

Reverse Osmosis Water Treatment Plant Preliminary Engineering Report & Rate Study

Community Meeting

Town of Belleair
November 5, 2020



AGENDA

- Introduction & Background Discussion
 - Preliminary Engineering Report Summary
 - Rate Study Summary
 - Address community comments/questions
-

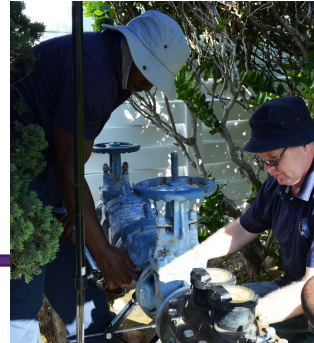
QR CODE FOR DETAIL



- Executive Summary and Preliminary Engineering Report Draft
- Rate Study Executive Summary and Report Draft
- <https://belleairfl.legistar.com/>
- Townofbelleair.com/RO

BRIEF OVERVIEW OF CURRENT WATER SYSTEM

- Wellfield of 6 operating wells
- Generates, treats and distributes over 290,000,000 gallons of water annually. 700,000 to 1.3 million gallons daily
- Permitted plant capacity is 2.2 million gallons per day
- Distribution system consists of over 36 miles of water pipe. 4.5 miles of galvanized pipe.
- Provide service to 1544 billing customers, over 4,000 people.
- Current process is aeration, filtration and chlorine disinfection
- Current recurring revenue is \$1.6 million
- Operating with a staff of 10.5 FTE



LONG TERM WATER SUPPLY CONCERNS

- Accelerated increases in chlorides and total dissolved solids (TDS) concentrations in the town's wellfield will outpace our ability to treat or "filter" these TDS out.
 - The Town's existing water treatment plant (WTP) technology was not intended for and is not effective in removing chlorides
 - The Town is currently evaluating alternatives for long-term water supply, including continued use of the existing wellfield with modifications to the treatment plant to address removal of chlorides through membrane treatment
 - Other options for long-term water supply involve decommissioning the existing WTP and becoming a retail purchaser from Pinellas County
-

SECONDARY STANDARDS

EPA Established National Primary Drinking Water Regulations that set mandatory standards for contaminants. These Maximum Contaminant Levels (MCLs) are to protect against contaminants that present a risk to human health

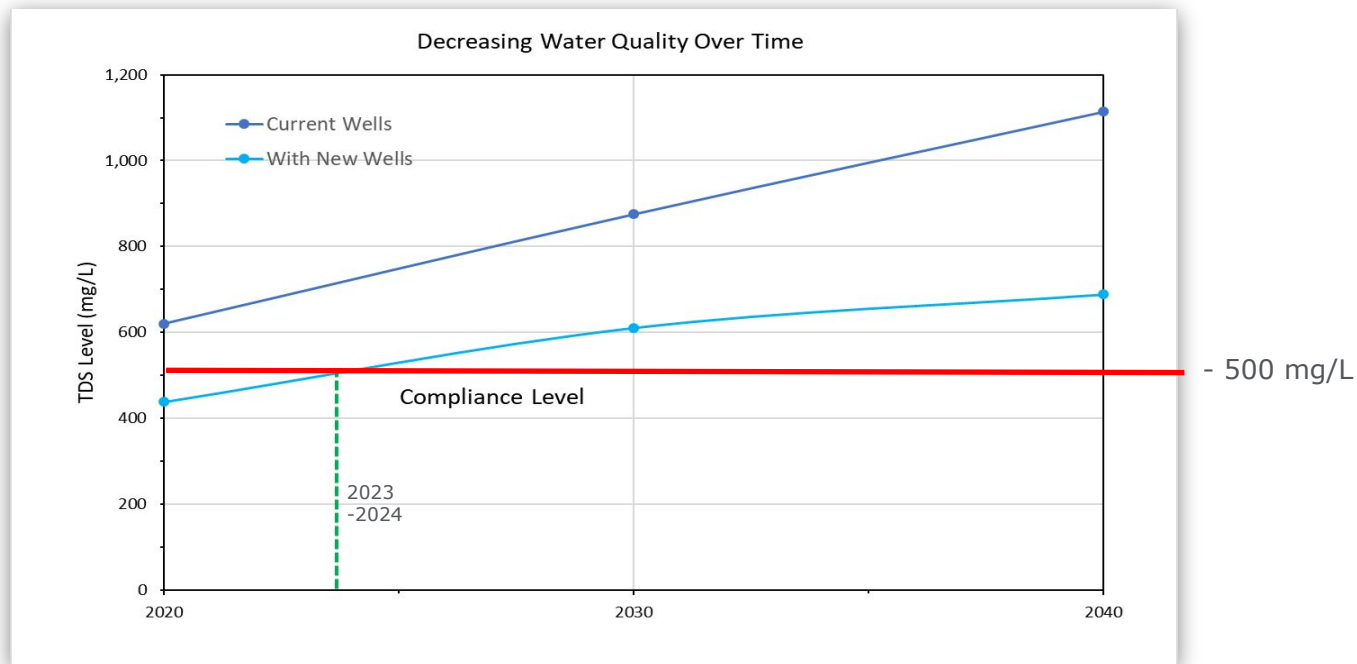
Secondary standards or SMCLS, set non-mandatory water quality standards for 15 contaminants in drinking water for aesthetic considerations, such as taste, color, and odor. These contaminants are not considered to present a risk to human health at the SMCL

These contaminants may cause the water to appear cloudy or colored, or to taste or smell bad. This may cause a great number of people to stop using water from their public water system even though the water is actually safe to drink

SMCL concerns for Town:

