

The University of Florida Water Institute
Technical review of Florida Section of the American Water Works Association
(FSAWWA) Florida 2030 Task Force Issue Papers
September 16, 2008

The FSAWWA Florida 2030 Task Force has a multi-year mission to develop a clearly defined infrastructure vision on water supply, focused communication regarding new approaches on permitting and water resource management, global examples of implementation, and valuable stakeholder input. For an announcement of the mission of the Task Force, and its committee chairs, please see <http://www.fsawwa.org/apps/FL2030Announcement.pdf> .

As part of the FL2030 effort the Task Force commissioned 9 papers on issues they view as critically important for Florida future water supply. These issues are **climate change, water resources management, surface water, desalination, conservation, reuse, governance/funding, utility/District/FDEP partnership, and water allocation and transfer**. The Task Force intends to present these vision papers both at the Century Commission's Water Congress to be held in Orlando on September 25th and 26th 2008 (see <http://www.centurycommission.org/specialevents.asp> for details), as well as the FSAWWA Fall Conference that will be held in Orlando November 30th- Dec 4th, 2008 (see <http://www.fsawwa-conf.com/> for details). The Task Force will continue to revise and refine their Florida water supply infrastructure vision over the next several years.

FSAWWA requested that the University of Florida Water Institute coordinate a technical review of their 9 vision papers to gather additional stakeholder input, identify potential gaps, and identify any factual errors to help them revise and build on their visioning initiative.

The following questions were asked of the reviewers for each paper.

- 1) Do the nine issues cover all important aspects needed to develop a water supply infrastructure vision for Florida in 2030?
- 2) Is the issue framed accurately?
- 3) Is the issue defined in a manner understandable to the average citizen?
- 4) Is there sufficient background information provided to support the issue and to justify why it is critical?
- 5) Are the facts presented in the paper accurate? Are there gaps in the facts presented?
- 6) Is the Florida 2030 vision broad enough? Has the committee considered all possibilities? If not what additional possibilities should they consider?
- 7) Are the possible paths described to achieve the vision realistic and comprehensive? Have all advantages and disadvantages (including environmental and economic impacts) of the options been considered? If not please identify gaps.
- 8) Are the identified short-term and long-term goals appropriate and realistic?

Reviews were requested and received from 27 water resource professionals from academia, consulting, local and state agencies, professional societies, agricultural agencies and environmental organizations. This document provides a synthesis of reviewers' comments and suggestions for improving and expanding on the nine issue papers. Verbatim anonymous reviewer responses and edits are also provided as appendices to this document.

Review Synthesis

Reviewers of the Florida Section of the American Water Works Association (FSAWWA) Florida 2030 vision papers were uniformly complementary of the FL2030 initiative and expressed appreciation for forward-thinking commitment of the many water resources professions who volunteered their time for this effort. Reviewers also expressed appreciation for the opportunity to review and provide input to the effort.

While most reviewers agreed that all nine topics considered are important, the reviewers identified additional topics that FSAWWA should consider including in their visioning exercise. In particular, the absence of issue papers on GROUNDWATER, WATER RESOURCES RESEARCH AND EDUCATION, RESTORING ECOSYSTEMS AND ENVIRONMENTAL PROTECTION, WATER RESOURCE ASSESSMENT AND MONITORING, and WATER RESOURCE SUSTAINABILITY was highlighted. Several reviewers were surprised that groundwater was not identified as an important topic as it is the water supply source for more than 90% of the state's population. In addition, several reviewers pointed out that agriculture should have been considered as an integral part of most of the issue papers. In spite of the fact that the goal of the Florida Section of AWWA was to provide a vision for Florida's water supply infrastructure, there was a strong sentiment expressed that that the focus on water supply was too narrow, and that much more attention should have been paid to demand management, agricultural, environmental and economic issues.

Reviewers felt that there is a need to integrate these 9 issue papers more completely. The FSAWWA 2030 process provides a valuable opportunity to present a comprehensive consideration of the future of Florida Water Resources. Reviewers felt that, as they now exist, the papers represent the views of 9 committees working in isolation. We recommend that the Florida Section AWWA leadership now take these 9 papers, edit and expand on them based on the reviewers recommendations, and re-write and re-structure them so that they are written with one voice and represent a unified vision. When finally published all the reports have identical formats, including a cover page, table of contents, and executive summary.

