Appendix A

Workshop and Stakeholder Comments with Responses

Table of Contents

Appendix A-1

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The Districts would like to to thank everyone for their comments. Continued public input was vital to the development of the NFRWSP.

NFRWSP Comment Number	Commenter and Associated Entity	Date Received and Manner of Submittal	Comment as Received*	NFRWSP Response
1	Paul Still	10/24/16 via Email, 10/25/16 and 11/3/16 at public workshops	The Statute requires at least 20-year planning period. The current plan when adopted will not cover 20-years. Similar comments stated at workshops.	Subsection 373.709(2), F.S., does not require the 20-year planning horizon to start from the date of plan approval. The NFRWSP has a base year of 2010 and projections were evaluated from 2015-2035. The projections made for the NFRWSP were developed using the best available information at the time developed. Planning projections are updated at least once every five years to take into account improved data and methodologies.
2	Paul Still	10/24/16 via Email and 10/25/16 public workshops	Self-suppliers were not represented on the SAC. The lack of representation for self-suppliers was repeatedly pointed out to the Water Management Districts during the early SAC meetings. *Similar comments made at workshop.*	Self-suppliers are considered as those entities that are not served by a public supply system. Domestic self-suppliers were represented by local government representatives on the SAC. Other self-suppliers include agriculture, commercial/power generation, environmental, and industrial/mining, all of which had two representatives on the SAC.
3	Paul Still	10/24/16 via Email and 10/25/16 public workshops	The Statute identifies flood protection as an item to be addressed in the Water Supply Plan. Flooding is not addressed in the NFRWSP. Flood protection is very important to Bradford County. *Similar comments made at workshop.*	Chapter 373, F.S., does not require the state's water management district's regional water supply plans to address flood protection. Rule 62-40.520, F.A.C., requires the state's water management district water management plans to address flood protection and flood plain management.
4	Paul Still	10/24/16 via Email, 10/25/16 and 11/3/16 public workshops	The plan fails to identify sufficient projects that have a total capacity of which will, in conjunction with water conservation and other demand management measures, exceed the needs identified. I would contend that item 4 is a fatal flaw in the plan. The methods used to calculate the water needed are flawed because they are for only one of the flows required in the Lower Santa Fe MFL. The draft document fails to provide sufficient detail to determine if the assumed amount of flow noted in Appendix G will achieve recovery of the flows at the Fort White gage. The results shown in Appendix C (Simulated Change in the Potentiometric Surface within the North Florida-Southeast Georgia Regional Groundwater Flow Model Area) would indicate the proposed projects will have no impact on the flow at Fort White gage. The projected potentiometric surface change at Fort White is the same with or without the proposed projects. The low flow at Fort White is driven by the potentiometric surface of the Floridan Aquifer.	Chapter 373, F.S., requires the state's water management districts in regional water supply plans to quantify sufficient projects to meet all existing and future reasonable beneficial uses in the planning horizon. The NFRWSP has identified between 203 and 216 mgd in projects to offset the projected increase in water demand of 117 mgd. The referenced results in Appendix C show how predicted drawdown in the Santa Fe River Basin is reduced as a result of WRD projects. Reduced drawdown in the basin reduces withdrawal impacts in the basin, therefore increasing the flows in the Santa Fe River.
5	Paul Still	10/27/16 via Email	An issue not related to statutory requirements is the designation of Water Resource Caution Areas (WRCA). I do not believe WRCAs were ever discussed by the SAC. The members should be aware of what WRCAs are and how they impact permitting. The data for the parts of Bradford County that are in the SRWMD do not seem to support the declaration of this part Bradford County as a WRCA. The plan indicated the Upper Santa Fe MFL is being met and will be met in 2035. Lakes and wetlands are not shown to be a constraint. No data is presented in the NFRWSP to demonstrate that water use in Bradford County will impact the Lower Santa MFL.	The 2010 SRWMD Water Supply Assessment designated the Upper and Lower Santa Fe River Basins, the Upper Suwannee River Region and the Alapaha River Basin as Water Supply Planning Regions. These planning regions, which include the SRWMD portion of Bradford County, were subsequently designated as WRCAs by the SRWMD Governing Board on October 11, 2011. The 2015 NFRWSP will not be used to modify WRCAs in the SRWMD.
6	Paul Still	10/27/16 via Email	I contend there is a technical issue with using the Groundwater model to predict changes in the potentiometric surface of less than 2.5 feet. The model calibration results seem to indicate the model is only able to match known data within 2.5 feet for about 50% of the target wells. The images in Appendix C depict changes at 1 foot or less. This is an issue the Model Technical Committee should address at their November 2 meeting.	All comments related to the model have been forwarded to the NFSEG Technical Team for consideration. Meeting times, dates and agendas for the NFSEG Technical Team are posted at www.northfloridawater.com. We suggest you attend the next meeting in order to discuss your concerns.
7	Paul Still	10/24/16 via Email and 10/25/16 workshop	There are clerical errors in the draft that should be corrected. The last paragraph on page 43 is difficult to understand and may have an incorrect statute citation. There are other statute citations that do not seem to match the information presented in the text. Appendix C Figure 2C has an incorrect heading. *Similar comments made at workshop.*	Grammatical errors will be addressed in the final draft.
8	Paul Still	10/25/16 public workshop	Draft does not provide any data to show how model was used. I want results from the model runs to evaluate either the projects or the major users.	Results of modeling can be found in chapter 5 of the NFRWSP and associated appendices. Members of the public can request the model files to perform independent analysis if desired.
9	Paul Still	10/25/16 public workshop	Questions whether JEA's withdrawals are having an impact on MFLs.	The NFRWSP evaluates regional withdrawals on a regional scale. Impacts from individual user withdrawals are evaluated during processing of consumptive use permit applications.

10	Jim Tatum, representing self, land owner on the Santa Fe River	11/03/16 public workshop	Ideas are not feasible at this point, but I think in years to come they will be. Need to increase reclaimed water and increase conservation, the management techniques on pages 51 and 52 are good and should be implemented. The Water Protection and Sustainability program of 2005 should be re-implemented. Additional stronger management techniques are needed to achieve sustainable usage rates. Tiered billing for all water users, not just agricultural. Regional Initiative Valuing Environmental Resources gives free water and pays user to use less, same with farmers and increasing irrigation efficiency, free water to users and given money to use less. Dollar incentives are good and make sense but only if we have billing for water, charging for water will limit development and population growth. Do not agree with "Current permits and laws limit the scope of regulatory actions that can be taken to impose specific solutions on users" pg 61. Others laws exist that which allow curtailment of new and existing consumptive use permits. District and DEP should not be afraid to utilize legal council. Must acquire new mindset and laws in order to sustain groundwater withdrawals. Need fewer withdrawals and reduce nitrates specifically from agriculture. Not confident that 20-year plan will ensure adequate protection of rivers and springs.	The NFRWSP identifies 41 to 54 mgd of increased water conservation potential and the use of reclaimed water to offset future demands. Implementation of water conserving rate structures for public supply suppliers is evaluated via the Districts regulatory programs and implemented by water suppliers. Monetary charging for water is outside the authority of the Districts. The NFRWSP is one of many mechanisms utilized by the Districts to ensure protection of water resources. The Districts utilizes permitting as appropriate to manage water supplies. The Districts address water nitrate issues as appropriate via the regulatory programs and are managed through the FDEP Total Maximum Daily Load (TMDL) program and development Basin Management Action Plans (BMAPs).
11	Jim Gross, MS, PG, CPG	11/03/16 public workshop	Compliment and congratulate on identifying the entire planning region as a water resource caution area. Urge WMDs to take closer look at sustainable limits of groundwater withdrawals. Suggest progressively reducing groundwater withdrawals in the model from calibration year of 2009, and bring the withdrawals down percent wise until you see what meets the criteria, this would be a good indicator on what the sustainable limits are. Water Resource Development projects all good in concept, some useful in planning region and some not so useful in the west part of the planning region. ASR is not going to address problems we are having in planning region. Have anxiety about capturing surface water to recharge groundwater to augment surface water. Thank you for calling out direct potable reuse in the plan. Lower Floridan Aquifer is not an alternative source, it spreads withdrawals over a wider area than if we use the UFA, and its all part of the same system. Brackish groundwater is not going to solve fundamental problems of this plan like meeting flows springs. Pumping brackish groundwater is hydraulically the same aquifer system.	The Districts consider sustainable limits to the use of traditional groundwater resources to identify the quantity of additional water needed to meet future water demands. The Districts realize that no single water supply option will suffice to meet future water demands. Options, including ASR, brackish ground water, surface water and water from the Lower Floridan aquifer, can all be utilized where appropriate to help meet future water demands.
12	Dr. Patrick Welsh, Ph.D.	11/08/16 via nfrwsp comment form	Florida Statute requires at least a 20-year planning periods and further indicates a 30-year planning horizon; if adopted, the current draft will not cover 20-years.	Subsection 373.709(2), F.S., does not require the 20-year planning horizon to start from the date of plan approval. The NFRWSP has a base year of 2010 and projections were evaluated from 2015-2035. The projections made for the NFRWSP were developed using the best available information at the time developed. Planning projections are updated at least once every five years to take into account improved data and methodologies.
13	Dr. Patrick Welsh, Ph.D.	11/08/16 via nfrwsp comment form	Florida Statute identifies Flood Protection to be addressed in the WSP, an important item especially for Alachua, Bradford, Clay, Columbia and Suwannee counties as a minimum.	Chapter 373, F.S., does not require the state's water management district's *regional water supply plans* to address flood protection. Rule 62-40.520, F.A.C., requires the state's water management district *water management plans* to address flood protection and flood plain management.
14	Dr. Patrick Welsh, Ph.D.	11/08/16 via nfrwsp comment form	Cumulatively, the WSP does not identify sufficient projects (let alone funding) which when added to conservation and RECHARGE or demand management additions have sufficient capacity to exceed the demands for those needs identified in the WSP. Specifically, the existing MFLs and Prevention and Recovery status RECHARGE projects for the Keystone Heights area lakes in Prevention and Recovery, and the new Lower Santa Fe MFL at the Ft White gauge, which are driven by declining Upper Floridan Aquifer levels in their respective areas without adequate projects or other measures required by for F.A.C. Statute and Utility Permits for Mitigation. This would appear to be a singular fatal Statutory flaw.	Chapter 373, F.S., requires the water management districts in regional water supply plans to quantify sufficient projects to meet all existing and future reasonable beneficial uses in the planning horizon. The NFRWSP has identified between 203 and 216 mgd in projects to offset the projected increase in water demand of 117 mgd. Chapter 8 of the NFRWSP sets forth possible funding sources that can be utilized to fund the project options.
15	Dr. Patrick Welsh, Ph.D.	11/08/16 via nfrwsp comment form	Additionally, several germane items were never presented to the SAC or addressed in the WSP. Among these are: Water Reservations in addition to MFLs for the Prevention and Recovery Lakes in the Keystone Heights area; Water Resource Caution Areas for all or parts of Alachua, Bradford, Clay, Columbia, Duval, Putnam and Union Counties and the supporting data both pro and con; Modern Water Recharge and Water Purification Wetland Basins design and examples; and finally the lack of sufficient Model accuracy to predict decadal impact near MFLs impacted areas (i.e. tenths of a foot estimates of decadal change) and less than 1 foot potentiometric error over the domain. Appendix C is germane; and Appendix C fig 2C heading is mislabeled. More real data is required rather than correlated GIS approximations, which can substitute for periods of missing data, but not replace additional data required, both effectively and in accuracy.	Your comment has been noted and grammatical errors will be addressed in the final draft.
16	Dr. Patrick Welsh, Ph.D.	11/08/16 via nfrwsp comment form	The requirements of self-supplied users were not represented at the SAC or WSP, thus giving the impression of a utility-driven, utility-serving process and product.	Self-suppliers are considered as those entities that are not served by a public supply system. Domestic self-suppliers were represented by local government representatives on the SAC. Other self-suppliers include agriculture, commercial/power generation, environmental, and industrial/mining, all of which had two representatives on the SAC.

17	Dr. Patrick Welsh, Ph.D.	11/08/16 via nfrwsp comment form	Allocated groundwater use in North and Central Florida is nearly double current estimated uses (Knight and Clarke 2016). It is understood that Agriculture needs considerable flexibility for drought protection, but utilities need only a small margin. High groundwater pumping rates are nearly a third of average annual recharge, impacting springflow across the Region.	The NFRWSP utilized agriculture projections developed by FDACS via their FSAID model. The FSAID model estimates future water demand based upon historical water use. In issuing water use permits, the Districts use allocation methodologies set forth in the respective Basis of Review.
18	Dennis Price, SE Environmental Geology	11/16/16 via nfrwsp comment form	Construct drainage wells at the discharge points of most major wetland systems in the North Florida Flatwoods. These would be passive systems that recharge the aquifer during winter and early spring when flow from these wetland systems are at their highest. Recharge would also occur after major rainstorm events. Amendment 1 money should be used to purchase these wetland systems. The premise is that since the late 1800's to probably in the 1970's, most wetlands systems were ditched to some extent, and many drastically, for logging purposes and for the establishment of pine plantations. Natural recharge in these flatwood areas are minimal to begin with but with the drainage that occurred, we have even less recharge. The wetland systems proposed are located in Hamilton, Columbia, Baker, Union and Alachua counties. Costs associated with the construction of the 20 or so wells proposed would be millions less than the single proposal of pumping Suwannee River Water to Falling Creek. The location of these wells would also recharge the Floridan in a broad area where most needed to reverse the loss of water in this strategic region that supplies water to The aforementioned counties and the northern part of the SJRWMD. If you are interested in a map, please e-mail me and I will send it along.	The Districts will continue to explore water resource development options as we proceed with future planning efforts and implementation strategies. The specific project referenced in the comment lacks planning level costs and estimated project capacity. The project has been forwarded to the SRWMD Agriculture and Environmental Projects Division to coordinate development of those parameters.
19	Jim Gross, MS, PG, CPG, on behalf of Our Santa Fe River	11/18/2016 via nfrwsp comment form	From a big picture perspective, the key issue is how much groundwater we are pumping out of the Floridan aquifer system. The draft plan fails to fully characterize the magnitude, regional extent, and cumulative impact of this key issue.	The NFSEG regional groundwater flow model was specifically developed to provide a tool that would allow for evaluation of future cumulative withdrawals in the planning region. The model runs performed as a part of the planning effort provide the most comprehensive accounting of regional water use and cumulative impact to groundwater resources that is available for this region. Water use was modeled throughout the model domain (Figure 15 of the NFRWSP) so that the magnitude, regional extent, and cumulative impact of groundwater pumping could be fully characterized using the NFSEG model.
20	Jim Gross, MS, PG, CPG, on behalf of Our Santa Fe River	11/18/2016 via nfrwsp comment form	The draft plan indicates that as of 2010, water use had already exceeded the sustainable yield of the fresh groundwater system. However, the draft plan fails to determine to what extent existing sources of water are adequate to supply water for all existing and future reasonable-beneficial sources of water and also sustain the water resources and related natural systems for the planning period. The magnitude of the problem has not been adequately assessed. If the magnitude of the problem is not known, the magnitude of the solution is not known. The districts should revisit the groundwater modeling analysis for the draft plan and incrementally reduce groundwater withdrawals until they demonstrate that all established and proposed minimum flows and levels can be achieved.	The Lower Santa Fe River Basin (LSFRB) Recovery Strategy is the tool that is used to address the 2010 water deficit for these systems. The Minimum Flows and Minimum Levels on priority water bodies is how the Districts determine to what extent existing sources of water are adequate to supply water. As described in Chapter 6 of the NFRWSP, the sufficiency analysis used to determine the amount of alternative water supply projects needed in the future took into account the flows of the Lower Santa Fe River. The NFRWSP identifies 41 to 54 mgd of water conservation potential, as described in Chapter 3, and water supply development projects to meet future water demands as well as water resource development projects to increase recharge and augment flows in surface water systems.
21	Jim Gross, MS, PG, CPG, on behalf of Our Santa Fe River	11/18/2016 via nfrwsp comment form	The draft plan takes a big detour around some key water supply constraints that were already identified in earlier planning efforts by St. Johns River Water Management District (SJRWMD) in its draft 2010 and draft 2013 regional water supply plans. Minimum flows and levels (MFLs) for Lake Brooklyn and Lake Geneva near Keystone Heights were key constraints in those two planning efforts. SJRWMD began to develop recovery strategies for those lakes as early as 2011. These MFLs need to be included in assessing the sustainable limit of groundwater withdrawals for the draft plan. Including them in the analysis could well demonstrate that the sustainable yield is even lower than excluding them.	MFLs for Lake Brooklyn and Lake Geneva are under re-evaluation to reflect current methodologies and are scheduled for completion in 2017. If, during this process, these systems are determined to not be meeting or are projected to not meet the proposed MFLs, a prevention or recovery strategy will be developed.
22	Jim Gross, MS, PG, CPG, on behalf of Our Santa Fe River	11/18/2016 via nfrwsp comment form	Some of the water resource development projects included in the draft plan are little better than smoke and mirrors and have little or no potential to alleviate water resource problems. For example: a. Diverting surface water to recharge groundwater so it can then discharge back to surface water. This is nothing more than a card trick. It does nothing to make more water available. b. Aquifer storage and recovery (or ASR) has little if any potential to address the key water supply constraint, cumulative withdrawals from the Floridan aquifer system. ASR is merely a management technique. It is typically used to store fresh surface water underground in an aquifer that does not contain fresh groundwater. Fresh surface water is stored underground when the supply is greater than the demand, and then recovered when the demand is greater than the supply. ASR is essentially a meaningless option over the western portions of the planning region.	Options such as surface water recharge and ASR provide water resource development benefits in specific cases and allow for the development of additional water supplies. It is appropriate, therefore, for them to be included as an option in the NFRWSP.
23	Jim Gross, MS, PG, CPG, on behalf of Our Santa Fe River	11/18/2016 via nfrwsp comment form	The Lower Floridan aquifer is identified as an alternative source of water supply. This is hooey and hydrologists know it. The Lower Floridan aquifer is simply part of the Floridan aquifer system as is the Upper Floridan aquifer. The two aquifers act as a single water-yielding unit. There is a very limited potential to strategically utilize the Lower Floridan aquifer to mitigate existing water resource problems, but that potential comes with a risk of creating new water resource problems.	While the Lower Floridan aquifer is part of the overall Floridan Aquifer System, it can be utilized as a source of water due to it's unique hydrogeology and because it is confined to varying extents from the Upper Floridan aquifer.

24	Jim Gross, MS, PG, CPG, on behalf of Our Santa Fe River	11/18/2016 via nfrwsp comment form	Brackish groundwater is identified in the draft plan as a water resource development option. However, it is more appropriately designated as an alternative water supply option. Regardless of how it is classified, the salinity of groundwater has little bearing upon the key constraint for this draft plan. If we are already pumping too much groundwater from the Floridan aquifer system, it really doesn't matter whether it's fresh or brackish.	Since brackish groundwater is not a traditional water resource, it is considered as either a water resource development option or a water supply development option for the purpose of the NFRWSP. Depending on its location, brackish groundwater resources may be developed without contributing to impacts in the planning region. Options such as the use of brackish groundwater provide sustainable water resource development benefits in specific cases and allow for the development of additional water supplies. It is appropriate, therefore, for them to be included as an option in the NFRWSP.
25	Jim Gross, MS, PG, CPG, on behalf of Our Santa Fe River	11/18/2016 via nfrwsp comment form	The draft plan identifies optimizing groundwater withdrawals as a potential option. SJRWMD looked extensively at optimizing groundwater withdrawals in previous planning efforts using optimization algorithms in conjunction with groundwater flow modeling. The results of the optimization analyses were informative and clear: a) optimization can only marginally increase sustainable yields, and b) the infrastructure and unit production costs for most of the optimization scenarios exceeded the costs for other alternatives.	While not implementable in all cases, optimization may provide water resource development benefits in specific cases and therefore should be considered as an option in the NFRWSP.
26	Jim Gross, MS, PG, CPG, on behalf of Our Santa Fe River	11/18/2016 via nfrwsp comment form	The draft plan states that the groundwater model is good enough for planning but not good enough for regulatory evaluations. That's a somewhat obtuse conclusion, but possibly irrelevant. The draft plan concludes that withdrawals already exceed sustainable limits. It's all one aquifer system. What further modeling is really needed for regulatory evaluations and decisions?	The NFSEG version 1.0, which was not peer reviewed, was used to evaluate regional impacts. It is anticipated that future peer reviewed NFSEG model versions will be used in processing water use permits.
27	Jim Gross, MS, PG, CPG, on behalf of Our Santa Fe River	11/18/2016 via nfrwsp comment form	The section on climate change discusses uncertainties but ignores significant work looking at likely outcomes of climate change with respect to water supply sustainability. A report by Tetra Tech concluded that large portions of Florida are at high or extreme risk of exceeding sustainable supplies even without climate change. With climate change, most of Florida was identified to be at high or extreme risk of exceeding sustainable water supplies.	As noted in the NFRWSP, many of the same practices that are implemented to address water resource constraints will also mitigate the impacts of climate change. Continued collaboration into the future will be necessary.
28	Jim Gross, MS, PG, CPG, on behalf of Our Santa Fe River	11/18/2016 via nfrwsp comment form	The Sufficiency Analysis in Chapter 6 of the draft plan is predicated only on the MFLs for the Lower Santa Fe and Ichetucknee rivers. As noted above, key constraints in the St. Johns River Water Management that have been ignored in this draft plan also need to be considered.	The sufficiency analysis for the Lower Santa Fe and Ichetucknee Rivers and associated priority springs was just one assessment of potential constraints. Chapter 5 contains analyses done concerning water quality, wetlands, MFLs, and priority water bodies.
29	Jim Gross, MS, PG, CPG, on behalf of Our Santa Fe River	11/18/2016 via nfrwsp comment form	The draft plan fails to consider other potential strategies to decrease groundwater withdrawals. For example, there does not appear to be any discussion of seeking legislative authorization to levy fees for the withdrawal of water. Such fees could: a) serve as an economic incentive for further water conservation, b) help maximize reasonable-beneficial use, and c) provide an equitable revenue stream for funding alternative water supply development projects and water resource development projects.	The NFRWSP did not include options related to monetary charges for water, since levying fees is outside the scope of authority provided to the Districts in Chapter 373, F.S., maximizing reasonable-beneficial uses of water is primarily dealt with in the Districts water use regulatory programs, but is also addressed in the NFRWSP by the estimation of 41 to 54 mgd of water conservation potential and the inclusion of water conservation project options.
30	Jim Gross, MS, PG, CPG, on behalf of Our Santa Fe River	11/18/2016 via nfrwsp comment form	There appears to be no consideration of coherent and credible regulatory strategies to balance reasonable-beneficial uses while sustaining water resources and related natural systems. In all cases, credible strategies must cap withdrawals at some defined level. Previous examples in Florida include: a) the water use caution areas in SWFWMD, b) the Central Florida Coordination Area rule that capped groundwater withdrawals at a defined withdrawal horizon, and c) the cap on withdrawals from the Biscayne aquifer in southeast Florida. While a regional water plan cannot implement such strategies, there should be some reasoned discussion of approaches that can be taken both on an interim and long-term basis.	The NFRWSP does not contain regulatory strategies. Such strategies are addressed by the Districts in their respective water use regulatory programs.
31	Jim Gross, MS, PG, CPG, on behalf of Our Santa Fe River	11/18/2016 via nfrwsp comment form	Language in Appendix G, the Recovery Strategy for the Lower Santa Fe River Basin, provides an example of a strategy element that is not credible: "Applications that do not demonstrate a potential impact to the MFL water bodies shall be issued provided the applicant meets the conditions for issuance." This language seems to indicate that it is incumbent upon the applicant to demonstrate an impact, and that in the absence of such demonstration it is presumed that there is no impact. A demonstration of impact is clearly not in the interest of the applicant. Rather, it should be incumbent upon the applicant to demonstrate that the proposed withdrawal of water will not cause a potential impact	The districts conduct detailed review of all applications for water use permits and conduct an independent analysis of whether the applications meets rule criteria for issuance.
32	Jim Gross, MS, PG, CPG, on behalf of Our Santa Fe River	11/18/2016 via nfrwsp comment form	The draft plan does not contain sufficient information, analyses, and recommendations to provide assurance to OSFR that the aquifer, springs, and rivers within the watershed of the Santa Fe River will be protected.	Please refer to Appendix G of the NFRWSP for the Recovery Strategy. In addition, Appendices J through M provide additional options to offset future water demands.

33	Douglas Adkins, Dayspring Village	11/29/2016 via nfrwsp comment form	The proposed local bill that will create the East Nassau Stewardship District in Nassau County includes special powers to create water control, wetland creation areas, mitigation powers and will provide power to issue about $100 million in bonds for a rapid build out of the infrastructure needed to build homes in a 24,000 sq mile area. It is expected this new government will serve 47,000 people. We are concerned with how this rapid build out will impact the water table in Nassau County and the availability of fresh drinking water considering how rapid the build out may be. We are unsure if there has been any studies of the hydrology or how the water table would be affected with the addition of this many new people. Further it is not know where the water withdrawals will come from, whether these are from a river, the acquifer or some other water source. Considering the proposal to designate all of Nassau County as a water resource caution area, we would like for you to include in your estimates or in your plan how you feel the proposed Stewardship district will impact the water supply and specifically the water table in Nassau County. I would also imagine that the number of acres of wetlands changed by 2035 would be substantially greater than the 389 acres now forecast. Finally, if the legislature approves this proposed local bill in Nassau County which would allow for a massive Stewardship district that is three times the size of Nocatee, what happens if the same land holder decides they want to use the same approach to convert timberlands into planned communities elsewhere in North Florida? How many Stewardship districts of this size could the water supply support before water quality and water supply is affected. There is a BOCC meeting tonight Nov 28th at 6pm and the legislative delegation will vote on Dec 1st. Thank you for considering my comments.	The NFRWSP evaluates regional groundwater withdrawals as projected through 2035 using BEBR medium projected growth rates. Evaluation of impacts associated with specific water withdrawals is performed during regulatory review of applications for water use. Once approved, future growth and potential water demand related to sector plans or stewardship districts will be evaluated as part of the water supply planning process to determine if additional alternative water supply project options are needed. Planning projections are updated at least once every five years to take into account improved data and methodologies.
34	Carlos Slay, Public Advocate	11/29/2016 via nfrwsp comment form	In reviewing your proposed plan I see that it does not include the impact of the East Nassau Stewardship District that has been proposed for a 24,000 acres or 1/3 of the total land mass in Nassau County. The proposed legislation will be taken up by the delegation on December 1st and will grant this new government special powers over water control, mitigation, wetland creation, drainage, etc. The impact on the wetlands will be substantial and I would expect that the impact on the water supply would also be equally significant as this new governmental entity will seek to provide water to 47,000 people in a short period of time. I would like to see you update your water supply plan to include estimates on how this Stewardship district will impact Nassau County water supply and the wetlands in the area. I also would like to know how many similar sized stewardship districts could the area sustain because once this one is approved it is likely the land holders will seek to duplicate the success and will want to create others in the area. It would be helpful to know whether the powers that the bill proposes to grant to the land holder encroach upon the jurisdictional powers of the St Johns River Water Management District or impact the district's work and if so how that work would be affected. The biggest concern for many people in Nassau County is how the water table will be affected and how that water quality will be impacted by the district.	The NFRWSP evaluates regional groundwater withdrawals as projected through 2035 using BEBR medium projected growth rates. Evaluation of impacts associated with specific water withdrawals is performed during regulatory review of applications for water use. Once approved, future growth and potential water demand related to sector plans or stewardship districts will be evaluated as part of the water supply planning process to determine if additional alternative water supply project options are needed. Planning projections are updated at least once every five years to take into account improved data and methodologies.
35	Mark Lyons	11/29/2016 via nfrwsp comment form	Things like this make my blood boil! I call BULLSHIT! BULLSHIT! BULLSHIT!!!! This plan is nothing but public relations feel good crap!! Really!!! You want to start conserving and protecting our water??? Well I can help you out with that in a tremendous way that will actually conserve & protect our water!! Shut Mosaic down, shut Dupont Chemours down, shut PCS in Hamilton County down! Shut all these noxious, water sucking industries down and then and only then can you tell me when I as an American citizen can water my grass, wash my car or flush my toilet!! If you are serious why was Sabal Trail Pipeline approved??? Sabal Trail has stripped thousands of acres of our land of trees and underbrush so it can dry out to a parchment and not to mention the surficial groundwater flows they are disrupting and the recharge areas & wetlands they are destroying..... Ummmmm hmmmmmm, just what I thought, you have plans to combat water crisis?? Yeah right! We're in this mess now because of the water districts and their mismanagement and destruction of our waters through their rubber stamping permits for noxious industries which have sucked us dry and left pollution & contamination in their wake!! You agencies better WAKE UP because the citizens are starting to and we have had enough of the mismanagement and destruction of our lands & waters!! And don't bother responding to me with one of your bullshit form letters, you want to respond do so by denying an upcoming CUP permit for the HPS Phosphate Mine proposed for Bradford & Union Counties, 20 million gallons a day! Now there's a good place for you to implement your little facade of a conservation, protection plan!!	Your comment has been noted.
36	Tim Peak	11/30/2016 via nfrwsp comment form	In Nassau County, Florida, what impact would there be in our water quality, water table, and general health of our water supply if a "Special District", commercial, industrial, residential development in an area of 24,000 acres were to be approved? Should the residents surrounding the District expect a negative impact on our current water supply with the potential of 47,000 additional residential interests being added to our aquifer? Thank You	The NFRWSP evaluates regional groundwater withdrawals as projected through 2035 using BEBR medium projected growth rates. Evaluation of impacts associated with specific water withdrawals is performed during regulatory review of applications for water use. Once approved, future growth and potential water demand related to sector plans or stewardship districts will be evaluated as part of the water supply planning process to determine if additional alternative water supply project options are needed.

37	Cynthia Noel	12/01/2016 via nfrwsp comment form	I do not feel this plan really addresses the serious deficit the river is in currently. Just saying MFL's are established doesn't show management or correction of the problems we face. We must have serious restrictions on commercial drawdowns, currently concerning me is the Sabal Trail Pipeline being allowed to take all they want, while we residents are told to cut back. Agricultural restrictions need to be in place also. Restrictions AND enforcement of these restrictions must be taken seriously is the word management is to be used in the description of this agency.	MFLs Prevention and Recovery strategies provide the in-depth evaluation and specific projects that are used to address MFLs that are in prevention or recovery. A water supply plan assesses what could happen in the future should current groundwater pumping occur at increased rates to meet future demands for the region. A water supply plan is a higher-level assessment of regional withdrawals not individual ones. Evaluation of impacts associated with specific water withdrawals is performed during regulatory review of applications for water use.
38	Dennis Price, SE Environmental Geology	12/02/2016 via nfrwsp comment form	Regarding the potential recharge well for Lake Harris in Columbia County. Two wells have been installed since the hurricanes in 2005. They have permanently reduced the hydroperiod of the surrounding, mature, mixed hardwood wetlands surrounding the lake to the east.	This project has been completed. Your comment has been forwarded to the SRWMD Agriculture and Environmental Projects Division for consideration.
39	Dennis Price, SE Environmental Geology	12/02/2016 via nfrwsp comment form	The Falling Creek recharge proposal of pumping water from the Suwannee River is complete Buffoonery, and I cannot think of a more professional way of saying it. Much of the year it would not be able to pump water from the river due to low river levels. At its peak it would have to pump massive amounts of water to reach the average MGD proposed. The whole construction and maintenance scenario is a nightmare. Its benefits would be to the Ichetucknee basin alone. Compare stage discharge measurements of Falling Creek and the Suwannee at White Springs or State road 6 and you would get a good idea of how often it would flow.	Options such as surface water recharge provide water resource development benefits in specific cases and allow for the development of additional water supplies. It is appropriate, therefore, for them to be included as an option in the NFRWSP.
40	Robert Knight, Ph. D., Executive Director, Howard T. Odum Florida Springs Institute	12/02/2016 via nfrwsp comment form	The fundamental responsibility of the WMDs proposing this plan is to effectively manage water resources in such a way that provides beneficial human uses within the allowable constraints of natural aquatic systems. Water resource management is based on understanding and quantifying the resource. This proposed WSP does not fully characterize or quantify the potential water sources subject to human extraction and management. Specifically, we request that you provide best available data/estimates for the following components of the water balance for the WSP planning area (14 counties and roughly 8,000 mi2 in the Suwannee and St. Johns River WMDs) with, at a minimum, annual means and extremes and 20-year probability distributions for each:(1) Precipitation (2) Evapotranspiration (3) Recharge to the Surficial Aquifer System (SAS) and to the Floridan Aquifer System (FAS) (4) Surface water levels, including lakes, wetlands, streams, rivers, and springs (5) Groundwater levels in both the SAS and the FAS (6) Surface water flows for streams, rivers, and springs (7) Surface and groundwater withdrawals and return flows	The purpose of regional water supply planning is to evaluate and identify water supply sources for all existing and future reasonable-beneficial uses and to sustain the water resources and related natural systems for the planning period. In order to make this evaluation the Districts developed a comprehensive groundwater flow model (the NFSEG model) for the region to evaluate the impact of groundwater withdrawals on the natural resources. The data you request are integral components to the development of the NFSEG model and supporting HSPF model. For example, a set of surface-water models simulating conditions during the period from 1992 and 2015 were developed to provide recharge and saturated evapotranspiration estimates for the NFSEG groundwater flow model used in the NFRWSP. This 24-year period included hydrologic conditions that ranged from extremely wet periods in years with multiple hurricanes and El Niño conditions, to periods with multi-year drought and La Niña conditions. These surface-water models ran at an hourly time step and were driven by historic precipitation and evapotranspiration data, and calibrated to historic streamflow data in a manner designed to capture features from the entire range of the historic streamflow hydrographs (from peak to low flows) at each calibration location. The groundwater flow model was calibrated to both drier than normal and approximately normal conditions. Surface-water levels from lakes, wetlands, streams, rivers, and springs were used to represent interactions between these surface features and the contiguous groundwater flow system simulated by the model. The groundwater flow model was calibrated to historic stream and spring flow data. An extensive effort was undertaken to compile and estimate withdrawal and return flow data that were also used as inputs to the surface and groundwater flow models. The historic data used to develop the surface and groundwater models were obtained from the best available sources, including NASA, the National Oceanographic and Atmospheric Administration, the U.S. Geological Survey, the Florida Department of Environmental Protection, the Florida Department of Agriculture and Consumer Services, and Florida Water Management Districts. These data and their incorporation into model development are documented in draft reports that have been reviewed by members of the NFSEG Stakeholder Technical Review Team and have been released to the public, along with the models themselves. The model runs performed as a part of the planning effort provide the most comprehensive accounting of regional water use and cumulative impacts to groundwater resources that is available for this region. The requested data sets can also be obtained by contacting the Bureau of Resource Evaluation and Modeling at the St. Johns River Water Management District. Many of the datasets can also be obtained and queried from databases and models that have been provided to the Technical Review Team for their review. This will enable you to conduct specific analyses as needed.
41	Robert Knight, Ph. D., Executive Director, Howard T. Odum Florida Springs Institute	12/02/2016 via nfrwsp comment form	Based on the above water resource data, it is critical that the WSP provide the most accurate estimate of the maximum mean and extreme human water withdrawals that will fully protect all natural systems from significant harm; both systems like lakes, springs, and rivers that have existing MFLs, and other aquatic systems such as regional wetlands that are not currently and won't soon be protected by site-specific MFLs. This assessment of water availability represents the actual sustainable yield for the planning area, and is the essential foundation for developing an effective and protective WSP.	The NFRWSP has assessed regional groundwater withdrawals as projected through 2035 using BEBR medium projected growth rates for all water use categories, except for agriculture which uses FDACS FSAID, in both the SJRWMD and SRWMD for both average year and drought year conditions, where applicable. The projections made for the RWSP were developed using the best available information at the time developed. Wetlands, and both MFL and non MFL waterbodies are protected through the Districts respective regulatory programs.

42	Robert Knight, Ph. D., Executive Director, Howard T. Odum Florida Springs Institute	12/02/2016 via nfrwsp comment form	Future water uses must be constrained within this quantifiable sustainable yield. Since FAS groundwater is the principal traditional water source in the planning area and since existing uses are already resulting in unacceptable degradation of natural systems and the resource itself, it is necessary that this plan show a corresponding reduction in groundwater pumping from the SAS and the FAS	The NFRWSP is structured to identify sources of water to meet all reasonable-beneficial water supply demands while protecting natural systems. The NFRWSP identifies over 200 mgd of projects to meet the 2035 increased demand of 117 mgd. Reductions in groundwater withdrawals are addressed in MFL recovery and prevention strategies and the Districts regulatory programs.
43	Robert Knight, Ph. D., Executive Director, Howard T. Odum Florida Springs Institute	12/02/2016 via nfrwsp comment form	The most direct and cost effective approach to reducing groundwater pumping while meeting reasonable beneficial future needs is cutting back on existing permitted uses. The WMD governing boards have full authority to reduce permitted pumping allocations when a water resource shortage order is declared. A reasonable approach to phase such a reduction into place is to establish water use metering on all uses, with tiered fees based on amount used. Neither of these practical options for meeting water supply needs while maintaining a sustainable water supply for future generations has any associated costs that cannot be paid by the users themselves.	Reductions in groundwater withdrawals are addressed in MFL recovery and prevention strategies and the Districts regulatory programs. Monetary charging for water is outside the authority of the Districts. Implementation of water conserving rate structures for public water suppliers is evaluated via the Districts regulatory programs and implemented by water suppliers. District rules mandate monitoring of most water use. Only very small and exempt uses are not required to monitor water use.
44	Robert Knight, Ph. D., Executive Director, Howard T. Odum Florida Springs Institute	12/02/2016 via nfrwsp comment form	The FSI has previously provided technical review comments on the Santa Fe and Ichetucknee River MFLs that documented the fact that the WMDs and the Florida Department of Environmental Protection (DEP) underestimated historic baseline flows, resulting in MFLs and a recovery plan that are not sufficient to protect those Outstanding Florida Waters and their ecological health from significant harm. With these comments, we request that when those MFLs are re-evaluated that your staff be directed to assess harm based on stream flows recorded before the 1950s when groundwater extractions were much less than current levels.	The Districts suggest that this comment be submitted during the appropriate public comment period during the upcoming re-evaluation of the Lower Santa Fe and Ichetucknee Rivers and Associated Priority Springs (LSFI) MFLs.
45	Robert Knight, Ph. D., Executive Director, Howard T. Odum Florida Springs Institute	12/02/2016 via nfrwsp comment form	Finally, FSI was repeatedly denied the requested opportunity to present relevant FAS and spring water balance data to the North Florida Regional Stakeholder Advisory Committee (SAC). Attendance at SAC meetings with a few minutes for providing oral comments was not sufficient for FSI scientists and other stakeholders to present and discuss issues of critical importance to the SAC. For these reasons the FSI respectfully requests that the WMDs and FDEP convene one or more opportunities for unlimited public comment and question/answers with agency staff concerning the defects of the proposed WSP before it is finalized	When this request was brought to the Stakeholder Advisory Committee, the requestor was advised that this information was best suited for the NFSEG Technical Team tasked with developing the regional-scale groundwater flow model for North Florida. The NFSEG Technical Team was responsible for ensuring that the most appropriate science was applied to the modeling and data analysis to support decision-making, and that the work completed was defensible. As a member of the NFSEG Technical Team the Howard T. Odum Florida Springs Institute had access to the Technical Team to present this data, but a presentation was not made to the NFSEG Technical Team.
46	Dan Hilliard, Florida Springs Council	12/02/2016 via nfrwsp comment form	The Plan is a regional water supply plan that must comply with Section 373.709(2), Florida Statutes. The Plan also will adopt the second phase of the recovery strategy for the Lower Santa Fe and Ichetucknee Rivers and Priority Springs (LSFI) MFLs and must therefore comply with Section 373.0421(2), Florida Statutes. Several of the priority springs protected by the LSFI MFLs are first magnitude springs (e.g., Santa Fe Rise, Treehouse Spring, Columbia Spring, Devil's Ear Spring, July Spring, Ichetucknee Head Spring, and Blue Hole). Therefore, the Plan and Recovery Strategy must meet the requirements of Section 373.805(4), Florida Statutes as well.	The NFRWSP does not adopt the second phase of the Lower Santa Fe River Basin (LSFRB) Recovery Strategy. The implementation of the recommendations of the NFRWSP is one part of the second phase of the LSFRB Recovery Strategy. The other portions of the second phase will be addressed independent of the NFRWSP. The NFRWSP does not replace the existing recovery strategy for the LSFI MFLs, it incorporates the strategies identified in the LSFRB Recovery Strategy into the NFRWSP. Regarding section 373.805(4), F.S., as recovery or prevention strategies are developed or modified for Outstanding Florida Springs, they will include the requirements in this section and those prevention and recovery strategies will be included in the water supply planning process.
47	Dan Hilliard, Florida Springs Council	12/02/2016 via nfrwsp comment form	The Plan and Recovery Strategy fail to meet the requirements of Sections 373.709(2) and 373.0421(2) because the Plan fails to provide reasonable assurances that sufficient projects will be implemented to meet projected demand while providing the needed recovery of the LSFI MFLs. The Plan also fails to include important information Section 373.805(4) requires regarding priorities and funding for the recovery projects. The Plan and Recovery Strategy do not provide reasonable assurances that the LSFI MFLs will be recovered as required.	The Lower Santa Fe River Basin (LSFRB) Recovery Strategy identified that 92.3 mgd of projects would achieve the LSFI MFLs for a 2030 water demand. In comparison, the NFRWSP identified nearly 216 mgd of projects to meet an estimated 2035 demand of 667.5 mgd, which less demand than what was identified in the LSFRB Recovery Strategy. In addition, the NFRWSP has identified 124.1 mgd more projects than the LSFRB Recovery Strategy required. Regarding section 373.805(4), F.S., as recovery or prevention strategies are developed or modified for Outstanding Florida Springs, they will include the requirements in this section and those prevention and recovery strategies will be included in the water supply planning process.
48	Dan Hilliard, Florida Springs Council	12/02/2016 via nfrwsp comment form	The Plan provides insufficient motivations and incentives for conservation. This Plan was to include long-term regulatory strategies, but only proposes designation as a Water Resource Caution Area. This designation requires reuse of domestic wastewater in certain circumstances when it is determined to be feasible, but does not fund or require reuse of domestic effluent. The designation does not address recovery strategies other than reuse of domestic wastewater. At a minimum, FSC urges Florida's legislature and water management agencies to implement universal water fees as a strong inducement to conserve water.	Water conservation is considered an important part of the NFRWSP and is incorporated in assessing demands and as project options, as identified in Chapter 3 with a potential conservation range of 41 to 54 mgd. Implementation of water conserving rate structures for public water suppliers is evaluated via the Districts regulatory programs and implemented by water suppliers. The NFRWSP does not contain regulatory strategies. Regulatory strategies are set forth in District water use regulatory rules. The long-term regulatory strategy you are referring to is separate from the NFRWSP. It will be implemented as part of the second phase of the Lower Santa Fe River Basin Recovery Strategy of which the NFRWSP implementation is one part. The matter of monetary charging for water is outside the authority of the Districts.
49	Dan Hilliard, Florida Springs Council	12/02/2016 via nfrwsp comment form	The pumping of brackish water is unsustainable and self-destructive. It should be avoided. Rather, FSC advises that new demands be met through aquifer recharge using treated wastewater that has been cleansed by recycling through constructed wetlands.	Options such as the use of brackish groundwater provide sustainable water resource development benefits in specific cases and allow for the development of additional water supplies. It is appropriate, therefore, for them to be included as an option in the NFRWSP.

50	Dan Hilliard, Florida Springs Council	12/02/2016 via nfrwsp comment form	The Plan assumes each 4.48 mgd of implemented water resource development projects (WRDPs) and water supply development projects (WSDPs) will result in 1 cfs recovery for the LSFI MFLs. (p. 40) This assumption is used to convert listed WRDP and WSDP options (with impacts measured in million gallons per day) to projected LSFI MFL flow recovery (in cfs). Thus, this conversion factor is critical to an understanding of whether the Plan includes adequate project options to meet projected 2035 demand for water and to bring about recovery of the LSFI MFLs.	The NFRWSP was updated to clarify its role in the Lower Santa Fe River Basin (LSFRB) Recovery Strategy. The NFRWSP does not supersede the existing recovery strategy for the LSFI MFLs, it incorporates the strategies identified in the LSFRB Recovery Strategy into the NFRWSP. The Lower Santa Fe River Basin (LSFRB) Recovery Strategy identified that 92.3 mgd of projects would achieve the LSFI MFLs for a 2030 water demand. In comparison, the NFRWSP identified nearly 216 mgd of projects to meet an estimated 2035 demand of 667.5 mgd, which is less demand than what was identified in the LSFRB Recovery Strategy. In addition, the NFRWSP has identified 124.1 mgd more projects than the LSFRB Recovery Strategy required.
51	Dan Hilliard, Florida Springs Council	12/02/2016 via nfrwsp comment form	The Plan provides no discussion, explanation or analysis of the selection of the one-size-fits-all 4.48 mgd assumption regarding WRDP and WSDP benefit to flows and recovery of the LSFI MFLs. The impact of WRDPs and WSDPs is largely a function of the net change in groundwater pumping at a particular location attributable to the project, and the distance between the location where the net change would occur and the location of the MFL point of compliance. In general, the beneficial impact is directly proportional to the reduction in pumping, and inversely proportional to the square of the distance from the pumping location to the MFL point of compliance. So, in general, the further the project is from the gages used to monitor the LSFI MFLs, the less impact will be measured at the gages. A generic one-size-fits-all proportionality for calculating recovery attributable to projects is unscientific and not appropriate, even for planning-level analysis.	The NFRWSP was updated to clarify its role in the Lower Santa Fe River Basin (LSFRB) Recovery Strategy. The NFRWSP does not supersede the existing recovery strategy for the LSFI MFLs, it incorporates the strategies identified in the LSFRB Recovery Strategy into the NFRWSP. The Lower Santa Fe River Basin (LSFRB) Recovery Strategy identified that 92.3 mgd of projects would achieve the LSFI MFLs for a 2030 water demand. In comparison, the NFRWSP identified nearly 216 mgd of projects to meet an estimated 2035 demand of 667.5 mgd, which is less demand than what was identified in the LSFRB Recovery Strategy. In addition, the NFRWSP has identified 124.1 mgd more projects than the LSFRB Recovery Strategy required.
52	Dan Hilliard, Florida Springs Council	12/02/2016 via nfrwsp comment form	Indeed, using the NFSEG Model, the text at p.41 explains that 60.19 mgd of projects provided only 8.4 cfs of recovery. This is 7.165 mgd per cfs of recovery. It is possible the reference to 60.19 mgd is a typographical error that should read 65.19 mgd, the amount of the WRDPs shown in Table 6, Chapter 7. (p. 49) If 65.19 mgd was modeled and resulted in 8.4 cfs of recovery, then the ratio is 7.76 mgd of projects to 1 cfs of recovery. Either modeled ratio is widely divergent from the 4.48 mgd assumption.	The 65.19 mgd represents the potential water resource development projects that were identified during the development of the NFRWSP. Of this amount, 55.7 mgd was modeled in the NFSEG. The plan has been updated to reflect this number and explain the difference.
53	Dan Hilliard, Florida Springs Council	12/02/2016 via nfrwsp comment form	The Plan provides no analysis relevant to the huge discrepancy between assumed and modeled flow recovery. Using the 4.48 mgd assumption, there could be about 11 mgd surplus in the Plan after covering the 2035 demand, after conservation, and after the LSFI MFL flow recovery. If 7.76 mgd or 7.165 mgd is used instead of 4.48 mgd as the conversion factor, the Plan does not meet the requirements of Sections 373.709(2) and 373.0421(2), Florida Statutes. The Plan is much less than clear on this issue and errors in the text of page 41 regarding quantities and the two project option tables defy clarity. This discrepancy and textual errors must be explained and the sufficiency analysis of project benefit to LSFI MFL flows must be addressed properly.	The NFRWSP was updated to clarify its role in the Lower Santa Fe River Basin (LSFRB) Recovery Strategy. The NFRWSP does not supersede the existing recovery strategy for the LSFI MFLs, it incorporates the strategies identified in the LSFRB Recovery Strategy into the NFRWSP. The Lower Santa Fe River Basin (LSFRB) Recovery Strategy identified that 92.3 mgd of projects would achieve the LSFI MFLs for a 2030 water demand. In comparison, the NFRWSP identified nearly 216 mgd of projects to meet an estimated 2035 demand of 667.5 mgd, which is less demand than what was identified in the LSFRB Recovery Strategy. In addition, the NFRWSP has identified 124.1 mgd more projects than the LSFRB Recovery Strategy required.
54	Dan Hilliard, Florida Springs Council	12/02/2016 via nfrwsp comment form	The Plan should analyze and report on NFSEG modeling scenarios in which the WRDP and WSDP options are evaluated for their effect on flows at the LSFI MFL gages. Ultimately all projects in the Plan should be modeled to determine whether the Plan, including all projects, meets the sufficiency requirements of Sections 373.709(2) and 373.0421(2), Florida Statutes. Without more than a naked and unexplained assumption of 4.48 mgd per 1 cfs recovery, the Plan does not provide reasonable assurances of meeting these requirements.	The NFRWSP was updated to clarify its role in the Lower Santa Fe River Basin (LSFRB) Recovery Strategy. The NFRWSP does not supersede the existing recovery strategy for the LSFI MFLs, it incorporates the strategies identified in the LSFRB Recovery Strategy into the NFRWSP. The Lower Santa Fe River Basin (LSFRB) Recovery Strategy identified that 92.3 mgd of projects would achieve the LSFI MFLs for a 2030 water demand. In comparison, the NFRWSP identified nearly 216 mgd of projects to meet an estimated 2035 demand of 667.5 mgd, which is less demand than what was identified in the LSFRB Recovery Strategy. In addition, the NFRWSP has identified 124.1 mgd more projects than the LSFRB Recovery Strategy required.
55	Dan Hilliard, Florida Springs Council	12/02/2016 via nfrwsp comment form	The projects necessary to recover groundwater flows, by law, should be included in the Water Resource Development Project list. §373.709(2), Fla. Stat. In this Plan, the WRDP list is not sufficient to recover even the 2010 deficit condition of 17 cfs below the LSFI MFLs. The Plan should explain why the Plan must also rely upon projects on the WSDP list to restore the recovery deficit.	The NFRWSP was updated to clarify its role in the Lower Santa Fe River Basin (LSFRB) Recovery Strategy. The NFRWSP does not supersede the existing recovery strategy for the LSFI MFLs, it incorporates the strategies identified in the LSFRB Recovery Strategy into the NFRWSP. Section 373.709(2), F.S. requires regional water supply plans to contain water resource development, water supply development and water conservation project options. The NFRWSP contains these options in Appendix J through M. The Lower Santa Fe River Basin (LSFRB) Recovery Strategy identified that 92.3 mgd of projects would achieve the LSFI MFLs for a 2030 water demand. In comparison, the NFRWSP identified nearly 216 mgd of projects to meet an estimated 2035 demand of 667.5 mgd, which is less demand than what was identified in the LSFRB Recovery Strategy. In addition, the NFRWSP has identified 124.1 mgd more projects than the LSFRB Recovery Strategy required.
56	Dan Hilliard, Florida Springs Council	12/02/2016 via nfrwsp comment form	The Plan lacks the priority listing of each WRDP and WSDP required by Section 373.805(4)(b), Florida Statutes. The Plan also lacks required information for each project regarding the estimated cost of and the estimated date of completion; and "the source and amount of financial assistance to be made available by the water management district for each listed project, which may not be less than 25 percent of the total project cost unless a specific funding source or sources are identified which will provide more than 75 percent of the total project cost." §373.805(4)(c) and (d), Fla. Stat.	Section 373.805(4), F.S., as recovery or prevention strategies are developed or modified for Outstanding Florida Springs, they will include the requirements in this section and those prevention and recovery strategies will be included in the water supply planning process.

