AGENDA
Lower Cape Fear Water & Sewer Authority
1107 New Pointe Boulevard, Suite # 17, Leland, North Carolina
9:00 a.m. – Regular Monthly Board Meeting
October 9, 2023

MEETING CALL TO ORDER: Chairman Blanchard

INVOCATION

PLEDGE OF ALLEGIANCE

APPROVAL OF CONSENT AGENDA

- **C1** – Minutes of September 11, 2023, Regular Board Meeting
- **C2** – Minutes of September 11, 2023, Personnel Committee Meeting
- **C3** – Kings Bluff Monthly Operations and Maintenance Report
- **C4** – Bladen Bluffs Monthly Operations and Maintenance Reports

NEW BUSINESS

- **NB1**-Resolution Accepting the Lower Cape Fear Water and Sewer Authority Kings Bluff Regional Raw Water Supply Facilities FY 2023-2024 Annual Inspections Report (Tony Boahn, P.E., McKim and Creed)
- **NB2**-Resolution Accepting the Lower Cape Fear Water and Sewer Authority Bladen Bluffs Regional Raw Water Supply Facilities FY 2023-2024 Annual Inspections Report (Tony Boahn, P.E., McKim and Creed)

ENGINEER'S COMMENTS

ATTORNEY COMMENTS

EXECUTIVE DIRECTOR REPORT

- **EDR1** – Comments on Customers' Water Usage and Raw Water Revenue for Fiscal Year to Date Ending September 30, 2023
- **EDR2** – Operating Budget Status, Ending August 31, 2023
- **EDR3** – Summary of Activities

DIRECTOR'S COMMENTS AND/OR FUTURE AGENDA ITEMS

PUBLIC COMMENT

ADJOURNMENT

The next board meeting of the Lower Cape Fear Water & Sewer Authority is scheduled for Monday, November 13th at 9:00 a.m. in the Authority's office located at 1107 New Pointe Boulevard, Suite 17, Leland, North Carolina.

Consent Agenda (CA)	**Lower Cape Fear Water & Sewer Authority**

AGENDA ITEM

To: CHAIRMAN BLANCHARD AND BOARD MEMBERS

From: TIM H. HOLLOMAN, EXECUTIVE DIRECTOR

Date: October 9, 2023

Re: Consent Agenda

Reviewed and approved as to form: MATTHEW A. NICHOLS, AUTHORITY ATTORNEY

Please find enclosed the items of a routine nature for consideration and approval by the Board of Directors with one motion. However, that does not preclude a board member from selecting an item to be voted on individually, if so desired.

C1 – Minutes of September 11, 2023, Regular Board Meeting
C2 – Minutes of September 11, 2023, Personnel Committee Meeting
C3 – Kings Bluff Monthly Operations and Maintenance Report
C4 – Bladen Bluffs Monthly Operations and Maintenance Reports

Action Requested: Motion to approve/disapprove Consent Agenda.

Lower Cape Fear Water & Sewer Authority
Regular Board Meeting Minutes
September 11th, 2023

Chairman Blanchard called to order the Authority meeting scheduled on September 11th, 2023, at 9:00 a.m. and welcomed everyone present. The meeting was held at the Authority's office located at 1107 New Pointe Boulevard, Suite 17, Leland, North Carolina. Director DeVane gave the invocation.

Roll Call by Chairman Blanchard:

Present: Norwood Blanchard, Patrick DeVane, Wayne Edge, Harry Knight, Al Leonard, Jackie Newton, Scott Phillips, Charlie Rivenbark, Bill Saffo, Chris Smith, Phil Tripp, Frank Williams, and Rob Zapple

Present by Virtual Attendance: Bill Sue

Absent: None

Staff: Tim H. Holloman, Executive Director; Matthew Nichols, General Counsel; Tony Boahn P.E., McKim & Creed; Jess Powell P.E., McKim & Creed; Sam Boswell, COG; and Danielle Hertzog, Financial Administration Assistant

Guests Present: John Nichols, Brunswick County Public Utilities Director; James Proctor, Pender County Utilities Deputy Director of Utilities; Jorgen Holmberg, Computer Warriors; Ken Waldroup, Cape Fear Public Utility Authority Executive Director; and Heidi Cox, NC DEQ Regional Engineering Supervisor

Guests Virtual Attendance: Tom Hendrick, Pender County Utilities Water Treatment Plant Superintendent; Benjamin Kearns, Cape Fear Public Utility Authority Water Resources Manager Water Treatment; and Aaron Smith, Brunswick County Director of Fiscal Operations

PLEDGE OF ALLEGIANCE: Chairman Blanchard led the Pledge of Allegiance.

APPROVAL OF CONSENT AGENDA

C1 – Minutes of August 21, 2023, Regular Board Meeting
C2 – Kings Bluff Monthly Operations and Maintenance Report
C3 – Bladen Bluffs Monthly Operations and Maintenance Reports
C4 – Resolution for Recognition of National Source Water Protection Week September 24-30th, 2023

Motion: Director Leonard **MOVED**; seconded by Director Rivenbark, approval of the Consent Agenda Items C1-C4 as presented. Upon voting, the **MOTION CARRIED UNANIMOUSLY.**

NEW BUSINESS

NB1 – Consider Draft Plan Rate Review with Willdan
Recess of Regular Monthly Meeting at 9:05 a.m.
Reconvening of Regular Monthly Meeting at 9:15 a.m.
The presentation is attached to the minutes. Brunswick County Utilities has questions and concerns with the rate study. Brunswick County requested a meeting with all partners and their Finance departments before the board considered the draft rate plan.

ENGINEER'S COMMENTS

No comments

ATTORNEY COMMENTS

No comments

EXECUTIVE DIRECTOR REPORT

EDR1 – Comments on Customers' Water Usage and Raw Water Revenue for Fiscal Year to Date Ending August 31, 2023
Executive Director Holloman reported that during August 2023, Brunswick County and CFPUA were above projections.

DIRECTOR'S COMMENTS AND/OR FUTURE AGENDA ITEMS

No comments

PUBLIC COMMENT

No comments

ADJOURNMENT

There being no further business, Chairman Blanchard adjourned the meeting at 10:30 a.m.

Respectfully Submitted:

_____

Patrick DeVane Secretary

Lower Cape Fear WASA

Water Rate Study

August 21, 2023

Willdan Financial Services

- Rick McClung, MBA, Principal Consultant

WILLDAN

Water Rate Study Objectives

- The primary goals and objectives of the rate study include:
  - **Full Cost Recovery** of Expenditures
  - Meet Financial Metric Targets
  - Meet Required Debt Coverage
  - Maintain Adequate/Positive Balances In Enterprise Operating Fund
  - Achieve Target Levels in R&R And Enterprise Capital Funds In Specified Time Frames
  - Financial Strength Important for Future Debt Issuances
  - 20-year Financial Plan
  - Determine Cost-sharing Mechanism & Agreements

WILLDAN FINANCIAL SERVICES

Factors Driving The Financial Plan

- Higher Than Normal Inflation Impacting Operating Costs
- Future Capital Improvements (Converted To Future Dollars)
- Future Debt Issuances Require Meeting Debt Service Coverage Targets

WILLDAN FINANCIAL SERVICES

Rate Study Assumptions

- Customer Usage Growth as Set Forth Herein (Subject to Change with Future Study Updates)
- Capital Escalations of 9% for FY 2025 and then 5% for the Remainder of Projection Period
- Future Debt Service Assumptions (Recommend Hiring FA, Especially Prior to Any Debt Issuances):
  - 5% Interest Rate
  - 20-Year Amortization Period
  - Half-Year Payment Year 1 and Full Payment Starting Year 2

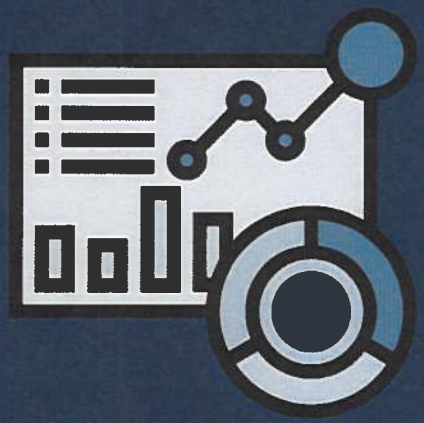
WILLDAN FINANCIAL SERVICES

Future Capital Improvement Projects & Funding Sources

- Larger Planned Capital Projects (Allocated to All):
  - New 4th Pump at KBPS (Debt)
  - New Generators (Debt)
  - Pig Water Mains (Pay-Go)
  - Walkway & Air Backwash Bldg. Replacement (Debt/Pay-Go)
  - Replace Raw Water Pumps (Debt)
  - 48-inch PCCP Inspect. & Pig Grnd. Tank (Pay-Go)
- Larger Planned Capital Projects (Cost Share):
  - Intermediate BPS Upgrade (Pay-Go)
  - 20 MGD Ground Tank (Pay-Go)
  - 3-Mile 48" Parallel Raw Water Main (Grants)
  - 100 MGD Reservoir (Debt/Possible Grants)

WILLDAN FINANCIAL SERVICES

LCFWASA Funds and Target Levels to Achieve



- Enterprise Operating Fund:
  - Maintain Positive Ending Annual Balance from Operations and in EOF
- R&R Fund:
  - Build Up Balance to Approx. $3 Million by Year 5 (FY 2029) and $5 Million by Year 10 (FY 2034)
  - By Maintaining Higher R&R Balances, It Will Reduce the Need to Ask Members for Periodic Financial Contributions for Ongoing R&R Expenditures When Required
- Enterprise Capital Fund:
  - Build Up Balance to Approx. $10 Million by Year 10 (FY 2034)

WILLDAN FINANCIAL SERVICES

Water Billing Summary/Rate Adjustments

	Test Year	Projected For Fiscal Years Ending June 30,								
	2024	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**
Usage (in Gallons)										
Brunswick County	4,314,412	4,745,853	4,827,482	4,910,515	4,994,975	5,080,889	5,168,280	5,257,175	5,347,598	5,439,577
Stepan	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000
Praxair, Inc.	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000
CFPUA	4,131,405	4,172,719	4,214,446	4,256,591	4,299,157	4,342,148	4,385,570	4,429,425	4,473,720	4,518,457
Pender	585,400	597,108	609,050	621,231	633,656	646,329	659,255	672,441	685,889	699,607
Total	**9,781,217**	**10,265,680**	**10,400,978**	**10,538,336**	**10,677,788**	**10,819,366**	**10,963,105**	**11,109,041**	**11,257,207**	**11,407,641**
Annual Change	**(1,704,587)**	**484,463**	**135,298**	**137,358**	**139,451**	**141,578**	**143,739**	**145,935**	**148,166**	**150,434**
Annual % Change										
Brunswick County	0.00%	10.00%	1.72%	1.72%	1.72%	1.72%	1.72%	1.72%	1.72%	1.72%
Stepan	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Praxair, Inc.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CFPUA	0.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
Pender	0.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Rate										
Brunswick County	$ 0.40	$ 0.44	$ 0.48	$ 0.52	$ 0.56	$ 0.60	$ 0.64	$ 0.68	$ 0.72	$ 0.76
Stepan	$ 0.40	$ 0.44	$ 0.48	$ 0.52	$ 0.56	$ 0.60	$ 0.64	$ 0.68	$ 0.72	$ 0.76
Praxair, Inc.	$ 0.40	$ 0.44	$ 0.48	$ 0.52	$ 0.56	$ 0.60	$ 0.64	$ 0.68	$ 0.72	$ 0.76
CFPUA	$ 0.40	$ 0.44	$ 0.48	$ 0.52	$ 0.56	$ 0.60	$ 0.64	$ 0.68	$ 0.72	$ 0.76
Pender	$ 0.40	$ 0.44	$ 0.48	$ 0.52	$ 0.56	$ 0.60	$ 0.64	$ 0.68	$ 0.72	$ 0.76

WILLDAN FINANCIAL SERVICES

Water Billing Summary/Rate Adjustments (Cont.)

	Projected For Fiscal Years Ending June 30,									
	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Usage (in Gallons)										
Brunswick County	5,533,138	5,628,307	5,725,114	5,823,586	5,923,752	6,025,641	6,129,282	6,234,705	6,341,942	6,451,024
Stepan	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000
Praxair, Inc.	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000
CFPUA	4,563,641	4,609,278	4,655,371	4,701,924	4,748,944	4,796,433	4,844,397	4,892,841	4,941,770	4,991,187
Pender	713,599	727,871	742,429	757,277	772,423	787,871	803,629	819,701	836,095	852,817
Total	**11,560,378**	**11,715,457**	**11,872,914**	**12,032,788**	**12,195,118**	**12,359,945**	**12,527,308**	**12,697,248**	**12,869,807**	**13,045,028**
Annual Change	**152,737**	**155,078**	**157,457**	**159,874**	**162,330**	**164,826**	**167,363**	**169,940**	**172,559**	**175,221**
Annual % Change										
Brunswick County	1.72%	1.72%	1.72%	1.72%	1.72%	1.72%	1.72%	1.72%	1.72%	1.72%
Stepan	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Praxair, Inc.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CFPUA	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
Pender	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Rate										
Brunswick County	$ 0.80	$ 0.84	$ 0.88	$ 0.92	$ 0.96	$ 1.00	$ 1.04	$ 1.08	$ 1.12	$ 1.16
Stepan	$ 0.80	$ 0.84	$ 0.88	$ 0.92	$ 0.96	$ 1.00	$ 1.04	$ 1.08	$ 1.12	$ 1.16
Praxair, Inc.	$ 0.80	$ 0.84	$ 0.88	$ 0.92	$ 0.96	$ 1.00	$ 1.04	$ 1.08	$ 1.12	$ 1.16
CFPUA	$ 0.80	$ 0.84	$ 0.88	$ 0.92	$ 0.96	$ 1.00	$ 1.04	$ 1.08	$ 1.12	$ 1.16
Pender	$ 0.80	$ 0.84	$ 0.88	$ 0.92	$ 0.96	$ 1.00	$ 1.04	$ 1.08	$ 1.12	$ 1.16

WILLDAN FINANCIAL SERVICES

Capital Improvement Plan (Allocated to All)

	Test Year	Projected For Fiscal Years Ending June 30,								
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Project Costs (Escalated to Future $)										
New 4th Pump @ King's Bluff PS	$ 0	$ 3,569,750	$ 1,258,950	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
New 4th Pump @ King's Bluff PS	225,000	0	0	0	0	0	0	0	0	0
Rebuild High Service Pump Motors	0	0	0	0	0	0	0	0	0	0
New Generators	0	0	0	0	0	0	0	0	0	0
Pig 48" Water Main (KBPS to 3 MG Tank)	0	0	0	0	0	0	0	0	0	0
Pig Future 54" Water Main	0	0	0	0	0	0	0	0	0	0
Walkway & Air Backwash Building Rplcmt	0	2,180,000	0	0	0	0	0	0	0	0
Walkway & Air Backwash Building Rplcmt	226,360	0	0	0	0	0	0	0	0	0
Replace Raw Water Pumps 1, 4, 5	0	0	0	0	0	4,769,647	0	0	0	0
New Surge Tank at KBPS	0	0	0	0	0	0	0	0	0	0
5 ROW Acquisitions	100,000	109,000	0	0	0	0	0	0	0	0
48-Inch PCCP Inspect. and Pig - Grd Tank	0	0	2,632,350	210,302	0	0	0	0	0	0
48-Inch PCCP Repairs	0	327,000	0	0	0	0	0	0	0	0
Operating Capital (FY 23/24)	735,000	0	0	0	0	0	0	0	0	0
TOTAL PROJECTS (ALLOCATED TO ALL)	**$ 1,286,360**	**$ 6,185,750**	**$ 3,891,300**	**$ 210,302**	**$ 0**	**$ 4,769,647**	**$ 0**	**$ 0**	**$ 0**	**$ 0**
Funding Sources										
Pay-Go Capital	$ 1,286,360	$ 436,000	$ 2,632,350	$ 210,302	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
Debt Service	$ 0	$ 5,749,750	$ 1,258,950	$ 0	$ 0	$ 4,769,647	$ 0	$ 0	$ 0	$ 0

WILLDAN FINANCIAL SERVICES

Capital Improvement Plan (Allocated to All)

	Projected For Fiscal Years Ending June 30,									
	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Project Costs (Escalated to Future $)										
New 4th Pump @ King's Bluff PS	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
New 4th Pump @ King's Bluff PS	0	0	0	0	0	0	0	0	0	0
Rebuild High Service Pump Motors	0	532,649	0	0	0	0	0	0	0	0
New Generators	2,536,422	22,548,788	0	0	0	0	0	0	0	0
Pig 48" Water Main (KBPS to 3 MG Tank)	0	0	0	0	0	0	2,719,238	0	0	0
Pig Future 54" Water Main	2,029,137	0	0	0	0	0	0	0	0	0
Walkway & Air Backwash Building Rplcmt	0	0	0	0	0	0	0	0	0	0
Walkway & Air Backwash Building Rplcmt	0	0	0	0	0	0	0	0	0	0
Replace Raw Water Pumps 1, 4, 5	6,087,412	0	0	7,046,940	0	0	0	0	0	0
New Surge Tank at KBPS	0	0	0	0	0	0	0	0	0	1,705,090
5 ROW Acquisitions	0	0	0	0	0	0	0	0	0	0
48-Inch PCCP Inspect. and Pig - Grd Tank	0	0	0	0	0	0	0	0	0	0
48-Inch PCCP Repairs	0	0	0	0	0	0	0	0	0	0
Operating Capital (FY 23/24)	0	0	0	0	0	0	0	0	0	0
TOTAL PROJECTS (ALLOCATED TO ALL)	**$10,652,971**	**$23,081,437**	**$ 0**	**$7,046,940**	**$ 0**	**$ 0**	**$2,719,238**	**$ 0**	**$ 0**	**$1,705,090**
Funding Sources										
Pay-Go Capital	$ 2,029,137	$ 532,649	$ 0	$ 0	$ 0	$ 0	$ 2,719,238	$ 0	$ 0	$ 1,705,090
Debt Service	$ 8,623,834	$ 22,548,788	$ 0	$ 7,046,940	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0

Capital Improvement Plan (Cost Share)

	Test Year	Projected For Fiscal Years Ending June 30,								
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Project Costs (Escalated to Future $)										
Intermediate Booster PS Shelter	$ 0	$ 926,500	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
Intermediate Booster PS Upgrade	0	0	0	0	0	0	0	0	0	1,771,469
New 5th Pump at King'sBluff	0	0	0	0	0	0	0	0	0	0
20 MG Ground Tank	0	0	0	0	0	0	0	0	0	0
7-Mile 48" Parallel Raw Water Main	15,000,000	16,350,000	17,247,615	0	0	0	0	0	0	0
3-Mile 48" Parallel Raw Water Main	0	0	0	15,021,563	15,772,641	0	0	0	0	0
100 MGD Reservoir (Alloc. to All)	0	0	0	0	0	0	0	8,764,225	52,147,142	0
TOTAL PROJECTS (COST SHARING)	**$ 15,000,000**	**$ 17,276,500**	**$ 17,247,615**	**$ 15,021,563**	**$ 15,772,641**	**$ 0**	**$ 0**	**$ 8,764,225**	**$ 52,147,142**	**$ 1,771,469**
Funding Sources										
LCFWSA	$ 0	$ 185,300	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 354,294
Brunswick	0	0	0	0	0	0	0	0	0	0
CFPUA	0	416,925	0	0	0	0	0	0	0	797,161
Pender	0	231,625	0	0	0	0	0	0	0	442,867
Stephan	0	46,325	0	0	0	0	0	0	0	88,573
Praxair	0	46,325	0	0	0	0	0	0	0	88,573
Debt Service	0	0	0	0	0	0	0	8,764,225	52,147,142	0
Grants/ARPA	0	0	0	15,021,563	15,772,641	0	0	0	0	0
Already Funded	15,000,000	16,350,000	17,247,615	0	0	0	0	0	0	0

Capital Improvement Plan (Cost Share)

