

MINUTES
December 8, 2015
COUNCIL WORKSESSION
10:00 A.M.

Town of Edisto Beach
Town Hall
2414 Murray Street
Edisto Beach, SC 29438

Present: Jane S. Darby, Mayor, Susan Hornsby, Mayor Pro Tempore, Pete Anderson, and Patti Smyer, Council Members; *Quorum of Council Present.*

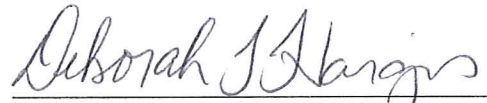
Proclamations and Presentations: Mr. Ron Rickenbaker of the Colleton County Commission on Drug and Alcohol Abuse presented information to Council. Mr. Rickenbaker stated that he had been working with alcohol and drug abuse services for 41 years. Because of the changes in health care in the past few years, substance use and mental health disorders have drifted into the public health model and have been looked at from a medical point-of-view. The Commission would like to find out what services Colleton County citizens need. Outpatient care is currently provided for Colleton County residents. Mr. Rickenbaker told those in attendance he could be reached by phone to discuss substance abuse issues in the county and what he and his team might do to help serve that need. The Commission is funded through state and federal funds. The Commission recognized that support from local governments is crucial. Partners within the community, from social services to mental health to vocational rehabilitation to law enforcement are all partnered with the Commission and meet on a regular basis. Mr. Rickenaker stated that the Commission is conducting a survey and is looking at national and state data health risk factors that break down statistics on the county level. Mr. Rickenbaker left a few copies of the survey (one of which is attached to these minutes) and said he would pick them up at a later date. There is a card with a QR code that can be scanned from a smart phone that will allow access to the survey. The information from the survey will be sent to statistical analyst at the state level for review. After the review is complete, Mr. Rickenbaker would like to come to Edisto and present the results in the spring. The intent is to hold a conference later in the spring so residents will be able to access the results and give feedback.

New Business/Appearances: Mr. Lindy Cummins from Thomas and Hutton and Mr. Tim Smith from Wharton Smith presented information to Council, which is attached to these minutes. The Water and Sewer Committee received the information regarding possible alternatives to the water system improvements and recommends a combination of Alternative 4C and 5B at a cost of \$7.2 million. (see attached presentation, pages 10 and 12). While the presentation was being prepared, Jimmy King said, "We have a lot of people here that thought that once we voted down the 8.4 (million dollar water improvement referendum of June 2013) that the water was done with for a while. Would you please, in some form or fashion, address that to me, in a letter or something.....We really need to express to everybody exactly what the intent is because there are a lot of people...that thought it was over and done with." Mayor Darby told Mr. King that when

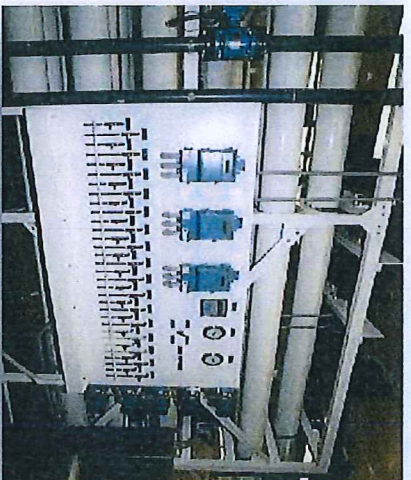
Council looked at the issue it was not simply a reverse osmosis plant, but an infrastructure system for the beach. Council feels the need to have a complete, comprehensive picture. David Whitten, a member of the Water and Sewer Committee, said that he was in contact with a number of people who are very strongly in favor of the comprehensive solution to the water issues. Susan Kozub, after reading from the Edisto News on the dangers of fluoride, said that Council “has a moral obligation to get rid of the fluoride in our water. We don’t want our children breathing and bathing in water that, not only if ingested is a problem, but also breathing it and bathing in it.” Mayor Darby said a decision would be made by Council after all information was received.

Adjournment: Councilwoman Smyer moved to go into Executive Session, seconded by Councilman Moore and approved unanimously. Councilwoman Smyer moved to exit Executive Session, seconded by Councilwoman Hornsby and approved unanimously. Councilman Moore moved to adjourn the meeting, seconded by Councilwoman Hornsby and approved unanimously.

