

Appendix 3

MIA and Ridge Lakes Stakeholder Outreach Response and Results

Executive Summary

The SWUCA Recovery Strategy Five-Year Assessment for FY2007-2011 determined that additional options above and beyond those identified in the Recovery Strategy would be necessary to achieve recovery of minimum flows and levels (MFL) in the Most Impacted Area (MIA) and the Ridge Lakes area of the SWUCA. At the direction of the Governing Board, District staff conducted stakeholder outreach efforts to identify additional options to achieve recovery.

Four meetings were held in each of the two areas. Participants represented all the major water use groups along with a variety of environmental organizations, state agencies, and other interested parties. Most of the organizations represented at the meetings were also involved in the development of the Recovery Strategy in 2006. Discussions explored the water resource concerns, causes and potential non-regulatory solutions. District staff took the information obtained from these meetings and developed options for the Governing Board's consideration. These options were provided for comment to the stakeholders and various District advisory boards prior to being presented to the Governing Board.

MIA Options

Six options identified by staff to help meet the saltwater intrusion minimum aquifer level goal for the MIA were presented to the Governing Board on February 24, 2015. The six options were:

1. **Continue monitoring**
2. **Update analytical tools**
3. **Promote water conservation initiatives**
4. **Expand FARMS, the District's public/private cost-share program to promote agricultural best management practices, in the MIA**
5. **Expand beneficial reuse**
6. **Explore aquifer recharge/aquifer storage and recovery (ASR)**

Expanding FARMS is a key component because agriculture is the largest groundwater user in the region. The Board voted in support of the first five options and directed staff to gather more information regarding the exploration of aquifer recharge and ASR. At its meeting on April 28, 2015, the Board approved the initiation of rulemaking to increase the District's cost share to 75% for FARMS projects in the MIA for a period of three years to encourage participation in the program.

Ridge Lakes Options

Three options identified by staff to help meet the minimum levels goals in the Ridge Lakes area of SWUCA were presented to the Governing Board on April 28, 2015. The three options were:

1. **Continue monitoring**
2. **Reevaluate established minimum lake levels**
3. **Evaluate available options for individual lakes**

Reevaluating minimum levels on lakes is being done on specific lakes that had MFLs established using older methodology. Management plans will be evaluated for individual lakes rather than relying on a primarily regional approach. The Governing Board supported the three options.

The next SWUCA Recovery Strategy five-year assessment will begin in FY2017.

Background/History

In March 2006, the Governing Board adopted minimum "low" flows for the Upper Peace River, minimum levels for eight lakes along the Lake Wales Ridge in Polk and Highlands counties and a saltwater intrusion minimum aquifer level (SWIMAL) for the Upper Floridan aquifer in the Most Impacted Area (MIA) of the SWUCA. Since most, if not all, of these minimum flows and levels (MFLs) were not meeting their adopted levels and flows, the Board adopted a SWUCA Recovery Strategy (Strategy) and changes to its water use permitting rules to implement the Strategy.

The principle goals of the Recovery Strategy are to:

1. Restore minimum levels to priority lakes in the Ridge area by 2025;
2. Restore minimum flows to the upper Peace River by 2025;
3. Reduce the rate of saltwater intrusion in coastal Hillsborough, Manatee and Sarasota counties (referred to as the MIA) by achieving the proposed minimum aquifer level for saltwater intrusion by 2025; once achieved, future efforts should seek further reductions in the rate of saltwater intrusion and the ultimate stabilization of the saltwater-freshwater interface; and
4. Ensure that there are sufficient water supplies for all existing and projected reasonable/beneficial uses.

The guiding principles approved by the Board for the Recovery Strategy included:

- Contribute significantly to resource management and recovery;
- Protect investments of existing water use permit holders;
- Allow for economic expansion and new economic activities.

The Strategy provides a plan for achieving MFLs by 2025, providing sufficient water supplies for all reasonable-beneficial uses, and protecting investments of existing water use permittees.

At the August 2013 Governing Board meeting, District staff provided an overview of the first five-year assessment of the Recovery Strategy. Though significant progress has been made with respect to the Upper Peace River and water supply goals, there is more work that needs to be done to ensure recovery can be achieved in the MIA and Ridge Lakes areas. As recommended at the meeting, District staff established separate stakeholder groups in each of these areas and conducted a series of meetings over the last year. The purpose of these meetings has been to review the five-year assessment in more detail and to obtain input from the stakeholders on options for achieving recovery goals.

