the service area and, although the entire service area is located within the same county, the service area is located in both the SJRWMD and SRWMD. The utility currently serves potable water to approximately 190,000 customers and proposes to serve approximately 235,000 customers by year 2033. In addition to residential customers, the utility also serves a large commercial/industrial base, serves the Kelly power generating plant, and has a large secondary use customer, the University of Florida. GRU supplies potable water for residential, urban landscape irrigation, commercial/industrial, and water utility types of uses as defined by the SJRWMD.

GRU's water supply system consists of 16 existing Floridan wells, all located at the Murphree well field. Both the well field and the water treatment plant are located in northeast Gainesville just north of Northwest 53rd Avenue. Fourteen of the existing wells are 24 inches in diameter, one well is 20 inches in diameter, and another is 16 inches in diameter. Fifteen of the existing wells are located within the SJRWMD and one existing well is located within the SRWMD. GRU's water treatment plant is located at the Murphree well field site. The plant is a lime-softening plant and water is also filtered and disinfected prior to distribution. GRU is permitted by FDEP to treat 54.0 mgd of water at this plant for potable use.

The water uses within the service area include household, urban landscape irrigation, commercial/industrial, water utility, and essential use (fire protection). GRU projects that the population will continue to grow within the service area over the duration of the permit with a commensurate increase in total water use. Both household and commercial/industrial use is projected to increase at steady rates through the permit duration and the water utility use rate is expected to increase in proportion to the population growth rate. As discussed in a later section, water supply planning projections of both water management districts are in line with GRU's water use projections.

Wastewater generated throughout the service area is collected and sent to one of two wastewater treatment plants (WWTPs). The Main Street Water Reclamation Facility (MSWRF) is located on the south side of the city and has a permitted plant capacity of 7.5 mgd. Currently, the plant sends treated wastewater primarily to surface water discharge (into Sweetwater Branch) although

in the future treated wastewater from this plant will be discharged to Paynes Prairie as part of an environmental restoration project. Both the Sweetwater Branch discharge and the Paynes Prairie project ultimately discharge to Alachua Sink and then into the Floridan aquifer. The second WWTP is known as the Kanapaha Water Reclamation Facility (KWRF) and is located on the southwest side of the city.

Currently the KWRF sends public access reuse water to residences, commercial sites, and golf courses within the service area for irrigation use and also sends treated wastewater to aquifer-recharging aesthetic water features located throughout the service area (such as parks and botanical gardens). A portion of the wastewater treated at this facility is also sent to a recharge well located adjacent to the facility.

As a result of GRU's infrastructure investments, essentially all of GRU's reclaimed water is utilized to offset potable demands or recharges the aquifer either indirectly or directly.

PERMIT APPLICATION REVIEW

In order to help facilitate permit review, GRU sets forth the following and provides the enclosed supporting materials demonstrating this application to renew GRU's CUP complies with Section 373.223, Florida Statutes (F.S.) and Section 40C-2.301, Florida Administrative Code (F.A.C.) which require GRU to establish that its continued use of water:

- (a) is a reasonable beneficial use;
- (b) will not interfere with any presently existing legal use of water; and
- (c) is consistent with the public interest.

In addition, we have also reviewed and evaluated the additional requirements included in the District's Applicant's Handbook: Consumptive Uses of Water – revised by the CUP Consistency rulemaking effort with an anticipated effective date in August 2014. Based on that review, GRU's renewal application meets the conditions for issuance and does not contain any reasons for denial. A summary of this review is provided below.

Reasonable Beneficial Use Criteria

We reviewed the proposed use of water pursuant to the District's reasonable beneficial use criteria which requires that the consumptive use:

- (a) Is a quantity that is necessary for economic and efficient use.
- (b) Is for a purpose and occur in such a manner that is both reasonable and consistent with the public interest.
- (c) Will utilize a water source that is suitable for the consumptive use.
- (d) Will utilize a water source that is capable of producing the requested amounts.

- (e) Except when the use is for human food preparation or direct human consumption, will utilize the lowest quality water source that is suitable for the purpose and is technically, environmentally, and economically feasible.
- (f) Will not cause harm to existing offsite land uses resulting from hydrologic alterations.
- (g) Will not cause harm to the water resources of the area in any of the following ways:
 1. Will not cause harmful water quality impacts to the water source resulting from the withdrawal or diversion;
 2. Will not cause harmful water quality impacts from dewatering discharge to receiving waters;
 3. Will not cause harmful saline water intrusion or harmful upconing;
 4. Will not cause harmful hydrologic alterations to natural systems, including wetlands or other surface waters; and
 5. Will not otherwise cause harmful hydrologic alterations to the water resources of the area
- (h) The consumptive use shall not cause or contribute to a violation of state water quality standards in receiving waters of the state.
- (i) Is in accordance with any minimum flow or level and implementation strategy established pursuant to Sections 373.042 and 373.0421, F.S.
- (j) Will not use water reserved pursuant to Subsection 373.223(4), F.S.

To demonstrate compliance with these criteria, GRU collected substantial quantities of data, performed numerous studies and analyses, documented historical information, field assessed environmental features, and modeled local and regional groundwater systems. Complete versions of these efforts are included in the CUP application. A summary discussion of criteria of particular concern follows.

Economic and Efficient Utilization

As set forth above, the SJRWMD rules require that a consumptive use be in such quantity as is necessary for economic and efficient utilization. The primary driver for GRU's future water demand increases are projected population growth. The basis for GRU's projected population growth is a 2006 model for Alachua County developed for the SJRWMD and that has been used by the SJRWMD for water supply planning and permitting evaluations. These projections were recently recalibrated by SJRWMD staff to current BEBR projections by simply applying the ratio of the new projections to the old projections evenly to all the projected growth throughout the county model. The SJRWMD projections were provided to GRU in September of 2012.