Several suggestions were made regarding how to integrate the papers and make them more coherent and comprehensive. One reviewer suggested that the whole 2030 Task Force effort be re-centered around the Integrated Water Resources Management (IWRM) concept promoted by Global Water Partnership as it appeared that some or most of the issues identified for the nine papers are closely

related to the IWRM concepts. Another reviewer pointed out that instead of framing the issues for a specific time period (i.e. through 2030) the issues should be framed in light of the goal for long-term sustainability. We recommend that you carefully consider each of the reviewers individual comments as you revise the papers in this regard.

Climate Change – (comments from 6 reviewers)

Reviewers generally felt the paper on climate change had high quality information but needed additional discussions on sea level rise, effects on natural systems, as well as more of a focus on Florida. They felt the paper was too long and too complex for the average citizen. Timelines for recommendations by 2030 are needed. The report should acknowledge that Florida-focused information is lacking and more research is needed because Florida climate change cannot be inferred from global climate change. A long list of recommendations from EPA was cited as too long and too general and not in context. Figure 3 was an issue for several reviewers (incorrectly cited and shows extreme case not likely to occur by 2030). Careful editing of grammar, spelling and citations was recommended.

Reviewers suggested that the paper could benefit by more attention to:

- Specifying timelines in discussions and solutions and defining “long-term”
- How sea level rise will affect water availability (direct); how climate change impacts natural systems (wetlands, springs, rivers, lakes) that in turn affect water availability (indirect)
- Focusing on Florida: much of the climate change information needed for Florida conditions is unavailable, but long-term data is available from historical records of climate, seal level, groundwater level and river flow variability.
- Distinguishing between natural variability (eg. ENSO, Multidecadal oscilalitons) and the human-induced changes of climate
- Research going on at FSU on climate variability as well as other climate research groups (references needed)
- Importance of different land use policies and their potential feedbacks to the climate.

Considerations for vision and goals:

- Some subsections include a lot of factual information without actual options and path forward presented
- The approach was very engineering-based and focused a lot on infrastructure
- Two reviewers felt that the paper should focus on sea level rise as the most critical issue for Florida
- Distill the initial 11 pages to frame the issue more succinctly: climate change and its specific predicted effects on Florida waters

- Balanced references to Tampa Bay issues with those of the Lower East Coast urbanized areas where there are equally, if not more, critical issues associated with climate change exist

Water Resources Management (comments from 7 reviewers)

Reviewers agreed that the paper did well at outlining key water resource management concerns in Florida, though some disagreed about the readability by the average citizen. The mention of issues such as population growth, economics, uncertainty, adaptive management and climate change indicated that the authors did focus beyond today's challenges into the needs of the future. Several reviewers felt that infrastructure was overemphasized; water and environmental stewardship are integral to management. There was an emphasis on water supply; more should be mentioned about demand management, water resource availability, wastewater, flood protection, and ecosystems as well as regulation and water conservation. Some reviewers felt judgment statements were made without supporting data. Several reviewers felt more discussion of Aquifer Storage and Recovery was needed, including water quality considerations, recovery rates, and disposal costs. The Public Involvement and Education section was blank – but has vital importance. There was some disagreement with the recommendations of a separate “regional water transmission entity” and a repeal of the “local sources first” provision.

Reviewers suggested that the paper could benefit by more attention to:

- Placing more emphasis on the cost and value of public water supply and water resource management, since a primary obstacle to better water supply management in Florida is the fact that the resource is dramatically undervalued
- Critically important details regarding above-ground storage (e.g. high-permeability substrates prone to leakage, engineering and hydrogeologic limitations, large footprints with large environmental consequences)
- The uncertainty from climate change: climate change is mentioned several times but there is little that directly ties strategies to this important risk factor; it may be THE most important uncertainty in water resources management
- Conservation as a more important management strategy: though it's mentioned in another section, this might be the most important factor for a reliable water resources supply strategy.
- High per capita use of public supply likely due to landscape irrigation (50% of public water supply)
- Defining and acknowledging existing forms of Scenario Planning (eg. CERP).
- “integrated water resource planning” needs specific examples of past application with quantitative metrics of success