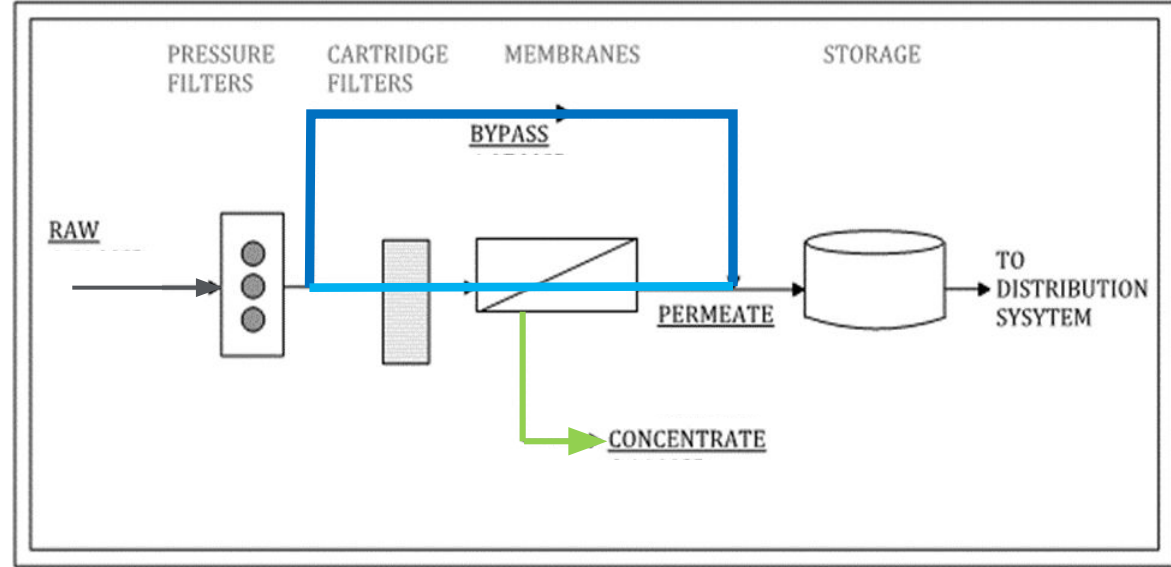
- **Chloride; 250 mg/L, salty taste**
 - **Total Dissolved Solids (TDS); 500 mg/L, hardness; deposits; colored water; staining; salty taste**
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REGULATIONS AND WATER QUALITY

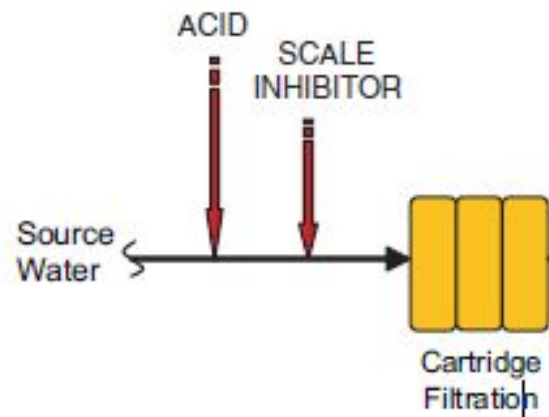


RO PLANT PRELIMINARY ENGINEERING REPORT OVERVIEW AND PROCESS

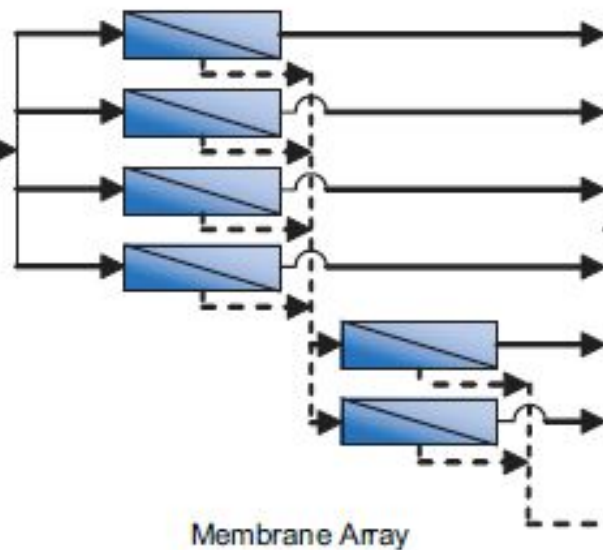
- Well Evaluations
- Groundwater Supply Needs
- Proposed RO Plant
- Pilot Testing
- Staffing Needs



