

Section 1 – Executive Summary

1.1. Summary of Water Supply Options

A variety of water supply options were reviewed in detail by City staff for the possible development of an independent water supply. Additional water supply options exist that may be feasible in other locations or other conditions and these are discussed briefly in Section 2.2 of this report. The following 7 options were reviewed in this study:

- FWG = Freshwater ground; minimal treatment, no salt removal
- FBS = Freshwater brackish surface; some salt removal (250 mg/L - 3,000 mg/L Cl⁻)
- FBG = Freshwater brackish groundwater; some salt removal (250 mg/L - 3,000 mg/L Cl⁻)
- BWS = Brackish Water Surface; moderate salt removal required (3,000 mg/L to 10,000 mg/L Cl⁻)
- BWG = Brackish Water Ground; moderate salt removal required (3,000 mg/L to 10,000 mg/L Cl⁻)
- DS = Desalination Surface Water; high salt removal required (>10,000 mg/L Cl⁻)
- DG = Desalination Groundwater; high salt removal required (>10,000 mg/L Cl⁻), i.e. the use of deep wells for raw water supply

1.2. Narrative of Recommended Water Supply Plan

This recommended plan prioritizes water sources on the most cost effective basis. This results in fresh groundwater resources, followed by the sequential addition of slightly brackish groundwater, then followed by more brackish groundwater, as needed, for the required capacity.

The following table summarizes the recommended water supply plan for the City of Tarpon Springs.

Table 1-1 Summary of Recommended Water Supply Plan

Water Supply Source	Phase	Average Daily Capacity (mgd)	Cumulative Average Daily Capacity (mgd)	Estimated Implementation Date
Current Freshwater Wells 1 – 3	I	0.73	0.73	March 2004
Disston Avenue Freshwater Wells 5B, 5D	I	0.43	1.16	July 2004
Additional Disston Avenue Freshwater Well 5A*	I	0.21	1.37	December 2004
Slightly Brackish Wells/RO Plant	II	5.00	6.37	January 2009
Additional Brackish Wells/RO Plant Expansion	III	3.00	9.37	TBD

Note: Actual sustained pumping rates of freshwater wells may be less than projected taking into account any required reduced pumping for wellfield management measures during the dry season.

*Well 5A dependent on capacity determined from testing.

Current City water supply demand is a peak flow of 4.5 mgd with an average annual daily demand of 3.3 mgd. Phase I, when complete, will provide 1.37 mgd of average daily capacity. Factoring in seasonal variations in fresh groundwater production, approximately 25% of the City's demand can be met with Phase I. An additional 5.0 mgd of supply would provide the additional water needed to meet the City's current and future demand and would provide approximately an additional 1.5 mgd of surplus water. Each of the recommended Phases of the plan is detailed below.

Phase I of the recommended plan includes the careful development of freshwater resources within the City. The first portion of Phase I includes the conversion of existing production wells to a chloramines disinfection process which will be compatible with water currently supplied by Pinellas County Utilities. This is currently underway and will be completed within the next several months. Also in Phase I is the final permitting and completion of existing inactive freshwater wells 5A, 5B and 5D, which are adjacent to Disston Avenue, for connection to the distribution system. Preliminary testing of wells 5B and 5D indicates useful capacity and water quality that meets drinking water standards. Only well 5C showed water quality that would require significant additional treatment. Well 5A presents a potential opportunity for lower cost water and it is recommended to be pursued as a priority over 5C at this time. As part of the development plan for these wells, a treatment system will be designed to address any outstanding water quality issues. The final portion of Phase I includes the testing of well 5A to determine flow and pumping capacities, and the reallocation of permit withdrawal limits from well 5C to 5A. It is estimated that Phase I can provide up to 1.3 mgd of capacity.

Phase II includes the development of brackish groundwater and treatment using an advanced treatment facility. Estimated capacity for Phase II is 5.0 mgd of finished water. A total of approximately 31 wells will be required taking into account dry season pumping reductions and individual capacity estimates of 0.29 mgd per well. Approximately 2.0 mgd of advanced treatment concentrate would be produced and the recommended disposal option would be to a surface water discharge. The blended product would not be significantly different than the receiving waters at the discharge point after dilution and mixing. The preliminary recommendation would be to site the wellfields and the treatment facility on the north side of the Anclote River due to property availability. A test well program is recommended to confirm the suitability of groundwater in this area. The completion of Phase II would supply sufficient water for the City's needs, and provide up to approximately 1.5 mgd available for possible sale to other water suppliers.

Phase III includes the development of additional brackish groundwater (between 3,000 mg/L and 10,000 mg/L Cl⁻) and advanced treatment. The proposed capacity for Phase III is 3.0 mgd of finished water. A total of approximately 18 wells will be required, taking into account dry season pumping reductions and individual capacity estimates of 0.29 mgd per well. Approximately 2.0 mgd of additional advanced treatment concentrate would be produced and this would be disposed of via the same option as Phase II. The ultimate capacity of this option would be based on the amount of well capacity available in addition to Phase II. A test well program is recommended to confirm the suitability of well locations.

1.3. Economic Comparison of Current Water Supply Plan and Proposed Plan

Burton & Associates was asked to conduct an assessment of the financial impact of various new water supply options (the Analysis) to the City's Water and Wastewater Utility (the Utility). This executive summary provides a brief description of the methods, results, and conclusions of the Analysis.

The primary objectives of the Analysis were as follows:

- Model the financial performance and impact of a new water treatment plant on the existing water system and rate base of the Utility, and
- To assess the ability of the Utility to absorb these net impacts within currently adopted or recommended future rate plans.