57	Dan Hilliard, Florida Springs Council	12/02/2016 via nfrwsp comment form	Failure to Adopt Further Regulatory Recovery Strategies. The LSFI Recovery Strategy, Appendix G, at p.36 explains: Phase II Regulatory Strategies. The development of long-term strategies to address the impacts of regional groundwater trends and water use patterns is critical to achieving the recovery of minimum flows in the Lower Santa Fe Basin. As such, the Department, SRWMD, and SJRWMD, will develop long-term recovery measures concurrently with the development of the North Florida Regional Water Supply Plan. This will assist the Districts and the Department in refining the Recovery Strategies and future regulatory measures to address regional groundwater impacts to the Lower Santa Fe and Ichetucknee Rivers. The LSFI Recovery Strategy at Page 20 adds that this: Phase II of the Recovery Strategy will focus on the implementation of the recommendations in the North Florida Regional Water Supply Plan, the adoption of long-term regulatory measures, and the identification and execution of any necessary water resource development and alternative water supply projects. This Plan was to include long-term regulatory strategies, but only proposes designation of the Plan area as a Water Resource Caution Area. This designation requires reuse of domestic wastewater in certain circumstances when it is determined to be feasible, but does not fund or require reuse of domestic effluent. The designation does not address recovery strategies other than reuse of domestic wastewater. No other regulatory recovery strategies are included in the Plan. Without further regulatory changes, there are few real legal compunctions on the implementing parties to implement the projects, and the Districts have limited leverage to bring about conservation. The Plan should analyze and explain why the implementation of further regulatory recovery strategies has been abandoned. For the foregoing reasons, the Plan does not demonstrate or provide reasonable assurances that the Lower Santa Fe and Ichetucknee River MFLs will be met within the planning horizon, nor whether recovery pursuant to the Plan will be "as soon as practicable." §373.0421(2), Fla. Stat.	The NFRWSP does not adopt the second phase of the Lower Santa Fe River Basin (LSFRB) Recovery Strategy. The implementation of the recommendations of the NFRWSP is one part of the second phase of the LSFRB Recovery Strategy. The other portions of the second phase will be addressed independent of the NFRWSP. The NFRWSP does not replace the existing recovery strategy for the LSFI MFLs, it incorporates the strategies identified in the LSFRB Recovery Strategy into the NFRWSP. Section 373.805(4), F.S., as recovery or prevention strategies are developed or modified for Outstanding Florida Springs, they will include the requirements in this section and those prevention and recovery strategies will be included in the water supply planning process.
58	Dan Hilliard, Florida Springs Council	12/02/2016 via nfrwsp comment form	FSC would also note that the Plan fails to address the reality that the amount of water permitted in the planning area currently far exceeds the amount that is actually used. The difference between permit allocations and pumping cannot be accurately determined directly because metering of water use is spotty in the planning area. However, it has been reported that in the SRWMD, the amount of water permitted may exceed the amount pumped by as much as a factor of 2. This excess availability of permitted water is an enormously important factor in 20-year water planning, and the Districts are remiss in ignoring it. What would be the value of this planning exercise if permittees decided, over the next 20-years, to pump all of their permitted quantities, or even three-quarters of their allocation? The Districts should have an aggressive program in place to meter water use and to take back unused allocations over time. Otherwise, surprises in water usage could pop up, rendering this planning exercise useless.	The NFRWSP has assessed regional groundwater withdrawals as projected through 2035 using BEBR medium projected growth rates for all water use categories, except for agriculture which uses FDACS FSAID, in both the SJRWMD and SRWMD for both average year and drought year conditions, where applicable. MFLs Prevention and Recovery strategies provide the in-depth evaluation and specific projects that are used to address MFLs that are in prevention or recovery. A water supply plan assesses what regional groundwater availability based on estimated actual and projected future groundwater pumping to meet future demands for the region. A water supply plan is a higher-level assessment of regional withdrawals not individual ones, therefore the focus is on estimated actual withdrawals versus permitted quantities. Ongoing initiatives seek to improve the data available for estimated actual and projected groundwater use. The projections made for the NFRWSP were developed using the best available information at the time developed. Planning projections are updated at least once every five years to take into account improved data and methodologies.
59	Dan Hilliard, Florida Springs Council	12/02/2016 via nfrwsp comment form	On balance, the Plan is to be commended for acknowledging the potential benefit of conservation, which has always been the first priority of FSC. Beginning on page 51, the Plan outlines eight "Water Conservation Project Options", and the first option to be noted is the successful implementation of tiered billing rates by some regional utilities. Tiered rates are a proven incentive to conserve, in contrast to the failure of consumptive use permits (CUPs) to remedy excessive pumping. Implementing universal water use monitoring and fees deserves far more emphasis than that given to them in the Plan. Conservation, as it now stands is almost entirely voluntary. Even CUPs are de-facto voluntary, because so many permitted wells are unmetered. This is an area in which further regulatory strategies are needed and sorely lacking in this Plan.	Water conservation is considered an important part of the NFRWSP and is incorporated in assessing demands and as project options, as identified in Chapter 3 with a potential range of 41 to 54 mgd. Implementation of water conserving rate structures for public water suppliers is evaluated via the Districts regulatory programs and implemented by water suppliers. Monetary charging for water is outside the authority of the Districts. District rules mandate monitoring of most water use. The NFRWSP does not contain regulatory strategies. Regulatory strategies are set forth in Districts' respective water use regulatory rules, which require economic and efficient use of water.
60	Dan Hilliard, Florida Springs Council	12/02/2016 via nfrwsp comment form	Because tiered water fees have proven to elicit greater conservation in the North Florida region, FSC strongly urges that they be extended to all users – domestic self-supply, agriculture and commercial/industrial/mining, as well as urban users. Such expansion will, of course, require significant changes in infrastructure, administration and legal status. Setting an effective schedule of fees will require first that a cap be estimated and placed on total withdrawals in each District. Afterwards the infrastructure to monitor all users must be implemented. Significant advances in the technologies of flow measurement, data reporting and recording render this task less expensive than it would have been in the past. A preliminary schedule of fees (which could be distinct for each class of users) must be established that will progressively tax users according to increasing use. FSC would recommend that the impacts of tiered water pricing should be carefully studied before such pricing is established, so that unintended consequences for smaller users, including small agricultural operations, can be avoided. This rate structure can subsequently be amended to optimize the distribution of water among users while not exceeding the regional cap.	Water conservation is considered an important part of the NFRWSP and is incorporated in assessing demands and as project options, as described in Chapter 3, 41 to 54 mgd of water conservation potential is identified. Implementation of water conserving rate structures for public water suppliers is evaluated via the Districts regulatory programs and implemented by water suppliers. Monetary charging for water is outside the authority of the Districts. District rules mandate monitoring of water use. The NFRWSP does not contain regulatory strategies. Regulatory strategies are set forth in Districts' respective water use regulatory rules, which require economic and efficient use of water.

61	Dan Hilliard, Florida Springs Council	12/02/2016 via nfrwsp comment form	The Plan Should Discourage Pumping Brackish Water. FSC objects to the prominence the Plan gives to the desalination of brackish water. For example, this source is listed first among the suggested Water Resource Development Project Options (p. 47). Pumping and reverse osmosis treatment of brackish groundwater should be avoided at all possible costs, for at least two reasons. First, saline intrusion is irreversible over any practical time frame. Once a well goes saline, the slow diffusion time among the less channelized regions of the karst substrate insures that it will be decades, if not centuries, before a saline well runs fresh again. Secondly, pumping a brackish well accelerates the rate of saline intrusion. That is, the well becomes progressively more saline and the water costlier to treat.	Options such as the use of brackish groundwater provide sustainable water resource development benefits in specific cases and allow for the development of additional water supplies. It is appropriate, therefore, for them to be included as an option in the NFRWSP.
62	Dan Hilliard, Florida Springs Council	12/02/2016 via nfrwsp comment form	The Plan portrays saline intrusion as a problem confined to the coastal and riverine portions of the North Florida region. This perspective is short-sighted, because saltwater underlies the entire Floridan aquifer, and excessive pumping will cause salt everywhere to migrate to higher levels in the karst substrate. Furthermore, a given drop in the potentiometric surface of the aquifer has the effect of raising the underlying salt water interface by a factor as much as 40 times greater than that drop. In particular, withdrawals from the Lower Floridan Aquifer must be reduced, because pumping from that depth will cause a disproportionate vertical rise in the proximate saline interface. Regarding the rate of saline intrusion, FSC finds the analysis of this problem (beginning on page 27) to be overly optimistic. The Plan assumes that salt concentrations will rise in linear fashion, but vertical saline profiles are usually sigmoidal in nature. That is, increase is slow and almost linear, but a "log-phase" ascent soon ensues as the saline "front" approaches. Hence, a linear analysis will significantly overestimate the time required for saline intrusion. The arrival of the front can at times be episodic, as happened during the drought of 2012 with the sudden intrusion into the well supplying Cedar Key.	For the NFRWSP, the Districts focused the evaluation of saline water intrusion on the potential for upconing to occur in existing wells since water quality degradation of water supplies is the primary concern. Saline water upconing is primarily a localized event affected by many factors including hydrogeological setting, location to saline water, well depth and rate of withdrawal. The evaluation utilized analysis of existing observed data to identify significant water quality trends. While the entire planning area was considered, the primary conclusion of this analysis is that groundwater quality may constrain the availability of fresh groundwater in a relatively limited area within Duval, Flagler, Nassau and St. Johns counties. However, these concerns can be managed through appropriate well construction, wellfield management and/or development of AWS.
63	Dan Hilliard, Florida Springs Council	12/02/2016 via nfrwsp comment form	These reservations against pumping brackish water do not necessarily pertain to the desalination of seawater, so long as the concentrate from the process is returned to the sea. But this remedy is extremely costly, both energetically and financially -- treatment of brackish water is some 10-fold more expensive than extraction from the Upper Floridan Aquifer. Although desalination of seawater might provide a few localities with water for drinking and bathing, it is economically infeasible to sustain agriculture or industry. If the entire Floridan Aquifer System were to turn brackish, Florida could evolve toward a dry-island Caribbean economy.	Options such as the use of brackish groundwater provide sustainable water resource development benefits in specific cases and allow for the development of additional water supplies. It is appropriate, therefore, for them to be included as an option in the NFRWSP.
64	Dan Hilliard, Florida Springs Council	12/02/2016 via nfrwsp comment form	The Plan emphasizes reclaimed water as a primary AWS. While it does mention aquifer recharge, it fails to accord that option the priority it deserves and thereby overlooks a potentially significant and highly economical AWS. Figure 14 (p. 21), for example, shows approximately 108 mgd of treated wastewater in the region that is simply "disposed". Most of that water could be returned to the aquifer at low cost through treatment by constructed wetlands, as has been amply demonstrated at several sites in Florida (e.g., Sweetwater and Kanapaha in Gainesville and Green Cay in Boynton Beach). Treated wastewater is supplied at one end of an artificial wetland and allowed to percolate horizontally across the wetland. The water at the other end is low in nutrients and xenobiotics and can be re-injected into the aquifer. FSC has had discussions with JEA urging the utility to implement such treatment on the large amount of their treated wastewater that now flows into the ocean. Similar recharge is appropriate for other locations in the North Florida region and taken together could resupply a substantial fraction of the 117 mgd projected demand. FSC strongly recommends the adoption of this method of recharge throughout the North Florida region.	The NFRWSP considers the reuse of reclaimed water, aquifer recharge and all other AWS options equally as possible ways to meet future water demands. The best option for any given use will depend on a number of variables. While no one option will work in all cases, each option should be considered when evaluating how to meet future water demands.
65	Dan Hilliard, Florida Springs Council	12/02/2016 via nfrwsp comment form	The Plan fails to include critical information required for recovery strategies for Outstanding Florida Springs, including details regarding priorities and commitments regarding funding. Further, without any coercive and/or regulatory strategies, the Plan and particularly the funding plan do not meet statutory requirements.	Section 373.805(4), F.S., provides that as recovery or prevention strategies are developed or modified for Outstanding Florida Springs, they will include the requirements in this section. When approved, those prevention and recovery strategies will be include into the water supply planning process.
66	Dan Hilliard, Florida Springs Council	12/02/2016 via nfrwsp comment form	FSC does commend the NFRWSP for highlighting the severe problems facing water supply in the North Florida region and appreciates the re-focusing of attention away from increased pumping of the over-stressed Upper Floridan toward other alternative water supplies. This is an acknowledgement from the State that the Upper Floridan Aquifer is already over-pumped. In fact, we would like to see the NFRWSP go beyond its call to limit pumping to an active program to decrease current pumping rates.	Decisions regarding authorization of water withdrawals are addressed in the Districts' respective water use regulatory programs.
67	Jacqui Sulek, Chris Farrell, Audubon Florida	12/02/2016 via email	The large number of reclaimed water projects for future water supply is favorable compared to projects that further deplete aquifers or remove natural surface waters. However, water quality and storage concerns must be addressed to make these projects successful. Storage can reduce the "mandatory use" of reclaimed water at times when water use is not required, e.g., the imposed need to irrigate when rainfall is sufficient. Such water use reduces nutrient assimilation by the landscape and delivers high nutrient loads to stormwater and natural systems.	The Districts agree and support the increased use of reclaimed water in the NFRWSP. The plan does not rank project options since the best option for any given use will depend on a number of variables. As projects are implemented they will be individually evaluated against environmental constraints.

68	Jacqui Sulek, Chris Farrell, Audubon Florida	12/02/2016 via email	Water supply plans in general should do a more thorough job of describing water use to allow a wider audience to consider solutions, even if those solutions may not be part of the plan. For example, it would be helpful to the public and decision makers to understand the amount of current and future water demand that comes from outdoor irrigation. Public water supply represents 50% of the total increase in water demand by 2035 (p. 12), and using the estimate of 50% public water supply use for outdoor irrigation, this results in 25% of the predicted increase – or 29.25 mgd – being attributable to residential irrigation. When presented with this information, the public and regulators may be more willing to make changes to landscaping and irrigation practices rather than continue to fund expensive water development and supply projects.	District staff remain committed to working with local governments and other stakeholders to communicate the findings of the water supply plan, identify opportunities for conservation across all water types, and implement conservation projects. The Districts appreciate the efforts of stakeholders to promote conservation and will work to make information available to support conservation education. Chapter 7 describes the ongoing conservation efforts of the Districts. The Districts continue to promote water conservation and have identified 41 to 54 mgd of conservation potential in the NFRWSP.
69	Lucinda Merritt, Ichetucknee Alliance	12/03/2016 via nfrwsp comment form	The Plan is a regional water supply plan that must comply with Section 373.709(2), Florida Statutes. The Plan also will adopt the second phase of the recovery strategy for the Lower Santa Fe and Ichetucknee Rivers and Priority Springs (LSFI) MFLs and must therefore comply with Section 373.0421(2), Florida Statutes. Several of the priority springs protected by the LSFI MFLs are first magnitude springs (e.g., Santa Fe Rise, Treehouse Spring, Columbia Spring, Devil's Ear Spring, July Spring, Ichetucknee Head Spring, and Blue Hole). Therefore, the Plan and Recovery Strategy must meet the requirements of Section 373.805(4), Florida Statutes as well.	The NFRWSP does not adopt the second phase of the Lower Santa Fe River Basin (LSFRB) Recovery Strategy. The implementation of the recommendations of the NFRWSP is one part of the second phase of the LSFRB Recovery Strategy. The other portions of the second phase will be addressed independent of the NFRWSP. The NFRWSP does not replace the existing recovery strategy for the LSFI MFLs, it incorporates the strategies identified in the LSFRB Recovery Strategy into the NFRWSP. Section 373.805(4), F.S., as recovery or prevention strategies are developed or modified for Outstanding Florida Springs, they will include the requirements in this section and those prevention and recovery strategies will be included in the water supply planning process.
70	Lucinda Merritt, Ichetucknee Alliance	12/03/2016 via nfrwsp comment form	The Plan and Recovery Strategy fail to meet the requirements of Sections 373.709(2) and 373.0421(2) because the Plan fails to provide reasonable assurances that sufficient projects will be implemented to meet projected demand while providing the needed recovery of the LSFI MFLs. The Plan also fails to include important information Section 373.805(4) requires regarding priorities and funding for the recovery projects. The Plan and Recovery Strategy do not provide reasonable assurances that the LSFI MFLs will be recovered as required.	The NFRWSP does not supersede the existing recovery strategy for the LSFI MFLs, it incorporates the strategies identified in the LSFRB Recovery Strategy into the NFRWSP. Section 373.709(2), F.S. requires regional water supply plans to contain water resource development, water supply development and water conservation project options. The NFRWSP contains these options in Appendix J through M. The Lower Santa Fe River Basin (LSFRB) Recovery Strategy identified that 92.3 mgd of projects would achieve the LSFI MFLs for a 2030 water demand. In comparison, the NFRWSP identified nearly 216 mgd of projects to meet an estimated 2035 demand of 667.5 mgd, which is less demand than what was identified in the LSFRB Recovery Strategy. In addition, the NFRWSP has identified 124.1 mgd more projects than the LSFRB Recovery Strategy required.
71	Lucinda Merritt, Ichetucknee Alliance	12/03/2016 via nfrwsp comment form	This Plan was to include long-term regulatory strategies, but only proposes designation as a Water Resource Caution Area. This designation requires reuse of domestic wastewater in certain circumstances when it is determined to be feasible, but does not fund or require reuse of domestic effluent.	The NFRWSP does not contain regulatory strategies. Such strategies are addressed by the Districts in their respective water use regulatory programs.
72	Lucinda Merritt, Ichetucknee Alliance	12/03/2016 via nfrwsp comment form	At a minimum, IA urges Florida's legislature and water management agencies to implement universal water fees as a strong inducement to conserve water.	The NFRWSP identifies 41 to 54 mgd of increased effective water conservation measures as a means to reduce dependency on groundwater. Charging for water is outside the authority of the Districts. The water supply plan is one of many mechanisms utilized by the Districts to ensure protection of water resources. The Districts utilize water use permitting as appropriate to manage water supplies. Implementation of water conserving rate structures for public water suppliers is evaluated via the Districts regulatory programs and implemented by water suppliers.
73	Lucinda Merritt, Ichetucknee Alliance	12/03/2016 via nfrwsp comment form	The pumping of brackish water is unsustainable and self-destructive. It should be avoided. Rather, IA advises that new demands be met through aquifer recharge using treated wastewater that has been cleansed by recycling through constructed wetlands.	Options such as the use of brackish groundwater provide sustainable water resource development benefits in specific cases and allow for the development of additional water supplies. It is appropriate, therefore, for them to be included as an option in the NFRWSP.
74	Lucinda Merritt, Ichetucknee Alliance	12/03/2016 via nfrwsp comment form	The Plan's Critical Sufficiency Analysis Relies on a Non-Scientific Assumption and Suffers Fatal Textual Errors.The Plan includes a "Sufficiency Analysis" addressing whether the Plan and LSFI Recovery Strategy could meet the regional water supply planning requirements of Section 373.709(2), Florida Statutes by including sufficient water resource development projects (WRDPs) and water supply development projects (WSDPs) to meet projected demands without causing unacceptable water resource impacts. Plan pp. 40-41. In this case, such project options must, along with conservation, provide recovery of LSFI MFL flows as well. §373.0421(2), Fla. Stat. The Plan assumes each 4.48 mgd of implemented water resource development projects (WRDPs) and water supply development projects (WSDPs) will result in 1 cfs recovery for the LSFI MFLs. (p. 40) This assumption is used to convert listed WRDP and WSDP options (with impacts measured in million gallons per day) to projected LSFI MFL flow recovery (in cfs). Thus, this conversion factor is critical to an understanding of whether the Plan includes adequate project options to meet projected 2035 demand for water and to bring about recovery of the LSFI MFLs.	The NFRWSP was updated to clarify its role in the Lower Santa Fe River Basin (LSFRB) Recovery Strategy. The NFRWSP does not supersede the existing recovery strategy for the LSFI MFLs, it incorporates the strategies identified in the LSFRB Recovery Strategy into the NFRWSP. The Lower Santa Fe River Basin (LSFRB) Recovery Strategy identified that 92.3 mgd of projects would achieve the LSFI MFLs for a 2030 water demand. In comparison, the NFRWSP identified nearly 216 mgd of projects to meet an estimated 2035 demand of 667.5 mgd, which is less demand than what was identified in the LSFRB Recovery Strategy. In addition, the NFRWSP has identified 124.1 mgd more projects than the LSFRB Recovery Strategy required.

75	Lucinda Merritt, Ichetucknee Alliance	12/03/2016 via nfrwsp comment form	The Plan provides no discussion, explanation or analysis of the selection of the one-size-fits-all 4.48 mgd assumption regarding WRDP and WSDP benefit to flows and recovery of the LSFI MFLs. The impact of WRDPs and WSDPs is largely a function of the net change in groundwater pumping at a particular location attributable to the project, and the distance between the location where the net change would occur and the location of the MFL point of compliance. In general, the beneficial impact is directly proportional to the reduction in pumping, and inversely proportional to the square of the distance from the pumping location to the MFL point of compliance. So, in general, the further the project is from the gages used to monitor the LSFI MFLs, the less impact will be measured at the gages. A generic one-size-fits-all proportionality for calculating recovery attributable to projects is unscientific and not appropriate, even for planning-level analysis.	The NFRWSP was updated to clarify its role in the Lower Santa Fe River Basin (LSFRB) Recovery Strategy. The NFRWSP does not supersede the existing recovery strategy for the LSFI MFLs, it incorporates the strategies identified in the LSFRB Recovery Strategy into the NFRWSP. The Lower Santa Fe River Basin (LSFRB) Recovery Strategy identified that 92.3 mgd of projects would achieve the LSFI MFLs for a 2030 water demand. In comparison, the NFRWSP identified nearly 216 mgd of projects to meet an estimated 2035 demand of 667.5 mgd, which is less demand than what was identified in the LSFRB Recovery Strategy. In addition, the NFRWSP has identified 124.1 mgd more projects than the LSFRB Recovery Strategy required.
76	Lucinda Merritt, Ichetucknee Alliance	12/03/2016 via nfrwsp comment form	Indeed, using the NFSEG Model, the text at p.41 explains that 60.19 mgd of projects provided only 8.4 cfs of recovery. This is 7.165 mgd per cfs of recovery. It is possible the reference to 60.19 mgd is a typographical error that should read 65.19 mgd, the amount of the WRDPs shown in Table 6, Chapter 7. (p. 49) If 65.19 mgd was modeled and resulted in 8.4 cfs of recovery, then the ratio is 7.76 mgd of projects to 1 cfs of recovery. Either modeled ratio is widely divergent from the 4.48 mgd assumption.	The text has been updated to reflect 65.19 mgd of projects. The NFRWSP was updated to clarify the sufficiency analysis to determine that the suite of projects are adequate to address the potential water resource impacts.
77	Lucinda Merritt, Ichetucknee Alliance	12/03/2016 via nfrwsp comment form	The Plan provides no analysis relevant to the huge discrepancy between assumed and modeled flow recovery. Using the 4.48 mgd assumption, there could be about 11 mgd surplus in the Plan after covering the 2035 demand, after conservation, and after the LSFI MFL flow recovery. If 7.76 mgd or 7.165 mgd is used instead of 4.48 mgd as the conversion factor, the Plan does not meet the requirements of Sections 373.709(2) and 373.0421(2), Florida Statutes. The Plan is much less than clear on this issue and errors in the text of page 41 regarding quantities and the two project option tables defy clarity. This discrepancy and textual errors must be explained and the sufficiency analysis of project benefit to LSFI MFL flows must be addressed properly.	The NFRWSP was updated to clarify its role in the Lower Santa Fe River Basin (LSFRB) Recovery Strategy. The NFRWSP does not supersede the existing recovery strategy for the LSFI MFLs, it incorporates the strategies identified in the LSFRB Recovery Strategy into the NFRWSP. The Lower Santa Fe River Basin (LSFRB) Recovery Strategy identified that 92.3 mgd of projects would achieve the LSFI MFLs for a 2030 water demand. In comparison, the NFRWSP identified nearly 216 mgd of projects to meet an estimated 2035 demand of 667.5 mgd, which is less demand than what was identified in the LSFRB Recovery Strategy. In addition, the NFRWSP has identified 124.1 mgd more projects than the LSFRB Recovery Strategy required.
78	Lucinda Merritt, Ichetucknee Alliance	12/03/2016 via nfrwsp comment form	The Plan should analyze and report on NFSEG modeling scenarios in which the WRDP and WSDP options are evaluated for their effect on flows at the LSFI MFL gages. Ultimately all projects in the Plan should be modeled to determine whether the Plan, including all projects, meets the sufficiency requirements of Sections 373.709(2) and 373.0421(2), Florida Statutes. Without more than a naked and unexplained assumption of 4.48 mgd per 1 cfs recovery, the Plan does not provide reasonable assurances of meeting these requirements.	The NFRWSP was updated to clarify its role in the Lower Santa Fe River Basin (LSFRB) Recovery Strategy. The NFRWSP does not supersede the existing LSFRB Recovery Strategy, it incorporates the strategies identified in the LSFRB Recovery Strategy into the NFRWSP. Chapter 4 provides an explanation of the NFSEG regional groundwater model and the simulations that were utilized.
79	Lucinda Merritt, Ichetucknee Alliance	12/03/2016 via nfrwsp comment form	The projects necessary to recover groundwater flows, by law, should be included in the Water Resource Development Project list. §373.709(2), Fla. Stat. In this Plan, the WRDP list is not sufficient to recover even the 2010 deficit condition of 17 cfs below the LSFI MFLs. The Plan should explain why the Plan must also rely upon projects on the WSDP list to restore the recovery deficit.	The NFRWSP was updated to clarify its role in the Lower Santa Fe River Basin (LSFRB) Recovery Strategy. The NFRWSP does not supersede the existing recovery strategy for the LSFI MFLs, it incorporates the strategies identified in the LSFRB Recovery Strategy into the NFRWSP. The Lower Santa Fe River Basin (LSFRB) Recovery Strategy identified that 92.3 mgd of projects would achieve the LSFI MFLs for a 2030 water demand. In comparison, the NFRWSP identified nearly 216 mgd of projects to meet an estimated 2035 demand of 667.5 mgd, which is less demand than what was identified in the LSFRB Recovery Strategy. In addition, the NFRWSP has identified 124.1 mgd more projects than the LSFRB Recovery Strategy required.
80	Lucinda Merritt, Ichetucknee Alliance	12/03/2016 via nfrwsp comment form	The Plan lacks the priority listing of each WRDP and WSDP required by Section 373.805(4)(b), Florida Statutes. The Plan also lacks required information for each project regarding the estimated cost of and the estimated date of completion; and "the source and amount of financial assistance to be made available by the water management district for each listed project, which may not be less than 25 percent of the total project cost unless a specific funding source or sources are identified which will provide more than 75 percent of the total project cost." §373.805(4)(c) and (d), Fla. Stat.	Section 373.805, F.S., pertains to minimum flows and minimum water levels for Outstanding Florida Springs. Regarding section 373.805(4), F.S., as recovery or prevention strategies are developed or modified for Outstanding Florida Springs, they will include the requirements in this section and those prevention and recovery strategies will be included in the water supply planning process.
81	Lucinda Merritt, Ichetucknee Alliance	12/03/2016 via nfrwsp comment form	The Plan also lacks "An estimate of each listed project's benefit to an Outstanding Florida Spring;" and "An implementation plan designed with a target to achieve the adopted minimum flow or minimum water level no more than 20-years after the adoption of a recovery or prevention strategy." See §373.805(4)(e) and (f), Fla. Stat.	Section 373.805(4) F.S., as recovery or prevention strategies are developed or modified for Outstanding Florida Springs, they will include the requirements in this section and those prevention and recovery strategies will be included in the water supply planning process.
82	Lucinda Merritt, Ichetucknee Alliance	12/03/2016 via nfrwsp comment form	The Plan lacks "an assessment of how the regional water supply plan and the projects identified in the funding plans prepared pursuant to sub-subparagraphs [§373.709(2)] (a)3.c. and (b)2.c. support the recovery or prevention strategies for implementation of adopted minimum flows and minimum water levels. . . ." §373.709(2)(k), Fla. Stat. The Plan must specify which WSDPs support recovery of flows at LSFI MFL gages, and how they support flow recovery.	The NFRWSP was updated to clarify its role in the Lower Santa Fe River Basin (LSFRB) Recovery Strategy. The NFRWSP does not supersede the existing recovery strategy for the LSFI MFLs, it incorporates the strategies identified in the LSFRB Recovery Strategy into the NFRWSP. The Lower Santa Fe River Basin (LSFRB) Recovery Strategy identified that 92.3 mgd of projects would achieve the LSFI MFLs for a 2030 water demand. In comparison, the NFRWSP identified nearly 216 mgd of projects to meet an estimated 2035 demand of 667.5 mgd, which is less demand than what was identified in the LSFRB Recovery Strategy. In addition, the NFRWSP has identified 124.1 mgd more projects than the LSFRB Recovery Strategy required.

83	Lucinda Merritt, Ichetucknee Alliance	12/03/2016 via nfrwsp comment form	The Plan lacks an adequate funding strategy. The Plan includes only a catalog of potential funding options, not a "funding strategy for water resource development projects, which shall be reasonable and sufficient to pay the cost of constructing or implementing all of the listed projects." §373.709(2)(d), Fla. Stat. Finally, the Plan lacks any analysis of whether the funding strategy is reasonable and sufficient for all projects. Id.	The NFRWSP identifies a broad list of funding sources to allow entities to utilize available funding from a variety of sources to implement their projects.
84	Lucinda Merritt, Ichetucknee Alliance	12/03/2016 via nfrwsp comment form	Failure to Adopt Further Regulatory Recovery Strategies.The LSFI Recovery Strategy, Appendix G, at p.36 explains: Phase II Regulatory Strategies.The development of long-term strategies to address the impacts of regional groundwater trends and water use patterns is critical to achieving the recovery of minimum flows in the Lower Santa Fe Basin. As such, the Department, SRWMD, and SJRWMD, will develop long-term recovery measures concurrently with the development of the North Florida Regional Water Supply Plan. This will assist the Districts and the Department in refining the Recovery Strategies and future regulatory measures to address regional groundwater impacts to the Lower Santa Fe and Ichetucknee Rivers.The LSFI Recovery Strategy at Page 20 adds that this:Phase II of the Recovery Strategy will focus on the implementation of the recommendations in the North Florida Regional Water Supply Plan, the adoption of long-term regulatory measures, and the identification and execution of any necessary water resource development and alternative water supply projects.	The NFRWSP does not adopt the second phase of the Lower Santa Fe River Basin (LSFRB) Recovery Strategy. The implementation of the recommendations of the NFRWSP is one part of the second phase of the LSFRB Recovery Strategy. The other portions of the second phase will be addressed independent of the NFRWSP. The NFRWSP does not replace the existing recovery strategy for the LSFI MFLs, it incorporates the strategies identified in the LSFRB Recovery Strategy into the NFRWSP
85	Lucinda Merritt, Ichetucknee Alliance	12/03/2016 via nfrwsp comment form	This Plan was to include long-term regulatory strategies, but only proposes designation of the Plan area as a Water Resource Caution Area. This designation requires reuse of domestic wastewater in certain circumstances when it is determined to be feasible, but does not fund or require reuse of domestic effluent. The designation does not address recovery strategies other than reuse of domestic wastewater.	The NFRWSP does not contain regulatory strategies. Such strategies addressed by the Districts in their respective water use regulatory programs.
86	Lucinda Merritt, Ichetucknee Alliance	12/03/2016 via nfrwsp comment form	No other regulatory recovery strategies are included in the Plan. Without further regulatory changes, there are few real legal compunctions on the implementing parties to implement the projects, and the Districts have limited leverage to bring about conservation. The Plan should analyze and explain why the implementation of further regulatory recovery strategies has been abandoned.	The NFRWSP does not contain regulatory strategies and does not mandate any regulatory changes. Such strategies are addressed by the Districts in their respective water use regulatory programs.
87	Lucinda Merritt, Ichetucknee Alliance	12/03/2016 via nfrwsp comment form	For the foregoing reasons, the Plan does not demonstrate or provide reasonable assurances that the Lower Santa Fe and Ichetucknee River MFLs will be met within the planning horizon, nor whether recovery pursuant to the Plan will be "as soon as practicable." §373.0421(2), Fla. Stat.	The NFRWSP was updated to clarify its role in the Lower Santa Fe River Basin (LSFRB) Recovery Strategy. The NFRWSP does not supersede the existing recovery strategy for the LSFI MFLs, it incorporates the strategies identified in the LSFRB Recovery Strategy into the NFRWSP. The Lower Santa Fe River Basin (LSFRB) Recovery Strategy identified that 92.3 mgd of projects would achieve the LSFI MFLs for a 2030 water demand. In comparison, the NFRWSP identified nearly 216 mgd of projects to meet an estimated 2035 demand of 667.5 mgd, which is less demand than what was identified in the LSFRB Recovery Strategy. In addition, the NFRWSP has identified 124.1 mgd more projects than the LSFRB Recovery Strategy required.
88	Lucinda Merritt, Ichetucknee Alliance	12/03/2016 via nfrwsp comment form	IA would also note that the Plan fails to address the reality that the amount of water permitted in the planning area currently far exceeds the amount that is actually used. The difference between permit allocations and pumping cannot be accurately determined directly because metering of water use is spotty in the planning area. However, it has been reported that in the SRWMD, the amount of water permitted may exceed the amount pumped by as much as a factor of 2. This excess availability of permitted water is an enormously important factor in 20-year water planning, and the Districts are remiss in ignoring it. What would be the value of this planning exercise if permittees decided, over the next 20-years, to pump all of their permitted quantities, or even three-quarters of their allocation? The Districts should have an aggressive program in place to meter water use and to take back unused allocations over time. Otherwise, surprises in water usage could pop up, rendering this planning exercise useless.	The NFRWSP has assessed regional groundwater withdrawals as projected through 2035 using BEBR medium projected growth rates for all water use categories, except for agriculture which uses FDACS FSAID, in both the SJRWMD and SRWMD for both average year and drought year conditions, where applicable. MFLs Prevention and Recovery strategies provide the in-depth evaluation and specific projects that are used to address MFLs that are in prevention or recovery. A water supply plan assesses what could happen in the future should current groundwater pumping occur at increased rates to meet future demands for the region. A water supply plan is a higher-level assessment of regional withdrawals not individual ones. Individual withdrawals are evaluated as part of the permitting process.
89	Lucinda Merritt, Ichetucknee Alliance	12/03/2016 via nfrwsp comment form	Greater Incentives for Conservation Are Needed	Water conservation is considered an important part of the NFRWSP and is incorporated in assessing demands and as project options. As described in Chapter 3, 41 to 54 mgd of water conservation potential is identified. In addition, the Districts' water use regulatory rules contain provisions that mandate implementation of comprehensive water conservation programs.
90	Lucinda Merritt, Ichetucknee Alliance	12/03/2016 via nfrwsp comment form	Tiered rates are a proven incentive to conserve, in contrast to the failure of consumptive use permits (CUPs) to remedy excessive pumping. Implementing universal water use monitoring and fees deserves far more emphasis than that given to them in the Plan. Conservation, as it now stands is almost entirely voluntary. Even CUPs are de-facto voluntary, because so many permitted wells are unmetered. This is an area in which further regulatory strategies are needed and sorely lacking in this Plan.	Water conservation is considered an important part of the NFRWSP and is incorporated in assessing demands and as project options. As described in Chapter 3, 41 to 54 mgd of water conservation potential is identified. Implementation of water conserving rate structures for public water suppliers is evaluated via the Districts regulatory programs and implemented by water suppliers. In addition, District rules mandate monitoring of water use. Finally, the NFRWSP does not contain regulatory strategies. Regulatory strategies are set forth in District rules, which require economic and efficient use of water.

91	Lucinda Merritt, Ichetucknee Alliance	12/03/2016 via nfrwsp comment form	The Plan Should Discourage Pumping Brackish Water.IA objects to the prominence the Plan gives to the desalination of brackish water. For example, this source is listed first among the suggested Water Resource Development Project Options (p. 47). Pumping and reverse osmosis treatment of brackish groundwater should be avoided at all possible costs, for at least two reasons. First, saline intrusion is irreversible over any practical time frame. Once a well goes saline, the slow diffusion time among the less channelized regions of the karst substrate insures that it will be decades, if not centuries, before a saline well runs fresh again. Secondly, pumping a brackish well accelerates the rate of saline intrusion. That is, the well becomes progressively more saline and the water costlier to treat.	Options such as the use of brackish groundwater provide sustainable water resource development benefits in specific cases and allow for the development of additional water supplies. It is appropriate, therefore, for them to be included as an option in the NFRWSP.
92	Lucinda Merritt, Ichetucknee Alliance	12/03/2016 via nfrwsp comment form	Regarding the rate of saline intrusion, IA finds the analysis of this problem (beginning on page 27) to be overly optimistic. The Plan assumes that salt concentrations will rise in linear fashion, but vertical saline profiles are usually sigmoidal in nature. That is, increase is slow and almost linear, but a "log-phase" ascent soon ensues as the saline "front" approaches. Hence, a linear analysis will significantly overestimate the time required for saline intrusion. The arrival of the front can at times be episodic, as happened during the drought of 2012 with the sudden intrusion into the well supplying Cedar Key.	For the NFRWSP, the Districts focused the evaluation of saline water intrusion on the potential for upconing to occur in existing wells since well degradation of existing water supplies is the primary concern. Saline water upconing is primarily a localized event affected by many factors including hydrogeological setting, location to saline water, well depth and rate of withdrawal. The evaluation utilized analysis of existing observed data to identify significant intrusion trends. While the entire planning area was considered, the primary conclusion of this analysis is that groundwater quality may constrain the availability of fresh groundwater in a relatively limited area within Duval, Flagler, Nassau and St. Johns counties. However, these concerns can be managed through appropriate well construction, pumping operations or development of AWS.
93	Lucinda Merritt, Ichetucknee Alliance	12/03/2016 via nfrwsp comment form	The Plan Should Emphasize Sustainable Recharge.	The NFRWSP considers the reuse of reclaimed water, aquifer recharge and all other AWS options equally as possible ways to meet future water demands. The best option for any given use will depend on a number of variables. While no one option will work in all cases, each option should be considered when evaluating how to meet future water demands.
94	Lucinda Merritt, Ichetucknee Alliance	12/03/2016 via nfrwsp comment form	The Plan emphasizes reclaimed water as a primary AWS. While it does mention aquifer recharge, it fails to accord that option the priority it deserves and thereby overlooks a potentially significant and highly economical AWS. Figure 14 (p. 21), for example, shows approximately 108 mgd of treated wastewater in the region that is simply "disposed". Most of that water could be returned to the aquifer at low cost through treatment by constructed wetlands, as has been amply demonstrated at several sites in Florida (e.g., Sweetwater and Kanapaha in Gainesville and Green Cay in Boynton Beach). Treated wastewater is supplied at one end of an artificial wetland and allowed to percolate horizontally across the wetland. The water at the other end is low in nutrients and xenobiotics and can be re-injected into the aquifer. FSC has had discussions with JEA urging the utility to implement such treatment on the large amount of their treated wastewater that now flows into the ocean. Similar recharge is appropriate for other locations in the North Florida region and taken together could resupply a substantial fraction of the 117 mgd projected demand. IA strongly recommends the adoption of this method of recharge throughout the North Florida region.	The NFRWSP considers the reuse of reclaimed water, aquifer recharge and all other AWS options equally as possible ways to meet future water demands. The best option for any given use will depend on a number of variables. While no one option will work in all cases, each option should be considered when evaluating how to meet future water demands.
95	Carolyn Thomas, SOLO	12/03/2016 via nfrwsp comment form	The issue of restoration and remediation for the Keystone lake area/ Etonia Creek flow has been inadequately addressed. ACTION is required to return this area to its legally mandated status. Please review plans that have been submitted to the board.	Lakes Brooklyn and Geneva are currently under reevaluation and are planned for adoption in December 2017, at which time any needed prevention or recovery strategies would also be developed.
96	Jim Tatum, representing self, land owner on the Santa Fe River	12/03/2016 via nfrwsp comment form	This report contains many good ideas to reduce groundwater use: the two most likely to work well are to increase reclaimed water use and increased conservation. The management techniques outlined on pages 51-52 are good and should be implemented, and The Water Protection and Sustainability Program of 2005 should be re-implemented (p.57).However, these techniques are not sufficient. I believe additional, stronger management techniques are needed to achieve a sustainable usage rate:	The NFRWSP identifies nearly 216 mgd of water resource development, water supply development and water conservation projects to meet the 2035 increased demand of 117 mgd. These projects include the use of reclaimed water and groundwater recharge. In addition, the Districts address usage in their respective water use regulatory programs.
97	Jim Tatum, representing self, land owner on the Santa Fe River	12/03/2016 via nfrwsp comment form	Page 51 suggest tiered billing for non-ag. We must have billing for all, agriculture and all. We must all work together to solve our water crisis. Agriculture will resist and say they cannot produce enough without irrigation. We must work this out, perhaps by growing crops which demand less water, and by the consumer paying more for the product. If something is free we value it less. If something is dear, we conserve. Higher costs for the farmer must be shared by the consumer who will pay more for his product. Everyone who uses water must pay for water. Sooner or later we will have this plan. If we go to it sooner, we will save some water resources.	The NFRWSP identifies increased water conservation as a critical component to ensuring adequate water supplies. As described in Chapter 3, 41 to 54 mgd of water conservation potential is identified. Monetary charging for water is outside the authority of the Districts. The NFRWSP is one of many mechanisms utilized by the Districts to ensure protection of water resources. The District utilizes permitting as appropriate to manage water supplies. Implementation of water conserving rate structures for public water suppliers is evaluated via the Districts regulatory programs and implemented by water suppliers. Cost share programs assist agricultural users and rural communities to implement newer technology that maximizes water use efficiency and are critical components in ensuring a sustainable water supply. In addition, these cost share programs encourage conservation measures that can be more cost effective than most alternative water supply development projects, and provide regional environmental benefits.

98	Jim Tatum, representing self, land owner on the Santa Fe River	12/03/2016 via nfrwsp comment form	The regional Initiative Valuing Environmental Resources cost-share program gives free water and then pays the user to use less. P.55. On p. 57 we see the Dept. of Ag. Pays farmers who implement BMPs to improve irrigation efficiency. This is the same thing. It gives free water and pays to use less. This is absurd. Don't give free water. Don't pay people to not use something that is not theirs to begin with. Dollar incentives are good, but they make sense only if we have billing for water. Implement this program but charge for the water. Billing for water will also limit development and population growth. We do not need growth. Another mindset that needs to be changed.	The NFRWSP identifies increased water conservation as a critical component to ensuring adequate water supplies. As described in Chapter 3, 41 to 54 mgd of water conservation potential is identified. Monetary charging for water is outside the authority of the Districts. The NFRWSP is one of many mechanisms utilized by the Districts to ensure protection of water resources. The District utilizes permitting as appropriate to manage water supplies. Implementation of water conserving rate structures for public water suppliers is evaluated via the Districts regulatory programs and implemented by water suppliers. Cost share programs assist agricultural users and rural communities to implement newer technology that maximizes water use efficiency and are critical components in ensuring a sustainable water supply. In addition, these cost share programs encourage conservation measures that can be more cost effective than most alternative water supply development projects, and provide regional environmental benefits.
99	Jim Tatum, representing self, land owner on the Santa Fe River	12/03/2016 via nfrwsp comment form	I do not have confidence in the District's water models, so important for everything. I am not trained to evaluate water models, but when multiple objective, respected and qualified scientists who are experts in Florida's geology emphatically say these models are inadequate, it makes me question the in-house objectivity. I strongly suggest that the District look further for its models.	From its conceptualization, the NFSEG Regional Groundwater Flow Model utilized both a Technical Team comprised of members with an understanding of models and the hydrogeology of the region and a Steering Team to provide stakeholder input on the models use. The result was the development of this new tool for use in regional water supply planning.
100	Jim Tatum, representing self, land owner on the Santa Fe River	12/03/2016 via nfrwsp comment form	In the report p 61. the Suwannee River Water Management District (District) states that "Current permits and laws limit the scope of regulatory actions that can be taken to impose specific solutions on users." I do not agree with this. Other laws exist which allow curtailment of new and existing CUPs. The District and the DEP should not be afraid to utilize its legal counsel. Litigation will surely ensue from some of these tough changes, but we must acquire a new mindset and new laws in order to sustain our groundwater withdrawals and admit increased population in Florida.	This document is a planning document. Regulatory actions are handled via the Districts' respective regulatory programs.
101	Paul Still, Bradford Soil and Water Conservation District	12/04/2016 via nfrwsp comment form	The Sufficiency Analysis found in Chapter 6 of the NFRWSP is flawed and does not meet the requirement of 373.709(2), F.S., that a RWSP must include sufficient water resource and water supply development project options to meet projected water demands without causing unacceptable water resource impacts.	The NFRWSP was updated to clarify its role in the Lower Santa Fe River Basin (LSFRB) Recovery Strategy. The NFRWSP does not supersede the existing recovery strategy for the LSFI MFLs, it incorporates the strategies identified in the LSFRB Recovery Strategy into the NFRWSP. The Lower Santa Fe River Basin (LSFRB) Recovery Strategy identified that 92.3 mgd of projects would achieve the LSFI MFLs for a 2030 water demand. In comparison, the NFRWSP identified nearly 216 mgd of projects to meet an estimated 2035 demand of 667.5 mgd, which is less demand than what was identified in the LSFRB Recovery Strategy. In addition, the NFRWSP has identified 124.1 mgd more projects than the LSFRB Recovery Strategy required.
102	Paul Still, Bradford Soil and Water Conservation District	12/04/2016 via nfrwsp comment form	There are three ways to address unactable water resource impacts 1) conservation activities that reduce withdrawals, 2) Water Resource Development Projects and 3) Water Supply Development Projects. In this review of the NFRWSP the use of the term project or all projects is referring to both Water Resource Development Projects and Water Supply Development Projects	Projects, as described in the NFRWSP, refer to water resource development projects, water supply development projects or water conservation projects.
103	Paul Still, Bradford Soil and Water Conservation District	12/04/2016 via nfrwsp comment form	The analysis provided is flawed for 2 reasons, 1) there is an error in the assumptions used to calculate conservation and project benefits, and 2) project and conservation benefits for MFLs (other than the the Lower Santa Fe River MFL at the Fort White gage), for wetlands and for water quality in the SJRWMD east of the Saint Johns River were not evaluated.	The NFRWSP identifies over 200 mgd of projects, which do not withdraw water from the Upper Floridan aquifer, to meet the 2035 increased demand of 117 mgd. As a majority of these demands are being met with sources not coming from the Upper Floridan, additional impacts to wetlands and water quality are not expected to occur. In addition, local scale analysis of impacts associated with water withdrawals are performed by the Districts via their respective regulatory programs.
104	Paul Still, Bradford Soil and Water Conservation District	12/04/2016 via nfrwsp comment form	There is an error in the assumptions and calculations found on page 40 of the NFRWSP which reads:The LSFI Recovery Strategy (Appendix G) identified that in 2030, if projected water demands were realized, the Lower Santa Fe River flow would have a needed recovery of 20.6 cfs and identified that the recovery of 20.6 cfs could be achieved if projects resulting in 92.3 mgd were implemented. Using this information, the Districts have estimated the quantity of water/projects needed to recover each projected cfs of recovery needed (92.3 mgd in water of projects identified ÷ 20.6 cfs of recovery needed in 2030 = 4.48 mgd of projects per cfs of recovery). The 4.48 mgd value is valid only for the projects listed in Tables A2 to A5 in Appendix A of the Recovery Strategy: Lower Santa Fe River Basin Lower Santa Fe and Ichetucknee Rivers and Priority Springs Minimum Flows and Levels which is Appendix G of the NFRWSP. The benefits to flow at the Fort White gage vary depending on the type of project and the location of the project. Projects that are located longer distances from Fort White will have less of an impact on Santa Fe River flows at the Fort White gage.	The NFRWSP was updated to clarify its role in the Lower Santa Fe River Basin (LSFRB) Recovery Strategy. The NFRWSP does not supersede the existing recovery strategy for the LSFI MFLs, it incorporates the strategies identified in the LSFRB Recovery Strategy into the NFRWSP. The Lower Santa Fe River Basin (LSFRB) Recovery Strategy identified that 92.3 mgd of projects would achieve the LSFI MFLs for a 2030 water demand. In comparison, the NFRWSP identified nearly 216 mgd of projects to meet an estimated 2035 demand of 667.5 mgd, which is less demand than what was identified in the LSFRB Recovery Strategy. In addition, the NFRWSP has identified 124.1 mgd more projects than the LSFRB Recovery Strategy required.

105	Paul Still, Bradford Soil and Water Conservation District	12/04/2016 via nfrwsp comment form	The information used in Appendix G does not use flow data for the Fort White gage collected between 2010 and 2015. The Appendix G document includes "APPENDIX C Annualized Flow Duration Curves: Methods for Assessing MFL Recovery". This methodology does not appear to have been used or referenced in the NFRWSP. Suggested change: Use the methods in "APPENDIX C Annualized Flow Duration Curves: Methods for Assessing MFL Recovery" and data updated through 2015 to determine the amount of flow needed at the Fort White gage in 2037. Page 41 of the NFRWSP states, "As part of the NFRWSP evaluation, the Districts evaluated a potential of 60.19 mgd from proposed water resource development projects using the NFSEG. These projects provide for 8.4 cfs of potential recovery to the Lower Santa Fe River flow,".	The NFRWSP was updated to clarify its role in the LSFI recovery strategy. The NFRWSP does not supersede the existing recovery strategy for the LSFI MFLs, it incorporates the strategies identified in the LSFI MFLs recovery strategy into the NFRWSP. The NFRWSP has a base year of 2010.
106	Paul Still, Bradford Soil and Water Conservation District	12/04/2016 via nfrwsp comment form	The NFRSWP document fails to explain how the "evaluation" was done or why it was only done for 60.19 mgd of the 65.19 mgd of the NFRWSP's proposed water resource development projects.	The NFRWSP was updated to clarify its role in the Lower Santa Fe River Basin (LSFRB) Recovery Strategy. The NFRWSP does not supersede the existing recovery strategy for the LSFI MFLs, it incorporates the strategies identified in the LSFRB Recovery Strategy into the NFRWSP. The Lower Santa Fe River Basin (LSFRB) Recovery Strategy identified that 92.3 mgd of projects would achieve the LSFI MFLs for a 2030 water demand. In comparison, the NFRWSP identified nearly 216 mgd of projects to meet an estimated 2035 demand of 667.5 mgd, which is less demand than what was identified in the LSFRB Recovery Strategy. In addition, the NFRWSP has identified 124.1 mgd more projects than the LSFRB Recovery Strategy required.
107	Paul Still, Bradford Soil and Water Conservation District	12/04/2016 via nfrwsp comment form	If you divide 60.19 mgd of projects by the 8.4 cfs of recovery they provide for the Lower Santa Fe MFL you get 7.17 mgd of projects per cfs of recovery. The use of the 4.48 mgd of projects per cfs of recovery calculated using Appendix G information makes the projects more efficient than the 7.17 mgd of projects per cfs of recovery calculated from NFSWG model data. In other words, the Appendix G information requires fewer projects than there would be if the NFSEG model is used to evaluate benefits at the Fort White gage.	The NFRWSP was updated to clarify its role in the Lower Santa Fe River Basin (LSFRB) Recovery Strategy. The NFRWSP does not supersede the existing recovery strategy for the LSFI MFLs, it incorporates the strategies identified in the LSFRB Recovery Strategy into the NFRWSP. The Lower Santa Fe River Basin (LSFRB) Recovery Strategy identified that 92.3 mgd of projects would achieve the LSFI MFLs for a 2030 water demand. In comparison, the NFRWSP identified nearly 216 mgd of projects to meet an estimated 2035 demand of 667.5 mgd, which is less demand than what was identified in the LSFRB Recovery Strategy. In addition, the NFRWSP has identified 124.1 mgd more projects than the LSFRB Recovery Strategy required.
108	Paul Still, Bradford Soil and Water Conservation District	12/04/2016 via nfrwsp comment form	The benefit per cfs of recovery for water resource development projects evaluated with the NFSEG clearly gives a very different result from the benefit per cfs of recovery for projects evaluated by the North Florida Model used in the Appendix G Recovery Strategy document.	The NFRWSP was updated to clarify its role in the Lower Santa Fe River Basin (LSFRB) Recovery Strategy. The NFSEG Regional Groundwater Flow Model was utilized to determine changes should future demands be met through increased groundwater withdrawals. The approach used in the NFRWSP incorporated the specific spatial analysis performed for the LSFRB MFLs Recovery Strategy into the NFRWSP.
109	Paul Still, Bradford Soil and Water Conservation District	12/04/2016 via nfrwsp comment form	Water Management District staff have repeatedly stated that the NFSEG model is the best available model for water supply planning. To use information from the Appendix G Recovery Strategy document that used the North Florida Model would not be utilizing the best available information for water supply planning.	The NFRWSP was updated to clarify its role in the Lower Santa Fe River Basin (LSFRB) Recovery Strategy. The NFSEG Regional Groundwater Flow Model was utilized to determine changes should future demands be met through increased groundwater withdrawals. The approach used in the NFRWSP incorporated the specific spatial analysis performed for the LSFRB MFLs Recovery Strategy into the NFRWSP.
110	Paul Still, Bradford Soil and Water Conservation District	12/04/2016 via nfrwsp comment form	The NFRWSP on page 41 states. As discussed in Chapter 3, the Districts have identified a low conservation range potential of 40.67 mgd, further reducing the quantity of water supply development projects needed to approximately 91.94 mgd. Table 6, Chapter 7, has identified 95.44 mgd in water supply development projects; thus meeting the projected water demand and offsetting water resource impacts. The 40.67 mgd from conservation and the 95.44 mgd in water supply development projects were not evaluated to determine what the benefit would be to the flow at the Fort White gage. If you use the 7.17 mgd of projects per cfs of recovery you get 5.67 cfs of recovery at the Fort White gage for conservation and 13.31 cfs of recovery at the Fort White gage for water supply development projects. If you add 8.4 cfs for water resource development projects, 5.67 cfs for conservation and 13.31 cfs for water supply development projects you get 27.38 cfs of recovery at the Fort White gage. The NFRWSP states that 38 cfs will be needed by 2035 at the Fort White gage. The shortfall in projects may even be greater than the 10.62 cfs noted above because almost 30 mgd of the 95.44 mgd in water supply development projects are in Nassau. St Johns, and Flagler Counties. Projects in these counties would not be expected to provide benefits to the flow at the Fort White gage. The use of 7.17 mgd per cfs of recovery may overestimate the recovery benefits from the listed water supply development projects.	The NFRWSP identifies over 200 mgd of projects, which do not withdraw water from the Upper Floridan aquifer, to meet the 2035 increased demand of 117 mgd. As the majority of these demands are being met with sources not coming from the Upper Floridan, there is no need to model them.
111	Paul Still, Bradford Soil and Water Conservation District	12/04/2016 via nfrwsp comment form	The above indicates that the NFRWSP fails to identify sufficient projects that have a total capacity of which will, in conjunction with water conservation and other demand management measures, exceed the needs identified.	The Lower Santa Fe River Basin (LSFRB) Recovery Strategy identified that 92.3 mgd of projects would achieve the LSFI MFLs for a 2030 water demand. In comparison, the NFRWSP identified nearly 216 mgd of projects to meet an estimated 2035 demand of 667.5 mgd, which is less demand than what was identified in the LSFRB Recovery Strategy. In addition, the NFRWSP has identified 124.1 mgd more projects than the LSFRB Recovery Strategy required.
112	Paul Still, Bradford Soil and Water Conservation District	12/04/2016 via nfrwsp comment form	Suggested change: Evaluate conservation and all projects using the NFSEG model and add projects to meet the established need for recovery of the Lower Santa Fe MFL. Project Benefits on MFLs, Wetlands and Water Quality	The NFRWSP was updated to clarify its role in the Lower Santa Fe River Basin (LSFRB) Recovery Strategy. The NFRWSP identifies over 200 mgd of projects, which do not withdraw water from the Upper Floridan aquifer, to meet the 2035 increased demand of 117 mgd. As these demands are being met with most sources not coming from the Upper Floridan, there is no need to model them.