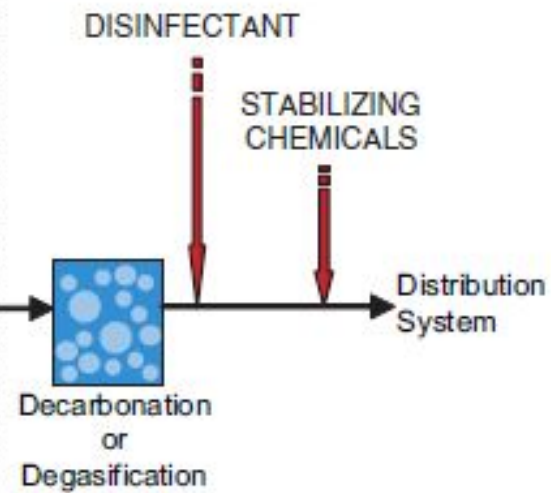
Pretreatment

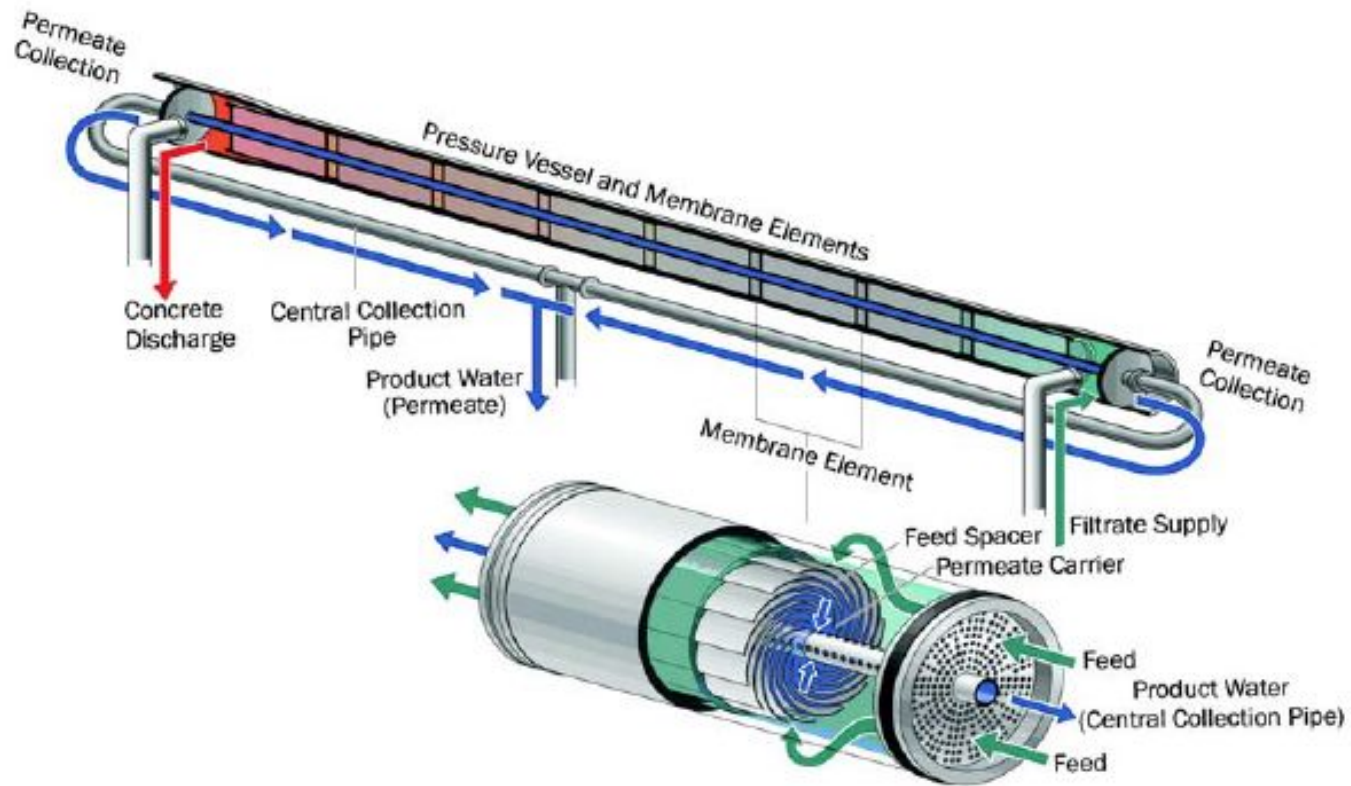


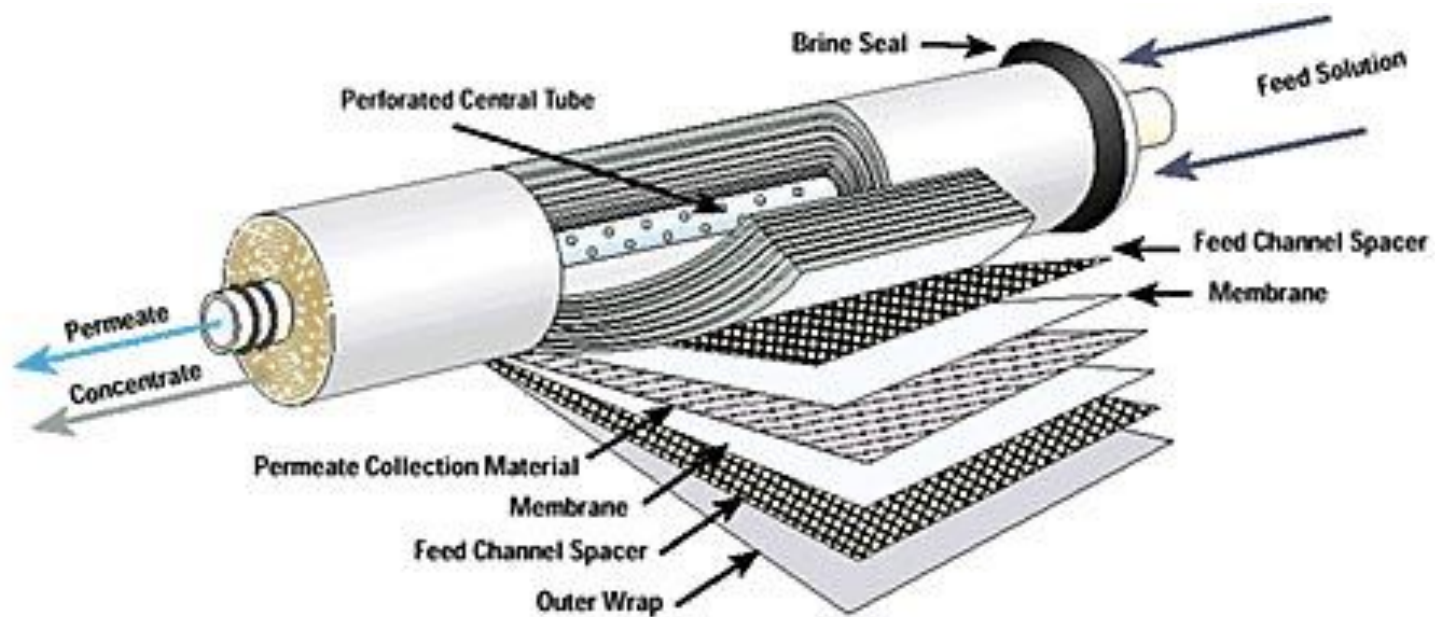
Membrane Process



Posttreatment







PROPOSED RO PLANT CAPITAL COSTS

Item	Cost
Mobilization/Demobilization	\$175,000
Sitework & Demolition	\$325,000
Booster Pump Station	\$142,000
Pressurized Filters and Backwash Holding Tank	\$969,000
Chemical Building	\$84,000
Chemical Systems	\$362,000
RO System	\$1,044,000
RO Building	\$434,000
High Service Pump Station	\$338,000
Deep Injection Well	\$750,000
Yard Piping	\$500,000
Electrical	\$738,000
Instrumentation	\$554,000
Upper Floridian Wells (4) and Well Rehabilitation	\$1,450,000
Total Construction Cost	\$7,865,000
Contingency (30%)	\$2,360,000
Sub Total	\$10,225,000
Engineering - Design and Legal (15%)	\$1,534,000
TOTAL PROJECT COST	\$11,759,000