	Projected For Fiscal Years Ending June 30,									
	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Project Costs (Escalated to Future $)										
Intermediate Booster PS Shelter	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
Intermediate Booster PS Upgrade	12,682,108	0	0	0	0	0	0	0	0	0
New 5th Pump at King'sBluff	0	0	0	0	0	0	0	0	0	0
20 MG Ground Tank	0	0	6,524,945	22,119,562	0	0	0	0	0	0
7-Mile 48" Parallel Raw Water Main	0	0	0	0	0	0	0	0	0	0
3-Mile 48" Parallel Raw Water Main	0	0	0	0	0	0	0	0	0	0
100 MGD Reservoir (Alloc. to All)	0	0	0	0	0	0	0	0	0	0
TOTAL PROJECTS (COST SHARING)	**$ 12,682,108**	**$ 0**	**$ 6,524,945**	**$ 22,119,562**	**$ 0**	**$ 0**	**$ 0**	**$ 0**	**$ 0**	**$ 0**
Funding Sources										
LCFWSA	$ 2,536,422	$ 0	$ 1,304,989	$ 4,423,912	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
Brunswick	0	0	1,957,483	6,635,869	0	0	0	0	0	0
CFPUA	5,706,949	0	1,304,989	4,423,912	0	0	0	0	0	0
Pender	3,170,527	0	1,304,989	4,423,912	0	0	0	0	0	0
Stephan	634,105	0	326,247	1,105,978	0	0	0	0	0	0
Praxair	634,105	0	326,247	1,105,978	0	0	0	0	0	0
Debt Service	0	0	0	0	0	0	0	0	0	0
Grants/ARPA	0	0	0	0	0	0	0	0	0	0
Already Funded	0	0	0	0	0	0	0	0	0	0

Anticipated New Debt Issuances

Allocated to All

New 4th Pump @ King's Bluff PS	$ 4,828,700
Walkway & Air Backwash Building Rplcmt	$ 2,180,000
New Generators	$ 25,085,210
Replace Raw Water Pump 1	$ 4,769,647
Replace Raw Water Pump 4	$ 6,087,412
Replace Raw Water Pump 5	$ 7,046,940

Cost Share Project

100 MGD Reservoir (Possible Grant Funding)	$ 60,911,367

WILLDAN FINANCIAL SERVICES

Projected Operating Results (Reservoir Debt Funded)

	Test Year	Projected For Fiscal Years Ending June 30,								
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Total Water Charge Revenue	$ 3,912,487	$ 4,516,899	$ 4,992,470	$ 5,479,935	$ 5,979,561	$ 6,491,620	$ 7,016,387	$ 7,554,148	$ 8,105,189	$ 8,669,807
Proposed Water Rate Increase	*$ 0.04*	*$ 0.04*	*$ 0.04*	*$ 0.04*	*$ 0.04*	*$ 0.04*	*$ 0.04*	*$ 0.04*	*$ 0.04*	*$ 0.04*
Effective Increase In Revenues	*11.1%*	*10.0%*	*9.1%*	*8.3%*	*7.7%*	*7.1%*	*6.7%*	*6.3%*	*5.9%*	*5.6%*
Total Other/Non Oper. Revenues	$ 314,718	$ 330,422	$ 346,353	$ 358,670	$ 371,607	$ 385,187	$ 399,442	$ 414,419	$ 430,145	$ 446,656
TOTAL REVENUES	**$ 4,227,205**	**$ 4,847,321**	**$ 5,338,822**	**$ 5,838,605**	**$ 6,351,168**	**$ 6,876,807**	**$ 7,415,829**	**$ 7,968,566**	**$ 8,535,334**	**$ 9,116,463**
Operating/Administration Expenses	$ 2,551,317	$ 2,728,290	$ 2,895,010	$ 3,034,740	$ 3,181,490	$ 3,335,560	$ 3,517,430	$ 3,709,780	$ 3,913,270	$ 4,128,550
Income Available for Debt Service	**$ 1,675,887**	**$ 2,119,031**	**$ 2,443,812**	**$ 2,803,865**	**$ 3,169,678**	**$ 3,541,247**	**$ 3,898,399**	**$ 4,258,786**	**$ 4,622,064**	**$ 4,987,913**
Debt Service	$ -	$ 281,198	$ 562,396	$ 562,396	$ 562,396	$ 753,761	$ 945,125	$ 3,388,968	$ 5,832,811	$ 5,832,811
Debt Service Coverage	*N/A*	*7.54*	*4.35*	*4.99*	*5.64*	*4.70*	*4.12*	*1.26*	*0.79*	*0.86*
Total Other Expenses/Transfers	$ (1,666,360)	$ (1,271,300)	$ (1,832,350)	$ (2,210,302)	$ (2,600,000)	$ (2,750,000)	$ (2,900,000)	$ (750,000)	$ -	$ (354,294)
Net Income	**$ 9,527**	**$ 566,533**	**$ 49,066**	**$ 31,167**	**$ 7,282**	**$ 37,486**	**$ 53,274**	**$ 119,818**	**$ (1,210,746)**	**$ (1,199,192)**
Total Funds Available-Operating Fund	**$ 2,909,527**	**$ 3,476,060**	**$ 3,525,126**	**$ 3,556,293**	**$ 3,563,575**	**$ 3,601,061**	**$ 3,654,336**	**$ 3,774,154**	**$ 2,563,408**	**$ 1,364,216**
Working Capital in Enterprise Fund	*15.00*	*17.00*	*16.00*	*15.00*	*15.00*	*14.00*	*14.00*	*13.00*	*9.00*	*4.00*
Total Funds Available-R&R Fund	**$ 623,311**	**$ 1,123,311**	**$ 223,311**	**$ 1,223,311**	**$ 2,523,311**	**$ 3,773,311**	**$ 4,973,311**	**$ 5,223,311**	**$ 5,223,311**	**$ 5,223,311**
Total Funds Available-Enterprise Fund	**$ 481,406**	**$ 631,406**	**$ 731,406**	**$ 1,731,406**	**$ 3,031,406**	**$ 4,531,406**	**$ 6,231,406**	**$ 6,731,406**	**$ 6,731,406**	**$ 6,731,406**
Total R&R and Capital Funds	**$ 1,104,717**	**$ 1,754,717**	**$ 954,717**	**$ 2,954,717**	**$ 5,554,717**	**$ 8,304,717**	**$ 11,204,717**	**$ 11,954,717**	**$ 11,954,717**	**$ 11,954,717**
Working Capital (R&R/Capital Funds)	*6.00*	*8.00*	*4.00*	*13.00*	*23.00*	*33.00*	*42.00*	*42.00*	*40.00*	*38.00*

WILLDAN FINANCIAL SERVICES

Projected Operating Results (Reservoir Debt Funded)

	Projected For Fiscal Years Ending June 30,									
	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Total Water Charge Revenue	$ 9,248,303	$ 9,840,984	$ 10,448,164	$ 11,070,165	$ 11,707,314	$ 12,359,945	$ 13,028,400	$ 13,713,028	$ 14,414,184	$ 15,132,233
Proposed Water Rate Increase	*$ 0.04*	*$ 0.04*	*$ 0.04*	*$ 0.04*	*$ 0.04*	*$ 0.04*	*$ 0.04*	*$ 0.04*	*$ 0.04*	*$ 0.04*
Effective Increase In Revenues	*5.3%*	*5.0%*	*4.8%*	*4.6%*	*4.4%*	*4.2%*	*4.0%*	*3.9%*	*3.7%*	*3.6%*
Total Other/Non Oper. Revenues	$ 463,989	$ 482,184	$ 501,299	$ 521,365	$ 542,445	$ 564,571	$ 587,811	$ 612,208	$ 637,826	$ 664,717
TOTAL REVENUES	**$ 9,712,292**	**$ 10,323,167**	**$ 10,949,463**	**$ 11,591,530**	**$ 12,249,758**	**$ 12,924,516**	**$ 13,616,211**	**$ 14,325,235**	**$ 15,052,010**	**$ 15,796,950**
Operating/Administration Expenses	$ 4,356,320	$ 4,597,310	$ 4,852,310	$ 5,122,150	$ 5,407,790	$ 5,710,120	$ 6,030,160	$ 6,368,960	$ 6,727,670	$ 7,107,460
Income Available for Debt Service	**$ 5,355,972**	**$ 5,725,857**	**$ 6,097,153**	**$ 6,469,380**	**$ 6,841,968**	**$ 7,214,396**	**$ 7,586,051**	**$ 7,956,275**	**$ 8,324,340**	**$ 8,689,490**
Debt Service	$ 7,083,497	$ 8,334,183	$ 8,334,183	$ 8,616,915	$ 8,899,647	$ 8,899,647	$ 8,899,647	$ 8,899,647	$ 8,899,647	$ 8,899,647
Debt Service Coverage	*0.76*	*0.69*	*0.73*	*0.75*	*0.77*	*0.81*	*0.85*	*0.89*	*0.94*	*0.98*
Total Other Expenses/Transfers	$ (4,565,559)	$ (532,649)	$ (1,304,989)	$ (4,423,912)	$ -	$ -	$ (2,719,238)	$ -	$ -	$ (1,705,090)
Net Income	**$ (6,293,084)**	**$ (3,140,974)**	**$ (3,542,018)**	**$ (6,571,447)**	**$ (2,057,679)**	**$ (1,685,252)**	**$ (4,032,834)**	**$ (943,372)**	**$ (575,308)**	**$ (1,915,247)**
Total Funds Available-Operating Fund	$ (4,928,868)	$ (8,069,842)	$ (11,611,860)	$ (18,183,307)	$ (20,240,986)	$ (21,926,238)	$ (25,959,072)	$ (26,902,444)	$ (27,477,752)	$ (29,392,999)
Working Capital in Enterprise Fund	*(15.00)*	*(23.00)*	*(31.00)*	*(46.00)*	*(49.00)*	*(50.00)*	*(56.00)*	*(55.00)*	*(53.00)*	*(54.00)*
Total Funds Available-R&R Fund	$ 5,223,311	$ 5,223,311	$ 5,223,311	$ 5,223,311	$ 5,223,311	$ 5,223,311	$ 5,223,311	$ 5,223,311	$ 5,223,311	$ 5,223,311
Total Funds Available-Enterprise Fund	$ 6,731,406	$ 6,731,406	$ 6,731,406	$ 6,731,406	$ 6,731,406	$ 6,731,406	$ 6,731,406	$ 6,731,406	$ 6,731,406	$ 6,731,406
Total R&R and Capital Funds	**$ 11,954,717**	**$ 11,954,717**	**$ 11,954,717**	**$ 11,954,717**	**$ 11,954,717**	**$ 11,954,717**	**$ 11,954,717**	**$ 11,954,717**	**$ 11,954,717**	**$ 11,954,717**
Working Capital (R&R/Capital Funds)	*36.00*	*34.00*	*32.00*	*31.00*	*29.00*	*27.00*	*26.00*	*24.00*	*23.00*	*22.00*

WILLDAN FINANCIAL SERVICES

Revised Projected Operating Results (Reservoir Grant Funded)

- The previous 2 slides show how the debt ratio falls below 1.5 with the debt service for the 100 MGD Reservoir Project.
- The Partners agreed that this project is not viable without direct State or Federal Funding.
- The following 2 slides show the Projected Operating Results assuming the Reservoir Project is funded through State/Federal grants.

Projected Operating Results (Reservoir Grant Funded)

	Test Year	Projected For Fiscal Years Ending June 30,								
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Total Water Charge Revenue	$ 3,912,487	$ 4,516,899	$ 4,992,470	$ 5,479,935	$ 5,979,561	$ 6,491,620	$ 7,016,387	$ 7,554,148	$ 7,992,617	$ 8,441,654
Proposed Water Rate Increase	*$ 0.04*	*$ 0.04*	*$ 0.04*	*$ 0.04*	*$ 0.04*	*$ 0.04*	*$ 0.04*	*$ 0.04*	*$ 0.03*	*$ 0.03*
Effective Increase in Revenues	*11.1%*	*10.0%*	*9.1%*	*8.3%*	*7.7%*	*7.1%*	*6.7%*	*6.3%*	*4.4%*	*4.2%*
Total Other/Non Oper. Revenues	$ 314,718	$ 330,422	$ 346,353	$ 358,670	$ 371,607	$ 385,187	$ 399,442	$ 414,419	$ 430,145	$ 446,656
TOTAL REVENUES	$ 4,227,205	$ 4,847,321	$ 5,338,822	$ 5,838,605	$ 6,351,168	$ 6,876,807	$ 7,415,829	$ 7,968,566	$ 8,422,762	$ 8,888,310
Operating/Administration Expenses	$ 2,551,317	$ 2,728,290	$ 2,895,010	$ 3,034,740	$ 3,181,490	$ 3,335,560	$ 3,517,430	$ 3,709,780	$ 3,913,270	$ 4,128,550
Income Available for Debt Service	$ 1,675,887	$ 2,119,031	$ 2,443,812	$ 2,803,865	$ 3,169,678	$ 3,541,247	$ 3,898,399	$ 4,258,786	$ 4,509,492	$ 4,759,760
Debt Service	$ -	$ 281,198	$ 562,396	$ 562,396	$ 562,396	$ 753,761	$ 945,125	$ 945,125	$ 945,125	$ 945,125
Debt Service Coverage	*N/A*	*7.54*	*4.35*	*4.99*	*5.64*	*4.70*	*4.12*	*4.51*	*4.77*	*5.04*
Total Other Expenses/Transfers	$ (1,666,360)	$ (1,771,300)	$ (1,832,350)	$ (2,210,302)	$ (2,600,000)	$ (2,500,000)	$ (2,600,000)	$ (2,900,000)	$ (3,500,000)	$ (3,754,294)
Net Income	$ 9,527	$ 66,533	$ 49,066	$ 31,167	$ 7,282	$ 287,486	$ 353,274	$ 413,661	$ 64,367	$ 60,341
Total Funds Available-Operating Fund	$ 2,909,527	$ 2,976,060	$ 3,025,126	$ 3,056,293	$ 3,063,575	$ 3,351,061	$ 3,704,336	$ 4,117,997	$ 4,182,364	$ 4,242,705
Working Capital in Enterprise Fund	*15.00*	*14.00*	*14.00*	*13.00*	*13.00*	*13.00*	*14.00*	*15.00*	*14.00*	*13.00*
Total Funds Available-R&R Fund	$ 623,311	$ 1,623,311	$ 723,311	$ 1,723,311	$ 3,023,311	$ 4,223,311	$ 5,223,311	$ 5,223,311	$ 5,223,311	$ 5,623,311
Total Funds Available-Enterprise Fund	$ 481,406	$ 631,406	$ 731,406	$ 1,731,406	$ 3,031,406	$ 4,331,406	$ 5,931,406	$ 8,831,406	$ 12,331,406	$ 15,331,406
Total R&R and Capital Funds	$ 1,104,717	$ 2,254,717	$ 1,454,717	$ 3,454,717	$ 6,054,717	$ 8,554,717	$ 11,154,717	$ 14,054,717	$ 17,554,717	$ 20,954,717
Working Capital (R&R/Capital Funds)	*6.00*	*11.00*	*7.00*	*15.00*	*25.00*	*34.00*	*42.00*	*50.00*	*59.00*	*66.00*

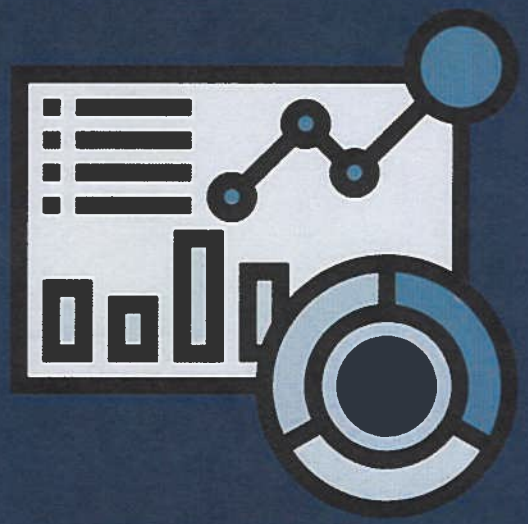
WILLDAN FINANCIAL SERVICES

Projected Operating Results (Reservoir Grant Funded)

	Projected For Fiscal Years Ending June 30,									
	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Total Water Charge Revenue	$ 8,901,491	$ 9,372,365	$ 9,854,518	$ 10,348,198	$ 10,853,655	$ 11,371,149	$ 11,775,669	$ 12,189,358	$ 12,612,411	$ 13,045,028
Proposed Water Rate Increase	*$ 0.03*	*$ 0.03*	*$ 0.03*	*$ 0.03*	*$ 0.03*	*$ 0.03*	*$ 0.02*	*$ 0.02*	*$ 0.02*	*$ 0.02*
Effective Increase In Revenues	*4.1%*	*3.9%*	*3.8%*	*3.6%*	*3.5%*	*3.4%*	*2.2%*	*2.1%*	*2.1%*	*2.0%*
Total Other/Non Oper. Revenues	$ 463,989	$ 482,184	$ 501,299	$ 521,365	$ 542,445	$ 564,571	$ 587,811	$ 612,208	$ 637,826	$ 664,717
TOTAL REVENUES	$ 9,365,481	$ 9,854,549	$ 10,355,818	$ 10,869,563	$ 11,396,100	$ 11,935,720	$ 12,363,480	$ 12,801,566	$ 13,250,237	$ 13,709,745
Operating/Administration Expenses	$ 4,356,320	$ 4,597,310	$ 4,852,310	$ 5,122,150	$ 5,407,790	$ 5,710,120	$ 6,030,160	$ 6,368,960	$ 6,727,670	$ 7,107,460
Income Available for Debt Service	$ 5,009,161	$ 5,257,239	$ 5,503,508	$ 5,747,413	$ 5,988,310	$ 6,225,600	$ 6,333,320	$ 6,432,606	$ 6,522,567	$ 6,602,285
Debt Service	$ 2,195,811	$ 3,446,497	$ 3,446,497	$ 3,729,229	$ 4,011,962	$ 4,011,962	$ 4,011,962	$ 4,011,962	$ 4,011,962	$ 4,011,962
Debt Service Coverage	*2.28*	*1.53*	*1.60*	*1.54*	*1.49*	*1.55*	*1.58*	*1.60*	*1.63*	*1.65*
Total Other Expenses/Transfers	$ (2,765,559)	$ (1,782,649)	$ (2,004,989)	$ (1,923,912)	$ (1,900,000)	$ (2,200,000)	$ (2,319,238)	$ (2,350,000)	$ (2,500,000)	$ (2,505,090)
Net Income	$ 47,791	$ 28,093	$ 52,022	$ 94,271	$ 76,348	$ 13,639	$ 2,121	$ 70,644	$ 10,605	$ 85,234
Total Funds Available-Operating Fund	$ 4,290,496	$ 4,318,589	$ 4,370,611	$ 4,464,882	$ 4,541,230	$ 4,554,869	$ 4,556,990	$ 4,627,634	$ 4,638,239	$ 4,723,472
Working Capital in Enterprise Fund	*13.00*	*12.00*	*12.00*	*11.00*	*11.00*	*10.00*	*10.00*	*9.00*	*9.00*	*9.00*
Total Funds Available-R&R Fund	$ 5,823,311	$ 6,223,311	$ 6,223,311	$ 6,223,311	$ 6,623,311	$ 7,223,311	$ 7,223,311	$ 7,673,311	$ 8,173,311	$ 8,373,311
Total Funds Available-Enterprise Fund	$13,331,406	$14,181,406	$ 14,881,406	$ 12,381,406	$ 13,881,406	$ 15,481,406	$ 15,081,406	$ 16,981,406	$ 18,981,406	$ 19,581,406
Total R&R and Capital Funds	$19,154,717	$20,404,717	$ 21,104,717	$ 18,604,717	$ 20,504,717	$ 22,704,717	$ 22,304,717	$ 24,654,717	$ 27,154,717	$ 27,954,717
Working Capital (R&R/Capital Funds)	*58.00*	*58.00*	*57.00*	*47.00*	*50.00*	*52.00*	*48.00*	*51.00*	*53.00*	*51.00*