APPROVED BY TOWN COUNCIL



Deborah Hargis, Municipal Clerk
January 14, 2016



TOWN OF EDISTO BEACH, SC

2016 Water System Improvements Options Matrix Presentation

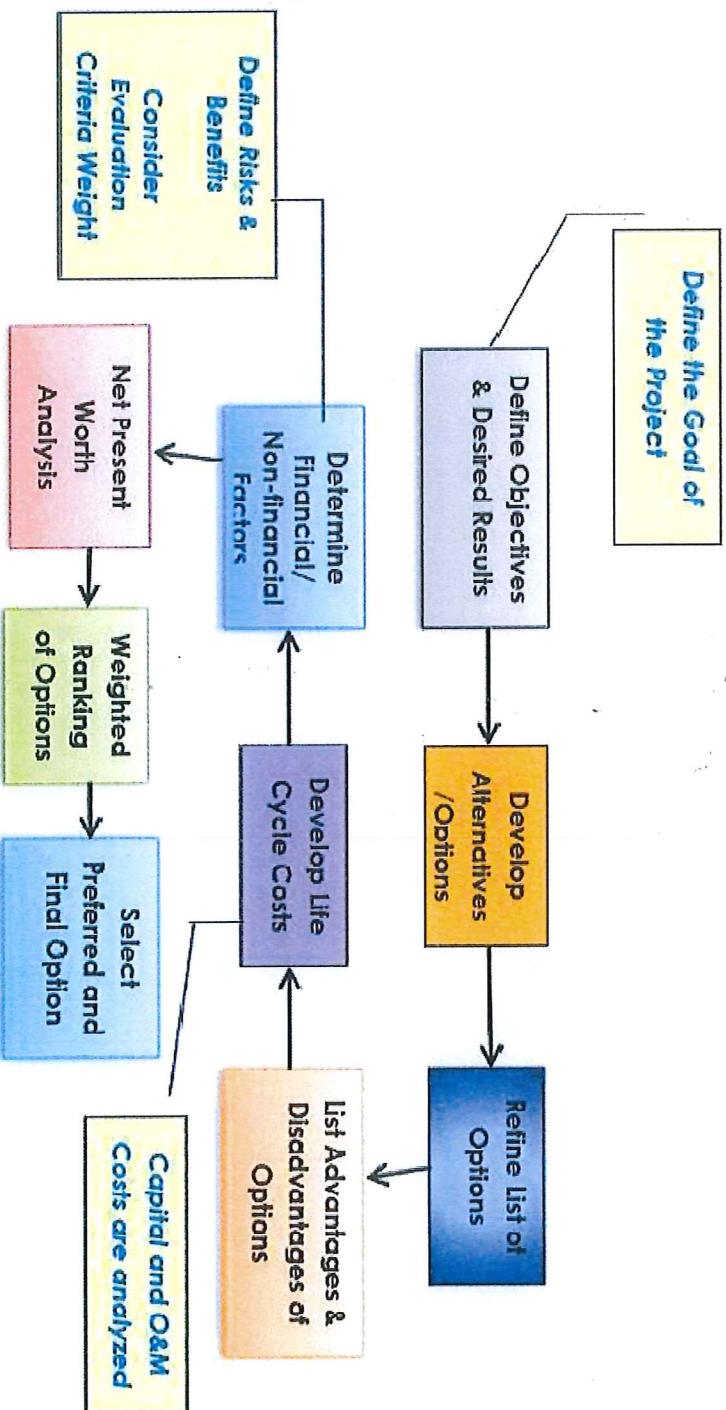
November 20, 2015



Option Evaluation Process

Our Process Considers Capital and Present Worth Costs and Provides a Weighted Criteria Ranking of the Options

Figure 1



Project Goals

- Meet Average Daily Demand (ADD) + 20%.
- Good water quality year-round.
- Use existing infrastructure to the fullest extent possible.
- Use previous engineering studies where possible.



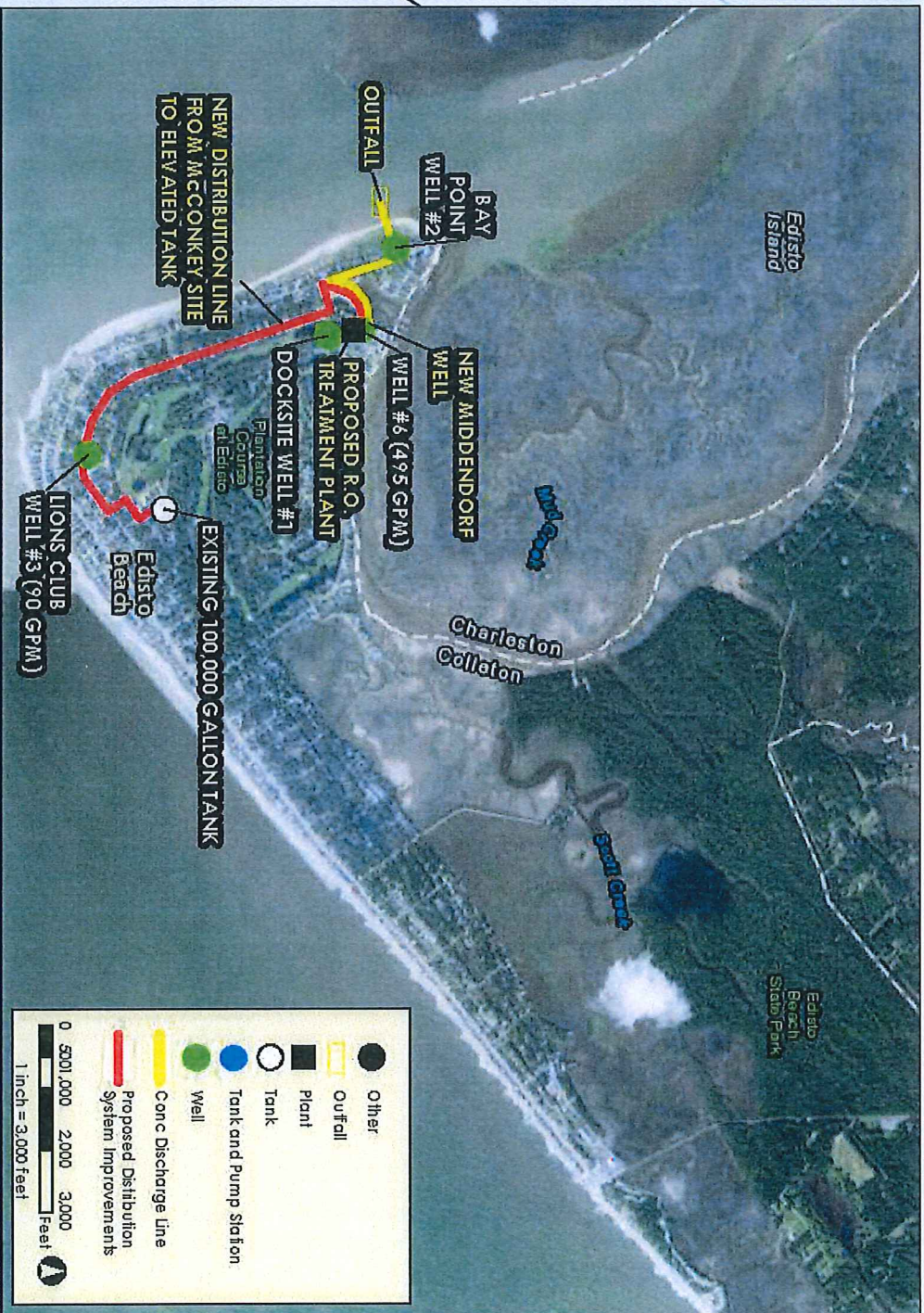
4 Water Quality Goals (mg/l)