PHASED IMPLEMENTATION PLAN

Phase / Description of Major Systems	Approximate Implementation Year	Project Cost
Phase 1		
1) Clearwell Roof Rehabilitation	2024	\$10,378,000
2) Additional Well		
3) Deep Injection Well		
4) Booster Pump Station		
5) Filtration System		
6) Chemical Systems		
7) Yard Piping		
8) RO System		
9) RO Building		
10) Additional Chemical Systems		
Phase 2		
1) RO System Addition	2034	\$2,282,000
2) RO Building Addition		
3) New High Service Pump Station		
4) Yard Piping		
TOTAL COST WITH PHASED IMPLEMENTATION		\$12,660,000

COST SUMMARY AND ANNUAL O&M COSTS

Approach	Total Capital Cost ¹
Alternative 1 - All-At-Once	\$11,759,000
Alternative 2 - Two (2) Separate Phases	\$12,660,000

1. Based on 2020 construction costs

Item	Cost
Power¹	\$74,000
Chemicals	\$146,000
RO System – Cartridge Filters	\$10,000
RO System – Membrane Replacement	\$10,000
Major Equipment Replacement	\$140,000
TOTAL ANNUAL COST	\$380,000

1. Based on power cost of \$0.1025/KW-hr

SUMMARY & PRELIMINARY RECOMMENDATIONS

Suggest that Town make a decision on RO plant by end of 2020.

If yes:

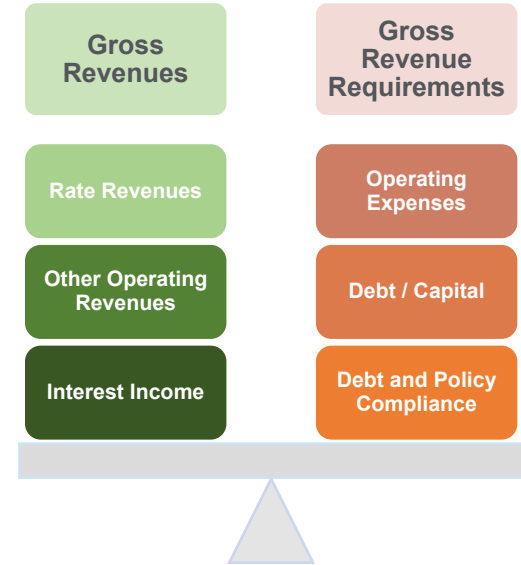
- Town should plan on having RO System online by the 1st quarter of 2024
 - Design, procurement, and construction process estimated for around 30 months
 - Begin Design/Construction of RO Plant by the beginning of the 2nd quarter (2021)
 - Begin Pilot Study to optimize design and identify potential cost savings
-

RATE STUDY AGENDA

- Rate Study Overview and Process
 - Rate Study Assumptions
 - Rate Study Preliminary Results
 - Rate Comparisons with Other Utilities
 - Rate Comparisons with Pinellas County
-

RATE STUDY OVERVIEW AND PROCESS

- Develop a Financial Forecast through fiscal year 2035
 - Original Forecast Period through fiscal year 2025
- Estimate revenue requirements to be recovered from water rates
- Identify need for rate adjustments through the study period
- Forecast based on data including:
 - Customer billing reports
 - Historical operating results
 - Fiscal year 2020 budget
 - Updated Preliminary Engineering Report (PER)
 - Town CAFR and trial balances
 - Discussions with Town staff



RATE STUDY ASSUMPTIONS

- Minimal customer growth for the system
 - Units associated with Belleview Place
- Operating expense growth rate of approximately 6.0% per year from Fiscal Years 2020 Through 2035
 - Includes cost escalation for inflation, merit and cost of living adjustments, additional personnel, etc.
 - Includes increased net operating expenses associated with operation of the RO treatment plant
- Assumes issuance of two low-interest State Revolving Fund (SRF) loans to fund capital plan
 - 20-year loans at 2.0% interest rate
 - Debt service payments not made until after completion of the project
 - Requires minimum debt service coverage ratio of 115%

RATE STUDY PRELIMINARY RESULTS – IDENTIFIED RATE ADJUSTMENTS

	2021	2022-2024	2025-2035
Two Phases	0.00%	13.25%	3.75%
All-At-Once	0.00%	16.00%	3.00%

- Rate Adjustments Identified to:
 - Fund increased cost of operations
 - Pay annual debt service payments associated with funding projects identified in the PER
 - Maintain debt service coverage ratios required for compliance with proposed SRF loans
 - Maintain adequate operating and capital reserves

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CURRENT RATE COMPARISONS WITH OTHER UTILITIES

Comparison of Monthly Charges for Residential Water Service for Customers Using 10,000 Gallons per Month