SJRWMD's population projections did not include seasonal population or provide for the conversion of self-supplied population (people currently getting potable water from their own private wells) to GRU customers. Therefore, GRU made small adjustments to the SJRWMD population projections to address those items. As a result, GRU estimates that the population it will serve in 2033 will be 233,175. This GRU-calculated population is slightly less than and within 5 percent of the SJRWMD's latest population projections.

To calculate future residential water use, GRU estimated a future per capita use rate of 76 gallons per capita per day (gpcd) and applied that to future population growth. As discussed later, GRU has continued to reduce its per capita water use with time and 76 gpcd represents a very low value for this metric. Furthermore, the 76 gpcd is a significant reduction from the 92 gpcd used by the SJRWMD in 2009 to determine GRU's water demand in GRU's current CUP and reflects the positive effects of GRU's aggressive water conservation measures. The 76 gpcd is also low as compared to other utilities in the SJRWMD. Future projections for commercial/industrial use, power plant use and water utility use were reasonably estimated to grow at the same rate as population. Summing water use projections for all use classes and projected unaccounted-for water resulted in a total water demand projection for GRU.

Future projections of reclaimed water use and additional water conservation (discussed in a later section) were subtracted from projected total water demand to calculate actual water demands. The resultant actual water demand is estimated to increase to 34.22 mgd in 2033. This projected demand is within 1 percent of the SJRWMD's latest demand projections developed for the 2013 District Water Supply Plan.

As described in the CUP application, GRU is only requesting that its currently allocated 30 mgd be renewed, which is below its demonstrated demand of 34.22 mgd. Therefore, GRU has demonstrated that its proposed allocation is an economic and efficient utilization of the water resource.

Water Conservation

Efficient utilization as described above also requires an applicant to implement a Water Conservation Plan. To provide further guidance, the SJRWMD CUP Applicant's Handbook (A.H.) sets forth requirements for a Standard Water Conservation Plan (Section 2.2.2.5.1.A A.H.) for public supply type uses that an applicant may use to satisfy this criterion. For this CUP renewal, GRU has elected to implement the SJRWMD's Standard Water Conservation Plan. As described in significant detail in the application, GRU utilized the Conserve Water Florida Clearinghouse EZ Guide and determined that a reduction of 0.55 MGD was the water use reduction required to achieve efficient use and the water use reduction that should be required. However, GRU's Water Conservation Plan has a multi-pronged approach designed to maximize the possibility that GRU exceeds this minimum requirement. A summary of GRU's proposed Standard Water Conservation Plan is presented below.

1. Water Conservation Public Education Program

GRU's water conservation plan includes each of the elements (a) to (i) identified by the District in Section 2.2.2.5.1.A.1, A.H. A brief summary of some of this information previously provided is provided below.

- (a) *Water conservation public service announcements.* GRU has made numerous public service announcements and press releases regarding cold weather precautions, the Paynes Prairie Restoration Project, water conservation and creative water conservation

competitions. Throughout the duration of the renewed CUP, GRU will continue these types of announcements at the historic frequency.

- (b) *Water conservation speakers, posters, literature, videos and/or other information provided to schools and community organizations.* GRU operates a speaker's bureau and regularly meets requests for speakers. Additional information on the Speaker's Bureau is available on the GRU website.

GRU has also provided a number of water conservation-related videos to the schools and the public library system. Titles include: Home Energy Survey, The Water Cycle of Alachua County, Boulware Springs, and The Rehabilitation of the Boulware Springs Water Works Building. In addition, a number of YouTube videos have been posted for the public to view on GRU's YouTube account. YouTube titles include: "Energy and Water Savings Tips", "Start Saving Today: Taking Simple Steps to Conserve", and "Start Saving Today: Protecting the Environment".

GRU also places water-related and water conservation posters and other media for distribution and on display in the lobby of its Administration Building in downtown Gainesville. Throughout the duration of the renewed CUP, GRU will continue these types of activities at the historic frequency.

- (c) *Public water conservation exhibits.* GRU regularly participates in the annual Spring Garden Festival at Kanapaha Botanical Gardens at which GRU presents various water-related information. In addition, GRU sponsored a cooperative exhibit with the Florida Museum of Natural History and Florida's Eden on water conservation efforts and the spring systems in Alachua County. The exhibit ran from August through November of 2010. Throughout the duration of the renewed CUP, GRU will continue its participation in similar public water conservation exhibits at the historic frequency.

- (d) *Water conservation articles and/or reports to local news media.* GRU routinely releases articles through the monthly newsletter, A&I, regarding pertinent energy and conservation information and GRU efforts to provide and conserve environmental resources. Topics include the Paynes Prairie Restoration Project, water conservation tips, irrigation rules, landscaping tips and community events regarding water conservation and information. Since 2010, GRU has produced over 40 articles. Throughout the duration of the renewed CUP, GRU will continue to produce articles and reports at the historic frequency.

- (e) *A water audit customer assistance program which addresses both indoor and outdoor water use.* In addition to the information provided above, GRU will perform (and has performed) a regular review of high water users of both the residential and non-residential customers. Any customer that is found to have statistically abnormal water consumption is reviewed and, if needed, approached for an energy & water survey to reduce their water consumption. Throughout the duration of the renewed CUP, GRU will continue a water audit customer assistance program.

- (f) *Water conservation information provided to customers regarding year-round landscape irrigation conservation measures.* GRU broadcasts information about landscape

irrigation ordinances and GRU participates in customer education via enforcement of these requirements. Throughout the duration of the renewed CUP, GRU will continue to provide its customers with information regarding year-round landscape irrigation conservation measures.