WILLDAN FINANCIAL SERVICES

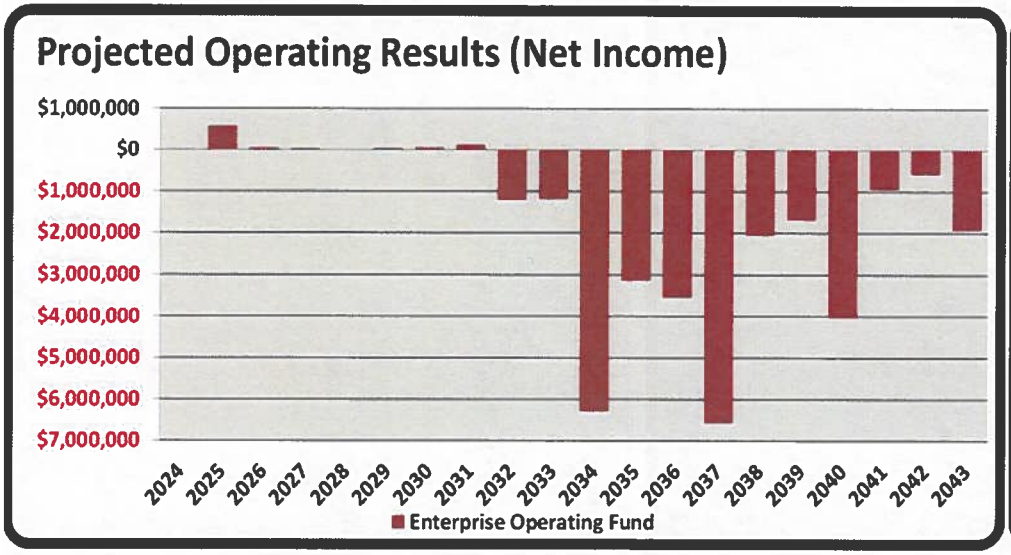
Financial Dashboards

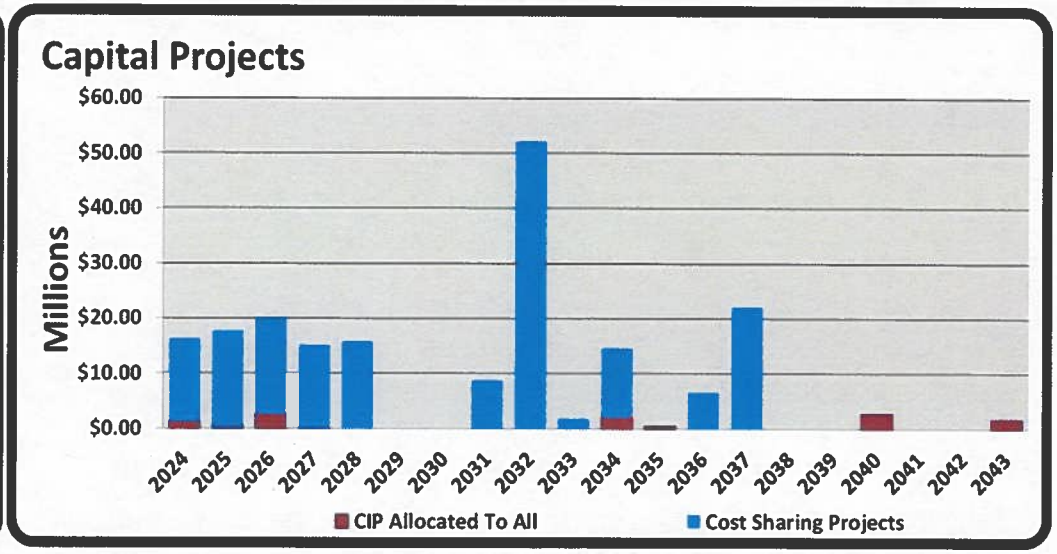


- The Dashboard illustrates multiple Key Performance Indicators & Other Pertinent Information Including:
  - Annual Capital Expenditures
  - Projected Operating Results or Net Income (Revenues less O&M, Debt Service & Transfers)
  - Calculated Debt Service Coverage vs. Required & Targeted Levels (Liquidity)
  - Operating, R&R and Enterprise Capital Fund Balances Over Time (Months Cash on Hand or Liquidity)

WILLDAN FINANCIAL SERVICES

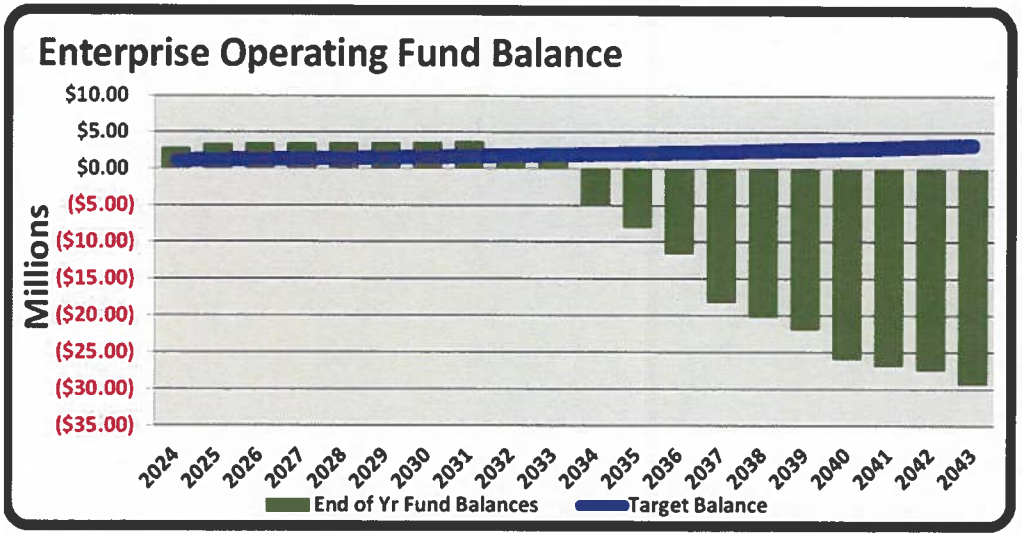
Water System Dashboard (Reservoir Debt Funded)

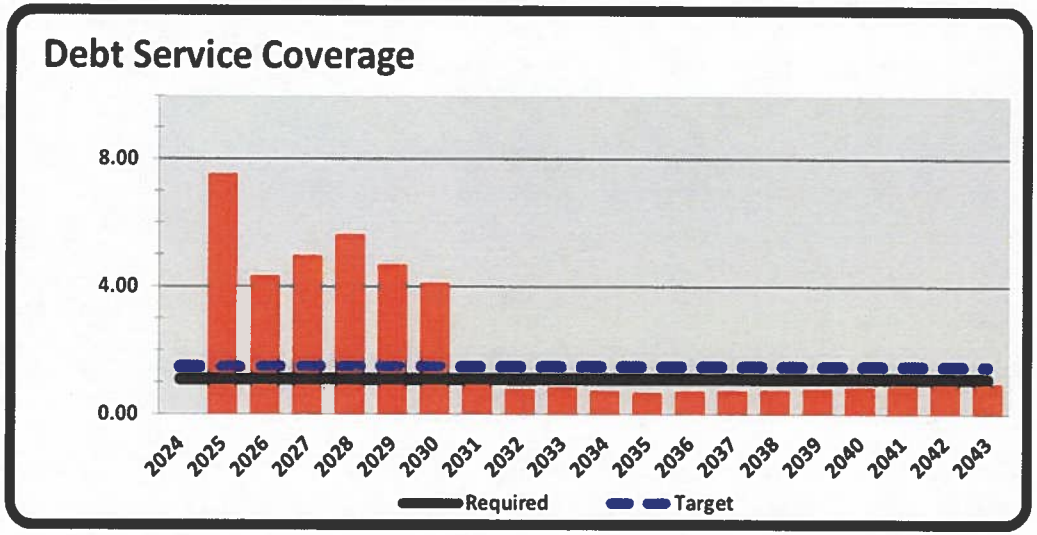




WILLDAN FINANCIAL SERVICES

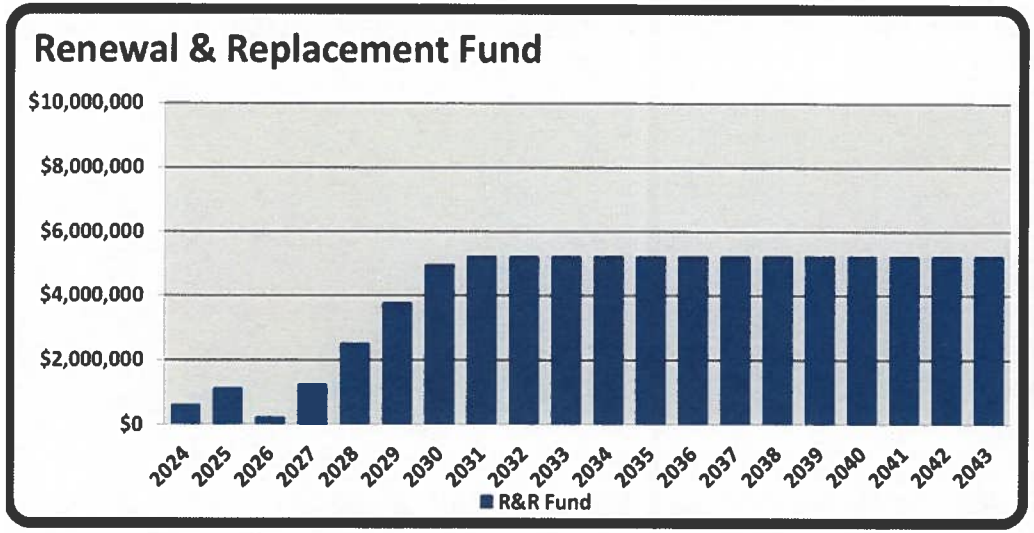
Water System Dashboard (Reservoir Debt Funded)

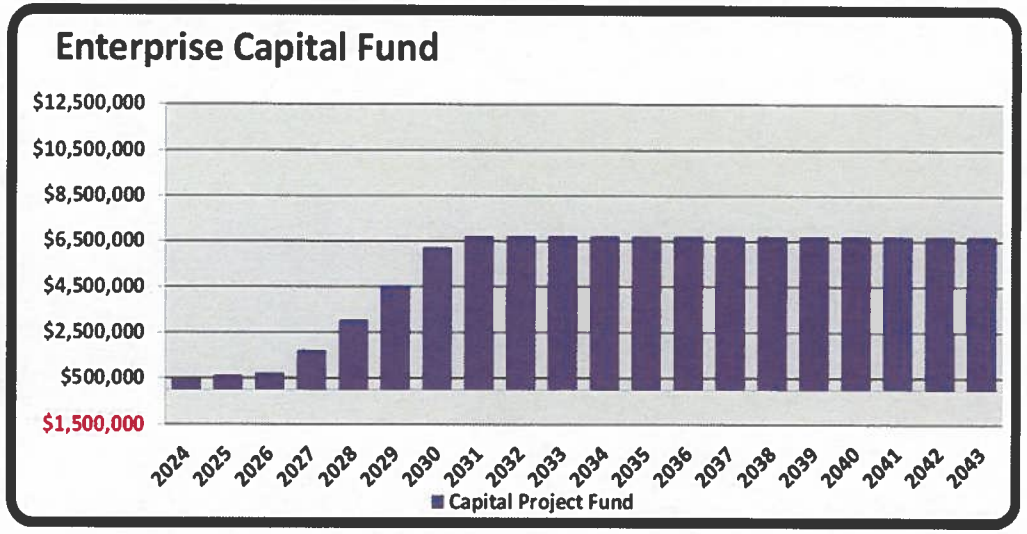




WILLDAN FINANCIAL SERVICES

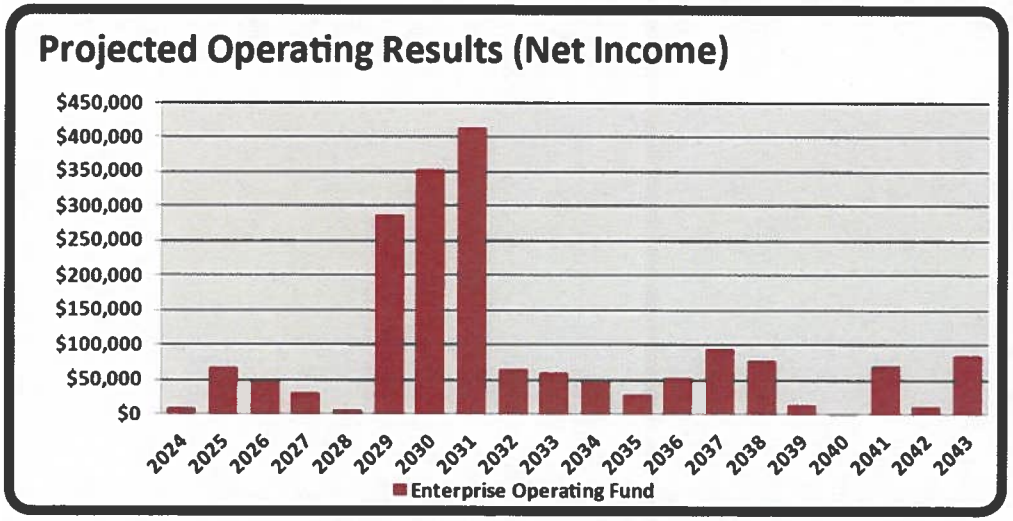
Water System Dashboard (Reservoir Debt Funded)

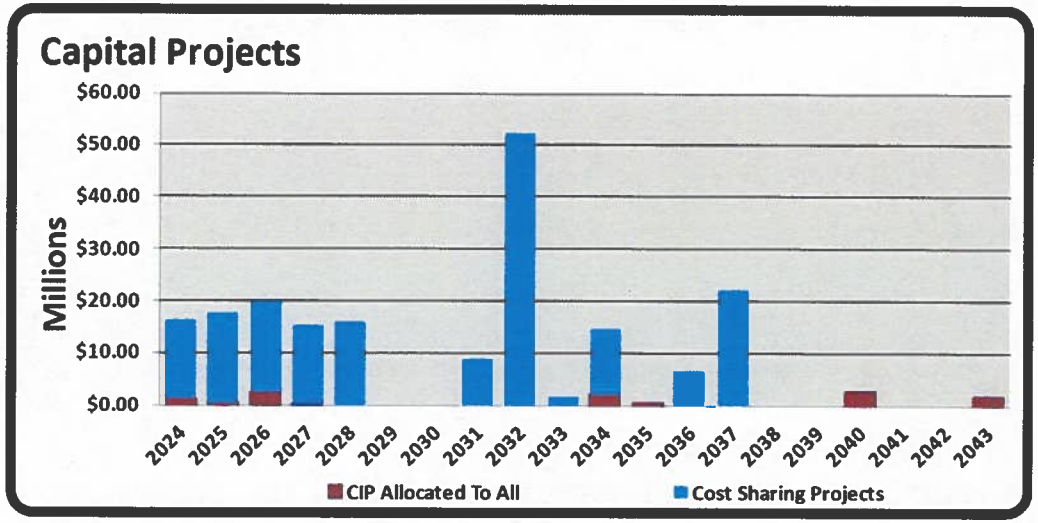




WILLDAN FINANCIAL SERVICES

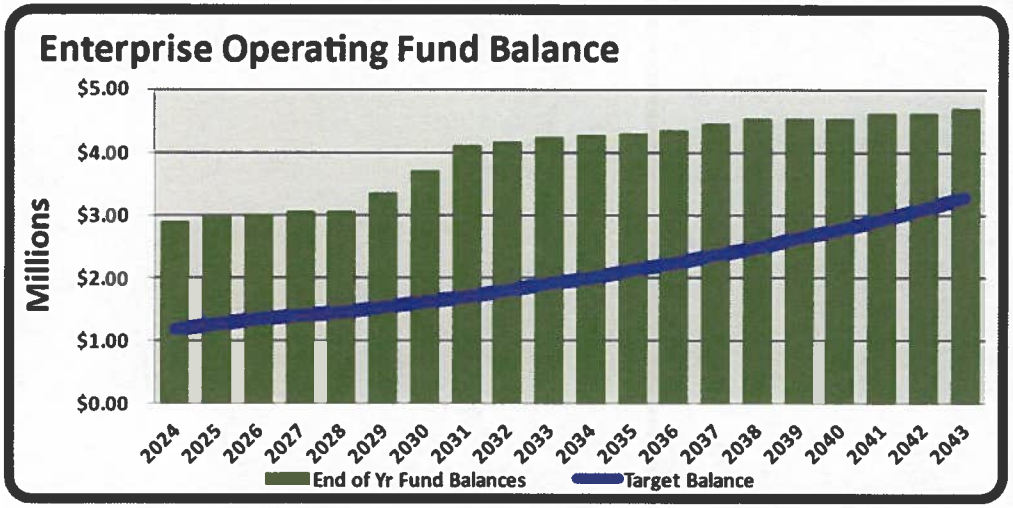
Water System Dashboard (Reservoir Grant Funded)

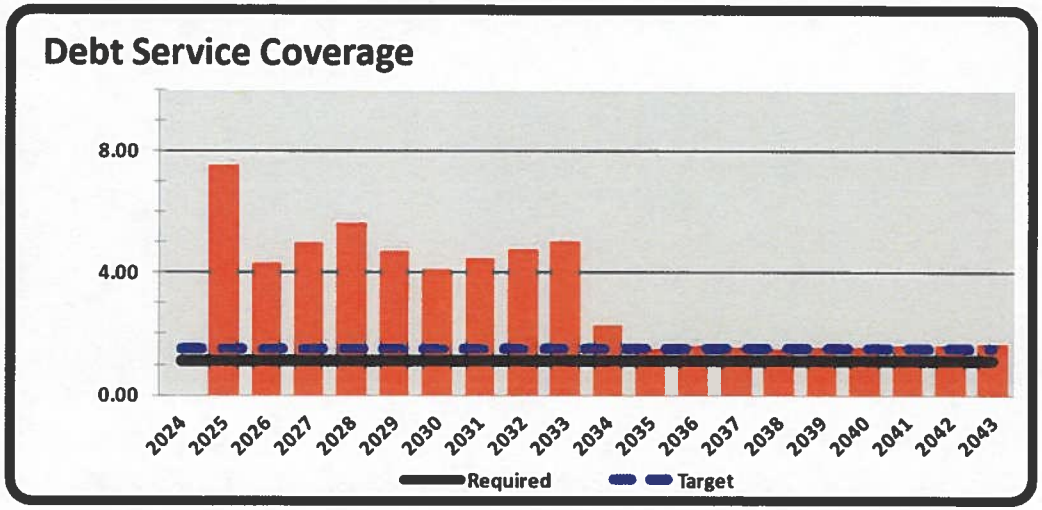




WILLDAN FINANCIAL SERVICES

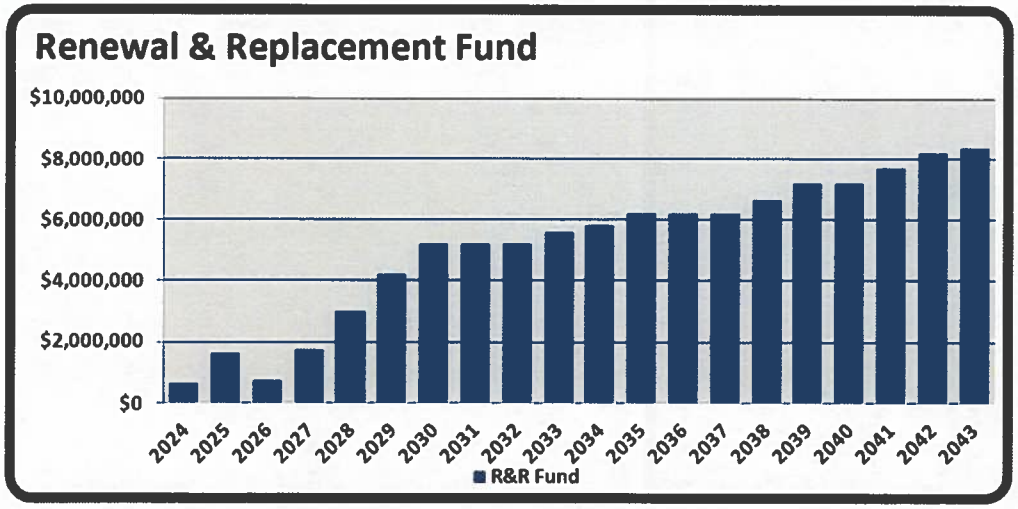
Water System Dashboard (Reservoir Grant Funded)

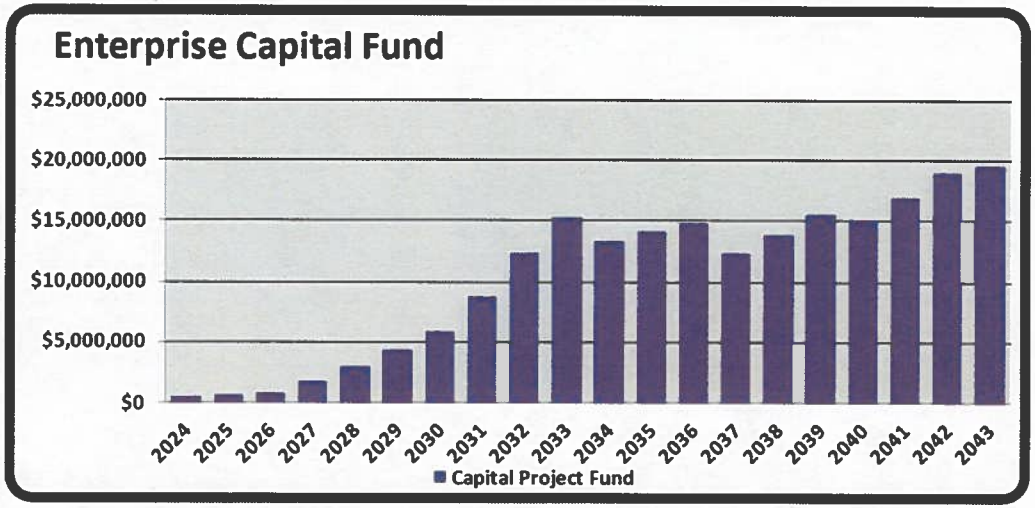




WILLDAN FINANCIAL SERVICES

Water System Dashboard (Reservoir Grant Funded)



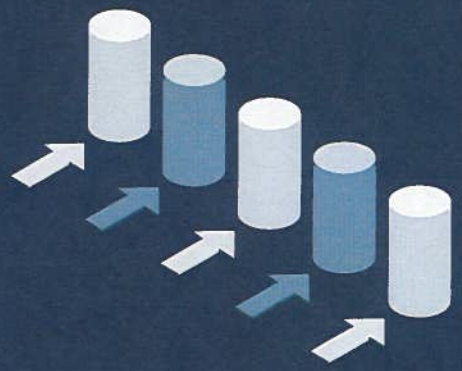


WILLDAN FINANCIAL SERVICES

Future Steps to Minimize Necessary Rate Increases

- Continue to Apply for State/Federal Grants & Matching Funds.
- Continue to Apply for State Revolving Loans with Lower Interest Costs Than Revenue Bonds.
- Continue to Monitor Annually/Bi-Annually Future Costs of Capital Projects & Funding Sources to Better Plan for Phasing-In of Rate Adjustments.
- Allowing for Direct Individual Invoicing to LCFWASA Reducing O&M Overhead and Allowing Authority to Realize Sales Tax Receipts. This is the Same Methodology Used for Bladens Bluff.