Considerations for vision and goals:

- The paper implicitly presented water transfers as being inevitable but a lot of scientific and public discussion is required to determine if this will become common in Florida

- The text in the background sections and the bolded, bulleted proposals are somewhat disconnected. The vast majority of the bulleted proposals are related to water supply, leaving out the other facets of “water resource management” that the introduction section emphasized.
- Underscore the importance of public participation and education in the big picture
- Reviewers recommended a definition of “Regional.”
- Expand how sustainability criteria should be included in water resources plans - requires changes in how we think about the future and how we develop and use water. We must forecasting what future residents will want their water environment to look like

Surface Water (comments from 6 reviewers)

Reviewers generally agreed that the paper was incomplete. The paper does not clearly state why it is necessary for the average citizen to understand the importance of tapping surface water by 2030 and why this should be considered an important source compared to groundwater. Most reviewers agree that reference to other factors such as water quality and treatment should be elaborated. Many reviewers felt that ideas were undeveloped or not explained and that many related topics were not considered. There were various technical and editorial errors. While paper mentions two surface storage options (ASR and off-stream reservoirs), no mention is made of agricultural lands as storage opportunities, such as surface and shallow-sub surface storage.

Reviewers suggested that the paper could benefit by more attention to:

- Focusing on adaptive management of surface water to BALANCE competing interests for future sustainable surface water for human use (all types) and the environment
- The interactions of surface water and groundwater
- The Public Involvement and Education section
- Improving storage by increasing capacity of wetlands in upper watersheds

Considerations for vision and goals:

- Clearly state the criticality of surface water for water supply and why traditional sources of water may not be feasible to meet the future demands
- Add a few specific examples of successful surface water programs
- Add a brief discussion of the comparative economics of surface water systems to other sources
- Regulation, policy and short-term and long-term goals appear to confirm what is already being done by various agencies with no new ideas, and comments on barriers or details of policy gaps
- Integrate climate variability factors

Desalination – (comments from 7 reviewers)

Reviewers were generally impressed with the Desalination issue paper indicating that it was well supported and prepared, framed accurately and understandable to the average citizen. No major modifications were suggested, however, specific edits were provided by the reviewers noting a need to define a couple of terms that might not be understandable to average readers, define some acronyms, and provide some specific examples to provide context of typical use of water by a family. They also noted that paper could benefit from better citing of references. A caution was raised to not make it sound as if all the problems are solved and there is not a need for technology research.

Reviewers suggested that the paper could benefit by more attention to:

- more specific beneficial use of byproducts
- realistic challenges of environmental considerations of desalination
- role of sea level rise, salt water intrusion
- location of facility vs. location of water need
- feasibility of desalination for smaller supplies
- perceptions of the average Floridian regarding the quality of water (desal or recycled)
- supply security
- operations & maintenance (O&M) costs and system reliability
- carbon footprint information and likelihood of alternative energy sources in Florida.
- pressure recovery as an example of energy saving

Considerations for vision and goals:

- permitting model - consider changes in applicable statutes to facilitate streamlined permitting
- joint action utilities - need better description of one issue creation of joint action utilities is intended to address. Need to define/identify areas of the state that would benefit from joint action utilities.
- can a feasibility study be done and distributed in 5 year timeframe?
- legislation should realistically moved to 10 year goal

Conservation (comments from 8 reviewers)

Reviewers were complementary of the authors of the Conservation Issues Paper, noting it to be an excellent, comprehensive, and well balanced presentation of conservation opportunities for the State of Florida. Although it was seen to be framed accurately, and well balanced with links to efforts in other states and national programs, it was noted that there was a heavy slant toward urban utilities. Conservation needs to be addressed in all agriculture and industries as conservation in irrigation, industrial, mining would have significant impacts. The emphasis on water supply focused on implementation of BMPs and conservation practices with less consideration of demand and targets that reduce per capita or per acre use consumption. It was recommended that this document be shared with the Conserve Florida Group utility representatives for feedback.