- (g) *Water conservation information posted on GRU's website.* GRU's website - GRU.com - contains extensive information about water conservation. GRU also utilizes other internet media such as YouTube and Facebook and has a robust presence online. Throughout the duration of the renewed CUP, GRU will continue to post water conservation information to its website.
- (h) *The construction, maintenance, and publication of water efficient landscape demonstration projects.* The buildings and landscaping at the new Eastside Operations Center were designed to follow LEED standards in order to have minimal impact on the inclusive and surrounding wetlands. There is a demonstration project on the roof of the Safety & Training building near the entrance where tours and signage are offered to explore the green roofing system that is now well established. GRU provides customers information on water-efficient landscaping and has sponsored several water conservation demonstration gardens. Reclaimed water is used at multiple sites for aesthetic uses (Kanapaha Botanical Gardens, Chapman's Pond, the Veterans Park, and at a demonstration garden at Kanapaha Middle School). Throughout the duration of the renewed CUP, GRU will maintain water these and other efficient landscape demonstration projects.
- (i) *Water conservation information provided in customer bills or separate mailings.* GRU presents informational bills to its customers to allow them to track their individual water use. In addition, once a year, GRU prepares and mails a robust report to all customers which has information about their source of water and provides water conservation metrics to the community. Throughout the duration of the renewed CUP, GRU will continue to distribute this type of water conservation information at the historic frequency.

2. *Outdoor Water Use Reduction Program*

GRU's water conservation plan includes elements (a) to (f) identified by the District in Section 2.2.2.5.1.A.2, A.H. A brief summary of these elements previously provided is provided below.

- (a) *Adoption of a landscape irrigation ordinance or condition of service consistent with District Rules.* In 2009, Alachua County adopted ordinance 09-08 which created Alachua County Irrigation Standards and Management Practices consistent with District rules. The ordinance also provides for enforcement and penalties. The City of Gainesville adopted the same ordinance for consistency.
- (b) *Adoption of an ordinance or condition of service requiring the use of Florida-Friendly landscaping principles, Florida Water Star, or other outdoor water conservation program.* Alachua County currently restricts irrigation in spring protection areas and is in the process of expanding these outdoor water conservation requirements across its

jurisdiction. Upon enactment, the City will consider whether or not these requirements would enhance GRU's water conservation program.

- (c) *The adoption of an ordinance or condition of service relating to automatic landscape irrigation systems.* Building codes applicable to GRU's service area require the use of a rain-sensor or other shut-off device.
- (d) *Provide landscape irrigation audits and irrigation system operating instructions to businesses and residents.* On-site residential and commercial energy and water surveys are available free to all GRU customers. During these surveys trained staff inspects the home or business and checks windows, doors, ductwork, insulation, appliances and other equipment, and then offers customized tips for making the home or business more efficient. Customers also have the option to perform a video-guided home survey and an online survey available through the GRU website. Additional information is available on the GRU website. Since 2011, GRU has performed over 400 commercial audits and almost 2400 residential audits. Throughout the duration of the renewed CUP, GRU will continue a landscape water audit customer assistance program.
- (e) *Education element focused on outdoor conservation.* As described above and in the application, several components of GRU's water conservation program have specific outdoor water conservation elements.
- (f) *Other outdoor water conservation measures.* GRU has participated in multiple studies of soil moisture sensor effectiveness. Most recently, GRU installed soil moisture sensors in 100 residential properties to evaluate the performance, water savings and customer satisfaction with the technology in cooperation with the University of Florida. GRU has been an active partner with the District, Conserve Florida Water Clearinghouse and the University of Florida on several outdoor water conservation evaluations.

3. *Water Conservation Promoting Rate Structure*

GRU's water conservation plan includes a rate structure which meets District requirements as presented in Section 2.2.2.5.1.A.3, A.H. A brief summary of some of this information previously provided is provided below.

Currently, GRU utilizes the following three-tier incline block, water conservation promoting, rate structure:

<u>Volume Category</u>	<u>Base Residential Meter Water Rate</u>
0 – 6,000 gallons	\$2.30/1,000 gallons
7,000 – 20,000 gallons	\$3.75/1,000 gallons
20,000 and above	\$6.00/1,000 gallons

As part of this renewal application, GRU is not proposing any modification of this existing rate structure which went into effect on October 1, 2013.

4. *Water Loss Reduction Program*

Though not required because GRU's water losses are calculated to be less than 10 percent, GRU's water conservation plan includes elements from Section 2.2.2.5.1.A.4, A.H. to provide reasonable assurance that GRU's use will reduce water losses to an acceptable amount as presented below:

- (a) *Water Audit.* GRU completed a water audit of its potable water distribution system for the period January 2012 through December 2012. The CUP application contains a summary of the water audit using the District's Water Audit Form No. 40C-22-0590-3. The results of this water audit indicate that, for the period evaluated, GRU had unaccounted for water totaling 7.8 percent.
- (b) *Meter Survey.* Based on the results of GRU's water audit this meter survey is not required. However, GRU has implemented a meter survey program to help identify and prioritize meters for repair or replacement. As a result of these efforts and as discussed below, GRU has developed a 5/8-inch meter change out program that replaces meters on an 18-year interval. In addition, GRU tracks its larger meters to assure that they are tested annually as discussed below.
- (c) *Leak Detection Evaluation.* Based on the results of GRU's water audit this leak detection evaluation is not required. However, since 2002, GRU has operated a leak detection program and has tested over 685 miles of pipe. Based on the flows detected through GRU's ongoing leak detection program, it is believed that the majority of the unaccounted for water is due to apparent losses (i.e., water that is being utilized but not billed for) rather than "real" losses (i.e. water leaking from the system). Sources of apparent losses could include unmetered or illicit connections, meter inaccuracy, and underestimation of legal unmetered uses. In addition to field assessments, GRU is using technology to identify unaccounted-for water in the system. The program has focused efforts on several components including the regular identification of improperly billed water service (e.g., unmetered and under-metered water use), improvement of internal procedures for the identification and repair of stopped meters, improvement of current operating procedures for large meter testing, and improving the accuracy of nonrevenue water use (e.g., well lubrication water, water use for emergency events, and routine hydrant flushing).
- (d) *Meter Replacement Program.* Based on the results of GRU's water audit, this meter replacement program is not required. However, GRU does have a meter change-out program in which all 5/8-inch meters older than 18 years are automatically targeted for replacement. New meter internal components are made of plastic and Teflon coated, preventing the corrosion issues present in the older models. All 3-inch or larger meters are tested annually.