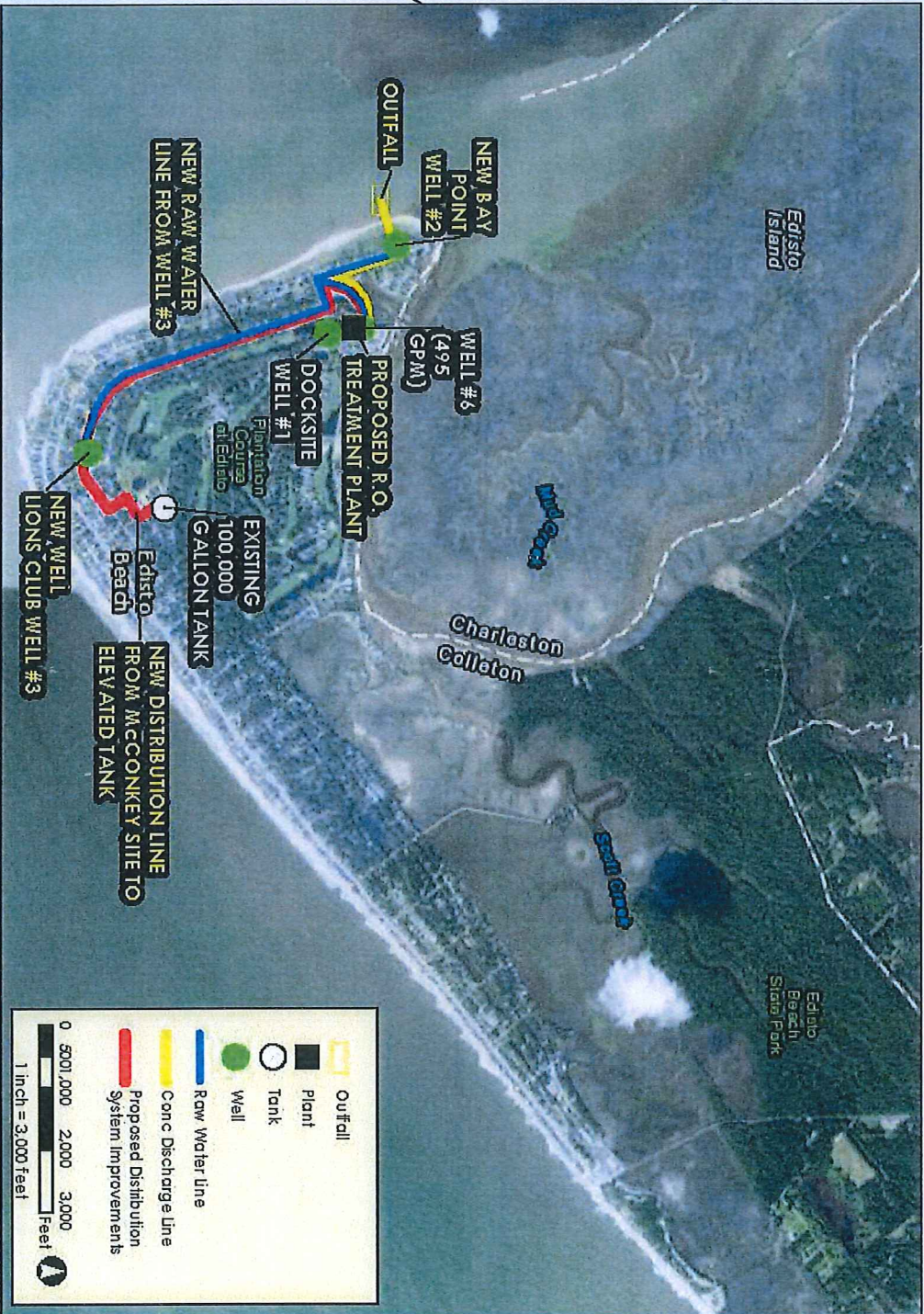
Parameter	Existing Wells	RO @ 10% Blend	RO @ 20% Blend
Chloride	474	68	122
Fluoride	3.30	0.52	0.90
Sodium	534	77	139
Sulfate	55	7	14
TDS	1,717	247	447