MIA Stakeholder Workgroup

This workgroup involved representatives from a diverse array of stakeholders including representatives of all water use groups (public supply, agriculture, commercial/industrial, mining/dewatering and recreation/aesthetic), along with a variety of environmental organizations and state agencies.

The District has been successful in reducing SWUCA groundwater withdrawals by 50 million gallons per day (mgd), but the aquifer levels remain approximately a foot lower than the goal.

The primary options the Workgroup discussed to achieve the aquifer level goal are to increase water use efficiencies to continue to reduce overall water use (conservation), to implement additional alternative water source projects and/or to recharge the aquifer.

The workgroup discussed four programmatic approaches:

- Conservation
- FARMS (Cost-sharing program to reduce groundwater use and improve water quality)
- Alternative Water Supplies (AWS)
- Aquifer recharge/Aquifer Storage and Recovery (ASR)

Conservation

Conservation was identified by stakeholders as a priority. Much of the discussion on conservation focused on public supply use. Agricultural conservation was covered during the FARMS section.

The District leads the state in its low per capita rates. Within the District, recent reductions in per capita have been most dramatic in the MIA. Since 2002, per capita Districtwide has been reduced by 16 percent, within the SWUCA by 20 percent, and within the MIA by 23 percent.

Some of the stakeholders' recommendations for public supply conservation were to use inclining rate structures, financial incentives/rebates (e.g., to be used for low-flow fixtures, soil moisture sensors, leak detection, irrigation audits), education, outreach and advertising. Many of these tools are already being used by the District and utilities.

FARMS

The District's FARMS program was viewed as an important option to partner with the agricultural community to implement conservation and alternative water source projects. As of September 2014, there were 123 FARMS projects in the SWUCA including 8 FARMS projects in the MIA. At an average cost of \$1.29 per thousand gallons, the expected reduced use as a result of these projects is:

- SWUCA (including MIA): 23.7 mgd
- MIA: 4.5 mgd

FARMS is a voluntary, cost-share program. Stakeholders provided recommendations on how to increase participation in the program, including:

- Increase the District's share of costs
- Allow excavation costs to be eligible for reimbursement
- District pays up front rather than reimburses
- Promote good news stories of FARMS successes to agricultural community
- Recognize farmers with successful FARMS projects
- District shares operation and maintenance costs

Alternative Water Supplies

Stakeholders discussed the use of alternative water sources to reduce demand on the Upper Floridan aquifer. The MIA contains potential sources of alternative water supplies. Available surface water and reclaimed water quantities are shown in the following tables:

Potential surface water sources identified in Regional Water Supply Plan (mgd)

- Alafia River: 18.2
- Flatford Swamp: 10
- Cow Pen Slough: 32.9
- Peace River: 80.4

Reclaimed water

County	Used (mgd)	Additional Available (mgd)
• S. Hillsborough	10.8	7.6
• Manatee	15.4	11.9
• N. Sarasota	8.2	6.6

Some of the stakeholder recommendations on alternative water sources included:

- Expand use of reclaimed water to offset groundwater uses
- Use former mining areas for reservoirs
- Identify potential customers; have large customers help pay for infrastructure

Stakeholders also identified challenges to using reclaimed water, including:

- Contractual prohibitions with agriculture driven by perceived food safety concerns
- Regulatory prohibitions with agriculture driven by perceived food safety concerns
- Local watershed regulations driven by perceived water quality impacts to drinking water supplies
- Public perception
- Lack of infrastructure to deliver water
- Increasing costs of reclaimed water

Aquifer Recharge/Aquifer Storage and Recovery (ASR)

In addition to being used as a substitute source to reduce groundwater withdrawals, the same alternative sources listed above could also provide a benefit through aquifer recharge or aquifer storage and recovery (ASR).

Aquifer recharge puts water into the aquifer and leaves it there for a resource benefit. ASR injects water into the aquifer to store it temporarily until it is retrieved for use (usually from the same well).

Aquifer recharge has significant potential because of its direct impact on water levels. However, significant challenges include treatment costs and permitting. The treatment costs depend on the type and quality of the water being used – reclaimed or surface water – as well as the water quality in the aquifer where the injection would occur.

Injecting water into a zone of the aquifer that contains high quality water may provide the greatest benefit from a water level recovery standpoint but would also dramatically increase the treatment costs and the permitting challenges. Injecting water into a lower water quality zone of the aquifer would cost less and be easier to permit, but may not provide as much lift to aquifer levels in the potable zones. Current projects on which the District is partnering should shed additional light on these issues.