113	Paul Still, Bradford Soil and Water Conservation District	12/04/2016 via nfrwsp comment form	The NFRWSP appears to focus only on evaluating project impacts on the MFL set for the Fort White gage. The NFRWSP fails to demonstrate project impacts for the Keystone area lakes, the Ichetucknee River, water quality in the SJRWMD, and wetlands in both districts. Keystone Lakes MFLs. The NFRWSP states the MFLs for the Keystone area lakes are under review. Florida Statute does not offer the option of not assessing impacts on existing MFLs because they are under review. Suggested change: Use the NFSEG model to determine the impacts on the Keystone area lakes with existing MFLs. Evaluate conservation and all projects using the NFSEG model and add projects to meet the established need for recovery of Keystone Lakes.	Chapter 5 of the NFRWSP assesses impacts from future withdrawals on MFLs, Priority Waterbodies Without MFLs, and Wetlands, as well as changes in Groundwater Quality. Lakes Brooklyn and Geneva are currently under reevaluation and are currently planned for adoption in December 2017, at which time any needed prevention or recovery strategies would also be developed. This plan identifies over 200 mgd of projects, which do not withdraw water from the Upper Floridan aquifer, to meet the 2035 increased demand of 117 mgd. As these demands are being met with sources not coming from the Upper Floridan, there is no need to model them.
114	Paul Still, Bradford Soil and Water Conservation District	12/04/2016 via nfrwsp comment form	Ichetucknee River.Many of the projects listed are not likely to provide benefits for the Ichetucknee River MFL. Even though the amount of recovery needed for the Ichetucknee is smaller than for the Lower Santa Fe River, the benefits from the listed projects are likely to be much lower because the flow in the Ichetucknee River comes from a much smaller springshead than the Lower Santa Fe River at Fort White.Suggested change: Evaluate the impact of conservation and selected projects on flow at the Ichetucknee River gage used for the MFL.	The Lower Santa Fe River Basin (LSFRB) Recovery Strategy identified that 92.3 mgd of projects would achieve the LSFI MFLs for a 2030 water demand. In comparison, the NFRWSP identified nearly 216 mgd of projects to meet an estimated 2035 demand of 667.5 mgd, which is less demand than what was identified in the LSFRB Recovery Strategy. In addition, the NFRWSP has identified 124.1 mgd more projects than the LSFRB Recovery Strategy required. Modeled water resource development projects did increase the flow at the Ichetucknee River gage. Modeling additional water supply development or conservation projects is not a component of the NFRWSP. Modeling of project benefits can be performed as a part of project development.
115	Paul Still, Bradford Soil and Water Conservation District	12/04/2016 via nfrwsp comment form	Wetlands .The NFRWSP identifies wetland impacts in Appendix I but does not address how these impacts will be reduced by the selected projects or conservation. Suggested change: Evaluate the impact of conservation and selected projects on wetlands where impacts were identified in Appendix I.	Wetlands are protected through the Districts respective regulatory programs. This plan identifies over 200 mgd of projects, which do not withdraw water from the Upper Floridan aquifer, to meet the 2035 increased demand of 117 mgd. As these demands are being met with sources not coming from the Upper Floridan, there is no need to model them.
116	Paul Still, Bradford Soil and Water Conservation District	12/04/2016 via nfrwsp comment form	Water Quality SJRWMD. The NFRWSP identifies problems with water quality in the area of the planning region east of the Saint Johns River. How conservation or the selected projects will impact water quality is not addressed. Suggested change: Evaluate the impact of conservation and selected projects on wetlands were impacts were identified in Appendix I.	The NFRWSP evaluates the potential for saline water intrusion within the NFRWSP resulting from the withdrawals of groundwater. With the addition of projects and conservation that take less water out of the upper Floirdan aquifer, the impacts to water quality and wetland impacts should be have less potential for change.
117	Paul Still, Bradford Soil and Water Conservation District	12/04/2016 via nfrwsp comment form	Planning Period is not at Least 20-years. The Florida Statute that governs Regional Water Supply Planning states at 373.709(2) "Each regional water supply plan must be based on at least a 20-year planning period". The data used in the NFRWSP only goes to 2035. The 2035 date provides a planning period of only 18 years. Suggested change: Extend the panning data to at least 2037 which would provide at least a 20-year planning period. Adding two years to the data is important not only to meet the statutory requirement but also to correctly evaluate the water needs of the region. Water use is expected to increase between 2035 and 2037 and this increase must be addressed in the NFRWSP	Subsection 373.709(2), F.S., does not require the 20-year planning horizon to start from the date of plan approval. The NFRWSP has a base year of 2010. Projections are evaluated from 2015-2035, which is 20 years. The projections made for the NFRWSP were developed using the best available information at the time developed. Planning projections are updated at least once every five years to take into account improved data and methodologies.
118	Paul Still, Bradford Soil and Water Conservation District	12/04/2016 via nfrwsp comment form	Duval, Flagler, Nassau, and St. Johns counties east of the St. Johns River. On page 44 the NFRWSP states, "As such, the groundwater quality analyses support the designation of that portion of SJRWMD in the NFRWSP area as a WRCA." The NFRWSP fails to explain what actions are required once an area is designated a WRCA in the SJRWMD and how that action will reduce water quality impacts from withdrawals. Suggested change: Add an explanation of what additional requirement are imposed on water users in a WRCA in the SJRWMD. The text in Appendix D refers to Tables D4, D5, D6 and D7 but these tables do not appear in Appendix D. Suggested change: Add any missing tables. I did not find any data that indicates the proposed projects would be adequate to address water quality concerns raised in the NFRWSP. Suggested change: Evaluate the impact of the WRCA on the identified constraints.	An explanation of what additional requirements for water resource caution areas was added to the text.
119	Paul Still, Bradford Soil and Water Conservation District	12/04/2016 via nfrwsp comment form	The text in Appendix D refers to Tables D4, D5, D6 and D7 but these tables do not appear in Appendix D. Suggested change: Add any missing tables. I did not find any data that indicates the proposed projects would be adequate to address water quality concerns raised in the NFRWSP. Suggested change: Evaluate the impact of the WRCA on the identified constraints.	The appropriate tables will be added Appendix D.
120	Paul Still, Bradford Soil and Water Conservation District	12/04/2016 via nfrwsp comment form	I did not find any data that indicates the proposed projects would be adequate to address water quality concerns raised in the NFRWSP. Suggested change: Evaluate the impact of the WRCA on the identified constraints.	For the NFRWSP, the Districts focused the evaluation of saline water intrusion on the potential for upconing to occur in existing wells since well degradation of existing water supplies is the primary concern. Saline water upconing is primarily a localized event affected by many factors including hydrogeological setting, location to saline water, well depth and rate of withdrawal. Saline water upconing is typically addressed through well construction design and wellfield management strategies so no specific projects are specified for it.
121	Paul Still, Bradford Soil and Water Conservation District	12/04/2016 via nfrwsp comment form	Page 1 of the NFRWSP does not list Santa Fe Spring is not listed as an Outstanding Florida Spring. Suggested change: Add Santa Fe Spring and a note if the spring is being reevaluated.	Santa Fe Spring is not a current or historic first magnitude spring. Available data support classification of Santa Fe spring as a second magnitude spring based on both historical (prior to 2003) and current data sets.

122	Paul Still, Bradford Soil and Water Conservation District	12/04/2016 via nfrwsp comment form	Failure to Provide for Stakeholder Input. While the districts held meetings before the draft was produced there was limited opportunity to comment on the plan itself. While the workshops will meet the letter of the law the process failed to provide an opportunity for stakeholders to provide input into the plan. The SAC process limited public comments to 3 to 5 minutes. Questions and concerns raised in writing and at SAC meetings were not addressed or answered by Water Management District staff. There appears to have been no mechanism established to collect input that stakeholders may have submitted to members of the SAC.It is not clear if the questions and concerns raised as part of the SAC process will be included in Appendix A of the NFRWSP. The sentence in the last paragraph on page 4 would seem to indicate the SAC comments will not be included. Comments received during the public workshops and comment period were incorporated, as appropriate, into the NFRWSP (see Appendix A for details regarding comments received and responses). Suggested change: Add all the comments received during the SAC process to the NFRWSP. Collect all public record correspondence submitted to individual SAC members and make it a part of the NFRWSP.	Public involvement has been core to the development of the NFRWSP and venues for public comment were provided at all of the following meetings. The Stakeholder Advisory Committee (SAC) was created to provide guidance to the Districts on the development of the NFRWSP, The SAC held 36 meetings since 2012. In 2016, the Districts conducted over 50 outreach meetings to local governments, environmental groups, citizen groups, and other stakeholders concerning the NFRWSP. Throughout the past year, the Districts briefed their Governing Boards on the status of the plan on several occasions. The Districts also held two public workshops on the NFRWSP on October 25, 2016, at the University of North Florida in Jacksonville, FL and on November 3, 2016, at SRWMD offices in Live Oak, FL. Furthermore, comments from the public on the NFRWSP were solicited from October 4, 2016 through December 5, 2016. Finally the joint SJRWMD/SRWMD Governing Board meeting provided a final venue for public comment on the NFRWSP. Water supply planning is a collaborative, ongoing process that will continue after approval of the NFRWSP.
123	Paul Still, Bradford Soil and Water Conservation District	12/04/2016 via nfrwsp comment form	Self-suppliers were not represented on the SAC. This lack of representation for self-suppliers was repeatedly pointed out to the Water Management Districts during the early SAC meetings.Suggested change: Hold a workshop to receive input from self-suppliers.	Self-suppliers are considered as those entities that are not served by a public supply system. Domestic self-suppliers were represented by local government representatives on the SAC. Other self-suppliers include agriculture, commercial/power generation, environmental, and industrial/mining, all of which had two representatives on the SAC.
124	Paul Still, Bradford Soil and Water Conservation District	12/04/2016 via nfrwsp comment form	The NFRWSP states on page 7, "The Districts also presented the draft plan to their respective governing boards on September 13, 2016 to solicit comments and feedback." How was a draft plan with a date of 10/4/16 presented to the boards on September 13, 2016?Suggested change: Correct date if it is an error or clarify what was presented on September 13, 2016.	The draft version of the NFRWSP that existed at that time was the one presented to the Governing Boards.
125	Paul Still, Bradford Soil and Water Conservation District	12/04/2016 via nfrwsp comment form	On page 49 the NFRWSP states, "Table 5 identifies 16 water resource development project options for the NFRWSP area, costs are shown in million (M) dollars." Table 5 is about wetlands. Table 6 has 16 projects but does not identify the projects.Suggested change: Correct table numbers.	This has been revised.
126	Paul Still, Bradford Soil and Water Conservation District	12/04/2016 via nfrwsp comment form	On page 50 in the section about Water Supply Development Project Options that starts on page 49, the text states, "For each project option identified, the following information is provided (and listed in Appendix J):" Appendix J addresses Water Resource Development Project Options not Water Supply Development Project Options. Suggested change: Correct appendix reference.	This has been revised.
127	Kate Ellison	12/05/2016 via nfrwsp comment form	You mention the Water Protection and Sustainability Program created by the legislature in 2005, unfunded for years. Please demand that they fund it. We need new answers to our water crisis -- innovation, not stagnation. It costs money to develop new, sustainable water sources and we must be willing to invest in this type of public infrastructure.	The NFRWSP identifies a broad list of funding sources to allow entities to utilize available funding from a variety of sources to implement their projects.
128	Kate Ellison	12/05/2016 via nfrwsp comment form	I urge you to evaluate conservation and all resource development projects using the NFSEG model and add projects to meet the established need for recovery of the Lower Santa Fe MFL. Additional meaningful local analysis is needed for several other areas, such has Keystone lakes, water quality east of the St. Johns, and wetland impacts in Appendix I, for which analysis and recommendations are not presented.	The NFRWSP was updated to clarify its role in the Lower Santa Fe River Basin (LSFRB) Recovery Strategy. The NFRWSP identifies over 200 mgd of projects, which do not withdraw water from the Upper Floridan aquifer, to meet the 2035 increased demand of 117 mgd. Local scale analysis of impacts associated with water withdrawals are performed by the Districts via their respective regulatory programs.
129	Kate Ellison	12/05/2016 via nfrwsp comment form	Also, much of your data does not include the available measurements taken after 2010, and including the most recent data will give a much clearer picture of current trends, recovery efforts, and projected needs. If the report comes out in 2017, it needs to extend to 2037, and be based on the most current data.	Subsection 373.709(2), F.S., does not require the 20-year planning horizon to start from the date of plan approval. The NFRWSP has a base year of 2010. Projections are evaluated from 2015-2035, which is 20 years. The projections made for the NFRWSP were developed using the best available information at the time developed. Planning projections are updated at least once every five years to take into account improved data and methodologies.
130	Kate Ellison	12/05/2016 via nfrwsp comment form	Water quality is a crucial issue, not limited to salt-water intrusion, phosphorous and nitrates. These are the very minimum pollutants to mitigate, but lead in the public water supply is also critical, as well as other heavy metals. Your report does not give enough details of a plan to control water quality. As water sources are broadened and traditional sources strained, water quality is more and more important. I respectfully request greater elaboration of plans to improve water quality. Evaluate water quality (or state how it will be evaluated/maintained) in all water resources suggested to meet growing needs.	The purpose of this plan is to address limitations to water quantity over the 20 year planning horizon. The water quality assessment included in this plan focuses on the extent to which groundwater withdrawals will be constrained due to a water quality issue. Saline water intrusion was found to be the primary water quality limitation on groundwater withdrawals. Groundwater quality is critical to water supply, but is managed separately through FDEP Groundwater Management and Aquifer Protection programs. Surface water quality is managed through the FDEP Total Maximum Daily Load (TMDL) program and development of Basin Management Action Plans (BMAPs).

131	Kate Ellison	12/05/2016 via nfrwsp comment form	Finally, I request more stakeholder input. This plan is crucial, and it needs the support of water experts, conservationists, and the general public. Maybe you have met the letter of the law, but not the spirit. Our water crisis needs all of us working together. We are not there yet.	Public involvement has been core to the development of the NFRWSP and venues for public comment were provided at all of the following meetings. The Stakeholder Advisory Committee (SAC) was created to provide guidance to the Districts on the development of the NFRWSP, The SAC held 36 meetings since 2012. In 2016, the Districts conducted over 50 outreach meetings to local governments, environmental groups, citizen groups, and other stakeholders concerning the NFRWSP. Throughout the past year, the Districts briefed their Governing Boards on the status of the plan several times The Districts also held two public workshops on the plan on October 25, 2016, at the University of North Florida in Jacksonville, FL and on November 3, 2016, at SRWMD offices in Live Oak, FL. Furthermore comments from the public on the plan were solicited from October 4, 2016 through December 5, 2016. Finally the joint SJRWMD/SRWMD Governing Board meeting provided a final venue for public comment on the NFRWSP. Water supply planning is a collaborative, ongoing process that will continue after approval of the NFRWSP.
132	Robin Lamb, Mayor Lenny Curry's office, Jacksonville, FL	12/05/2016 via nfrwsp comment form	On behalf of the City of Jacksonville, I would like to thank the St. Johns River Water Management District and its technical staff for their work developing the recently released draft of the North Florida Regional Water Supply Plan. As you know, the St. Johns and Suwanee River water management districts, along with the Florida Department of Environmental Protection, have worked together over the course of 4 years to produce a 20-year water supply plan for the 14-county planning area that comprises the North Florida Regional Water Supply Partnership. While additional work remains, the results of this effort are encouraging. By identifying a range of options capable of augmenting the region's water supply, the plan offers the promise of a balanced approach; one that couples common sense water conservation with the water resource and water supply projects necessary to ensure that North Florida has reliable and sustainable sources of water in the years ahead. The citizens of Duval County look forward to the implementation of cost-effective solutions that will protect water supplies throughout region in an equitable manner based on sound science; a key to which will be the completion of a reliable groundwater model. We encourage the two water management districts to continue working with all stakeholders, including our water utility, JEA, in implementing the plan and developing future updates that are fair, financially prudent and scientifically sound. Water is vital to economic growth and the wellbeing of our communities. That's why the North Florida Regional Water Supply Partnership must work to manage this resource wisely for the benefit of future generations.	Water supply planning is a collaborative, ongoing process that will continue after approval of the NFRWSP. The Districts are committed to continuing to work with stakeholders.
133	Tom Morris, Executive Director, Clay County Utility Authority, On Behalf of the North Florida Utility Coordination Group	12/05/2016 via email	The Plan correctly recognizes the public water suppliers expect to achieve even greater water conservation and greater reuse of reclaimed water over the 20-year planning period. However, we believe the Plan should also recognize the significant achievements that the Districts and public water suppliers have already realized in both conservation and reclaimed water use.	Language was added to the NFRWSP reflecting water conservation efforts to date, as well as reclaimed water implementation.
134	Tom Morris, Executive Director, Clay County Utility Authority, On Behalf of the North Florida Utility Coordination Group	12/05/2016 via email	As reflected in the following figure, since 2006, the population served by the NFUCG members has increased by almost 150,000 people, from approximately 1.09 to 1.23 million. However, in that same time period, actual water use by the NFUCG members has declined from 192 million gallons per day to 157 million gallons per day. Per capita water use rates have fallen 28%. This water savings can be directly linked to water conservation efforts undertaken by NFUCG members, our customers, and the Districts, as well as increased level of public awareness. We believe it is important for the Plan to recognize these past success, since the ongoing emphasis and investment in conservation have significantly reduced the amounts of water necessary to meet future demands.	Language was added to the NFRWSP reflecting water conservation efforts to date, as well as reclaimed water implementation.
135	Tom Morris, Executive Director, Clay County Utility Authority, On Behalf of the North Florida Utility Coordination Group	12/05/2016 via email	We have also made significant investments in increasing reclaimed water use. Since 2000, NFUCG members have invested over $150 million in beneficial reuse projects, resulting in an 100% increase in both reclaimed water use and reclaimed water capacity. This commitment to reuse has already provided significant regional benefits, by allowing public suppliers and other users to reduce or eliminate the use of potable water for irrigation purposes and providing direct environmental benefits. As recognized in the Plan, we remain committed to expanding feasible reclaimed water use, however the Plan should also recognize the significant achievements that have already been realized by the Districts, public suppliers, and other water users.	Language was added to the NFRWSP reflecting water conservation efforts to date, as well as reclaimed water implementation.
136	Tom Morris, Executive Director, Clay County Utility Authority, On Behalf of the North Florida Utility Coordination Group	12/05/2016 via email	We understand that for the Plan, the "pumps off" approach was used as a rough screening tool to identify water bodies which may merit further evaluation. We do not feet this approach is appropriate for future uses of the model because the recharge assumptions do not represent real conditions. The Plan chapter describing these modeling scenarios should clearly stat that this "pumps off" approach does not represent historical condition. The results of "pumps off" model scenarios, if presented without the proper context, have the potential to be misinterpreted by the public.	As described in the NFRWSP, the pumps off simulation does not represent a historic or predevelopment condition. It was utilized as a reference condition for comparison with the 2035 projected groundwater use simulation to estimate impacts to water resources in the region (lakes, rivers, and springs). It is an approximation of a no-pumping condition, with the caveat that recharge and boundary conditions within the model domain represent our best understanding of average 2009 conditions.

137	Rob Dennis, PE, D.WRE, Liquid Solutions Group	12/05/2016 via email	The updates on these 38 water supply development projects include the addition of a calculated water supply benefit which accounts for each project's ability to meet peak demands. In addition, the annual operations and maintenance (O&M) cost associated with each project was calculated consistent with the methodologies used in the NFRWSP.As a result of this additional information, each of these 38 water supply development projects meet the criteria required for inclusion in the NFRWSP as a "Water Supply Development Project Option" and should be included in Appendix K (and removed from Appendix L) of the NFRWSP. Attached you will find an updated Appendix K and Appendix L reflecting our proposed changes (shown in red text.)	The projects have been updated accordingly.
138	Lisa Rinaman, St. Johns Riverkeeper	12/05/2016 via email	NFRWSP fails to make conservation a priority.	Water conservation is considered an important part of the NFRWSP and is incorporated in assessing demands and as project options. As described in Chapter 3, 41 to 54 mgd of water conservation potential is identified.
139	WWALS Watershed Coalition	12/05/2016 via email	The Falling Creek project has very large up-front expense, involves environmental risk in running a large-diameter pipe through wetlands, and has high maintenance cost. In addition it only benefits the Ichetucknee Springs watershed. It is seasonal, for instance at the water levels now in the Suwannee, there is no water to pump to Falling Creek	Aquifer recharge projects, such as Falling Creek, can provide sustainable water resource development benefits and allow for the development of additional water supplies. It is appropriate, therefore, for them to be included as an option in the NFRWSP.
140	WWALS Watershed Coalition	12/05/2016 via email	The maps in the plan, including Figure C3 on page 3 of Appendix C: Simulated Change in the Potentiometric Surface within the North Florida-Southeast Georgia Regional Groundwater Flow Model Area, show that the area that is losing water to the Atlantic coast of south Georgia and north Florida has lost 20 or more feet of aquifer levels. None of the projects address that problem in any significant way. Much of the area in Florida that has lost that water in the Floridan is below Columbia, Hamilton, and Baker Counties. Overpumping is not the only reason for this loss: silviculture management has something to do with it as well, for example. WWALS recommends the much more practical and cost-effective plan Dennis J. Price P.G. has already submitted to SRWMD and NFRWSP.	The maps in Appendix C represent the estimated change in the potentiometric surface from the estimated pumping in 2009 to the estimated pumping condition in 2035 under various scenarios. They estimate changes if future demands are met with fresh groundwater. This plan identifies over 200 mgd of projects, which do not withdraw water from the Upper Floridan aquifer, to meet the 2035 increased demand of 117 mgd. The specific project referenced in the comment lacks planning level costs and estimated project capacity. The project has been forwarded to the SRWMD Agriculture and Environmental Projects Division to coordinate development of those parameters. The Districts will continue to explore strategies to meet our future demands in cooperation with local governments and stakeholders.
141	WWALS Watershed Coalition	12/05/2016 via email	Yet there is no mention of pipelines as threats to the Rivers and to the Floridan Aquifer, nor of similar threats such as fracking. These omissions need to be remedied.	These activities are not part of a regional water supply plan.
142	WWALS Watershed Coalition	12/05/2016 via email	Please clarify the text on page 24 to say that peer review has not been done yet and to invite peer reviewers, as well as public comment, beyond the present public comment deadline.	Language was added to the NFRWSP. Please note that the NFSEG Regional Groundwater Flow Model development is a separate process from the NFRWSP. More information on its development can be found at http://northfloridawater.com/groundwaterflowmodel.html.
143	WWALS Watershed Coalition	12/05/2016 via email	The Floridan aquifer is a karst aquifer. Therefore, it is heterogeneous and anisotropic with turbulent groundwater flow unlike conventional aquifers that could be assumed homogeneous and isotropic with laminar flow. That means standard groundwater models based on Darcian flow of homogeneous and isotropic conditions are not realistic in karst environments. The NFRWSP does not seem to include any specific information as to the groundwater models used. If they are standard Darcian groundwater flow models liked they have always used, it very unlikely that their forecasts vis a vis MFL would be accurate.	The NFSEG Regional Groundwater Flow Model development is a separate process from the NFRWSP. The appropriate approach for modeling karst systems depends on a variety of factors, including hydrogeological nature of the karst aquifer, the types of predictions required, scale issues, and data availability. Groundwater models include some degree of uncertainties in hydraulic properties of the subsurface and system stresses. The NFSEG model does account for heterogeneity and anisotropy caused by differences in horizontal and vertical hydraulic conductivity; however, it does not account for turbulent flow or anisotropy associated with karst features, such as conduits. Explicitly representing conduit features in the model requires that their locations and hydraulic characteristics be known with sufficient accuracy to warrant inclusion in the model. Although the Floridan aquifer is a karst aquifer, porous-media models (like the NFSEG model) are suitable for predicting changes in UFA groundwater levels and flows on a regional scale due to the high degree of ubiquitous primary and secondary porosity and high permeability of the aquifer. As such, the Floridan aquifer can be modeled as a porous-media aquifer on a regional scale. More information on its development can be found at http://northfloridawater.com/groundwaterflowmodel.html.
144	WWALS Watershed Coalition	12/05/2016 via email	Modeling is important for future developments, especially for issuing agriculture water use permits. Please add in the NFRWSP or in a further document an explanation on how drawdown when a new water user applies for a permit will be modeled, especially the most common scenario of every agricultural user turning on their pumps at the same time for months on end during the growing season during a drought.	The Districts' regional water supply plans do not contain regulatory provisions. Such provisions are addressed by the Districts in their respective water use regulatory programs.

145	WWALS Watershed Coalition	12/05/2016 via email	Modeling can and should involve "Monte Carlo" simulations where each of the model parameters is evaluated across their distributional range. These are big tasks, but essential, especially for the NFSEG. No doubt SRWMD and SJRWMD are aware of the political difficulties of using a Monte Carlo model, due to the recent use of one in the Florida Environmental Regulation Commission (ERC) decision to raise toxicity levels for Florida waters. WWALS is a co-signatory of a letter from all the Waterkeepers of Florida criticising that ERC Monte Carlo modeling for leaving native Floridians who eat a lot of fish as outliers especially susceptible to cancer and other ill effects of water contaminants. Thus any use of a Monte Carlo model (or any other model) must be done so as to not leave such outliers and must be clearly defended against such a possibility. Such defense should include robust peer review, especially by critics of the ERC's decision, including WWALS and other Florida (and Georgia) Waterkeepers.	The Districts have passed your comment onto our modeling staff for their consideration on the use of the NFSEG regional groundwater model. Please note that the NFSEG Regional Groundwater Flow Model development is a separate process from the NFRWSP. More information on its development can be found at http://northfloridawater.com/groundwaterflowmodel.html.
146	WWALS Watershed Coalition	12/05/2016 via email	The area mapped in Figure 2: North Florida Regional Water Supply Planning Partnership on page 3 is far too constrained. The potentiometric simulations in Appendix C go all the way to the Gulf and South Carolina and show most pronounced effects not only around Jacksonville, but also as far away as Savannah. Many of the projects items in Appendix J: Water Resource Development Project Options, including some in progress or completed, are outside the nominal Partnership area, to the west of the Suwannee and Withlacoochee Rivers, in Madison, Lafayette, and Dixie Counties, Florida. Peer review and public comment need to extend at least as far as those simulations go, which would be at least as far as NFSEG Domain of Figure 15 on page 25.	Delineation of the NFRWSP area was a result of the SRWMD 2010 Water Supply Assessment and the Stakeholder Advisory Committee recommendations. The NFSEG model was used to assess changes in water levels and flow resulting from pumping. Appendixes F, H, and I of the NFRWSP discuss changes in water levels and flow from projected increases in pumping within the Partnership area and pumping throughout the NFSEG model domain.
147	WWALS Watershed Coalition	12/05/2016 via email	There is no mention in the draft plan of the Georgia Suwannee-Satilla Regional Water Council, which is currently finalizing a similar plan for the Georgia watersheds (Suwannee, Satilla, and St Marys) north of the nominal Partnership area. Nor is there any mention of the other Georgia Regional Water Councils, such as the ones for the Atlantic coast watersheds, which all recently held two joint meetings with Suwannee-Satilla. Better cross-state-line coordination is needed.	The Districts have been coordinating with the State of Georgia on the development of the NFRWSP for several years. In particular the State of Georgia EPD has been involved in the development of the NFSEG regional groundwater model and is a member of the NFSEG Technical Team.
148	WWALS Watershed Coalition	12/05/2016 via email	Yet there are springs on the Alapaha River, including some in Georgia, and there are springs upstream on the Withlacoochee River, including three second-magnitude springs between Valdosta and the GA-FL line: Wade (Blue) Spring just south of US 84, and McIntyre and Arnold Springs closer to the state line. 8 9 McIntyre Spring has been explored by cave divers for 4,610 feet underground. There appears to be no mention of any of those three second magnitude Withlacoochee River springs in the NFRWSP. Nor for that matter, any mention of springs not directly on rivers, such as Adams Spring in Hamilton County. The NFRWSP will affect all these other springs, and they should be taken into account.	The water bodies specifically identified in the NFRWSP are priority water bodies within the planning region. The list of priority water bodies for each district is updated annually in compliance with 303.042, F.S. and approved by the FDEP. Wade (Blue) Spring, McIntyre Spring, and Arnold Spring are not in the planning region and therefore not identified in the NFRWSP. Adams Spring, in Southwestern Hamilton county, is one of hundreds of springs located in the planning region that is not identified as a priority water body. Actions taken to protect priority springs in this region will provide regional protection to area springs. Where available, data on spring flow and water levels for water bodies throughout the planning region and throughout the NFSEG model domain were used to evaluate and improve the model used to estimate the regional impact of groundwater withdrawals.
149	WWALS Watershed Coalition	12/05/2016 via email	The NFRWSP does not seem to mention the recent massive consolidation of agricultural lands into the hands of a few owners, on both sides of the state line. SRWMD has told WWALS they are talking to the landowners about possible agricultural runoff issues. This topic of water quality as well as quantity should be addressed in the plan.	The Florida Department of Agriculture and Consumer Affairs develops agricultural water demand projections for use in water supply planning and those projections do show increase in demand agriculture for the SRWMD. The purpose of the NFRWSP water resource assessment is to evaluate the extent to which water resources and related natural systems may be impacted by projected increase in groundwater withdrawals within the NFRWSP area. The water quality issues described in your comment are managed through the DEP Total Maximum Daily Load (TMDL) program and development Basin Management Action Plans (BMAPs).
150	WWALS Watershed Coalition	12/05/2016 via email	In addition to the water quality monitoring using wells mentioned on pages 1, 3, and 7, there needs to be regular, frequent river water quality monitoring on the Withlacoochee, Alapaha, and Suwannee Rivers in both Florida and Georgia. Such monitoring will help distinguish sources of contamination, such as the chronic Valdosta wastewater overflows now mostly solved, excretions of wild, farmed, or domestic animals or humans, or agricultural fertilizer or pesticides. Such contaminants of river water affect surface water and aquifer water, and should be used in the modeling and calibration. The NFRWSP should advocate for adequate funding for and its agency participants should implement such regular, frequent river water quality monitoring	The purpose of the NFRWSP water resource assessment is to evaluate the extent to which water resources and related natural systems may be impacted by projected increase in groundwater withdrawals within the NFRWSP area. The water quality issues described in your comment are managed through the FDEP Total Maximum Daily Load (TMDL) program and development Basin Management Action Plans (BMAPs).

151	Anne Harvey Holbrook, JD, MS, Save the Manatee Club	12/05/2016 via email	The minimum flows and levels rulemaking process for the lower Santa Fe and Ichetucknee Rivers and associated springs found that these water bodies are already experiencing consumptive use beyond that which they can sustain without incurring significant harm. As such, recovery efforts must be fully accounted for in the NFRWSP. Although prevention and recovery strategies are mentioned for these water bodies and the total estimated recovery needed to achieve the MFL under anticipated 2035 conditions are given, the Draft RWSP does not clearly discuss the alternative water sources or conservation measures anticipated or available to make up that difference with a specific regional focus on alleviating impacts to those waterways.	The Lower Santa Fe and Ichetucknee Rivers and associated priority springs (LSFI) are in recovery. The NFRWSP has been updated to clarify the role of the NFRWSP in the Lower Santa Fe River Basin (LSFRB) Recovery Strategy. Projects are already under way to improve the quantity and quality of water in the region. The strategy to recover these resources included implementing the Recovery Strategy for the Lower Santa Fe River Basin in April 2014 (Appendix G of the NFRWSP), committing resources to the development of a robust groundwater model to understand how regional withdrawals impact priority water bodies (the NFSEG model), and initiation of regional planning to understand how growth could alter demand and identify projects to offset current and future demands (the NFRWSP). In addition, a strategy to achieve the long-term recovery of the LSFI must be implemented. Upon completion of peer review of the NFSEG groundwater flow model, and in compliance with 62-42, F.A.C. the Districts will re-evaluate the Minimum Flows and Minimum Levels and the present status of the Lower Santa Fe and Ichetucknee Rivers and Associated Priority Springs pursuant to Section 373.0421(3), F.S., using the best available scientific or technical data, methodologies, and models. The associated recovery strategy will be revised to reflect this updated data and address long-term recovery of the resource. Project identification and implementation to protect and enhance water quantity and quality in the region will continue in parallel with model peer review and MFL status re-evaluation.
152	Anne Harvey Holbrook, JD, MS, Save the Manatee Club	12/05/2016 via email	Similarly, the Draft plan notes that four priority springs will show reductions greater than ten percent under 2035 conditions, and that the remaining four priority springs and both priority rivers also show flow reductions, though less than ten percent. The draft RWSP should therefore anticipate that the MFL process may require prevention and recovery strategies (or at least impose certain water withdrawal limits so as not to exceed significant harm), and should identify alternative water sources or conservation reuse opportunities within those watersheds as well.	The NFRWSP has identified between 203 and 216 mgd in projects to offset the projected increase in water demand of 117 mgd. MFL status is evaluated as MFLs are adopted. If needed, recovery or prevention strategies are written and adopted simultaneously with the MFLs, and could further constrain available traditional groundwater in the district. This potential for additional future resource constraints was identified in the plan, and was one of the reasons that the NFRWSP recommended the designation of the entire region as a WRCA.
153	Anne Harvey Holbrook, JD, MS, Save the Manatee Club	12/05/2016 via email	SMC recognizes the need to identify additional and alternative sources of water as well as to identify opportunities for water conservation. However, the use of alternative water supplies (AWS) as a general term in regional water supply planning is misleading, and specific types of AWS should be discussed with a view toward determining what types of projects might be appropriate to offset use of groundwater in a particular area. The use of alternative water supplies generically is further complicated because of the interconnected nature of surface water, groundwater, recharge, and brackish groundwater. Despite the fact that AWS are statutorily authorized sources for the Districts' consideration in water supply planning, some assessment and modeling of the relationship among these sources should be accounted for in water supply planning efforts that rely on use of AWS to supplement traditional groundwater. The incorporation of MFLs touches on this but does not explicitly or fully address the issues involved because the water budget inappropriately distinguishes between groundwater and surface water in recovering systems. For the NFRWSP to be an effective tool for both local government and state permitting agencies, these reductions and offsets should be analyzed regionally with appropriate conservation and AWS projects outlined and clear funding opportunities identified.	Specific projects identified to meet water demands can be found in Appendixes J-M of the NFRWSP. The plan does not rank project options since the best option for any given use will depend on a number of variables. As projects are implemented they will be individually evaluated against environmental constraints.
154	Anne Harvey Holbrook, JD, MS, Save the Manatee Club	12/05/2016 via email	The uncertainties and complications associated with climate change are discussed late in the document, but should be addressed earlier in its sections discussing demand calculations, drought, and saltwater intrusion. The NFRWSP includes in its demand calculations a 1-in-10 year drought water demand figure to represent an event that would increase water demand that has a ten percent probability of occurring in any given year. In the final draft, SMC asks the Districts to clarify how they determined the likelihood of drought occurrence, and how modeling accounts for the potential impacts of climate change. Already areas of North Florida are experiencing rising temperatures and altered rainfall patterns. The Draft should also take into account seasonal changes in rainfall fluctuations as a result of changing climate and weather patterns. If, as stated in the Draft plan, a single one-in-ten year drought event can increase demand an additional 6%, it seems that demand estimates may be too low given the potential for previously rare drought events to occur with increasing frequency and intensity as the climate changes. Moreover, the impacts of drought should also be discussed in the plan's section on saline water intrusion. A small drop in aquifer levels can result in substantial saltwater intrusion; thus groundwater pumping combined with drought could have a serious deleterious impact on fresh groundwater availability, and that possibility and calculations should be incorporated into the RWSP assessment.	The SJRWMD and SRWMD have deferred to FDACS regarding the potential irrigation efficiency for agricultural practices. Currently, FDACS FSAID does not provide a range for agricultural and potential irrigation efficiency. The projections made for the NFRWSP were developed using the best available information at the time developed. As noted in the NFRWSP, many of the same practices that are implemented to address water resource constraints will also mitigate the impacts of climate change.
155	Anne Harvey Holbrook, JD, MS, Save the Manatee Club	12/05/2016 via email	Conversely, substantially less investment should be encouraged for water supply development projects that tap "new" sources of water; use of brackish groundwater and Lower Floridan Aquifer withdrawals are detrimental to the long-term sustainability of North Florida's water supply and should be discouraged.	Options such as the use of brackish groundwater provide sustainable water resource development benefits in specific cases and allow for the development of additional water supplies. It is appropriate, therefore, for them to be included as an option in the NFRWSP.

156	Kerry Kates, Florida Fruit & Vegetable Association	12/05/2016 via nfrwsp comment form	Water Conservation and Irrigation Efficiency, Table 1: “2035 Water Conservation and Irrigation Efficiency Potential” (pg 23). In the draft supply plan, both the proposed Low and High Conservation Potentials for agriculture are listed at 25 million gallons per day (mgd). The total agricultural demand for 2035 is projected at 154 mgd, meaning that over the course of the next 20-years the expectation is that agriculture will initiate a conservation effort resulting in a 16% reduction of water use, equating to 25 mgd conserved. The way it is presented in Table 1, as both the low and high conservation potential, could lead the reader to mistakenly interpret the 25 mgd as an infallible and unquestionable reduction goal that the agricultural community is then obligated to obtain. It is much more realistic to provide a range of values, such as was done with the conservation projection for public supply (11 mgd-21mgd). The table should be amended to include a low conservation potential other than 25 mgd to better reflect variable, real-world conditions and to thwart unrealistic and/or unobtainable expectations.	The SJRWMD and SRWMD have deferred to FDACS regarding the potential irrigation efficiency for agricultural practices. Currently, FDACS FSAID does not provide a range for agricultural and potential irrigation efficiency. The projections made for the NFRWSP were developed using the best available information at the time developed.
157	Gus Olmos, Alachua County Environmental Protection Department	12/05/2016 via email	As indicated in Appendix B, the projected demand from different types of supply sources, i.e. public water supply, small public supply and "domestic self supply", is based on the assumption that the % share from each of these in 2035 will generally* be the same as it is currently.This constant "percent-share method" for projections very likely understates the demand from public water supply sources in 2035 in areas such as Alachua County (and probably in other urbanizing counties in the region) where the trend has been significantly higher proportions of new development being approved in urban areas connected to public water supply sources; this trend along with Comprehensive Plan policies promoting such development in urban areas served by public water supply systems will result in increasing shares of population utilizing public water supply systems rather than small public systems or DSS. (*According to discussion in Appendix B, " a 1 percent per conversion of domestic-self-supply to public supply systems was added to viable public supply systems by proportion in" seven counties in the region. There are other counties in the region, including but probably not limited to Alachua County, where recognition of such a shift in the share of demand to public supply systems would also be appropriate.)	Your comment has been noted and is discussed in Appendix B. Of importance, the NFRWSP Stakeholder Advisory Committee (SAC) voted 12-0 on December 15, 2014 to approve the methodology and associated projections for the public supply and small public supply systems, DSS, L/R/A, C/I/I & M/D categories. The NFRWSP SAC also voted 11-1 on February 17, 2015 to approve the methodology and associated projections for the reclaimed water category. The projections made for the NFRWSP were developed using the best available information at the time developed. Planning projections are updated at least once every five years to take into account improved data and methodologies.
158	Gus Olmos, Alachua County Environmental Protection Department	12/05/2016 via email	The projected increases discussed in the text and shown in Figures 5,7, and 8 in demands from Domestic Self Supply in this section are likely overstated, and, conversely the projected increases in demand from Public Water Supply are likely understated, because the use of the constant "percent-share method' for projections doesn't correspond with shifts of population to urban areas with Public Water Supply systems,as detailed in the comment above on Appendix B.	Your comment has been noted and is discussed in Appendix B. Of importance, the NFRWSP Stakeholder Advisory Committee (SAC) voted 12-0 on December 15, 2014 to approve the methodology and associated projections for the public supply and small public supply systems, DSS, L/R/A, C/I/I & M/D categories. The NFRWSP SAC also voted 11-1 on February 17, 2015 to approve the methodology and associated projections for the reclaimed water category. The projections made for the NFRWSP were developed using the best available information at the time developed. Planning projections are updated at least once every five years to take into account improved data and methodologies.
159	Gus Olmos, Alachua County Environmental Protection Department	12/05/2016 via email	Appendix L. Missing units for Estimated Water Supply	This has been revised.
160	Gus Olmos, Alachua County Environmental Protection Department	12/05/2016 via email	Appendix M. Missing units for Estimated Water Supply Benefit	This has been revised.
161	Gus Olmos, Alachua County Environmental Protection Department	12/05/2016 via email	Appendix M. Project # 16 should be listed under Levy County not City of Archer	The name has been changed accordingly.
162	Gus Olmos, Alachua County Environmental Protection Department	12/05/2016 via email	Chapter 2 - Introduction to Water Supply Planning. """It is important to note that, while the NFRWSP may not be used in the review of CUPs/WUPs, the Districts are allowed to use data or other information used to establish the plan in reviewing CUPs/WUPs"". This statement seem in conflict with the requirements of Subsection 373.709(7), F.S."	While water management districts cannot use regional water supply plans directly in the review of water use permits, the districts can use information and data developed to support the regional water supply plans in reviewing permits.

163	Gus Olmos, Alachua County Environmental Protection Department	12/05/2016 via email	Executive Summary.Comment: Water policies that promote reclaimed water credits for landscape irrigation, in particular for new development, have the unintended consequences of perpetuating and promoting water and fertilizer dependent landscapes, increasing nutrient loadings in impaired watersheds, decreasing aquifer recharge, and increasing water loss due to evapotranspiration. Water policies that give credit for reclaimed water credits for industrial uses, such as cooling water for power plants, reflects a "highest and best use" credit hierarchy. Alachua County Recommends: The draft water supply plan be revised so that reclaimed water credit policy discourages credits for residential and commercial landscape irrigation for new development. The policy should clearly encourage only uses of reclaimed water uses that do not involve landscape irrigation such as agricultural, industrial or commercial uses. Regarding residential and commercial landscaping, partial credit should only be considered for retrofitting existing landscape irrigation with reclaimed water, not for new development landscape irrigation. With regards to water credits for landscape irrigation, the utility other responsible party will need to establish a framework such as deed restrictions to ensure that low/no irrigated landscaping is not replaced with high irrigation landscaping at later date or establish a trigger that requires additional water offsets to compensate for changes to water intensive landscaping.	Where allowed, the Districts rely on Section 373.250, F.S., for implementing substitution credits for reclaimed water. Furthermore this section clearly states that "... a water management district may neither specify any user to whom the reuse utility must provide reclaimed water nor restrict the use of reclaimed water provided by a reuse utility to a customer in a permit or, unless requested by the reuse utility, in a water shortage order or water shortage emergency order."
164	Gus Olmos, Alachua County Environmental Protection Department	12/05/2016 via email	"Identifying water supply projects to meet the water needs identified in the NFRWSP within the local government's jurisdiction". The demand projections in Appendix B are aggregated to the County level. It is difficult to estimate the specific local government's water need from the information supplied in the plan; especially for local governments without a utility.	Appendix B of the NFRWSP does contain detailed projections at the permit level for both Public Supply and Power Generation. Of note, groundwater demands for other water use categories were spatially distributed and can be aggregated to any boundary upon request.
165	Gus Olmos, Alachua County Environmental Protection Department	12/05/2016 via email	Relationship to SJRWMD and SRWMD Regulatory Programs. The plan should include a discussion of all the tools avilable to the Districts, including permit reductions, denials and more stringent water use restrictions as part of a water shortage declaration.	Implementation of regulatory requirements are outside the scope of a regional water supply plan. However, these programs are implemented as part of the Districts' respective permitting programs and during a District declared Water Shortage.
166	Lauren Staples	12/05/2016 via nfrwsp comment form	1a) Appendix B technical memorandum states "the PSC requires each Power Generation facility produce detailed ten-year site plans for each of its facilities." Where is this specific, enforceable type plan in the body of the plan? This plan merely suggests ideas and mentions some projects that have been submitted for helping the problem. It needs to be a strong, clear and enforceable plan with quantifiable mandates to users in the body of the plan, not the appendix. 1b) There needs to be a plan to audit the water use on a schedule between now and 2035; and to amend if the use grows at a faster rate than projected. Accountability and roles and responsibilities need to be clearly delegated and the audits should be published on an established frequency to the public. 2) Amendment 1 moneys are already being divided by the legislature and we need to remind them that those funds were intended for land acquisition and protection of our water resources. This plan should clearly stake a claim on this money! 3) This plan does not mention any current dam issues and arguments/resolutions such as the Rodman Dam. 4) The methodology used in this plan assumes the neighboring water districts will be at 2009 levels and only looks at the 2035 project increase within our boundaries. I think the plan should reach out to the neighboring water districts and get a more realistic projected use from those outside our boundary.	The ten-year site plans are a requirement of the Public Service Commission, not the water management district. The Districts use information contained in the respective plans to assist in water supply planning. The NFRWSP assessed regional groundwater withdrawals as projected through 2035 using BEBR medium projected growth rates for all water use categories, except for agriculture which utilized FDACS FSAID. The projections made for the NFRWSP were developed using the best available information at the time developed. Planning projections are updated at least once every five years to take into account improved data and methodologies.
167	Phillip Scanlan	12/05/2016 via nfrwsp comment form	Clearly we are using up our aquifer (Traditional) water supply as a result of continued growth. In addition the aquifer water supply is at risk of salinization in key growth areas like Fernandina Beach, Florida. Therefore, there should be a plan to reduce reliance on Aquifer (Traditional) water supply and move to other water supplies. One way would be to rank order Aquifer water supply uses and limit lower level uses. For example drinking water would be a high level use and perhaps Agriculture a Mid-range use and Industrial use a low level use.An alternative to limiting low level uses of the aquifer would be to use a market based technique to deter low level uses. Aquifer withdrawals are free today for a limited and valuable community resource. Put a price on aquifer withdrawals, perhaps when permits are issued. For example a permit could have a fixed fee and an annual fee per gallon of annual withdrawal permitted. This would encourage users to look for conservation methods and alternative sources of water. A price on water withdrawals would also enable building of a Capital Fund for desalinization plants that appear to be needed in the future -- due to the continued and unlimited growth in Florida. All existing users should be asked to develop a plan to reduce their current water usage by 21% by 2035, to offset the 21% growth projected. An incentive could be provided to do this by providing a discount on the aquifer water withdrawal charges for meeting this goal. Money drives everything, we need an economic driver to control usage of our limited water supply. We need a user charge for the amount of water being withdrawn to drive the right user behavior. It is either charge me now or charge me more later. If we do not control the water usage we will need desalinization plants later and high costs to build and operate those plants will be charged to users. I believe we have to admit the current approach to permitting free water usage for all growth is not a workable to sustain our limited water supply. Therefore, we need to introduce a new economic driver as an incentive to manage use of this limited resource, before it is too late to save a resource that is depleted or ruined by salinizaiton.	In developing the NFRWSP, the Districts estimated future water demand for the planning horizon, then identified water sources that could be developed to meet the demand in a sustainable manner. Available sources include the continued use of traditional fresh groundwater where such use is sustainable. However, since traditional fresh groundwater cannot supply all the anticipated demand through 2035, the plan identifies other sources that can be developed. The plan does not rank the water supply development project options since the best option for any given use will depend on a number of variables. It is up to each applicant to decide what project options work best for them. Monetary charging for water is outside the authority of the water management districts. Implementation of water conserving rate structures for public water suppliers is evaluated via the Districts regulatory programs and implemented by water suppliers.

168	Phillip Scanlan	12/13/2016 vial email	My comment on the draft Plan is that it lacks a recommended "Sustainable" Goal, Strategy and Plan for use of available water supply. The draft plan seems to simply provide options on how to meet all projected demand without a Goal, Strategy, or Plan to maintain a Sustainable water supply. The draft plan states that 94% of the current water supply demand is met from our fresh groundwater and that is expected to be the major source of our water supply in the future. However, the draft report identifies that our groundwater supply is being contaminated with chloride due to some wells withdrawing too much water and pulling salt water into the aquifer from below the aquifer. The draft report also states the current use of our fresh groundwater supply already exceeds the sustainable yield of the fresh groundwater system and the projected increase in water supply cannot be met from the fresh groundwater supply without causing unacceptable impacts on water resources. However, there is no Goal to prevent the contamination of our freshwater supply (94% of our water supply) from continued contamination with salt water. There is no Strategy or Plan to protect our groundwater supply from contamination. The current draft Plan allows for continuation of the over withdrawal that causes the saltwater contamination of our fresh groundwater system. I believe we should have a Goal, Strategy and Plan to prevent the contamination of our fresh groundwater supply. That Plan would at a minimum require reducing the withdrawals that are causing the saltwater contamination; but apparently limiting the current withdrawals that are causing this contamination is not an "option" in the draft plan. We are blessed with a very large and wonderful fresh groundwater supply that provides 94% of our water. Protection of that supply from saltwater contamination should be a major Goal of our Water Supply Plan and we should have a Strategy and Plan to achieve that goal. Continuing to contaminate our fresh groundwater supply now with saltwater and then assuming desalinization plants will be built later at great costs to replace our groundwater supply is not a rational or economical Water Supply long term Plan. Expecting the next generation to build desalinization plants at great cost so we can destroy the wonderful groundwater supply we have by allowing continued free over-withdrawals today is not a sustainable plan Everyone knows Florida will have great difficulty in meeting the water supply for Florida's continued growth strategy. Allowing continued saltwater contamination of our major groundwater supply is particularly a bad idea for the future of our water supply. My guess this is allowed to continue because St. Johns River Water Management District (and the state of Florida) has a Goal to meet all demands for fresh groundwater at the lowest possible cost "today". That is quite different from a Goal to maintain a Sustainable and reasonable cost Water Supply for the future.	Chapter 373, F.S., requires the state's water management districts in regional water supply plans to quantify sufficient projects to meet all existing and future reasonable beneficial uses in the planning horizon. The NFRWSP has identified between 203 and 216 mgd in projects to offset the projected increase in water demand of 117 mgd. The referenced results in Appendix C show how predicted drawdown in the Santa Fe River Basin is reduced as a result of WRD projects. Reduced drawdown in the basin reduces withdrawal impacts in the basin, therefore increasing the flows in the Santa Fe River.
169	Gus Olmos, Alachua County Environmental Protection Department	12/05/2016 via email (This comment was inadvertently left off Appendix A and was added on 1/13/2017)	Local governments are required to modify the potable water sub-elements of their comp plan by incorporating water supply projects. What if the local government is not a utility?	The requirement pertains to local governments and not utilities. Per subsection 163.3177(6)(c), 18 months after governing board approval of a water supply plan, a local government must amend their compressive plan to include alternative water supply projects. These projects can come from the NFRWSP or local governments can propose their own projects. This provision applies regardless of whether they operate their own utility or not.
170	Gus Olmos, Alachua County Environmental Protection Department	12/05/2016 via email (This comment was inadvertently left off Appendix A and was added on 1/13/2017)	Is freeze protection inclued in agriculture water use projections?	The FDACS FSAID II projections utilized historic water use by crop type, which in some years included water use for freeze protection. In water supply planning the Districts are required to project for average and one in 10 drought conditions. Freeze protection quantities are included as permitting scenarios in the Districts regulatory programs.
171	Gus Olmos, Alachua County Environmental Protection Department	12/05/2016 via email (This comment was inadvertently left off Appendix A and was added on 1/13/2017)	Agriculture acreage is expected to increase. What land use is expected to be converted to ag? Silvaculture?	The projected increase in agricultural acreage detailed in the report represents the growth in irrigated agricultural acreage through the planning horizon. The FDACS FSAID2 model converts unirrigated agricultural land to irrigated agricultural land to meet the projected growth in irrigated acreage.

172	Gus Olmos, Alachua County Environmental Protection Department	12/05/2016 via email (This comment was inadvertently left off Appendix A and was added on 1/13/2017)	It should be clarified that the CCI water use only includes CCI uses that are self supplied, not those supplied with public supply as the water source.	Page 7 of Appendix B of the NFRWSP defines self supply categories as follows: "Self supply categories obtain water from a dedicated, on-site well and are not connected to a central utility." The Commercial/Industrial/Institutional and Mining Dewatering (CII/MD) category is described as a self supply category both in Chapter 3 and Appendix B.
173	Gus Olmos, Alachua County Environmental Protection Department	12/05/2016 via email (This comment was inadvertently left off Appendix A and was added on 1/13/2017)	It should be clarified that the Landscape/Recreational/Aesthetic category does not include most residential and commercial landscape irrigation, as that is included in DSS or Public Supply. I have seen these numbers misinterpreted by readers assuming that this category includes all landscape irrigation.	Page 7 of Appendix B of the NFRWSP defines self supply categories as follows: "Self supply categories obtain water from a dedicated, on-site well and are not connected to a central utility." Chapter 3 and Appendix B define the L/R/A category as follows: "The LRA category represents water use associated with the irrigation, maintenance, and operation of golf courses, cemeteries, parks, medians, attractions and other large self-supplied green areas. Landscape use includes the outside watering of plants, shrubs, lawns, ground cover, trees and other flora in such diverse locations as the common areas of residential developments and industrial buildings, parks, recreational areas, cemeteries, public right-of-ways and medians. Recreational use includes the irrigation of recreational areas such as golf courses, soccer, baseball and football fields and playgrounds. Water-based recreation use is also included in this category, which includes public or private swimming and wading pools and other water-oriented recreation such as water slides. Aesthetic use includes fountains, waterfalls and landscape lakes and ponds where such uses are ornamental and decorative.
174	Gus Olmos, Alachua County Environmental Protection Department	12/05/2016 via email (This comment was inadvertently left off Appendix A and was added on 1/13/2017)	It is likely that many of the projects overestimate water savings.	Until projects are implemented, potential water benefits are estimates. Project benefits could be greater or smaller than anticipated. The potential mgd identified in Chapter 7 is reflective of the most accurate estimates available, and reflect utility and stakeholder input for these projects.
175	Gus Olmos, Alachua County Environmental Protection Department	12/05/2016 via email (This comment was inadvertently left off Appendix A and was added on 1/13/2017)	Tiered rates are a great tool, but to be most effective the WMDs need to prohibit new wells where public supply is available. This would avoid the alarming trend of property owners shifting outdoor use to a private well that is then not accounted for in water use estimates. At the very least, the WMDs could delegate this authority to local governments.	Regulation of private irrigation wells is addressed by the Districts' water use regulatory programs and not in the Districts' regional water supply plans. This comment has been forwarded the Districts regulatory staff and they will contact you.
176	Gus Olmos, Alachua County Environmental Protection Department	12/05/2016 via email (This comment was inadvertently left off Appendix A and was added on 1/13/2017)	Current USGS water use estimates do not include the water used for outdoor uses from private irrigation wells for properties that are also served by public supply. There is concern that total water use may be grossly underestimated and that per capita water use may be artifically decreased by omitting this use from the equation.	As noted in Appendix B under the L/R/A section, there are current data limitations and it is recognized that demand supplied from residential irrigation wells (for those residencies that are connected a public supply utility) are not included in the District's projections. We do not believe that the omission of these wells represents a gross underestimate of water use based on the scale of irrigation in the Districts, however we look forward to working with stakeholders on future planning efforts. Future planning efforts will investigate options to include demands for these wells.