5. *Indoor Water Use Reduction Program*

GRU’s water conservation plan includes elements (a) to (d) identified by the District in Section 2.2.2.5.1.A.5, A.H. A brief summary of some of this information previously provided is provided below.

(a) Plumbing retrofit rebates. GRU has initiated a pilot test and replaced 781 toilets. GRU is currently monitoring the water use associated with the retrofits. After the completion of the pilot test and evaluation of the water savings, GRU will consider implementation of a larger-scale program.

(b) Faucet Aerator and Showerhead Giveaways. GRU has performed showerhead giveaways on several occasions as part of educational event or audits. Throughout the duration of the renewed CUP, GRU will continue this program at the historic frequency.

(c) Education element focused on indoor conservation. As described above and in the application, several components of GRU's water conservation program have specific indoor water conservation elements.

(d) Other indoor water conservation measures. GRU has also implemented all available conservation measures for its own processes and system. GRU has flow meters installed that monitor water usage on all active production wells. The flow meters are checked for accuracy and recalibrated at least once every three years. The most recent accuracy checks were performed in April 2013, Additionally, all treatment process streams at the water treatment plant are recycled and there is no landscape irrigation at the treatment plant facility.

The implementation of these programs has led to quantifiable and significant reductions in water use rates. For example, the following table illustrates GRU's permitted water use rates compared to the water use rates currently requested:

Year CUP Issued	Permitted Residential Per Capita (gpcd)	Permitted Gross Per Capita (gpcd)
2001	101	160
2009	90	150
Requested	76	129

Furthermore, GRU has quantified its water conservation savings since 2001 taking into account increased reuse and changes in weather patterns. This evaluation demonstrates that GRU has reduced its water demand by 28 percent during that time as a result of water conservation and reuse.

Though GRU has been extremely successful in its water conservation efforts, GRU plans to continue performing these water conservation elements, though actual implementation may vary from year to year. In an effort to quantify potential future savings due to water conservation, GRU performed an evaluation using the Conserve Water Florida Clearinghouse (CFWC) EZ Guide online tool (<http://ezguide.conservefloridawater.org>) as described in the CUP application. The CFWC EZ Guide was developed pursuant to the mandate of section 373.227(2)(h), F.S. Based on this analysis, GRU derived a conservative estimate of 0.55 mgd of additional future water conservation savings. This estimate was incorporated into GRU's demand projections as the required water conservation.

GRU's proposed Standard Water Conservation Plan meets all of the applicable SJRWMD criteria and implements feasible water conservation measures. In addition, GRU's proposed allocation request of 30 mgd is below GRU and District demand projections of approximately 34 mgd. As a result, GRU has made a significant commitment to further increase its water conservation efforts beyond District requirements.

Public Interest

GRU's proposal to continue to use groundwater from the Floridan aquifer for public supply type use can be considered beneficial to the collective well being of the people within the service area boundary. This consumptive use benefits people by providing a potable water supply to residents of the service area and water for fire protection when needed. This public benefit makes GRU's consumptive use consistent with the public interest. GRU's consumptive use is reasonable because it is economic and efficient for the reasons described previously.

Capability and Suitability of Source to Produce Water

The source for GRU's withdrawals is the Floridan aquifer, which is a potable aquifer physically capable of producing significant quantities of water. As part of current permitted operations, GRU has withdrawn at a rate of approximately 33 mgd for a month and 40 mgd for a day on several occasions without any loss of aquifer productivity or change in aquifer water quality. In addition, GRU's CUP application contains a description of the groundwater modeling performed in order to evaluate GRU's proposed allocation. The results of this groundwater modeling indicate that the Floridan aquifer is not only capable of producing the requested amount of water, but can do so without harmful impacts.

Utilizing Reclaimed Water and Lower Quality Sources

GRU's proposed consumptive use will utilize the lowest quality water source suitable for the purpose and technically, environmentally, and economically feasible. Regarding the use of reclaimed water, as mentioned previously, GRU operates two wastewater treatment plants, the Main Street Water Reclamation Facility (MSWRF) and the Kanapaha Water Reclamation Facility (KWRF). The current permitted capacity at the MSWRF is 7.5 mgd and this capacity is not expected to change over a 20-year time span. The current permitted capacity at the KWRF is 14.9 mgd and this capacity is not expected to change over a twenty-year time span. Currently all

the flows from the MSWRF go to a surface water discharge site (the Sweetwater Branch) which flows across Paynes Prairie through a manmade channel into Alachua Sink and then recharges the Floridan aquifer.

Starting in 2014, most of the wastewater generated at the MSWRF will be discharged to the Paynes Prairie Sheetflow Restoration Project, a \$28 million environmental restoration project involving GRU, the City of Gainesville, FDEP and the District. It involves the reuse of effluent from the MSWRF to restore natural wetlands in Paynes Prairie State Preserve, located southeast of the City. The plan being implemented includes upgrading the MSWRF for additional phosphorus removal, construction of a treatment wetland to intercept and treat the flow from Sweetwater Branch, and restoration of the natural sheetflow from Sweetwater Branch onto Paynes Prairie, into Alachua Sink thereby recharging the Floridan aquifer. The Paynes Prairie Sheetflow Restoration Project will serve to restore over 1,300 acres of natural wetlands in the Paynes Prairie Preserve that were degraded due to historical channelization practices. Once this project is complete, most of the effluent from MSWRF will be used for this project with the exception of some flow to be used for irrigation and commercial/industrial uses.