Stakeholder feedback on ASR/Aquifer Recharge:

- Utilities: any capital they spend must be a benefit to customers
- Must be cost-effective
- Need to develop a way to economically treat reclaimed water to drinking water standards

Options

Following a review of District information and stakeholder feedback, a diverse, multi-disciplinary team of District staff developed the following options for the Governing Board to consider to help meet the saltwater intrusion minimum aquifer level goal for the MIA identified in the SWUCA Recovery Strategy by 2025.

1. **Continue monitoring**
Continue to collect data on water levels and quality, rainfall, and groundwater withdrawals to adequately assess the status of aquifer levels and the affects from various factors on those levels.
2. **Update analytical tools**
Continue to refine modeling and other analytical tools to more accurately assess the wells at risk from saltwater intrusion, and the effects of changing water use patterns, rainfall/pumping influences and sea level rise.

3. **Conservation initiatives**

Continue to encourage behaviors and actions that conserve water through speaking engagements, social and news media, advertising and the District’s website, including promoting:

- Florida Water StarSM
- Florida-Friendly LandscapingTM
- Seasonal behaviors/campaigns (“Skip a Week” in winter and “Watch the Weather, Wait to Water” in summer)
- Incentive programs (toilet rebates, etc.)

4. **Expand FARMS in the MIA**

Expand FARMS in the MIA to help achieve the minimum aquifer level through conservation or source substitution, to include:

- Setting a specific FARMS groundwater offset target for the MIA
- Increasing the District’s cost share to 75% for FARMS projects in the MIA
- Increasing recognition of FARMS participants

5. **Expand beneficial reuse**

Increase the use of reclaimed water in the MIA to help achieve the minimum aquifer level by:

- Seeking cost-share projects
- Working with local, state and federal agencies to reduce obstacles to increased use of reclaimed water

6. **Explore aquifer recharge/ASR**

Explore ways to use various water sources to recharge the aquifer including:

- Seeking partners for cost-share projects
- Working with local, state and federal agencies to address permitting issues
- Seeking ways to lower the treatment costs

These options were presented to the Governing Board on February 24, 2015. The Board voted in support of the first five options and directed staff to gather more information regarding the exploration of aquifer recharge and ASR. At its meeting on April 28, 2015, the Board approved the initiation of rulemaking to increase the District’s cost share to 75% for FARMS projects in the MIA through September 30, 2018, to encourage participation in the program.

Ridge Lakes Stakeholder Workgroup

This workgroup involved representatives from a diverse array of stakeholders including representatives of all water use groups (public supply, agriculture, commercial/industrial, mining/dewatering and recreation/aesthetic), along with a variety of environmental organizations and state agencies. The workgroup focused on methods to achieve adopted lake levels in the Ridge Lakes region. Over the past decade, groundwater withdrawals in the SWUCA have declined by about 50 mgd, but long-term levels in several lakes continue to fluctuate below adopted minimum levels.

The primary options the Workgroup discussed to achieve adopted lake levels are increased water use efficiencies to continue to reduce overall water use (conservation), and to implement projects to develop additional alternative water sources and/or to recharge impacted environmental systems.

The workgroup discussed three programmatic approaches:

- Conservation
- Alternative Water Supplies (AWS)
- Management Options

Conservation

Conservation was identified by stakeholders as a priority. With respect to public water supplies, the District leads the state in its low per capita rates. Since 2002, per capita Districtwide has been reduced by 16 percent, within the SWUCA by 20 percent, and within the Ridge Lakes area by 20 percent.

Some of the stakeholders' recommendations for public supply conservation were education, outreach, advertising, and implementing projects to prevent excess drainage of the area. Many of these tools are already being used by the District and utilities.

The District's FARMS program is a voluntary cost-share program that is viewed as an important option to partner with the agricultural community to implement conservation and alternative water source projects. As of September 2014, there were 123 FARMS projects in the SWUCA including 13 FARMS projects in the Ridge Lakes area. At an average cost of \$1.29 per thousand gallons, the expected reduction in water use as a result of these projects is:

- SWUCA (including the Ridge Lakes area): 23.7 mgd
- Ridge Lakes area: 1.2 mgd

Stakeholders provided recommendations on how to increase participation in the program, including:

- Increase the District's share of costs
- Allow excavation costs to be eligible for reimbursement
- District pays up front rather than reimburses
- Promote good news stories of FARMS successes to the agricultural community
- Recognize farmers with successful FARMS projects
- District shares operation and maintenance costs