Questions & Next Steps



- Questions?

WILLDAN FINANCIAL SERVICES

RATE STUDY WORKPAPERS
EXHIBITS 1 – 6

RESERVOIR DEBT FUNDED

Prepared by Willdan Financial Services

Exhibit 1
Lower Cape Fear WASA
2023 Rate Study
Historical Financial Information

Description	Actuals For Fiscal Year Ended June 30, 2019	2020	2021	2022	Unaudited 2023	Budgeted 2024	BB Alloc %	Escalation Reference	Projections For Fiscal Year Ending June 30, 2025	2026	2027	2028	2029	2030	2031	2032	2033
Expenditures																	
Administration Expenses																	
Salaries	$ 160,703	$ 163,169	$ 170,224	$ 165,791	$ 180,430	$ 203,530	30%	Labor	$ 213,710	$ 224,400	$ 235,620	$ 247,400	$ 259,770	$ 272,760	$ 286,400	$ 300,720	$ 315,760
Per Diem and Mileage Board Members	50,872	62,500	51,812	56,590	55,325	64,001	30%	Inflation	69,760	74,640	78,370	82,290	86,400	90,720	95,260	100,020	105,020
Vehicle Allowance	-	1,000	5,000	5,200	5,200	5,200	30%	Inflation	5,670	6,070	6,370	6,690	7,020	7,370	7,740	8,130	8,540
FICA Taxes	15,701	16,823	17,425	17,116	18,251	20,953	30%	Fringe	22,000	23,100	24,260	25,470	26,740	28,080	29,480	30,950	32,500
Retirement	13,344	12,663	17,191	18,655	21,597	26,153	30%	Fringe	27,460	28,830	30,270	31,780	33,370	35,040	36,790	38,630	40,560
401K Plan	4,817	3,626	4,560	4,782	10,948	11,312	30%	Fringe	11,880	12,470	13,090	13,740	14,430	15,150	15,910	16,710	17,550
Miscellaneous Payroll Expenses	2,259	2,250	2,367	2,630	2,711	2,900	0%	Fringe	3,050	3,200	3,360	3,530	3,710	3,900	4,100	4,310	4,530
Group Insurance	31,159	40,039	33,224	37,141	32,778	40,176	30%	Fringe	42,180	44,290	46,500	48,830	51,270	53,830	56,520	59,350	62,320
Property and Liability Insurance	106,845	112,982	105,167	87,417	99,948	103,734	30%	Inflation	113,070	120,980	127,030	133,380	140,050	147,050	154,400	162,120	170,230
Professional Services General	-	-	-	-	-	15,000	30%	Inflation	16,350	17,490	18,360	19,280	20,240	21,250	22,310	23,430	24,600
Attorney	40,574	53,226	32,980	15,596	45,695	50,000	30%	Inflation	54,500	58,320	61,240	64,300	67,520	70,900	74,450	78,170	82,080
Auditor	7,700	12,000	8,200	8,200	8,200	8,000	30%	Inflation	8,720	15,000	15,750	16,540	17,370	18,240	19,150	20,110	21,120
Engineer	55,705	58,156	30,179	41,947	152,830	300,000	8%	Inflation	327,000	349,890	367,380	385,750	405,040	425,290	446,550	468,880	492,320
Information Technology	-	-	4,098	12,638	3,644	16,000	30%	Inflation	17,440	18,660	19,590	20,570	21,600	22,680	23,810	25,000	26,250
Office Maintenance/Repair/Common Charge	8,530	31,400	18,017	18,601	13,729	24,000	0%	Inflation	26,160	27,990	29,390	30,860	32,400	34,020	35,720	37,510	39,390
Office Utilities	2,623	-	5,408	1,856	1,989	5,000	0%	Inflation	5,450	5,830	6,120	6,430	6,750	7,090	7,440	7,810	8,200
Office Expenses (telephone, printing, adv)	9,054	-	39,567	14,134	18,037	14,000	0%	Inflation	15,260	16,330	17,150	18,010	18,910	19,860	20,850	21,890	22,980
Office Equipment	-	-	-	10,975	13,015	10,000	0%	Inflation	10,900	11,660	12,240	12,850	13,490	14,160	14,870	15,610	16,390
Printing and Advertising	-	-	-	1,997	8,240	5,000	0%	Inflation	5,450	5,830	6,120	6,430	6,750	7,090	7,440	7,810	8,200
Telephone and Internet	-	-	-	2,114	3,173	3,500	0%	Inflation	3,820	4,090	4,290	4,500	4,730	4,970	5,220	5,480	5,750
Travel and Training	2,102	15,841	14,863	22,237	25,914	29,000	0%	Inflation	31,610	33,820	35,510	37,290	39,150	41,110	43,170	45,330	47,600
Phone Allowance	-	-	-	520	520	520	0%	Inflation	570	610	640	670	700	740	780	820	860
Vehicle Expense	3,887	-	-		8,690	-	0%	Inflation	-	-	-	-	-	-	-	-	-
Miscellaneous Expense	7,047	7,000	18,262	18,084	22,236	20,000	100%	Inflation	21,800	23,330	24,500	25,730	27,020	28,370	29,790	31,280	32,840
Subtotal Admin. Expenses	$ 522,922	$ 592,675	$ 578,544	$ 564,221	$ 753,100	$ 977,979			$ 1,053,810	$ 1,126,830	$ 1,183,150	$ 1,242,920	$ 1,304,430	$ 1,369,670	$ 1,438,150	$ 1,510,070	$ 1,585,590
Operating Expenses																	
Sales Tax Expense	$ 43,164	$ 37,000	$ 55,832	$ 130,777	$ 129,704	$ 100,000		Constant	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000
Bladen Bluffs O & M	1,252,922	1,200,000	1,809,867	2,775,091	3,534,374	3,324,385		Eliminate	-	-	-	-	-	-	-	-	-
Bladen Bluffs Hurricane Florence	44,928	-	-	-	-	-		Eliminate	-	-	-	-	-	-	-	-	-
Utilities/Energy Kings Bluff	920,762	768,319	718,272	698,525	730,336	786,589		Electric	825,920	867,220	910,580	956,110	1,003,920	1,074,190	1,149,380	1,229,840	1,315,930
Contract O & M Kings Bluff	363,958	595,491	375,620	437,634	502,742	686,749		Inflation	748,560	800,960	841,010	883,060	927,210	973,570	1,022,250	1,073,360	1,127,030
O&M Kings Booster Pump Bluff Pump Station	28,000	-	-	-	-	-		Inflation	-	-	-	-	-	-	-	-	-
Combined Enterprise Funded Series 2010 Principal	361,305	371,457	-	-	-	-		Constant	-	-	-	-	-	-	-	-	-
Combined Enterprise Funded Series 2010 Interest	41,182	20,876	-	-	-	-		Constant	-	-	-	-	-	-	-	-	-
Combined Enterprise System Ref Series 2012 Principal	567,589	578,656	589,940	601,444	-	-		Constant	-	-	-	-	-	-	-	-	-
Combined Enterprise System Ref Series 2012 Interest	45,584	34,516	25,076	11,728	-	-		Constant	-	-	-	-	-	-	-	-	-
Bladen Bluffs Debt Service Principal	695,000	740,000	790,000	850,000	910,000	970,000		Eliminate	-	-	-	-	-	-	-	-	-
Bladen Bluffs Debt Service Interest	331,016	350,000	25,526	48,580	450,794	450,000		Eliminate	-	-	-	-	-	-	-	-	-
Operating Capital Expense	-	-	55,664	593,356	2,219,441	1,286,360		Pulls	621,300	2,632,350	210,302	-	-	-	-	-	354,294
Transfer to R&R - Kings Bluff R&R Expense	-	-	-	192,380	250,000	380,000		Pulls	500,000	1,000,000	1,000,000	1,300,000	1,250,000	1,200,000	250,000	-	-
Transfer to Enterprise Fund	-	-	-	-	-	100,000		Pulls	150,000	500,000	1,000,000	1,300,000	1,500,000	1,700,000	500,000	-	-
421 Relocation New Hanover County Loan Principal	-	-	390,000	390,000	258,835	-		Inflation	-	-	-	-	-	-	-	-	-
SRF/7 mile parallel line expenditures	-	-	-	-	55,419	2,500,000		Eliminate	-	-	-	-	-	-	-	-	-
Subtotal Operating Expenses	$ 4,695,410	$ 4,696,315	$ 4,835,797	$ 6,729,515	$ 9,041,645	$ 10,584,083			$ 2,945,780	$ 5,900,530	$ 4,061,892	$ 4,539,170	$ 4,781,130	$ 5,047,760	$ 3,021,630	$ 2,403,200	$ 2,897,254
TOTAL EXPENSES	$ 5,218,332	$ 5,288,990	$ 5,414,341	$ 7,293,736	$ 9,794,745	$ 11,562,063			$ 3,999,590	$ 7,027,360	$ 5,245,042	$ 5,781,490	$ 6,085,560	$ 6,417,430	$ 4,459,780	$ 3,913,270	$ 4,482,844
Revenues																	
Operating Revenue																	
Brunswick County	$ 1,401,159	$ 1,290,309	$ 1,425,384	$ 1,818,301	$ 2,050,591	$ 1,725,765		Eliminate	-	-	-	-	-	-	-	-	-
Cape Fear Public Utility Authority	1,250,243	1,102,127	1,102,675	1,323,736	1,679,192	1,652,562		Eliminate	-	-	-	-	-	-	-	-	-
Pender County	154,923	141,838	157,838	189,616	327,094	234,160		Eliminate	-	-	-	-	-	-	-	-	-
Stepan/Invista	78,236	69,432	32,488	101,260	175,133	200,000		Eliminate	-	-	-	-	-	-	-	-	-
Praxair, Inc	2,903	2,975	2,088	2,503	33,927	100,000		Eliminate	-	-	-	-	-	-	-	-	-
Bladen Bluffs Reimbursement for Plant Operation Costs	2,429,630	2,390,689	2,484,174	3,909,071	5,169,651	4,744,385		Eliminate	-	-	-	-	-	-	-	-	-
Bladen Bluffs Administrative Reimbursement	-	37,000	90,888	127,002	139,090	194,218		Eliminate	-	-	-	-	-	-	-	-	-
Sales Tax Refund	39,973	-	67,220	55,833	114,314	100,000		Constant	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Subtotal Operating Revenue	$ 5,357,067	$ 5,034,370	$ 5,362,755	$ 7,527,324	$ 9,688,992	$ 8,951,090			$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000
Non-Operating																	
Interest	$ -	$ 8,775	$ 2,352	$ 1,921	$ 1,969	$ 500		Inflation	550	590	620	650	680	710	750	790	830
Other Revenue (Insurance Proceeds/FEMA)	54,322	71,372	260,063	2,978	10,587	-		Inflation	-	-	-	-	-	-	-	-	-
Federal Tax Subsidy	17,346	-	-	-	-	-		Inflation	-	-	-	-	-	-	-	-	-
Rental House Income	-	-	-	15,550	16,047	-		Inflation	-	-	-	-	-	-	-	-	-
Transfer In	-	-	60,000	-	-	-		Inflation	-	-	-	-	-	-	-	-	-
SRF/Parallel Revenue	-	-	-	-	1,596,733												
Renewal and Replacement Fund Appropriated	-	-	192,190		-	-		Inflation	-	-	-	-	-	-	-	-	-
Fund Balance Appropriated	399,509	174,473	14,500	-	-	-		Inflation	-	-	-	-	-	-	-	-	-
Reimbursement from BB (% of Admin Expenses)	-	-	-		-	214,218		Calculated	229,872	245,763	258,050	270,957	284,507	298,732	313,669	329,355	345,826
Subtotal Non-Operating Revenue	$ 471,177	$ 254,620	$ 529,105	$ 20,449	$ 1,625,336	$ 214,718			$ 230,422	$ 246,353	$ 258,670	$ 271,607	$ 285,187	$ 299,442	$ 314,419	$ 330,145	$ 346,656
TOTAL REVENUE	$ 5,828,244	$ 5,288,990	$ 5,891,860	$ 7,547,773	$ 11,314,328	$ 9,165,808			$ 330,422	$ 346,353	$ 358,670	$ 371,607	$ 385,187	$ 399,442	$ 414,419	$ 430,145	$ 446,656
NET REVENUE REQUIREMENT									$ 3,669,168	$ 6,681,008	$ 4,886,372	$ 5,409,883	$ 5,700,373	$ 6,017,988	$ 4,045,362	$ 3,483,125	$ 4,036,188

Exhibit 1
Lower Cape Fear WASA
2023 Rate Study
Historical Financial Information

Description	Actuals For Fiscal Year Ended June 30, 2019	2020	2021	2022	Unaudited 2023	Budgeted 2024	BB Alloc %	Escalation Reference	Projections For Fiscal Year Ending June 30, 2025	2026	2027	2028	2029	2030	2031	2032	2033
Escalation Factors																	
Constant Factor								Constant	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Labor Escalator Factor (WD)								Labor	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500
Other Fringes (WD)								Fringe	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500
General Inflation Factor								Inflation	1.0900	1.0700	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500
Customer Growth Factor								Customer	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Metered Flow Factor								Flow	0.8516	1.0495	1.0132	1.0132	1.0132	1.0133	1.0133	1.0133	1.0133
Inflation/Customer Growth Factor								Inf/Cust	1.0900	1.0700	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500
Inflation/Metered Flow Factor								Inf/Flow	0.9282	1.1230	1.0639	1.0639	1.0639	1.0640	1.0640	1.0640	1.0640
Materials & Supplies								M&S	1.0700	1.0700	1.0700	1.0700	1.0700	1.0700	1.0700	1.0700	1.0700
Chemical Costs								Chemicals	1.0700	1.0700	1.0700	1.0700	1.0700	1.0900	1.0900	1.0900	1.0900
Electrical Costs								Electric	1.0500	1.0500	1.0500	1.0500	1.0500	1.0700	1.0700	1.0700	1.0700
Eliminate								Eliminate	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Exhibit 1
Lower Cape Fear WASA
2023 Rate Study
Historical Financial Information

Description	Projections For Fiscal Year Ending June 30, 2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Expenditures										
Administration Expenses										
Salaries	$ 331,550	$ 348,130	$ 365,540	$ 383,820	$ 403,010	$ 423,160	$ 444,320	$ 466,540	$ 489,870	$ 514,360
Per Diem and Mileage Board Members	110,270	115,780	121,570	127,650	134,030	140,730	147,770	155,160	162,920	171,070
Vehicle Allowance	8,970	9,420	9,890	10,380	10,900	11,450	12,020	12,620	13,250	13,910
FICA Taxes	34,130	35,840	37,630	39,510	41,490	43,560	45,740	48,030	50,430	52,950
Retirement	42,590	44,720	46,960	49,310	51,780	54,370	57,090	59,940	62,940	66,090
401K Plan	18,430	19,350	20,320	21,340	22,410	23,530	24,710	25,950	27,250	28,610
Miscellaneous Payroll Expenses	4,760	5,000	5,250	5,510	5,790	6,080	6,380	6,700	7,040	7,390
Group Insurance	65,440	68,710	72,150	75,760	79,550	83,530	87,710	92,100	96,710	101,550
Property and Liability Insurance	178,740	187,680	197,060	206,910	217,260	228,120	239,530	251,510	264,090	277,290
Professional Services General	25,830	27,120	28,480	29,900	31,400	32,970	34,620	36,350	38,170	40,080
Attorney	86,180	90,490	95,010	99,760	104,750	109,990	115,490	121,260	127,320	133,690
Auditor	22,180	23,290	24,450	25,670	26,950	28,300	29,720	31,210	32,770	34,410
Engineer	516,940	542,790	569,930	598,430	628,350	659,770	692,760	727,400	763,770	801,960
Information Technology	27,560	28,940	30,390	31,910	33,510	35,190	36,950	38,800	40,740	42,780
Office Maintenance/Repair/Common Charge	41,360	43,430	45,600	47,880	50,270	52,780	55,420	58,190	61,100	64,160
Office Utilities	8,610	9,040	9,490	9,960	10,460	10,980	11,530	12,110	12,720	13,360
Office Expenses (telephone, printing, adv)	24,130	25,340	26,610	27,940	29,340	30,810	32,350	33,970	35,670	37,450
Office Equipment	17,210	18,070	18,970	19,920	20,920	21,970	23,070	24,220	25,430	26,700
Printing and Advertising	8,610	9,040	9,490	9,960	10,460	10,980	11,530	12,110	12,720	13,360
Telephone and Internet	6,040	6,340	6,660	6,990	7,340	7,710	8,100	8,510	8,940	9,390
Travel and Training	49,980	52,480	55,100	57,860	60,750	63,790	66,980	70,330	73,850	77,540
Phone Allowance	900	950	1,000	1,050	1,100	1,160	1,220	1,280	1,340	1,410
Vehicle Expense	-	-	-	-	-	-	-	-	-	-
Miscellaneous Expense	34,480	36,200	38,010	39,910	41,910	44,010	46,210	48,520	50,950	53,500
Subtotal Admin. Expenses	$ 1,664,890	$ 1,748,150	$ 1,835,560	$ 1,927,330	$ 2,023,730	$ 2,124,940	$ 2,231,220	$ 2,342,810	$ 2,459,990	$ 2,583,010
Operating Expenses										
Sales Tax Expense	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000
Bladen Bluffs O & M	-	-	-	-	-	-	-	-	-	-
Bladen Bluffs Hurricane Florence	-	-	-	-	-	-	-	-	-	-
Utilities/Energy Kings Bluff	1,408,050	1,506,610	1,612,070	1,724,910	1,845,650	1,974,850	2,113,090	2,261,010	2,419,280	2,588,630
Contract O & M Kings Bluff	1,183,380	1,242,550	1,304,680	1,369,910	1,438,410	1,510,330	1,585,850	1,665,140	1,748,400	1,835,820
O&M Kings Booster Pump Bluff Pump Station	-	-	-	-	-	-	-	-	-	-
Combined Enterprise Funded Series 2010 Principal	-	-	-	-	-	-	-	-	-	-
Combined Enterprise Funded Series 2010 Interest	-	-	-	-	-	-	-	-	-	-
Combined Enterprise System Ref Series 2012 Principal	-	-	-	-	-	-	-	-	-	-
Combined Enterprise System Ref Series 2012 Interest	-	-	-	-	-	-	-	-	-	-
Bladen Bluffs Debt Service Principal	-	-	-	-	-	-	-	-	-	-
Bladen Bluffs Debt Service Interest	-	-	-	-	-	-	-	-	-	-
Operating Capital Expense	4,565,559	532,649	1,304,989	4,423,912	-	-	2,719,238	-	-	1,705,090
Transfer to R&R - Kings Bluff R&R Expense	-	-	-	-	-	-	-	-	-	-
Transfer to Enterprise Fund	-	-	-	-	-	-	-	-	-	-
421 Relocation New Hanover County Loan Principal	-	-	-	-	-	-	-	-	-	-
SRF/7 mile parallel line expenditures	-	-	-	-	-	-	-	-	-	-
Subtotal Operating Expenses	$ 7,256,989	$ 3,381,809	$ 4,321,739	$ 7,618,732	$ 3,384,060	$ 3,585,180	$ 6,518,178	$ 4,026,150	$ 4,267,680	$ 6,229,540
TOTAL EXPENSES	$ 8,921,879	$ 5,129,959	$ 6,157,299	$ 9,546,062	$ 5,407,790	$ 5,710,120	$ 8,749,398	$ 6,368,960	$ 6,727,670	$ 8,812,550
Revenues										
Operating Revenue										
Brunswick County	-	-	-	-	-	-	-	-	-	-
Cape Fear Public Utility Authority	-	-	-	-	-	-	-	-	-	-
Pender County	-	-	-	-	-	-	-	-	-	-
Stepan/Invista	-	-	-	-	-	-	-	-	-	-
Praxair, Inc	-	-	-	-	-	-	-	-	-	-
Bladen Bluffs Reimbursement for Plant Operation Costs	-	-	-	-	-	-	-	-	-	-
Bladen Bluffs Administrative Reimbursement	-	-	-	-	-	-	-	-	-	-
Sales Tax Refund	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Subtotal Operating Revenue	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000
Non-Operating										
Interest	870	910	960	1,010	1,060	1,110	1,170	1,230	1,290	1,350
Other Revenue (Insurance Proceeds/FEMA)	-	-	-	-	-	-	-	-	-	-
Federal Tax Subsidy	-	-	-	-	-	-	-	-	-	-
Rental House Income	-	-	-	-	-	-	-	-	-	-
Transfer In	-	-	-	-	-	-	-	-	-	-
SRF/Parallel Revenue										
Renewal and Replacement Fund Appropriated	-	-	-	-	-	-	-	-	-	-
Fund Balance Appropriated	-	-	-	-	-	-	-	-	-	-
Reimbursement from BB (% of Admin Expenses)	363,119	381,274	400,339	420,355	441,385	463,461	486,641	510,978	536,556	563,367
Subtotal Non-Operating Revenue	$ 363,989	$ 382,184	$ 401,299	$ 421,365	$ 442,445	$ 464,571	$ 487,811	$ 512,208	$ 537,826	$ 564,717
TOTAL REVENUE	$ 463,989	$ 482,184	$ 501,299	$ 521,365	$ 542,445	$ 564,571	$ 587,811	$ 612,208	$ 637,826	$ 664,717
NET REVENUE REQUIREMENT	$ 8,457,890	$ 4,647,775	$ 5,656,000	$ 9,024,697	$ 4,865,346	$ 5,145,549	$ 8,161,587	$ 5,756,752	$ 6,089,845	$ 8,147,833