*Comments received in writing have been stated as provided by the commenter. Comments received orally in the public workshops may be paraphrased.

Appendix A-2

Written Public Comments Received

From:	Ann Shortelle
To:	nfrwsp-comments
Cc:	John Fitzgerald
Subject:	FW: NFRWSP
Date:	Monday, October 24, 2016 4:58:02 PM

Ann B. Shortelle, Ph.D.
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St. Johns River Water Management District
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From: Paul Still [mailto:stillpe@aol.com]
Sent: Monday, October 24, 2016 2:41 PM
To: ndv@srwmd.org; Ann Shortelle <ashortelle@sjrwmd.com>
Subject: NFRWSP

I am still working on a detailed review and response of/for the North Florida Regional Water Supply Plan (NFRWSP), but on the initial review I have several concerns about the current draft.

The current draft of the NFRWSP does not meet several key elements required by the Florida Statute addresses water supply planning.

1. The Statute requires a least 20 year planning period. The current plan when adopted will not cover 20 years.

2. Self-suppliers were not represented on the SAC. The lack of representation for self-suppliers was repeatedly pointed out to the Water Management Districts during the early SAC meetings.

3. The plan fails to identify sufficient projects that have a total capacity of which will, in conjunction with water conservation and other demand management measures, exceed the needs identified.

I would contend that item 3 is a fatal flaw in the plan. The methods used to calculate the water needed are flawed because they are for only one of the flows required in the Lower Santa Fe MFL. The draft document fails to provide sufficient detail to determine if

the assumed amount of flow noted in Appendix G will achieve recovery of the flows at the Fort White gage.

The results shown in Appendix C (Simulated Change in the Potentiometric Surface within the North Florida-Southeast Georgia Regional Groundwater Flow Model Area) would indicate the proposed projects will have no impact on the flow at Fort White gage. The projected potentiometric surface change at Fort White is the same with or without the proposed projects. The low flow at Fort White is driven by the potentiometric surface.

An issue not related to statutory requirements is the designation of Water Resource Caution Areas (WRCA). The data for the parts of Bradford County that are in the SRWMD do not seem to support the declaration of this part Bradford County as a WRCA. The plan indicated the Upper Santa Fe MFL is being meet and will be met in 2035. Lakes and wetlands are not shown to be a constraint. No data is presented in the NFRWSP to demonstrate that water use in Bradford County will impact the Lower Santa MFL.

I contend there is a technical issue with using the Groundwater model to predict changes in the potentiometric surface changes less than 2.5 feet. The model calibration results seem to indicate that at 2.5 feet the model results are only able to match known data within 2.5 feet about 50% of the target wells. The images in Appendix C depict changes at 1 foot or less.

Paul Still
904 368-0291

From:	noreply@formstack.com
To:	Jerry Carter; nfrwsp-comments
Subject:	northfloridawater-draftreview
Date:	Wednesday, November 16, 2016 8:20:46 AM

Formstack Submission for form northfloridawater-draftreview

Submitted at 11/16/16 8:16 AM

Name:	Dennis Price
Organization:	SE Environmental Geology
Email:	den1@windstream.net
Phone number:	(386) 362-8189
Comments:	I presented committee members my thoughts, and a map, to construct drainage wells at the discharge points of most major wetland systems in the North Florida Flatwoods. These would be passive systems that recharge the aquifer during winter and early spring when flow from these wetland systems are at their highest. Recharge would also occur after major rainstorm events. Amendment 1 money should be used to purchase these wetland systems. The premise is that since the late 1800's to probably in the 1970's, most wetlands systems were ditched to some extent, and many drastically, for logging purposes and for the establishment of pine plantations. Natural recharge in these flatwood areas are minimal to begin with but with the drainage that occurred, we have even less recharge. The wetland systems proposed are located in Hamilton, Columbia, Baker, Union and Alachua counties. Costs associated with the construction of the 20 or so wells proposed would be millions less than the single proposal of pumping Suwannee River Water to Falling Creek. The location of these wells would also recharge the Floridan in a broad area where most needed to reverse the loss of water in this strategic region that supplies water to The aforementioned counties and the northern part of the SJRWMD. If you are interested in a map, please e-mail me and I will send it along. Sincerely

Indianapolis, IN 46250

From:	noreply@formstack.com
To:	Jerry Carter; nfrwsp-comments
Subject:	northfloridawater-draftreview
Date:	Tuesday, November 08, 2016 6:15:33 PM

Formstack Submission for form northfloridawater-draftreview

Submitted at 11/08/16 6:15 PM

Name:	Dr. Patrick Welsh
Organization:	Stakeholder Advisory Group, SJRWMD Environmental Interests Representative
Email:	patwelsh@me.com
Phone number:	(904) 705-5241
Comments:	This report is submitted to the Water Supply Plan as agreed upon during the SAC formation process which included the right of each SAC member (or members) to submit a minority report to represent their minority view. Overall the SAC did not serve its purpose; that is the incorporation of stakeholder input into the Regional Water Supply Plan (WSP). Little of the important stakeholder input made it to the final WSP, and both the process and end product were not without serious flaws as listed below. The Committee moderators (FSU-based contractors) did a comprehensive and effective job at their tasking. Specifically, the newly developed (and as of yet not scientifically peer-reviewed) North Florida Regional Water Model (the Model) is out-of-date by at least ten years of published scientific USGS Guidelines (Reilly and Harbaugh 2004) which requires a transient model for our declining drinking water source the Upper Floridan Aquifer; and the nearly one-year late Regional Water Supply Plan (WSP) is being derived from that model's results which consistently underestimate drawdown (loss of aquifer water level) given excessive withdrawal such has been shown to exist in North Florida by recent published science (Knight and Clarke 2016). During SAC briefings and discussion over the last two years, this point was made several times, including handing a presentation speaker a copy of the published guidelines (i.e. Reilly and Harbaugh 2004 Adopted as U.S. Geological Survey Scientific Investigations Report 2004-5038). Thus the Water Supply Plan (WSP) is inadequate (if not invalid due to the Model) for its purpose-which is to guide the cities, communities and counties of North Florida in their development planning for the coming decades, but also due to several egregious flaws in its draft form. Among these flaws are the following problems: 1. Florida Statute requires at least a 20-year planning periods and further indicates a 30-year planning horizon; if adopted, the current draft will not

cover 20 years.
2. Florida Statute identifies Flood Protection to be addressed in the WSP, an important item especially for Alachua, Bradford, Clay, Columbia and Suwannee counties as a minimum.
3. Cumulatively, the WSP does not identify sufficient projects (let alone funding) which when added to conservation and RECHARGE or demand management additions have sufficient capacity to exceed the demands for those needs identified in the WSP. Specifically, the existing MFLs and Prevention and Recovery status RECHARGE projects for the Keystone Heights area lakes in Prevention and Recovery, and the new Lower Santa Fe MFL at the Ft White gauge, which are driven by declining Upper Floridan Aquifer levels in their respective areas without adequate projects or other measures required by for F.A.C. Statute and Utility Permits for Mitigation. This would appear to be a singular fatal Statutory flaw.
4. Additionally, several germane items were never presented to the SAC or addressed in the WSP. Among these are: Water Reservations in addition to MFLs for the Prevention and Recovery Lakes in the Keystone Heights area; Water Resource Caution Areas for all or parts of Alachua, Bradford, Clay, Columbia, Duval, Putnam and Union Counties and the supporting data both pro and con; Modern Water Recharge and Water Purification Wetland Basins design and examples; and finally the lack of sufficient Model accuracy to predict decadal impact near MFLs impacted areas (i.e. tenths of a foot estimates of decadal change) and less than 1 foot potentiometric error over the domain. Appendix C is germane; and Appendix C fig 2C heading is mislabeled. More real data is required rather than correlated GIS approximations, which can substitute for periods of missing data, but not replace additional data required, both effectively and in accuracy.
5. The requirements of self-supplied users were not represented at the SAC or WSP,
thus giving the impression of a utility-driven, utility-serving process and product.
6. Allocated groundwater use in North and Central Florida is nearly double current estimated uses (Knight and Clarke 2016). It is understood that Agriculture needs considerable flexibility for drought protection, but utilities need only a small margin. High groundwater pumping rates are nearly a third of average annual recharge, impacting springflow across the Region.

These items obviously need correction as soon as possible.

My Personal View

Overall, I gladly served on the SAC and appreciated the public service of the other members, especially those who served unpaid by their employers or travelled considerable distances to participate. In my opinion Florida's Water is being wasted by bad policy, poor management and utility greed, and these need to stop; because water is a finite resource which the Florida public and Florida's leaders have come to take for granted.
As one who grew up and did graduate study in California, the public, press, and Florida leadership need to be involved now, and change that attitude. I can tell you, that attitude and path leads to a lifetime of troubles, and was part of my personal decision to spend the last 25 years in Florida and retire here. I have spent my lifetime of work on issues involving the world's oceans and atmosphere, and most recently the St John's River (SJR) system (including work as a University Research Professor and lead co-

author of the original St Johns River Report).
I cherish the SJR's unique nature among our nation's resources. I now add a focus on the Upper Floridan Aquifer and springs to my highest priority list. Florida's Water has my personal commitment as a high priority, and I intend to make a difference in its allocation, use and preservation statewide. Upper Floridan Aquifer Recharge was the goal of my participation in this process, and those whom I represented (Environmental interests) on the SAC. My inability to impact the resulting Water Supply Plan in protecting that resource (or engender any RECHARGE mindset change) with these two WMDs fuels the motivation I have to write this Minority Report.

The Importance of Elevated Direct Upper Floridan Aquifer Recharge (EDUFAR)

The following section specifically addresses the unique and vastly important resource and role of the Etoniah Chain-of-Lakes in the direct and elevated Upper Floridan Aquifer recharge which has been squandered to the level of over 40 BILLION gallons of drinking water. This area is crucial for our future drinking water in North and Central Florida as well as North Florida's future development. It has problems which must be corrected by restoring stream flow out of the Trail Ridge to the Etoniah Chain-of-Lakes which provide elevated recharge directly to the Upper Florida Aquifer.

A review of the Etoniah Chain-of-Lakes in the context of Upper Floridan Aquifer Recharge

Keystone Heights was founded by Pennsylvania natives (the Keystone State) in the late 19th century. Keystone Heights is located on and between both Lake Brooklyn (officially known as Brooklyn Lake) and Lake Geneva, which also contains small Lake Keystone and Alligator Creek South within its boundaries. As you can easily imagine, the dehydration of these water bodies has had a devastating impact economically on this community, but that pales in comparison to the impact on the Aquifer and our State. The last time any of these water bodies was at its original level and fully recharging the Upper Floridan Aquifer (UFA) was 1998, when due to an El Nino winter, nearly all of North Florida's streams, rivers and water bodies were at extreme flood stages. However, in Keystone Heights, only Lake Brooklyn was full. Lake Brooklyn, for the first time in at least a decade, was starting to provide water to both Lake Keystone and Lake Geneva via Alligator Creek South, as well as reaching full recharge potential. Lake Geneva did not recover substantially during this El Nino period in spite of record floods elsewhere in the surrounding counties. The onetime spike in UFA recharge is very evident in the record of Upper Floridan Aquifer Well C-120 near Lake Brooklyn, but declines sharply and immediately as Lake Brooklyn's level declines dramatically in the next two years. Longstanding local residents know the Keystone Lakes recharge value to North and Central Florida from local history.
Local residents have a long history of going to their local and state governments asking for help to restore their water bodies, predating the Water Management District's creation. In fact, because of this history, these lakes have one of the most lengthy and carefully studied and documented scientific base datasets in the state, done 50 years ago during a period when the scientific community was blossoming with new capabilities,

instruments and cheap graduate student labor. It was then that the vast volume of Upper Floridan Aquifer recharge provided by these lakes, and therefore the importance of these unique lakes to the ecosystem and citizens of North and Central Florida was scientifically documented.
Studies were initiated in response to the disastrous drought of the mid-1950s which lasted several consecutive years. Brooklyn Lake was extensively studied by both the Florida and U.S. Geological Surveys (Clark et al. 1963), and the surrounding counties hydrology (including Lake Geneva) was concurrently studied due to the extensive drought during 1955 to 1958 timeframe (Clark et al. 1964). Lake Brooklyn receded markedly and the report ultimately concluded that the “lack of rainfall upset the hydrologic balance that normally keeps the lakes from falling” (Clark et al. 1963), Brooklyn Lake levels dropped 20 feet by 1958, but by the fall of 1957 the premier hydrologists and geologists of the state of Florida and U.S. Geological Surveys were on the scene, and taking data on the inputs, levels and outputs of Brooklyn Lake (Clark et al. 1963).
Imagine the urgency that engendered that scientific mobilization in that timeframe, and the perceived need to understand what was happening. It was like the coordinated response to major Hurricane Matthew, which just recently occurred. The Local, State and Federal authorities all recognized the urgency and threat, and responded to it rapidly. The response at that time was not for two weeks, but lasted more than three years. We could not afford to replicate these studies at current cost levels. Imagine a pair of three-year duration field studies of Hurricane Matthew’s impact on Florida. Such a study to be led by current prominent hydrogeologists and engineers, using current technologies and teams of graduate student labor; one study focused solely on the unique hydrology and geology of the St Johns River response, and the second focused on the context of the Hurricane Matthew multi-county impact, would require a huge budget and probably Congressional approval.
Yet two such studies were funded and did occur in response to the Mid-50s drought. The first focused on the specific and unique overall hydrology of Brooklyn Lake and the second focused on the overall hydrology of the Trail Ridge and the surrounding counties; including how it functions to provide high quality water to the Upper Floridan Aquifer and North and Central Florida citizens. They have left us a clear and unique vision of the importance of Brooklyn Lake and the surrounding hydrogeology and how it works to recharge the Upper Floridan Aquifer providing our drinking water in North and Central Florida, and simultaneously helps pressurize North Florida’s world-renowned springs.

Evolution of this Upper Floridan Aquifer Recharge System

In a single sentence summary, ancient rain falling on the Trail Ridge highlands and entering the clean sands of the Trail Ridge surficial aquifer, is filtered and purified by natural processes and passed to a Chain-of-Lakes and Alligator Creek which flows south. The resulting water quality was remarkable. This too, is well documented in the scientific literature, both for chemical purity and very high water clarity of water stored in the Upper Floridan Aquifer over geologic time, and the clarity of the deep Keystone Lakes of the 1960s era. But, nature was not done before the Keystone Lakes even existed; it was just starting to refine the design for the underlying Aquifer filtration system in North and Central Florida.
The ancient sea formed a bay over and around the south end of the Trail

Ridge long before the (then submerged) St Johns River basin even existed. Geologically, this old formation lacks uniformity as you can imagine from active stormy coastline along the Trail Ridge to the north and mixed debris of sand, clay, and dolomitic limestone swept by storms into the embayment on the south end and extending further to the south of the Trail Ridge. Geologic time and Trail Ridge erosion took their toll in shaping the regional uplands, and falling sea levels during glacial ice ages exposed new lower coastal plains and a longer Florida Peninsula to add to the Trail Ridge, and thus the St Johns River system evolved from an intercoastal waterway to its current inland form. Meanwhile water flowing from the Trail Ridge eroded some of the clay laden layer which acted as a water boundary above the thick dissolvable limestone layer below, now known as the Upper Floridan Aquifer. In some spots the erosion focused in small areas and formed stream channels, eventually including some exposed limestone and later, sinkholes and underground water channels developed.

The geological nature and uniqueness of the area and its signature lakes and their Elevated Direct Upper Floridan Aquifer Recharge (EDUFAR) predates human habitation by many thousands to millions of years. Both Brooklyn Lake and its partner-in-recharge, Lake Geneva, have lake beds formed by multiple contiguous sinkholes, each collapsing through the thinning edge of the mixed clay and dolomite layers deposited in the bed of the ancient arm of the sea, and dissolving their way into the thick limestone beds forming the multi layered water-bearing limestone and dolomite aquifer strata below.

Brooklyn Lake and Lake Geneva are built of a chain of connected sinkholes collapsed into the Upper Floridan Aquifer and filled by their feeding streams which were also carrying the clean sand of the Trail Ridge washed downstream and into the sinkholes, creating a final sand filter to further polish the natural water purification process.

To be fair, these USGS and Florida Geological Survey reports (Clark et al, 1963 and 1964) were written by expert field geologists who did not use detailed, expansive prose. They were experts, but told it like it was, in short declarative sentences. Their readers have to understand they wrote for their peers in science, and did not repeat non-essential background. It requires significant effort to read, study, and analyze their writing. When such analysis is completed, then one must, as a minimum, re-read it. I have read one paper five times in the last 5 years.

For example, those who cite “it is just rainfall” as the reason for these lakes decline clearly failed to read the second paragraph of the conclusion which states “The lake’s source of replenishment is rain that falls directly on the lake surface and surface inflow from Magnolia Lake.…(But goes on to say later)…The lake received almost twice as much water from the surface inflow as it did from rain…”(page 43). That inflow is known as Alligator Creek South. The Clark 1963 study was an extensive one that lasted three years until Brooklyn Lake recovered its full volume in spite of its extremely high recharge rate, referred to by the authors as “seepage” in geologic terms. Due to the confining layer above the UFA in most areas of elevated recharge, recharge of the aquifer is a slow process. It is normally just that, water seeping slowly through sediment capping layers into the aquifer layers below, powered by weak gravitational dripping. Normally in the recharge world, recharge flow is a slow drip.

Conversely, it is not a slow dripping recharge in the Keystone Lakes region. Clark and colleagues further described the water balance of Brooklyn Lake

in their conclusions as:

“Water leaves the lake through evaporation, surface outflow and seepage. From October 1957 to September 1960, seepage was by far the greatest loss, accounting for 55 percent of all losses, or an average of 3 MGD. Evaporation took 35 percent and surface outflow took 10 percent of the total loss.”

In other words, during the period of intensive study, the RECOVERING Lake Brooklyn with lowered lake levels and consequent low pressure forcing water into the directly connected Upper Floridan Aquifer “seeped” an AVERAGE of over a billion gallons of recharge into the drinking water aquifer of North Florida each year for three years. Seepage was roughly twice evaporation and five times outflow. Again, the first year the lake was down over 20 feet, the second year at mid-recovery, and finally less than year at a full lake level and full recharge.
That is some very serious “seepage” indeed. Other estimates have put the recharge of Brooklyn Lake much higher when the lake is full, which is entirely consistent with an additional 10 pounds of water pressure per square inch of lake bottom. While it is a low pressure hose feeding the aquifer, it is a very huge diameter hose, and when full, is also an excellent water-quality source for our North and Central Florida drinking water. Many have referred to Lakes Brooklyn and Geneva as the “Water Towers of North Florida” as they serve much the same function as a town’s steel water tower-pressurizing the water and its attached distribution system. Lake Geneva is the larger lake, and by most estimates the much larger contributor of water to the UFA when full, but much less studied than Brooklyn Lake, and has not been near full for decades-certainly not for any extended period since the MFLs for it were created.
Certainly, the vastly degraded Lake Geneva cannot provide even adequate modern measurements or estimates of its potential recharge. These Lakes provide billions of gallons of clean water to the Upper Floridan Aquifer when full, and they need to be restored to that state and function to provide future fresh water for North and Central Florida’s future needs. Rough and conservative estimates show we have lost well over 40 BILLION gallons of drinking water during their drawdown caused by over-pumping. SJRWMD model studies show over 10 feet of drawdown on Lake Brooklyn from over-pumping with a steady-state model that USGS evaluations clearly show that the steady state Model understates the drawdown effect of over-pumping. Twenty-two years of MFLs violation on these Keystone Lakes and their decreased recharge must cease, and multiple real and effective “Recovery” and “recharge” projects should commence immediately to restore the elevated recharge feeding drinking water to North and Central Florida.

Alligator Creek South

The name Alligator Creek is the source of considerable confusion both among the public and local government in Clay and Bradford Counties. There are two distinct water bodies with the same name within about 5 miles of each other, both originating on the Trail Ridge but draining in different directions and of differing character.
The older of the two streams geologically is the Alligator Creek which drains the south end of the Trail Ridge through the Etoniah Chain–of-Lakes which includes and connects several large (billion gallon) lakes. Those lakes are

namely: Lake Lowry (or Lowry Lake) and smaller Lake Magnolia on the Camp Blanding property, and further downhill are Lake Brooklyn and Lake Geneva which straddle the town of Keystone Heights. This paper will refer to this stream as Alligator Creek South, as it drains the south end of the Trail Ridge toward the St Johns River.

The other stream drains the Trail Ridge west through a 1939 Civil Conservation Corps (CCC) reinforced ditch toward the city of Starke, and will be referred to as Alligator Creek West. Both originate quite close to one another along Camp Blanding's western boundary, probably less than a mile apart, though anthropogenic changes to the terrain (in this previously mined area) make current and past flow paths irrelevant today. That boundary is roughly shared by the Clay and Bradford County line. Alligator Creek South is fed by the Southwest Quadrant Lake in the Old Mined Area (OMA) on Camp Blanding thru control structures loosely connected to Blue Pond and the rest of the Etoniah Chain of Lakes where over half the supplied water becomes elevated direct recharge to the Upper Floridan Aquifer in Brooklyn Lake and Lake Geneva, and is capable vast Upper Floridan Aquifer Recharge.

Alligator Creek West is fed (nearby but a short distance to the North of its similar stream) by control structures and flows to the West towards Starke and ultimately feeds the Santa Fe River System well downstream of the Santa Fe Lakes, and carries the water to the Gulf of Mexico rather than storing it in recharge.

Man-made changes to the region have changed the drainage over the last century; and these changes have decreased the volume of water flowing to Alligator Creek South dramatically. Photographs of Alligator Creek South exist which show a stream flow with multi-person rafts and occupants flowing swiftly into Lake Brooklyn with enough width and depth to estimate its flow in the tens of cubic feet per second. Reputable individuals from the area report that the stream was navigable in their lifetime by canoe or small boat upstream from Lake Brooklyn to the Camp Blanding boundary fence. It is also clear from Clark et al 1963, that the refilling of the Lake Brooklyn from October 1957 to September 1960 required net flow rates at the same or similar magnitude, at least 5 MGD, disregarding the substantial losses. Clark et al. 1963 actually measured these factors and provided data; such as the measured minimum 3 MGD recharge to the UFA and 2 MGD to evaporation and roughly 1 MGD surface outflow toward Lake Geneva. It should be remembered that these figures were three year averages during recovery and outflow only occurred during part of year three, thus the real recharge was greater than 3 MGD and the outflow rate was closer to 3 MGD, after Lake Brooklyn's recovery to outflow levels.

SOLO has documentation of other changes which have further impacted Alligator Creek South. Such as the Governor of Florida in 1973 ordering the National Guard to stop flooding of State Road 100 by increasing the berm height on Lake Magnolia (and possibly Lowry Lake) at Camp Blanding. Other changes involved bridge and culvert size changes.

Getting It Done

How can we accomplish Keystone Lakes "Recovery" today? Again we can start with Clark and his collegues conclusions in the 1963 paper:

"To prevent Brooklyn Lake from falling below a desirable stage during

prolonged
periods of deficient rainfall it will be necessary to divert water into the lake from other sources."

That statement is as true today as it was 53 years ago, and not just as necessary, but even more necessary today in order to restore pressure-elevated Upper Floridan Aquifer recharge for our drinking water and provide its head pressure to help feed Florida's world famous springs. Some have referred to our proposals as either unprecedented or radical, but yet again, Clark and colleagues provide a clue in the following comment in their conclusions":

"Three possible ways to divert water into the lake are: (1) by pumping from the
Floridan Aquifer; (2) by increasing storage in the three upper lakes during periods
of excess rainfall and releasing it Brooklyn Lake when needed; and (3) by diversion form Santa Fe Lake."

That was truly radical for the time it was written!
SOLO has submitted 13 Projects, which were the only Projects submitted under the Guidelines of the 22 July 2015 SAC Memorandum titled: Regional Water Supply Plan Project Options Presentation Procedures, and met all memorandum deadlines. Current proposals include the 13 SOLO projects for the short and near-term, which "plug–into" the longer term Schreuder Inc. solution to this problem (which was funded by SOLO members) and was briefed to the SAC in early winter (2016) at the same meeting that SOLO presented its 13 Projects.
Since that time multiple extensions of the Memorandum deadlines have been granted to utilities to increase the total number of Projects to greater than 100 Projects, many of which were never briefed to the SAC or submitted through it; even though four utilities Representatives have seats on the SAC.
The formal report of the Schreuder Inc. solution is entitled:

"Approach for the Integrated Regional Water Management to Prevent Flooding in Bradford County, Increase Surface Water Flows in the Upper Santa Fe River, Restore Lake Levels and Enhance Recharge to the Upper Floridan Aquifer"

It was delivered in both draft form (contemporaneously with the SAC briefing) and in its final form directly to the St Johns River Water Management District by SOLO staff in April 2016, and briefed to Local and State representatives by Schreuder Inc. at Keystone Heights City Hall on 18 October 2016. This is a concise cost-effective overall plan for restoring the direct UFA elevated recharge through the Etoniah Chain-of-Lakes.

Schreuder (2016) points out that the "quality of the water is not a limiting constraint" as the Trail Ridge "Old Mined Area" can serve (as it does now for Alligator Creek South) to polish the natural purification process for treated water to make it suitable for lake, wetland and aquifer augmentation. The report figures 6-10 and 6-14 provide an overview of this cost-effective approach to restoring Regional Water Management, and direct elevated recharge to the Upper Floridan Aquifer while decreasing flooding potential

along Alligator Creek West into Starke, and rehydrating Bradford county wetlands and augmenting the Upper Santa Fe River system.

This is not necessarily a low cost option, but a reasonable expenditure to restore high quality recharge to the drinking water supply. It is certainly a more meaningful and effective way to spend funding reserves than to spend equivalent dollars than to clean up Lake Apopka in Central Florida. There are those who say no action is required. In fact, Action is required by Florida Administrative Code 40C-2.381 Limiting Conditions (2) (a) (5-13) which includes items:

6. The permittee's consumptive use of water as authorized by this permit shall not have significant adverse hydrologic impacts to off-site land uses existing at the time of permit application. If significant adverse hydrologic impacts occur, the District shall revoke the permit, in whole or in part, to curtail or abate the adverse impacts, unless the impacts associated with the permittee's consumptive use of water are mitigated by the permittee pursuant to a District-approved plan.

9. The permittee's consumptive use of water as authorized by this permit shall not significantly and adversely impact wetlands, lakes, rivers, or springs. If significant adverse impacts occur, the District shall revoke the permit, in whole or in part, to curtail or abate the adverse impacts, unless the impacts associated with the permittee's consumptive use of water are mitigated by the permittee pursuant to a District-approved plan.

All of the foregoing is both feasible and doable in my judgement as a retired Research Professor of Environmental Engineering, and I encourage and request that the SRWMD and the SJRWMD endorse and actively execute this effort as a very highest priority part of their approach to Regional Water Management and UFA recharge recovery. It is vital to North and Central Florida's natural system "Recovery". The Schreuder Report and SOLO "Plug-in" Projects provide the framework for UFA recovery. The first step in the process of this change would be moving forward with immediate funding requests to their Boards of Directors and expedited initial engineering studies in cooperation with all parties and landholders. I will be glad to assist.

Again, it is formally requested that this Minority Report be attached to the Final SAC Report as an Appendix.

REFERENCES:

Clark, W. E. et al 1963: Report of Investigation # 33 Clark, W. E., et.al. HYDROLOGY OF BROOKLYN LAKE NEAR KEYSTONE HEIGHTS, FLORIDA, Tallahassee, 1963, cl, 43 pages, 26 figs., 2 tables. Available at: booksgeology.com (online nationally)

Clark,W. E., Musgrove, R. H., Menke, C. G. and Cagle, J. W., Jr. 1964, Water Resources of Alachua, Bradford, Clay and Union Counties, Florida. Florida Geological Survey, report Inv. #35.

Knight, R.L. and Clarke, R.A. 2016: Florida Springs – A Water Budget Approach to Estimating Water Availability. Howard T. Odum Florida Springs

Institute, Gainesville, Fl 20 pp.

Reilly T.E. and Harbaugh A. W. 2004: Guidelines for Evaluating Ground-Water Flow Models U.S. Geological Survey Scientific Investigations Report 2004-5038 30 pp.
Available at: pubs.usgs,gov (online nationally)

Schreuder, P. 2016: Approach for the Integrated Regional Water Management to Prevent Flooding in Bradford County, Increase Surface Water Flows in the Upper Santa Fe River, Restore Lake Levels and Enhance Recharge to the Upper Floridan Aquifer Schreuder Inc, Tampa Fl . 53 pages.

This Report is submitted under the provision of the Stakeholder Advisory Committee (SAC) initial rules and procedures which guarantee each member of the SAC the right to submit a Minority Report.

Dr. Patrick T. Welsh Ph.D.
Environmental Representative, SJRWMD
Stakeholder Advisory Committee

From:	John Fitzgerald
To:	nfrwsp-comments; nfrwsp-comments@srwmd.org
Subject:	FW: North Florida Regional Water Supply Plan draft of October 4, 2016 - Comments Attached
Date:	Friday, November 18, 2016 1:15:17 PM
Attachments:	Water Plan Comments - OSFR.pdf image002.png image001.png image003.png

Respectfully,

John Fitzgerald
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From: Herd, Carlos [mailto:Carlos.Herd@srwmd.org]
Sent: Friday, November 18, 2016 1:12 PM
To: Brown, Amy <Amy.Brown@srwmd.org>; John Fitzgerald <JFitzgerald@sjrwmd.com>
Subject: FW: North Florida Regional Water Supply Plan draft of October 4, 2016 - Comments Attached

More comments.

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To: Valenstein, Noah <Noah.Valenstein@srwmd.org>; Ann Shortelle <ashortelle@sjrwmd.com>
Cc: Herd, Carlos <Carlos.Herd@srwmd.org>; Scott Laidlaw <slaidlaw@sjrwmd.org>; OSFR Board <board@oursantaferiver.org>
Subject: North Florida Regional Water Supply Plan draft of October 4, 2016 - Comments Attached

Dear Mr. Valenstein and Ms. Shortelle,

Our Santa Fe River, Inc. (OSFR) is a nonprofit organization with a mission to protect the aquifer, springs, and rivers within the watershed of the Santa Fe River. OSFR requested Mr. Jim Gross (professional geologist and OSFR Advisor) to review the subject draft plan as it relates the mission of OSFR. Mr. Gross reviewed the draft plan and prepared a brief technical memorandum addressing specific issues concerning the draft plan. Mr. Gross concluded that the draft plan does not contain sufficient information, analyses, and recommendations to provide assurance to OSFR that the aquifer, springs, and rivers within the watershed of the Santa Fe River will be protected.

I am attaching a copy of the technical memorandum prepared by Mr. Gross. Please accept this document as comments on the draft plan on behalf of OSFR. OSFR requests that the Suwannee River Water Management District and the St. Johns River Water Management District collaborate to address the shortcomings we have identified in the draft plan before bringing the plan to your boards for approval.

Please feel free to contact me if you have any questions.

Sincerely,

Pamela I. Smith
President 2016-2017
Our Santa Fe River Inc.
Ph. 386-454-8823

"Giving Our River A Voice"

www.oursantaferiver.org

Technical Memorandum

To: Pamela Smith, Our Santa Fe River

From: Jim Gross, MS, PG, CPG

Date: November 18, 2016

Subject: Review of North Florida Regional Water Supply Plan, draft of October 4, 2016.

Purpose

The mission of Our Santa Fe River, Inc. (OSFR) is to protect the aquifer, springs, and rivers within the watershed of the Santa Fe River. OSFR requested the author of this memorandum to review the draft North Florida Regional Water Supply Plan dated October 4, 2016 (draft plan), and to identify key issues that are of interest to OSFR in fulfilling its mission.

Comments on the draft plan

What's good in the draft plan

1. The draft plan recommends that the entire planning region be designated as a Water Resource Caution Area.
2. Some of the water supply options identified in the draft plan are good, particularly those that reduce groundwater withdrawals. Conservation measures and use of reclaimed water are good ways to reduce groundwater withdrawals.

What's not so good in the draft plan

1. From a big picture perspective, the key issue is how much groundwater we are pumping out of the Floridan aquifer system. The draft plan fails to fully characterize the magnitude, regional extent, and cumulative impact of this key issue.
2. The draft plan indicates that as of 2010, water use had already exceeded the sustainable yield of the fresh groundwater system. However, the draft plan fails to determine to what extent existing sources of water are adequate to supply water for all existing and future reasonable-beneficial sources of water

and also sustain the water resources and related natural systems for the planning period.[1] The magnitude of the problem has not been adequately assessed. If the magnitude of the problem is not known, the magnitude of the solution is not known. The districts should revisit the groundwater modeling analysis for the draft plan and incrementally reduce groundwater withdrawals until they demonstrate that all established and proposed minimum flows and levels can be achieved.

3. The draft plan takes a big detour around some key water supply constraints that were already identified in earlier planning efforts by St. Johns River Water Management District (SJRWMD) in its draft 2010 and draft 2013 regional water supply plans. Minimum flows and levels (MFLs) for Lake Brooklyn and Lake Geneva near Keystone Heights were key constraints in those two planning efforts. SJRWMD began to develop recovery strategies for those lakes as early as 2011. These MFLs need to be included in assessing the sustainable limit of groundwater withdrawals for the draft plan. Including them in the analysis could well demonstrate that the sustainable yield is even lower than excluding them.
4. Some of the water resource development projects included in the draft plan are little better than smoke and mirrors and have little or no potential to alleviate water resource problems. For example:
    a. Diverting surface water to recharge groundwater so it can then discharge back to surface water. This is nothing more than a card trick. It does nothing to make more water available.
    b. Aquifer storage and recovery (or ASR) has little if any potential to address the key water supply constraint, cumulative withdrawals from the Floridan aquifer system. ASR is merely a management technique. It is typically used to store fresh surface water underground in an aquifer that does not contain fresh groundwater. Fresh surface water is stored underground when the supply is greater than the demand, and then recovered when the demand is greater than the supply. ASR is essentially a meaningless option over the western portions of the planning region. There are several reasons why ASR will not be an effective strategy for the western portions of the planning region: i) likely fresh surface water sources are already constrained by MFLs, ii) groundwater in the aquifer is already fresh water, and iii) any water injected underground would not be “stored”. It would simply increase discharge of groundwater back to surface water.
5. The Lower Floridan aquifer is identified as an alternative source of water supply. This is hooey and hydrologists know it. The Lower Floridan aquifer is

[1] 373.709(1), FS

simply part of the Floridan aquifer system as is the Upper Floridan aquifer. The two aquifers act as a single water-yielding unit.[2] There is a very limited potential to strategically utilize the Lower Floridan aquifer to mitigate existing water resource problems, but that potential comes with a risk of creating new water resource problems.

6. Brackish groundwater is identified in the draft plan as a water resource development option. However, it is more appropriately designated as an alternative water supply option. Regardless of how it is classified, the salinity of groundwater has little bearing upon the key constraint for this draft plan. If we are already pumping too much groundwater from the Floridan aquifer system, it really doesn't matter whether it's fresh or brackish.
7. The draft plan identifies optimizing groundwater withdrawals as a potential option. SJRWMD looked extensively at optimizing groundwater withdrawals in previous planning efforts using optimization algorithms in conjunction with groundwater flow modeling. The results of the optimization analyses were informative and clear: a) optimization can only marginally increase sustainable yields, and b) the infrastructure and unit production costs for most of the optimization scenarios exceeded the costs for other alternatives.
8. The draft plan states that the groundwater model is good enough for planning but not good enough for regulatory evaluations.[3] That's a somewhat obtuse conclusion, but possibly irrelevant. The draft plan concludes that withdrawals already exceed sustainable limits. It's all one aquifer system. What further modeling is really needed for regulatory evaluations and decisions?
9. The section on climate change discusses uncertainties but ignores significant work looking at likely outcomes of climate change with respect to water supply sustainability. A report by Tetra Tech[4] concluded that large portions of Florida are at high or extreme risk of exceeding sustainable supplies even without climate change. With climate change, most of Florida was identified to be at high or extreme risk of exceeding sustainable water supplies.
10. The Sufficiency Analysis in Chapter 6 of the draft plan is predicated only on the MFLs for the Lower Santa Fe and Ichetucknee rivers. As noted above, key constraints in the St. Johns River Water Management that have been ignored in this draft plan also need to be considered.

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[2] Williams, L. J., and Kuniansky, E.L, 2015, Revised hydrogeologic framework of the Floridan aquifer system in Florida and parts of Georgia, Alabama, and South Carolina: U.S. Geological Survey Professional Paper 1807, 140 p., 23 pls. http://pubs.usgs.gov/pp/1807/index.html

[3] "NFSEG version 1.0 meets the requirements to be used in water supply planning in the NFSEG domain. Version 1.0 of the model will not be utilized in regulatory evaluations or in the establishment of MFLs. However, the model may be used to determine the status of MFLs."

[4] Sujoy B. Roy, Limin Chen, Evan Girvetz, Edwin P. Maurer, William B. Mills, and Thomas Grieb, 2010, Evaluating Sustainability of Projected Water Demands under Future Climate Change Scenarios; prepared by Tetra Tech Inc. for the Natural Resources Defense Council.

11. The draft plan fails to consider other potential strategies to decrease groundwater withdrawals. For example, there does not appear to be any discussion of seeking legislative authorization to levy fees for the withdrawal of water. Such fees could: a) serve as an economic incentive for further water conservation, b) help maximize reasonable-beneficial use, and c) provide an equitable revenue stream for funding alternative water supply development projects and water resource development projects.
12. There appears to be no consideration of coherent and credible regulatory strategies to balance reasonable-beneficial uses while sustaining water resources and related natural systems. In all cases, credible strategies must cap withdrawals at some defined level. Previous examples in Florida include: a) the water use caution areas in SWFWMD, b) the Central Florida Coordination Area rule that capped groundwater withdrawals at a defined withdrawal horizon, and c) the cap on withdrawals from the Biscayne aquifer in southeast Florida. While a regional water plan cannot implement such strategies, there should be some reasoned discussion of approaches that can be taken both on an interim and long-term basis.
13. Language in Appendix G, the Recovery Strategy for the Lower Santa Fe River Basin, provides an example of a strategy element that is not credible: "Applications that do not demonstrate a potential impact to the MFL water bodies shall be issued provided the applicant meets the conditions for issuance." This language seems to indicate that it is incumbent upon the applicant to demonstrate an impact, and that in the absence of such demonstration it is presumed that there is no impact. A demonstration of impact is clearly not in the interest of the applicant. Rather, it should be incumbent upon the applicant to demonstrate that the proposed withdrawal of water will not cause a potential impact.

Conclusion

The draft plan does not contain sufficient information, analyses, and recommendations to provide assurance to OSFR that the aquifer, springs, and rivers within the watershed of the Santa Fe River will be protected.

From:	noreply@formstack.com
To:	Jerry Carter; nfrwsp-comments
Subject:	northfloridawater-draftreview
Date:	Monday, November 28, 2016 8:41:05 AM

Formstack Submission for form northfloridawater-draftreview

Submitted at 11/28/16 8:40 AM

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Email:	doug@dayspringvillage.org
Phone number:	(904) 845-2362
Comments:	The proposed local bill that will create the East Nassau Stewardship District in Nassau County includes special powers to create water control, wetland creation areas, mitigation powers and will provide power to issue about $100 million in bonds for a rapid build out of the infrastructure needed to build homes in a 24,000 sq mile area. It is expected this new government will serve 47,000 people. We are concerned with how this rapid build out will impact the water table in Nassau County and the availability of fresh drinking water considering how rapid the build out may be. We are unsure if there has been any studies of the hydrology or how the water table would be affected with the addition of this many new people. Further it is not know where the water withdrawals will come from, whether these are from a river, the acquifer or some other water source. Considering the proposal to designate all of Nassau County as a water resource caution area, we would like for you to include in your estimates or in your plan how you feel the proposed Stewardship district will impact the water supply and specifically the water table in Nassau County. I would also imagine that the number of acres of wetlands changed by 2035 would be substantially greater than the 389 acres now forecast. Finally, if the legislature approves this proposed local bill in Nassau County which would allow for a massive Stewardship district that is three times the size of Nocatee, what happens if the same land holder decides they want to use the same approach to convert timberlands into planned communities elsewhere in North Florida? How many Stewardship districts of this size could the water supply support before water quality and water supply is affected. There is a BOCC meeting tonight Nov 28th at 6pm and the legislative delegation will vote on Dec 1st. Thank you for considering my comments.

Formstack, LLC
8604 Allisonville Rd.
Suite 300
Indianapolis, IN 46250

From:	noreply@formstack.com
To:	Jerry Carter; nfrwsp-comments
Subject:	northfloridawater-draftreview
Date:	Monday, November 28, 2016 9:43:38 AM

Formstack Submission for form northfloridawater-draftreview

Submitted at 11/28/16 9:43 AM

Name:	Carlos Slay
Organization:	Public Advocate
Email:	carslay@aol.com
Phone number:	(904) 716-2091
Comments:	In reviewing your proposed plan I see that it does not include the impact of the East Nassau Stewardship District that has been proposed for a 24,000 acres or 1/3 of the total land mass in Nassau County. The proposed legislation will be taken up by the delegation on December 1st and will grant this new government special powers over water control, mitigation, wetland creation, drainage, etc. The impact on the wetlands will be substantial and I would expect that the impact on the water supply would also be equally significant as this new governmental entity will seek to provide water to 47,000 people in a short period of time. I would like to see you update your water supply plan to include estimates on how this Stewardship district will impact Nassau County water supply and the wetlands in the area. I also would like to know how many similar sized stewardship districts could the area sustain because once this one is approved it is likely the land holders will seek to duplicate the success and will want to create others in the area. It would be helpful to know whether the powers that the bill proposes to grant to the land holder encroach upon the jurisdictional powers of the St Johns River Water Management District or impact the district's work and if so how that work would be affected. The biggest concern for many people in Nassau County is how the water table will be affected and how that water quality will be impacted by the district.

From:	noreply@formstack.com
To:	Jerry Carter; nfrwsp-comments
Subject:	northfloridawater-draftreview
Date:	Monday, November 28, 2016 7:25:35 PM

Formstack Submission for form northfloridawater-draftreview

Submitted at 11/28/16 7:25 PM

Name:	Mark Lyons
Organization:	
Email:	mlyons318@yahoo.com
Phone number:	(386) 647-3168
Comments:	Things like this make my blood boil! I call BULLSHIT! BULLSHIT! BULLSHIT!!!! This plan is nothing but public relations feel good crap!! Really!!! You want to start conserving and protecting our water??? Well I can help you out with that in a tremendous way that will actually conserve & protect our water!! Shut Mosaic down, shut Dupont Chemours down, shut PCS in Hamilton County down! Shut all these noxious, water sucking industries down and then and only then can you tell me when I as an American citizen can water my grass, wash my car or flush my toilet!! If you are serious why was Sabal Trail Pipeline approved??? Sabal Trail has stripped thousands of acres of our land of trees and underbrush so it can dry out to a parchment and not to mention the surficial groundwater flows they are disrupting and the recharge areas & wetlands they are destroying..... Ummmmm hmmmmmm, just what I thought, you have plans to combat water crisis?? Yeah right! We're in this mess now because of the water districts and their mismanagement and destruction of our waters through their rubber stamping permits for noxious industries which have sucked us dry and left pollution & contamination in their wake!! You agencies better WAKE UP because the citizens are starting to and we have had enough of the mismanagement and destruction of our lands & waters!! And don't bother responding to me with one of your bullshit form letters, you want to respond do so by denying an upcoming CUP permit for the HPS Phosphate Mine proposed for Bradford & Union Counties, 20 million gallons a day! Now there's a good place for you to implement your little facade of a conservation, protection plan!!

Formstack, LLC
8604 Allisonville Rd.
Suite 300
Indianapolis, IN 46250

From:	noreply@formstack.com
To:	Jerry Carter; nfrwsp-comments
Subject:	northfloridawater-draftreview
Date:	Wednesday, November 30, 2016 9:07:54 PM

Formstack Submission for form northfloridawater-draftreview

Submitted at 11/30/16 9:07 PM

Name:	Tim Peak
Organization:	
Email:	tpeak@comcast.net
Phone number:	(904) 491-5683
Comments:	In Nassau County, Florida, what impact would there be in our water quality, water table, and general health of our water supply if a "Special District", commercial, industrial, residential development in an area of 24,000 acres were to be approved? Should the residents surrounding the District expect a negative impact on our current water supply with the potential of 47,000 additional residential interests being added to our aquifer? Thank You

From:	noreply@formstack.com
To:	Jerry Carter; nfrwsp-comments
Subject:	northfloridawater-draftreview
Date:	Thursday, December 01, 2016 7:47:35 AM

Formstack Submission for form northfloridawater-draftreview

Submitted at 12/01/16 7:47 AM

Name:	Cynthia Noel
Organization:	
Email:	cnoel45@gmail.com
Phone number:	(352) 316-3687
Comments:	I do not feel this plan really addresses the serious deficit the river is in currently. Just saying MFL's are established doesn't show management or correction of the problems we face. We must have serious restrictions on commercial drawdowns, currently concerning me is the Sabal Trail Pipeline being allowed to take all they want, while we residents are told to cut back. Agricultural restrictions need to be in place also. Restrictions AND enforcement of these restrictions must be taken seriously is the word management is to be used in the description of this agency.

Indianapolis, IN 46250

From: noreply@formstack.com
To: Jerry Carter; nfrwsp-comments
Subject: northfloridawater-draftreview
Date: Friday, December 02, 2016 8:55:17 AM

Formstack Submission for form northfloridawater-draftreview

Submitted at 12/02/16 8:55 AM

Name:	Dennis Price
Organization:	SE Environmental Geology
Email:	den1@windstream.net
Phone number:	(386) 362-8189
Comments:	Regarding the potential recharge well for Lake Harris in Columbia County. Two wells have been installed since the hurricanes in 2005. They have permanently reduced the hydroperiod of the surrounding, mature, mixed hardwood wetlands surrounding the lake to the east.

From: noreply@formstack.com
To: Jerry Carter; nfrwsp-comments
Subject: northfloridawater-draftreview
Date: Friday, December 02, 2016 9:04:31 AM

Formstack Submission for form northfloridawater-draftreview

Submitted at 12/02/16 9:04 AM

Name:	Dennis Price
Organization:	SE Environmental Geology
Email:	den1@windstream.net
Phone number:	(386) 362-8189
Comments:	The Falling Creek recharge proposal of pumping water from the Suwannee River is complete Buffoonery, and I cannot think of a more professional way of saying it. Much of the year it would not be able to pump water from the river due to low river levels. At its peak it would have to pump massive amounts of water to reach the average MGD proposed. The whole construction and maintenance scenario is a nightmare. Its benefits would be to the Ichetucknee basin alone. Compare stage discharge measurements of Falling Creek and the Suwannee at White Springs or State road 6 and you would get a good idea of how often it would flow.

From:	hobara@floridaspringsinstitute.org
To:	nfrwsp-comments
Cc:	Heather Obara; Bob Knight; NDV@srwmd.org; RRL@srwmd.org; Ann Shortelle; John Miklos; Fred N. Roberts; Chuck Drake; Ronald Howse; Douglas C. Bournique; Board E-mails; Douglas Burnett; Maryam Ghyabi; Carla Yetter; bocc@alachuacounty.us; byerly@alachuacounty.us; lpinkoson@alachuacounty.us; rhutchinson@alachuacounty.us; kcornell@alachuacounty.us; cchestnut@alachuacounty.us; james.bennett@bakercountyfl.org; james.croft@bakercountyfl.org; jimmy.anderson@bakercountyfl.org; cathy.roden@bakercountyfl.org; bobby.steele@bakercountyfl.org; bocc@bradfordcountyfl.gov; Commissioners@claycountygov.com; mike.cella@claycountygov.com; wayne.bolla@claycountygov.com; diane.hutchings@claycountygov.com; buck.burney@claycountygov.com; gayward.hendry@claycountygov.com; sward@columbiacountyfla.com; penny_stanley@columbiacountyfla.com; rusty_depratter@columbiacountyfla.com; bucky_nash@columbiacountyfla.com; ephillips@columbiacountyfla.com; tmurphy@columbiacountyfla.com; JoyceMorgan@coj.net; Ferraro@coj.net; Abowman@coj.net; Swilson@coj.net; Lboyer@coj.net; MattS@coj.net; Rgaffney@coj.net; Kbrown@coj.net; GarrettD@coj.net; Rbrown@coj.net; Dbecton@coj.net; DoyleC@coj.net; Gulliford@coj.net; JimLove@coj.net; nmclaughlin@flaglercounty.org; cericksen@flaglercounty.org; dsullivan@flaglercounty.org; dobrien@flaglercounty.org; sharonlangford@gilchrist.fl.us; drayharrisonjr@gilchrist.fl.us; tgray@gilchrist.fl.us; mpoitevint@gilchrist.fl.us; kenrickthomas@gilchrist.fl.us; district1@hamiltonbocc.org; district2@hamiltonbocc.org; district3@hamiltonbocc.org; district4@hamiltonbocc.org; district5@hamiltonbocc.org; dleeper@nassaucounty.fl.com; skelley@nassaucounty.fl.com; pedwards@nassaucounty.fl.com; gspicer@nassaucounty.fl.com; jtaylor@nassaucounty.fl.com; buddyg1313@gmail.com; Bill_Pickens@yahoo.com; tommystilwell58@gmail.com; chip.Laibl@putnam-fl.com; larry.harvey@putnam-fl.com; bcc2jsmith@sjcfl.us; bcc1jjohns@sjcfl.us; Ray A Quinn; Phillip Mays, PA; Joseph "Ken" Bryan; commissioner1@suwgov.org; commissioner2@suwgov.org; commissioner3@suwgov.org; commissioner4@suwgov.org; commissioner5@suwgov.org; ucbocc@windstream.net; jon.steverson@dep.state.fl.us
Subject:	FSI North Florida Regional Water Supply Plan (October 4, 2016 Draft) Review Comments
Date:	Friday, December 02, 2016 3:16:41 PM
Attachments:	2016.12-02 FINAL NFRWSP Review Comments_FSI.PDF
Importance:	High

Good afternoon Mr. Fitzgerald,

Please find the Howard T. Odum Florida Springs Institute's comments on the North Florida Regional Water Supply Plan attached. These comments were also submitted via the online form at http://northfloridawater.com/watersupplyplan/draft.html. Thank you for your consideration.

Heather Obara, Esq.
Associate Director, Howard T. Odum Florida Springs Institute
hobara@floridaspringsinstitute.org
Office: (386) 454-2427
Fax: (386) 454-9369
Website Facebook Twitter

Please consider the environment before printing this email.

Howard T. Odum
FLORIDA SPRINGS INSTITUTE

23695 W US HWY 27
HIGH SPRINGS, FL 32643
386.454.2427
386.454.9369 (FAX)

December 2, 2016

Mr. John Fitzgerald, Coordinator
Regional Water Supply Planning
St. Johns River Water Management District
4049 Reid Street
Palatka, FL 32177

Subject: North Florida Regional Water Supply Plan (October 4, 2016 Draft) Review Comments

Dear Mr. Fitzgerald:

The Howard T. Odum Florida Springs Institute (FSI) respectfully submits the following comments concerning the North Florida Regional Water Supply Plan (WSP) for your consideration. We request a detailed response to all issues raised in this letter and modification of the final WSP as needed to incorporate all identified corrections and omissions.

The fundamental responsibility of the WMDs proposing this plan is to effectively manage water resources in such a way that provides beneficial human uses within the allowable constraints of natural aquatic systems. Water resource management is based on understanding and quantifying the resource. This proposed WSP does not fully characterize or quantify the potential water sources subject to human extraction and management.

Specifically, we request that you provide best available data/estimates for the following components of the water balance for the WSP planning area (14 counties and roughly 8,000 mi^2 in the Suwannee and St. Johns River WMDs) with, at a minimum, annual means and extremes and 20-year probability distributions for each:

- Precipitation
- Evapotranspiration
- Recharge to the Surficial Aquifer System (SAS) and to the Floridan Aquifer System (FAS)
- Surface water levels, including lakes, wetlands, streams, rivers, and springs

- Groundwater levels in both the SAS and the FAS
- Surface water flows for streams, rivers, and springs
- Surface and groundwater withdrawals and return flows

This requested water resource inventory should also include a detailed accounting of all permitted and unpermitted human water uses by category.