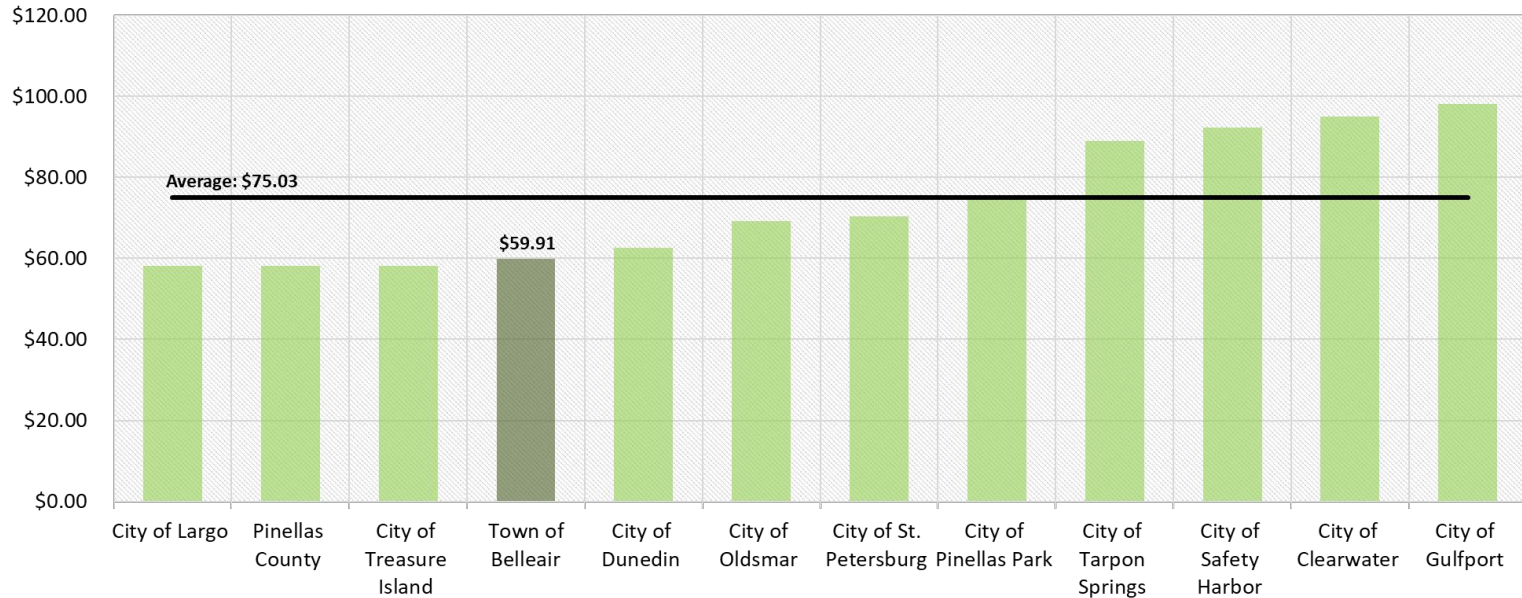


Table 6

**Town of Belleair, Florida
Water Revenue Sufficiency Study**

Comparison of Typical Monthly Residential Bills for Water Service[*]

Line No.	Description	Residential Service for a 5/8" or 3/4" Meter										
		0 Gallons	2,000 Gallons	4,000 Gallons	5,000 Gallons	7,000 Gallons	10,000 Gallons	15,000 Gallons	20,000 Gallons	50,000 Gallons	75,000 Gallons	100,000 Gallons
1	Town of Belleair Existing Rates	\$12.99	\$16.89	\$20.79	\$27.31	\$40.35	\$59.91	\$92.51	\$125.11	\$353.21	\$548.71	\$744.21
2	Surveyed Florida Utilities:											
3	City of Clearwater	\$24.09	\$24.09	\$33.85	\$43.61	\$63.13	\$94.96	\$156.51	\$218.06	\$587.36	\$895.11	\$1,202.86
4	City of Dunedin	7.47	16.29	25.11	29.52	42.76	62.62	95.72	128.82	427.32	676.07	924.82
5	City of Gulfport	16.93	16.93	34.98	44.56	66.00	98.16	157.36	222.21	611.31	935.56	1,259.81
6	City of Largo	6.80	17.06	27.32	32.45	42.71	58.10	83.75	109.40	263.30	391.55	519.80
7	City of Oldsmar	13.79	19.94	32.24	38.39	50.69	69.14	110.39	163.89	484.89	752.39	1,019.89
8	Pinellas County	6.80	17.06	27.32	32.45	42.71	58.10	83.75	109.40	263.30	391.55	519.80
9	City of Pinellas Park	22.08	22.08	29.44	36.80	51.52	74.46	115.46	159.85	431.35	657.60	883.85
10	City of Safety Harbor	22.81	30.11	37.41	41.06	59.30	92.37	195.02	297.67	1,187.17	1,928.42	2,669.67
11	City of St. Petersburg	13.18	22.70	32.22	36.98	48.19	70.42	111.07	164.77	809.17	1,346.17	1,883.17
12	City of Tarpon Springs	23.24	32.00	40.75	45.13	62.64	88.90	143.72	212.35	828.34	1,362.13	1,895.91
13	City of Treasure Island	6.80	17.06	27.32	32.45	42.71	58.10	83.75	109.40	263.30	391.55	519.80
14	Surveyed Florida Utilities' Average	\$14.91	\$21.39	\$31.63	\$37.58	\$52.03	\$75.03	\$121.50	\$172.35	\$559.71	\$884.37	\$1,209.03
15	Minimum	6.80	16.29	25.11	29.52	42.71	58.10	83.75	109.40	263.30	391.55	519.80
16	Maximum	24.09	32.00	40.75	45.13	66.00	98.16	195.02	297.67	1,187.17	1,928.42	2,669.67

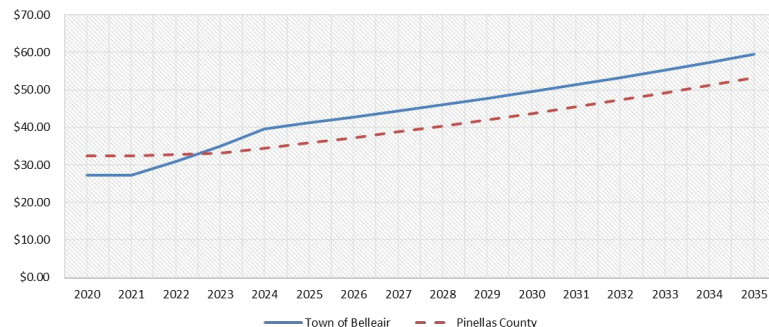
Footnotes:

[*] Unless otherwise noted, amounts shown reflect residential rates in effect October 2020 and are exclusive of taxes, franchise fees or water restriction surcharges, if any, and reflect rates charged for inside the city service. All rates are as reported by the respective utility. This comparison is intended to show comparable charges for similar service for comparison purposes only and is not intended to be a complete listing of all rates and charges offered by each listed utility.