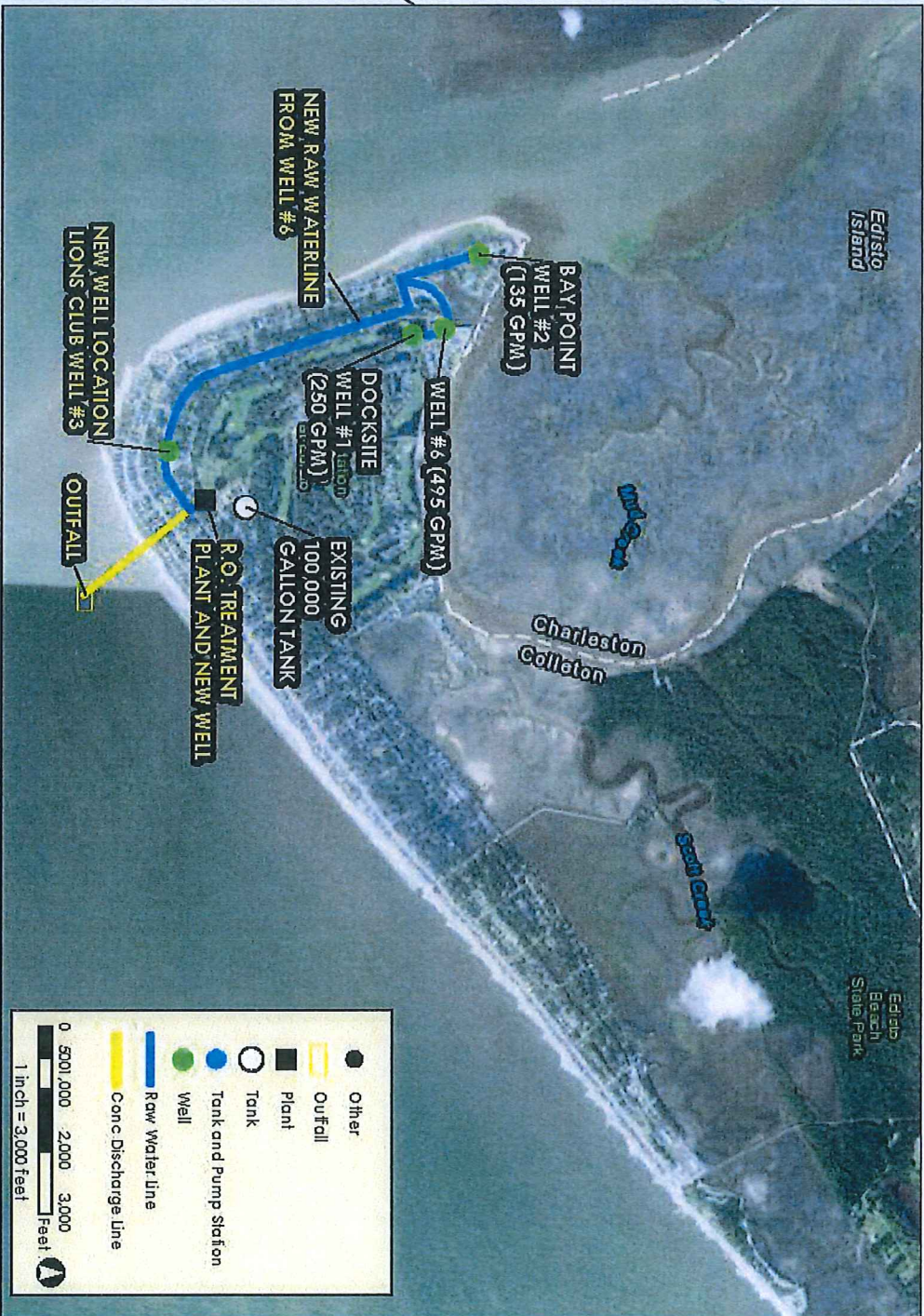
Options Location Map - Option 1