Exhibit 1
Lower Cape Fear WASA
2023 Rate Study
Historical Financial Information

Description	Projections For Fiscal Year Ending June 30,									
	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Escalation Factors										
Constant Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Labor Escalator Factor (WD)	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500
Other Fringes (WD)	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500
General Inflation Factor	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500
Customer Growth Factor	1.0000	2.0000	3.0000	4.0000	5.0000	6.0000	7.0000	8.0000	9.0000	10.0000
Metered Flow Factor	1.0134	1.0134	1.0134	1.0134	1.0135	1.0135	1.0135	1.0135	1.0136	1.0136
Inflation/Customer Growth Factor	1.0500	2.1000	3.1500	4.2000	5.2500	6.3000	7.3500	8.4000	9.4500	10.5000
Inflation/Metered Flow Factor	1.0641	1.0641	1.0641	1.0641	1.0642	1.0642	1.0642	1.0642	1.0643	1.0643
Materials & Supplies	1.0700	1.0700	1.0700	1.0700	1.0700	1.0700	1.0700	1.0700	1.0700	1.0700
Chemical Costs	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
Electrical Costs	1.0700	1.0700	1.0700	1.0700	1.0700	1.0700	1.0700	1.0700	1.0700	1.0700
Eliminate	0.0000	1.0000	2.0000	3.0000	4.0000	5.0000	6.0000	7.0000	8.0000	9.0000

Exhibit 2
Lower Cape Fear WASA
2023 Rate Study
Annual Flows & Revenues

	Historical For Fiscal Years Ended June 30,										Estimated
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Usage (in Gallons)											
Brunswick County	4,104,862	4,085,693	4,138,451	4,236,976	4,502,325	4,818,150	5,157,008	5,095,815	5,246,138	5,510,004	5,710,245
Stepan	531,090	453,240	212,043	182,598	122,460	150,961	287,950	202,660	119,574	306,850	397,941
Praxair, Inc.	13,890	18,363	15,346	15,317	15,171	13,671	10,685	8,137	7,686	7,586	15,581
CFPUA	4,038,823	3,846,216	4,004,487	3,970,821	4,055,680	4,406,808	4,601,557	3,834,778	4,058,426	4,011,323	4,793,236
Pender	242,710	356,715	377,767	425,444	436,477	498,699	570,200	583,988	580,928	574,595	568,801
Total	**8,931,374**	**8,760,227**	**8,748,093**	**8,831,157**	**9,132,113**	**9,888,288**	**10,627,400**	**9,725,379**	**10,012,751**	**10,410,358**	**11,485,804**
Annual Change (Gals)	***N/A***	***(171,148)***	***(12,133)***	***83,063***	***300,957***	***756,175***	***739,111***	***(902,020)***	***287,372***	***397,606***	***1,075,446***
Annual % Change											**5-Yr CAGR**
Brunswick County	-	-0.47%	1.29%	2.38%	6.26%	7.01%	7.03%	-1.19%	2.95%	5.03%	***2.72%***
Stepan	-	-14.66%	-53.22%	-13.89%	-32.93%	23.27%	90.75%	-29.62%	-41.00%	156.62%	***0.00%***
Praxair, Inc.	-	32.20%	-16.43%	-0.19%	-0.95%	-9.89%	-21.84%	-23.84%	-5.55%	-1.31%	***0.00%***
CFPUA	-	-4.77%	4.11%	-0.84%	2.14%	8.66%	4.42%	-16.66%	5.83%	-1.16%	***-1.86%***
Pender	-	46.97%	5.90%	12.62%	2.59%	14.26%	14.34%	2.42%	-0.52%	-1.09%	***2.87%***
Total	-	**-1.92%**	**-0.14%**	**0.95%**	**3.41%**	**8.28%**	**7.47%**	**-8.49%**	**2.95%**	**3.97%**	***1.03%***
Rate											
Brunswick County	$ 0.2617	$ 0.2617	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.3300	$ 0.3600
Stepan	$ 0.2617	$ 0.2617	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.3300	$ 0.3600
Praxair, Inc.	$ 0.2617	$ 0.2617	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.3300	$ 0.3600
CFPUA	$ 0.2617	$ 0.2617	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.3300	$ 0.3600
Pender	$ 0.2617	$ 0.2617	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.3300	$ 0.3600
Billed Revenue											
Brunswick County	$ 1,074,242	$ 1,069,226	$ 1,124,417	$ 1,151,187	$ 1,223,282	$ 1,309,091	$ 1,401,159	$ 1,384,533	$ 1,425,376	$ 1,818,301	$ 2,055,688
Stepan	$ 138,986	$ 118,613	$ 57,612	$ 49,612	$ 33,272	$ 41,016	$ 78,236	$ 55,063	$ 32,488	$ 101,260	$ 143,259
Praxair, Inc.	$ 3,635	$ 4,805	$ 4,170	$ 4,162	$ 4,122	$ 3,714	$ 2,903	$ 2,211	$ 2,088	$ 2,503	$ 5,609
CFPUA	$ 1,056,960	$ 1,006,555	$ 1,088,019	$ 1,078,872	$ 1,101,928	$ 1,197,330	$ 1,250,243	$ 1,041,909	$ 1,102,674	$ 1,323,736	$ 1,725,565
Pender	$ 63,517	$ 93,352	$ 102,639	$ 115,593	$ 118,591	$ 135,496	$ 154,923	$ 158,670	$ 157,838	$ 189,616	$ 204,768
Total	**$ 2,337,341**	**$ 2,292,551**	**$ 2,376,857**	**$ 2,399,425**	**$ 2,481,195**	**$ 2,686,648**	**$ 2,887,464**	**$ 2,642,386**	**$ 2,720,464**	**$ 3,435,418**	**$ 4,134,889**

Exhibit 2
Lower Cape Fear WASA
2023 Rate Study
Annual Flows & Revenues

	Test Year	Projected For Fiscal Years Ending June 30,								
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Usage (In Gallons)	Input from Budget									
Brunswick County	4,314,412	4,745,853	4,827,482	4,910,515	4,994,975	5,080,889	5,168,280	5,257,175	5,347,598	5,439,577
Stepan	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000
Praxair, Inc.	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000
CFPUA	4,131,405	4,172,719	4,214,446	4,256,591	4,299,157	4,342,148	4,385,570	4,429,425	4,473,720	4,518,457
Pender	585,400	597,108	609,050	621,231	633,656	646,329	659,255	672,441	685,889	699,607
Total	**9,781,217**	**10,265,680**	**10,400,978**	**10,538,336**	**10,677,788**	**10,819,366**	**10,963,105**	**11,109,041**	**11,257,207**	**11,407,641**
Annual Change (Gals)	***(1,704,587)***	***484,463***	***135,298***	***137,358***	***139,451***	***141,578***	***143,739***	***145,935***	***148,166***	***150,434***
Annual % Change										
Brunswick County	0.00%	10.00%	1.72%	1.72%	1.72%	1.72%	1.72%	1.72%	1.72%	1.72%
Stepan	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Praxair, Inc.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CFPUA	0.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
Pender	0.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Total	**-14.84%**	**4.95%**	**1.32%**	**1.32%**	**1.32%**	**1.33%**	**1.33%**	**1.33%**	**1.33%**	**1.34%**
Rate										
Brunswick County	$ 0.4000	$ 0.4400	$ 0.4800	$ 0.5200	$ 0.5600	$ 0.6000	$ 0.6400	$ 0.6800	$ 0.7200	$ 0.7600
Stepan	$ 0.4000	$ 0.4400	$ 0.4800	$ 0.5200	$ 0.5600	$ 0.6000	$ 0.6400	$ 0.6800	$ 0.7200	$ 0.7600
Praxair, Inc.	$ 0.4000	$ 0.4400	$ 0.4800	$ 0.5200	$ 0.5600	$ 0.6000	$ 0.6400	$ 0.6800	$ 0.7200	$ 0.7600
CFPUA	$ 0.4000	$ 0.4400	$ 0.4800	$ 0.5200	$ 0.5600	$ 0.6000	$ 0.6400	$ 0.6800	$ 0.7200	$ 0.7600
Pender	$ 0.4000	$ 0.4400	$ 0.4800	$ 0.5200	$ 0.5600	$ 0.6000	$ 0.6400	$ 0.6800	$ 0.7200	$ 0.7600
Billed Revenue										
Brunswick County	$ 1,725,765	$ 2,088,175	$ 2,317,191	$ 2,553,468	$ 2,797,186	$ 3,048,533	$ 3,307,699	$ 3,574,879	$ 3,850,271	$ 4,134,078
Stepan	$ 200,000	$ 220,000	$ 240,000	$ 260,000	$ 280,000	$ 300,000	$ 320,000	$ 340,000	$ 360,000	$ 380,000
Praxair, Inc.	$ 100,000	$ 110,000	$ 120,000	$ 130,000	$ 140,000	$ 150,000	$ 160,000	$ 170,000	$ 180,000	$ 190,000
CFPUA	$ 1,652,562	$ 1,835,996	$ 2,022,934	$ 2,213,427	$ 2,407,528	$ 2,605,289	$ 2,806,765	$ 3,012,009	$ 3,221,078	$ 3,434,027
Pender	$ 234,160	$ 262,728	$ 292,344	$ 323,040	$ 354,847	$ 387,797	$ 421,924	$ 457,260	$ 493,840	$ 531,701
Total	**$ 3,912,487**	**$ 4,516,899**	**$ 4,992,470**	**$ 5,479,935**	**$ 5,979,561**	**$ 6,491,620**	**$ 7,016,387**	**$ 7,554,148**	**$ 8,105,189**	**$ 8,669,807**

Exhibit 2
Lower Cape Fear WASA
2023 Rate Study
Annual Flows & Revenues

	Projected For Fiscal Years Ending June 30,									
	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Usage (In Gallons)										
Brunswick County	5,533,138	5,628,307	5,725,114	5,823,586	5,923,752	6,025,641	6,129,282	6,234,705	6,341,942	6,451,024
Stepan	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000
Praxair, Inc.	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000
CFPUA	4,563,641	4,609,278	4,655,371	4,701,924	4,748,944	4,796,433	4,844,397	4,892,841	4,941,770	4,991,187
Pender	713,599	727,871	742,429	757,277	772,423	787,871	803,629	819,701	836,095	852,817
Total	**11,560,378**	**11,715,457**	**11,872,914**	**12,032,788**	**12,195,118**	**12,359,945**	**12,527,308**	**12,697,248**	**12,869,807**	**13,045,028**
Annual Change (Gals)	***152,737***	***155,078***	***157,457***	***159,874***	***162,330***	***164,826***	***167,363***	***169,940***	***172,559***	***175,221***
Annual % Change										
Brunswick County	1.72%	1.72%	1.72%	1.72%	1.72%	1.72%	1.72%	1.72%	1.72%	1.72%
Stepan	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Praxair, Inc.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CFPUA	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
Pender	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Total	**1.34%**	**1.34%**	**1.34%**	**1.35%**	**1.35%**	**1.35%**	**1.35%**	**1.36%**	**1.36%**	**1.36%**
Rate										
Brunswick County	**$ 0.8000**	**$ 0.8400**	**$ 0.8800**	**$ 0.9200**	**$ 0.9600**	**$ 1.0000**	**$ 1.0400**	**$ 1.0800**	**$ 1.1200**	**$ 1.1600**
Stepan	$ 0.8000	$ 0.8400	$ 0.8800	$ 0.9200	$ 0.9600	$ 1.0000	$ 1.0400	$ 1.0800	$ 1.1200	$ 1.1600
Praxair, Inc.	$ 0.8000	$ 0.8400	$ 0.8800	$ 0.9200	$ 0.9600	$ 1.0000	$ 1.0400	$ 1.0800	$ 1.1200	$ 1.1600
CFPUA	$ 0.8000	$ 0.8400	$ 0.8800	$ 0.9200	$ 0.9600	$ 1.0000	$ 1.0400	$ 1.0800	$ 1.1200	$ 1.1600
Pender	$ 0.8000	$ 0.8400	$ 0.8800	$ 0.9200	$ 0.9600	$ 1.0000	$ 1.0400	$ 1.0800	$ 1.1200	$ 1.1600
Billed Revenue										
Brunswick County	$ 4,426,510	$ 4,727,778	$ 5,038,101	$ 5,357,699	$ 5,686,802	$ 6,025,641	$ 6,374,453	$ 6,733,482	$ 7,102,975	$ 7,483,187
Stepan	$ 400,000	$ 420,000	$ 440,000	$ 460,000	$ 480,000	$ 500,000	$ 520,000	$ 540,000	$ 560,000	$ 580,000
Praxair, Inc.	$ 200,000	$ 210,000	$ 220,000	$ 230,000	$ 240,000	$ 250,000	$ 260,000	$ 270,000	$ 280,000	$ 290,000
CFPUA	$ 3,650,913	$ 3,871,793	$ 4,096,726	$ 4,325,770	$ 4,558,986	$ 4,796,433	$ 5,038,173	$ 5,284,269	$ 5,534,782	$ 5,789,777
Pender	$ 570,879	$ 611,412	$ 653,337	$ 696,695	$ 741,526	$ 787,871	$ 835,774	$ 885,277	$ 936,427	$ 989,268
Total	**$ 9,248,303**	**$ 9,840,984**	**$ 10,448,164**	**$ 11,070,165**	**$ 11,707,314**	**$ 12,359,945**	**$ 13,028,400**	**$ 13,713,028**	**$ 14,414,184**	**$ 15,132,233**

Exhibit 3
Lower Cape Fear WASA
Kings Bluff Raw Water Facilities
Annual Capital Projects

Project No.	Description	Funding Source	20-Year Total	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034
	R&R Capital Cost Escalator				0.0%	9.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
	Major Capital Facility Cost Escalator				0.0%	9.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
				Lower Cape Fear Water and Sewer Authority Projects (Allocated Across All LCF Customer Base)											
KB 1	New 4th Pump @ King's Bluff PS	Debt Service	$ 4,828,700		$ -	$ 3,569,750	$ 1,258,950								
KB 1	New 4th Pump @ King's Bluff PS	Pay-Go Capital	$ 225,000		$ 225,000										
KB 2	Rebuild High Service Pump Motors	Pay-Go Capital	$ 532,649												
KB 3	New Generators	Debt Service	$ 25,085,210												$ 2,536,422
KB 4	Pig 48" Water Main (KBPS to 3 MG Tank)	Pay-Go Capital	$ 2,719,238												
KB 5	Pig Future 54" Water Main	Pay-Go Capital	$ 2,029,137												$ 2,029,137
KB 6	Walkway & Air Backwash Building Rplcmt	Debt Service	$ 2,180,000		$ -	$ 2,180,000									
KB 6	Walkway & Air Backwash Building Rplcmt	Pay-Go Capital	$ 226,360		$ 226,360										
KB 7	Replace Raw Water Pumps 1, 4, 5	Debt Service	$ 17,903,999							$ 4,769,647					$ 6,087,412
KB 8	New Surge Tank at KBPS	Pay-Go Capital	$ 1,705,090												
KB 9	5 ROW Acquisitions	Pay-Go Capital	$ 309,000	$ 100,000	$ 100,000	$ 109,000									
KB 10	48-Inch PCCP Inspect. and Pig - Grd Tank	Pay-Go Capital	$ 2,842,652				$ 2,632,350	$ 210,302							
KB 11	48-Inch PCCP Repairs	Pay-Go Capital	$ 327,000			$ 327,000									
	Operating Capital (FY 23/24)	Pay-Go Capital	$ 735,000		$ 735,000										
	TOTAL PROJECTS (ALLOCATED TO ALL)		$ 61,649,034	$ 100,000	$ 1,286,360	$ 6,185,750	$ 3,891,300	$ 210,302	$ -	$ 4,769,647	$ -	$ -	$ -	$ -	$10,652,971
				Sources of Funding											
	Pay-Go Capital		$ 11,651,126	$ 100,000	$ 1,286,360	$ 436,000	$ 2,632,350	$ 210,302	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,029,137
	Debt Service		$ 49,997,909	$ -	$ -	$ 5,749,750	$ 1,258,950	$ -	$ -	$ 4,769,647	$ -	$ -	$ -	$ -	$ 8,623,834
	TOTAL FUNDING SOURCES		$ 61,649,034	$ 100,000	$ 1,286,360	$ 6,185,750	$ 3,891,300	$ 210,302	$ -	$ 4,769,647	$ -	$ -	$ -	$ -	$10,652,971
				Cost Sharing Projects											
CS 1	Intermediate Booster PS Shelter	Pay-Go (Cost Share)	$ 926,500			$ 926,500									
CS 2	Intermediate Booster PS Upgrade	Pay-Go (Cost Share)	$ 14,453,577											$ 1,771,469	$12,682,108
CS 3	New 5th Pump at King'sBluff	Pay-Go (Cost Share)	$ -												
CS 4	20 MG Ground Tank	Pay-Go (Cost Share)	$ 28,644,507												
CS 5	7-Mile 48" Parallel Raw Water Main	Already Funded	$ 48,597,615		$15,000,000	$16,350,000	$17,247,615								
CS 6	3-Mile 48" Parallel Raw Water Main	Grants/ARPA	$ 30,794,203					$15,021,563	$15,772,641						
CS 7	100 MGD Reservoir (Alloc. to All)	Debt Service	$ 60,911,367									$ 8,764,225	$52,147,142		
	TOTAL PROJECTS (COST SHARING)		$184,327,770	$ -	$15,000,000	$17,276,500	$17,247,615	$15,021,563	$15,772,641	$ -	$ -	$ 8,764,225	$52,147,142	$ 1,771,469	$12,682,108
				Sources of Funding											
	Pay-Go (Cost Share)														
	LCFWSA		$ 8,804,917	$ -	$ -	$ 185,300	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 354,294	$ 2,536,422
	Brunswick		$ 8,593,352	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	CFPUA		$ 12,649,936	$ -	$ -	$ 416,925	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 797,161	$ 5,706,949
	Pender		$ 9,573,921	$ -	$ -	$ 231,625	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 442,867	$ 3,170,527
	Stephan		$ 2,201,229	$ -	$ -	$ 46,325	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 88,573	$ 634,105
	Praxair		$ 2,201,229	$ -	$ -	$ 46,325	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 88,573	$ 634,105
	Debt Service		$ 60,911,367	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 8,764,225	$52,147,142	$ -	$ -
	Grants/ARPA		$ 30,794,203	$ -	$ -	$ -	$ -	$15,021,563	$15,772,641	$ -	$ -	$ -	$ -	$ -	$ -
	Already Funded		$ 48,597,615	$ -	$15,000,000	$16,350,000	$17,247,615	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	TOTAL FUNDING SOURCES		$184,327,770	$ -	$15,000,000	$17,276,500	$17,247,615	$15,021,563	$15,772,641	$ -	$ -	$ 8,764,225	$52,147,142	$ 1,771,469	$12,682,108
	TOTAL - ALL CAPITAL PROJECTS		$245,976,804	$ 100,000	$16,286,360	$23,462,250	$21,138,915	$15,231,864	$15,772,641	$ 4,769,647	$ -	$ 8,764,225	$52,147,142	$ 1,771,469	$23,335,079