Based on the above water resource data, it is critical that the WSP provide the most accurate estimate of the maximum mean and extreme human water withdrawals that will fully protect all natural systems from significant harm; both systems like lakes, springs, and rivers that have existing MFLs, and other aquatic systems such as regional wetlands that are not currently and won't soon be protected by site-specific MFLs. This assessment of water availability represents the actual sustainable yield for the planning area, and is the essential foundation for developing an effective and protective WSP.

Future water uses must be constrained within this quantifiable sustainable yield. Since FAS groundwater is the principal traditional water source in the planning area and since existing uses are already resulting in unacceptable degradation of natural systems[1] and the resource itself[2], it is necessary that this plan show a corresponding reduction in groundwater pumping from the SAS and the FAS.

The most direct and cost effective approach to reducing groundwater pumping while meeting reasonable beneficial future needs is cutting back on existing permitted uses. The WMD governing boards have full authority to reduce permitted pumping allocations when a water resource shortage order is declared[3].

[1] This plan documents existing and future recovery needs for the springs along the Santa Fe and Ichetucknee Rivers; for the springs and rivers with significant, observable flow reductions not currently protected by MFLs; for the lakes in Keystone Heights; and for the thousands of acres of dehydrated wetlands with existing and expected impacts throughout the planning area.

[2] This plan presents convincing evidence of saline water intrusion and rising chloride concentrations in existing water supply wells over a large portion of the planning area (31% of the tested wells had rising concentrations of total dissolved solids). Additional data illustrating a similar detrimental trend in groundwater and spring chloride levels throughout the springs' region of north and central Florida have been convincingly summarized by the FDEP (2010) Florida Springs Initiative Monitoring Network Report and Recognized Sources of Nitrate. *Prepared by Debra Harrington, Gary Maddox, P.G., and Richard Hicks, P.G.* Florida Department of Environmental Protection Division of Environmental Assessment and Restoration Bureau of Watershed Restoration Ground Water Protection Section.

[3] Existing rules and Florida Statutes § 373.175 allow the Districts' Governing Boards to declare a water shortage for the affected source class, if the District determines there is a possibility that "insufficient ground or surface water is available to meet the needs of the users or when conditions are such as to require temporary reduction in total use within the area to protect water resources from serious harm." As necessitated by local climatic patterns and hydrologic conditions, the District may utilize Water Shortage Orders to implement water conservation and management practices to prevent or reduce impacts to the Lower Santa Fe and Ichetucknee Rivers and priority springs during periods of drought. The Districts, as a part of the joint regional water supply planning effort, may develop hydrologic thresholds for declaration of water shortage orders.

A reasonable approach to phase such a reduction into place is to establish water use metering on all uses, with tiered fees based on amount used. Neither of these practical options for meeting water supply needs while maintaining a sustainable water supply for future generations has any associated costs that cannot be paid by the users themselves.

The FSI has previously provided technical review comments on the Santa Fe and Ichetucknee River MFLs that documented the fact that the WMDs and the Florida Department of Environmental Protection (DEP) underestimated historic baseline flows, resulting in MFLs and a recovery plan that are not sufficient to protect those Outstanding Florida Waters and their ecological health from significant harm. With these comments, we request that when those MFLs are re-evaluated that your staff be directed to assess harm based on stream flows recorded before the 1950s when groundwater extractions were much less than current levels.

Finally, FSI was repeatedly denied the requested opportunity to present relevant FAS and spring water balance data to the North Florida Regional Stakeholder Advisory Committee (SAC). Attendance at SAC meetings with a few minutes for providing oral comments was not sufficient for FSI scientists and other stakeholders to present and discuss issues of critical importance to the SAC. For these reasons the FSI respectfully requests that the WMDs and FDEP convene one or more opportunities for unlimited public comment and question/answers with agency staff concerning the defects of the proposed WSP before it is finalized.

Sincerely,

Robert L. Knight, Ph.D., Executive Director
Howard T. Odum Florida Springs Institute
(352) 538-6620
bknight@floridaspringsinstitute.org

CC: Governor Rick Scott
Jon Steverson, Secretary, FDEP

Water Management Districts

Noah Valenstein, Executive Director, SRWMD
Donald Quincy, Jr., Governing Board Chairman, SRWMD
Alphonas Alexander, Governing Board Vice Chairman, SRWMD
Virginia Johns, Governing Board Secretary/Treasurer, SRWMD
Kevin Brown, Governing Board Member, SRWMD
Gary Jones, Governing Board Member, SRWMD
Virginia Sanchez, Governing Board Member, SRWMD
Richard Schwab, Governing Board Member, SRWMD

Bradley Williams, Governing Board Member, SRWMD
Charles Keith, Governing Board Member, SRWMD
Dr. Ann Shortell, Executive Director, SJRWMD
John Miklos, Governing Board Chairman, SJRWMD
Fred Roberts Jr., Governing Board Vice Chairman, SJRWMD
Charles "Chuck" Drake, Governing Secretary, SJRWMD
Ron Howse, Governing Board Treasurer, SJRWMD
Douglas Bournique, Governing Board Member, SJRWMD
John Browning Jr., Governing Board Member, SJRWMD
Douglas Burnett, Governing Board Member, SJRWMD
Maryam Ghyabi, Governing Board Member, SJRWMD
Carla Yetter, Governing Board Member, SJRWMD

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Hamilton County BOCC
Nassau County BOCC
Putnam County BOCC
St. Johns County BOCC
Suwannee County BOCC
Union County BOCC

From:	hobara@floridaspringsinstitute.org
To:	nfrwsp-comments
Cc:	Heather Obara; Dan Hilliard
Subject:	North Florida Regional Water Supply Plan (NFRWSP) Review Comments by FSC
Date:	Friday, December 02, 2016 7:03:28 PM
Attachments:	2016.12-02 FINAL NFRWSP Review Comments_FSC.pdf
Importance:	High

Good evening,

Please find the Florida Springs Council's comments on the North Florida Regional Water Supply Plan attached. These comments were also submitted via the online form at http://northfloridawater.com/watersupplyplan/draft.html. Thank you for your consideration.

Heather Obara, Esq.
Treasurer-Secretary, Florida Springs Council
hobara@floridaspringsinstitute.org
Office: (386) 454-2427
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Please consider the environment before printing this email.

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North Florida Regional Water Supply Plan (NFRWSP) Review Comments

Reviewed by the Florida Springs Council (FSC)

The Florida Springs Council is a consortium of thirty-nine springs-focused organizations that represent over 155,000 Floridians. The mission of the FSC is to ensure the regional, state, and federal conservation, preservation, protection, and restoration for future generations of Florida's springs, spring runs, and groundwater in the Floridan aquifer that sustains those natural systems and provides our drinking water.

The following organizations are members of the Council:

1,000 Friends of Florida
Alachua Audubon Society
Audubon Florida
Center for Biological Diversity
Center for Earth Jurisprudence
Chassahowitzka Civic Association, Inc.
Florida Clean Water Network
Florida Defenders of the Environment
Florida Federation of Garden Clubs, Inc.
Florida Paddling Trails Association
Florida Wildlife Federation
Friends of Lake Apopka
Friends of the Wekiva River
Friends of Warm Mineral Springs
Hernando Environmental Land Protectors
Homosassa River Alliance

Howard T. Odum Florida Springs Institute
Ichetucknee Alliance
Kings Bay Springs Alliance
Nature Coast Unitarian Universalist Fellowship Water Task Force
Oklawaha Valley Audubon Society
Orange Audubon Society
Our Santa Fe River
Paddle Florida
Putnam County Environmental Council
Rainbow River Conservation
Santa Fe Lake Dwellers Association
Save the Manatee Club
Sea to Shore Alliance
Sierra Club Florida
Silver Springs Alliance
Springs Eternal Project
St. Johns Riverkeeper
Suwannee/St. Johns Sierra Club
Villages Environmental Discussion
Volusia Blue Spring Alliance
Wakulla Springs Alliance
Withlacoochee Aquatic Restoration
WWALS Watershed Coalition

The following comments are submitted by the Council on behalf of its member organizations.

Executive Summary

The Plan is a regional water supply plan that must comply with Section 373.709(2), Florida Statutes. The Plan also will adopt the second phase of the recovery strategy for the Lower Santa Fe and Ichetucknee Rivers and Priority Springs (LSFI) MFLs and must therefore comply with Section 373.0421(2), Florida Statutes. Several of the priority springs protected by the LSFI MFLs are first magnitude springs (e.g., Santa Fe Rise, Treehouse Spring, Columbia Spring, Devil's Ear Spring, July Spring, Ichetucknee Head Spring, and Blue Hole). Therefore, the Plan and Recovery Strategy must meet the requirements of Section 373.805(4), Florida Statutes as well.

The Plan and Recovery Strategy fail to meet the requirements of Sections 373.709(2) and 373.0421(2) because the Plan fails to provide reasonable assurances that sufficient projects will be implemented to meet projected demand while providing the needed recovery of the LSFI MFLs. The Plan also fails to include important information Section 373.805(4) requires regarding priorities and funding for the recovery

projects. The Plan and Recovery Strategy do not provide reasonable assurances that the LSFI MFLs will be recovered as required.

The Plan provides insufficient motivations and incentives for conservation. This Plan was to include long-term regulatory strategies, but only proposes designation as a Water Resource Caution Area. This designation requires reuse of domestic wastewater in certain circumstances when it is determined to be feasible, but does not fund or require reuse of domestic effluent. The designation does not address recovery strategies other than reuse of domestic wastewater. At a minimum, FSC urges Florida's legislature and water management agencies to implement universal water fees as a strong inducement to conserve water.

The pumping of brackish water is unsustainable and self-destructive. It should be avoided. Rather, FSC advises that new demands be met through aquifer recharge using treated wastewater that has been cleansed by recycling through constructed wetlands.

The Plan's Critical Sufficiency Analysis Relies on a Non-Scientific Assumption and Suffers Fatal Textual Errors

The Plan includes a "Sufficiency Analysis" addressing whether the Plan and LSFI Recovery Strategy could meet the regional water supply planning requirements of Section 373.709(2), Florida Statutes by including sufficient water resource development projects (WRDPs) and water supply development projects (WSDPs) to meet projected demands without causing unacceptable water resource impacts. Plan pp. 40-41. In this case, such project options must, along with conservation, provide recovery of LSFI MFL flows as well. §373.0421(2), Fla. Stat.

The Plan assumes each 4.48 mgd of implemented water resource development projects (WRDPs) and water supply development projects (WSDPs) will result in 1 cfs recovery for the LSFI MFLs. (p. 40) This assumption is used to convert listed WRDP and WSDP options (with impacts measured in million gallons per day) to projected LSFI MFL flow recovery (in cfs). Thus, this conversion factor is critical to an understanding of whether the Plan includes adequate project options to meet projected 2035 demand for water and to bring about recovery of the LSFI MFLs.

The Plan provides no discussion, explanation or analysis of the selection of the one-size-fits-all 4.48 mgd assumption regarding WRDP and WSDP benefit to flows and recovery of the LSFI MFLs. The impact of WRDPs and WSDPs is largely a function of the net change in groundwater pumping at a particular location attributable to the project, and the distance between the location where the net change would occur and the location of the MFL point of compliance. In general, the beneficial impact is directly proportional to the reduction in pumping, and inversely proportional to the square of the distance from the pumping location to the MFL point of compliance. So, in general, the further the project is from the gages used to monitor the LSFI MFLs, the less impact will be measured at the gages. A generic one-size-fits-all proportionality for

calculating recovery attributable to projects is unscientific and not appropriate, even for planning-level analysis.

Indeed, using the NFSEG Model, the text at p.41 explains that 60.19 mgd of projects provided only 8.4 cfs of recovery. This is 7.165 mgd per cfs of recovery. It is possible the reference to 60.19 mgd is a typographical error that should read 65.19 mgd, the amount of the WRDPs shown in Table 6, Chapter 7. (p. 49) If 65.19 mgd was modeled and resulted in 8.4 cfs of recovery, then the ratio is 7.76 mgd of projects to 1 cfs of recovery. Either modeled ratio is widely divergent from the 4.48 mgd assumption.

The Plan provides no analysis relevant to the huge discrepancy between assumed and modeled flow recovery. Using the 4.48 mgd assumption, there could be about 11 mgd surplus in the Plan after covering the 2035 demand, after conservation, and after the LSFI MFL flow recovery. If 7.76 mgd or 7.165 mgd is used instead of 4.48 mgd as the conversion factor, the Plan does not meet the requirements of Sections 373.709(2) and 373.0421(2), Florida Statutes. The Plan is much less than clear on this issue and errors in the text of page 41 regarding quantities and the two project option tables defy clarity. This discrepancy and textual errors must be explained and the sufficiency analysis of project benefit to LSFI MFL flows must be addressed properly.

The Plan should analyze and report on NFSEG modeling scenarios in which the WRDP and WSDP options are evaluated for their effect on flows at the LSFI MFL gages. Ultimately all projects in the Plan should be modeled to determine whether the Plan, including all projects, meets the sufficiency requirements of Sections 373.709(2) and 373.0421(2), Florida Statutes. Without more than a naked and unexplained assumption of 4.48 mgd per 1 cfs recovery, the Plan does not provide reasonable assurances of meeting these requirements.

Additional Plan Deficiencies

The projects necessary to recover groundwater flows, by law, should be included in the Water Resource Development Project list. §373.709(2), Fla. Stat. In this Plan, the WRDP list is not sufficient to recover even the 2010 deficit condition of 17 cfs below the LSFI MFLs. The Plan should explain why the Plan must also rely upon projects on the WSDP list to restore the recovery deficit.

The Plan lacks the priority listing of each WRDP and WSDP required by Section 373.805(4)(b), Florida Statutes. The Plan also lacks required information for each project regarding the estimated cost of and the estimated date of completion; and “the source and amount of financial assistance to be made available by the water management district for each listed project, which may not be less than 25 percent of the total project cost unless a specific funding source or sources are identified which will provide more than 75 percent of the total project cost.” §373.805(4)(c) and (d), Fla. Stat.

The Plan also lacks "An estimate of each listed project's benefit to an Outstanding Florida Spring;" and "An implementation plan designed with a target to achieve the adopted minimum flow or minimum water level no more than 20 years after the adoption of a recovery or prevention strategy." *See* §373.805(4)(e) and (f), Fla. Stat.

The Plan lacks "an assessment of how the regional water supply plan and the projects identified in the funding plans prepared pursuant to sub-subparagraphs [§373.709(2)] (a)3.c. and (b)2.c. support the recovery or prevention strategies for implementation of adopted minimum flows and minimum water levels. . . ." §373.709(2)(k), Fla. Stat. The Plan must specify which WSDPs support recovery of flows at LSFI MFL gages, and how they support flow recovery.

The Plan lacks an adequate funding strategy. The Plan includes only a catalog of potential funding options, not a "funding strategy for water resource development projects, which shall be reasonable and sufficient to pay the cost of constructing or implementing all of the listed projects." §373.709(2)(d), Fla. Stat. Finally, the Plan lacks any analysis of whether the funding strategy is reasonable and sufficient for all projects. *Id.*

Failure to Adopt Further Regulatory Recovery Strategies

The LSFI Recovery Strategy, Appendix G, at p.36 explains:

Phase II Regulatory Strategies

The development of long-term strategies to address the impacts of regional groundwater trends and water use patterns is critical to achieving the recovery of minimum flows in the Lower Santa Fe Basin. As such, the Department, SRWMD, and SJRWMD, will develop long-term recovery measures concurrently with the development of the North Florida Regional Water Supply Plan. This will assist the Districts and the Department in refining the Recovery Strategies and future regulatory measures to address regional groundwater impacts to the Lower Santa Fe and Ichetucknee Rivers. (underline added)

The LSFI Recovery Strategy at Page 20 adds that this:

Phase II of the Recovery Strategy will focus on the implementation of the recommendations in the North Florida Regional Water Supply Plan, the adoption of long-term regulatory measures, and the identification and execution of any necessary water resource development and alternative water supply projects. (underline added)

This Plan was to include long-term regulatory strategies, but only proposes designation of the Plan area as a Water Resource Caution Area. This designation requires reuse of domestic wastewater in certain

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FSC would also note that the Plan fails to address the reality that the amount of water permitted in the planning area currently far exceeds the amount that is actually used. The difference between permit allocations and pumping cannot be accurately determined directly because metering of water use is spotty in the planning area. However, it has been reported that in the SRWMD, the amount of water permitted may exceed the amount pumped by as much as a factor of 2. This excess availability of permitted water is an enormously important factor in 20-year water planning, and the Districts are remiss in ignoring it. What would be the value of this planning exercise if permittees decided, over the next 20 years, to pump all of their permitted quantities, or even three-quarters of their allocation? The Districts should have an aggressive program in place to meter water use and to take back unused allocations over time. Otherwise, surprises in water usage could pop up, rendering this planning exercise useless.

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On balance, the Plan is to be commended for acknowledging the potential benefit of conservation, which has always been the first priority of FSC. Beginning on page 51, the Plan outlines eight "Water Conservation Project Options", and the first option to be noted is the successful implementation of tiered billing rates by some regional utilities. Tiered rates are a proven incentive to conserve, in contrast to the failure of consumptive use permits (CUPs) to remedy excessive pumping. Implementing universal water use monitoring and fees deserves far more emphasis than that given to them in the Plan. Conservation, as it now stands is almost entirely voluntary. Even CUPs are de-facto voluntary, because so many permitted wells are unmetered. This is an area in which further regulatory strategies are needed and sorely lacking in this Plan.

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to monitor all users must be implemented. Significant advances in the technologies of flow measurement, data reporting and recording render this task less expensive than it would have been in the past. A preliminary schedule of fees (which could be distinct for each class of users) must be established that will progressively tax users according to increasing use. FSC would recommend that the impacts of tiered water pricing should be carefully studied before such pricing is established, so that unintended consequences for smaller users, including small agricultural operations, can be avoided. This rate structure can subsequently be amended to optimize the distribution of water among users while not exceeding the regional cap.

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FSC wishes to stress that water fees enjoy a proven record of success, whereas CUPs, BMPs and even minimum flows and levels (MFLs) have failed to halt the progressive degradation of Florida's water resources. While the costs and effort necessary to institute universal water fees are not insignificant, neither do they proportionately exceed efforts elsewhere in the United States to create reliable future supplies of water; and Florida, more than most of these other areas, is critically dependent on secure supplies of water.

The Plan Should Discourage Pumping Brackish Water

FSC objects to the prominence the Plan gives to the desalination of brackish water. For example, this source is listed first among the suggested Water Resource Development Project Options (p. 47). Pumping and reverse osmosis treatment of brackish groundwater should be avoided at all possible costs, for at least two reasons. First, saline intrusion is irreversible over any practical time frame. Once a well goes saline, the slow diffusion time among the less channelized regions of the karst substrate insures that it will be decades, if not centuries, before a saline well runs fresh again. Secondly, pumping a brackish well accelerates the rate of saline intrusion. That is, the well becomes progressively more saline and the water costlier to treat.

The Plan portrays saline intrusion as a problem confined to the coastal and riverine portions of the North Florida region. This perspective is short-sighted, because saltwater underlies the entire Floridan aquifer, and excessive pumping will cause salt everywhere to migrate to higher levels in the karst substrate. Furthermore, a given drop in the potentiometric surface of the aquifer has the effect of raising the underlying salt water interface by a factor as much as 40 times greater than that drop. In particular, withdrawals from the Lower Floridan Aquifer must be reduced, because pumping from that depth will cause a disproportionate vertical rise in the proximate saline interface.

Regarding the rate of saline intrusion, FSC finds the analysis of this problem (beginning on page 27) to be overly optimistic. The Plan assumes that salt concentrations will rise in linear fashion, but vertical saline profiles are usually sigmoidal in nature. That is, increase is slow and almost linear, but a "log-phase" ascent soon ensues as the saline "front" approaches. Hence, a linear analysis will significantly overestimate the time required for saline intrusion. The arrival of the front can at times be episodic, as happened during the drought of 2012 with the sudden intrusion into the well supplying Cedar Key.

These reservations against pumping brackish water do not necessarily pertain to the desalination of seawater, so long as the concentrate from the process is returned to the sea. But this remedy is extremely costly, both energetically and financially -- treatment of brackish water is some 10-fold more expensive than extraction from the Upper Floridan Aquifer. Although desalination of seawater might provide a few localities with water for drinking and bathing, it is economically infeasible to sustain agriculture or industry. If the entire Floridan Aquifer System were to turn brackish, Florida could evolve toward a dry-island Caribbean economy.

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The Plan emphasizes reclaimed water as a primary AWS. While it does mention aquifer recharge, it fails to accord that option the priority it deserves and thereby overlooks a potentially significant and highly economical AWS. Figure 14 (p. 21), for example, shows approximately 108 mgd of treated wastewater in the region that is simply "disposed". Most of that water could be returned to the aquifer at low cost through treatment by constructed wetlands, as has been amply demonstrated at several sites in Florida (e.g., Sweetwater and Kanapaha in Gainesville and Green Cay in Boynton Beach). Treated wastewater is supplied at one end of an artificial wetland and allowed to percolate horizontally across the wetland. The water at the other end is low in nutrients and xenobiotics and can be re-injected into the aquifer. FSC has had discussions with JEA urging the utility to implement such treatment on the large amount of their treated wastewater that now flows into the ocean. Similar recharge is appropriate for other locations in the North Florida region and taken together could resupply a substantial fraction of the 117 mgd projected demand. FSC strongly recommends the adoption of this method of recharge throughout the North Florida region.

Conclusions

FSC submits that the Plan is not sufficient to meet the requirements of Sections 373.709(2) and 373.0421(2), Florida Statutes. Most critically, the Plan depends upon an unscientific and highly questionable assumption regarding the recovery to be derived from the projects listed in the Plan. The basis of the assumption and its selection instead of a modeling analysis is not substantiated. Because of the stated discrepancy between modeled and assumed recovery benefits of listed projects, the Plan does not provide reasonable assurances that sufficient projects are listed in the Plan.

The Plan fails to include critical information required for recovery strategies for Outstanding Florida Springs, including details regarding priorities and commitments regarding funding. Further, without any coercive and/or regulatory strategies, the Plan and particularly the funding plan do not meet statutory requirements.

FSC does commend the NFRWSP for highlighting the severe problems facing water supply in the North Florida region and appreciates the re-focusing of attention away from increased pumping of the over-stressed Upper Floridan toward other alternative water supplies. This is an acknowledgement from the State that the Upper Floridan Aquifer is already over-pumped. In fact, we would like to see the NFRWSP go beyond its call to limit pumping to an active program to decrease current pumping rates.

FSC supports the Plan's call for further water conservation, although we would recommend use of different mechanisms, especially the implementation of tiered water fees. This method deserves far more emphasis than it has been given in the Plan. It has proven to be effective in the public-supply sector (JEA, GRU) and holds great promise for becoming the major tool for conserving water throughout the State. The Plan should include a regulatory strategy to move conservation from a voluntary aspiration to a regulatory compunction.

FSC recommends against any pumping of brackish water, as this option only accelerates the decline of Florida's vital water resources. FSC also advocates, as the primary method for meeting the region's increasing water resource demands over the next 20 years, the polishing and subsequent recharge of cleansed wastewater to the Upper Floridan Aquifer by constructed wetlands.

Audubon FLORIDA

Dec. 2, 2016

John Fitzgerald
Regional Water Supply Planning Coordinator
St. Johns River Water Management District
4049 Reid Street
Palatka, FL 32177

Carlos D. Herd, PG
Director, Division of Water Supply
Suwanee River Water Management District
9225 CR 49
Live Oak, FL 32060

RE: Comments in response to the *Draft North Florida Regional Water Supply Plan*

Dear Mr. Fitzgerald and Mr. Herd:

Audubon Florida appreciates the opportunity to comment on the *Draft North Florida Regional Water Supply Plan* (NFRWSP) dated October 4, 2016. The cooperation between water management districts to form the North Florida Regional Water Supply Partnership is an important step that allows us to focus on the resource rather than political boundaries. Groundwater in such a highly transmissive area is best managed using this regional approach.

One of the most important aspects of water supply planning in the region is ensuring the health of our natural systems. Florida's environment not only supports our daily lives as Floridians, but is a necessary component of our recreational and tourism-based economy. Audubon Florida supports water supply plans that are sustainable, i.e., those that provide for our needs while maintaining or restoring ecosystem function. With this in mind, please review our comments on the draft plan below.

1. **The plan does a good job of describing the growing water crisis we face throughout Florida.**

The plan projects an additional 117 million gallons per day (mgd) of water will be needed in the region by 2035. It also mentions the Lower Santa Fe and Ichetucknee Rivers and associated priority springs are already in recovery according to their minimum flows and levels (MFLs). Projections for 2035 show many other potential problems, including:

- increasing chlorides at 92 wells, 24 that may require remediation or reduced pumping due to high Total Dissolved Solids (TDS),
- over 20,000 acres of wetlands at moderate to high likelihood of harm, and
- 4 springs that face declines in flow greater than 10%.

This information serves as a necessary backdrop for the considerable amount of work that needs to be accomplished within the region.

2. **The information in the plan supports the need for increased conservation and the appropriate treatment, storage, and use of reclaimed water and stormwater. Any additional withdrawal of groundwater or natural surface waters should be avoided.**

Given that the current level of use is causing harm to natural systems, and future increases in pumping will cause additional problems, the plan clearly demonstrates the need to prioritize conservation. Additionally, water management districts should work with partners to promote alternative water supply (AWS) projects that use reclaimed water or stormwater accompanied with appropriate treatment and storage features. Water resource development projects that use brackish or salt water treatment should be avoided because they are energy intensive and may impact ground and surface waters levels.

3. **The plan is a good starting point for future work to better identify potential resource impacts.**

An impressive amount of information was used to develop the plan. Like many similar efforts, the process identified several areas where additional data are necessary for a more complete picture. In particular, additional work needs to be done to understand the impacts on the many MFLs that were not evaluated due to insufficient data. Further improvements of the North Florida-Southeast Georgia (NFSEG) regional groundwater model, including transition to a transient model, will help improve impact analysis on both local and regional scales. It should be noted that data were not always available for the regions of Georgia included in the NFSEG model.

4. **We agree with determination that the entire NFRWSP area should be designated a Water Resource Caution Area.**

5. **Further work is needed to find the optimal suite of measures and projects to meet the water needs of the region, especially given the limited details accompanying the list of projects in the plan. It should be emphasized the projects in the plan are possible considerations for meeting future needs.**

The large number of reclaimed water projects for future water supply is favorable compared to projects that further deplete aquifers or remove natural surface waters. However, water quality and storage concerns must be addressed to make these projects successful. Storage can reduce the “mandatory use” of reclaimed water at times when water use is not required, e.g., the imposed need to irrigate when rainfall is sufficient. Such water use reduces nutrient assimilation by the landscape and delivers high nutrient loads to stormwater and natural systems.

6. **The plan should examine the water savings possible from reductions in residential outdoor irrigation.**

Water supply plans in general should do a more thorough job of describing water use to allow a wider audience to consider solutions, even if those solutions may not be part of the plan. For example, it would be helpful to the public and decision makers to understand the amount of current and future water demand that comes from outdoor irrigation. Public water supply represents 50% of the total increase in water demand by 2035 (p. 12), and using the estimate of 50% public water supply use for outdoor irrigation, this results in 25% of the predicted increase – or 29.25 mgd – being attributable to residential irrigation. When presented with this information, the public and regulators may be more willing to make changes to landscaping and irrigation practices rather than continue to fund expensive water development and supply projects.

7. **Continued focus on working with the agricultural community to adopt Best Management Practices is critical.**

While projected increases in water consumption for the eastern part of the region are residential, projections indicate that agricultural water use will grow substantially in the SRWMD. Implementation of BMPs (that include water conservation) is still voluntary in most cases.

Thank you for considering our comments. The extensive work put into this plan is a necessary step as government and stakeholders work together to achieve a sustainable water supply in North Florida. Please contact us if you have any questions.

Sincerely,

Jacqui Sulek
Chapter Conservation Manager
Stakeholder Advisory Committee SRWMD Environmental Representative
(850) 251 1297
jsulek@audubon.org

Chris Farrell
Northeast Florida Policy Associate
904-325-9940
cfarrell@audubon.org

From:	Lucinda Merritt
To:	nfrwsp-comments
Cc:	Merrillee Malwitz-Jipson; Jill Lingard; John D. Jopling; Kristi Gregory; Eric Flagg; Bob Palmer; Jim Stevenson; Bob Ulanowicz; Heather Obara; Scott Jantz; Jasmine Hagan; Cathy Street; Bob Knight; Charles Maxwell
Subject:	ICHETUCKNEE ALLIANCE/comments on draft NFRWSP
Date:	Saturday, December 03, 2016 10:11:48 AM
Attachments:	IA_Ltr_2016.12-02 FINAL NFRWSP Review Comments_FSC.pdf

NOTE: These same comments (here attached as a pdf file), minus the Alliance's letterhead, were also submitted today (12/3/2016) via the online comment form.

Lu Merritt for the
Ichetucknee Alliance

Lucinda Faulkner Merritt
wordwitch@windstream.net
386-454-0415
@ Rum Island @ Santa Fe River @ Suwannee River @ Gulf of Mexico

When you drink water, remember the spring. -Chinese Proverb

P. O. Box 945 • High Springs, Florida 32655-0945 • 386-454-0415

December 3, 2016

Comments from the Ichetucknee Alliance on the Draft North Florida Regional Water Supply Plan

The Ichetucknee Alliance (IA) is a federally recognized 501(c)(3) educational nonprofit organization. Guided by the vision of a healthy Ichetucknee River System that is preserved and protected for future generations, the Alliance works to ensure the restoration, preservation and protection of the ecosystems along the full 5.5-mile length of the Ichetucknee River, including all its associated springs. Because the Alliance recognizes that the groundwater supply of the Ichetucknee River basin is finite and vulnerable, it is also a goal of the Alliance to ensure the security of the Floridan aquifer, the primary source of water that nourishes the Ichetucknee River and provides drinking water for millions of people throughout Florida.

N.B.: Members of the Board of Directors of the Ichetucknee Alliance have reviewed the following comments on the draft North Florida Regional Water Supply Plan made by the Florida Springs Council and have unanimously approved adoption of these comments as our own.

Executive Summary

The Plan is a regional water supply plan that must comply with Section 373.709(2), Florida Statutes. The Plan also will adopt the second phase of the recovery strategy for the Lower Santa Fe and Ichetucknee Rivers and Priority Springs (LSFI) MFLs and must therefore comply with Section 373.0421(2), Florida Statutes. Several of the priority springs protected by the LSFI MFLs are first magnitude springs (e.g., Santa Fe Rise, Treehouse Spring, Columbia Spring, Devil's Ear Spring, July Spring, Ichetucknee Head Spring, and Blue Hole). Therefore, the Plan and Recovery Strategy must meet the requirements of Section 373.805(4), Florida Statutes as well.

The Plan and Recovery Strategy fail to meet the requirements of Sections 373.709(2) and 373.0421(2) because the Plan fails to provide reasonable assurances that sufficient projects will be implemented to meet projected demand while providing the needed recovery of the LSFI MFLs. The Plan also fails to include important information Section 373.805(4) requires regarding priorities and funding for the recovery projects. The Plan

and Recovery Strategy do not provide reasonable assurances that the LSFI MFLs will be recovered as required.

The Plan provides insufficient motivations and incentives for conservation. This Plan was to include long-term regulatory strategies, but only proposes designation as a Water Resource Caution Area. This designation requires reuse of domestic wastewater in certain circumstances when it is determined to be feasible, but does not fund or require reuse of domestic effluent. The designation does not address recovery strategies other than reuse of domestic wastewater. At a minimum, IA urges Florida's legislature and water management agencies to implement universal water fees as a strong inducement to conserve water.

The pumping of brackish water is unsustainable and self-destructive. It should be avoided. Rather, IA advises that new demands be met through aquifer recharge using treated wastewater that has been cleansed by recycling through constructed wetlands.

The Plan's Critical Sufficiency Analysis Relies on a Non-Scientific Assumption and Suffers Fatal Textual Errors

The Plan includes a "Sufficiency Analysis" addressing whether the Plan and LSFI Recovery Strategy could meet the regional water supply planning requirements of Section 373.709(2), Florida Statutes by including sufficient water resource development projects (WRDPs) and water supply development projects (WSDPs) to meet projected demands without causing unacceptable water resource impacts. Plan pp. 40-41. In this case, such project options must, along with conservation, provide recovery of LSFI MFL flows as well. §373.0421(2), Fla. Stat.

The Plan assumes each 4.48 mgd of implemented water resource development projects (WRDPs) and water supply development projects (WSDPs) will result in 1 cfs recovery for the LSFI MFLs. (p. 40) This assumption is used to convert listed WRDP and WSDP options (with impacts measured in million gallons per day) to projected LSFI MFL flow recovery (in cfs). Thus, this conversion factor is critical to an understanding of whether the Plan includes adequate project options to meet projected 2035 demand for water and to bring about recovery of the LSFI MFLs.

The Plan provides no discussion, explanation or analysis of the selection of the one-size-fits-all 4.48 mgd assumption regarding WRDP and WSDP benefit to flows and recovery of the LSFI MFLs. The impact of WRDPs and WSDPs is largely a function of the net change in groundwater pumping at a particular location attributable to the project, and the distance between the location where the net change would occur and the location of the MFL point of compliance. In general, the beneficial impact is directly proportional to the reduction in pumping, and inversely proportional to the square of the distance from the pumping location to the MFL point of compliance. So, in general, the further the project is from the gages used to monitor the LSFI MFLs, the less impact will be measured at the gages. A generic one-size-fits-all proportionality for calculating recovery attributable to projects is unscientific and not appropriate, even for planning-level analysis.

Indeed, using the NFSEG Model, the text at p.41 explains that 60.19 mgd of projects provided only 8.4 cfs of recovery. This is 7.165 mgd per cfs of recovery. It is possible the reference to 60.19 mgd is a typographical error that should read 65.19 mgd, the amount of the WRDPs shown in Table 6, Chapter 7. (p. 49) If 65.19 mgd was modeled and resulted in 8.4 cfs of recovery, then the ratio is 7.76 mgd of projects to 1 cfs of recovery. Either modeled ratio is widely divergent from the 4.48 mgd assumption.

The Plan provides no analysis relevant to the huge discrepancy between assumed and modeled flow recovery. Using the 4.48 mgd assumption, there could be about 11 mgd surplus in the Plan after covering the 2035 demand, after conservation, and after the LSFI MFL flow recovery. If 7.76 mgd or 7.165 mgd is used instead of 4.48 mgd as the conversion factor, the Plan does not meet the requirements of Sections 373.709(2) and 373.0421(2), Florida Statutes. The Plan is much less than clear on this issue and errors in the text of page 41 regarding quantities and the two project option tables defy clarity. This discrepancy and textual errors must be explained and the sufficiency analysis of project benefit to LSFI MFL flows must be addressed properly.

The Plan should analyze and report on NFSEG modeling scenarios in which the WRDP and WSDP options are evaluated for their effect on flows at the LSFI MFL gages. Ultimately all projects in the Plan should be modeled to determine whether the Plan, including all projects, meets the sufficiency requirements of Sections 373.709(2) and 373.0421(2), Florida Statutes. Without more than a naked and unexplained assumption of 4.48 mgd per 1 cfs recovery, the Plan does not provide reasonable assurances of meeting these requirements.

Additional Plan Deficiencies

The projects necessary to recover groundwater flows, by law, should be included in the Water Resource Development Project list. §373.709(2), Fla. Stat. In this Plan, the WRDP list is not sufficient to recover even the 2010 deficit condition of 17 cfs below the LSFI MFLs. The Plan should explain why the Plan must also rely upon projects on the WSDP list to restore the recovery deficit.

The Plan lacks the priority listing of each WRDP and WSDP required by Section 373.805(4)(b), Florida Statutes. The Plan also lacks required information for each project regarding the estimated cost of and the estimated date of completion; and "the source and amount of financial assistance to be made available by the water management district for each listed project, which may not be less than 25 percent of the total project cost unless a specific funding source or sources are identified which will provide more than 75 percent of the total project cost." §373.805(4)(c) and (d), Fla. Stat.

The Plan also lacks "An estimate of each listed project's benefit to an Outstanding Florida Spring;" and "An implementation plan designed with a target to achieve the adopted minimum flow or minimum water level no more than 20 years after the adoption of a recovery or prevention strategy." See §373.805(4)(e) and (f), Fla. Stat.

The Plan lacks "an assessment of how the regional water supply plan and the projects identified in the funding plans prepared pursuant to sub-subparagraphs [§373.709(2)] (a)3.c. and (b)2.c. support the recovery or prevention strategies for implementation of adopted minimum flows and minimum water levels. . . ." §373.709(2)(k), Fla. Stat. The Plan must specify which WSDPs support recovery of flows at LSFI MFL gages, and how they support flow recovery.

The Plan lacks an adequate funding strategy. The Plan includes only a catalog of potential funding options, not a "funding strategy for water resource development projects, which shall be reasonable and sufficient to pay the cost of constructing or implementing all of the listed projects." §373.709(2)(d), Fla. Stat. Finally, the Plan lacks any analysis of whether the funding strategy is reasonable and sufficient for all projects. Id.

Failure to Adopt Further Regulatory Recovery Strategies

The LSFI Recovery Strategy, Appendix G, at p.36 explains:

Phase II Regulatory Strategies

The development of long-term strategies to address the impacts of regional groundwater trends and water use patterns is critical to achieving the recovery of minimum flows in the Lower Santa Fe Basin. As such, the Department, SRWMD, and SJRWMD, will develop long-term recovery measures concurrently with the development of the North Florida Regional Water Supply Plan. This will assist the Districts and the Department in refining the Recovery Strategies and future regulatory measures to address regional groundwater impacts to the Lower Santa Fe and Ichetucknee Rivers.

The LSFI Recovery Strategy at Page 20 adds that this:

Phase II of the Recovery Strategy will focus on the implementation of the recommendations in the North Florida Regional Water Supply Plan, the adoption of long-term regulatory measures, and the identification and execution of any necessary water resource development and alternative water supply projects.

This Plan was to include long-term regulatory strategies, but only proposes designation of the Plan area as a Water Resource Caution Area. This designation requires reuse of domestic wastewater in certain circumstances when it is determined to be feasible, but does not fund or require reuse of domestic effluent. The designation does not address recovery strategies other than reuse of domestic wastewater.

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IA would also note that the Plan fails to address the reality that the amount of water permitted in the planning area currently far exceeds the amount that is actually used. The difference between permit allocations and pumping cannot be accurately determined directly because metering of water use is spotty in the planning area. However, it has been reported that in the SRWMD, the amount of water permitted may exceed the amount pumped by as much as a factor of 2. This excess availability of permitted water is an enormously important factor in 20-year water planning, and the Districts are remiss in ignoring it. What would be the value of this planning exercise if permittees decided, over the next 20 years, to pump all of their permitted quantities, or even three-quarters of their allocation? The Districts should have an aggressive program in place to meter water use and to take back unused allocations over time. Otherwise, surprises in water usage could pop up, rendering this planning exercise useless.

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Aquifer. Although desalination of seawater might provide a few localities with water for drinking and bathing, it is economically infeasible to sustain agriculture or industry. If the entire Floridan Aquifer System were to turn brackish, Florida could evolve toward a dry-island Caribbean economy.

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The Plan emphasizes reclaimed water as a primary AWS. While it does mention aquifer recharge, it fails to accord that option the priority it deserves and thereby overlooks a potentially significant and highly economical AWS. Figure 14 (p. 21), for example, shows approximately 108 mgd of treated wastewater in the region that is simply "disposed". Most of that water could be returned to the aquifer at low cost through treatment by constructed wetlands, as has been amply demonstrated at several sites in Florida (e.g., Sweetwater and Kanapaha in Gainesville and Green Cay in Boynton Beach). Treated wastewater is supplied at one end of an artificial wetland and allowed to percolate horizontally across the wetland. The water at the other end is low in nutrients and xenobiotics and can be re-injected into the aquifer. FSC has had discussions with JEA urging the utility to implement such treatment on the large amount of their treated wastewater that now flows into the ocean. Similar recharge is appropriate for other locations in the North Florida region and taken together could resupply a substantial fraction of the 117 mgd projected demand. IA strongly recommends the adoption of this method of recharge throughout the North Florida region.

Conclusions

IA submits that the Plan is not sufficient to meet the requirements of Sections 373.709(2) and 373.0421(2), Florida Statutes. Most critically, the Plan depends upon an unscientific and highly questionable assumption regarding the recovery to be derived from the projects listed in the Plan. The basis of the assumption and its selection instead of a modeling analysis is not substantiated. Because of the stated discrepancy between modeled and assumed recovery benefits of listed projects, the Plan does not provide reasonable assurances that sufficient projects are listed in the Plan.

The Plan fails to include critical information required for recovery strategies for Outstanding Florida Springs, including details regarding priorities and commitments regarding funding. Further, without any coercive and/or regulatory strategies, the Plan and particularly the funding plan do not meet statutory requirements.

IA does commend the NFRWSP for highlighting the severe problems facing water supply in the North Florida region and appreciates the re-focusing of attention away from increased pumping of the over-stressed Upper Floridan toward other alternative water supplies. This is an acknowledgement from the State that the Upper Floridan Aquifer is already over-pumped. In fact, we would like to see the NFRWSP go beyond its call to limit pumping to an active program to decrease current pumping rates.

IA supports the Plan's call for further water conservation, although we would recommend use of different mechanisms, especially the implementation of tiered water fees. This method deserves far more emphasis than it has been given in the Plan. It has proven to be effective in the public-supply sector (JEA, GRU) and holds great promise for becoming the major tool for conserving water throughout the State. The Plan should include a regulatory strategy to move conservation from a voluntary aspiration to a regulatory compunction.

IA recommends against any pumping of brackish water, as this option only accelerates the decline of Florida's vital water resources. IA also advocates, as the primary method for meeting the region's increasing water resource demands over the next 20 years, the polishing and subsequent recharge of cleansed wastewater to the Upper Floridan Aquifer by constructed wetlands.

Submitted on behalf of the Board of Directors of the Ichetucknee Alliance, Inc., by:

Lucinda Faulkner Merritt
Secretary
wordwitch@windstream.net
386-454-0415

From: noreply@formstack.com
To: Jerry Carter; nfrwsp-comments
Subject: northfloridawater-draftreview
Date: Saturday, December 03, 2016 4:58:45 PM

Formstack Submission for form northfloridawater-draftreview

Submitted at 12/03/16 4:58 PM

Name:	Carolyn Thomas
Organization:	SOLO
Email:	cjmoody2010@hotmail.com
Phone number:	(352) 473-4840
Comments:	The issue of restoration and remediation for the Keystone lake area/ Etonia Creek flow has been inadequately addressed. ACTION is required to return this area to its legally mandated status. Please review plans that have been submitted to the board.

From:	noreply@formstack.com
To:	Jerry Carter; nfrwsp-comments
Subject:	northfloridawater-draftreview
Date:	Saturday, December 03, 2016 8:04:26 PM

Formstack Submission for form northfloridawater-draftreview

Submitted at 12/03/16 8:04 PM

Name:	Jim Tatum
Organization:	these are my own comments
Email:	jim@jimtatum.net
Phone number:	(386) 454-1916
Comments:	Comments on the North Florida Regional Water Supply Plan My name is Jim Tatum, I represent only myself here. This report contains many good ideas to reduce groundwater use: the two most likely to work well are to increase reclaimed water use and increased conservation. The management techniques outlined on pages 51-52 are good and should be implemented, and The Water Protection and Sustainability Program of 2005 should be re-implemented (p.57) However, these techniques are not sufficient. I believe additional, stronger management techniques are needed to achieve a sustainable usage rate: Page 51 suggest tiered billing for non-ag. We must have billing for all, agriculture and all. We must all work together to solve our water crisis. Agriculture will resist and say they cannot produce enough without irrigation. We must work this out, perhaps by growing crops which demand less water, and by the consumer paying more for the product. If something is free we value it less. If something is dear, we conserve. Higher costs for the farmer must be shared by the consumer who will pay more for his product. Everyone who uses water must pay for water. Sooner or later we will have this plan. If we go to it sooner, we will save some water resources. The regional Initiative Valuing Environmental Resources cost-share program gives free water and then pays the user to use less. P.55. On p. 57 we see the Dept. of Ag. Pays farmers who implement BMPs to improve irrigation efficiency. This is the same thing. It gives free water and pays to use less. This is absurd. Don't give free water. Don't pay people to not use something that is not theirs to begin with. Dollar incentives are good, but they make sense only if we have billing for water. Implement this program but charge for the water. Billing for water will also limit development and population growth. We do not need growth. Another mindset that needs to be changed. I do not have confidence in the District's water models, so important for everything. I am not trained to evaluate water models, but when multiple

objective, respected and qualified scientists who are experts in Florida's geology emphatically say these models are inadequate, it makes me question the in-house objectivity. I strongly suggest that the District look further for its models.
I also am concerned about the review and re-evaluation of the MFLs at future dates. When there is no other alternative, I fear they may be weakened to accommodate increased demands, under the heading of "flexibility." We must not let this happen.
In the report p 61. the Suwannee River Water Management District (District) states that "Current permits and laws limit the scope of regulatory actions that can be taken to impose specific solutions on users." I do not agree with this. Other laws exist which allow curtailment of new and existing CUPs. The District and the DEP should not be afraid to utilize its legal counsel. Litigation will surely ensue from some of these tough changes, but we must acquire a new mindset and new laws in order to sustain our groundwater withdrawals and admit increased population in Florida.

Most of page 61 is a disclaimer. I appreciate the great amount of work that went into the report, and reality and truth here, but it basically leaves the entire study dangling in a void of uncertainty.

We all know the answer to our crisis is fewer withdrawals and reduced nitrates, principally from agriculture and septic tanks. We have the remedy but not the will to implement it. We prefer money over clean water and bubbling springs.

I believe that Florida's sustained water availability in the future will be ensured only by new leadership in Tallahassee, where currently there is none, and by litigation. I do not believe this 20-yr plan will ensure protection of our rivers and springs.

It is apparent that we rely far too heavily on groundwater withdrawals, and we are currently sinking deeper and deeper into deficit. We are not currently at sustainability, so I have no confidence that we will reach it when there are greater demands. The proposals here are not enough, we must reduce groundwater withdrawals.

From:	noreply@formstack.com
To:	Jerry Carter; nfrwsp-comments
Subject:	northfloridawater-draftreview
Date:	Sunday, December 04, 2016 8:32:29 PM

Formstack Submission for form northfloridawater-draftreview

Submitted at 12/04/16 8:32 PM

Name:	Paul Still
Organization:	Bradford Soil and Water Conservation District
Email:	stillpe@aol.com
Phone number:	(904) 368-0291
Comments:	I believe the Water Supply Planning process established by Florida Statute has the potential to provide a guidance document to protect our area's water resources. However, the Suwannee River Water Management District (SRWMD) and the Saint Johns River Water Management District (SJRWMD) put in place a process that failed to produce a Water Supply Plan that meets the needs of our area or the requirements set out in Florida Statute. The North Florida Regional Water Supply Plan (NFRWSP) has two major flaws the 1) the Sufficiency Analysis and 2) the Planning Period. In addition, the NFRWSP has several other areas of concern and several clerical errors Sufficiency Analysis . The Sufficiency Analysis found in Chapter 6 of the NFRWSP is flawed and does not meet the requirement of 373.709(2), F.S., that a RWSP must include sufficient water resource and water supply development project options to meet projected water demands without causing unacceptable water resource impacts. There are three ways to address unactable water resource impacts 1) conservation activities that reduce withdrawals, 2) Water Resource Development Projects and 3) Water Supply Development Projects. In this review of the NFRWSP the use of the term project or all projects is referring to both Water Resource Development Projects and Water Supply Development Projects. The analysis provided is flawed for 2 reasons, 1) there is an error in the assumptions used to calculate conservation and project benefits, and 2) project and conservation benefits for MFLs (other than the the Lower Santa Fe River MFL at the Fort White gage), for wetlands and for water quality in the SJRWMD east of the Saint Johns River were not evaluated.

Error in Calculating Benefits

There is an error in the assumptions and calculations found on page 40 of the NFRWSP which reads:
The LSFI Recovery Strategy (Appendix G) identified that in 2030, if projected water
demands were realized, the Lower Santa Fe River flow would have a needed recovery of 20.6 cfs and identified that the recovery of 20.6 cfs could be achieved if projects resulting in 92.3 mgd were implemented. Using this information, the Districts have estimated the quantity of water/projects needed to recover each projected cfs of recovery needed (92.3 mgd in water of projects identified ÷ 20.6 cfs of recovery needed in 2030 = 4.48 mgd of projects per cfs of recovery).

The 4.48 mgd value is valid only for the projects listed in Tables A2 to A5 in Appendix A
of the Recovery Strategy: Lower Santa Fe River Basin Lower Santa Fe and Ichetucknee Rivers and Priority Springs Minimum Flows and Levels which is Appendix G of the NFRWSP. The benefits to flow at the Fort White gage vary depending on the type of project and the location of the project. Projects that are located longer distances from Fort White will have less of an impact on Santa Fe River flows at the Fort White gage.

The information used in Appendix G does not use flow data for the Fort White gage collected between 2010 and 2015. The Appendix G document includes “APPENDIX C Annualized Flow Duration Curves: Methods for Assessing MFL Recovery”. This methodology does not appear to have been used or referenced in the NFRWSP.
Suggested change: Use the methods in “APPENDIX C Annualized Flow Duration Curves: Methods for Assessing MFL Recovery” and data updated through 2015 to determine the amount of flow needed at the Fort White gage in 2037.
Page 41 of the NFRWSP states, “As part of the NFRWSP evaluation, the Districts evaluated a potential of 60.19 mgd from proposed water resource development projects using the NFSEG. These projects provide for 8.4 cfs of potential recovery to the Lower Santa Fe River flow,”.

The NFRSWP document fails to explain how the “evaluation” was done or why it was only done for 60.19 mgd of the 65.19 mgd of the NFRWSP’s proposed water resource development projects.

If you divide 60.19 mgd of projects by the 8.4 cfs of recovery they provide for the Lower Santa Fe MFL you get 7.17 mgd of projects per cfs of recovery. The use of the 4.48 mgd of projects per cfs of recovery calculated using Appendix G information makes the projects more efficient than the 7.17 mgd of projects per cfs of recovery calculated from NFSWG model data. In other words, the Appendix G information requires fewer projects than there would be if the NFSEG model is used to evaluate benefits at the Fort White gage.

The benefit per cfs of recovery for water resource development projects evaluated with the NFSEG clearly gives a very different result from the benefit per cfs of recovery for projects evaluated by the North Florida Model

used in the Appendix G Recovery Strategy document.

Water Management District staff have repeatedly stated that the NFSEG model is the best available model for water supply planning. To use information from the Appendix G Recovery Strategy document that used the North Florida Model would not be utilizing the best available information for water supply planning.

The NFRWSP on page 41 states.
As discussed in Chapter 3, the Districts have identified a low conservation range potential of 40.67 mgd, further reducing the quantity of water supply development projects needed to approximately 91.94 mgd. Table 6, Chapter 7, has identified 95.44 mgd in water supply development projects; thus meeting the projected water demand and offsetting water resource impacts.

The 40.67 mgd from conservation and the 95.44 mgd in water supply development projects were not evaluated to determine what the benefit would be to the flow at the Fort White gage. If you use the 7.17 mgd of projects per cfs of recovery you get 5.67 cfs of recovery at the Fort White gage for conservation and 13.31 cfs of recovery at the Fort White gage for water supply development projects.

If you add 8.4 cfs for water resource development projects, 5.67 cfs for conservation and 13.31 cfs for water supply development projects you get 27.38 cfs of recovery at the Fort White gage. The NFRWSP states that 38 cfs will be needed by 2035 at the Fort White gage.

The shortfall in projects may even be greater than the 10.62 cfs noted above because almost 30 mgd of the 95.44 mgd in water supply development projects are in Nassau. St Johns, and Flagler Counties. Projects in these counties would not be expected to provide benefits to the flow at the Fort White gage. The use of 7.17 mgd per cfs of recovery may overestimate the recovery benefits from the listed water supply development projects.

The above indicates that the NFRWSP fails to identify sufficient projects that have a total capacity of which will, in conjunction with water conservation and other demand management measures, exceed the needs identified.
Suggested change: Evaluate conservation and all projects using the NFSEG model and add projects to meet the established need for recovery of the Lower Santa Fe MFL.
Project Benefits on MFLs, Wetlands and Water Quality
The NFRWSP appears to focus only on evaluating project impacts on the MFL set for the Fort White gage. The NFRWSP fails to demonstrate project impacts for the Keystone area lakes, the Ichetucknee River, water quality in the SJRWMD, and wetlands in both districts.
Keystone Lakes MFLs
The NFRWSP states the MFLs for the Keystone area lakes are under review. Florida Statute does not offer the option of not assessing impacts on existing MFLs because they are under review.
Suggested change: Use the NFSEG model to determine the impacts on the Keystone area lakes with existing MFLs. Evaluate conservation and all projects using the NFSEG model and add projects to meet the established need for recovery of Keystone Lakes.

Ichetucknee River
Many of the projects listed are not likely to provide benefits for the Ichetucknee River MFL. Even though the amount of recovery needed for the Ichetucknee is smaller than for the Lower Santa Fe River, the benefits from the listed projects are likely to be much lower because the flow in the Ichetucknee River comes from a much smaller springshead than the Lower Santa Fe River at Fort White.
Suggested change: Evaluate the impact of conservation and selected projects on flow at the Ichetucknee River gage used for the MFL.
Wetlands
The NFRWSP identifies wetland impacts in Appendix I but does not address how these impacts will be reduced by the selected projects or conservation.
Suggested change: Evaluate the impact of conservation and selected projects on wetlands where impacts were identified in Appendix I.