Burton and Associates conducted the Analysis by use of interactive work sessions with City staff utilizing their proprietary Financial Analysis and Management System (FAMS XL©). FAMS XL© models the financial performance of a utility as closely as possible to the way that the financial dynamics will actually occur. Based upon the rules of cash application defined specifically to conform to the City's policies, FAMS XL© evaluates the sufficiency of projected rate revenues during the forecast period and determines the level of rate revenue increase required if revenues are insufficient.

Because FAMS XL© simulates the full financial dynamics of a utility, taking into account all revenues and full operating and non-operating expenses, it is ideal for providing estimates of the impacts on a utility from changes in other revenues and costs while holding an adopted or desired rate plan constant. Thus, FAMS XL© was used to test the impacts of alternative new water supply options upon key financial parameters of the Utility. These parameters include incremental operating and maintenance costs, wholesale water sales, debt service coverage, minimum working capital reserve fund balances, and additional new debt required to fund capital projects.

The following major system and financial assumptions were used within FAMS XL© for the Analysis:

- The Utilities' existing rate plan includes an 8.85% annual rate increases through 2007, declining to a recommended automatic inflationary increase of 3% annually through 2013.
- Utility customer growth is expected at 1.2% annually beginning in FY 2004, with growth declining slightly to 0.9% annually in FY 2008.
- At a minimum, Pinellas County purchased water rate of \$2.09 in FY 2004 is expected to escalate 10% annually through 2009. All other operating and maintenance costs are expected to increase 5.25% annually through 2013.
- Current system average demand is approximately 3.3 mgd, increasing to 3.6 mgd by 2013.
- Average output from existing and planned fresh water wells is expected to reach 0.9 mgd by 2005.

- A new water treatment plant could be completed by January 2009, with construction beginning in 2004.
- Any excess water production above current and future demand is sold to a 3rd party under a wholesale water supply contract.

An analysis was conducted by Burton and Associates along with Duane Draper, the City's bond counsel, and David Moore, the City's financial advisor. This analysis illustrated that the Utility can accommodate a new water treatment plant at or above its current system demand within the currently adopted rate structure, except in FY 2008 a 6.0% rate increase will need to be implemented instead of the anticipated 3.0% CPI rate increase:

- A referendum in the fall of 2004 is approved for land acquisition agreements as well as a bond referendum and approval of any long term leases that may be necessary.
- Issuance of a bond anticipation note (BAN) or line of credit in the spring or early summer of 2005. The water and sewer rate revenue will be sufficient to cover the interest payments, however, the financial institution may require a covenant to budget and appropriate in the general fund as additional security for the BAN. This will be a short term situation which will span a period of approximately 12 to 15 months.
- The interim finance plan will be in place until late 2006, when bonds will be issued.
- Any excess water production would need to be sold to a 3rd party under a wholesale water supply agreement.
- The wholesale water supply agreement should be based on the requirement that all excess water above and beyond that needed by the City be purchased.
- The Utility can reasonably be expected to provide a transfer of money to the General Fund beginning in FY 2010 for reimbursement of administrative costs with the construction of a 5.0 mgd facility (per Phase II).

1.4. Permitting Considerations

Water Use Permitting- SWFWMD – All Phases involve the use of groundwater supply. As such, the water use permitting through the SWFWMD will be the primary permitting effort. The primary items that will require demonstration to the SWFWMD are that the proposed use is (1) beneficial to the public; (2) the proposed withdrawals will not adversely affect the environment (i.e. wetlands, surface water, or aquifer impacts); and, (3) the proposed withdrawals will not affect existing groundwater users (if required, this can be overcome through mitigation for individual well users).

Advanced Treatment Concentrate Disposal - With Phases II and III, the disposal of any advanced treatment concentrate will require an extensive permitting effort. Recent information indicates that a surface water discharge permit may be more simplified now than in the past due to advanced treatment concentrate being recognized legislatively as being different than other industrial discharges, the increasing need to support alternative water supplies and the alternative options available to provide adequate blending. Surface water discharge is a feasible disposal alternative at this time.

The other disposal options include: (1) blending the concentrate with wastewater treatment plant effluent; or, (2) deep well injection. Simple blending with wastewater does not appear to be feasible because of the relatively low discharge (diluting) volume from the WWTP.

Deep well injection would require successful demonstration in northern Pinellas County before the FDEP will permit a Class I injection well construction permit.

1.5 Timeline and Critical Path Items

Estimated timelines for Phases I and II are provided in Figures 1-3 and 1-4 respectively. The timeline includes parallel completion of both phases. To achieve the estimated schedules, critical path items will need to be completed as indicated. The schedules do not account for unanticipated delays associated with permitting issues or other workload demands of the four staff members working on this project.

Some time-intensive items that can be accomplished simultaneously include:

- Preliminary discussions and meetings with regulatory agencies regarding permitting approaches and requirements
- Review of any applicable grants or low-interest financing programs available
- Preparations and development of a financing program including the use of bonds and/or bank notes
- Phase I design, permitting, and construction
- Referendum requirements for land acquisition for treatment facility, well sites and transmission pipelines
- Referendum requirements for issuance of bonds and approval of any long term leases that may be necessary
- Negotiations for outfall easements and agreements
- Negotiations with Tampa Bay Water on water purchase arrangements / agreement

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FIGURE 1-4. PHASE II - SLIGHTLY BRACKISH SUPPLY - 5 mgd; Assuming Funding Schedules; Tentative Schedule