Because the flow from the Paynes Prairie Sheetflow Restoration Project recharges the Floridan aquifer and offsets GRU's contribution to impacts at current and pending MFL water bodies, it meets the criteria to be considered an Impact Offset. As presented in the groundwater modeling submitted by GRU, recharge to Alachua Sink is approximately 6.49 MGD and has a benefit of 1.83 MGD to the Lower Santa Fe River. The amount of GRU's allocation made available by this recharge is approximately 2.80 MGD. GRU requests incorporation of the Paynes Prairie Sheetflow Restoration Project Impact Offset into the CUP.

For the KWRF, currently, approximately 10% of the flows generated at the KWRF goes to residential and commercial irrigation and golf course irrigation. Approximately 15% of the flows go to infiltrating wetlands which recharge the Floridan aquifer. Because the flow from the infiltrating wetlands recharge the Floridan aquifer and offset GRU's contribution to impacts at current and pending MFL water bodies, it meets the criteria to be considered an Impact Offset. As presented in the groundwater modeling submitted by GRU, recharge to infiltrating wetlands is approximately 1.38 MGD and has a benefit of 0.82 MGD to the Lower Santa Fe River. The amount of GRU's allocation made available by this recharge is approximately 1.25 MGD. GRU requests incorporation of the infiltrating wetlands Impact Offset into the CUP.

The majority of flows from KWRF go to recharge wells located adjacent to the KWRF. It is anticipated that within 20 years both the total amount and percentage of flows that go to residential and commercial irrigation will increase as GRU's reclaimed water service area customer base expands.

As the majority of new development is occurring within the southwest portion of the utility's service area and due to the proximity of this region to existing reclaimed water pumping and transmission facilities, GRU has instituted a policy to designate a reclaimed water service territory on the southwest side in which all new development are required to connect to

reclaimed water for irrigation. GRU worked with Alachua County to institute revisions to Alachua County's Land Development Regulations (LDRs) in order for these requirements to take effect. Within this designated reclaimed water service territory, GRU extends reclaimed water lines to serve new development. In cases where a new development is located in an area where reclaimed transmission lines are not yet available the developer will construct reclaimed lines within the development and will use potable water for irrigation until reclaimed water becomes available.

As a result of its actions and investment, essentially all of GRU's reclaimed water is utilized to offset potable demands or recharge the aquifer either indirectly or directly. As such, GRU is using reclaimed water to the extent economically, technically and environmentally feasible. There are no surface water or other lower quality sources near GRU that can provide a sufficient quantity of water for GRU to use.

As part of providing reasonable assurance that GRU will continue to use lower quality sources to the extent feasible, GRU proposes to submit to the SJRWMD its FDEP Reuse Report on an annual basis. GRU will also agree to submit a reuse status report at its 10-year compliance report describing what steps were taken during the term of the permit in regards to the implementation of new beneficial reuse projects and providing updates on GRU's reclaimed water system.

Potential for Offsite Impacts

GRU withdraws groundwater prior to treatment and transmission to its potable water customers through its distribution pipe network. As such, there is no reasonable potential for harmful damage, such as flooding, to offsite land uses as a result of these withdrawals.

Water Resources and Wetlands Evaluation

When GRU's current CUP was issued in 2009 authorizing the use of 30 MGD, the SJRWMD staff evaluated whether GRU's groundwater withdrawals would harm surface waters, springs, wetlands, crops and other types of vegetation. The SJRWMD staff visited GRU's wellfield and reviewed aerial photographs, soils, topography, vegetation, water bodies, and other monitoring data GRU collected at various monitoring sites and visited those monitoring sites. SJRWMD staff did not find any indication of harm.

GRU has been monitoring isolated herbaceous, shrub, and forested wetlands at sentinel areas near its Murphree Wellfield and submitting annual reports to the SJRWMD since 2000. In addition, shallow piezometers with continuous water level recorders are installed in all wetlands. Furthermore, in 2004, several monitoring well clusters were installed by the SJRWMD and GRU equipped them with continuous water level recorders. The water level recorders have been providing daily water level measurements since 2006. The clusters contain separate wells that monitor the surficial, Hawthorn, and upper Floridan aquifer.

GRU reviewed annual wetland monitoring reporting to assess wetland health, reviewed monitoring well data available within and outside the wellfield, conducted wetland field

assessments on March 26, 2013 and July 12, 2013 with staff from the SJRWMD and SRWMD, and evaluated groundwater modeling results to determine if the eight wetlands exhibit any evidence of hydrologic impact from past groundwater withdrawals or are likely to exhibit impacts from proposed groundwater withdrawals.

Results of this assessment indicate that the wetlands, canopy, and understory are in generally good health and are not experiencing disconcerting biotic indicators of dehydration such as widespread recruitment of facultative species, tree falls, or soil oxidation. However, moss lines in all forested wetlands near or at the ground surface indicate that the wetlands are not experiencing frequent inundation. Several wetlands also had thick duff layers, indicating a decrease in decomposition rates.

Previous monitoring reports do not indicate correlations between wetland water levels and pumpage. In fact, past monitoring reports specifically note that piezometer water levels are strongly correlated to rainfall. However, GRU evaluated additional lines of evidence to confirm that pumping is not contributing to the current condition of the monitored wetlands.

GRU reviewed boring logs for wells in and around the monitored wetlands to assess the level of confinement present between the wetlands and the underlying aquifer. Based on the data, the vertical head difference between the surficial aquifer and the upper Floridan aquifer was between 110 and 120 feet which is strongly indicative of a highly confined system. In such a system, drawdowns in the Floridan aquifer are unlikely to be significant at the surface. In addition, soil data from the wetland well installations show the presence of clay or spodic horizons in these wetlands which provide another layer of confinement from the surficial aquifer.