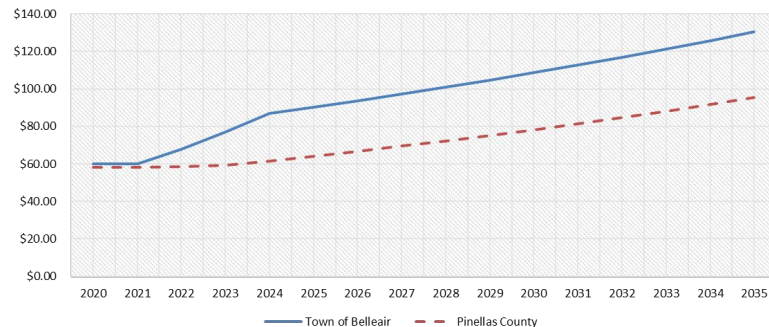
RATE COMPARISONS WITH PINELLAS COUNTY

- Assumes Identified Rate Increases from Preliminary Results for Town
- Pinellas County Assumed Rate Adjustments:
 - County did not implement retail water rate adjustments for fiscal year 2021
 - 1.0% per year for fiscal years 2022 – 2023
 - 4.0% per year thereafter
- Assumes Town Would be Retail Customer of the County
- Does Not Consider Potential for:
 - Sale of Town water distribution line assets
 - Payment of impact fees to the County
 - Costs that may still be incurred by Town

Residential Bill Comparison at 5,000 Gallons



Residential Bill Comparison at 10,000 Gallons



Comparison of Typical Monthly Residential Bills for Water Service to Pinellas County - All at Once Scenario

Line No.	Description	Residential Service for a 5/8" or 3/4" Meter										
		0 Gallons	2,000 Gallons	4,000 Gallons	5,000 Gallons	7,000 Gallons	10,000 Gallons	15,000 Gallons	20,000 Gallons	50,000 Gallons	75,000 Gallons	100,000 Gallons
Town of Belleair												
1	2020	\$12.99	\$16.89	\$20.79	\$27.31	\$40.35	\$59.91	\$92.51	\$125.11	\$353.21	\$548.71	\$744.21
2	2021	12.99	16.89	20.79	27.31	40.35	59.91	92.51	125.11	353.21	548.71	744.21
3	2022	15.07	19.59	24.11	31.67	46.79	69.47	107.27	145.07	409.62	636.37	863.12
4	2023	17.48	22.72	27.96	36.73	54.27	80.58	124.43	168.28	475.13	738.13	1,001.13
5	2024	20.28	26.36	32.44	42.61	62.95	93.46	144.31	195.16	551.01	856.01	1,161.01
6	2025	20.89	27.15	33.41	43.89	64.85	96.29	148.69	201.09	567.74	881.99	1,196.24
7	2026	21.52	27.96	34.40	45.19	66.77	99.14	153.09	207.04	584.74	908.49	1,232.24
8	2027	22.17	28.81	35.45	46.56	68.78	102.11	157.66	213.21	602.26	935.76	1,269.26
9	2028	22.84	29.68	36.52	47.96	70.84	105.16	162.36	219.56	620.26	963.76	1,307.26
10	2029	23.53	30.57	37.61	49.39	72.95	108.29	167.19	226.09	638.74	992.49	1,346.24
11	2030	24.24	31.50	38.76	50.89	75.15	111.54	172.19	232.84	657.74	1,021.99	1,386.24
12	2031	24.97	32.45	39.93	52.42	77.40	114.87	177.32	239.77	677.47	1,052.72	1,427.97
13	2032	25.72	33.42	41.12	53.98	79.70	118.28	182.58	246.88	697.68	1,084.18	1,470.68
14	2033	26.49	34.43	42.37	55.62	82.12	121.87	188.12	254.37	718.62	1,116.62	1,514.62
15	2034	27.28	35.46	43.64	57.29	84.59	125.54	193.79	262.04	740.29	1,150.29	1,560.29
16	2035	28.10	36.52	44.94	59.00	87.12	129.30	199.60	269.90	762.45	1,184.70	1,606.95
Pinellas County												
17	2020	\$6.80	\$17.06	\$27.32	\$32.45	\$42.71	\$58.10	\$83.75	\$109.40	\$263.30	\$391.55	\$519.80
18	2021	6.80	17.06	27.32	32.45	42.71	58.10	83.75	109.40	263.30	391.55	519.80
19	2022	6.87	17.23	27.59	32.77	43.13	58.67	84.57	110.47	265.87	395.37	524.87
20	2023	6.94	17.40	27.86	33.09	43.55	59.24	85.39	111.54	268.44	399.19	529.94
21	2024	7.22	18.10	28.98	34.42	45.30	61.62	88.82	116.02	279.22	415.22	551.22
22	2025	7.51	18.83	30.15	35.81	47.13	64.11	92.41	120.71	290.51	432.01	573.51
23	2026	7.81	19.59	31.37	37.26	49.04	66.71	96.16	125.61	302.31	449.56	596.81
24	2027	8.12	20.38	32.64	38.77	51.03	69.42	100.07	130.72	314.62	467.87	621.12
25	2028	8.44	21.20	33.96	40.34	53.10	72.24	104.14	136.04	327.44	486.94	646.44
26	2029	8.78	22.06	35.34	41.98	55.26	75.18	108.38	141.58	340.78	506.78	672.78
27	2030	9.13	22.95	36.77	43.68	57.50	78.23	112.78	147.33	354.63	527.38	700.13
28	2031	9.50	23.88	38.26	45.45	59.83	81.40	117.35	153.30	369.00	548.75	728.50
29	2032	9.88	24.84	39.80	47.28	62.24	84.68	122.08	159.48	383.88	570.88	757.88
30	2033	10.28	25.84	41.40	49.18	64.74	88.08	126.98	165.88	399.28	593.78	788.28
31	2034	10.69	26.87	43.05	51.14	67.32	91.59	132.04	172.49	415.19	617.44	819.69
32	2035	11.12	27.94	44.76	53.17	69.99	95.22	137.27	179.32	431.62	641.87	852.12