Water Quality SJRWMD
The NFRWSP identifies problems with water quality in the area of the planning region east of the Saint Johns River. How conservation or the selected projects will impact water quality is not addressed.
Suggested change: Evaluate the impact of conservation and selected projects on wetlands were impacts were identified in Appendix I.
Planning Period is not at Least 20 Years
The Florida Statute that governs Regional Water Supply Planning states at 373.709(2)
“Each regional water supply plan must be based on at least a 20-year planning period”. The data used in the NFRWSP only goes to 2035. The 2035 date provides a planning period of only 18 years.

Suggested change: Extend the panning data to at least 2037 which would provide at least a 20-year planning period. Adding two years to the data is important not only to meet the statutory requirement but also to correctly evaluate the water needs of the region. Water use is expected to increase between 2035 and 2037 and this increase must be addressed in the NFRWSP.

Other Issues
Water Resource Caution Areas and Water Quality

Water quality concerns (groundwater chloride concentration) are addressed on pages 27 to 31 and 44 and in Appendix D of the NFRWSP. The area of concern is in a relatively limited geographic area within the NFRWSP area in portions of Duval, Flagler, Nassau, and St. Johns counties east of the St. Johns River.

On page 44 the NFRWSP states, “As such, the groundwater quality analyses support the designation of that portion of SJRWMD in the NFRWSP area as a WRCA.”

The NFRWSP fails to explain what actions are required once an area is designated a WRCA in the SJRWMD and how that action will reduce water quality impacts from withdrawals.

Suggested change: Add an explanation of what additional requirement are

imposed on water users in a WRCA in the SJRWMD.

The text in Appendix D refers to Tables D4, D5, D6 and D7 but these tables do not appear in Appendix D.

Suggested change: Add any missing tables.

I did not find any data that indicates the proposed projects would be adequate to address water quality concerns raised in the NFRWSP.

Suggested change: Evaluate the impact of the WRCA on the identified constraints.

Santa Fe Spring

Page 1 of the NFRWSP does not list Santa Fe Spring is not listed as an Outstanding Florida Spring.
Suggested change: Add Santa Fe Spring and a note if the spring is being reevaluated.
Failure to Provide for Stakeholder Input
While the districts held meetings before the draft was produced there was limited opportunity to comment on the plan itself. While the workshops will meet the letter of the law the process failed to provide an opportunity for stakeholders to provide input into the plan. The SAC process limited public comments to 3 to 5 minutes. Questions and concerns raised in writing and at SAC meetings were not addressed or answered by Water Management District staff. There appears to have been no mechanism established to collect input that stakeholders may have submitted to members of the SAC.

It is not clear if the questions and concerns raised as part of the SAC process will be included in Appendix A of the NFRWSP. The sentence in the last paragraph on page 4 would seem to indicate the SAC comments will not be included.

“Comments received during the public workshops and comment period were incorporated, as appropriate, into the NFRWSP (see Appendix A for details regarding
comments received and responses).

Suggested change: Add all the comments received during the SAC process to the NFRWSP. Collect all public record correspondence submitted to individual SAC members and make it a part of the NFRWSP.

Self-suppliers
Self-suppliers were not represented on the SAC. This lack of representation for self-suppliers was repeatedly pointed out to the Water Management Districts during the early SAC meetings.
Suggested change: Hold a workshop to receive input from self-suppliers.
Clerical Errors

The NFRWSP states on page 7, “The Districts also presented the draft plan

to their respective governing boards on September 13, 2016 to solicit comments and feedback."
How was a draft plan with a date of 10/4/16 presented to the boards on September 13, 2016?

Suggested change: Correct date if it is an error or clarify what was presented on September 13, 2016.

On page 49 the NFRWSP states, "Table 5 identifies 16 water resource development project options for the NFRWSP area, costs are shown in million (M) dollars." Table 5 is about wetlands. Table 6 has 16 projects but does not identify the projects.

Suggested change: Correct table numbers.

On page 50 in the section about Water Supply Development Project Options that starts on page 49, the text states, "For each project option identified, the following information is provided (and listed in Appendix J):" Appendix J addresses Water Resource Development Project Options not Water Supply Development Project Options.

Suggested change: Correct appendix reference.

Paul Still
14167 SW 101st Ave
Starke, FL 32091

904 368-0291

stillpe@aol.com

From:	noreply@formstack.com
To:	Jerry Carter; nfrwsp-comments
Subject:	northfloridawater-draftreview
Date:	Monday, December 05, 2016 8:17:32 AM

Formstack Submission for form northfloridawater-draftreview

Submitted at 12/05/16 8:17 AM

Name:	Kate Ellison
Organization:	
Email:	kateclarity@gmail.com
Phone number:	(352) 283-5536
Comments:	This has been a comprehensive undertaking, and represents the efforts of a great many individuals. I thank you for your work. I have a sense of urgency in developing a plan that might really solve the water quality and quantity problems we are facing, and getting more serious with growth and greater demands. Our region has a water crisis, and we must respond effectively. You have a mandate to make the most effective, most comprehensive recommendations you can find. You have access to experts with deep knowledge of Florida's water and water use issues. Yes, there is uncertainty, but we rely on you to reduce that uncertainty as much as you can. As a citizen and resident of Florida, I urge you to recognize the need we all have for you to act responsibly. Private businesses and individual land-owners look out for their own self-interest. Who looks out for all of us, who looks out for our children? It is your job to see the big picture, and represent us, citizens as a whole, on the issue of making a sustainable clean water supply available for the next twenty years. That means requiring conservation and water quality improvement, not making suggestions. We need you to assert your authority to the full extent of the law, to ask the legislators for additional enforcement mechanisms, and convince them of the urgency here. People do not generally conserve or pay more unless they are required to do so. All of us must be required to do so, in fairness. You have explained how more water can be found, as demand increases, relying heavily on groundwater, the least costly solution. Yet groundwater withdrawal is already a problem, and it will continue to contribute to lower water levels in our wells, springs and lakes. This will concentrate pollutants in less water. We all know the answer to our crisis is fewer withdrawals and reduced pollutants, principally from agriculture and septic tanks. CUPs must be curtailed until the crisis is over. Nitrate and phosphorus levels must be lowered, and that may mean making some people unhappy. Your agency

can both enforce and educate. Perhaps your agency can even assist those in need with expenses (using the WPSP for example).

There is a pending permit in Bradford County for a new Phosphate mine adjacent to the New River. They expect to use less water than a mine like that usually uses, yet their requested water usage is quite high. The New River is relatively pristine, and it flows directly into the Santa Fe River, which is in a fragile state of recovery. This mine would threaten to the quantity and quality of water in both rivers, as well as to the economic development of our area as a tourist destination, market farming, and residential land value. This permit should be denied.

Much of your work and recommendations are based on the MFLs that were established in recent years. These minimums are too low. Many well-trained, well-respected scientists, experts in Florida's geology, insist that these models are inadequate. I strongly suggest that the District adopt more accurate models. We have not arrived at sustainable water use levels yet, and we will be losing ground in the future. It alarms me that MFLs might be reevaluated downward in order to create the appearance of successful regulation. The MFLs need to be raised.

The water crisis means that water will have to be restricted, new sustainable sources developed, and citizens will have to pay more. This has to be the beginning of any water discussion. All water users, including agricultural usage, will have to share this burden. The economic incentive to conserve and to increase efficiency will push us all toward sustainability. Suggestions and requests are not sufficient. Rebates for water use reductions are not enough. Our small farmers are crucial to North Florida's economy and their needs must be supported. It is up to you, in concert with experts, to figure out how to include them, and all ag industry, in water conservation and toxin reduction, without causing economic damage. This is complicated, but it is not rocket science.

You mention the Water Protection and Sustainability Program created by the legislature in 2005, unfunded for years. Please demand that they fund it. We need new answers to our water crisis -- innovation, not stagnation. It costs money to develop new, sustainable water sources and we must be willing to invest in this type of public infrastructure.

I urge you to evaluate conservation and all resource development projects using the NFSEG model and add projects to meet the established need for recovery of the Lower Santa Fe MFL. Additional meaningful local analysis is needed for several other areas, such has Keystone lakes, water quality east of the St. Johns, and wetland impacts in Appendix I, for which analysis and recommendations are not presented.

Also, much of your data does not include the available measurements taken after 2010, and including the most recent data will give a much clearer picture of current trends, recovery efforts, and projected needs. If the report comes out in 2017, it needs to extend to 2037, and be based on the most current data.
Water quality is a crucial issue, not limited to salt-water intrusion, phosphorous and nitrates. These are the very minimum pollutants to mitigate, but lead in the public water supply is also critical, as well as other

heavy metals. Your report does not give enough details of a plan to control water quality. As water sources are broadened and traditional sources strained, water quality is more and more important. I respectfully request greater elaboration of plans to improve water quality. Evaluate water quality (or state how it will be evaluated/maintained) in all water resources suggested to meet growing needs.

Finally, I request more stakeholder input. This plan is crucial, and it needs the support of water experts, conservationists, and the general public. Maybe you have met the letter of the law, but not the spirit. Our water crisis needs all of us working together. We are not there yet.

From:	noreply@formstack.com
To:	Jerry Carter; nfrwsp-comments
Subject:	northfloridawater-draftreview
Date:	Monday, December 05, 2016 2:10:34 PM

Formstack Submission for form northfloridawater-draftreview

Submitted at 12/05/16 2:10 PM

Name:	Robin Lumb
Organization:	City of Jacksonville
Email:	lumbr@coj.net
Phone number:	(904) 630-1873
Comments:	On behalf of Mayor Lenny Curry, the letter below is posted as the city's official comment on the North Florida Regional Water Supply Plan: December 5, 2016 Ann Shortelle, Executive Director St. Johns River Water Management District 4049 Reid Street Palatka, FL 32177 Dear Dr. Shortelle: On behalf of the City of Jacksonville, I would like to thank the St. Johns River Water Management District and its technical staff for their work developing the recently released draft of the North Florida Regional Water Supply Plan. As you know, the St. Johns and Suwanee River water management districts, along with the Florida Department of Environmental Protection, have worked together over the course of 4 years to produce a 20-year water supply plan for the 14-county planning area that comprises the North Florida Regional Water Supply Partnership. While additional work remains, the results of this effort are encouraging. By identifying a range of options capable of augmenting the region's water supply, the plan offers the promise of a balanced approach; one that couples common sense water conservation with the water resource and water supply projects necessary to ensure that North Florida has reliable and sustainable sources of water in the years ahead. The citizens of Duval County look forward to the implementation of cost-

effective solutions that will protect water supplies throughout region in an equitable manner based on sound science; a key to which will be the completion of a reliable groundwater model. We encourage the two water management districts to continue working with all stakeholders, including our water utility, JEA, in implementing the plan and developing future updates that are fair, financially prudent and scientifically sound.

Water is vital to economic growth and the wellbeing of our communities. That's why the North Florida Regional Water Supply Partnership must work to manage this resource wisely for the benefit of future generations.

Sincerely,

Lenny Curry, Mayor
City of Jacksonville

From:	Susan Alexander
To:	Amy Brown ; John Fitzgerald; nfrwsp-comments
Cc:	Brian Megic; Chuck Pavlos; Doug Layton; Edward de la Parte Jr.; Gordon Smith ; "Hutton, Richard H"; Jeremy Johnston; Kayle Moore; Ken Fraser; Larry Miller ; Mark Greenwood; Mike Kelter; Nicolas Porter; Rob Zammataro; Roberto Denis; Roger Rich; SteiPK ; Thomas Bartol; Ty Edwards
Subject:	Sent on behalf of Tom Morris - North Florida Utility Coordinating Group Comments on the Draft North Florida Regional Water Supply Plan
Date:	Monday, December 05, 2016 3:14:48 PM
Attachments:	image001.gif Commnets on the Draft North Florida Regional Water Supply Plan 12.5.16.pdf

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Please find the attached on the above referenced.

Thank you,

Susan L. Alexander
Office Administrator
Clay County Utility Authority
3176 Old Jennings Road
Middleburg, Florida 32068
Office Phone: (904) 213-2482
http://www.clayutility.org

Clay County Utility Authority
3176 Old Jennings Road
Middleburg, Florida 32068-3907
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Facsimile (904) 213-2498
www.clayutility.org

Working together to protect public health, conserve our natural resources, and create long-term value for our ratepayers.

December 5, 2016

VIA EMAIL nfrwsp-comments@sjrwmd.com

Amy Brown
Senior Hydrogeologist
Suwannee River Water Management District

John Fitzgerald
Regional Water Supply Planning Coordinator
St. Johns River Water Management District

Subject: **North Florida Utility Coordinating Group (NFUCG) Comments on the Draft North Florida Regional Water Supply Plan**

Dear Ms. Brown and Mr. Fitzgerald:

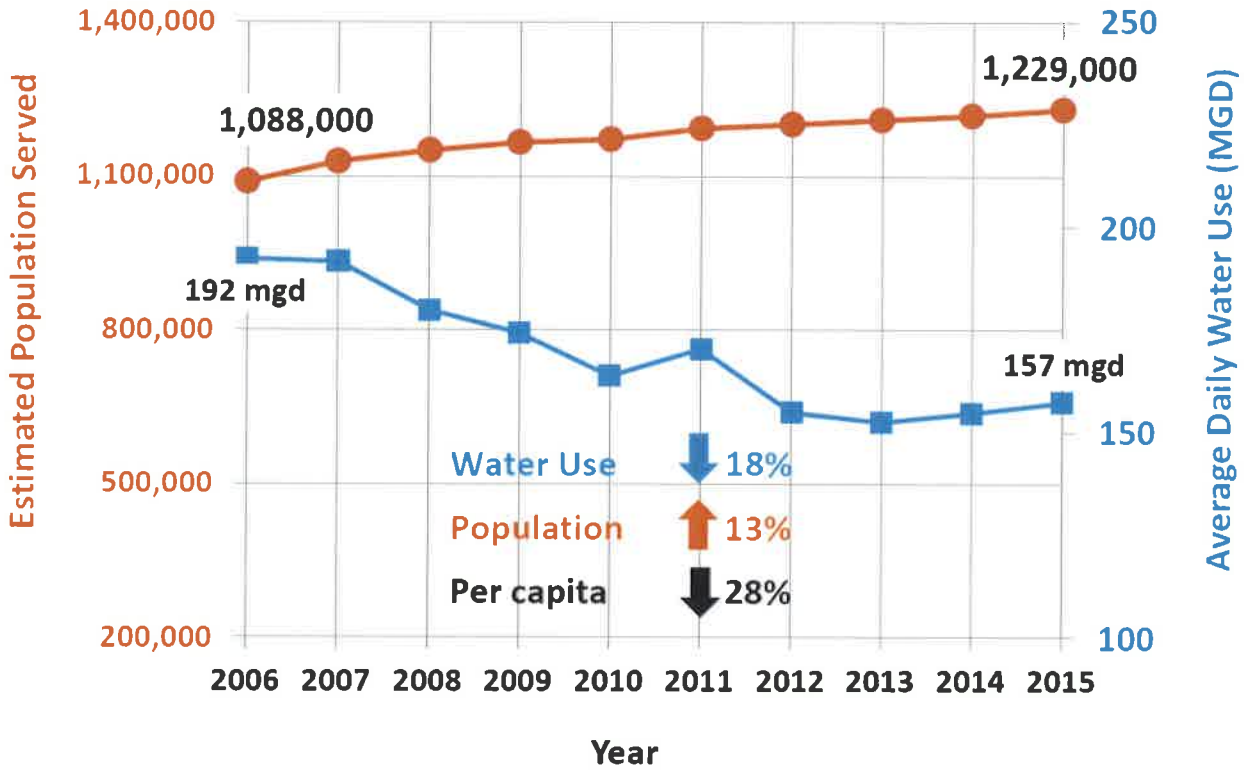
Please accept these comments on behalf of the North Florida Utilities Coordinating Group (NFUCG) and its members[1] regarding the draft North Florida Regional Water Supply Plan (the Plan). NFUCG and its members have been active participants and contributors throughout the Water Management Districts' Plan development process. We have appreciated the opportunity to collaborate with District staff and stakeholders regarding this important aspect of achieving our shared goals of protecting water resources and assuring sufficient water supplies exist for our region. NFUCG supports the joint approval of the Plan by the Suwannee and St. Johns River Water Management Districts.

Significant Achievements in Conservation and Reuse

NFUCG and its members commend both Districts for their commitment to encouraging the sustainability of our water resources. As the draft Plan recognizes, two critical components of this sustainability are a continued commitment to conservation and the use of reclaimed water. The Plan correctly recognizes that public water suppliers expect to achieve even greater water conservation and greater reuse of reclaimed water over the 20-year planning period. However, we believe the Plan should also recognize the significant achievements that the Districts and public water suppliers have already realized in both conservation and reclaimed water use.

As reflected in the following figure, since 2006, the population served by NFUCG members has increased by almost 150,000 people, from approximately 1.09 to 1.23 million. However, in that same time period, actual water use by NFUCG members has declined from 192 million gallons per day to 157 million gallons per day. Per capita water use rates have fallen by 28%. This water savings can be directly linked to water conservation efforts undertaken by NFUCG members, our customers, and the Districts, as well as an increased level of public awareness. We believe it is important for the Plan to recognize these past successes, since the ongoing emphasis and investment in conservation have significantly reduced the amounts of water necessary to meet future demand.

[1] City of Atlantic Beach, City of Neptune Beach, City of Jacksonville Beach, Town of Orange Park, Clay County Utility Authority, Gainesville Regional Utilities, JEA, and St. Johns County.



Water Use and Population Served by the North Florida Utility Coordinating Group

We have also made significant investments in increasing reclaimed water use. Since 2000, NFUCG members have invested over $150 million in beneficial reuse projects, resulting in an over 100% increase in both reclaimed water use and reclaimed water capacity. This commitment to reuse has already provided significant regional benefits, by allowing public suppliers and other users to reduce or eliminate the use of potable water for irrigation purposes and providing direct environmental benefits. As recognized in the Plan, we remain committed to expanding feasible reclaimed water use, however the Plan should also recognize the significant achievements that have already been realized by the Districts, public suppliers, and other water users.

North Florida Southeast Georgia Model

As you know NFUCG members have been active participants in the public technical and steering teams established to allow stakeholders to provide input into the development of the North Florida Southeast Georgia (NFSEG) regional groundwater flow model. District modeling staff deserves significant commendation for developing this new wide-ranging and technically complex tool. We expect that once it is peer reviewed and finalized, the model will prove to be an essential component of future planning and regulatory efforts by the Districts.

For the draft Plan, the Districts used the non-peer reviewed version 1.0 of the NFSEG model to develop several model scenarios. These scenarios were used to assess potential impacts due to increased water use in the region. This included a "pumps off" scenario, in which all

groundwater withdrawals in the model domain were turned off, with no change to modeled recharge. That "pumps off" scenario was then compared to simulations of projected 2035 water withdrawals, in order to estimate changes in water levels. These 2035 future scenarios also did not take changes in recharge into account.

We understand that for the Plan, the "pumps off" approach was used as a rough screening tool to identify water bodies which may merit further evaluation. We do not feel this approach is appropriate for future uses of the model because the recharge assumptions do not represent real conditions. The Plan chapter describing these modeling scenarios should clearly state that this "pumps off" approach does not represent an actual historical condition. The results of "pumps off" model scenarios, if presented without the proper context, have the potential to be misinterpreted by the public.

When the NFSEG model is to be used for other purposes, such as permitting or regulatory decisions, it is critical that a methodology be used that more accurately assesses structural alterations, and changes in water levels, land use, recharge, and other factors that are important to take into account when making permitting or regulatory decisions. We look forward to continuing to work with District staff as the NFSEG model proceeds in its development.

Public Suppliers Participation in the Process

Finally, we appreciate the opportunities the Districts have provided to us and other stakeholders to participate in the Plan development process. This participation is important as it both allows the public to stay informed of the Districts' planning initiatives and allows stakeholders to contribute their own resources and technical expertise in support of the Districts' efforts.

In addition to being active participants, NFUCG members identified almost 80 mgd of potential alternative water supply and water resource project options for inclusion in the Plan, at a total estimated cost of over $360 million. The water resource benefits associated with these proposed projects total over 70% of all the water supply project options identified in the Plan. Given the investment NFUCG members and our customers are continuing to make toward achieving water resource goals, it is important that we continue to closely coordinate with the Districts regarding future planning, modeling, and regulatory efforts. In particular, we look forward to working with District staff and other stakeholders in the further development of the NFSEG model, and to participating in the minimum flow and level development and adoption processes.

Thank you for your consideration of these comments and we look forward to continuing to work with the Districts on these important issues.

Sincerely,

Tom Morris
Executive Director, Clay County Utility Authority
On Behalf of the North Florida Utility Coordinating Group

cc: NFUCG Members

From:	Rob Denis
To:	"Amy Brown "; John Fitzgerald; nfrwsp-comments
Subject:	Updated NFRWSP Water Supply Project Information (Appendix K and L Comments)
Date:	Monday, December 05, 2016 3:54:20 PM
Attachments:	Appendix K_20161003-NFUCG Comments.xlsx Appendix L_20161003-NFUCG Comments.xlsx

John, Amy,
We have developed updated information related to 38 of the water supply development projects previously submitted by the North Florida Utility Coordinating Group (NFUCG) for the North Florida Regional Water Supply Plan (NFRWSP). These 38 projects are currently included in Appendix L of the Draft NFRWSP.

The updates on these 38 water supply development projects include the addition of a calculated water supply benefit which accounts for each project's ability to meet peak demands. In addition, the annual operations and maintenance (O&M) cost associated with each project was calculated consistent with the methodologies used in the Draft NFRWSP.

As a result of this additional information, each of these 38 water supply development projects meet the criteria required for inclusion in the NFRWSP as a "Water Supply Development Project Option" and should be included in Appendix K (and removed from Appendix L) of the Draft NFRWSP. Attached you will find an updated Appendix K and Appendix L reflecting our proposed changes (shown in red text.)

Please let me know if you have any questions.
Sincerely,
Rob

Roberto Denis, PE, D.WRE
Liquid Solutions Group, LLC
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Geneva, Florida 32732
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North Florida Regional Water Supply Plan
Water Supply Development Project Options

County	Water Management District	Project Name	Implementing Entity	Project Description	Project Type	Water Source	Estimated Water Supply Benefit (mgd)	Total Capital ($M)	Estimated Annual O&M	Timeframe for Completion*	Notes
Alachua	SJRWMD	Brytan Subdivision Reclaimed Water System Expansion	GRU	Expansion of reclaimed water distribution system pipelines in Brytan subdivision to offset use of potable water for irrigation.	Reuse - Pipeline	Reclaimed Water	0.16	$2.23	$2,000	2026	
Alachua	SJRWMD	Innovation District Reclaimed Water System Expansion	GRU	Expansion of reclaimed water distribution system pipelines to offset use of potable water for industrial cooling and irrigation in the Innovation District.	Reuse - Pipeline	Reclaimed Water	0.11	$1.50	$1,100	2035	
Alachua	SRWMD	Oakmont Reclaimed Water Main Extension	GRU	This project will include construction of reclaimed water (RCW) mains for the internal distribution network for construction of the Oakmont Subdivision, Phase 2.	Reuse - Pipeline	Reclaimed Water	0.05	$0.44	$1,000	2035	
Alachua	SRWMD	Oakmont Subdivision Reclaimed Water System Expansion	GRU	Expansion of reclaimed water distribution system pipelines in Oakmont subdivision to offset use of potable water for irrigation. Includes additional transmission and storage/pumping facilities to facilitate addition of groundwater recharge wetlands and/or further expansion of potable offset irrigation.	Reuse - Pipeline	Reclaimed Water	0.40	$8.40	$5,600	2026	
Alachua	SRWMD and SJRWMD	Reclaimed Water System Expansion into New Neighborhoods	GRU	Expansion of reclaimed water distribution system pipelines to offset use of potable water for irrigation.	Reuse - Pipeline	Reclaimed Water	0.40	$5.00	$3,000	2035	
Clay	SJRWMD	First Coast Outer Beltway Stormwater Ponds	CCUA	Horizontal well and treatment sites at 29 Stormwater ponds along SR 23 phase 3 corridor (First Coast Outer Beltway).	Reuse - Pipeline	Stormwater	2.50	$27.00	$69,000	2030	
Clay	SJRWMD	Green Cove Regional Reclaimed WTP	CCUA	New reclaim water treatment facility with 0.4 MGD AADF capacity.	Reuse - Supply	Reclaimed Water	0.40	$1.30	$24,000	2018	
Clay	SJRWMD	Mid-Clay Land Application and Recovery Site	CCUA	Construction of a rapid infiltration basin and horizontal well recovery system.	Reuse - Storage	Reclaimed Water	2.08	$2.76	$199,000	2015	
Clay	SJRWMD	Reclaim Future System Expansion	CCUA	Extension of CCUA reclaimed water transmission and distribution to supply future developments.	Reuse - Pipeline	Reclaimed Water	7.50	$7.50	$4,000	2030	
Clay	SJRWMD	Reclaimed Water Transmission/Distribution Main Extensions	CCUA	Extend CCUA reclaimed water infrastructure to developments under construction.	Reuse - Pipeline	Reclaimed Water	0.38	$1.30	$1,000	2016	
Clay	SJRWMD	Stormwater Harvest Pilot Project	CCUA	Horizontal well and treatment site to withdraw and treat groundwater near stormwater ponds for reuse supply.	Reuse - Pipeline	Stormwater	0.40	$1.20	$4,500	2017	
Clay	SJRWMD	Reclaimed Water Ground Storage Tanks	CCUA	Old Jennings and Ridaught Reclaimed Water Treatment Plants 0.75 MG Ground Storage Tanks (x2).	Reuse - Storage	Reclaimed Water	0.03	$1.25	$1,000	2018	Moved from Appendix L, Added Water Supply Benefit and O&M cost from SJRWMD Cost Tools
Clay	SJRWMD	LSJRB Reuse and Treatment	Town of Orange Park	Primarily a WWTP Upgrade for WQ improvement with secondary implementation of reuse in cooperation with CCUA through an interconnect.	Reuse - Supply	Reclaimed Water	0.25	$0.27	$7,800	2013	
Columbia	SRWMD	City of Lake City Reclaimed Water System Upgrade (Phase 1)	SRWMD	Installation of 2.7 miles of reclaimed water main to increase the amount of reclaimed water users.	Reuse - Pipeline	Reclaimed Water	0.54	$0.55	$1,000	2018	
Duval	SJRWMD	Atlantic Beach Selva Marina Reclaimed Water System Expansion	City of Atlantic Beach	Install pipeline to supply reclaimed water to golf course and residential homes.	Reuse - Supply	Reclaimed Water	0.50	$1.11	$1,000	2015	
Duval	SJRWMD	NAS Reclaimed Water Project	City of Jacksonville	Expand the reuse to the NAS-JAX golf course, weapons storage area and ballfields.	Reuse - Pipeline	Reclaimed Water	0.36	$1.87	$1,000	2012	
Duval	SJRWMD	Jacksonville Beach Water & Sewer Mains Extension	City of Jacksonville Beach	The project objective is to eliminate private wells for potable use and septic tanks adjacent to the Intracoastal Waterway by extending the water main (about 1000 feet new & 1000 feet upsized replacement) and by extending the sanitary sewer main (about 2000 feet new) to 7 residential properties on the private road extension connected to the end of Hopson Road. A fire hydrant will be added near the end of the water main extension to improve fire safety. Currently, six of these properties are developed and have private water wells and septic tanks, which are not charged. With charging for utility water & sewer services, it is ultimately anticipated that water usage may be conserved. With abandonment of septic tanks, the nutrient load into the adjacent area near the Intracoastal Waterway is reduced and reclaimed water supply is increased. Project capacity and water supply benefit are based on an estimated 500 gpd per connection.	Reuse - Supply	Reclaimed Water	0.00	$0.43	$1,000	2018	
Duval	SJRWMD	Reuse Treatment and Initiative Program	City of Neptune Beach	Upgrade WWTP to reuse standards and implement reuse program.	Reuse - Supply	Reclaimed Water	0.03	$0.95	$12,000	2014	
Duval	SJRWMD	9B Reclaimed Water System Expansion	JEA	This project is in coordination with a roadway project at a new interchange. Significant cost savings will result from this new reclaimed water main being installed during construction of new roadway. The estimated length of 30" reclaimed water main to be installed is 1,868 feet. This pipeline will provide reclaimed water to commercial and residential customers resulting in an offset of potable water used for irrigation, reducing the amount of water withdrawn from the Floridan Aquifer. Two WWTFs (Mandarin and Arlington East) will provide reclaimed water to the proposed pipeline, both WWTFs discharge effluent to the St. Johns River. Any reclaimed water used will reduce the amount effluent discharged to the St. Johns River.	Reuse - Pipeline	Reclaimed Water	13.00	$0.45	$1,000	2015	
Duval	SJRWMD	Arlington East 2 MGD Reclaimed Water Filter	JEA	2.0 MGD water reclamation facility filter expansion to support increased reclaimed water demands	Reuse - Supply	Reclaimed Water	2.00	$0.99	$11,000	2015	
Duval	SJRWMD	Arlington East Reclaim Storage Conversion	JEA	Conversion of a 2.0 MG sludge holding tank to effluent storage to be used for reclaimed water production	Reuse - Storage	Reclaimed Water	2.00	$0.64	$1,000	2012	

County	Water Management District	Project Name	Implementing Entity	Project Description	Project Type	Water Source	Estimated Water Supply Benefit (mgd)	Total Capital ($M)	Estimated Annual O&M	Timeframe for Completion*	Notes
Duval	SJRWMD	Arlington East Water Reclamation Facility - Onsite Reuse Pump Upgrade	JEA	On-site piping upgrades and pump replacement, increasing reclaimed water delivery capacity from 750 to 1200 gpm (1.1 To 1.7 MGD).	Reuse - Pipeline and Pumping	Reclaimed Water	0.60	$0.64	$1,000	2016	
Duval	SJRWMD	Arlington East WRF - Reclaimed Water Filtration Expansion - Increase Capacity from 8.0 to 10.0 MGD	JEA	2.0 MGD water reclamation facility filter expansion to support increased reclaimed water demands.	Reuse - Supply	Reclaimed Water	2.00	$2.80	$11,000	2023	
Duval	SJRWMD	Arlington East WWTP 2.0 MGD Reuse Capacity Addition	JEA	2.0 MGD water reclamation facility filter expansion to support increased reclaimed water demands	Reuse - Supply	Reclaimed Water	2.00	$0.60	$11,000	2012	
Duval	SJRWMD	CCUA Reclaimed Water Transmission Main - Southwest WWTF to CCUA	JEA	Installation of 44,000 feet of 24" reclaimed water main to serve as a transmission pipeline.	Reuse - Pipeline	Reclaimed Water	10.15	$15.00	$8,000	2023	
Duval	SJRWMD	Glen Kernan Pkwy - Kernan Blvd to Royal Troon Lane - Reclaimed Water System Expansion	JEA	Installation of 2,100 feet of 8" reclaimed water main to serve the Glen Kernan Golf & Country Club golf course.	Reuse - Pipeline	Reclaimed Water	0.43	$0.26	$1,000	2023	
Duval	SJRWMD	Greenland Reclaimed Water Repump Facility - Storage Tank and Booster Pump Station	JEA	4.0 MG storage tank and high service pumps.	Reuse - Storage and Pumping	Reclaimed Water	4.00	$5.00	$3,500	2024	
Duval	SJRWMD	Mandarin Water Reclamation Facility - High Level UV Upgrade	JEA	UV disinfection system capacity upgrade from 5.7 to 8.75 MGD to increase supply available for public access reuse.	Reuse - Supply	Reclaimed Water	3.05	$4.15	$16,500	2017	
Duval	SJRWMD	Monument Rd - Cancun Dr to Hidden Hills Ln - Reclaimed Water System Expansion	JEA	Installation 1,600 feet of 12" and 2,300 feet of 8" reclaimed water main to serve the Hidden Hills Country Club golf course.	Reuse - Pipeline	Reclaimed Water	0.36	$0.64	$1,000	2018	
Duval	SJRWMD	RG Skinner - North Rd - Reclaimed Water System Expansion	JEA	Installation of 11,000 feet of 30" reclaimed water main to serve as a transmission pipeline.	Reuse - Pipeline	Reclaimed Water	0.47	$3.00	$2,000	2020	
Duval	SJRWMD	Ridenour WTP - Reclaimed Water Storage and Repump	JEA	3.0 MG storage tank and high service pumps.	Reuse - Storage and Pumping	Reclaimed Water	3.00	$3.70	$3,500	2024	
Duval	SJRWMD	Station Creek Rd - Beach Blvd to Hunt Club Rd N - Reclaimed Water System Expansion	JEA	Installation of 2,200 feet of 8" reclaimed water main to serve the Jax Golf & Country Club golf course.	Reuse - Pipeline	Reclaimed Water	0.35	$0.28	$1,000	2023	
Duval	SJRWMD	Upgrade Pumps at Mandarin-R	JEA	Install pumps capable of supplying 5.7 MGD	Reuse - Storage and Pumping	Reclaimed Water	1.90	$0.37	$20,000	2013	
Duval	SJRWMD	Water Treatment Pilot/Demonstration Phase 1 and 2	JEA	Purified water pilot and demonstration projects.	Technology evaluation	Reclaimed Water	1.00	$20.00	$1,000	2022	
Duval	SJRWMD	Bartram Park WTP - RW - Storage Expansion	JEA	Installation of a new 2.5 Mgal storage tank.	Reuse - Storage	Reclaimed Water	0.05	$2.15	$1,000	2017	Moved from Appendix L, Added Water Supply Benefit and O&M cost from SJRWMD Cost Tools
Duval	SJRWMD	Baymeadows Rd - Point Meadows Rd to Old Still PUD - Reclaimed Water System Expansion	JEA	Installation of 9,500 feet of 8" reclaimed water main to serve as a transmission pipeline.	Reuse - Pipeline	Reclaimed Water	0.01	$1.00	$1,000	2020	Moved from Appendix L, Added Water Supply Benefit and O&M cost from SJRWMD Cost Tools
Duval	SJRWMD	Davis - Gate Pkwy to RG Skinner - Reclaimed Water System Expansion	JEA	Installation of 13,700 feet of 30" reclaimed water main to serve as a transmission pipeline.	Reuse - Pipeline	Reclaimed Water	0.12	$5.00	$1,000	2024	Moved from Appendix L, Added Water Supply Benefit and O&M cost from SJRWMD Cost Tools
Duval	SJRWMD	District 2 WWTF Reclaimed Water Storage Tank and Booster Pump Station	JEA	1.0 MG storage tank.	Reuse - Storage	Reclaimed Water	0.02	$2.90	$1,000	2019	Moved from Appendix L, Added Water Supply Benefit and O&M cost from SJRWMD Cost Tools
Duval	SJRWMD	District II - Broward River Crossing Replacement	JEA	Installation of 2,800 feet of 24" of reclaimed water transmission pipeline.	Reuse - Pipeline	Reclaimed Water	0.08	$4.84	$1,000	2016	Moved from Appendix L, Added Water Supply Benefit and O&M cost from SJRWMD Cost Tools
Duval	SJRWMD	Gate Pkwy - Glen Kernan to T-Line - Trans - New - Reclaimed Water System Expansion	JEA	Installation of 18,000 feet of 30" and 2,000 feet of 20" reclaimed water main to serve as a transmission pipeline.	Reuse - Pipeline	Reclaimed Water	0.18	$8.50	$1,000	2020	Moved from Appendix L, Added Water Supply Benefit and O&M cost from SJRWMD Cost Tools
Duval	SJRWMD	Gate Pkwy - Shiloh Mill Blvd to Town Ctr Pkwy - Reclaimed Water System Expansion	JEA	Installation of 2,300 feet of 8" reclaimed water main to serve as a transmission pipeline.	Reuse - Pipeline	Reclaimed Water	0.01	$0.33	$1,000	2018	Moved from Appendix L, Added Water Supply Benefit and O&M cost from SJRWMD Cost Tools
Duval	SJRWMD	JP - FDOT - SR 9A (I-295) - Managed Lanes - JTB - 9B Extension - Reclaimed Water System Expansion	JEA	Installation of 1,300 feet of 20" reclaimed water main to serve as a transmission pipeline.	Reuse - Pipeline	Reclaimed Water	0.06	$0.31	$1,000	2017	Moved from Appendix L, Added Water Supply Benefit and O&M cost from SJRWMD Cost Tools
Duval	SJRWMD	Mandarin Water Reclamation Facility - Equalization Storage Tank and Transfer Pump Station	JEA	1.7 MG storage tank and a high service pumping upgrade from 5.7 to 8.75 MGD to increase supply available for public access reuse.	Reuse - Storage and Pumping	Reclaimed Water	0.03	$2.56	$6,310	2017	Moved from Appendix L, Added Water Supply Benefit and O&M cost from SJRWMD Cost Tools
Duval	SJRWMD	Monument Rd - Arlington East WRF to St Johns Bluff Rd - Reclaimed Water System Expansion	JEA	Installation of 7,900 feet of 20" reclaimed water main to serve as a transmission pipeline.	Reuse - Pipeline	Reclaimed Water	0.06	$3.30	$1,000	2023	Moved from Appendix L, Added Water Supply Benefit and O&M cost from SJRWMD Cost Tools
Duval	SJRWMD	RG Skinner Area - 9B to Parcels 10A - 11 - Reclaimed Water System Expansion	JEA	Installation of 2,900 feet of 30" reclaimed water main to serve as a transmission pipeline.	Reuse - Pipeline	Reclaimed Water	0.12	$1.11	$1,000	2017	Moved from Appendix L, Added Water Supply Benefit and O&M cost from SJRWMD Cost Tools
Duval	SJRWMD	RG Skinner Area - 9B to T-Line - Reclaimed Water System Expansion	JEA	Installation of 3,600 feet of 30" reclaimed water main to serve as a transmission pipeline.	Reuse - Pipeline	Reclaimed Water	0.12	$1.23	$1,000	2017	Moved from Appendix L, Added Water Supply Benefit and O&M cost from SJRWMD Cost Tools
Duval	SJRWMD	T-Line - Greenland Substation to GEC - Reclaimed Water System Expansion	JEA	Installation of 8,000 feet of 30" reclaimed water main to serve as a transmission pipeline.	Reuse - Pipeline	Reclaimed Water	0.12	$3.10	$1,000	2024	Moved from Appendix L, Added Water Supply Benefit and O&M cost from SJRWMD Cost Tools
Duval	SJRWMD	Tredinick Pkwy - Millcoe Rd to Mill Creek Rd - Reclaimed Water System Expansion	JEA	Installation of 5,800 feet of 12", 1,000 feet of 10", and 4,300 feet of 4" reclaimed water main to serve as a transmission pipeline.	Reuse - Pipeline	Reclaimed Water	0.04	$1.57	$1,000	2019	Moved from Appendix L, Added Water Supply Benefit and O&M cost from SJRWMD Cost Tools
Duval/St. Johns	SJRWMD	US 1 - Greenland WRF to CR 210 - Reclaimed Water System Expansion	JEA	Installation of 30,000 feet of 20" reclaimed water main to serve as a transmission pipeline.	Reuse - Pipeline	Reclaimed Water	0.06	$7.80	$1,000	2022	Moved from Appendix L, Added Water Supply Benefit and O&M cost from SJRWMD Cost Tools
Duval	SJRWMD	Queens Harbor Reclaimed Water Main Expansion	JEA and Queens Harbor Golf and Country Club	This project will provide reclaimed water to Queens Harbor. A planned 6" reclaimed water main will be installed from an existing reclaimed water main located adjacent to Wonderwood Road. The estimated length of pipe to be installed is 6,265 feet in addition to flow metering and flow control devices.	Reuse - Pipeline	Reclaimed Water	0.30	$0.46	$1,000	2014	
Duval	SJRWMD	Intermediate Well Conversion	San Jose Country Club	Installation of an intermediate zone well to a depth of 450 feet to produce approximately 25,200 gallons per day, thus reducing pumping from the Floridan aquifer.	AWS	Intermediate aquifer	0.27	$0.03	$4,800	2016	

County	Water Management District	Project Name	Implementing Entity	Project Description	Project Type	Water Source	Estimated Water Supply Benefit (mgd)	Total Capital ($M)	Estimated Annual O&M	Timeframe for Completion*	Notes
Flagler	SJRWMD	State Street Irrigation System Expansion	City of Bunnell	Extend reclaimed water mains to their public park and two median enhancement projects along the US1 and SR100 crossroads. The goal is to be able to utilize the city's reclaim water for maximum irrigation and reduce the amount of well water being used while reducing the nutrient loading rate and wet weather discharge from the city's Wastewater Treatment Facility into Old Haw Creek.	Reuse - Pipeline	Reclaimed Water	0.10	$0.05	$1,500	2016	
Flagler	SJRWMD	Palm Coast Grand Landing Reclaimed Water Transmission Main	City of Palm Coast	Construct 6,750 linear feet of 16" PVC transmission line and 350 linear feet of 18" HDPE transmission line with associated fittings, valves and site work.	Reuse - Pipeline	Reclaimed Water	0.56	$0.70	$1,000	2017	
Flagler	SJRWMD	Palm Coast Matanzas Woods Reclaimed Pipeline	City of Palm Coast	Construct a reclaimed water transmission main extension along Matanzas Woods Pkwy. between Old Kings Rd. and US 1. The capacity of this project is >2 mgd and will supply irrigation demands with reclaimed water in lieu of potable or local groundwater.	Reuse - Pipeline	Reclaimed Water	2.00	$2.53	$1,000	2016	
Flagler	SJRWMD	Palm Coast RCW Irrigation Along US-1 & Palm Coast Park	City of Palm Coast	Install a reclaimed water transmission main over Matanzas Woods Parkway from the east side of I-95 to the west side of I-95 to US#1 to make use of WWTP#1 Reclaimed water for irrigation and aquifer recharge.	Reuse - Pipeline	Reclaimed Water	1.00	$1.50	$1,000	2017	
Flagler	SJRWMD	Palm Coast Royal Palms Parkway Reclaimed Water Line	City of Palm Coast	Construct a 6,000' of reclaimed water transmission main extension along Royal Palms Parkway between Town Center Boulevard and Belle Terre Parkway to supply residents with reclaimed water for irrigation in lieu of a stormwater pond.	Reuse - Pipeline	Reclaimed Water	0.05	$0.30	$2,000	2015	
Flagler	SJRWMD	Palm Coast Utilization of Concentrate as Raw Water Supply	City of Palm Coast	Install cartridge filters and ozone treatment system to allow concentrate to be used as an alternative water supply source when blended with treated water.	AWS	Concentrate	0.75	$1.24	$7,800	2015	
Nassau	SJRWMD	Nassau Area - Radio Av - Reclaimed Water Storage Tank and Booster Pump Station	JEA	1.0 MG storage tank and 1,000 gpm high service pumps.	Reuse - Storage and Pumping	Reclaimed Water	1.44	$3.29	$5,000	2019	
Nassau	SJRWMD	Nassau Regional WWTF Reclaimed Water Storage Tank, UV Disinfection and Pumps	JEA	1.0 MG storage tank, 1,500 gpm high service pumps, and high level UV disinfection.	Reuse - Storage, Pumping and Supply	Reclaimed Water	2.16	$6.12	$20,000	2019	
Nassau	SJRWMD	William Burgess Rd - SR200 to Harts Rd - Trans - New - Reclaimed Water System Expansion	JEA	Installation of 13,000 feet of 16" reclaimed water main to serve as a transmission pipeline.	Reuse - Pipeline	Reclaimed Water	0.46	$2.50	$5,500	2017	
Nassau	SJRWMD	Nassau RW Main - Radio Av to Harts Rd - Trans - Reclaimed Water System Expansion	JEA	Installation of 11,000 feet of 16" reclaimed water main to serve as a transmission pipeline.	Reuse - Pipeline	Reclaimed Water	0.04	$2.30	$1,000	2019	Moved from Appendix L, Added Water Supply Benefit and O&M cost from SJRWMD Cost Tools
Nassau	SJRWMD	T-Line - Amelia Concourse to Amelia National - Reclaimed Water System Expansion	JEA	Installation of 5,700 feet of 10" reclaimed water main to serve as a transmission pipeline.	Reuse - Pipeline	Reclaimed Water	0.02	$0.80	$1,000	2021	Moved from Appendix L, Added Water Supply Benefit and O&M cost from SJRWMD Cost Tools
Putnam	SJRWMD	Vulcan Upper to Lower Floridan Aquifer Well Conversion	Vulcan and SJRWMD	Constructing a new lower Floridan aquifer well to replace an existing upper Floridan well.	Change of source	Lower Floridan Aquifer	2.61	$0.76	$64,000	2017	
St. Johns	SJRWMD	Bartram Park Reclaimed Water Storage Tank Expansion	JEA	This project adds 2.5 mgd more of storage to support peak demands. Bartram repumps reclaimed water supplied by 2 major wastewater facilities (Arlington East & Mandarin) to support St. Johns County demands, which is currently 7,000 customers. This second tank will provide an additional 5 hours of peak supply at the current pumping rate of 11 mgd.	Reuse - Storage	Reclaimed Water	0.53	$2.10	$21,000	2017	
St. Johns	SJRWMD	Bartram Trail HS - Longleaf Pine Pkwy - Reclaimed Water System Expansion	JEA	Installation of 2,600 feet of 6" reclaimed water main to serve the Bartram High School.	Reuse - Pipeline	Reclaimed Water	0.13	$0.24	$1,000	2023	
St. Johns	SJRWMD	Nocatee Booster Station	JEA	Allows for increased reclaimed water delivery capacity from 3800 to 4650 gpm (5.5 to 6.7 MGD).	Reuse - Pumping	Reclaimed Water	1.20	$1.35	$3,000	2016	
St. Johns	SJRWMD	Nocatee Coastal Oaks Phase 4	JEA	Supply new residents with reclaimed water for irrigation in lieu of potable water by constructing a reclaimed water transmission main extension in the Nocatee Coastal Oaks Phase 4 – R area. The quantity of water expected from this project is 2 mgd and consists of 4,500' of 12" diameter pipe.	Reuse - Supply	Reclaimed Water	2.00	$1.06	$1,000	2016	
St. Johns	SJRWMD	Nocatee South Reclaimed Water Storage Tank and Booster Pump Station	JEA	2.0 Mgal storage tank and high service pumps.	Reuse - Storage and Pumping	Reclaimed Water	2.00	$3.50	$2,000	2021	
St. Johns	SJRWMD	RiverTown WTP - Reclaimed Water - New Storage and Pumping System	JEA	2.0 Mgal storage tank and high service pumps.	Reuse - Storage and Pumping	Reclaimed Water	2.00	$3.95	$2,000	2021	
St. Johns	SJRWMD	Twin Creeks Reclaimed Water Storage Tank and Booster Pump Station	JEA	2.0 Mgal storage tank and high service pumps.	Reuse - Storage and Pumping	Reclaimed Water	2.00	$3.50	$2,000	2021	
St. Johns	SJRWMD	CR210 - Longleaf Pine Pkwy to Ashford Mills Rd - Reclaimed Water System Expansion	JEA	Installation of 11,600 feet of 30" and 2,300 feet of 16" reclaimed water main to serve as a transmission pipeline.	Reuse - Pipeline	Reclaimed Water	0.16	5.00	$1,000	2023	Moved from Appendix L, Added Water Supply Benefit and O&M cost from SJRWMD Cost Tools
St. Johns	SJRWMD	CR210 - Old Dixie Hwy to Twin Creeks - Trans - Reclaimed Water System Expansion	JEA	Installation of 9,500 feet of 20" reclaimed water main to serve as a transmission pipeline.	Reuse - Pipeline	Reclaimed Water	0.06	2.30	$1,000	2019	Moved from Appendix L, Added Water Supply Benefit and O&M cost from SJRWMD Cost Tools
St. Johns	SJRWMD	CR210 - South Hampton to Ashford Mills - Trans - Reclaimed Water System Expansion	JEA	Installation of 7,400 feet of 12" reclaimed water main to serve as a transmission pipeline.	Reuse - Pipeline	Reclaimed Water	0.02	0.65	$1,000	2018	Moved from Appendix L, Added Water Supply Benefit and O&M cost from SJRWMD Cost Tools
St. Johns	SJRWMD	CR210 - St Johns Pkwy to Leo Maguire Pkwy - Reclaimed Water System Expansion	JEA	Installation of 9,000 feet of 8" reclaimed water main to serve as a transmission pipeline.	Reuse - Pipeline	Reclaimed Water	0.01	1.12	$1,000	2024	Moved from Appendix L, Added Water Supply Benefit and O&M cost from SJRWMD Cost Tools
St. Johns	SJRWMD	CR210 - Twin Creeks to Russell Sampson Rd - Reclaimed Water System Expansion	JEA	Installation of 12,000 feet of 20" reclaimed water main to serve as a transmission pipeline.	Reuse - Pipeline	Reclaimed Water	0.06	3.00	$1,000	2021	Moved from Appendix L, Added Water Supply Benefit and O&M cost from SJRWMD Cost Tools

County	Water Management District	Project Name	Implementing Entity	Project Description	Project Type	Water Source	Estimated Water Supply Benefit (mgd)	Total Capital ($M)	Estimated Annual O&M	Timeframe for Completion*	Notes
St. Johns	SJRWMD	Greenbriar Rd - Longleaf Pine Pkwy to Spring Haven Dr - Reclaimed Water System Expansion	JEA	Installation of 13,500 feet of 20" reclaimed water main to serve as a transmission pipeline	Reuse - Pipeline	Reclaimed Water	0.06	3.50	$1,000	2021	Moved from Appendix L, Added Water Supply Benefit and O&M cost from SJRWMD Cost Tools
St. Johns	SJRWMD	Nocatee - Coastal Oaks Phase 4 - Reclaimed Water System Expansion	JEA	Installation of 3,400 feet of 12" reclaimed water main to serve as a transmission pipeline.	Reuse - Pipeline	Reclaimed Water	0.02	0.17	$1,000	2016	Moved from Appendix L, Added Water Supply Benefit and O&M cost from SJRWMD Cost Tools
St. Johns	SJRWMD	Nocatee Area - Artisan Lakes - N10 - Reclaimed Water System Expansion	JEA	Installation of 4,200 feet of 12" reclaimed water main to serve as a gridded transmission pipeline.	Reuse - Pipeline	Reclaimed Water	0.02	0.23	$1,000	2016	Moved from Appendix L, Added Water Supply Benefit and O&M cost from SJRWMD Cost Tools
St. Johns	SJRWMD	Nocatee Area - Crosswater Pkwy - Coastal Oaks to South Village - Reclaimed Water System Expansion	JEA	Installation of 8,400 feet of 16" reclaimed water main to serve as a transmission pipeline.	Reuse - Pipeline	Reclaimed Water	0.04	0.39	$1,000	2017	Moved from Appendix L, Added Water Supply Benefit and O&M cost from SJRWMD Cost Tools
St. Johns	SJRWMD	Nocatee Area - Riverwood POD 17 - Reclaimed Water System Expansion	JEA	Installation of 4,500 feet of 12" reclaimed water main to serve as a transmission pipeline.	Reuse - Pipeline	Reclaimed Water	0.02	0.17	$1,000	2016	Moved from Appendix L, Added Water Supply Benefit and O&M cost from SJRWMD Cost Tools
St. Johns	SJRWMD	Nocatee Area - Twenty Mile Village - Reclaimed Water System Expansion	JEA	Installation of 8,400 feet of 12" reclaimed water main to serve as a transmission pipeline.	Reuse - Pipeline	Reclaimed Water	0.02	0.30	$1,000	2016	Moved from Appendix L, Added Water Supply Benefit and O&M cost from SJRWMD Cost Tools
St. Johns	SJRWMD	Nocatee Area - Twenty Mile Village Ph 4A - 4B - Reclaimed Water System Expansion	JEA	Installation of 1,400 feet of 12" reclaimed water main to serve as a transmission pipeline.	Reuse - Pipeline	Reclaimed Water	0.02	0.32	$1,000	2016	Moved from Appendix L, Added Water Supply Benefit and O&M cost from SJRWMD Cost Tools
St. Johns	SJRWMD	Nocatee North Storage and Repump Facility - New 3.5 MG Reclaimed Water Storage Tank	JEA	Installation of a new 3.5 Mgal storage tank.	Reuse - Storage	Reclaimed Water	0.07	2.50	$1,000	2017	Moved from Appendix L, Added Water Supply Benefit and O&M cost from SJRWMD Cost Tools
St. Johns	SJRWMD	Nocatee Storage and Repump Facility Tank Expansion	JEA	Increase storage tank capacity from 1.009 to 1.178 Mgal.	Reuse - Storage	Reclaimed Water	0.003	0.29	$1,000	2016	Moved from Appendix L, Added Water Supply Benefit and O&M cost from SJRWMD Cost Tools
St. Johns	SJRWMD	Rivertown - Parcel 13 - Southern POD - Reclaimed Water System Expansion	JEA	Installation of 1,800 feet of 10" reclaimed water main to serve as a transmission pipeline.	Reuse - Pipeline	Reclaimed Water	0.02	0.06	$1,000	2017	Moved from Appendix L, Added Water Supply Benefit and O&M cost from SJRWMD Cost Tools
St. Johns	SJRWMD	Russell Sampson Rd - St. Johns Pkwy to CR210 - Reclaimed Water System Expansion	JEA	Installation of 12,000 feet of 20" reclaimed water main to serve as a transmission pipeline	Reuse - Pipeline	Reclaimed Water	0.06	2.50	$1,000	2021	Moved from Appendix L, Added Water Supply Benefit and O&M cost from SJRWMD Cost Tools
St. Johns	SJRWMD	St Johns Pkwy - Racetrack Rd to Espada Ln - Reclaimed Water System Expansion	JEA	Installation of 5,000 feet of 8" reclaimed water main to serve as a transmission pipeline.	Reuse - Pipeline	Reclaimed Water	0.01	0.55	$1,000	2018	Moved from Appendix L, Added Water Supply Benefit and O&M cost from SJRWMD Cost Tools
St. Johns	SJRWMD	Veterans Pkwy - Longleaf Pine Pkwy to CR210 - Reclaimed Water System Expansion	JEA	Installation of 20,000 feet of 30" and 3,700 feet of 20" reclaimed water main to serve as a transmission pipeline.	Reuse - Pipeline	Reclaimed Water	0.06	8.80	$1,000	2024	Moved from Appendix L, Added Water Supply Benefit and O&M cost from SJRWMD Cost Tools
St. Johns	SJRWMD	Bannon Lakes 2 MG Reclaimed Water Storage and Booster Pump Station	SJCUD	2.0 MG storage tank, 2,500 gpm booster pump station, control valve, electrical building, civil site work and yard piping, and associated electrical and instrumentation. The project will supply reclaimed water to new residential customers along International Golf Parkway just east of I-95. The additional storage will allow the County to collect reclaimed water during times of low irrigation demand to be utilized to serve peak irrigation demands. This offsets augmentation supply and conserves groundwater use for over 1,300 homes and commercial properties. As a result of increasing the reclaimed water system storage, the County will be able to reduce the discharge from the Northwest Wastewater Treatment Plant to Mill Creek, a tributary of Six Mile Creek and the lower St. Johns River.	Reuse - Storage and Pumping	Reclaimed Water	0.05	$2.00	$18,000	2017	
St. Johns	SJRWMD	City of St. Augustine Beach Reclaimed Water System Expansion	SJCUD	10" reuse main east from the Anastasia Island WWTP along 16th Street to A1A to serve the St. Augustine Beach City Hall and park, continuing southeast to serve a new 73 home subdivision, Ocean Ridge. The new reuse main would also allow future service to customers along the route. The additional conveyance will allow the County to offset potable water demand, conserving groundwater. As a result of expanding the reclaimed water system, the County will be able to reduce the discharge from the Anastasia Island WWTP to the Matanzas River.	Reuse - Pipeline	Reclaimed Water	0.05	$0.50	$1,000	2017	
St. Johns	SJRWMD	CR 2209 Corridor Reclaimed Water System Expansion	SJCUD	20" reuse main along the future County Road 2209. The project will supply reclaimed water to new residential customers along this corridor, including Steeplechase and Smith Ranch. The additional conveyance will allow the County to offset potable water demand, conserving groundwater use for at least 1,900 homes. As a result of expanding the reclaimed water system, the County will be able to reduce the discharge from the Northwest Wastewater Treatment Plant to Mill Creek, a tributary of Six Mile Creek and the lower St. Johns River.	Reuse - Pipeline	Reclaimed Water	0.57	$2.00	$1,000	2017	
St. Johns	SJRWMD	Develop supplemental reclaimed water source from stormwater harvesting (Potential I-95 Corridor)	SJCUD	Potential partnership with FDOT to supplement reclaimed water system in the Northwest service area with harvested stormwater from I-95 corridor expansion.	Reuse - Supply	Stormwater	2.00	$14.50	$212,000	2025	
St. Johns	SJRWMD	Fox Creek Stormwater Harvesting Station	SJCUD	St. Johns County owns a stormwater pond (over 200 MG of storage) on Fox Creek relatively near the SR-16 Wastewater Treatment Facility. As part of the SJCUD Integrated Water Resource Plan, developing a supplemental reclaimed water source from the Fox Creek facility was one of the recommended options. Feasibility study is underway to determine usable volume, treatment and routing options.	Reuse - Supply	Stormwater	0.23	$6.58	$32,000	2018	
St. Johns	SJRWMD	NW WWTF Reclaimed Water System Expansions/Improvements	SJCUD	Construction of a 2 MG tank and reuse booster station on the new NW WWTF site, and 5,500 lf of offsite 20" reclaimed water transmission main to provide high pressure service to reuse customers located in the SJCUD NW service area. The construction project received SRF Loan funding from FDEP.	Reuse - Pipeline, Storage, Pumping	Reclaimed Water	3.00	$2.55	$110,000	2016	