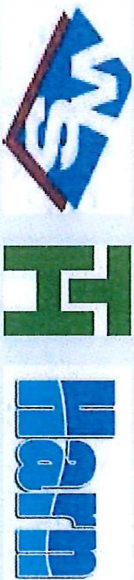
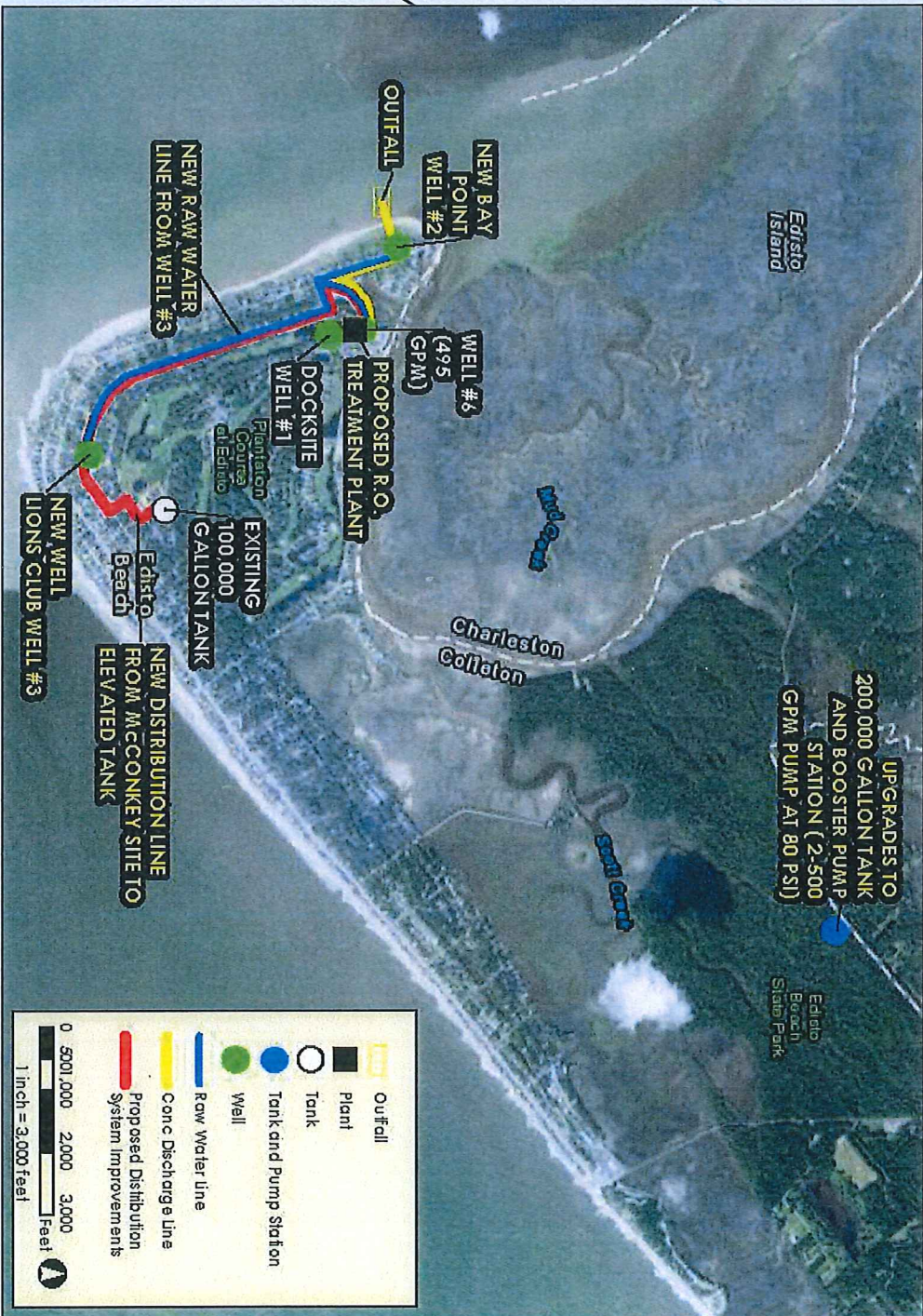
Options Location Map - Option 2