Exhibit 3
Lower Cape Fear WASA
Kings Bluff Raw Water Facilities
Annual Capital Projects

Project No.	Description	Funding Source	FY2035	FY2036	FY2037	FY2038	FY2039	FY2040	FY2041	FY2042	FY2043	FY2044	FY2045	FY2046	Grand Total
	R&R Capital Cost Escalator		*5.0%*	*5.0%*	*5.0%*	*5.0%*	*5.0%*	*5.0%*	*5.0%*	*5.0%*	*5.0%*	*5.0%*	*5.0%*	*5.0%*	
	Major Capital Facility Cost Escalator		*5.0%*	*5.0%*	*5.0%*	*5.0%*	*5.0%*	*5.0%*	*5.0%*	*5.0%*	*5.0%*	*5.0%*	*5.0%*	*5.0%*	
			Lower Cape Fear Water and Sewer Authority Projects (Allocated Across All LCF Customer Base)												
KB 1	New 4th Pump @ King's Bluff PS	Debt Service													$ 4,828,700
KB 1	New 4th Pump @ King's Bluff PS	Pay-Go Capital													$ 225,000
KB 2	Rebuild High Service Pump Motors	Pay-Go Capital	$ 532,649												$ 532,649
KB 3	New Generators	Debt Service	$22,548,788												$ 25,085,210
KB 4	Pig 48" Water Main (KBPS to 3 MG Tank)	Pay-Go Capital						$ 2,719,238							$ 2,719,238
KB 5	Pig Future 54" Water Main	Pay-Go Capital													$ 2,029,137
KB 6	Walkway & Air Backwash Building Rplcmt	Debt Service													$ 2,180,000
KB 6	Walkway & Air Backwash Building Rplcmt	Pay-Go Capital													
KB 7	Replace Raw Water Pumps 1, 4, 5	Debt Service			$ 7,046,940										$ 17,903,999
KB 8	New Surge Tank at KBPS	Pay-Go Capital									$ 1,705,090				$ 1,705,090
KB 9	5 ROW Acquisitions	Pay-Go Capital													$ 309,000
KB 10	48-Inch PCCP Inspect. and Pig - Grd Tank	Pay-Go Capital													$ 2,842,652
KB 11	48-Inch PCCP Repairs	Pay-Go Capital													$ 327,000
	Operating Capital (FY 23/24)	Pay-Go Capital													
	TOTAL PROJECTS (ALLOCATED TO ALL)		**$23,081,437**	**$ -**	**$ 7,046,940**	**$ -**	**$ -**	**$ 2,719,238**	**$ -**	**$ -**	**$ 1,705,090**	**$ -**	**$ -**	**$ -**	**$ 60,687,674**
			Sources of Funding												
	Pay-Go Capital		$ 532,649	$ -	$ -	$ -	$ -	$ 2,719,238	$ -	$ -	$ 1,705,090	$ -	$ -	$ -	$ 11,651,126
	Debt Service		$22,548,788	$ -	$ 7,046,940	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 49,997,909
	TOTAL FUNDING SOURCES		**$23,081,437**	**$ -**	**$ 7,046,940**	**$ -**	**$ -**	**$ 2,719,238**	**$ -**	**$ -**	**$ 1,705,090**	**$ -**	**$ -**	**$ -**	**$ 61,649,034**
			Cost Sharing Projects												
CS 1	Intermediate Booster PS Shelter	Pay-Go (Cost Share)													$ 926,500
CS 2	Intermediate Booster PS Upgrade	Pay-Go (Cost Share)													$ 14,453,577
CS 3	New 5th Pump at King'sBluff	Pay-Go (Cost Share)										$ 2,754,376	$ 7,230,236	$ 3,340,369	$ 13,324,981
CS 4	20 MG Ground Tank	Pay-Go (Cost Share)		$ 6,524,945	$22,119,562										$ 28,644,507
CS 5	7-Mile 48" Parallel Raw Water Main	Already Funded													$ 48,597,615
CS 6	3-Mile 48" Parallel Raw Water Main	Grants/ARPA													$ 30,794,203
CS 7	100 MGD Reservoir (Alloc. to All)	Debt Service													$ 60,911,367
	TOTAL PROJECTS (COST SHARING)		**$ -**	**$ 6,524,945**	**$22,119,562**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 2,754,376**	**$ 7,230,236**	**$ 3,340,369**	**$197,652,751**
	Pay-Go (Cost Share)		**Sources of Funding**												
	LCFWSA		$ -	$ 1,304,989	$ 4,423,912	$ -	$ -	$ -	$ -	$ -	$ -	$ 550,875	$ 1,446,047	$ 668,074	$ 11,469,913
	Brunswick		$ -	$ 1,957,483	$ 6,635,869	$ -	$ -	$ -	$ -	$ -	$ -	$ 826,313	$ 2,169,071	$ 1,002,111	$ 12,590,846
	CFPUA		$ -	$ 1,304,989	$ 4,423,912	$ -	$ -	$ -	$ -	$ -	$ -	$ 550,875	$ 1,446,047	$ 668,074	$ 15,314,932
	Pender		$ -	$ 1,304,989	$ 4,423,912	$ -	$ -	$ -	$ -	$ -	$ -	$ 550,875	$ 1,446,047	$ 668,074	$ 12,238,917
	Stephan		$ -	$ 326,247	$ 1,105,978	$ -	$ -	$ -	$ -	$ -	$ -	$ 137,719	$ 361,512	$ 167,018	$ 2,867,478
	Praxair		$ -	$ 326,247	$ 1,105,978	$ -	$ -	$ -	$ -	$ -	$ -	$ 137,719	$ 361,512	$ 167,018	$ 2,867,478
	Debt Service		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 60,911,367
	Grants/ARPA		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 30,794,203
	Already Funded		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 48,597,615
	TOTAL FUNDING SOURCES		**$ -**	**$ 6,524,945**	**$22,119,562**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 2,754,376**	**$ 7,230,236**	**$ 3,340,369**	**$197,652,751**
	TOTAL - ALL CAPITAL PROJECTS		**$23,081,437**	**$ 6,524,945**	**$29,166,503**	**$ -**	**$ -**	**$ 2,719,238**	**$ -**	**$ -**	**$ 1,705,090**	**$ 2,754,376**	**$ 7,230,236**	**$ 3,340,369**	**$258,340,425**

Exhibit 4
Lower Cape Fear WASA
Estimates of Future Debt Service

Line	Description		Projected For Fiscal Year Ending June 30, 2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
			Lower Cape Fear Water and Sewer Authority Projects (Allocated Across All LCF Customer Base)									
	Project Costs											
1	New 4th Pump @ King's Bluff PS		$ -	$ 3,569,750	$ 1,258,950	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2	Walkway & Air Backwash Building Rplcmt		$ -	$ 2,180,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
3	New Generators		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
4	Replace Raw Water Pump 1		$ -	$ -	$ -	$ -	$ -	$ 4,769,647	$ -	$ -	$ -	$ -
5	Replace Raw Water Pump 4		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
6	Replace Raw Water Pump 5		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Estimated Debt Service											
	Assumptions:											
7	Interest Rate	5.0%										
8	Term (Yrs)	20										
9	New 4th Pump @ King's Bluff PS		$ -	$ 193,734	$ 387,467	$ 387,467	$ 387,467	$ 387,467	$ 387,467	$ 387,467	$ 387,467	$ 387,467
10	Walkway & Air Backwash Building Rplcmt		$ -	$ 87,464	$ 174,929	$ 174,929	$ 174,929	$ 174,929	$ 174,929	$ 174,929	$ 174,929	$ 174,929
11	New Generators		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
12	Replace Raw Water Pump 1		$ -	$ -	$ -	$ -	$ -	$ 191,364	$ 382,729	$ 382,729	$ 382,729	$ 382,729
13	Replace Raw Water Pump 4		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
14	Replace Raw Water Pump 5		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
13	**Total Debt (Allocated to All Customer Base)**		**$ -**	**$ 281,198**	**$ 562,396**	**$ 562,396**	**$ 562,396**	**$ 753,761**	**$ 945,125**	**$ 945,125**	**$ 945,125**	**$ 945,125**
			Cost Sharing Projects									
	Project Costs											
14	100 MGD Reservoir (Alloc. to All)-CS 7		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 8,764,225	$ 52,147,142	$ -
15	Intermediate Booster PS Upgrade		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
16	20 MG Ground Tank		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Estimated Debt Service											
17	Assumptions:											
18	Interest Rate	5.0%										
19	Term (Yrs)	20										
20	100 MGD Reservoir (Alloc. to All)-CS 7		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,443,843	$ 4,887,686	$ 4,887,686
21	Intermediate Booster PS Upgrade		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
22	20 MG Ground Tank		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
23	**Total Debt (Cost Sharing Projects)**		**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 2,443,843**	**$ 4,887,686**	**$ 4,887,686**
24	**Total Debt Service**		**$ -**	**$ 281,198**	**$ 562,396**	**$ 562,396**	**$ 562,396**	**$ 753,761**	**$ 945,125**	**$ 3,388,968**	**$ 5,832,811**	**$ 5,832,811**

Exhibit 4
Lower Cape Fear WASA
Estimates of Future Debt Service

Line	Description		Projected For Fiscal Year Ending June 30, 2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
			Lower Cape Fear Water and Sewer Authority Projects (Allocated Across All LCF Customer Base)									
	Project Costs											
1	New 4th Pump @ King's Bluff PS		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2	Walkway & Air Backwash Building Rplcmt		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
3	New Generators		$ 2,536,422	$ 22,548,788	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
4	Replace Raw Water Pump 1		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
5	Replace Raw Water Pump 4		$ 6,087,412	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
6	Replace Raw Water Pump 5		$ -	$ -	$ -	$ 7,046,940	$ -	$ -	$ -	$ -	$ -	$ -
	Estimated Debt Service											
	Assumptions:											
7	Interest Rate	5.0%										
8	Term (Yrs)	20										
9	New 4th Pump @ King's Bluff PS		$ 387,467	$ 387,467	$ 387,467	$ 387,467	$ 387,467	$ 387,467	$ 387,467	$ 387,467	$ 387,467	$ 387,467
10	Walkway & Air Backwash Building Rplcmt		$ 174,929	$ 174,929	$ 174,929	$ 174,929	$ 174,929	$ 174,929	$ 174,929	$ 174,929	$ 174,929	$ 174,929
11	New Generators		$ 1,006,451	$ 2,012,902	$ 2,012,902	$ 2,012,902	$ 2,012,902	$ 2,012,902	$ 2,012,902	$ 2,012,902	$ 2,012,902	$ 2,012,902
12	Replace Raw Water Pump 1		$ 382,729	$ 382,729	$ 382,729	$ 382,729	$ 382,729	$ 382,729	$ 382,729	$ 382,729	$ 382,729	$ 382,729
13	Replace Raw Water Pump 4		$ 244,235	$ 488,470	$ 488,470	$ 488,470	$ 488,470	$ 488,470	$ 488,470	$ 488,470	$ 488,470	$ 488,470
14	Replace Raw Water Pump 5		$ -	$ -	$ -	$ 282,732	$ 565,465	$ 565,465	$ 565,465	$ 565,465	$ 565,465	$ 565,465
13	**Total Debt (Allocated to All Customer Base)**		**$ 2,195,811**	**$ 3,446,497**	**$ 3,446,497**	**$ 3,729,229**	**$ 4,011,962**	**$ 4,011,962**	**$ 4,011,962**	**$ 4,011,962**	**$ 4,011,962**	**$ 4,011,962**
			Cost Sharing Projects									
	Project Costs											
14	100 MGD Reservoir (Alloc. to All)-CS 7		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
15	Intermediate Booster PS Upgrade		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
16	20 MG Ground Tank		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Estimated Debt Service											
17	Assumptions:											
18	Interest Rate	5.0%										
19	Term (Yrs)	20										
20	100 MGD Reservoir (Alloc. to All)-CS 7		$ 4,887,686	$ 4,887,686	$ 4,887,686	$ 4,887,686	$ 4,887,686	$ 4,887,686	$ 4,887,686	$ 4,887,686	$ 4,887,686	$ 4,887,686
21	Intermediate Booster PS Upgrade		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
22	20 MG Ground Tank		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
23	**Total Debt (Cost Sharing Projects)**		**$ 4,887,686**	**$ 4,887,686**	**$ 4,887,686**	**$ 4,887,686**	**$ 4,887,686**	**$ 4,887,686**	**$ 4,887,686**	**$ 4,887,686**	**$ 4,887,686**	**$ 4,887,686**
24	**Total Debt Service**		**$ 7,083,497**	**$ 8,334,183**	**$ 8,334,183**	**$ 8,616,915**	**$ 8,899,647**	**$ 8,899,647**	**$ 8,899,647**	**$ 8,899,647**	**$ 8,899,647**	**$ 8,899,647**

Exhibit 5
Lower Cape Fear WASA
Projected Operating Results

Line	Description	Projected For Fiscal Year Ending June 30, 2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
	Revenues										
	Operating Revenues:										
1	Brunswick County	$ 1,553,188	$ 1,898,341	$ 2,124,092	$ 2,357,047	$ 2,597,387	$ 2,845,298	$ 3,100,968	$ 3,364,592	$ 3,636,367	$ 3,916,495
2	Stepan	180,000	200,000	220,000	240,000	260,000	280,000	300,000	320,000	340,000	360,000
3	Praxair, Inc.	90,000	100,000	110,000	120,000	130,000	140,000	150,000	160,000	170,000	180,000
4	CFPUA	1,487,306	1,669,088	1,854,356	2,043,164	2,235,561	2,431,603	2,631,342	2,834,832	3,042,129	3,253,289
5	Pender	210,744	238,843	267,982	298,191	329,501	361,944	395,553	430,362	466,405	503,717
6	*Proposed Water Rate Increase*	*$ 0.040*	*$ 0.040*	*$ 0.040*	*$ 0.040*	*$ 0.040*	*$ 0.040*	*$ 0.040*	*$ 0.040*	*$ 0.040*	*$ 0.040*
7	*Effective Increase in Revenues*	*11.11%*	*10.00%*	*9.09%*	*8.33%*	*7.69%*	*7.14%*	*6.67%*	*6.25%*	*5.88%*	*5.56%*
8	Additional Revenue Due to Increase	$ 391,249	$ 410,627	$ 416,039	$ 421,533	$ 427,112	$ 432,775	$ 438,524	$ 444,362	$ 450,288	$ 456,306
9	**Total Water Charge Revenue**	**$ 3,912,487**	**$ 4,516,899**	**$ 4,992,470**	**$ 5,479,935**	**$ 5,979,561**	**$ 6,491,620**	**$ 7,016,387**	**$ 7,554,148**	**$ 8,105,189**	**$ 8,669,807**
	Other Revenues:										
10	Interest	$ 500	$ 550	$ 590	$ 620	$ 650	$ 680	$ 710	$ 750	$ 790	$ 830
11	Fund Balance Appropriated	0	0	0	0	0	0	0	0	0	0
12	Rembursement from BB (% of Admin Expenses)	214,218	229,872	245,763	258,050	270,957	284,507	298,732	313,669	329,355	345,826
13	**Total Other Operating Revenues**	$ 214,718	$ 230,422	$ 246,353	$ 258,670	$ 271,607	$ 285,187	$ 299,442	$ 314,419	$ 330,145	$ 346,656
	Other Non-Operating Revenues:										
14	Sales Tax Revenues	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000
15	Miscellaneous	0	0	0	0	0	0	0	0	0	0
16	**Total Other Non Operating Revenues**	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000
17	**TOTAL REVENUES**	$ 4,227,205	$ 4,847,321	$ 5,338,822	$ 5,838,605	$ 6,351,168	$ 6,876,807	$ 7,415,829	$ 7,968,566	$ 8,535,334	$ 9,116,463
	Operating/Administration Expenses										
	Operating Expenses										
18	Sales Tax Expense	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000
19	Utilities/Energy Kings Bluff	786,589	825,920	867,220	910,580	956,110	1,003,920	1,074,190	1,149,380	1,229,840	1,315,930
20	Contract O & M Kings Bluff	686,749	748,560	800,960	841,010	883,060	927,210	973,570	1,022,250	1,073,360	1,127,030
	Administration Expenses										
21	Salaries	203,530	213,710	224,400	235,620	247,400	259,770	272,760	286,400	300,720	315,760
22	Per Diem and Mileage Board Members	64,001	69,760	74,640	78,370	82,290	86,400	90,720	95,260	100,020	105,020
23	Vehicle Allowance	5,200	5,670	6,070	6,370	6,690	7,020	7,370	7,740	8,130	8,540
24	FICA Taxes	20,953	22,000	23,100	24,260	25,470	26,740	28,080	29,480	30,950	32,500
25	Retirement	26,153	27,460	28,830	30,270	31,780	33,370	35,040	36,790	38,630	40,560
26	401K Plan	11,312	11,880	12,470	13,090	13,740	14,430	15,150	15,910	16,710	17,550
27	Miscellaneous Payroll Expenses	2,900	3,050	3,200	3,360	3,530	3,710	3,900	4,100	4,310	4,530
28	Group Insurance	40,176	42,180	44,290	46,500	48,830	51,270	53,830	56,520	59,350	62,320
29	Property and Liability Insurance	103,734	113,070	120,980	127,030	133,380	140,050	147,050	154,400	162,120	170,230
30	Professional Services General	15,000	16,350	17,490	18,360	19,280	20,240	21,250	22,310	23,430	24,600
31	Attorney	50,000	54,500	58,320	61,240	64,300	67,520	70,900	74,450	78,170	82,080
32	Auditor	8,000	8,720	15,000	15,750	16,540	17,370	18,240	19,150	20,110	21,120
33	Engineer	300,000	327,000	349,890	367,380	385,750	405,040	425,290	446,550	468,880	492,320
34	Information Technology	16,000	17,440	18,660	19,590	20,570	21,600	22,680	23,810	25,000	26,250
35	Office Maintenance/Repair/Common Charge	24,000	26,160	27,990	29,390	30,860	32,400	34,020	35,720	37,510	39,390
36	Office Utilities	5,000	5,450	5,830	6,120	6,430	6,750	7,090	7,440	7,810	8,200
37	Office Expenses (telephone, printing, adv)	14,000	15,260	16,330	17,150	18,010	18,910	19,860	20,850	21,890	22,980
38	Office Equipment	10,000	10,900	11,660	12,240	12,850	13,490	14,160	14,870	15,610	16,390
39	Printing and Advertising	5,000	5,450	5,830	6,120	6,430	6,750	7,090	7,440	7,810	8,200
40	Telephone and Internet	3,500	3,820	4,090	4,290	4,500	4,730	4,970	5,220	5,480	5,750
41	Travel and Training	29,000	31,610	33,820	35,510	37,290	39,150	41,110	43,170	45,330	47,600
42	Phone Allowance	520	570	610	640	670	700	740	780	820	860
43	Vehicle Expense	0	0	0	0	0	0	0	0	0	0
44	Miscellaneous Expense	20,000	21,800	23,330	24,500	25,730	27,020	28,370	29,790	31,280	32,840
45	**Total Expenses**	$ 2,551,317	$ 2,728,290	$ 2,895,010	$ 3,034,740	$ 3,181,490	$ 3,335,560	$ 3,517,430	$ 3,709,780	$ 3,913,270	$ 4,128,550
46	**Income Available for Debt Service**	**$ 1,675,887**	**$ 2,119,031**	**$ 2,443,812**	**$ 2,803,865**	**$ 3,169,678**	**$ 3,541,247**	**$ 3,898,399**	**$ 4,258,786**	**$ 4,622,064**	**$ 4,987,913**