County	Water Management District	Project Name	Implementing Entity	Project Description	Project Type	Water Source	Estimated Water Supply Benefit (mgd)	Total Capital ($M)	Estimated Annual O&M	Timeframe for Completion*	Notes
St. Johns	SJRWMD	South WRF and Reuse System Expansion	SJCUD	Construction of a 1 MGD AADF Water Reclamation Facility and associated reclaimed water infrastructure to serve new development in the southern SJCUD service area.	Reuse - Storage and Pumping, and Pipeline	Reclaimed Water	1.00	$26.80	$486,000	2025	
St. Johns	SJRWMD	SR 16 Corridor Reclaimed Water System Expansions/Improvements	SJCUD	Improvements consisted of several projects to increase capacity of reclaimed water sent from the SR 16 WWTP and provide high pressure service along SR16 to the World Golf Village area to interconnect with the NW WWTF reuse system. Projects included an inline booster station at the Turnbull Booster Site, a 1 MG GST at the SR 16 WWTP site, a 1.5 MG tank at the Turnbull Booster Site. The inline booster project received SRF Loan funding, and the SR 16 GST received a 1/3 funding grant from the SJRWMD.	Reuse - Pipeline, Storage, Pumping	Reclaimed Water	1.00	$3.13	$39,000	2016	
St. Johns	SJRWMD	Twin Creeks 1.5 MG Reclaimed Water Storage and Booster Pump Station	SJCUD	1.5 MG reuse storage tank, 4,200 gpm booster pump station, control valve, electrical building, civil site work and yard piping, and associated electrical and instrumentation. The project will supply reclaimed water to new residential and commercial customers within the Twin Creeks Development located along CR 210W just west of US Highway 1. The additional storage will allow the County to collect reclaimed water during times of low irrigation demand to be utilized to serve peak irrigation demands. This offsets augmentation supply and conserves groundwater use for over 2,000 homes and commercial properties. This project will allow the County to serve the Twin Creeks DRI with reclaimed water for irrigation via a bulk service agreement with JEA, and will reduce nutrient loading to the St Johns River by beneficially reusing wastewater effluent from JEA's Reclaimed Water System.	Reuse - Storage and Pumping	Reclaimed Water	0.60	$1.75	$25,000	2018	
St. Johns	SJRWMD	WGV Area Stormwater Harvesting	SJCUD	Harvested stormwater will be collected from a large stormwater system located at the head of the Mill Creek basin in northwest St. Johns County. Once collected, the stormwater will be filtered and disinfected to public access reuse standards, and distributed through the County's reuse transmission system. The County will construct an intake structure in the stormwater basin, install control valves, piping, filtration and disinfection systems, and a new pump station to inject the water into the reclaimed water distribution system. County is currently evaluating feasibility.	Reuse - Supply	Stormwater	0.23	$1.40	$12,000	2018	
St. Johns	SJRWMD	CR 214 Water Blending Station	SJCUD	Improvements to the CR 214 WTP site to allow for water quality conditioning of water transferred from the NW Grid to be blended and distributed into the Mainland Water System. Project helps to meet growing demands and helps sustain water quality in the Tillman Ridge Wellfield.	Interconnect	Floridan	0.06	2.67	$25,000	2017	Moved from Appendix L, Added Water Supply Benefit and O&M cost
St. Johns	SJRWMD	SR 16 Water Main Interconnect	SJCUD	20" Water Main Extension along SR 16 to connect the NW WTP grid to the CR 214 WTP grid. Project transfers service of the SR 16 corridor to the NW WTP and serves as first phase to allow up to 2 MGD of water to be transferred from the NW grid to the CR 214/Mainland Grid to help meet growing supply demands and help maintain water quality in the Tillman Ridge Wellfield.	Interconnect	Floridan	0.06	1.97	$1,000	2014	Moved from Appendix L, Added Water Supply Benefit and O&M cost from SJRWMD Cost Tools
St. Johns	SJRWMD	AI WWTP Reuse Storage Tank and Booster Pump Station	SJCUD/ SJRWMD	Construction of a 1 MG tank and reuse booster station to provide high pressure service to reuse customers near the AI WWTP facility. Ultimate goal is to provide reuse service to new developments with in a 2 mile radius of the facility. SJRWMD awarded a grant to fund 1/3 of the construction cost.	Reuse - Storage and Pumping	Reclaimed Water	2.00	$1.51	$12,000	2016	
St. Johns	SJRWMD	International Golf Parkway - Reclaimed Water System Expansion	SJCUD/ SJRWMD	Installation of a 20" and 16" Reuse WM (approx 13,500 lf total) along International Golf Parkway (IGP) to serve as the transmission main from the Northwest WRF for future development in the World Golf Village area (SJCUD Northwest Service Area). The transmission main will ultimately serve future development east of I-95 along IGP, the bulk of which will be residential reuse for irrigation. SJRWMD awarded a grant to fund 1/3 of the construction cost.	Reuse - Pipeline	Reclaimed Water	0.42	$2.40	$2,000	2016	
						Total:	**97.16**	**$309.12**			

*Project Status- Projects with past dates have been completed. Projects with 2016-2017 dates are under construction. All other projects have not started

North Florida Regional Water Supply Plan
Potential Water Supply Development, Water Resource Development and Water Conservation Project Options

County	Water Management District	Project Name	Implementing Entity	Project Description	Project Type	Water Source	Estimated Water Supply	Total Capital ($M)	Timeframe for Completion	Notes
Alachua	SJRWMD or SRWMD	Groundwater Recharge Wetlands	GRU	Construction of groundwater recharge wetlands (location not yet defined).	Reuse - Recharge	Reclaimed Water	1.5	2.00 to 6.00	2035	
Alachua	SRWMD	S.R. 26 Water Supply Project	Newberry	Construct a new potable water well with a water main and an elevated storage tank.	Supply	Floridan	TBD	4.90	2035	
Bradford	SRWMD	Rayonier South WRD Area	SRWMD	Restore natural flows, with or without aquifer recharge wells.	Recharge	Surface Water	TBD	TBD	2035	
Clay	SJRWMD	CCUA AWS Initiative	CCUA	Various AWS projects currently being considered for selection and development; currently in study for feasibility, economy, etc.	Supply/Storage	Storm/Surface Water	TBD	0.00 to 103.00	2030	
Clay	SJRWMD	CCUA Data Analytics	CCUA	~~Sensus Analytics o~~Outreach/conservation project for our entire potable water system. This project will have and initial cost of approximately $263,000 and a reoccurring annual cost of approximately $240,000. Project capacity based on current CCUA demand.	Conservation	N/A	TBD	TBD	2020	Removed reference to specific company
~~Clay~~	~~SJRWMD~~	~~Reclaimed Water Ground Storage Tanks~~	~~CCUA~~	~~Old Jennings and Ridaught Reclaimed Water Treatment Plants 0.75 MG Ground Storage Tanks (x2).~~	~~Reuse - Storage~~	~~Reclaimed Water~~	~~TBD~~	~~1.25~~	~~2018~~	Moved to Appendix K
Clay	SJRWMD	Reclaimed Water SCADA System	CCUA	Automated SCADA System for handling/ diverting existing Reclaim Water Demand (2015 was 4.51 MGD avg.).	Reuse	Reclaimed Water	TBD	0.68	2016	
Clay	SJRWMD	ACES Project 1 – Clean Alligator Creek Part A	SOLO	Increase flow of Alligator Creek to Lake Brooklyn by surveying, cleaning out debris, and correcting sedimentation caused by low flow conditions, all of which will help to restore inflow to Lake Brooklyn.	Recharge	Stormwater	TBD	0.10	2016	
Clay	SJRWMD	ACES Project 10 – Lake Santa Fe water to Lake Geneva	SOLO	Redirect 5 MGD of surface water by pumping and conveyance structures from Lake Santa Fe to Lake Geneva for recharge.	Recharge	Surface water	TBD	0.30	2019	
Clay	SJRWMD	ACES Project 11– Lake Brooklyn Water to Lake Geneva	SOLO	Redirect 3 MGD of surface water by gravity outflow conveyance from Lake Brooklyn to Lake Geneva for recharge.	Recharge	Surface water	TBD	0.10	2018	
Clay	SJRWMD	ACES Project 12 – Lower Florida Aquifer Water Recharge Lakes	SOLO	Have CCUA pump at the same volume flow conditions, and release water not consumed by its users to Lake Geneva for recharge credit, offsetting the cumulative impact of CCUA drawdown on the Keystone Lakes.	Recharge	Floridan	TBD	0.40	2017	
Clay	SJRWMD	ACES Project 3 – Increase Chemours D002 Water Releases – Pumping to OMA and Etoniah Chain of Lakes	SOLO	Changing flow apportionment and timing initially, and eventually increasing flow capacity of piping and pumping system by replacement with greater capacity systems.	Recharge	Stormwater	TBD	0.25	2018	
Clay	SJRWMD	ACES Project 4 – Plan Chemours Reclamation to Direct Water toward the Etoniah Chain of Lakes	SOLO	Direct water that originates in the mine site by engineering reclamation to deliver and convey water from north to south (rather than east to west), and be pumped up to the Old Minded Area for filtration and storage before release to Alligator Creek South and the Etoniah Chain of Lakes.	Recharge	Stormwater	TBD	3.00	2020	
Clay	SJRWMD	ACES Project 5 – Channelize Alligator Creek near Lake Brooklyn	SOLO	Survey, channelize by sediment removal and stabilized creek bed, reducing sediment impediments to flow and navigation.	Recharge	Stormwater	TBD	0.50	2017	
Clay	SJRWMD	ACES Project 6 – Piping First Coast Outer Beltway Stormwater Runoff to the OMA and Etoniah Chain of Lakes	SOLO	First Coast Outer Beltway (FCOB) to pump station north of Middleburg Florida and Trail Ridge, to storage pond near OMA Camp Blanding; ultimately the Etoniah Chain of Lakes and Etoniah Creek.	Recharge	Stormwater	TBD	10.00	2023	
Clay	SJRWMD	ACES Project 7 – Piping treated water from Starke, FL	SOLO	Construct a pipeline from the City of Starke Water Treatment Plant to the Northeast corner of the OMA. Employ natural sand filtration and purification processes of the unreclaimed mine site with its purified sand to deliver high-quality, low nutrient water to the Etoniah Chain of Lakes.	Recharge	Reclaimed	TBD	0.10	2017	
Clay	SJRWMD	ACES Project 8 – JEA Treated and Reuse Water to Trail Ridge Corridor and OMA (Camp Blanding) and Etoniah Lakes	SOLO	JEA Redirect 20 MGD of effluent from SJR to Trail Ridge Corridor and OMA for purification and recharge.	Recharge	Reclaimed	TBD	10.00	2025	
Clay	SJRWMD	ACES Project 9 – Black Creek Water to Trail Ridge Corridor and OMA (Camp Blanding) and Etoniah Lakes.	SOLO	CCUA Redirect 5 MGD of surface water from Black Creek near SJR to Trail Ridge Corridor and OMA for purification and recharge.	Recharge	Surface water	TBD	3.00	2023	
~~Duval~~	~~SJRWMD~~	~~Bartram Park WTP - RW - Storage Expansion~~	~~JEA~~	~~Installation of a new 2.5 Mgal storage tank.~~	~~Reuse - Storage~~	~~Reclaimed Water~~	~~0~~	~~2.15~~	~~2017~~	Moved to Appendix K
~~Duval~~	~~SJRWMD~~	~~Baymeadows Rd - Point Meadows Rd to Old Still PUD - Reclaimed Water System Expansion~~	~~JEA~~	~~Installation of 9,500 feet of 8" reclaimed water main to serve as a transmission pipeline.~~	~~Reuse - Pipeline~~	~~Reclaimed Water~~	~~0~~	~~1.00~~	~~2020~~	Moved to Appendix K
~~Duval~~	~~SJRWMD~~	~~Davis - Gate Pkwy to RG Skinner - Reclaimed Water System Expansion~~	~~JEA~~	~~Installation of 13,700 feet of 30" reclaimed water main to serve as a transmission pipeline.~~	~~Reuse - Pipeline~~	~~Reclaimed Water~~	~~0~~	~~5.00~~	~~2024~~	Moved to Appendix K
~~Duval~~	~~SJRWMD~~	~~District 2 WWTF Reclaimed Water Storage Tank and Booster Pump Station~~	~~JEA~~	~~1.0 MG storage tank.~~	~~Reuse - Storage~~	~~Reclaimed Water~~	~~0~~	~~2.90~~	~~2019~~	Moved to Appendix K
~~Duval~~	~~SJRWMD~~	~~District II - Broward River Crossing Replacement~~	~~JEA~~	~~Installation of 2,800 feet of 24" of reclaimed water transmission pipeline.~~	~~Reuse - Pipeline~~	~~Reclaimed Water~~	~~0~~	~~4.84~~	~~2016~~	Moved to Appendix K
~~Duval~~	~~SJRWMD~~	~~Gate Pkwy - Glen Kernan to T-Line - Trans - New - Reclaimed Water System Expansion~~	~~JEA~~	~~Installation of 18,000 feet of 30" and 2,000 feet of 20" reclaimed water main to serve as a transmission pipeline.~~	~~Reuse - Pipeline~~	~~Reclaimed Water~~	~~0~~	~~8.50~~	~~2020~~	Moved to Appendix K
~~Duval~~	~~SJRWMD~~	~~Gate Pkwy - Shiloh Mill Blvd to Town Ctr Pkwy - Reclaimed Water System Expansion~~	~~JEA~~	~~Installation of 2,300 feet of 8" reclaimed water main to serve as a transmission pipeline.~~	~~Reuse - Pipeline~~	~~Reclaimed Water~~	~~0~~	~~0.33~~	~~2018~~	Moved to Appendix K
~~Duval~~	~~SJRWMD~~	~~JP - FDOT - SR 9A (I-295) - Managed Lanes - JTB - 9B Extension - Reclaimed Water System Expansion~~	~~JEA~~	~~Installation of 1,300 feet of 20" reclaimed water main to serve as a transmission pipeline.~~	~~Reuse - Pipeline~~	~~Reclaimed Water~~	~~0~~	~~0.31~~	~~2017~~	Moved to Appendix K
~~Duval~~	~~SJRWMD~~	~~Mandarin Water Reclamation Facility - Equalization Storage Tank and Transfer Pump Station~~	~~JEA~~	~~1.7 MG storage tank and a high service pumping upgrade from 5.7 to 8.75 MGD to increase supply available for public access reuse.~~	~~Reuse - Storage and Pumping~~	~~Reclaimed Water~~	~~0~~	~~2.56~~	~~2017~~	Moved to Appendix K
~~Duval~~	~~SJRWMD~~	~~Monument Rd - Arlington East WRF to St Johns Bluff Rd - Reclaimed Water System Expansion~~	~~JEA~~	~~Installation of 7,900 feet of 20" reclaimed water main to serve as a transmission pipeline.~~	~~Reuse - Pipeline~~	~~Reclaimed Water~~	~~0~~	~~3.30~~	~~2023~~	Moved to Appendix K
~~Duval~~	~~SJRWMD~~	~~RG Skinner Area - 9B to Parcels 10A - 11 - Reclaimed Water System Expansion~~	~~JEA~~	~~Installation of 2,900 feet of 30" reclaimed water main to serve as a transmission pipeline.~~	~~Reuse - Pipeline~~	~~Reclaimed Water~~	~~0~~	~~1.11~~	~~2017~~	Moved to Appendix K

North Florida Regional Water Supply Plan
Potential Water Supply Development, Water Resource Development and Water Conservation Project Options

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~~Duval~~	~~SJRWMD~~	~~RG Skinner Area - 9B to T-Line - Reclaimed Water System Expansion~~	~~JEA~~	~~Installation of 3,600 feet of 30" reclaimed water main to serve as a transmission pipeline.~~	~~Reuse - Pipeline~~	~~Reclaimed Water~~	~~0~~	~~1.23~~	~~2017~~	Moved to Appendix K
~~Duval~~	~~SJRWMD~~	~~T-Line - Greenland Substation to GEC - Reclaimed Water System Expansion~~	~~JEA~~	~~Installation of 8,000 feet of 30" reclaimed water main to serve as a transmission pipeline.~~	~~Reuse - Pipeline~~	~~Reclaimed Water~~	~~0~~	~~3.10~~	~~2024~~	Moved to Appendix K
~~Duval~~	~~SJRWMD~~	~~Tredinick Pkwy - Millcoe Rd to Mill Creek Rd - Reclaimed Water System Expansion~~	~~JEA~~	~~Installation of 5,800 feet of 12", 1,000 feet of 10", and 4,300 feet of 4" reclaimed water main to serve as a transmission pipeline.~~	~~Reuse - Pipeline~~	~~Reclaimed Water~~	~~0~~	~~1.57~~	~~2019~~	Moved to Appendix K
~~Duval/St. Johns~~	~~SJRWMD~~	~~US 1 - Greenland WRF to CR 210 - Reclaimed Water System Expansion~~	~~JEA~~	~~Installation of 30,000 feet of 20" reclaimed water main to serve as a transmission pipeline.~~	~~Reuse - Pipeline~~	~~Reclaimed Water~~	~~0~~	~~7.80~~	~~2022~~	Moved to Appendix K
Flagler	SJRWMD	Replacement Well 12R	Flagler Beach	Drill Well 12-R to replace Well 12 that collapsed during construction in 2009.	Supply	Floridan	0	0.26	2016	
Flagler	SJRWMD	Indirect Potable Reuse through Aquifer Recharge	Palm Coast	Recharging the Palm Coast Northern Wellfield aquifer system including rehydration of wetlands utilizing membrane filtration will provide highly treated wastewater for reclamation.	Reuse - Supply	Reclaimed Water	TBD	TBD	TBD	
Flagler	SJRWMD	Rainwater (Stormwater) Harvesting (Capture, Storage and Retention) resulting in Aquifer Recharge and increased storage time possibly improving water quality through nutrient reduction	Palm Coast	The City of Palm Coast has a large (54 miles X 80 Ft X 4 Ft = 682,463,232 gallons stored) fresh stormwater canal system spread throughout the western portion of the City. While designed as a floodwater management system, it collects stormwater from swales and ditches throughout Palm Coast and acts as a surface water reservoir.	Recharge	Stormwater	TBD	TBD	TBD	
Flagler	SJRWMD	Reuse of Reclaimed Wastewater	Palm Coast	This project would provide a means to reduce or eliminate discharge of excess reuse water to the Intracoastal Waterway. Utilizing excess reuse water for improving natural systems by rehydration of wetlands and recharge of the Northern Wellfield aquifer systems will mitigate any negative impacts from Public Water Supply withdrawals and providing a new source of supply in that region.	Recharge	Reclaimed	TBD	TBD	TBD	
Flagler	SJRWMD	Upper Floridan Aquifer Brackish Water Supply	Palm Coast	Develop a brackish alternative groundwater source for treatment at the Palm Coast Low Pressure Reverse Osmosis Plant.	Supply	Floridan	TBD	TBD	TBD	
Gilchrist	SRWMD	Water System Improvements	Trenton	Replacement of failing galvanized water mains within the City's distribution system and construction of a back-up production well.	Supply	Floridan	0	4.80	2018	
~~Nassau~~	~~SJRWMD~~	~~Nassau RW Main - Radio Av to Harts Rd - Trans - Reclaimed Water System Expansion~~	~~JEA~~	~~Installation of 11,000 feet of 16" reclaimed water main to serve as a transmission pipeline.~~	~~Reuse - Pipeline~~	~~Reclaimed Water~~	~~0~~	~~2.30~~	~~2019~~	Moved to Appendix K
~~Nassau~~	~~SJRWMD~~	~~T-Line - Amelia Concourse to Amelia National - Reclaimed Water System Expansion~~	~~JEA~~	~~Installation of 5,700 feet of 10" reclaimed water main to serve as a transmission pipeline.~~	~~Reuse - Pipeline~~	~~Reclaimed Water~~	~~0~~	~~0.80~~	~~2021~~	Moved to Appendix K
St. Johns	SJRWMD	St. Augustine Water Supply/LPRO Phase 2	COSA	Increase LPRO production from 2 mgd to 4 mgd.	Supply	Floridan	0	8.08	2016	
~~St. Johns~~	~~SJRWMD~~	~~CR210 - Longleaf Pine Pkwy to Ashford Mills Rd - Reclaimed Water System Expansion~~	~~JEA~~	~~Installation of 11,600 feet of 30" and 2,300 feet of 16" reclaimed water main to serve as a transmission pipeline.~~	~~Reuse - Pipeline~~	~~Reclaimed Water~~	~~0~~	~~5.00~~	~~2023~~	Moved to Appendix K
~~St. Johns~~	~~SJRWMD~~	~~CR210 - Old Dixie Hwy to Twin Creeks - Trans - Reclaimed Water System Expansion~~	~~JEA~~	~~Installation of 9,500 feet of 20" reclaimed water main to serve as a transmission pipeline.~~	~~Reuse - Pipeline~~	~~Reclaimed Water~~	~~0~~	~~2.30~~	~~2019~~	Moved to Appendix K
~~St. Johns~~	~~SJRWMD~~	~~CR210 - South Hampton to Ashford Mills - Trans - Reclaimed Water System Expansion~~	~~JEA~~	~~Installation of 7,400 feet of 12" reclaimed water main to serve as a transmission pipeline.~~	~~Reuse - Pipeline~~	~~Reclaimed Water~~	~~0~~	~~0.65~~	~~2018~~	Moved to Appendix K
~~St. Johns~~	~~SJRWMD~~	~~CR210 - St Johns Pkwy to Leo Maguire Pkwy - Reclaimed Water System Expansion~~	~~JEA~~	~~Installation of 9,000 feet of 8" reclaimed water main to serve as a transmission pipeline.~~	~~Reuse - Pipeline~~	~~Reclaimed Water~~	~~0~~	~~1.12~~	~~2024~~	Moved to Appendix K
~~St. Johns~~	~~SJRWMD~~	~~CR210 - Twin Creeks to Russell Sampson Rd - Reclaimed Water System Expansion~~	~~JEA~~	~~Installation of 12,000 feet of 20" reclaimed water main to serve as a transmission pipeline.~~	~~Reuse - Pipeline~~	~~Reclaimed Water~~	~~0~~	~~3.00~~	~~2021~~	Moved to Appendix K
~~St. Johns~~	~~SJRWMD~~	~~Greenbriar Rd - Longleaf Pine Pkwy to Spring Haven Dr - Reclaimed Water System Expansion~~	~~JEA~~	~~Installation of 13,500 feet of 20" reclaimed water main to serve as a transmission pipeline~~	~~Reuse - Pipeline~~	~~Reclaimed Water~~	~~0~~	~~3.50~~	~~2021~~	Moved to Appendix K
~~St. Johns~~	~~SJRWMD~~	~~Nocatee - Coastal Oaks Phase 4 - Reclaimed Water System Expansion~~	~~JEA~~	~~Installation of 3,400 feet of 12" reclaimed water main to serve as a transmission pipeline.~~	~~Reuse - Pipeline~~	~~Reclaimed Water~~	~~0~~	~~0.17~~	~~2016~~	Moved to Appendix K
~~St. Johns~~	~~SJRWMD~~	~~Nocatee Area - Artisan Lakes - N10 - Reclaimed Water System Expansion~~	~~JEA~~	~~Installation of 4,200 feet of 12" reclaimed water main to serve as a gridded transmission pipeline.~~	~~Reuse - Pipeline~~	~~Reclaimed Water~~	~~0~~	~~0.23~~	~~2016~~	Moved to Appendix K
~~St. Johns~~	~~SJRWMD~~	~~Nocatee Area - Crosswater Pkwy - Coastal Oaks to South Village - Reclaimed Water System Expansion~~	~~JEA~~	~~Installation of 8,400 feet of 16" reclaimed water main to serve as a transmission pipeline.~~	~~Reuse - Pipeline~~	~~Reclaimed Water~~	~~0~~	~~0.39~~	~~2017~~	Moved to Appendix K
~~St. Johns~~	~~SJRWMD~~	~~Nocatee Area - Riverwood POD 17 - Reclaimed Water System Expansion~~	~~JEA~~	~~Installation of 4,500 feet of 12" reclaimed water main to serve as a transmission pipeline.~~	~~Reuse - Pipeline~~	~~Reclaimed Water~~	~~0~~	~~0.17~~	~~2016~~	Moved to Appendix K
~~St. Johns~~	~~SJRWMD~~	~~Nocatee Area - Twenty Mile Village - Reclaimed Water System Expansion~~	~~JEA~~	~~Installation of 8,400 feet of 12" reclaimed water main to serve as a transmission pipeline.~~	~~Reuse - Pipeline~~	~~Reclaimed Water~~	~~0~~	~~0.30~~	~~2016~~	Moved to Appendix K
~~St. Johns~~	~~SJRWMD~~	~~Nocatee Area - Twenty Mile Village Ph 4A - 4B - Reclaimed Water System Expansion~~	~~JEA~~	~~Installation of 1,400 feet of 12" reclaimed water main to serve as a transmission pipeline.~~	~~Reuse - Pipeline~~	~~Reclaimed Water~~	~~0~~	~~0.32~~	~~2016~~	Moved to Appendix K
~~St. Johns~~	~~SJRWMD~~	~~Nocatee North Storage and Repump Facility - New 3.5 MG Reclaimed Water Storage Tank~~	~~JEA~~	~~Installation of a new 3.5 Mgal storage tank.~~	~~Reuse - Storage~~	~~Reclaimed Water~~	~~0~~	~~2.50~~	~~2017~~	Moved to Appendix K
~~St. Johns~~	~~SJRWMD~~	~~Nocatee Storage and Repump Facility Tank Expansion~~	~~JEA~~	~~Increase storage tank capacity from 1.009 to 1.178 Mgal.~~	~~Reuse - Storage~~	~~Reclaimed Water~~	~~0~~	~~0.29~~	~~2016~~	Moved to Appendix K
~~St. Johns~~	~~SJRWMD~~	~~Rivertown - Parcel 13 - Southern POD - Reclaimed Water System Expansion~~	~~JEA~~	~~Installation of 1,800 feet of 10" reclaimed water main to serve as a transmission pipeline.~~	~~Reuse - Pipeline~~	~~Reclaimed Water~~	~~0~~	~~0.06~~	~~2017~~	Moved to Appendix K
~~St. Johns~~	~~SJRWMD~~	~~Russell Sampson Rd - St. Johns Pkwy to CR210 - Reclaimed Water System Expansion~~	~~JEA~~	~~Installation of 12,000 feet of 20" reclaimed water main to serve as a transmission pipeline~~	~~Reuse - Pipeline~~	~~Reclaimed Water~~	~~0~~	~~2.50~~	~~2021~~	Moved to Appendix K
~~St. Johns~~	~~SJRWMD~~	~~St Johns Pkwy - Racetrack Rd to Espada Ln - Reclaimed Water System Expansion~~	~~JEA~~	~~Installation of 5,000 feet of 8" reclaimed water main to serve as a transmission pipeline.~~	~~Reuse - Pipeline~~	~~Reclaimed Water~~	~~0~~	~~0.55~~	~~2018~~	Moved to Appendix K
~~St. Johns~~	~~SJRWMD~~	~~Veterans Pkwy - Longleaf Pine Pkwy to CR210 - Reclaimed Water System Expansion~~	~~JEA~~	~~Installation of 20,000 feet of 30" and 3,700 feet of 20" reclaimed water main to serve as a transmission pipeline.~~	~~Reuse - Pipeline~~	~~Reclaimed Water~~	~~0~~	~~8.80~~	~~2024~~	Moved to Appendix K

North Florida Regional Water Supply Plan
Potential Water Supply Development, Water Resource Development and Water Conservation Project Options

County	Water Management District	Project Name	Implementing Entity	Project Description	Project Type	Water Source	Estimated Water Supply	Total Capital ($M)	Timeframe for Completion	Notes
~~St. Johns~~	~~SJRWMD~~	~~CR 214 Water Blending Station~~	~~SJCUD~~	~~Improvements to the CR 214 WTP site to allow for water quality conditioning of water transferred from the NW Grid to be blended and distributed into the Mainland Water System. Project helps to meet growing demands and helps sustain water quality in the Tillman Ridge Wellfield.~~	~~Interconnect~~	~~Floridan~~	~~0~~	~~2.67~~	~~2017~~	Moved to Appendix K
~~St. Johns~~	~~SJRWMD~~	~~SR 16 Water Main Interconnect~~	~~SJCUD~~	~~20" Water Main Extension along SR 16 to connect the NW WTP grid to the CR 214 WTP grid. Project transfers service of the SR 16 corridor to the NW WTP and serves as first phase to allow up to 2 MGD of water to be transferred from the NW grid to the CR 214/Mainland Grid to help meet growing supply demands and help maintain water quality in the Tillman Ridge Wellfield.~~	~~Interconnect~~	~~Floridan~~	~~0~~	~~1.97~~	~~2014~~	Moved to Appendix K

From:	Lisa Rinaman
To:	nfrwsp-comments; John Fitzgerald
Subject:	SJRK NFRWSP Comments
Date:	Monday, December 05, 2016 4:17:33 PM
Attachments:	SJRK - NFWSP 12-5-16.pdf 2016.12-02 FINAL NFRWSP Review Comments_FSC (1).pdf

Good afternoon.

Attached are comments submitted on behalf of the St. Johns Riverkeeper voicing our concern regarding the North Florida Regional Water Supply Plan. Please see attached.

Thank you.

For the River!

Lisa Rinaman
St. Johns Riverkeeper
lisa@stjohnsriverkeeper.org
(904)509-3260

December 5, 2016

TO: St. Johns River Water Management District
Suwannee River Water Management District
North Florida Regional Water Supply Partnership

FROM: Lisa Rinaman
St. Johns Riverkeeper

RE: North Florida Regional Water Supply Plan (NFRWSP) Public Comments

Clean, fresh water is the lifeblood of Florida's waterways. Our springs, wetlands, forests, riparian zones adjacent to waterways, and aquatic plants provide the habitat and food sources that sustain healthy plant, fish, and wildlife populations. Healthy, vibrant waterways and wildlife are Florida's competitive advantage driving our growing economy.

The St. Johns Riverkeeper's (SJRK) mission is to be an independent voice that defends, advocates, and activates others to protect and restore the St. Johns River.

We are concerned that the North Florida Regional Water Supply Plan (NFRWSP) falls short and will lead to unacceptable damage to Florida's natural systems and wildlife.

NFRWSP FAILS TO MAKE WATER CONSERVATION A PRIORITY

Unfortunately, many effective tools driving water conservation have been eliminated recently due to budget cuts and special interests.

- Educational programs designed to promote water conservation have been abandoned.
- Incentive programs are lacking.
- Deregulation in Tallahassee relies on voluntary, less aggressive conservation measures.
- Enforcement of existing protective regulations is insufficient.

The State of Florida needs bold leadership to craft statewide water policy that prioritizes water conservation, sustainable building and planning practices, incentives that encourage the efficient use of water, and market solutions, such as aggressive conservation rates and pricing strategies for CUP withdrawals.

WATER CONSERVATION MUST BE A PRIORITY

"The overall conservation goal of the state is to prevent and reduce wasteful, uneconomical, impractical, or unreasonable use of water resources." (Section 373.227(1), F.S.)

Unfortunately, our limited public resources are being directed towards new risky sources of water instead of addressing the root causes of our water supply problems and exhausting all opportunities to use existing water resources more efficiently.

Voluntary measures alone are not sufficient. Water pricing strategies and mandatory requirements must also be implemented and enforced to achieve maximum conservation and efficiency benefits.

Water conservation and smart growth management practices will not only protect Florida's long-term water supply but will also realistically save billions of dollars and potentially save Florida waters from significant harm. Water conservation will also save taxpayers billions of dollars by reducing the need for environmental restoration to restore the damage done by over consumption.

The bottom line is that water conservation does work, can potentially meet most if not all of our water supply needs, and is much more cost-effective and environmentally-responsible.

SJRK Endorses Florida Springs Council's NFRWSP Comments

The NFRWSP fails to protect Florida's natural resources. Adoption of the NFRWSP is premature and potentially damaging to the very natural resources it is intended to protect.

We formally endorse and incorporate Florida Springs Council's (FSC) NFRWSP Comments as our own.

The inherent flaws in the process, plans and justification outlined in the FSC NFRWSP Comments must be corrected and statutory obligations must be met.

We look forward to working with all stakeholders to achieve a balanced approach to Florida's water needs and the protection of Florida's natural resources.

For the river,

Lisa Rinaman
St. Johns Riverkeeper

Attached: FSC NFRWSP Comments

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High Springs, FL 32655
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North Florida Regional Water Supply Plan (NFRWSP) Review Comments

Reviewed by the Florida Springs Council (FSC)

The Florida Springs Council is a consortium of thirty-nine springs-focused organizations that represent over 155,000 Floridians. The mission of the FSC is to ensure the regional, state, and federal conservation, preservation, protection, and restoration for future generations of Florida's springs, spring runs, and groundwater in the Floridan aquifer that sustains those natural systems and provides our drinking water.

The following organizations are members of the Council:

1,000 Friends of Florida
Alachua Audubon Society
Audubon Florida
Center for Biological Diversity
Center for Earth Jurisprudence
Chassahowitzka Civic Association, Inc.
Florida Clean Water Network
Florida Defenders of the Environment
Florida Federation of Garden Clubs, Inc.
Florida Paddling Trails Association
Florida Wildlife Federation
Friends of Lake Apopka
Friends of the Wekiva River
Friends of Warm Mineral Springs
Hernando Environmental Land Protectors
Homosassa River Alliance

Howard T. Odum Florida Springs Institute
Ichetucknee Alliance
Kings Bay Springs Alliance
Nature Coast Unitarian Universalist Fellowship Water Task Force
Oklawaha Valley Audubon Society
Orange Audubon Society
Our Santa Fe River
Paddle Florida
Putnam County Environmental Council
Rainbow River Conservation
Santa Fe Lake Dwellers Association
Save the Manatee Club
Sea to Shore Alliance
Sierra Club Florida
Silver Springs Alliance
Springs Eternal Project
St. Johns Riverkeeper
Suwannee/St. Johns Sierra Club
Villages Environmental Discussion
Volusia Blue Spring Alliance
Wakulla Springs Alliance
Withlacoochee Aquatic Restoration
WWALS Watershed Coalition

The following comments are submitted by the Council on behalf of its member organizations.

Executive Summary

The Plan is a regional water supply plan that must comply with Section 373.709(2), Florida Statutes. The Plan also will adopt the second phase of the recovery strategy for the Lower Santa Fe and Ichetucknee Rivers and Priority Springs (LSFI) MFLs and must therefore comply with Section 373.0421(2), Florida Statutes. Several of the priority springs protected by the LSFI MFLs are first magnitude springs (e.g., Santa Fe Rise, Treehouse Spring, Columbia Spring, Devil's Ear Spring, July Spring, Ichetucknee Head Spring, and Blue Hole). Therefore, the Plan and Recovery Strategy must meet the requirements of Section 373.805(4), Florida Statutes as well.

The Plan and Recovery Strategy fail to meet the requirements of Sections 373.709(2) and 373.0421(2) because the Plan fails to provide reasonable assurances that sufficient projects will be implemented to meet projected demand while providing the needed recovery of the LSFI MFLs. The Plan also fails to include important information Section 373.805(4) requires regarding priorities and funding for the recovery

projects. The Plan and Recovery Strategy do not provide reasonable assurances that the LSFI MFLs will be recovered as required.

The Plan provides insufficient motivations and incentives for conservation. This Plan was to include long-term regulatory strategies, but only proposes designation as a Water Resource Caution Area. This designation requires reuse of domestic wastewater in certain circumstances when it is determined to be feasible, but does not fund or require reuse of domestic effluent. The designation does not address recovery strategies other than reuse of domestic wastewater. At a minimum, FSC urges Florida's legislature and water management agencies to implement universal water fees as a strong inducement to conserve water.

The pumping of brackish water is unsustainable and self-destructive. It should be avoided. Rather, FSC advises that new demands be met through aquifer recharge using treated wastewater that has been cleansed by recycling through constructed wetlands.

The Plan's Critical Sufficiency Analysis Relies on a Non-Scientific Assumption and Suffers Fatal Textual Errors

The Plan includes a "Sufficiency Analysis" addressing whether the Plan and LSFI Recovery Strategy could meet the regional water supply planning requirements of Section 373.709(2), Florida Statutes by including sufficient water resource development projects (WRDPs) and water supply development projects (WSDPs) to meet projected demands without causing unacceptable water resource impacts. Plan pp. 40-41. In this case, such project options must, along with conservation, provide recovery of LSFI MFL flows as well. §373.0421(2), Fla. Stat.

The Plan assumes each 4.48 mgd of implemented water resource development projects (WRDPs) and water supply development projects (WSDPs) will result in 1 cfs recovery for the LSFI MFLs. (p. 40) This assumption is used to convert listed WRDP and WSDP options (with impacts measured in million gallons per day) to projected LSFI MFL flow recovery (in cfs). Thus, this conversion factor is critical to an understanding of whether the Plan includes adequate project options to meet projected 2035 demand for water and to bring about recovery of the LSFI MFLs.

The Plan provides no discussion, explanation or analysis of the selection of the one-size-fits-all 4.48 mgd assumption regarding WRDP and WSDP benefit to flows and recovery of the LSFI MFLs. The impact of WRDPs and WSDPs is largely a function of the net change in groundwater pumping at a particular location attributable to the project, and the distance between the location where the net change would occur and the location of the MFL point of compliance. In general, the beneficial impact is directly proportional to the reduction in pumping, and inversely proportional to the square of the distance from the pumping location to the MFL point of compliance. So, in general, the further the project is from the gages used to monitor the LSFI MFLs, the less impact will be measured at the gages. A generic one-size-fits-all proportionality for

calculating recovery attributable to projects is unscientific and not appropriate, even for planning-level analysis.

Indeed, using the NFSEG Model, the text at p.41 explains that 60.19 mgd of projects provided only 8.4 cfs of recovery. This is 7.165 mgd per cfs of recovery. It is possible the reference to 60.19 mgd is a typographical error that should read 65.19 mgd, the amount of the WRDPs shown in Table 6, Chapter 7. (p. 49) If 65.19 mgd was modeled and resulted in 8.4 cfs of recovery, then the ratio is 7.76 mgd of projects to 1 cfs of recovery. Either modeled ratio is widely divergent from the 4.48 mgd assumption.

The Plan provides no analysis relevant to the huge discrepancy between assumed and modeled flow recovery. Using the 4.48 mgd assumption, there could be about 11 mgd surplus in the Plan after covering the 2035 demand, after conservation, and after the LSFI MFL flow recovery. If 7.76 mgd or 7.165 mgd is used instead of 4.48 mgd as the conversion factor, the Plan does not meet the requirements of Sections 373.709(2) and 373.0421(2), Florida Statutes. The Plan is much less than clear on this issue and errors in the text of page 41 regarding quantities and the two project option tables defy clarity. This discrepancy and textual errors must be explained and the sufficiency analysis of project benefit to LSFI MFL flows must be addressed properly.

The Plan should analyze and report on NFSEG modeling scenarios in which the WRDP and WSDP options are evaluated for their effect on flows at the LSFI MFL gages. Ultimately all projects in the Plan should be modeled to determine whether the Plan, including all projects, meets the sufficiency requirements of Sections 373.709(2) and 373.0421(2), Florida Statutes. Without more than a naked and unexplained assumption of 4.48 mgd per 1 cfs recovery, the Plan does not provide reasonable assurances of meeting these requirements.

Additional Plan Deficiencies

The projects necessary to recover groundwater flows, by law, should be included in the Water Resource Development Project list. §373.709(2), Fla. Stat. In this Plan, the WRDP list is not sufficient to recover even the 2010 deficit condition of 17 cfs below the LSFI MFLs. The Plan should explain why the Plan must also rely upon projects on the WSDP list to restore the recovery deficit.

The Plan lacks the priority listing of each WRDP and WSDP required by Section 373.805(4)(b), Florida Statutes. The Plan also lacks required information for each project regarding the estimated cost of and the estimated date of completion; and “the source and amount of financial assistance to be made available by the water management district for each listed project, which may not be less than 25 percent of the total project cost unless a specific funding source or sources are identified which will provide more than 75 percent of the total project cost.” §373.805(4)(c) and (d), Fla. Stat.

The Plan also lacks "An estimate of each listed project's benefit to an Outstanding Florida Spring;" and "An implementation plan designed with a target to achieve the adopted minimum flow or minimum water level no more than 20 years after the adoption of a recovery or prevention strategy." *See* §373.805(4)(e) and (f), Fla. Stat.

The Plan lacks "an assessment of how the regional water supply plan and the projects identified in the funding plans prepared pursuant to sub-subparagraphs [§373.709(2)] (a)3.c. and (b)2.c. support the recovery or prevention strategies for implementation of adopted minimum flows and minimum water levels. . . ." §373.709(2)(k), Fla. Stat. The Plan must specify which WSDPs support recovery of flows at LSFI MFL gages, and how they support flow recovery.

The Plan lacks an adequate funding strategy. The Plan includes only a catalog of potential funding options, not a "funding strategy for water resource development projects, which shall be reasonable and sufficient to pay the cost of constructing or implementing all of the listed projects." §373.709(2)(d), Fla. Stat. Finally, the Plan lacks any analysis of whether the funding strategy is reasonable and sufficient for all projects. *Id.*

Failure to Adopt Further Regulatory Recovery Strategies

The LSFI Recovery Strategy, Appendix G, at p.36 explains:

Phase II Regulatory Strategies

The development of long-term strategies to address the impacts of regional groundwater trends and water use patterns is critical to achieving the recovery of minimum flows in the Lower Santa Fe Basin. As such, the Department, SRWMD, and SJRWMD, will develop long-term recovery measures concurrently with the development of the North Florida Regional Water Supply Plan. This will assist the Districts and the Department in refining the Recovery Strategies and future regulatory measures to address regional groundwater impacts to the Lower Santa Fe and Ichetucknee Rivers. (underline added)

The LSFI Recovery Strategy at Page 20 adds that this:

Phase II of the Recovery Strategy will focus on the implementation of the recommendations in the North Florida Regional Water Supply Plan, the adoption of long-term regulatory measures, and the identification and execution of any necessary water resource development and alternative water supply projects. (underline added)

This Plan was to include long-term regulatory strategies, but only proposes designation of the Plan area as a Water Resource Caution Area. This designation requires reuse of domestic wastewater in certain

circumstances when it is determined to be feasible, but does not fund or require reuse of domestic effluent. The designation does not address recovery strategies other than reuse of domestic wastewater.

No other regulatory recovery strategies are included in the Plan. Without further regulatory changes, there are few real legal compunctions on the implementing parties to implement the projects, and the Districts have limited leverage to bring about conservation. The Plan should analyze and explain why the implementation of further regulatory recovery strategies has been abandoned.

For the foregoing reasons, the Plan does not demonstrate or provide reasonable assurances that the Lower Santa Fe and Ichetucknee River MFLs will be met within the planning horizon, nor whether recovery pursuant to the Plan will be "as soon as practicable." §373.0421(2), Fla. Stat.

FSC would also note that the Plan fails to address the reality that the amount of water permitted in the planning area currently far exceeds the amount that is actually used. The difference between permit allocations and pumping cannot be accurately determined directly because metering of water use is spotty in the planning area. However, it has been reported that in the SRWMD, the amount of water permitted may exceed the amount pumped by as much as a factor of 2. This excess availability of permitted water is an enormously important factor in 20-year water planning, and the Districts are remiss in ignoring it. What would be the value of this planning exercise if permittees decided, over the next 20 years, to pump all of their permitted quantities, or even three-quarters of their allocation? The Districts should have an aggressive program in place to meter water use and to take back unused allocations over time. Otherwise, surprises in water usage could pop up, rendering this planning exercise useless.

Greater Incentives for Conservation Are Needed

On balance, the Plan is to be commended for acknowledging the potential benefit of conservation, which has always been the first priority of FSC. Beginning on page 51, the Plan outlines eight "Water Conservation Project Options", and the first option to be noted is the successful implementation of tiered billing rates by some regional utilities. Tiered rates are a proven incentive to conserve, in contrast to the failure of consumptive use permits (CUPs) to remedy excessive pumping. Implementing universal water use monitoring and fees deserves far more emphasis than that given to them in the Plan. Conservation, as it now stands is almost entirely voluntary. Even CUPs are de-facto voluntary, because so many permitted wells are unmetered. This is an area in which further regulatory strategies are needed and sorely lacking in this Plan.

Because tiered water fees have proven to elicit greater conservation in the North Florida region, FSC strongly urges that they be extended to all users – domestic self-supply, agriculture and commercial/industrial/mining, as well as urban users. Such expansion will, of course, require significant changes in infrastructure, administration and legal status. Setting an effective schedule of fees will require first that a cap be estimated and placed on total withdrawals in each District. Afterwards the infrastructure

to monitor all users must be implemented. Significant advances in the technologies of flow measurement, data reporting and recording render this task less expensive than it would have been in the past. A preliminary schedule of fees (which could be distinct for each class of users) must be established that will progressively tax users according to increasing use. FSC would recommend that the impacts of tiered water pricing should be carefully studied before such pricing is established, so that unintended consequences for smaller users, including small agricultural operations, can be avoided. This rate structure can subsequently be amended to optimize the distribution of water among users while not exceeding the regional cap.

Many may object to the imposition of fees as a new form of taxation. It should be pointed out, however, that ad-valorem taxes are already being collected to support the Districts. The task of setting fees, monitoring usage and collecting charges could be assigned to the Districts, which could be partly or wholly supported by the collected fees, while any excess could go to funding water conservation and aquifer/spring restoration projects.

FSC wishes to stress that water fees enjoy a proven record of success, whereas CUPs, BMPs and even minimum flows and levels (MFLs) have failed to halt the progressive degradation of Florida's water resources. While the costs and effort necessary to institute universal water fees are not insignificant, neither do they proportionately exceed efforts elsewhere in the United States to create reliable future supplies of water; and Florida, more than most of these other areas, is critically dependent on secure supplies of water.

The Plan Should Discourage Pumping Brackish Water

FSC objects to the prominence the Plan gives to the desalination of brackish water. For example, this source is listed first among the suggested Water Resource Development Project Options (p. 47). Pumping and reverse osmosis treatment of brackish groundwater should be avoided at all possible costs, for at least two reasons. First, saline intrusion is irreversible over any practical time frame. Once a well goes saline, the slow diffusion time among the less channelized regions of the karst substrate insures that it will be decades, if not centuries, before a saline well runs fresh again. Secondly, pumping a brackish well accelerates the rate of saline intrusion. That is, the well becomes progressively more saline and the water costlier to treat.

The Plan portrays saline intrusion as a problem confined to the coastal and riverine portions of the North Florida region. This perspective is short-sighted, because saltwater underlies the entire Floridan aquifer, and excessive pumping will cause salt everywhere to migrate to higher levels in the karst substrate. Furthermore, a given drop in the potentiometric surface of the aquifer has the effect of raising the underlying salt water interface by a factor as much as 40 times greater than that drop. In particular, withdrawals from the Lower Floridan Aquifer must be reduced, because pumping from that depth will cause a disproportionate vertical rise in the proximate saline interface.

Regarding the rate of saline intrusion, FSC finds the analysis of this problem (beginning on page 27) to be overly optimistic. The Plan assumes that salt concentrations will rise in linear fashion, but vertical saline profiles are usually sigmoidal in nature. That is, increase is slow and almost linear, but a "log-phase" ascent soon ensues as the saline "front" approaches. Hence, a linear analysis will significantly overestimate the time required for saline intrusion. The arrival of the front can at times be episodic, as happened during the drought of 2012 with the sudden intrusion into the well supplying Cedar Key.

These reservations against pumping brackish water do not necessarily pertain to the desalination of seawater, so long as the concentrate from the process is returned to the sea. But this remedy is extremely costly, both energetically and financially -- treatment of brackish water is some 10-fold more expensive than extraction from the Upper Floridan Aquifer. Although desalination of seawater might provide a few localities with water for drinking and bathing, it is economically infeasible to sustain agriculture or industry. If the entire Floridan Aquifer System were to turn brackish, Florida could evolve toward a dry-island Caribbean economy.

The Plan Should Emphasize Sustainable Recharge

The Plan emphasizes reclaimed water as a primary AWS. While it does mention aquifer recharge, it fails to accord that option the priority it deserves and thereby overlooks a potentially significant and highly economical AWS. Figure 14 (p. 21), for example, shows approximately 108 mgd of treated wastewater in the region that is simply "disposed". Most of that water could be returned to the aquifer at low cost through treatment by constructed wetlands, as has been amply demonstrated at several sites in Florida (e.g., Sweetwater and Kanapaha in Gainesville and Green Cay in Boynton Beach). Treated wastewater is supplied at one end of an artificial wetland and allowed to percolate horizontally across the wetland. The water at the other end is low in nutrients and xenobiotics and can be re-injected into the aquifer. FSC has had discussions with JEA urging the utility to implement such treatment on the large amount of their treated wastewater that now flows into the ocean. Similar recharge is appropriate for other locations in the North Florida region and taken together could resupply a substantial fraction of the 117 mgd projected demand. FSC strongly recommends the adoption of this method of recharge throughout the North Florida region.

Conclusions

FSC submits that the Plan is not sufficient to meet the requirements of Sections 373.709(2) and 373.0421(2), Florida Statutes. Most critically, the Plan depends upon an unscientific and highly questionable assumption regarding the recovery to be derived from the projects listed in the Plan. The basis of the assumption and its selection instead of a modeling analysis is not substantiated. Because of the stated discrepancy between modeled and assumed recovery benefits of listed projects, the Plan does not provide reasonable assurances that sufficient projects are listed in the Plan.

The Plan fails to include critical information required for recovery strategies for Outstanding Florida Springs, including details regarding priorities and commitments regarding funding. Further, without any coercive and/or regulatory strategies, the Plan and particularly the funding plan do not meet statutory requirements.

FSC does commend the NFRWSP for highlighting the severe problems facing water supply in the North Florida region and appreciates the re-focusing of attention away from increased pumping of the over-stressed Upper Floridan toward other alternative water supplies. This is an acknowledgement from the State that the Upper Floridan Aquifer is already over-pumped. In fact, we would like to see the NFRWSP go beyond its call to limit pumping to an active program to decrease current pumping rates.