COMPARISON OF FUTURE BILLING - RO ALL AT ONCE VERSUS PC RETAIL						
		<u>2020</u>	<u>2023</u>	<u>2027</u>	<u>2030</u>	<u>2035</u>
BELLEAIR	5 TGAL	\$27.31	\$36.73	\$46.56	\$50.89	\$59.00
	10 TGAL	59.91	80.58	102.11	111.54	129.30
	20 TGAL	125.11	168.28	213.21	232.84	269.90
PINELLAS	5 TGAL	\$32.45	\$33.09	\$38.77	\$43.68	\$53.17
	10 TGAL	58.10	59.24	69.42	78.23	95.22
	20 TGAL	109.40	111.54	130.72	147.33	179.32



901 PONCE DE LEON BOULEVARD, BELLEAIR, FL 33756

CALL US: (727) 588-3769 | VISIT US ONLINE: WWW.TOWNOFBELLEAIR.COM

☐ Check here if you have had a mailing address change and indicate this change on the back of the stub.



Account Number: 01536-00 Web ID: 19295
Service Address: 901 PONCE DE LEON
Billing Date: 10/30/2020
Current Charges Due By: 11/30/2020 480. 83
Previous Charges Due By: 10/30/2020 8, 270. 15
Total Due: 8, 750. 98

Office Use:

Please make checks payable to:

TOWN OF BELLEAIR
901 PONCE DE LEON BLVD
BELLEAIR FL 33756

Town Of Belleair
901 Ponce De Leon Blvd
Belleair, FL 33756-1096

PLEASE DETACH AND RETURN TOP PORTION WITH YOUR PAYMENT

Account Number: 01536-00 Web ID: 19295
Service Address: 901 PONCE DE LEON
Last Payment: 06/21/2019 469. 33
Billing Date: 10/30/2020

TOWN OF BELLEAIR
901 PONCE DE LEON BLVD
BELLEAIR FL 33756

Account	Current Read	Previous Read	Usage
01536-00	10/15/2020 654000	09/15/2020 626000	28000
		TOTAL	28000

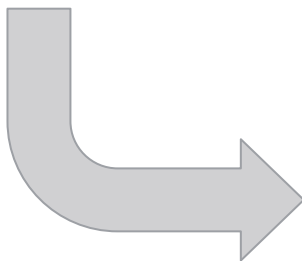
IMPORTANT MESSAGES

****ANNUAL WATER QUALITY REPORT****

In 2019, the Town of Belleair Water Department detected 13 contaminants in the drinking water and 0 of them are above the EPA accepted level for drinking water. Place the below address in your address bar: www.townofbelleair.com/waterqualityreport to view your 2019 annual drinking water quality report and learn more about your drinking water. This report contains important information about the source and quality of your water. To speak with someone about the water quality report or if you would prefer a paper copy of your annual Water Quality Report delivered to your home please call (727) 588-3769 ext.403. THE TOWN OF

Services	Current	Previous	Balance
WATER BASE	25. 98	415. 68	441. 66
WATER USAGE	186. 46	3, 324. 76	3, 511. 22
SEWER	236. 66	4, 028. 07	4, 264. 73
REFUSE	31. 73	501. 64	533. 37

The only change on a resident's water bill is the Water Base and Water Usage.



COMPARISON OF SOLUTIONS

REVERSE OSMOSIS

Benefits

- Maintain autonomy of own water source
- Highest quality of water available "Near Pure"
- Highly customizable system
- Water chemistry designed to match distribution needs
- Maintain customer service levels
- Maintain monthly billing
- Rate certainty
- Small system less exposure to natural disasters

Challenges

- Capitally intensive: \$12 Mil.
- Increased operating expenses:
 - Energy intensive
 - Increase personnel required
 - Increase in chemical and consumables required
- Higher risk of unknown issues
- Increased permitting and regulatory concerns
- Requires Deep Injection Well (DIW)