Reviewers suggested that the paper could benefit by more attention to:

- define “conservation” early and clarify if it only means “reducing wasteful use”? who defines “wasteful”
- Consumer demand and provide information on consumption for comparison of Florida consumers in gal per person with rest of nation.
- Define "drought tolerant Florida Friendly landscaping"
- A corrected version of Table 1 is provided by one reviewer
- Quality is important for all sources, not just aquifers
- Check the number on page 3 – current conservation initiatives
- Is conservation sustainable?
- Clarify the consideration of fee –Is there recommended imposed fee in lieu of local utility cost of service? Who administers collection of this fee- how would the fee be determined? – Are utilities or its customers charged for the fee? One reviewer noted that in no uncertain terms, the agriculture industry cannot afford a water use fee.

Considerations for vision and goals:

- Suggest that the top 5-7 of short term goals be identified as researchable goals
- note if any of these recommendations are consistent with the WCI of 2002.
- Mobilize the public and media to embrace the idea of eliminating landscape irrigation with potable water
- incentive programs should be tied to measurable outcomes in conservation to maximize funding effectiveness
- Need to combine “efficient use” with legislation which allows HOA rules to be rewritten. Need legislation to remove HOA lawn requirements for turf and make it easier for existing homes to have water efficient yards.
- Enforcement of local ordinances
- New water efficiency certification programs should provide incentives for the use of innovative technologies which reduce the dependence of ground water sources and the corporation of irrigation decision tools such as soil moisture sensors and tensiometers.
- A statewide licensure program for landscape irrigation contractor and designers that sets a minimum level for technical proficiency as part of milestones.
- Incorporate ways to address Demand not just Supply. Set some targets that reduce per capita or per acre use consumption. Proposa a medium to long-term target to get state per capita domestic/public supply consumption down to XXX gallons per day.
- Public education

Reuse (comments from 8 reviewers)

Reviewers were uniformly disappointed with the Reuse Issue Paper. Although one reviewer noted it was a good start, most commented that it was very brief, did not address the complexity of the issue, provided few examples, and overlooked the wealth of books and papers available on reclaimed water technology and implementation. The paper did not address agricultural use of reclaimed water nor was there any discussion of energy requirements. The reviewers indicated significant rewriting is necessary before this paper is released to the public to address non-experts in the field by providing more detail, definition of acronyms, simplifying the language and providing examples. The paper did not identify short or long term goals. They also noted a need for citing of references.

Reviewers suggested that the paper could benefit by more attention to:

- Developing an argument that reuse is critical to the future of Florida's water supply
- Introducing concept of limited drinking water resources and the need for alternative sources early in the paper
- Explanation and examples to emphasize or clarify various points.
- Clarifying issues regarding "complex membrane processes" and the relationship to quantity and quality of water.
- Examples of successful reuse - cost comparisons for effluent use
- Examples of historical alternatives to reuse and reasons why they should be used
- Improving readability of graphic in the document
- Water quality issues associated with use of reclaimed water not adequately described - Did not discuss nutrients – did not discuss phosphorus
- the cost of reclaimed water
- issues associated with indirect potable reuse

Considerations for vision and goals:

- Need to consider agricultural aspects/issues as noted by specific reviewer comments
- Need to take a close look at potential long term impacts of water quality – what is the link between increasing use of reclaimed water for irrigation and pollution of existing natural systems
- Inefficient and excessive use of reclaimed water for landscape irrigation should be addressed and conservation strategies need to be tied to reclaimed as well as potable
- –The load of nutrients in the reuse water must be addressed along with the application of traditional sources of nutrient in relationship to both reuse water load and volume. *Reviewer provides specific list of issues to be considered.*
- What happens with seasonal need of reclaimed water can be met by available supply?