FSC supports the Plan's call for further water conservation, although we would recommend use of different mechanisms, especially the implementation of tiered water fees. This method deserves far more emphasis than it has been given in the Plan. It has proven to be effective in the public-supply sector (JEA, GRU) and holds great promise for becoming the major tool for conserving water throughout the State. The Plan should include a regulatory strategy to move conservation from a voluntary aspiration to a regulatory compunction.

FSC recommends against any pumping of brackish water, as this option only accelerates the decline of Florida's vital water resources. FSC also advocates, as the primary method for meeting the region's increasing water resource demands over the next 20 years, the polishing and subsequent recharge of cleansed wastewater to the Upper Floridan Aquifer by constructed wetlands.

From:	Wwals Watershed Coalition
To:	nfrwsp-comments
Cc:	Amy Brown; Noah Valenstein; WWALS Watershed Coalition
Subject:	WWALS comments on North Florida Regional Water Supply Plan
Date:	Monday, December 05, 2016 4:26:03 PM
Attachments:	2016-12-05--WWALS-NFRWSP-att.pdf

Dear Ms. Brown, Mr. Valenstein,

Please find attached comments from WWALS Watershed Coalition
on the North Florida Regional Water Supply Plan.

For the rivers and the aquifer,
-jsq
John S. Quarterman, President
WWALS Watershed Coalition, Inc.,
the WATERKEEPER® Affiliate for the upper Suwannee River
including its tributaries the Withlacoochee and Alapaha Rivers.
Member, Georgia River Network, Georgia Water Coalition,
Florida Springs Council, Floridians Against Fracking,
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Suwannee, Withlacoochee, and Alapaha Rivers
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December 5, 2016

To: nfrwsp-comments@sjrwmd.com

Cc: Amy Brown
Senior Hydrologist
Suwannee River Water Management District
386.362.1001
ALB@srwmd.org

Noah Valenstein
Executive Director
SRWMD
(386) 688-6653
NDV@srwmd.org

Re: **North Florida Regional Water Supply Plan**

Dear Ms. Brown and Mr. Valenstein,

Thank you for providing an opportunity to comment on the NFRWSP. Here are some comments about water supply, aquifer recharge, threats, peer review, modeling, comment area, involving Georgia, MFLs for the upper Suwannee River and nearby springs, and river water quality monitoring. WWALS congratulates everyone involved for the multi-year process that has gotten this far, and offers some suggestions for tuning going forward.

Water Supply

WWALS applauds the water supply projects involving reuse or stormwater in Appendix K: Water Supply Development Project Options. We note they seem to be mostly in Duval or Alachua Counties, which addresses the problem at its origin, in Jacksonville and Gainesville. WWALS applauds that.

Aquifer Recharge

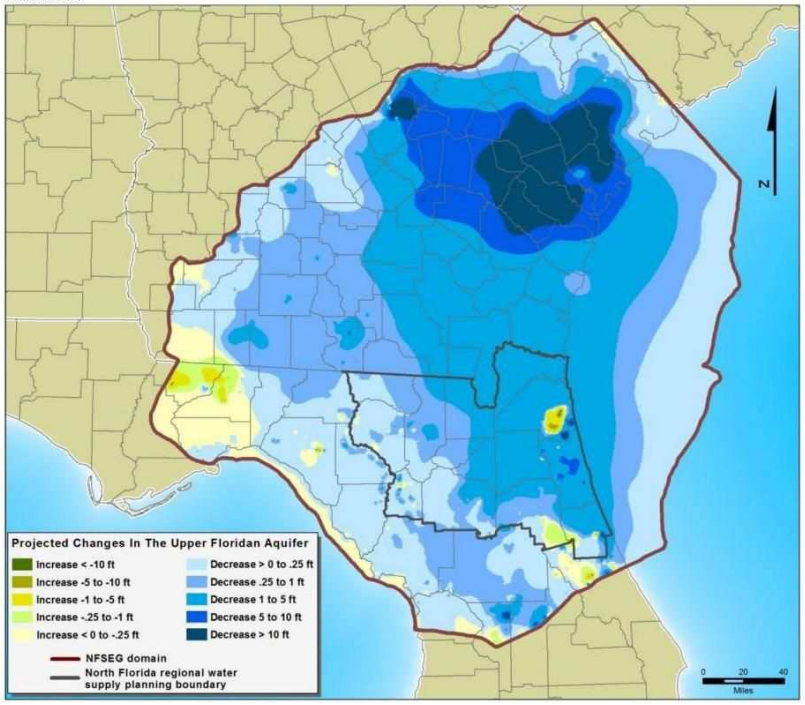
Any plan that puts water back into the aquifer is worthy of study, including for cost vs benefit. Among the projects in Appendix J: Water Resource Development Project Option, we must single out the Falling Creek project, described in the table in that appendix as:

> "This project involves a maximum daily capacity from the Upper Suwannee River to Falling Creek Falls, recharging the aquifer."

The Falling Creek project has very large up-front expense, involves environmental risk in running a large-diameter pipe through wetlands, and has high maintenance cost. In addition it only benefits the Ichetucknee Springs watershed. It is seasonal, for instance at the water levels now in the Suwannee, there is no water to pump to Falling Creek.

The maps in the plan, including Figure C3 on page 3 of Appendix C: Simulated Change in the Potentiometric Surface within the North Florida-Southeast Georgia Regional Groundwater Flow Model Area, show that the area that is losing water to the Atlantic coast of south Georgia and north Florida has lost 20 or more feet of aquifer levels. None of the projects address that problem in any significant way. Much of the area in Florida that has lost that water in the Floridan is below Columbia, Hamilton, and Baker Counties. Overpumping is not the only reason for this loss: silviculture management has something to do with it as well, for example. WWALS recommends the much more practical and cost-effective plan Dennis J. Price P.G. has already submitted to SRWMD and NFRWSP. His plan is appended to this letter.

Figure C3: Change in Upper Floridan aquifer from 2035 withdrawals within the NFSEG domain.



Threats to the Aquifer and to the Rivers

In the Falling Creek watershed is a pipe yard with Sabal Trail pipeline pipe apparently sitting on fill in wetlands. The filling in the wetland was started several years before the pipes were placed there, yet the owner has not been sent a notice of violation. The U.S. Army Corps of Engineers (USACE) when asked by WWALS was unsure whether that pipe yard is in jurisdictional wetlands. All of USACE, DEP, and SRWMD, DEP, declined to do anything about that pipe yard or those wetlands, even though the Federal Energy Regulatory Commission never approved Sabal Trail use of it, as far as WWALS can find.

Aerial photograph above Falling Creek watershed to pipe yard by WWALS on Southwings flight November 23rd 2016

As I write, Sabal Trail is drilling under the Suwannee and Santa Fe Rivers and over Falmouth Cathedral Cavern, in the core NFRWSP area. In very similar karst geography in the NFSEG area at the WIthlacoochee River US 84 crossing in Georgia, Sabal Trail has caused a frac-out of drilling mud up into the river and a sinkhole near the drilling site,[1] and Sabal Trail has caused several sinkholes in Florida, including one in the roadway of CR 49 in Suwannee County.

Just south of the NFSEG area, Strom, Inc., a Florida corporation with its principal place of business in Tampa, Florida, has received authorization from the United States Department of Energy Office of Fossil Energy (FE) to export domestically-produced Liquefied Natural Gas by ISO containers on vessels from the company's Project at 6700 N. Tallahassee Road, Crystal River, Florida. The volume authorized is equivalent to approximately 28.21 Bcf/yr of natural gas for a 25-year term. Strom states the natural gas to be liquefied at the Project will come from natural gas produced from shale deposits and that the "Source of Natural Gas" in the future will come from the proposed Sabal Trail Transmission Pipeline.[2] Sabal Trail runs through the heart of the NFSEG study area, in the Springs Heartland of Florida. Strom and at least one other LNG exporter (in Martin County) also have FE permission for Florida East Coast Railway to pick up LNG and ship it as far south as Miami, and as far north as Jacksonville, which is certainly in

[1] "Sinkhole, Sabal Trail HDD, Lowndes County, GA 2016-12-02," John S. Quarterman, WWALS Watershed Coalition, December 2, 2016, http://www.wwals.net/?p=27600

[2] United States Department of Energy, FE Docket No. 14-56-LNG, DOE/FE Order No. 3537 dated October 21, 2014: "Order Granting Long-Term Multi-Contract Authorization to Export Liquefied Natural Gas in ISO Containers Loaded at the Proposed Strom LNG Terminal in Crystal River, Florida, and Exported to Free Trade Agreement Nations."

NFSEG territory. Florida Gas Transmission (FGT) has received permission from the Federal Energy Regulatory Commission to expand its pipeline from Sabal Trail in Suwannee County to Jacksonville, and FGT has an open season now for bids to expand its main pipeline through the panhandle and the NFSEG territory down to Martin County, both involving new construction and trenching in water-containing karst limestone.

Yet there is no mention of pipelines as threats to the Rivers and to the Floridan Aquifer, nor of similar threats such as fracking. These omissions need to be remedied.

Peer Review

In a letter to Drew Bartlett, Florida Springs Council (FSC) President Dan Hilliard emphasized the importance of peer review, and the apparent lack thereof for the NFRWSP.[3] The peer review described in the draft plan in section 2.2 on page 14 dates from two years before that letter. In Chapter 6 on page 61 there is an additional note:

> "The projects provided in this water supply plan were developed as a planning level assessment to show that sufficient options are available to address potential water resource impacts in the NFRWSP area. These assessments were developed using available information and the NFSEG, which has yet to be peer reviewed, so limitations are inherent in the analysis as discussed in Chapter 4."

Presumably that is the not-yet-conducted peer review referred to back in Chapter 4, page 24:

> "NFSEG version 1.0 meets the requirements to be used in water supply planning in the NEFSEG domain. Version 1.0 of the model will not be utilized in regulatory evaluations or in the establishment of MFLs. However, the model may be used to determine the status of MFLs. NFSEG version 1.0 does not meet the requirements outlined in Rule 62-42.300(1)(e), Florida Administrative Code (F.A.C.), requiring the re-evaluation of the established LSFI MFLs that will occur prior to the end of 2019. It is anticipated that the peer reviewed version of the model will be used in planning, regulatory and MFLs programs."

Please clarify the text on page 24 to say that peer review has not been done yet and to invite peer reviewers, as well as public comment, beyond the present public comment deadline.

Regarding specific peer reviewers, FSC's suggestion of Todd Kincaid seems a very good one.

WWALS would also like to suggest as NFRWSP and especially NFSEG peer reviewers Dennis J. Price P.G. of SE Environmental Geology LLC, White Springs, Florida, and Can Denizman, Ph,D Associate Professor of Geosciences, PhD in Geology from the University of Florida.

[3] "NFSEG model may not be adequately peer-reviewed before it is implemented," letter to Drew Bartlett, Deputy Secretary for Ecological Preservation, FDEP, from Dan Hilliard, President, Florida Springs Council, April 20th, 2016, http://springsforever.org/wp-content/uploads/2015/02/2016.04-28-FSC-Letter-to-Drew-Bartlett-Re-NFSEG-Model.pdf

Data Availability and Model Calibration

The Floridan aquifer is a karst aquifer. Therefore, it is heterogeneous and anisotropic with turbulent groundwater flow unlike conventional aquifers that could be assumed homogeneous and isotropic with laminar flow. That means standard groundwater models based on Darcian flow of homogeneous and isotropic conditions are not realistic in karst environments.

The draft NFRWSP does not seem to include any specific information as to the groundwater models used. If they are standard Darcian groundwater flow models liked they have always used, it very unlikely that their forecasts vis a vis MFL would be accurate.

Groundwater models in karst aquifers should accommodate the dual porosity of the aquifer, i.e, the flow within the matrix and within the conduits. That requires incorporating into the model cave and conduit systems delineated by dye tracing experiments and/or cave surveys by cave divers.

More basic than peer review is the availability of suitable data to calibrate and validate the model. Performance metrics are needed across several validation periods (e.g. those including predominantly wet and dry years). Please see "Model Evaluation Guidelines for Systematic Quantification of Accuracy in Watershed Simulations," D.N. Moriasi et al.[4] for some insight into the need for this and the types of "statistics" that are commonly used to evaluate hydrologic models.

Modeling is important for future developments, especially for issuing agriculture water use permits. Please add in the NFRWSP or in a further document an explanation on how drawdown when a new water user applies for a permit will be modeled, especially the most common scenario of every agricultural user turning on their pumps at the same time for months on end during the growing season during a drought.

It is also essential that uncertainty in predictions be quantified in varying climate/hydrologic scenarios, as Daggupati, et al. note:[5]

> "...model developers and practitioners have the responsibility to ensure that the essential characteristics and processes of the real world are simulated appropriately and that the model performs adequately for a given purpose. One important step in model applications is the comparison of model results to observed data through calibration and validation (C/V)".

Modeling can and should involve "Monte Carlo" simulations where each of the model parameters is evaluated across their distributional range. These are big tasks, but essential, especially for the NFSEG.

No doubt SRWMD and SJRWMD are aware of the political difficulties of using a Monte Carlo model, due to the recent use of one in the Florida Environmental Regulation Commission (ERC) decision to raise toxicity levels for Florida waters. WWALS is a co-signatory of a letter from all the Waterkeepers of

[4] "Model Evaluation Guidelines for Systematic Quantification of Accuracy in Watershed Simulations," D.N. Moriasi et al., Transactions of the American Society of Agricultural and Biological Engineers (ASABE), 2007, Vol. 50(3): 885−900, http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.532.2506&rep=rep1&type=pdf

[5] "A recommended calibration and validation strategy for hydrologic and water quality models," P. Daggupati, N. Pai, S. Ale, K. R. Douglas-Mankin, R. W. Zeckoski, J. Jeong, P. B. Parajuli, D. Saraswat, M. A. Youssef, American Society of Agricultural and Biological Engineers (ASABE), Transactions, 2015, Vol. 58(6): 1705-1719, DOI 10.13031/trans.58.10712, http://agrilife.org/vernon/files/2012/11/36_Daggupati_et_al_2015_TransASABE.pdf

Florida criticising that ERC Monte Carlo modeling for leaving native Floridians who eat a lot of fish as outliers especially susceptible to cancer and other ill effects of water contaminants. Thus any use of a Monte Carlo model (or any other model) must be done so as to not leave such outliers and must be clearly defended against such a possibility. Such defense should include robust peer review, especially by critics of the ERC's decision, including WWALS and other Florida (and Georgia) Waterkeepers.

Expand the area of peer review and public comment

The area mapped in Figure 2: North Florida Regional Water Supply Planning Partnership on page 3 is far too constrained. The potentiometric simulations in Appendix C go all the way to the Gulf and South Carolina and show most pronounced effects not only around Jacksonville, but also as far away as Savannah. Many of the projects items in Appendix J: Water Resource Development Project Options, including some in progress or completed, are outside the nominal Partnership area, to the west of the Suwannee and Withlacoochee Rivers, in Madison, Lafayette, and Dixie Counties, Florida. Peer review and public comment need to extend at least as far as those simulations go, which would be at least as far as NFSEG Domain of Figure 15 on page 25.

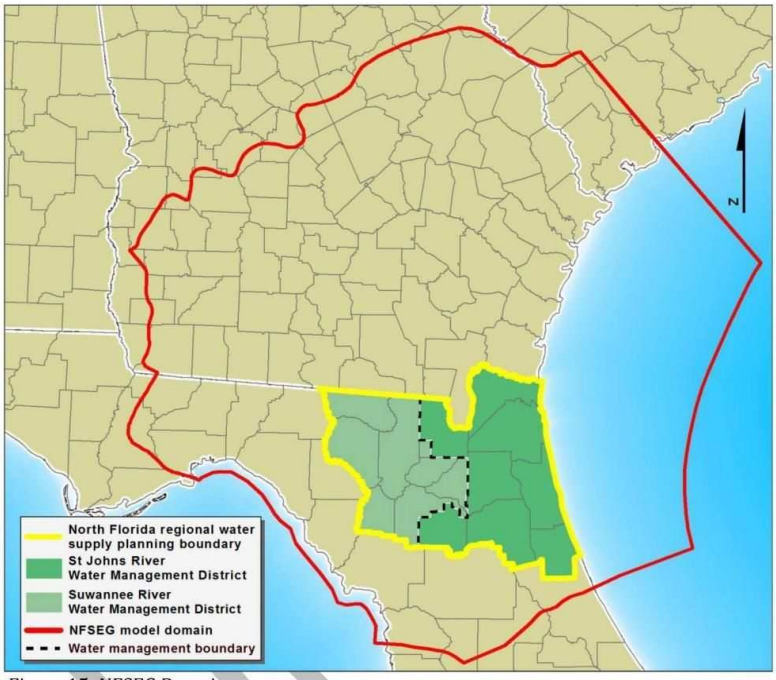


Figure 15: NFSEG Domain

There are two regional forces working on the Floridan aquifer in the NFSEG:

1. Under the Okefenokee/Osceola area. The limited recharge is reduced even further by forestry methods of dewatering the wetlands. Before Jacksonville became a major water user, the big culprits of drawdown under the Okefenokee and Osceola were the paper mills and other large users along the South Georgia coast. The drawdown in the Floridan was mainly South Georgia pulling water from the aquifer; there are many geologic-enforced boundaries that cause this to occur.
2. In the Withlacoochee and Alapaha basins, it is agricultural water use in south Georgia and north Florida that needs to be studied. This is where modeling to determine issuing water use permits needs to be explained in the NFRWSP for the NFSEG. There have been hundreds of large water use permits issued to agricultural users in the last 5 years in north Florida alone. The permitting situation in south Georgia is different, but does not seem to be addressed yet in the NFRWSP.

Involving Georgia

Nick Porter's slides, "July 2015 Update On North Florida Water Resource and Planning Issues,"[6] provide a useful summary of the process to that date, and conclude with two hanging questions:

- What portion of impacts come from Georgia withdrawals?
- How will Georgia be incorporated into process?

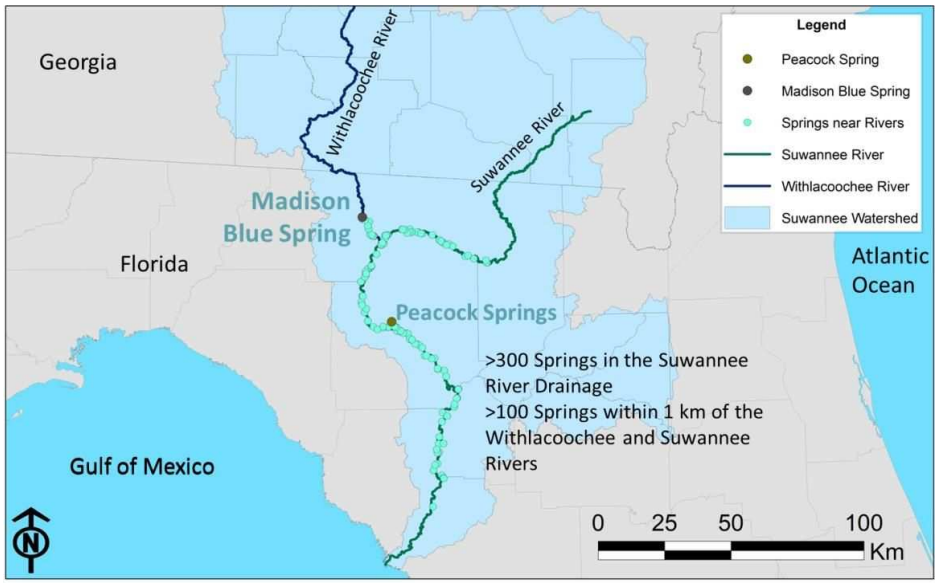
I would add a third Georgia question between those two:

- What effect will Florida withdrawals have on Georgia?

For many years there has been concern in south Georgia about the effect of water use by Gainesville, Orlando, and Jacksonville on the Floridan Aquifer in south Georgia. The development of the NFSEG is a good start towards addressing those issues.

There is no mention in the draft plan of the Georgia Suwannee-Satilla Regional Water Council, which is currently finalizing a similar plan for the Georgia watersheds (Suwannee, Satilla, and St Marys) north of the nominal Partnership area. Nor is there any mention of the other Georgia Regional Water Councils, such as the ones for the Atlantic coast watersheds, which all recently held two joint meetings with Suwannee-Satilla. Better cross-state-line coordination is needed.

Amy Brown's slides on Groundwater-surface water interaction in Florida's karst springs[7] provide an excellent overview of the subject, especially on the Suwannee River downstream of White Springs and on the Withlacoochee River from Madison Blue Spring downstream on the Withlacoochee River, as in the map on her slide 3 (see right).



[6] "July 2015 Update On North Florida Water Resource and Planning Issues", Nick Porter, July 2015, http://floridaenet.com/wp-content/uploads/2015/08/NP-North-Fla-ESS-Pres1.pdf

[7] "Groundwater-surface water interaction in Florida's karst springs: Tropical storms and spring floods", Amy Brown et al., apparently 2013, http://www.alachuacounty.us/Depts/epd/WaterResources/GroundwaterAndSprings/SFRSBWG%20Presentations/140725-Groundwater-Surface%20Water%20Interactions_Brown.pdf

Yet there are springs on the Alapaha River, including some in Georgia, and there are springs upstream on the Withlacoochee River, including three second-magnitude springs between Valdosta and the GA-FL line: Wade (Blue) Spring just south of US 84,[8] and McIntyre and Arnold Springs[9] closer to the state line. McIntyre Spring has been explored by cave divers for 4,610 feet underground.[10] There appears to be no mention of any of those three second magnitude Withlacoochee River springs in the NFRWSP. Nor for that matter, any mention of springs not directly on rivers, such as Adams Spring in Hamilton County.[11] The NFRWSP will affect all these other springs, and they should be taken into account.

Minimum Flow Levels (MFLs)

The one area indicated in the draft plan for new MFLs in 2017 is in WWALS territory. See Appendix H, Technical Memorandum, page 1 of 2:

> "**Results**
>
> "The Alapaha, and the Upper Suwannee Rivers and Stevenson Springs, did not show predicted flow reductions greater than 10 percent at 2035 conditions within the NFRWSP area or at 2035 conditions within the entire NFSEG domain. Alapaha Rise did not show predicted flow reduction greater than 10 percent at 2035 conditions within the NFRWSP area, however, flow reductions exceeded 10 percent under 2035 conditions within the entire NFSEG domain. Holton Creek Rise, Unnamed spring (SUW1017972), Suwannee Spring, and White Spring predicted flow reductions exceeded 10 percent under both 2035 pumping scenarios. Per the SRWMD priority list, MFLs will be set on the Upper Suwannee River and associated priority springs in 2017."

WWALS plans to be involved in setting those MFLs.

Regular River Water Quality Monitoring

The NFRWSP does not seem to mention the recent massive consolidation of agricultural lands into the hands of a few owners, on both sides of the state line. SRWMD has told WWALS they are talking to the landowners about possible agricultural runoff issues. This topic of water quality as well as quantity should be addressed in the plan.

In addition to the water quality monitoring using wells mentioned on pages 1, 3, and 7, there needs to be regular, frequent river water quality monitoring on the Withlacoochee, Alapaha, and Suwannee Rivers in both Florida and Georgia. Such monitoring will help distinguish sources of contamination, such as the chronic Valdosta wastewater overflows now mostly solved,[12] excretions of wild, farmed, or domestic

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[8] "Blue Spring and McIntyre Spring, Withlacoochee River, Brooks County, GA, 1903-11," John S. Quarterman, WWALS Watershed Coalition, April 2, 2016, http://www.wwals.net/?p=19299
[9] "Arnold Springs," Points, Withlacoochee and Little River Water Trail, WWALS Watershed Coalition, 2016, http://www.wwals.net/maps/withlacoochee-river-water-trail/wrwt-map/wrwt-points/#Arnold-Springs
[10] "McIntyre Spring", Guy Bryant, A Cave Diving History of Little Known Springs, April 19, 2016, https://guybryantcavedivingblog.wordpress.com/2016/04/19/mcintyre-spring/
[11] "Bill Gates land purchases, Florida Springs Council, and Adams Spring," by John S. Quarterman, WWALS Watershed Coalition, August 14, 2015, http://www.wwals.net/?p=10285
[12] Valdosta Wastewater, WWALS Watershed Coalition, http://www.wwals.net/issues/vww/

animals or humans, or agricultural fertilizer or pesticides. Such contaminants of river water affect surface water and aquifer water, and should be used in the modeling and calibration.

The NFRWSP should advocate for adequate funding for and its agency participants should implement such regular, frequent river water quality monitoring.

Thank You

Thanks to all involved for putting together the North Florida Water Supply Plan. WWALS looks forward to being involved ongoing.

Sincerely,

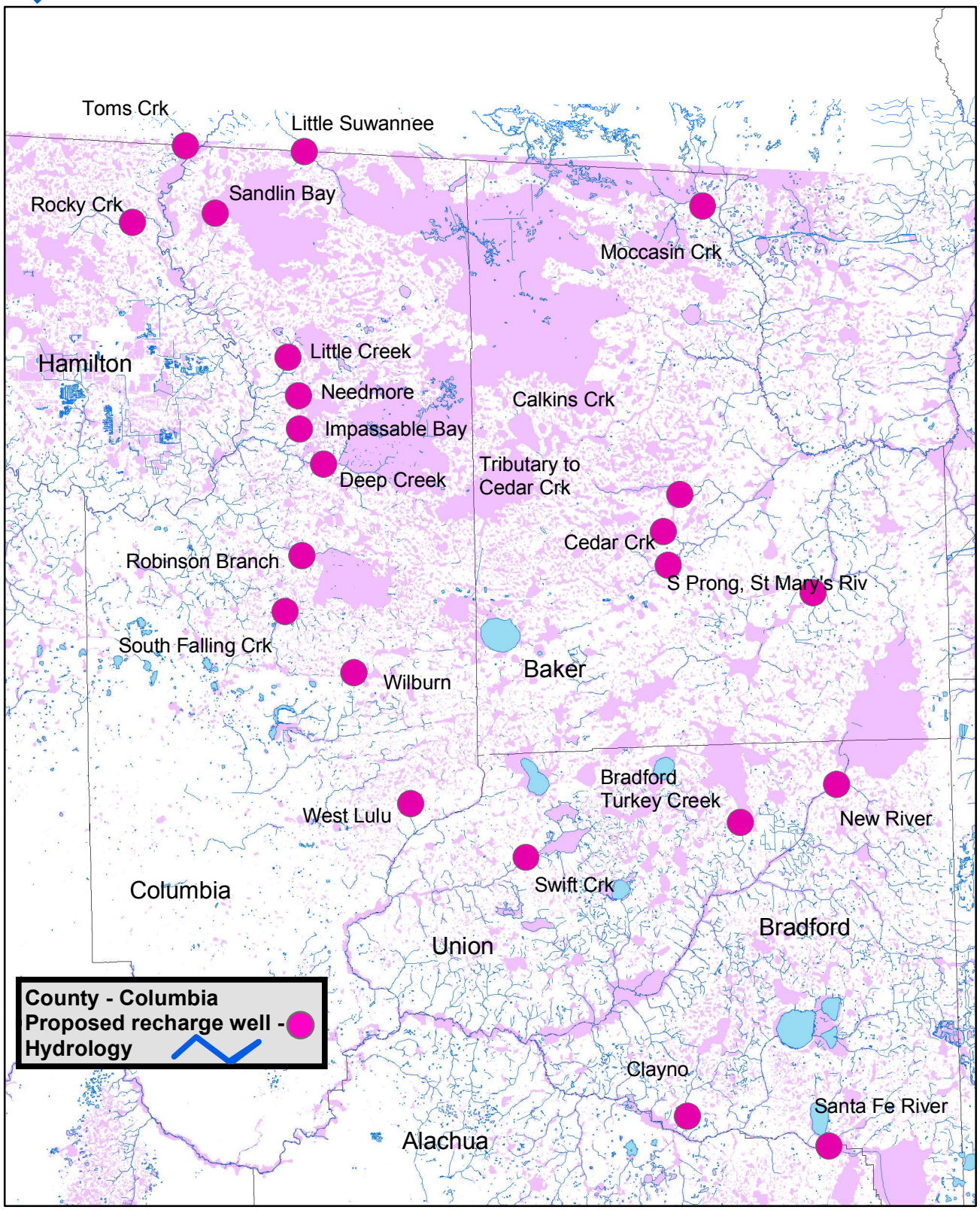
[/s]

John S. Quarterman, President

Attachment: Flatwoods aquifer recharge proposal by Dennis J. Price P.G.[13]

[13] "Proposal for the recharge of the upper Floridan Aquifer in the north Florida flatwoods environment, Hamilton, Columbia, Union, Baker and Alachua Counties," Dennis J. Price P.G., SE Environmental Geology, to North Florida Regional Water Supply Partnership, 14 November 2016.

SE Environmental Geology, LLC
PO Box 45
White Springs, FL 32096



UPPER FLORIDAN
RECHARGE PROJECT

Flatwoods recharge wells with names of basins or creeks, located upstream of stream entrenchment, at dishcarge from larger basin, upstream of, but on, roads

1:473,689

SE ENVIRONMENTAL GEOLOGY
DENNIS J. PRICE, P.G.
P.O. BOX 45
WHITE SPRINGS, FL 32096
cell 362-8189, den1@windstream.net

November 14, 2016

North Florida Regional Water Supply Partnership

RE: PROPOSAL FOR THE RECHARGE OF THE UPPER FLORIAN AQUIFER IN THE NORTH FLORIDA FLATWOODS ENVIRONMENT, HAMILTON, COLUMBIA, UNION, BAKER AND ALACHUA COUNTIES.

My proposal is directed towards those areas in the SRWMD and the SJRWMD that are underlain by the Hawthorn formation resulting in extensive areas containing a surficial aquifer and the intermediate aquifers that exist in the Hawthorn. Recharge to the Floridan is retarded by the presence of the clay layers in the Hawthorn. Very large wetland systems are common in these areas.

Water balance studies were produced twice that I am aware of in the SRWMD, one by Dave Fisk of the SRWMD and one for the Environmental Impact Statement regarding Phosphate Mining in Columbia County in the Osceola National Forest, in the 1970's. Both studies resulted in an estimated recharge to the Florida of about 4" per year ±. All water balance studies were done after the majority of the wetland drainage systems were constructed and therefor do not take into account the natural recharge that occurred prior to ditching.

Starting in the late 1800's and continuing through the 1950's-1970's when planted pine plantations started, much of our large wetlands systems have been drained purposefully in order to harvest the cypress out of the wetlands and to dry up marginal wetlands around these wetlands to create more acres of pine plantations.

I have been working in the North Florida Flatwoods as a geologist for the last 42 years, starting as an exploration geologist, mapping the ore body in Columbia and Hamilton counties, for what is now PCS phosphate in Hamilton County. I have walked hundreds of miles through the Flatwoods, including my time with the FDEP and the SRWMD. I have spent the last 20 years working for myself as a licensed well driller and wetlands/geologist consultant. Most recently I spent 4 years permitting a wetlands mitigation bank, Bayfield Mitigation Bank, a few miles south of Sandlin Bay in Columbia County. I rarely go into wetlands that have not been ditched.

Through all this time I have discovered that all the road side ditches, pine plantation planting beds, wetland ditching and interior ditching has drained the wetlands of most of the water from significant rainfall events, especially during the winter months when most recharge to the aquifer happens.

Plugging ditches on the Bayfield Mitigation Bank site flooded the adjacent pine plantations and ruined the interior roads so it is difficult to travel on them. Plugging ditches to rehydrate swamps to increase recharge would never be allowed by landowners because it makes the land to wet. Plugging ditches may be a good tool on public lands. Pre and post hydrographs from piezometers installed in wetlands and the surficial aquifer on the Bayfield Mitigation Bank site clearly demonstrate the significant increase in water retention and length of time water remains in the wetlands in between rain events.

Consequently this proposal for recharging the Floridan was created. The assumption is that the drainage referenced above does occur. The area proposed for this project is located over the Floridan where significant lowering of groundwater levels have occurred over a very large area. The most efficient way to recharge large areas is by constructing drainage wells. In the attached map, the major wetland systems have a drainage-well constructed in a location that is accessible and, is located, where the wetland system begins to narrow down.

Top of casing elevations can be set at an elevation where they capture water during high flow conditions that occur after large rainfall events and during the winter months, both times of higher recharge to the Floridan.

The wells are intended to capture a portion of the flow from the system. The entire plan could be constructed for less money than the plan calling for pumping water from the Suwannee River over to Falling Creek in Columbia County and the recharge would benefit more areas than the Falling Creek site and still include the Ichetucknee Springs basin.

It is a passive system depending on gravity, maintenance costs are minimal and changing the desired invert elevation is as simple as cutting and welding or a spillway.

All the wetlands depicted on the plans are important and they should be purchased with Amendment 1 money, directed towards buying environmental sensitive lands. For those opposed to recharging swamp water into the aquifer, this water still recharges naturally all along the Suwannee through springs, vents and siphons and into the numerous stream to sink areas in the District.

Out of professional respect, if people have misgivings about the plan, please allow me to discuss my thoughts with them. This is not a comprehensive scientific study, it is just a proposal based on experience.

Sincerely,

Dennis J. Price, P.G.
SE Environmental Geology

From: Anne Harvey Holbrook
To: nfrwsp-comments
Subject: Draft NFRWSP Comments
Date: Monday, December 05, 2016 4:52:37 PM
Attachments: SMC Comments_NFRWSP 12_5_2016.pdf

Hello,

Attached please find Save the Manatee Club's comments regarding the 2016 North Florida Regional Water Supply Plan. Please feel free to contact me with any questions or concerns.

Regards,

Anne Harvey Holbrook, JD, MS
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Save the Manatee Club
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e-mail: aholbrook@savethemanatee.org

Adopt-A-Manatee! Go to: savethemanatee.org/adopt

Save the Manatee® Club
The Voice for Manatees Since 1981

St. Johns River Water Management District
Palatka, Florida

Suwannee River Water Management District
Live Oak, Florida

Submitted via electronic mail to nfrwsp-comments@sjrwmd.com

December 5, 2016

Re: North Florida Regional Water Supply Plan (2010-2035 Planning Horizon)

Save the Manatee Club (SMC) appreciates the opportunity to review and comment on the North Florida Regional Water Supply Plan (NFRWSP). Save the Manatee Club is an award-winning national 501(c)(3) nonprofit, established in 1981 by singer and activist Jimmy Buffett and former US Senator Bob Graham. The organization represents 11,000 members and supporters throughout Florida and an additional 33,000 nationwide in efforts to protect endangered manatees and their aquatic habitat from threats posed by human activity, including habitat destruction and water quality degradation. As a member of the Florida Springs Council (FSC), SMC supports and incorporates herein the comments offered on behalf of the Council, and submits the following additional comments for consideration. All comments refer to the October 4, 2016 Draft NFRWSP.

As a preliminary matter, the Water Management Districts should begin with a firm acknowledgement that Florida is running out of water. Even water-rich North Florida lacks sufficient groundwater to supply projected demand over the next twenty years without causing unacceptable impacts to water resources (thus triggering the NFRWSP process). And yet, this concerning fact is obfuscated by the Districts' assertion in its frequently asked questions portion of the public website by the conclusion that the Districts have identified 200 million gallons per day (mgd) of additional water supplies to meet the growing 117 mgd in demand, albeit using alternative supplies which include a range from sensible and cost-effective solutions, such as reclaimed water, to the costly and environmentally damaging, such as desalination. The finding that there are insufficient regional water supplies to cover a 20-year planning horizon should be the subject of intense public discussion and urgent policymaking, but is instead glossed over in a planning document whose projects and recommendations are nonbinding on water users and permitting agencies.

The minimum flows and levels rulemaking process for the lower Santa Fe and Ichetucknee Rivers and associated springs found that these water bodies are already experiencing consumptive use beyond that which they can sustain without incurring significant harm. As such, recovery efforts must be fully accounted for in the NFRWSP. Although prevention and recovery strategies are mentioned for these water bodies and the total estimated recovery needed to achieve the MFL under anticipated 2035 conditions are given, the Draft RWSP does not clearly discuss the alternative water sources or conservation measures anticipated or available to make up that difference with a specific regional focus on alleviating impacts to those waterways.

Similarly, the Draft plan notes that four priority springs will show reductions greater than ten percent under 2035 conditions, and that the remaining four priority springs and both priority rivers also show flow reductions, though less than ten percent. The draft RWSP should therefore anticipate that the MFL process may require prevention and recovery strategies (or at least impose certain water withdrawal limits so as not to exceed significant harm), and should identify alternative water sources or conservation reuse opportunities within those watersheds as well.

SMC recognizes the need to identify additional and alternative sources of water as well as to identify opportunities for water conservation. However, the use of alternative water supplies (AWS) as a general term in regional water supply planning is misleading, and specific types of AWS should be discussed with a view toward determining what types of projects might be appropriate to offset use of groundwater in a particular area. The use of alternative water supplies generically is further complicated because of the interconnected nature of surface water, groundwater, recharge, and brackish groundwater. Despite the fact that AWS are statutorily authorized sources for the Districts' consideration in water supply planning, some assessment and modeling of the relationship among these sources should be accounted for in water supply planning efforts that rely on use of AWS to supplement traditional groundwater. The incorporation of MFLs touches on this but does not explicitly or fully address the issues involved because the water budget inappropriately distinguishes between groundwater and surface water in recovering systems. For the NFRWSP to be an effective tool for both local government and state permitting agencies, these reductions and offsets should be analyzed regionally with appropriate conservation and AWS projects outlined and clear funding opportunities identified.

The uncertainties and complications associated with climate change are discussed late in the document, but should be addressed earlier in its sections discussing demand calculations, drought, and saltwater intrusion. The Draft NFRWSP includes in its demand calculations a 1-in-10 year drought water demand figure to represent an event that would increase water demand that has a ten percent probability of occurring in any given year. In the final draft, SMC asks the Districts to clarify how they determined the likelihood of drought occurrence, and how modeling accounts for the potential impacts of climate change. Already areas of North Florida are experiencing rising temperatures and altered rainfall patterns. The Draft should also take into account seasonal changes in rainfall fluctuations as a result of changing climate and weather patterns. If, as stated in the Draft plan, a single one-in-ten year drought event can increase demand an additional 6%, it seems that demand estimates may be too low given the potential for previously rare drought events to occur with increasing frequency and intensity as the climate changes. Moreover, the impacts of drought should also be discussed in the plan's section on saline water intrusion. A small drop in aquifer levels can result in substantial saltwater intrusion; thus groundwater pumping combined with drought could have a serious deleterious impact on fresh groundwater availability, and that possibility and calculations should be incorporated into the RWSP assessment.

Given the above considerations as well as additional details provided in the Draft plan, SMC supports the designation of the entire NFRWSP as a Water Resource Caution Area (WRCA).

Lastly, SMC believes that even greater emphasis should be placed on the use of reclaimed water, both for non-potable and potable reuse. The Water Management Districts should strongly incentivize implementation of potable reuse projects within their jurisdictions. Conversely, substantially less investment should be encouraged for water supply development projects that tap "new" sources of water; use of brackish groundwater and Lower Floridan Aquifer withdrawals are detrimental to the long-term sustainability of North Florida's water supply and should be discouraged. SMC appreciates the emphasis on water conservation and demand reduction projects. In particular, SMC supports the Districts' support of tiered public supply billing rates, landscape and irrigation restrictions and design codes, meter reading technology (including for agricultural water use, which is not discussed), agricultural efficiency, and more effective outreach and education.

Thank you for the opportunity to comment on the Draft NFRWSP. Please do not hesitate to contact me with any questions regarding this letter.

Regards,

Anne Harvey Holbrook
Staff Attorney
Save the Manatee Club

From:	noreply@formstack.com
To:	Jerry Carter; nfrwsp-comments
Subject:	northfloridawater-draftreview
Date:	Monday, December 05, 2016 5:07:42 PM

Formstack Submission for form northfloridawater-draftreview

Submitted at 12/05/16 5:07 PM

Name:	Kerry Kates
Organization:	Florida Fruit & Vegetable Association
Email:	kerry.kates@ffva.com
Phone number:	(321) 214-5200
Comments:	•Water Conservation and Irrigation Efficiency, Table 1: “2035 Water Conservation and Irrigation Efficiency Potential” (pg 23) o In the draft supply plan, both the proposed Low and High Conservation Potentials for agriculture are listed at 25 million gallons per day (mgd). The total agricultural demand for 2035 is projected at 154 mgd, meaning that over the course of the next 20 years the expectation is that agriculture will initiate a conservation effort resulting in a 16% reduction of water use, equating to 25 mgd conserved. The way it is presented in Table 1, as both the low and high conservation potential, could lead the reader to mistakenly interpret the 25 mgd as an infallible and unquestionable reduction goal that the agricultural community is then obligated to obtain. It is much more realistic to provide a range of values, such as was done with the conservation projection for public supply (11 mgd-21mgd). The table should be amended to include a low conservation potential other than 25 mgd to better reflect variable, real-world conditions and to thwart unrealistic and/or unobtainable expectations.

From: Gus Olmos
To: nfrwsp-comments
Subject: Draft North Florida Regional Water Supply Plan Comments
Date: Monday, December 05, 2016 5:24:17 PM
Attachments: Alachua County Comments - Water Supply Plan 12.5.16.xlsx

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Thanks for the opportunity to provide comments. Please feel free to contact me with any questions.

Gus

Gus Olmos, P.E.
Water Resources Manager
Alachua County Environmental Protection Department
gus@alachuacounty.us
Office: (352) 264-6806
Cell: (352) 275-1344

Appendix A Comment Template - Comments Received from Stakeholders Regarding the Draft North Florida Regional Water Supply Plan

Contact Information							Comment Information			
Date	From	Affiliation	Title	Phone	Email	Address	Comment Type (select from Drop Down)	Chapter (select from dropdown)	Page Number	Comment
12/5/2016	Gus Olmos	Alachua County	Water Resources Manager	352-264-6806	gus@alachuacounty.us	408 W University Ave, Suite 106, Gainesville, FL 32601	General	Chapter 2 - Introduction to Water Supply Planning	7	Local governments are required to modify the potable water sub-elements of their comp plan by incorporating water supply projects. What if the local government is not a utility?
12/5/2016	Gus Olmos	Alachua County	Water Resources Manager	352-264-6806	gus@alachuacounty.us	408 W University Ave, Suite 106, Gainesville, FL 32601	General	Chapter 3 - Water Demand, Reclaimed Water and Water Conservation Projections	14	Is freeze protection inclued in agriculture water use projections?
12/5/2016	Gus Olmos	Alachua County	Water Resources Manager	352-264-6806	gus@alachuacounty.us	408 W University Ave, Suite 106, Gainesville, FL 32601	General	Chapter 3 - Water Demand, Reclaimed Water and Water Conservation Projections	15	Agriculture acreage is expected to increase. What land use is expected to be converted to ag? Silvaculture?
12/5/2016	Gus Olmos	Alachua County	Water Resources Manager	352-264-6806	gus@alachuacounty.us	408 W University Ave, Suite 106, Gainesville, FL 32601	General	Chapter 3 - Water Demand, Reclaimed Water and Water Conservation Projections	16	It should be clarified that the CCI water use only includes CCI uses that are self supplied, not those supplied with public supply as the water source.
12/5/2016	Gus Olmos	Alachua County	Water Resources Manager	352-264-6806	gus@alachuacounty.us	408 W University Ave, Suite 106, Gainesville, FL 32601	General	Chapter 3 - Water Demand, Reclaimed Water and Water Conservation Projections	17	It should be clarified that the Landscape/Recreational/Aesthetic category does not include most residential and commercial landscape irrigation, as that is included in DSS or Public Supply. I have seen these numbers misinterpreted by readers assuming that this category includes all landscape irrigation.
12/5/2016	Gus Olmos	Alachua County	Water Resources Manager	352-264-6806	gus@alachuacounty.us	408 W University Ave, Suite 106, Gainesville, FL 32601	General	Chapter 7 - Project Options	46	It is likely that many of the projects overestimate water savings.
12/5/2016	Gus Olmos	Alachua County	Water Resources Manager	352-264-6806	gus@alachuacounty.us	408 W University Ave, Suite 106, Gainesville, FL 32601	General	Chapter 7 - Project Options	51	Tiered rates are a great tool, but to be most effective the WMDs need to prohibit new wells where public supply is available. This would avoid the alarming trend of property owners shifting outdoor use to a private well that is then not accounted for in water use estimates. At the very least, the WMDs could delegate this authority to local governments.
12/5/2016	Gus Olmos	Alachua County	Water Resources Manager	352-264-6806	gus@alachuacounty.us	408 W University Ave, Suite 106, Gainesville, FL 32601	General	Chapter 3 - Water Demand, Reclaimed Water and Water Conservation Projections	12	Current USGS water use estimates do not include the water used for outdoor uses from private irrigation wells for properties that are also served by public supply. There is concern that total water use may be grossly underestimated and that per capita water use may be artifically decreased by omitting this use from the equation.
12/5/2016	Gus Olmos	Alachua County	Water Resources Manager	352-264-6806	gus@alachuacounty.us	408 W University Ave, Suite 106, Gainesville, FL 32601	Demands	Appendix B - Demand Projection, Reclaimed Water and Water Conservation Methodology and Tables	5	As indicated in Appendix B, the projected demand from different types of supply sources, i.e. public water supply, small public supply and "domestic self supply", is based on the assumption that the % share from each of these in 2035 will generally* be the same as it is currently.This constant "percent-share method" for projections very likely understates the demand from public water supply sources in 2035 in areas such as Alachua County (and probably in other urbanizing counties in the region) where the trend has been significantly higher proportions of new development being approved in urban areas connected to public water supply sources; this trend along with Comprehensive Plan policies promoting such development in urban areas served by public water supply systems will result in increasing shares of population utilizing public water supply systems rather than small public systems or DSS. (*According to discussion in Appendix B, " a 1 percent per conversion of domestic-self-supply to public supply systems was added to viable public supply systems by proportion in" seven counties in the region. There are other counties in the region, including but probably not limited to Alachua County, where recognition of such a shift in the share of demand to public supply systems would also be appropriate.)
12/5/2016	Gus Olmos	Alachua County	Water Resources Manager	352-264-6806	gus@alachuacounty.us	408 W University Ave, Suite 106, Gainesville, FL 32601	Demands	Chapter 3 - Water Demand, Reclaimed Water and Water Conservation Projections	10 - 14	The projected increases discussed in the text and shown in Figures 5,7, and 8 in demands from Domestic Self Supply in this section are likely overstated, and, conversely the projected increases in demand from Public Water Supply are likely understated, because the use of the constant "percent-share method' for projections doesn't correspond with shifts of population to urban areas with Public Water Supply systems,as detailed in the comment above on Appendix B.
12/5/2016	Gus Olmos	Alachua County	Water Resources Manager	352-264-6806	gus@alachuacounty.us	408 W University Ave, Suite 106, Gainesville, FL 32601	Grammatical	Appendix L	1 - 3	Missing units for Estimated Water Supply
12/5/2016	Gus Olmos	Alachua County	Water Resources Manager	352-264-6806	gus@alachuacounty.us	408 W University Ave, Suite 106, Gainesville, FL 32601	Grammatical	Appendix M	1 - 3	Missing units for Estimated Water Supply Benefit
12/5/2016	Gus Olmos	Alachua County	Water Resources Manager	352-264-6806	gus@alachuacounty.us	408 W University Ave, Suite 106, Gainesville, FL 32601	Grammatical	Appendix M	1	Project # 16 should be listed under Levy County not City of Archer

Appendix A Comment Template - Comments Received from Stakeholders Regarding the Draft North Florida Regional Water Supply Plan

Contact Information							Comment Information			
Date	From	Affiliation	Title	Phone	Email	Address	Comment Type (select from Drop Down)	Chapter (select from dropdown)	Page Number	Comment
12/5/2016	Gus Olmos	Alachua County	Water Resources Manager	352-264-6806	gus@alachuacounty.us	408 W University Ave, Suite 106, Gainesville, FL 32601	Other Technical	Chapter 2 - Introduction to Water Supply Planning	6	**"It is important to note that, while the NFRWSP may not be used in the review of CUPs/WUPs, the Districts are allowed to use data or other information used to establish the plan in reviewing CUPs/WUPs".** This statement seem in conflict with the requirements of Subsection 373.709(7), F.S.
12/5/2016	Gus Olmos	Alachua County	Water Resources Manager	352-264-6806	gus@alachuacounty.us	408 W University Ave, Suite 106, Gainesville, FL 32601	General	Executive Summary	i - iii	Comment: Water policies that promote reclaimed water credits for landscape irrigation, in particular for new development, have the unintended consequences of perpetuating and promoting water and fertilizer dependent landscapes, increasing nutrient loadings in impaired watersheds, decreasing aquifer recharge, and increasing water loss due to evapotranspiration. Water policies that give credit for reclaimed water credits for industrial uses, such as cooling water for power plants, reflects a "highest and best use" credit hierarchy Alachua County Recommends: The draft water supply plan be revised so that reclaimed water credit policy discourages credits for residential and commercial landscape irrigation for new development. The policy should clearly encourage only uses of reclaimed water uses that do not involve landscape irrigation such as agricultural, industrial or commercial uses. Regarding residential and commercial landscaping, partial credit should only be considered for retrofitting existing landscape irrigation with reclaimed water, not for new development landscape irrigation. With regards to water credits for landscape irrigation, the utility other responsible party will need to establish a framework such as deed restrictions to ensure that low/no irrigated landscaping is not replaced with high irrigation landscaping at later date or establish a trigger that requires additional water offsets to compensate for changes to water intensive landscaping.
12/5/2016	Gus Olmos	Alachua County	Water Resources Manager	352-264-6806	gus@alachuacounty.us	408 W University Ave, Suite 106, Gainesville, FL 32601	General	Chapter 2 - Introduction to Water Supply Planning	7	**"Identifying water supply projects to meet the water needs identified in the NFRWSP within the local government's jurisdiction".** The demand projections in Appendix B are aggregated to the County level. It is difficult to estimate the specific local government's water need from the information supplied in the plan; especially for local governments without a utility.
12/5/2016	Gus Olmos	Alachua County	Water Resources Manager	352-264-6806	gus@alachuacounty.us	408 W University Ave, Suite 106, Gainesville, FL 32601	General	Chapter 2 - Introduction to Water Supply Planning	7	**Relationship to SJRWMD and SRWMD Regulatory Programs.** The plan should include a discussion of all the tools avilable to the Districts, including permit reductions, denials and more stringent water use restrictions as part of a water shortage declaration.

From:	noreply@formstack.com
To:	Jerry Carter; nfrwsp-comments
Subject:	northfloridawater-draftreview
Date:	Monday, December 05, 2016 9:55:55 PM

Formstack Submission for form northfloridawater-draftreview

Submitted at 12/05/16 9:55 PM

Name:	Lauren Staples
Organization:	resident
Email:	laurenleesc@gmail.com
Phone number:	(803) 351-7784
Comments:	1a) Appendix B technical memorandum states "the PSC requires each Power Generation facility produce detailed ten-year site plans for each of its facilities." Where is this specific, enforceable type plan in the body of the plan? This plan merely suggests ideas and mentions some projects that have been submitted for helping the problem. It needs to be a strong, clear and enforceable plan with quantifiable mandates to users in the body of the plan, not the appendix. 1b) There needs to be a plan to audit the water use on a schedule between now and 2035; and to amend if the use grows at a faster rate than projected. Accountability and roles and responsibilities need to be clearly delegated and the audits should be published on an established frequency to the public. 2) Amendment 1 moneys are already being divided by the legislature and we need to remind them that those funds were intended for land acquisition and protection of our water resources. This plan should clearly stake a claim on this money! 3) This plan does not mention any current dam issues and arguments/resolutions such as the Rodman Dam. 4) The methodology used in this plan assumes the neighboring water districts will be at 2009 levels and only looks at the 2035 project increase within our boundaries. I think the plan should reach out to the neighboring water districts and get a more realistic projected use from those outside our boundary.

8604 Allisonville Rd.
Suite 300
Indianapolis, IN 46250

From:	noreply@formstack.com
To:	Jerry Carter; nfrwsp-comments
Subject:	northfloridawater-draftreview
Date:	Tuesday, December 06, 2016 1:16:18 PM

Formstack Submission for form northfloridawater-draftreview

Submitted at 12/06/16 1:15 PM

Name:	Phillip Scanlan
Organization:	
Email:	phillipscanlan@att.net
Phone number:	(904) 491-8852
Comments:	Clearly we are using up our aquifer (Traditional) water supply as a result of continued growth. In addition the aquifer water supply is at risk of salinization in key growth areas like Fernandina Beach, Florida. Therefore, there should be a plan to reduce reliance on Aquifer (Traditional) water supply and move to other water supplies. One way would be to rank order Aquifer water supply uses and limit lower level uses. For example drinking water would be a high level use and perhaps Agriculture a Mid-range use and Industrial use a low level use. An alternative to limiting low level uses of the aquifer would be to use a market based technique to deter low level uses. Aquifer withdrawals are free today for a limited and valuable community resource. Put a price on aquifer withdrawals, perhaps when permits are issued. For example a permit could have a fixed fee and an annual fee per gallon of annual withdrawal permitted. This would encourage users to look for conservation methods and alternative sources of water. A price on water withdrawals would also enable building of a Capital Fund for desalinization plants that appear to be needed in the future -- due to the continued and unlimited growth in Florida. All existing users should be asked to develop a plan to reduce their current water usage by 21% by 2035, to offset the 21% growth projected. An incentive could be provided to do this by providing a discount on the aquifer water withdrawal charges for meeting this goal. Money drives everything, we need an economic driver to control usage of our limited water supply. We need a user charge for the amount of water being withdrawn to drive the right user behavior. It is either charge me now or charge me more later. If we do not control the

water usage we will need desalinization plants later and high costs to build and operate those plants will be charged to users.

I believe we have to admit the current approach to permitting free water usage for all growth is not a workable to sustain our limited water supply. Therefore, we need to introduce a new economic driver as an incentive to manage use of this limited resource, before it is too late to save a resource that is depleted or ruined by salinizaiton.

Phil Scanlan

Establish the Maximum allowable water withdrawals for the aquifer.

Establish clear sustainability goals, not just a set of options, for conservation, and water reuse.