Alternative Water Supplies

Stakeholders discussed the use of alternative water sources to reduce demand on the Upper Floridan aquifer. Potential surface water and reclaimed water sources for the Ridge Lakes area are shown in the following tables:

Potential surface water sources identified through the Regional Water Supply Plan process (mgd)

- Peace River at Fort Meade: 4.2
- Interconnect with PRMRWSA: 5.1
- Kissimmee River: up to 25*
- Interconnect with TBW (Alafia River): 10

Reclaimed water

County	Used (mgd)	Additional Available (mgd)
• Highlands	0.1	1.2
• Polk	23	6.5

Some of the stakeholder recommendations on alternative water sources included:

- Expand use of reclaimed water to offset groundwater uses
- Keep reclaimed water in the area for recharge
- Identify potential customers; have large customers help pay for infrastructure

*The future availability of water supply from the Kissimmee River will be determined by the SFWMD through the process of establishing a water reservation that is anticipated to be complete in 2015.

Stakeholders also identified challenges to using reclaimed water, including:

- Public perception
- Lack of infrastructure to deliver water
- Increasing costs of reclaimed water

Brackish water

Brackish water desalination from the Lower Floridan aquifer (LFA) is a potential source of future water. The District is currently exploring this potential source as a management option to supplement supplies from the Upper Floridan aquifer and minimize impacts to surface features.

Feedback from stakeholders on this topic included:

- These alternative sources are expensive.
- Cost is not regularly discussed in public meetings and should be emphasized.

Stormwater

The Florida Department of Transportation (FDOT) recently suggested providing/storing stormwater in medians and ponds of new roadways, which could be an option if it is proposed during the early phases of roadway design.

Feedback from stakeholders on this topic included:

- The District should further examine excess drainage flowing out of the Ridge Lakes area and evaluate the potential to use indirect methods (such as RIB systems) to recharge and/or reuse this water.

Management Activities

Several lakes in the Ridge Lakes area are currently not meeting established minimum levels. Because these lakes are distributed throughout the area, it will be difficult to implement a single project to achieve recovery in all the lakes. The result is that separate action plans will likely need to be developed and implemented for each lake or group of lakes. These plans will consist of implementing combinations of different management activities that achieve a reduction in impact and/or provide additional water to the lake. The types of activities discussed included: relocating and/or deepening existing, nearby withdrawals that adversely affect the lake(s); replacing groundwater withdrawals with an alternative water supply; and, providing recharge either directly or indirectly to augment the lake(s).

Feedback from stakeholders included:

- Reclaimed water should be used for recharge versus irrigation
- Excess surface water drainage should be maintained in the area and recharged where possible.

Options

Following a review of District information and stakeholder feedback, a diverse, multi-disciplinary team of District staff developed the following options for the Governing Board to consider to help meet established minimum lake levels identified in the SWUCA Recovery Strategy by 2025. Two key components include reevaluating minimum levels on lakes that were set using older methodology to ensure the targets were appropriate, and looking at management plans for individual lakes rather than relying on a primarily regional approach. The three options were:

1. **Continue monitoring**
 - a. Continue to collect data on water levels and quality, rainfall, and groundwater withdrawals to adequately assess the status of lake levels and the affects from various factors on those levels.

2. **Re-evaluate established minimum lake levels**
 - a. Re-evaluate established minimum levels on key lakes to ensure most updated methods are incorporated into the established levels. This will ensure the best available information is used prior to implementing recovery projects.
3. **Evaluate available options for individual lakes**
 - a. Reduction of groundwater withdrawals
 - i. Continue to encourage conservation through financial incentive programs, education and outreach, including promoting:
 1. Incentive programs (toilet rebates, etc.)
 2. Expansion of FARMS in the Ridge Lakes
 3. Florida Water StarSM
 4. Florida-Friendly LandscapingTM
 5. Seasonal behaviors/campaigns (“Skip a Week” in winter and “Watch the Weather, Wait to Water” in summer)
 - ii. Increase the use of reclaimed water and other alternative sources in the Ridge Lakes area to help achieve minimum lake levels by:
 1. Seeking cost-share projects
 2. Working with appropriate agencies to reduce obstacles to increased use of reclaimed water
 - b. Relocation of groundwater withdrawal points and/or deepening of these points.
 - c. Direct or indirect augmentation
 - i. Seeking partners for cost-share projects
 - ii. Working with local, state and federal agencies to address permitting issues
 - iii. Seeking ways to lower the treatment costs

These options were presented to the Governing Board at its April 28, 2015 meeting. The Board supported this approach.