Options Location Map - Option 3



Options Location Map - Option 4A



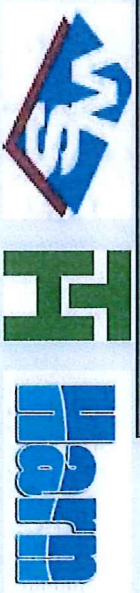
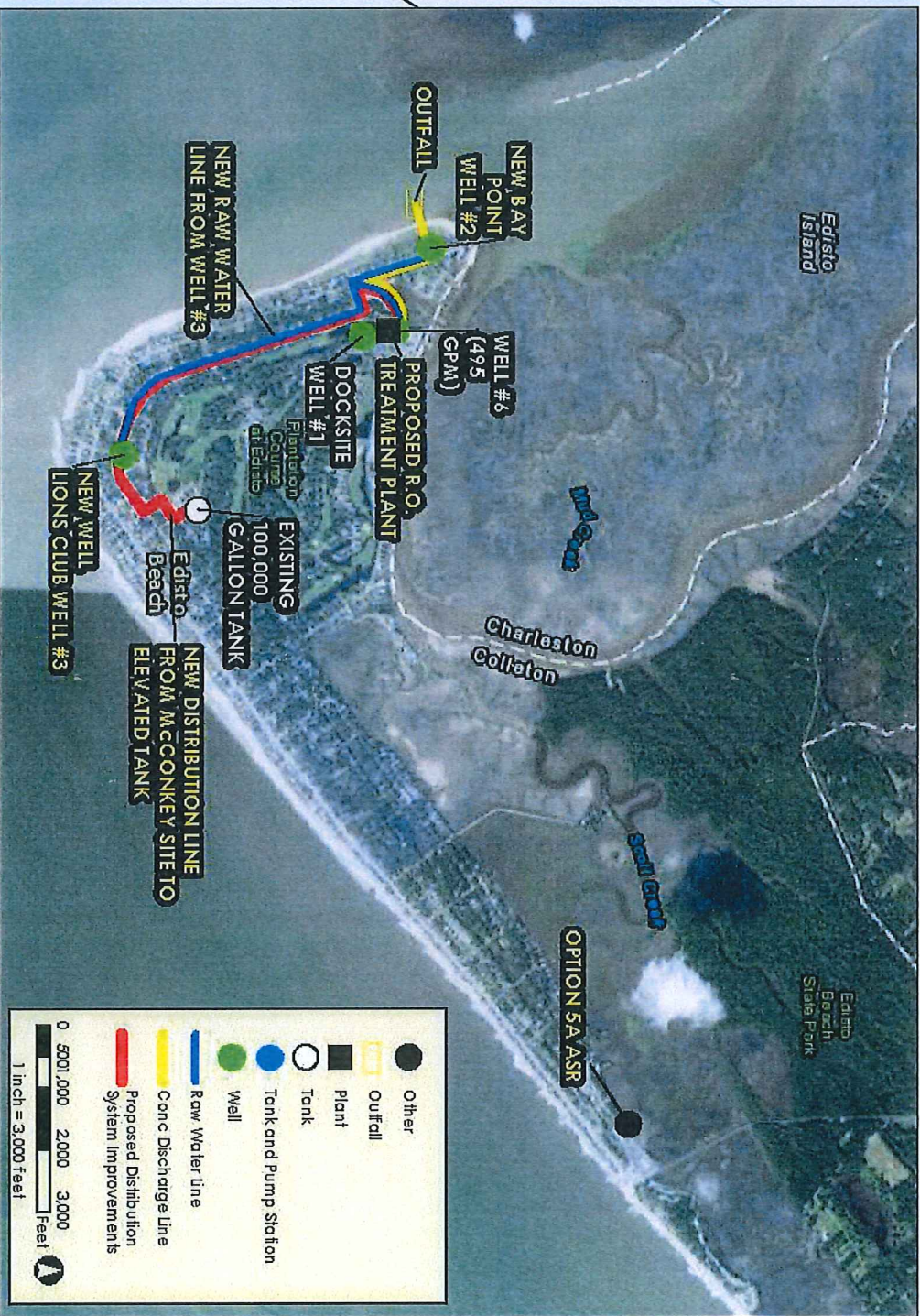
Options Location Map - Option 4B



Options Location Map - Option 4C



Options Location Map - Option 5A



Options Location Map - Option 5B





13 Options Matrix

IMPROVEMENT	Option 1	Option 2	Option 3	Option 4A	Option 4B	Option 4C	Option 5A	Option 5B
Middendorf Well	X							
Santee Wells		X	X	X	X	X	X	X
1,250 gpm RO Plant	X							
1,200 gpm RO Plant		X	X	X	X	X		
900 gpm RO Plant							X	X
350 gpm ASR	X						X	X
Ground Storage Tank				X	X	X		
Clearwell						X		
McConkey Distribution Sys	X	X		X			X	
Town Hall Distribution Sys			X		X	X	X	X