The groundwater modeling GRU developed and performed based upon input and direction from District staff further validates the observations that the wetlands are not well connected to GRU's Floridan aquifer withdrawals. The groundwater modeling performed in support of this CUP renewal application shows no predicted drawdown in the surficial aquifer system in the vicinity of the wellfield. Therefore, the groundwater modeling shows that the potential for GRU's withdrawals to contribute to changes in wetland hydrology is minimal.

As a result of field visits and the analysis included in this application, GRU proposes to modify the required monitoring program to more directly address GRU's minimal potential for contribution to wetland impacts. These modifications include the following:

- Within 6 months of permit issuance, install recording instrument and maintain water level monitoring equipment at wetlands B through G and at 2 well clusters MW-3 and MW-6. Remove wetlands A and H and the staff gage at the north pond from the monitoring program
- Report water level monitoring data to District every 6 months

Every 5 years (2019, 2024, 2029) provide a detailed report to the District including such information as elevation transect, photographs, soil descriptions, plant community descriptions,

double mass analyses and a discussion of trends as described in GRU's response to the District's first Request for Additional Information (RAI).

In summary, GRU's requested allocation will not cause harm to the water resources of the area.

Saline Water Intrusion

Based on the location of GRU's withdrawals and the water quality both vertically and laterally coincident to these withdrawals, GRU's withdrawals will not cause harmful saline water intrusion.

Source Water Quality

As it relates to GRU's proposed use, District staff previously indicated a concern that sulfate levels in GRU's production wells were exhibiting an increasing trend. To detect any potential water quality changes resulting from GRU's withdrawals, GRU implemented a District-approved water quality monitoring program. For this CUP application, GRU reviewed the sulfate data collected from the Murphree wellfield and investigated potential trends within this dataset relative to pumping at the wellfield.

Based on statistical data analyses, GRU observed no correlation between sulfate data and pumpage at the wellfield or pumpage at individual wells. While some individual wells did show increasing trends relative to time, some individual wells showed decreasing trends relative to time. As a result, no consistent trends were observed across the wellfield. Furthermore, wells with increasing temporal trends typically did not display increasing trends with pumpage. GRU also observed that wells with the highest average sulfate concentrations showed little to no correlation with pumpage. These observations agree with observations previously reported by GRU to SJRWMD. This data analysis and these observations demonstrate that GRU's current withdrawals have not induced nor will induce harmful changes to the water quality of the Floridan aquifer, and GRU's proposed withdrawals will likewise not result in harmful water quality changes. However, GRU is willing to continue monitoring the its production well water for sulfate concentration on an annual basis with trend analyses submitted as part of the 10-year compliance report.

The District has previously expressed concerns regarding a Superfund site known as the Cabot/Koppers site located approximately 2 miles southwest of the Murphree wellfield. Constituents of historic wood treatment processes have been found in the surficial and Floridan aquifer. Due to this contamination, the site was designated a Superfund site in 1983 and the site has been monitored and studied extensively since that date

There is no known evidence that GRU's existing or proposed withdrawals are influencing the movement of contaminants from the Cabot/Koppers site in the aquifer. However, GRU was required to develop a Groundwater Avoidance and Mitigation Plan in 2008. As a condition of its current CUP, GRU submits annual status reports describing the monitoring and cleanup activities that have taken place at the Cabot/Koppers site over the past year and also includes proposed and

finalized workplans, monitoring reports, and any EPA or FDEP reports that have been issued within the past year.

In addition, GRU has developed a contingency plan for implementing treatment to remove contaminants from drinking water should contamination be detected in the sentinel (monitoring) wells or in the GRU's water supply wells. GRU proposes to continue implementing the Groundwater Avoidance and Mitigation Plan and implementing the Cabot/Koppers Contingency Plan as part of providing adequate reasonable assurance that GRU will not cause harmful changes to the aquifer water quality.

State Water Quality Standards

GRU's proposed consumptive use will not cause or contribute to a violation of state water quality standards. GRU's water and water reclamation facilities produce water that is permitted by the Florida Department of Environmental Protection (FDEP) and meets all applicable water quality standards.

Minimum Flows and Levels

GRU has evaluated its proposed withdrawals for compliance with SJRWMD minimum flows and levels (MFLs) using procedures developed by the SJRWMD. In addition, although not required by the SJRWMD rules, GRU has performed a separate assessment of its potential for impact on adopted and proposed SRWMD MFLs.

SJRWMD MFLs. The closest lakes to the GRU well field with minimum levels established by rule are Lake Wauberg, located about 11.5 miles south of GRU's withdrawals, and Lake Melrose, located about 15 miles to the east of GRU's withdrawals. Neither of these lakes is significantly connected to the Floridan aquifer; therefore, GRU's withdrawals will not cause these lake levels to fall below their MFL.

Lakes Geneva, Cowpen, Brooklyn and Grandin, located 20 to 30 miles east of GRU's withdrawals, have adopted MFLs, and the SJRWMD is in the process of developing revised MFLs. GRU used a SJRWMD-developed groundwater flow model to analyze the currently permitted cumulative withdrawals with GRU pumping at 30 MGD. This groundwater modeling demonstrates that currently permitted cumulative withdrawals may have the potential to violate the current MFL for Lake Geneva. Therefore, GRU also modeled the drawdown that its own withdrawals would cause. Based on the modeling performed, GRU's proposed withdrawals are expected to cause minimal drawdown in the Upper Floridan Aquifer at Lake Geneva at 30 MGD. As a result, GRU's potential contribution to the modeled exceedance of the Lake Geneva MFL was calculated to be less than 0.01 ft, which is immeasurable and within the margin of error for the groundwater modeling.

Due to modeling uncertainty and the *de minimis* nature of GRU's potential contribution to the MFL at Lake Geneva, GRU proposes to participate in the development and implementation of

strategies within the Board-adopted prevention and recovery plan (including plan components required to be adopted by rule) for this lake.