Exhibit 5
Lower Cape Fear WASA
Projected Operating Results

Line	Description	Projected For Fiscal Year Ending June 30, 2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
	Debt Service										
47	LCFWSA Capital Projects (Allocated to All)	$ 0	$ 281,198	$ 562,396	$ 562,396	$ 562,396	$ 753,761	$ 945,125	$ 945,125	$ 945,125	$ 945,125
48	Cost Sharing Projects Debt Service	0	0	0	0	0	0	0	2,443,843	4,887,686	4,887,686
49	Future Debt Service #3	0	0	0	0	0	0	0	0	0	0
50	**Total Annual Debt Service-Water**	$ 0	$ 281,198	$ 562,396	$ 562,396	$ 562,396	$ 753,761	$ 945,125	$ 3,388,968	$ 5,832,811	$ 5,832,811
51	**Debt Service Coverage**	*N/A*	*7.54*	*4.35*	*4.99*	*5.64*	*4.70*	*4.12*	*1.26*	*0.79*	*0.86*
52	**Remaining Net Revenue After Debt Service**	$ 1,675,887	$ 1,837,833	$ 1,881,416	$ 2,241,469	$ 2,607,282	$ 2,787,486	$ 2,953,274	$ 869,818	$ (1,210,746)	$ (844,898)
	Other Expenses & Transfers In/(Out)										
53	Pay-Go Capital Projects (Allocated to All & Cost Share)	$ (1,286,360)	$ (621,300)	$ (2,632,350)	$ (210,302)	$ 0	$ 0	$ 0	$ 0	$ 0	$ (354,294)
54	Transfer Out to R&R - Kings Bluff R&R Expense	(380,000)	(500,000)	(1,000,000)	(1,000,000)	(1,300,000)	(1,250,000)	(1,200,000)	(250,000)	0	0
55	Transfer Out to Enterprise Capital Fund	(100,000)	(150,000)	(500,000)	(1,000,000)	(1,300,000)	(1,500,000)	(1,700,000)	(500,000)	0	0
56	Transfer In from R&R Fund	100,000	0	1,900,000	0	0	0	0	0	0	0
57	Transfer In from Enterprise Capital Fund	0	0	400,000	0	0	0	0	0	0	0
58	**Total Other Expenses/Transfers**	$ (1,666,360)	$ (1,271,300)	$ (1,832,350)	$ (2,210,302)	$ (2,600,000)	$ (2,750,000)	$ (2,900,000)	$ (750,000)	$ 0	$ (354,294)
59	**Remaining Funds Available from Annual Operations (Net Income)**	$ 9,527	$ 566,533	$ 49,066	$ 31,167	$ 7,282	$ 37,486	$ 53,274	$ 119,818	$ (1,210,746)	$ (1,199,192)
	Funds - Balance Activity										
	Enterprise Operating Fund										
60	Beginning Fund Balance	$ 2,900,000	$ 2,909,527	$ 3,476,060	$ 3,525,126	$ 3,556,293	$ 3,563,575	$ 3,601,061	$ 3,654,336	$ 3,774,154	$ 2,563,408
61	Plus Remaining Funds from Operations	9,527	566,533	49,066	31,167	7,282	37,486	53,274	119,818	(1,210,746)	(1,199,192)
62	Transfer In from Operations	0	0	0	0	0	0	0	0	0	0
63	Transfer Out	0	0	0	0	0	0	0	0	0	0
64	**Total Funds Available-Operating Fund**	$ 2,909,527	$ 3,476,060	$ 3,525,126	$ 3,556,293	$ 3,563,575	$ 3,601,061	$ 3,654,336	$ 3,774,154	$ 2,563,408	$ 1,364,216
65	**Working Capital in Enterprise Fund**	*15.00*	*17.00*	*16.00*	*15.00*	*15.00*	*14.00*	*14.00*	*13.00*	*9.00*	*4.00*
	Renewal & Replacement Fund										
66	Beginning Fund Balance	$ 343,311	$ 623,311	$ 1,123,311	$ 223,311	$ 1,223,311	$ 2,523,311	$ 3,773,311	$ 4,973,311	$ 5,223,311	$ 5,223,311
67	Plus: Transfer From Operations	380,000	500,000	1,000,000	1,000,000	1,300,000	1,250,000	1,200,000	250,000	0	0
68	Less: R&R Capital Expenses	(100,000)	0	(1,900,000)	0	0	0	0	0	0	0
69	**Total Funds Available-R&R Fund**	$ 623,311	$ 1,123,311	$ 223,311	$ 1,223,311	$ 2,523,311	$ 3,773,311	$ 4,973,311	$ 5,223,311	$ 5,223,311	$ 5,223,311
	Enterprise Capital Fund										
70	Beginning Fund Balance	$ 381,406	$ 481,406	$ 631,406	$ 731,406	$ 1,731,406	$ 3,031,406	$ 4,531,406	$ 6,231,406	$ 6,731,406	$ 6,731,406
71	Plus: Transfer From Operations	100,000	150,000	500,000	1,000,000	1,300,000	1,500,000	1,700,000	500,000	0	0
72	Less: Capital Project Expense	0	0	(400,000)	0	0	0	0	0	0	0
73	**Total Funds Available-Enterprise Fund**	$ 481,406	$ 631,406	$ 731,406	$ 1,731,406	$ 3,031,406	$ 4,531,406	$ 6,231,406	$ 6,731,406	$ 6,731,406	$ 6,731,406
74	**Total R&R and Capital Funds**	$ 1,104,717	$ 1,754,717	$ 954,717	$ 2,954,717	$ 5,554,717	$ 8,304,717	$ 11,204,717	$ 11,954,717	$ 11,954,717	$ 11,954,717
75	**Working Capital (R&R/Capital Funds)**	*6.00*	*8.00*	*4.00*	*13.00*	*23.00*	*33.00*	*42.00*	*42.00*	*40.00*	*38.00*

Exhibit 5
Lower Cape Fear WASA
Projected Operating Results

Line	Description	Projected For Fiscal Year Ending June 30, 2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
	Revenues										
	Operating Revenues:										
1	Brunswick County	$ 4,205,185	$ 4,502,646	$ 4,809,096	$ 5,124,756	$ 5,449,852	$ 5,784,615	$ 6,129,282	$ 6,484,093	$ 6,849,298	$ 7,225,146
2	Stepan	380,000	400,000	420,000	440,000	460,000	480,000	500,000	520,000	540,000	560,000
3	Praxair, Inc.	190,000	200,000	210,000	220,000	230,000	240,000	250,000	260,000	270,000	280,000
4	CFPUA	3,468,367	3,687,422	3,910,511	4,137,693	4,369,028	4,604,576	4,844,397	5,088,555	5,337,111	5,590,130
5	Pender	542,335	582,297	623,640	666,404	710,629	756,356	803,629	852,489	902,983	955,155
6	*Proposed Water Rate Increase*	*$ 0.040*	*$ 0.040*	*$ 0.040*	*$ 0.040*	*$ 0.040*	*$ 0.040*	*$ 0.040*	*$ 0.040*	*$ 0.040*	*$ 0.040*
7	*Effective Increase in Revenues*	*5.26%*	*5.00%*	*4.76%*	*4.55%*	*4.35%*	*4.17%*	*4.00%*	*3.85%*	*3.70%*	*3.57%*
8	Additional Revenue Due to Increase	$ 462,415	$ 468,618	$ 474,917	$ 481,312	$ 487,805	$ 494,398	$ 501,092	$ 507,890	$ 514,792	$ 521,801
9	**Total Water Charge Revenue**	**$ 9,248,303**	**$ 9,840,984**	**$ 10,448,164**	**$ 11,070,165**	**$ 11,707,314**	**$ 12,359,945**	**$ 13,028,400**	**$ 13,713,028**	**$ 14,414,184**	**$ 15,132,233**
	Other Revenues:										
10	Interest	$ 870	$ 910	$ 960	$ 1,010	$ 1,060	$ 1,110	$ 1,170	$ 1,230	$ 1,290	$ 1,350
11	Fund Balance Appropriated	0	0	0	0	0	0	0	0	0	0
12	Rembursement from BB (% of Admin Expenses)	363,119	381,274	400,339	420,355	441,385	463,461	486,641	510,978	536,536	563,367
13	**Total Other Operating Revenues**	$ 363,989	$ 382,184	$ 401,299	$ 421,365	$ 442,445	$ 464,571	$ 487,811	$ 512,208	$ 537,826	$ 564,717
	Other Non-Operating Revenues:										
14	Sales Tax Revenues	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000
15	Miscellaneous	0	0	0	0	0	0	0	0	0	0
16	**Total Other Non Operating Revenues**	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000
17	**TOTAL REVENUES**	$ 9,712,292	$ 10,323,167	$ 10,949,463	$ 11,591,530	$ 12,249,758	$ 12,924,516	$ 13,616,211	$ 14,325,235	$ 15,052,010	$ 15,796,950
	Operating/Administration Expenses										
	Operating Expenses										
18	Sales Tax Expense	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000
19	Utilities/Energy Kings Bluff	1,408,050	1,506,610	1,612,070	1,724,910	1,845,650	1,974,850	2,113,090	2,261,010	2,419,280	2,588,630
20	Contract O & M Kings Bluff	1,183,380	1,242,550	1,304,680	1,369,910	1,438,410	1,510,330	1,585,850	1,665,140	1,748,400	1,835,820
	Administration Expenses										
21	Salaries	331,550	348,130	365,540	383,820	403,010	423,160	444,320	466,540	489,870	514,360
22	Per Diem and Mileage Board Members	110,270	115,780	121,570	127,650	134,030	140,730	147,770	155,160	162,920	171,070
23	Vehicle Allowance	8,970	9,420	9,890	10,380	10,900	11,450	12,020	12,620	13,250	13,910
24	FICA Taxes	34,130	35,840	37,630	39,510	41,490	43,560	45,740	48,030	50,430	52,950
25	Retirement	42,590	44,720	46,960	49,310	51,780	54,370	57,090	59,940	62,940	66,090
26	401K Plan	18,430	19,350	20,320	21,340	22,410	23,530	24,710	25,950	27,250	28,610
27	Miscellaneous Payroll Expenses	4,760	5,000	5,250	5,510	5,790	6,080	6,380	6,700	7,040	7,390
28	Group Insurance	65,440	68,710	72,150	75,760	79,550	83,530	87,710	92,100	96,710	101,550
29	Property and Liability Insurance	178,740	187,680	197,060	206,910	217,260	228,120	239,530	251,510	264,090	277,290
30	Professional Services General	25,830	27,120	28,480	29,900	31,400	32,970	34,620	36,350	38,170	40,080
31	Attorney	86,180	90,490	95,010	99,760	104,750	109,990	115,490	121,260	127,320	133,690
32	Auditor	22,180	23,290	24,450	25,670	26,950	28,300	29,720	31,210	32,770	34,410
33	Engineer	516,940	542,790	569,930	598,430	628,350	659,770	692,760	727,400	763,770	801,960
34	Information Technology	27,560	28,940	30,390	31,910	33,510	35,190	36,950	38,800	40,740	42,780
35	Office Maintenance/Repair/Common Charge	41,360	43,430	45,600	47,880	50,270	52,780	55,420	58,190	61,100	64,160
36	Office Utilities	8,610	9,040	9,490	9,960	10,460	10,980	11,530	12,110	12,720	13,360
37	Office Expenses (telephone, printing, adv)	24,130	25,340	26,610	27,940	29,340	30,810	32,350	33,970	35,670	37,450
38	Office Equipment	17,210	18,070	18,970	19,920	20,920	21,970	23,070	24,220	25,430	26,700
39	Printing and Advertising	8,610	9,040	9,490	9,960	10,460	10,980	11,530	12,110	12,720	13,360
40	Telephone and Internet	6,040	6,340	6,660	6,990	7,340	7,710	8,100	8,510	8,940	9,390
41	Travel and Training	49,980	52,480	55,100	57,860	60,750	63,790	66,980	70,330	73,850	77,540
42	Phone Allowance	900	950	1,000	1,050	1,100	1,160	1,220	1,280	1,340	1,410
43	Vehicle Expense	0	0	0	0	0	0	0	0	0	0
44	Miscellaneous Expense	34,480	36,200	38,010	39,910	41,910	44,010	46,210	48,520	50,950	53,500
45	**Total Expenses**	$ 4,356,320	$ 4,597,310	$ 4,852,310	$ 5,122,150	$ 5,407,790	$ 5,710,120	$ 6,030,160	$ 6,368,960	$ 6,727,670	$ 7,107,460
46	**Income Available for Debt Service**	**$ 5,355,972**	**$ 5,725,857**	**$ 6,097,153**	**$ 6,469,380**	**$ 6,841,968**	**$ 7,214,396**	**$ 7,586,051**	**$ 7,956,275**	**$ 8,324,340**	**$ 8,689,490**

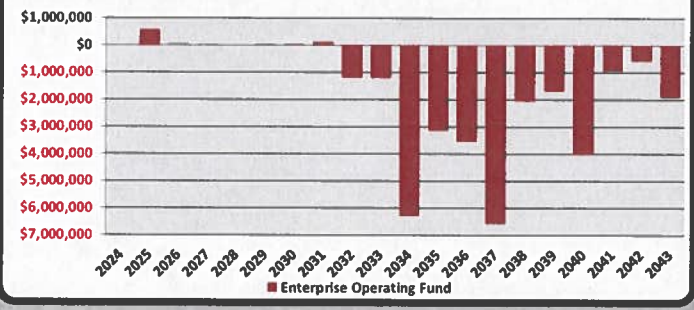
Exhibit 5
Lower Cape Fear WASA
Projected Operating Results

Line	Description	Projected For Fiscal Year Ending June 30, 2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
	Debt Service										
47	LCFWSA Capital Projects (Allocated to All)	$ 2,195,811	$ 3,446,497	$ 3,446,497	$ 3,729,229	$ 4,011,962	$ 4,011,962	$ 4,011,962	$ 4,011,962	$ 4,011,962	$ 4,011,962
48	Cost Sharing Projects Debt Service	4,887,686	4,887,686	4,887,686	4,887,686	4,887,686	4,887,686	4,887,686	4,887,686	4,887,686	4,887,686
49	Future Debt Service #3	0	0	0	0	0	0	0	0	0	0
50	**Total Annual Debt Service-Water**	$ 7,083,497	$ 8,334,183	$ 8,334,183	$ 8,616,915	$ 8,899,647	$ 8,899,647	$ 8,899,647	$ 8,899,647	$ 8,899,647	$ 8,899,647
51	**Debt Service Coverage**	*0.76*	*0.69*	*0.73*	*0.75*	*0.77*	*0.81*	*0.85*	*0.89*	*0.94*	*0.98*
52	**Remaining Net Revenue After Debt Service**	$ (1,727,525)	$ (2,608,325)	$ (2,237,029)	$ (2,147,535)	$ (2,057,679)	$ (1,685,252)	$ (1,313,596)	$ (943,372)	$ (575,308)	$ (210,158)
	Other Expenses & Transfers In/(Out)										
53	Pay-Go Capital Projects (Allocated to All & Cost Share)	$ (4,565,559)	$ (532,649)	$ (1,304,989)	$ (4,423,912)	$ 0	$ 0	$ (2,719,238)	$ 0	$ 0	$ (1,705,090)
54	Transfer Out to R&R - Kings Bluff R&R Expense	0	0	0	0	0	0	0	0	0	0
55	Transfer Out to Enterprise Capital Fund	0	0	0	0	0	0	0	0	0	0
56	Transfer In from R&R Fund	0	0	0	0	0	0	0	0	0	0
57	Transfer In from Enterprise Capital Fund	0	0	0	0	0	0	0	0	0	0
58	**Total Other Expenses/Transfers**	$ (4,565,559)	$ (532,649)	$ (1,304,989)	$ (4,423,912)	$ 0	$ 0	$ (2,719,238)	$ 0	$ 0	$ (1,705,090)
59	**Remaining Funds Available from Annual Operations (Net Income)**	$ (6,293,084)	$ (3,140,974)	$ (3,542,018)	$ (6,571,447)	$ (2,057,679)	$ (1,685,252)	$ (4,032,834)	$ (943,372)	$ (575,308)	$ (1,915,247)
	Funds - Balance Activity										
	Enterprise Operating Fund										
60	Beginning Fund Balance	$ 1,364,216	$ (4,928,868)	$ (8,069,842)	$ (11,611,860)	$ (18,183,307)	$ (20,240,986)	$ (21,926,238)	$ (25,959,072)	$ (26,902,444)	$ (27,477,752)
61	Plus Remaining Funds from Operations	(6,293,084)	(3,140,974)	(3,542,018)	(6,571,447)	(2,057,679)	(1,685,252)	(4,032,834)	(943,372)	(575,308)	(1,915,247)
62	Transfer In from Operations	0	0	0	0	0	0	0	0	0	0
63	Transfer Out	0	0	0	0	0	0	0	0	0	0
64	**Total Funds Available-Operating Fund**	$ (4,928,868)	$ (8,069,842)	$ (11,611,860)	$ (18,183,307)	$ (20,240,986)	$ (21,926,238)	$ (25,959,072)	$ (26,902,444)	$ (27,477,752)	$ (29,392,999)
65	**Working Capital in Enterprise Fund**	*(15.00)*	*(23.00)*	*(31.00)*	*(46.00)*	*(49.00)*	*(50.00)*	*(56.00)*	*(55.00)*	*(53.00)*	*(54.00)*
	Renewal & Replacement Fund										
66	Beginning Fund Balance	$ 5,223,311	$ 5,223,311	$ 5,223,311	$ 5,223,311	$ 5,223,311	$ 5,223,311	$ 5,223,311	$ 5,223,311	$ 5,223,311	$ 5,223,311
67	Plus: Transfer From Operations	0	0	0	0	0	0	0	0	0	0
68	Less: R&R Capital Expenses	0	0	0	0	0	0	0	0	0	0
69	**Total Funds Available-R&R Fund**	$ 5,223,311	$ 5,223,311	$ 5,223,311	$ 5,223,311	$ 5,223,311	$ 5,223,311	$ 5,223,311	$ 5,223,311	$ 5,223,311	$ 5,223,311
	Enterprise Capital Fund										
70	Beginning Fund Balance	$ 6,731,406	$ 6,731,406	$ 6,731,406	$ 6,731,406	$ 6,731,406	$ 6,731,406	$ 6,731,406	$ 6,731,406	$ 6,731,406	$ 6,731,406
71	Plus: Transfer From Operations	0	0	0	0	0	0	0	0	0	0
72	Less: Capital Project Expense	0	0	0	0	0	0	0	0	0	0
73	**Total Funds Available-Enterprise Fund**	$ 6,731,406	$ 6,731,406	$ 6,731,406	$ 6,731,406	$ 6,731,406	$ 6,731,406	$ 6,731,406	$ 6,731,406	$ 6,731,406	$ 6,731,406
74	**Total R&R and Capital Funds**	$ 11,954,717	$ 11,954,717	$ 11,954,717	$ 11,954,717	$ 11,954,717	$ 11,954,717	$ 11,954,717	$ 11,954,717	$ 11,954,717	$ 11,954,717
75	**Working Capital (R&R/Capital Funds)**	*36.00*	*34.00*	*32.00*	*31.00*	*29.00*	*27.00*	*26.00*	*24.00*	*23.00*	*22.00*

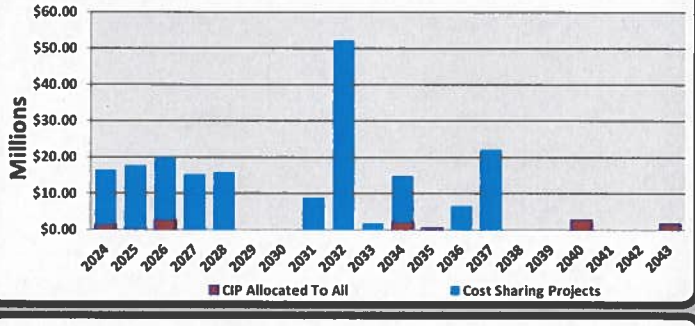
Exhibit 6
Lower Cape Fear WSA
FY 2024 Rate Study
Financial Dashboard

WILLDAN Financial Services

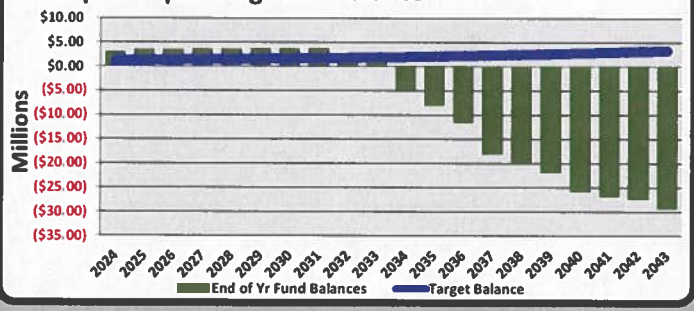
Projected Operating Results (Net Income)