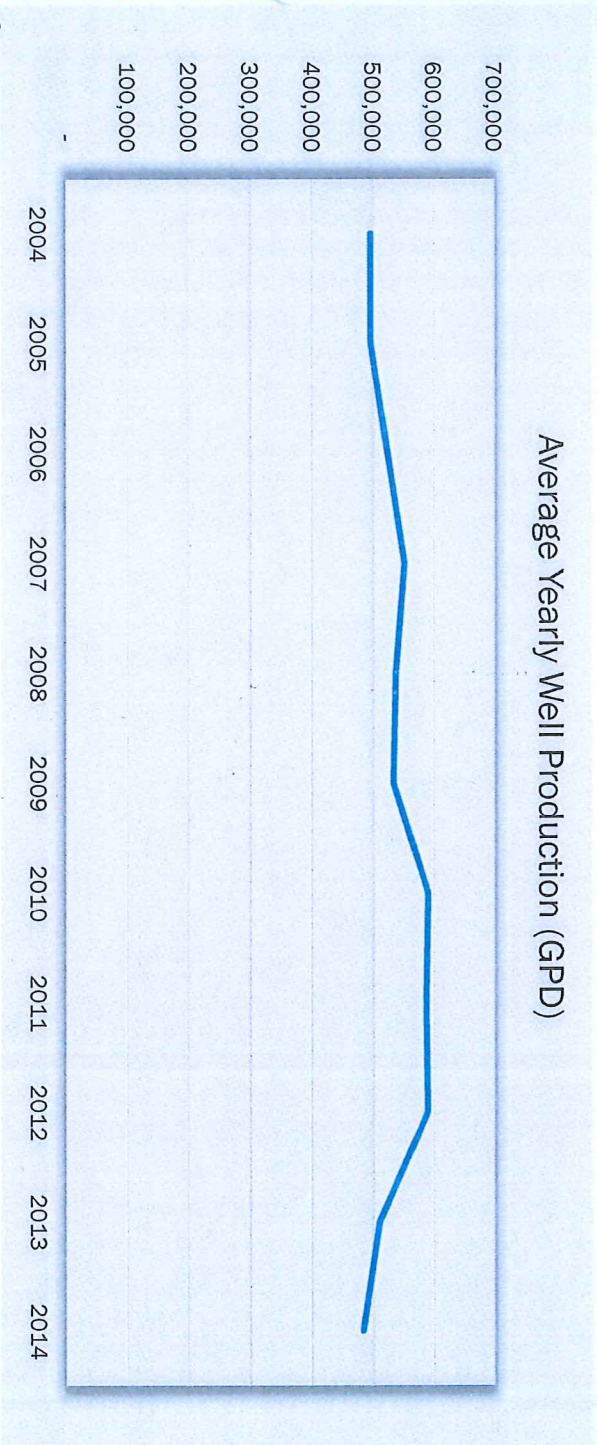
Demand

- Current Average Daily Usage (ADD) = 2,350 customers x 250 gpd/customer = 587,500 gpd
- Design ADD = ADD + 20% = 587,500 gpd + 20% = 705,000 gpd (490 gpm)

Well #	Total Average Well Production (gpd)				
	2010	2011	2012	2013	2014
1	53,351	46,800	49,660	60,236	56,041
2	40,112	45,263	46,164	43,504	39,748
3	31,712	32,479	24,615	26,819	31,901
4	85,200	89,068	50,951	70,205	53,082
5	150,819	166,329	189,900	163,151	156,025
6	229,855	208,055	228,890	147,559	147,890
ADD (gpd)	591,049	587,995	590,180	511,474	484,688
Peak Day	-	1,410,300	1,263,800	1,095,600	1,244,300
Peaking Factor	-	2.40	2.14	2.14	2.57



Demand



5-year average daily well production (2010-2014): **553,077 gpd**



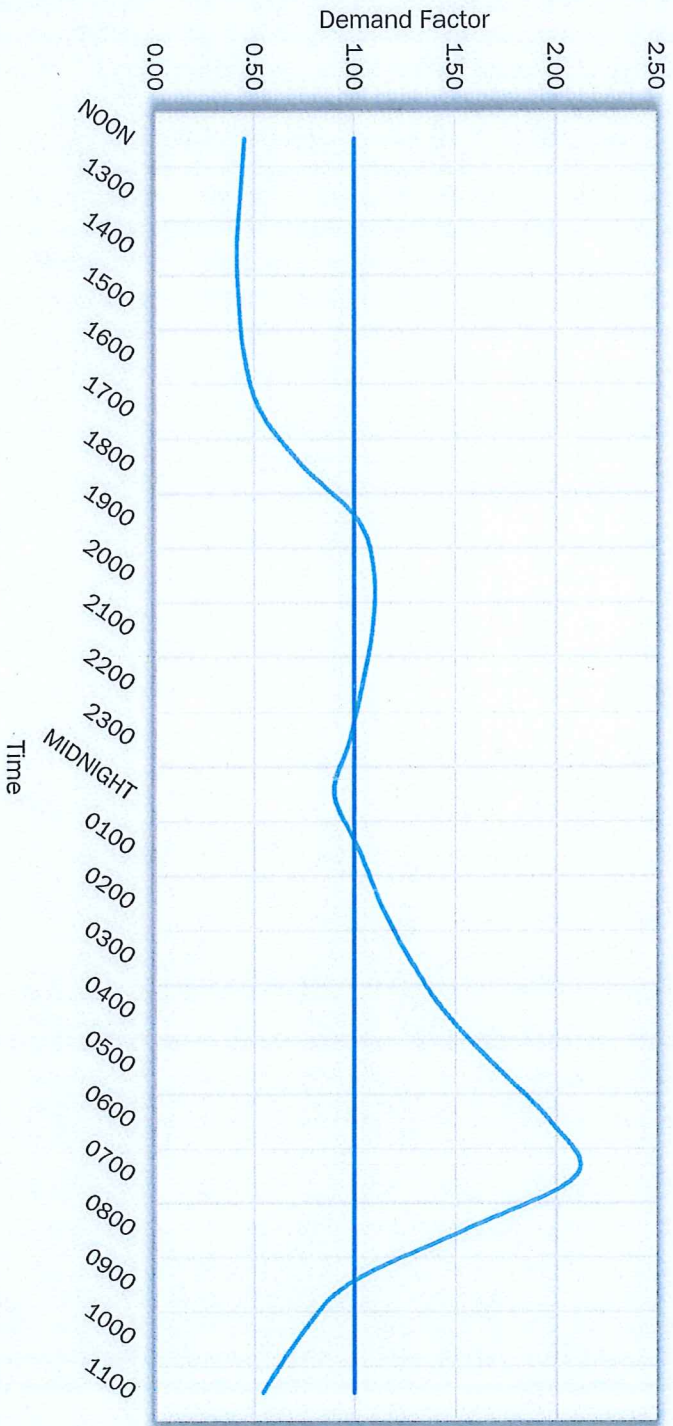
Demand



- ▶ Peak Day Demand (PDD) = $2.3 \times \text{ADD} = 2.3 \times 705,000 \text{ gpd}$
= 1,621,500 gpd (1.622 mgd)
- ▶ Peak Hourly Demand (PHD) = $2.1 \times \text{PDD} = 2.1 \times 1.622 \text{ mgd}$
= 3.41 mgd (2,365 gpm)
- ▶ Fire Flow: allow for 1,000 gpm for 2-hour duration
- ▶ Diurnal Demand Curve (refer to next slide)