SRWMD MFLs. While not currently required by the SJRWMD rules, GRU also assessed the effect of its withdrawals on existing and proposed MFL water bodies in the SRWMD. These included recently established MFLs for the Upper Santa Fe River. It also included the proposed MFLs for the Lower Santa Fe and Ichetucknee Rivers that are in the process of being adopted.

In consultation with SJRWMD and SRWMD staff, GRU conducted additional analysis of any potential environmental harm to the Lower Santa Fe River (LSFR) system using the North Florida Groundwater Flow Model version 1.02 (NF Model) which is the standard model the SRWMD employs in reviewing potential impact analysis for both permitting and planning purposes. In conducting this additional analysis, GRU first determined its proportionate responsibility for any groundwater pumping effects and also evaluated the extent to which GRU's existing beneficial recharge projects offset those effects. For GRU's existing recharge projects, it is important to recognize that GRU has made significant investments in beneficial recharge which enable a large portion of GRU's withdrawals to be returned to the Floridan Aquifer. A significant amount of recharge occurs as the result of Lower Floridan aquifer (LFA) recharge wells at Kanapaha Water Reclamation Facility (KWRF), an Upper Floridan aquifer (UFA) recharge well at the University of Florida, beneficial recharge to the Upper Floridan aquifer through Paynes Prairie, Alachua Sink and recharge wetlands.

GRU developed a method to conduct this analysis in consultation with the staff of the SJRWMD and SRWMD. This method fully credited GRU with the benefit of its existing recharge features. This method was used to determine the following:

- GRU's proportional share of impacts to flows in the LSFR at the Ft. White gage at the requested allocation;
- The amount of flow increases GRU provides to the LSFR at the Ft. White gage with existing recharge features; and
- The amount of flow increases needed at the Ft. White gage from new projects to be implemented by GRU to demonstrate reasonable assurance.

The results of applying this method indicate that the benefits of GRU's existing recharge features are greater than GRU's apportioned share of cumulative deficit at LSFR. However, the amount of recharge benefit reflected in the NF Model coming from the KWRF recharge wells which discharge to the LFA is critical in this analysis. To confirm that GRU's recharge to the LFA can benefit the LSFR, GRU researched additional geologic, hydrologic, and modeling information regarding the connection between the LFA and UFA in the area of analysis. This additional information indicates that 100% of the KWRF recharge well's recharge can provide benefits to the LSFR since the middle confining unit (MCU) between the LFA and UFA in the region is either leaky or not present.

Based upon this information, GRU's position is that regional and local hydrogeologic data clearly show that MCU between the LFA and UFA in the LSFR basin is discontinuous and leaky. However, while the SJRWMD and SRWMD staff directed GRU to use the SRWMD's NF Model to assess GRU's impacts (via UFA withdrawals) and benefits (via UFA and LFA recharges) on the LSFR, the NF Model has limitations. One specific limitation of the NF Model is that the model was not calibrated to match model-predicted water levels in the LFA to any observed LFA water levels in the area relevant to GRU's analysis. This lack of a suitable LFA calibration increases the uncertainty about the accuracy of the NF Model's predictions on the LSFR associated with LFA withdrawals and recharges.

GRU has been committed to a consensus-building process for review of its CUP renewal application with the staffs of both the SJRWMD and SRWMD. Therefore, to continue this process and to address the uncertainties in the NF model associated with the LFA water level calibration, GRU is voluntarily proposing to reduce the benefit of its KWRF recharge wells to the LSFR to 68 percent at this time (i.e. a reduction of 32% from a 100% recharge effect). This quantity of voluntary recharge well benefit reduction was derived from a conservative sensitivity analysis based upon the results of LFA performance tests in this area. Based upon GRU's voluntary reduction in KWRF recharge well benefit, GRU's existing recharge and reclaimed water programs offset up to 29.6 MGD of withdrawals.

Proposed Impact Offset Recharge Projects. Additionally, based upon this voluntary reduction, GRU is proposing to voluntarily implement two additional impact offset recharge projects to provide additional LSFR benefit pursuant to Section 3.3.2.1, A.H. The first project involves converting an existing stormwater pond into a groundwater recharge wetland system in the Oakmont development in the southwest portion of GRU's service area. The recharge wetland will receive reclaimed water from the KWRF and stormwater. The Oakmont project is estimated to provide 0.5 to 1 MGD of beneficial recharge and is expected to provide 0.3- to 0.6-MGD benefit to the LSFR based on the NF model. As a result, the Oakmont Project Impact Offset could make 0.5 to 1 MGD of additional allocation available to GRU. GRU is proposing to complete construction at the Oakmont project and begin recharge operation with reclaimed water within 5 years of GRU's CUP renewal issuance. GRU requests incorporation of the Oakmont Project Impact Offset into the CUP as described below.

The second impact offset project is a recharge wetland located at the Kanapaha Middle School in the southwest portion of GRU's service area. The middle school project involves converting an existing stormwater pond into a groundwater recharge wetland system at the middle school in the southwest portion of GRU's service area. The recharge wetland will receive reclaimed water from the KWRF and stormwater. The middle school project is estimated to provide between 0.25 to 0.5 MGD of beneficial recharge and is expected to provide 0.15 to 0.3 MGD of benefit to the LSFR based on the NF model. As a result, the Kanapaha Middle School Project Impact Offset could make 0.25 to 0.5 MGD of additional allocation available to GRU. GRU is proposing to complete construction of the middle school project and begin recharge operation with reclaimed water within 5 years of GRU's CUP renewal issuance. GRU requests

incorporation of the Kanapaha Middle School Project Impact Offset into the CUP as described below.