COMPARISON OF SOLUTIONS

PINELLAS COUNTY WATER

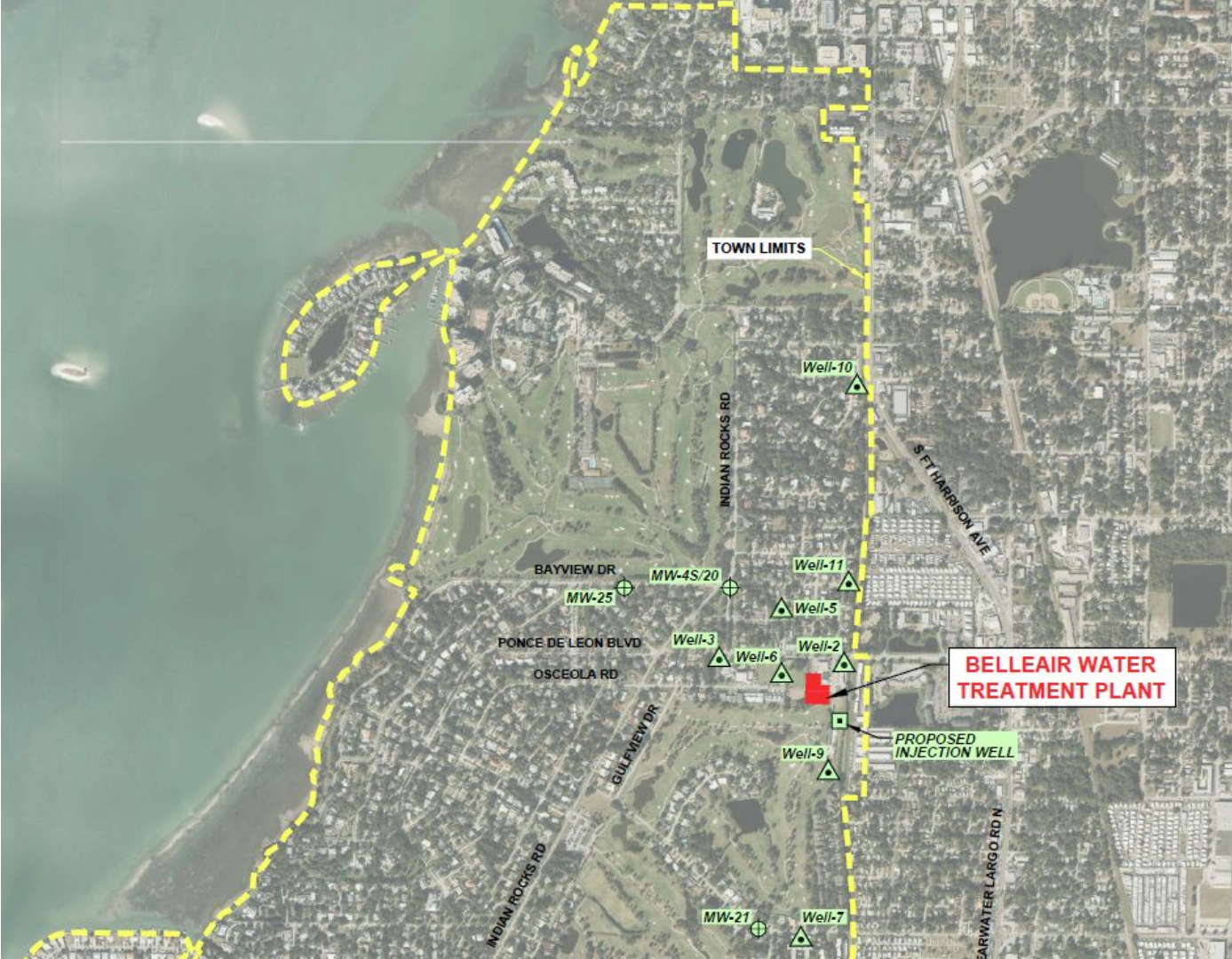
Benefits

- Interconnect is already in place
- Simple transition
- Benefit from economies of scale
- Lower risk
- Lower rates for most users through the study period
- Large regional water provider & source

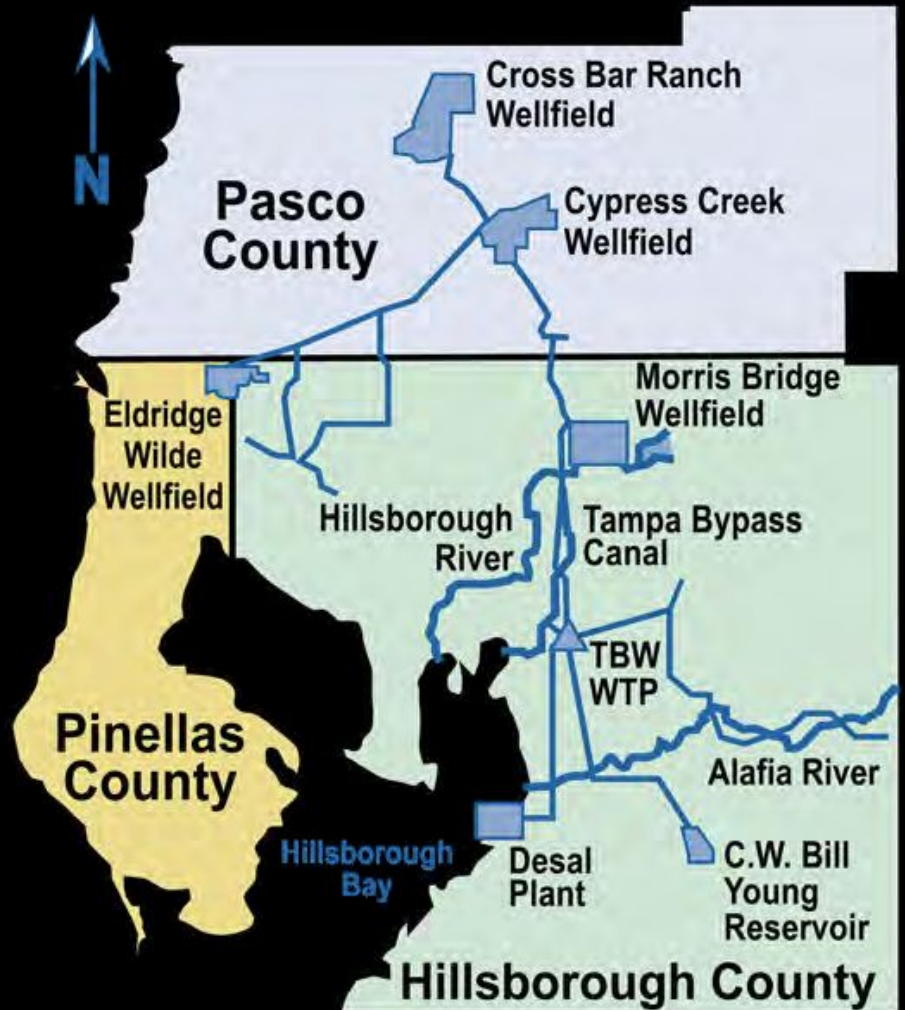
Challenges

- System transfer will require payment to Pinellas County to transition to retail customers
- Bi-Monthly billing
- No longer serviced by town
- Losing autonomy of town-owned system
- Requires accelerated galvanized pipe replacement within 5 years
- Plant demolition and demobilization costs
- 10.5 FTE subject to layoff
- No control over customer service
- Reduction in admin fee revenue to General Fund

TOWN OF BELLEAIR WELLFIELD MAP



PINELLAS COUNTY/ TAMPA BAY WATER SOURCE MAP



QUESTIONS