Demand

Diurnal Demand Curve



Variable Flow Base Flow



Distribution System Hydraulic Modeling



SUMMARY OF MODELING RESULTS (PDD=1.622 MGD)

OPTION	COMMENTS
1	Elevated tank drops to 0.0.
2	Elevated tank drops to 0.0 similar to Option 1.
3	Elevated tank drops to 0.0 but performs better than Options 1 & 2.
4A	Elevated tank drops to 0.0 but performs better than Options 1, 2, 3 & 5A.
4B	Elevated tank drops to 0.0 but performs better than all options except Option 4C.
4C	Elevated tank drops to about 5.0.
5A	Elevated tank drops to 0.0 before Option 4A.
5B	Elevated tank drops to 0.0 before Option 4B.



Distribution System Hydraulic Modeling



SUMMARY OF MODELING RESULTS (PDD=1.261 MGD)

OPTION	COMMENTS
1	Elevated tank drops to 0.0.
2	Elevated tank drops to 0.0 similar to Option 1.
3	Elevated tank drops to 0.0 but performs better than Options 1 & 2.
4A	Elevated tank drops to 12.0.
4B	Elevated tank drops to 16.0.
4C	Elevated tank drops to 19.0.
5A	Elevated tank drops to 7.0.
5B	Elevated tank drops to 10.0.



Proposed Site Layout of RO Plant - Option 4C



Town Hall Plant Site
Edisto Beach, South Carolina
2013 Aerial Photography

TH THOMAS & HUTTON
422 JOHNS BROAD ROAD - SUITE 100
AFT FIDELITY, SC 29424 • 843.445.5000
www.thomashutton.com
GEOGRAPHIC INFORMATION SYSTEMS





22 Budgetary Cost

IMPROVEMENT	Option 1	Option 2	Option 3	Option 4A	Option 4B	Option 4C	Option 5A	Option 5B
Middendorf Well	2.142							
Santee Wells		1.300	1.300	1.300	1.300	1.300	1.300	1.300
1,250 gpm RO Plant	3.312							
1,200 gpm RO Plant		3.500	3.612	3.500	3.612	3.612		
900 gpm RO Plant							3.100	3.100
350 gpm ASR	0.755						0.755	0.755
Ground Storage Tank				0.048	0.048	0.048		
Clearwell (4)						0.210		
McConkey Distribution Sys	1.104	1.500		1.500			1.500	
Town Hall Distribution Sys			0.955		0.955	0.955		0.955
SCADA (5)								
Phase 2 Engineering (6.0)	2.320	0.777	0.725	0.788	0.735	0.756	0.914	0.840
TOTAL	9.633	7.077	6.592	7.136	6.650	6.881	7.569	6.950
Estimated Annual O&M Cost	\$349,559	\$218,078	\$218,078	\$222,594	\$222,594	\$222,594	\$222,136	\$222,136

Note:

- 1.0 All costs are in \$1,000,000 except O&M costs, which are actual dollars.
- 2.0 All costs are budgetary only, for purposes of comparing options, and prepared without detailed design.
- 3.0 Highlighted costs are updated costs from URS 2012 Report.
- 4.0 Cost of 100,000 gallon clearwell included in RO Plant cost.
- 5.0 Cost of SCADA is included in RO Plant cost.
- 6.0 Option 1: Engineering & Contingencies @ 25% from URS 2012. Report adjusted to current dollars.



Remarks



Redundancy: The adequacy of a public water supply system's capacity is measured upon the amount of water it can supply above PDD plus fire flow.

Capacity of Water Supply Options					
RO Plant at 16-hour/day Operation					
Option	Required Capacity (mgd)	Plant Production (mgd)	Storage (mgd)	Total Available (mgd)	Capacity/Deficit (mgd)
4B	1.742	1.152	0.30	1.452	(0.290)
4C	1.742	1.152	0.60	1.752	0.010
RO Plant at 24-hour/day Operation					
4B	1.742	1.728	0.30	2.028	0.206
4C	1.742	1.728	0.60	2.328	0.506

Storage: Uncertainty that the GST at the park will fill completely during the off-peak period.

Santee Wells: Uncertainty that new Santee wells will produce 500 gpm each.

Future Phases

- Add a 4th Santee well.
- Aquifer Storage and Recovery (ASR).
- RO plant to treat wells #4 and #5.
- Additional distribution system improvements.
- Automatic Meter Reading (AMR) system.



Questions?