Both proposed impact offset projects are expected to provide a combined benefit of 0.45 to 0.9 MGD to the LSFR based on the NF model and allow GRU to increase its allocation by 0.75 to 1.5 MGD. However, as demonstrated in the groundwater modeling and hydrologic analyses prepared by GRU, only 0.4 MGD of GRU's proposed allocation is dependent on the benefits provided by these projects. Therefore, GRU proposes that 0.4 MGD of the 0.75 to 1.5 MGD made available by these impact offset projects be incorporated into GRU's CUP. GRU intends to apply any additional impact offset associated with these projects to future withdrawals or as may be required by a minimum flow and level prevention and recovery strategy adopted by the District or the FDEP.

After the completion of construction and initiation of operation for each impact offset project, GRU will provide written notice to the SJRWMD of the same prior to withdrawing groundwater above 29.6 MGD. Note that the implementation of each of these impact offset recharge projects is contingent on GRU obtaining property rights to construct the recharge wetlands and the projects could be impeded by other presently unknown contingencies. If either of these projects cannot be constructed due to inability to obtain sufficient property rights or another contingency beyond GRU's control, GRU will propose substitute impact offset projects with comparable LSFR benefits.

As a result of the analyses and proposed impact offset projects described above, GRU has demonstrated compliance and provided reasonable assurance that it meets existing and proposed MFL criteria for both SJRWMD and SRWMD water bodies. However, as the SRWMD works to further refine the Lower Santa Fe River MFLs and address the status of these MFLs, GRU is voluntarily willing to equitably participate in the development of prevention and recovery strategies.

Water Reservations

The SJRWMD has established a water reservation of 35 cubic feet per second (23 mgd) average flow, representing approximately 45% of the calculated historic flow of surface water through Prairie Creek and Camps Canal in order to protect the fish and wildlife utilizing Paynes Prairie State Preserve. Based on groundwater modeling and hydrologic conditions of the area, GRU's proposed withdrawals will not use any of this reserved water.

Interference With Existing Legal Uses Of Water

A consumptive use must not cause an interference with a legal use of water that existed at the time of the initial application for the CUP. GRU's current permitted allocation is 30.0 MGD on a yearly average basis. Since GRU is requesting no increase in groundwater withdrawals, there are no additional withdrawals that could cause interference to existing legal users on an average basis.

Furthermore, as part of its previous CUP application, GRU performed an existing legal user evaluation that incorporated a withdrawal rate of 40 MGD to simulate a higher pumping period. GRU performed an inventory of wells and identified 11 well sites within proximity of GRU's withdrawals. During a field survey, GRU discovered that some of these identified wells did not exist, and for some of the wells that did exist, GRU was unable to locate pump curve information. However, a pump curve for a well located at the Ironwood golf course was located. This well is one of the Floridan wells located closest to GRU's well field. Based on pump curve information for this well, it was determined that an approximately 2 percent loss in pumping capacity could occur, which is not considered harmful. Therefore, GRU's drawdown, even at higher than permitted rates, are not predicted to cause interference with existing legal uses. In addition, historically, there have been no reports of impacts to existing legal uses due to GRU's withdrawals.

However, should an unanticipated impact occur to an existing legal user, GRU is willing to continue to implement its existing Claim Investigation, Mitigation, and Reporting provisions of the Well Interference Mitigation Procedure submitted to the District as part of the CUP approved in 2009.

Public Interest

The proposal to continue to use groundwater from the Floridan aquifer for public supply type use is considered beneficial to the collective well being of the people within the service area boundary. This consumptive use benefits people by providing a potable water supply to residents of the service area, and water for fire protection when needed.

Interdistrict Transfer

GRU proposes to withdraw water from the SJRWMD and SRWMD to serve its customers in Alachua County. Since some of the groundwater is withdrawn within one water management district to serve customers in another water management district but all within the same county, this transport is not an "interdistrict transfer and use" as that term is defined in subsection 373.2295(1), F.S. However, such a transport and use of groundwater from one District to another within the same county is still subject to subsections 373.2295(4), (11) and (13), F.S.

Subsection 373.2295(4), F.S. specifies that in determining whether the application is consistent with the public interest, projected populations contained in the future land use elements of comprehensive plans adopted by local governments within the area of withdrawal and use, together with other evidence of future use, be considered. Subsection (4) further states that if the proposed transfer and use meets the requirements of Section 373, F.S. and if the needs of the area of use and the area of withdrawal can be satisfied, the permission to transfer and use the water shall be granted.

To demonstrate this application complies with subsection 373.2295(4), F.S., GRU reviewed the population projections of local governments in the areas of withdrawal and use, recognizing that all would seek to obtain additional groundwater. The needs of this area will be met either by

GRU's service through this CUP renewal or by small domestic wells which are exempt from the need to obtain a CUP. GRU then evaluated the needs of the specific area where the groundwater will be withdrawn as subsection 373.2295(4), F.S. requires, which specific area consists of GRU's service area. Since the needs of the area of withdrawal and use will be met either by GRU's service or by exempt domestic wells, and since GRU's use must comply with the requirements of Chapter 373, F.S. to be permitted by the SJRWMD, this transfer of groundwater across water management boundaries but within the same county can be authorized over the next 20 years and comply with subsection 373.2295(4), F.S. Neither subsection 373.2295(11), F.S. or 373.2295(13), F.S. are applicable because no adverse local land use decisions have occurred.

PERMIT RENEWAL DURATION

GRU has requested a 20-year permit and has provided adequate information that the proposed use will continue to meet the conditions for issuance for that period. However, in order to provide additional assurance, GRU will agree to a condition which requires GRU's equitable participation in development of prevention and recovery strategies for Lake Geneva in the SJRWMD and the Lower Santa Fe River in the SRWMD. Furthermore, GRU has developed monitoring programs and contingency plans to address unanticipated events while maintaining compliance with the conditions for issuance. Additionally, GRU will submit annual reuse reports, wetland assessment reports, and a 10-year compliance report to show that it continues to meet the conditions for issuance through the permit duration. Finally, GRU has proposed a Standard Water Conservation Plan and four Impact Offsets that would be in effect for the proposed duration of the CUP.