- Phosphorus issues ignored
- Some disagreed with not requiring irrigation CUP for reclaimed water, noting all water should be conserved

Governance and Funding (comments from 6 reviewers)

Reviews found this paper to be well-written, with the issues well-defined and the background information excellent. However, reviewers were in general critical of the assumption underlying this paper that the current state of Florida water policy to “*ensure that instead of viewing water as a limited resource to be divided up by competing users of the resource, the state will seek to ensure that new supplies of water will be developed so that all users in all parts of the state will have adequate supplies to meet all their needs*” is sound. There was a shared view among reviewers that the state of Florida needs to change its policy to view water as a limited resource, and focus on water allocation among competing users rather than water supply, within an overall context of long-term sustainability. Several reviewers indicated the need for supply and demand to be managed simultaneously so that building infrastructure to meet unregulated growth does not become the focus of Florida water policy. Inclusion of economic and political factors was identified as important, including the idea of focusing on “willingness to pay” for water rather than “need” for water.

There was a difference of opinion among reviewers on whether the paper adequately justified the need for a state-level water entity, what the authority of such an entity should be, and whether such an entity would be more successful than current governance arrangements. Specific reviewers’ comments should be reviewed carefully to understand the diversity of these views. There were also differences of opinions on whether financed water supply facilities should have longer permits or lowered regulatory hurdles.

Reviewers also suggested that the paper could benefit by more attention to:

- Funding mechanisms that don’t divert money from other water management district functions such as resource protection.
- Economic, institutional and political factors affecting water governance and funding
- Water conservation and self-sufficiency of local water supply regions

Utility/District/FDEP Partnerships (comments from 7 reviewers)

Reviewers were generally complementary of the Utility/Water Management District/FDEP Partnership Paper, noting that the issue was presented well, the case was well made for the need for collaborative efforts, the background was clear and a good historical basis for the issue was presented. However two important potential partners were identified as missing from the discussion: local land

use planners and agricultural users. Communication and collaboration with these additional partners will be essential, and reviewers recommended that the paper be revised to include these partners.

Reviewers also suggested that the paper could benefit by more attention to:

- Need to emphasize comprehensiveness, coherence and credibility in addition to consistency, communication and collaboration in developing partnerships
- Need to engage local government and other stakeholders in developing water resource partnerships and goals (one reviewer indicated the approach advocated in this issue paper was too top down)
- Expanding the recommended coordination of data collection for water resource assessment to include data on political climate, economy, desires of society, legal system etc.
- Eliminating the supply-side bias of the paper by incorporating discussion of water allocation, water conservation, demand side options and need for demand forecasting
- Potential environmental impacts of alternative policies, management strategies, water supply infrastructure etc.
- Consider recommending the establishment of a Florida Water Resources Council (broader than just Water Supply) as a separate entity from DEP.
- Focusing short and long term goals to the 3 to 5 things the committee feels are most important rather than presenting a laundry list

Water Allocation and Transfer – (comments from 6 reviewers)

Reviewers were generally critical of the fact that this paper seemed to be framed on a pretext of conflict and an assertion/opinion that water transfers would be necessary. Reviewers were concerned that very few facts and little technical background were presented to justify the need for transfers and absolutely no references were provided. Several reviewers noted that demand management and conservation (for both agriculture and public supply) should have been discussed as alternatives to transfers in this paper. The broad vision articulated in the paper *“The water supply vision of Florida in 2030 and beyond is one in which reasonable water demands are addressed through a combination of growth management policies, water use efficiency, and collaborative regional and inter-regional water supply efforts”* was well received by reviewers but they generally expressed the desired for more details regarding how this vision might be achieved.

Reviewers also suggested that the paper could benefit by more attention to:

- Formatting in a manner consistent with other papers
- Definition of inter- versus intra-regional transfers. As presented the difference is not clear and depends on a subjective definition of region. Perhaps this distinction should be abandoned?

- A discussion of economics, i.e. water as a commodity in a market economy, cost/benefits of water transfers, ability to pay, equity/inequity of water transfers.
- Discussion of disadvantages of supply-side approach versus demand management approach.
- More background information on the SWFWMD water permit transfer program.
- A discussion of how water transfer permits would meet the 3 part statutory test (reasonable and beneficial use; in the public interest; protect existing legal users)
- Consideration that agriculture will be a permanent major land use in the state.
- More detailed goals, with a discussion of methods (with advantages/disadvantages) to achieve them.