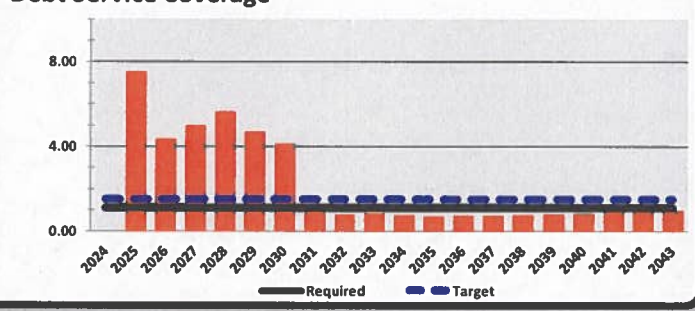
Capital Projects



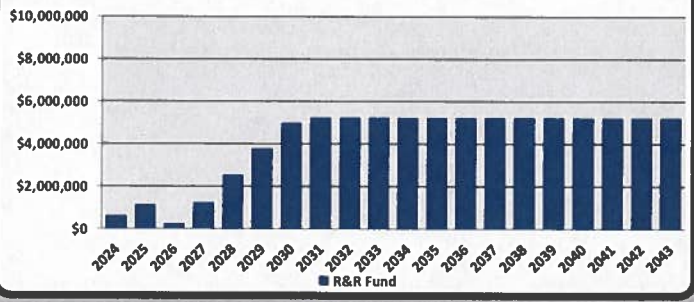
Enterprise Operating Fund Balance



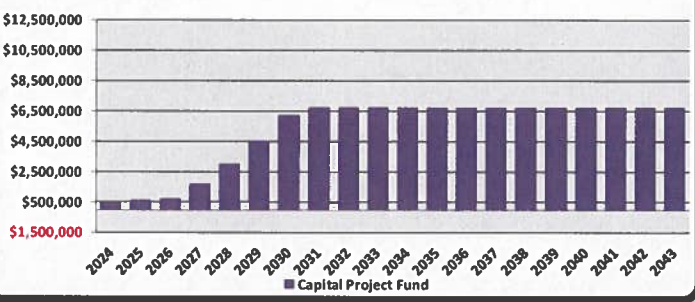
Debt Service Coverage



Renewal & Replacement Fund



Enterprise Capital Fund



	2024	2025	2026	2027	2028	2029	2030
Volumetric Increase	$ 0.040	$ 0.040	$ 0.040	$ 0.040	$ 0.040	$ 0.040	$ 0.040

	2031	2032	2033	2034	2035	2036	2037
Volumetric Increase	$ 0.040	$ 0.040	$ 0.040	$ 0.040	$ 0.040	$ 0.040	$ 0.040

	2038	2039	2040	2041	2042	2043	2044
Volumetric Increase	$ 0.040	$ 0.040	$ 0.040	$ 0.040	$ 0.040	$ 0.040	$ -

RATE STUDY WORKPAPERS
EXHIBITS 1 – 6

RESERVOIR GRANT FUNDED

Prepared by Willdan Financial Services

Exhibit 1
Lower Cape Fear WASA
2023 Rate Study
Historical Financial Information

Description	Actuals For Fiscal Year Ended June 30, 2019	2020	2021	2022	Unaudited 2023	Budgeted 2024	BB Alloc %	Escalation Reference	Projections For Fiscal Year Ending June 30, 2025	2026	2027	2028	2029	2030	2031	2032	2033
Expenditures																	
Administration Expenses																	
Salaries	$ 160,703	$ 163,169	$ 170,224	$ 165,791	$ 180,430	$ 203,530	30%	Labor	$ 213,710	$ 224,400	$ 235,620	$ 247,400	$ 259,770	$ 272,760	$ 286,400	$ 300,720	$ 315,760
Per Diem and Mileage Board Members	50,872	62,500	51,812	56,590	55,325	64,001	30%	Inflation	69,760	74,640	78,370	82,290	86,400	90,720	95,260	100,020	105,020
Vehicle Allowance	-	1,000	5,000	5,200	5,200	5,200	30%	Inflation	5,670	6,070	6,370	6,690	7,020	7,370	7,740	8,130	8,540
FICA Taxes	15,701	16,823	17,425	17,116	18,251	20,953	30%	Fringe	22,000	23,100	24,260	25,470	26,740	28,080	29,480	30,950	32,500
Retirement	13,344	12,663	17,191	18,655	21,597	26,153	30%	Fringe	27,460	28,830	30,270	31,780	33,370	35,040	36,790	38,630	40,560
401K Plan	4,817	3,626	4,560	4,782	10,948	11,312	30%	Fringe	11,880	12,470	13,090	13,740	14,430	15,150	15,910	16,710	17,550
Miscellaneous Payroll Expenses	2,259	2,250	2,367	2,630	2,711	2,900	0%	Fringe	3,050	3,200	3,360	3,530	3,710	3,900	4,100	4,310	4,530
Group Insurance	31,159	40,039	33,224	37,141	32,778	40,176	30%	Fringe	42,180	44,290	46,500	48,830	51,270	53,830	56,520	59,350	62,320
Property and Liability Insurance	106,845	112,982	105,167	87,417	99,948	103,734	30%	Inflation	113,070	120,980	127,030	133,380	140,050	147,050	154,400	162,120	170,230
Professional Services General	-	-	-	-	-	15,000	30%	Inflation	16,350	17,490	18,360	19,280	20,240	21,250	22,310	23,430	24,600
Attorney	40,574	53,226	32,980	15,596	45,695	50,000	30%	Inflation	54,500	58,320	61,240	64,300	67,520	70,900	74,450	78,170	82,080
Auditor	7,700	12,000	8,200	8,200	8,200	8,000	30%	Inflation	8,720	15,000	15,750	16,540	17,370	18,240	19,150	20,110	21,120
Engineer	55,705	58,156	30,179	41,947	152,830	300,000	8%	Inflation	327,000	349,890	367,380	385,750	405,040	425,290	446,550	468,880	492,320
Information Technology	-	-	4,098	12,638	3,644	16,000	30%	Inflation	17,440	18,660	19,590	20,570	21,600	22,680	23,810	25,000	26,250
Office Maintenance/Repair/Common Charge	8,530	31,400	18,017	18,601	13,729	24,000	0%	Inflation	26,160	27,990	29,390	30,860	32,400	34,020	35,720	37,510	39,390
Office Utilities	2,623	-	5,408	1,856	1,989	5,000	0%	Inflation	5,450	5,830	6,120	6,430	6,750	7,090	7,440	7,810	8,200
Office Expenses (telephone, printing, adv)	9,054	-	39,567	14,134	18,037	14,000	0%	Inflation	15,260	16,330	17,150	18,010	18,910	19,860	20,850	21,890	22,980
Office Equipment	-	-	-	10,975	13,015	10,000	0%	Inflation	10,900	11,660	12,240	12,850	13,490	14,160	14,870	15,610	16,390
Printing and Advertising	-	-	-	1,997	8,240	5,000	0%	Inflation	5,450	5,830	6,120	6,430	6,750	7,090	7,440	7,810	8,200
Telephone and Internet	-	-	-	2,114	3,173	3,500	0%	Inflation	3,820	4,090	4,290	4,500	4,730	4,970	5,220	5,480	5,750
Travel and Training	2,102	15,841	14,863	22,237	25,914	29,000	0%	Inflation	31,610	33,820	35,510	37,290	39,150	41,110	43,170	45,330	47,600
Phone Allowance	-	-	-	520	520	520	0%	Inflation	570	610	640	670	700	740	780	820	860
Vehicle Expense	3,887	-	-		8,690	-	0%	Inflation	-	-	-	-	-	-	-	-	-
Miscellaneous Expense	7,047	7,000	18,262	18,084	22,236	20,000	100%	Inflation	21,800	23,330	24,500	25,730	27,020	28,370	29,790	31,280	32,840
Subtotal Admin. Expenses	$ 522,922	$ 592,675	$ 578,544	$ 564,221	$ 753,100	$ 977,979			$ 1,053,810	$ 1,126,830	$ 1,183,150	$ 1,242,320	$ 1,304,430	$ 1,369,670	$ 1,438,150	$ 1,510,070	$ 1,585,590
Operating Expenses																	
Sales Tax Expense	$ 43,164	$ 37,000	$ 55,832	$ 130,777	$ 129,704	$ 100,000		Constant	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000
Bladen Bluffs O & M	1,252,922	1,200,000	1,809,867	2,775,091	3,534,374	3,324,385		Eliminate	-	-	-	-	-	-	-	-	-
Bladen Bluffs Hurricane Florence	44,928	-	-	-	-	-		Eliminate	-	-	-	-	-	-	-	-	-
Utilities/Energy Kings Bluff	920,762	768,319	718,272	698,525	730,336	786,589		Electric	825,920	867,220	910,580	956,110	1,003,920	1,074,190	1,149,380	1,229,840	1,315,930
Contract O & M Kings Bluff	363,958	595,491	375,620	437,634	502,742	686,749		Inflation	748,560	800,960	841,010	883,060	927,210	973,570	1,022,250	1,073,360	1,127,030
O&M Kings Booster Pump Bluff Pump Station	28,000	-	-	-	-	-		Inflation	-	-	-	-	-	-	-	-	-
Combined Enterprise Funded Series 2010 Principal	361,305	371,457	-	-	-	-		Constant	-	-	-	-	-	-	-	-	-
Combined Enterprise Funded Series 2010 Interest	41,182	20,876	-	-	-	-		Constant	-	-	-	-	-	-	-	-	-
Combined Enterprise System Ref Series 2012 Principal	567,589	578,656	589,940	601,444	-	-		Constant	-	-	-	-	-	-	-	-	-
Combined Enterprise System Ref Series 2012 Interest	45,584	34,516	25,076	11,728	-	-		Constant	-	-	-	-	-	-	-	-	-
Bladen Bluffs Debt Service Principal	695,000	740,000	790,000	850,000	910,000	970,000		Eliminate	-	-	-	-	-	-	-	-	-
Bladen Bluffs Debt Service Interest	331,016	350,000	25,526	48,580	450,794	450,000		Eliminate	-	-	-	-	-	-	-	-	-
Operating Capital Expense	-	-	55,664	593,356	2,219,441	1,286,360		Pulls	621,300	2,632,350	210,302	-	-	-	-	-	354,294
Transfer to R&R - Kings Bluff R&R Expense	-	-	-	192,380	250,000	380,000		Pulls	1,000,000	1,000,000	1,000,000	1,300,000	1,200,000	1,000,000	-	-	400,000
Transfer to Enterprise Fund	-	-	-	-	-	100,000		Pulls	150,000	500,000	1,000,000	1,300,000	1,300,000	1,600,000	2,900,000	3,500,000	3,000,000
421 Relocation New Hanover County Loan Principal	-	-	390,000	390,000	258,835	-		Inflation	-	-	-	-	-	-	-	-	-
SRF/7 mile parallel line expenditures	-	-	-	-	55,419	2,500,000		Eliminate	-	-	-	-	-	-	-	-	-
Subtotal Operating Expenses	$ 4,695,410	$ 4,696,315	$ 4,835,797	$ 6,729,515	$ 9,041,645	$ 10,584,083			$ 3,445,780	$ 5,900,530	$ 4,061,892	$ 4,539,170	$ 4,531,130	$ 4,747,760	$ 5,171,630	$ 5,903,200	$ 6,297,254
TOTAL EXPENSES	$ 5,218,332	$ 5,288,990	$ 5,414,341	$ 7,293,736	$ 9,794,745	$ 11,562,063			$ 4,499,590	$ 7,027,360	$ 5,245,042	$ 5,781,490	$ 5,835,560	$ 6,117,430	$ 6,609,780	$ 7,413,270	$ 7,882,844
Revenues																	
Operating Revenue																	
Brunswick County	$ 1,401,159	$ 1,290,309	$ 1,425,384	$ 1,818,301	$ 2,050,591	$ 1,725,765		Eliminate	-	-	-	-	-	-	-	-	-
Cape Fear Public Utility Authority	1,250,243	1,102,127	1,102,675	1,323,736	1,679,192	1,652,562		Eliminate	-	-	-	-	-	-	-	-	-
Pender County	154,923	141,838	157,838	189,616	327,094	234,160		Eliminate	-	-	-	-	-	-	-	-	-
Stepan/Invista	78,236	69,432	32,488	101,260	175,133	200,000		Eliminate	-	-	-	-	-	-	-	-	-
Praxair, Inc	2,903	2,975	2,088	2,503	33,927	100,000		Eliminate	-	-	-	-	-	-	-	-	-
Bladen Bluffs Reimbursement for Plant Operation Costs	2,429,630	2,390,689	2,484,174	3,909,071	5,169,651	4,744,385		Eliminate	-	-	-	-	-	-	-	-	-
Bladen Bluffs Administrative Reimbursement	-	37,000	90,888	127,002	139,090	194,218		Eliminate	-	-	-	-	-	-	-	-	-
Sales Tax Refund	39,973	-	67,220	55,833	114,314	100,000		Constant	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Subtotal Operating Revenue	$ 5,357,067	$ 5,034,370	$ 5,362,755	$ 7,527,324	$ 9,688,992	$ 8,951,090			$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000
Non-Operating																	
Interest	$ -	$ 8,775	$ 2,352	$ 1,921	$ 1,969	$ 500		Inflation	550	590	620	650	680	710	750	790	830
Other Revenue (Insurance Proceeds/FEMA)	54,322	71,372	260,063	2,978	10,587	-		Inflation	-	-	-	-	-	-	-	-	-
Federal Tax Subsidy	17,346	-	-	-	-	-		Inflation	-	-	-	-	-	-	-	-	-
Rental House Income	-	-	-	15,550	16,047	-		Inflation	-	-	-	-	-	-	-	-	-
Transfer In	-	-	60,000	-	-	-		Inflation	-	-	-	-	-	-	-	-	-
SRF/Parallel Revenue	-	-	-	-	1,596,733												
Renewal and Replacement Fund Appropriated	-	-	192,190		-	-		Inflation	-	-	-	-	-	-	-	-	-
Fund Balance Appropriated	399,509	174,473	14,500	-	-	-		Inflation	-	-	-	-	-	-	-	-	-
Reimbursement from BB (% of Admin Expenses)	-	-	-		-	214,218		Calculated	229,872	245,763	258,050	270,957	284,507	298,732	313,669	329,355	345,826
Subtotal Non-Operating Revenue	$ 471,177	$ 254,620	$ 529,105	$ 20,449	$ 1,625,336	$ 214,718			$ 230,422	$ 246,353	$ 258,670	$ 271,607	$ 285,187	$ 299,442	$ 314,419	$ 330,145	$ 346,656
TOTAL REVENUE	$ 5,828,244	$ 5,288,990	$ 5,891,860	$ 7,547,773	$ 11,314,328	$ 9,165,808			$ 330,422	$ 346,353	$ 358,670	$ 371,607	$ 385,187	$ 399,442	$ 414,419	$ 430,145	$ 446,656
NET REVENUE REQUIREMENT									$ 4,169,168	$ 6,681,008	$ 4,886,372	$ 5,409,883	$ 5,450,373	$ 5,717,988	$ 6,195,362	$ 6,983,125	$ 7,436,188

Exhibit 1
Lower Cape Fear WASA
2023 Rate Study
Historical Financial Information

Description	Actuals For Fiscal Year Ended June 30, 2019	2020	2021	2022	Unaudited 2023	Budgeted 2024	BB Alloc %	Escalation Reference	Projections For Fiscal Year Ending June 30, 2025	2026	2027	2028	2029	2030	2031	2032	2033
Escalation Factors																	
Constant Factor								Constant	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Labor Escalator Factor (WD)								Labor	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500
Other Fringes (WD)								Fringe	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500
General Inflation Factor								Inflation	1.0900	1.0700	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500
Customer Growth Factor								Customer	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Metered Flow Factor								Flow	0.8516	1.0495	1.0132	1.0132	1.0132	1.0133	1.0133	1.0133	1.0133
Inflation/Customer Growth Factor								Inf/Cust	1.0900	1.0700	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500
Inflation/Metered Flow Factor								Inf/Flow	0.9282	1.1230	1.0639	1.0639	1.0639	1.0640	1.0640	1.0640	1.0640
Materials & Supplies								M&S	1.0700	1.0700	1.0700	1.0700	1.0700	1.0700	1.0700	1.0700	1.0700
Chemical Costs								Chemicals	1.0700	1.0700	1.0700	1.0700	1.0700	1.0900	1.0900	1.0900	1.0900
Electrical Costs								Electric	1.0500	1.0500	1.0500	1.0500	1.0500	1.0700	1.0700	1.0700	1.0700
Eliminate								Eliminate	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Exhibit 1
Lower Cape Fear WASA
2023 Rate Study
Historical Financial Information

Description	Projections For Fiscal Year Ending June 30, 2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Expenditures										
Administration Expenses										
Salaries	$ 331,550	$ 348,130	$ 365,540	$ 383,820	$ 403,010	$ 423,160	$ 444,320	$ 466,540	$ 489,870	$ 514,360
Per Diem and Mileage Board Members	110,270	115,780	121,570	127,650	134,030	140,730	147,770	155,160	162,920	171,070
Vehicle Allowance	8,970	9,420	9,890	10,380	10,900	11,450	12,020	12,620	13,250	13,910
FICA Taxes	34,130	35,840	37,630	39,510	41,490	43,560	45,740	48,030	50,430	52,950
Retirement	42,590	44,720	46,960	49,310	51,780	54,370	57,090	59,940	62,940	66,090
401K Plan	18,430	19,350	20,320	21,340	22,410	23,530	24,710	25,950	27,250	28,610
Miscellaneous Payroll Expenses	4,760	5,000	5,250	5,510	5,790	6,080	6,380	6,700	7,040	7,390
Group Insurance	65,440	68,710	72,150	75,760	79,550	83,530	87,710	92,100	96,710	101,550
Property and Liability Insurance	178,740	187,680	197,060	206,910	217,260	228,120	239,530	251,510	264,090	277,290
Professional Services General	25,830	27,120	28,480	29,900	31,400	32,970	34,620	36,350	38,170	40,080
Attorney	86,180	90,490	95,010	99,760	104,750	109,990	115,490	121,260	127,320	133,690
Auditor	22,180	23,290	24,450	25,670	26,950	28,300	29,720	31,210	32,770	34,410
Engineer	516,940	542,790	569,930	598,430	628,350	659,770	692,760	727,400	763,770	801,960
Information Technology	27,560	28,940	30,390	31,910	33,510	35,190	36,950	38,800	40,740	42,780
Office Maintenance/Repair/Common Charge	41,360	43,430	45,600	47,880	50,270	52,780	55,420	58,190	61,100	64,160
Office Utilities	8,610	9,040	9,490	9,960	10,460	10,980	11,530	12,110	12,720	13,360
Office Expenses (telephone, printing, adv)	24,130	25,340	26,610	27,940	29,340	30,810	32,350	33,970	35,670	37,450
Office Equipment	17,210	18,070	18,970	19,920	20,920	21,970	23,070	24,220	25,430	26,700
Printing and Advertising	8,610	9,040	9,490	9,960	10,460	10,980	11,530	12,110	12,720	13,360
Telephone and Internet	6,040	6,340	6,660	6,990	7,340	7,710	8,100	8,510	8,940	9,390
Travel and Training	49,980	52,480	55,100	57,860	60,750	63,790	66,980	70,330	73,850	77,540
Phone Allowance	900	950	1,000	1,050	1,100	1,160	1,220	1,280	1,340	1,410
Vehicle Expense	-	-	-	-	-	-	-	-	-	-
Miscellaneous Expense	34,480	36,200	38,010	39,910	41,910	44,010	46,210	48,520	50,950	53,500
Subtotal Admin. Expenses	$ 1,664,890	$ 1,748,150	$ 1,835,560	$ 1,927,930	$ 2,023,730	$ 2,124,940	$ 2,231,220	$ 2,342,810	$ 2,459,990	$ 2,583,010
Operating Expenses										
Sales Tax Expense	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000
Bladen Bluffs O & M	-	-	-	-	-	-	-	-	-	-
Bladen Bluffs Hurricane Florence	-	-	-	-	-	-	-	-	-	-
Utilities/Energy Kings Bluff	1,408,050	1,506,610	1,612,070	1,724,910	1,845,650	1,974,850	2,113,090	2,261,010	2,419,280	2,588,630
Contract O & M Kings Bluff	1,183,380	1,242,550	1,304,680	1,369,910	1,438,410	1,510,330	1,585,850	1,665,140	1,748,400	1,835,820
O&M Kings Booster Pump Bluff Pump Station	-	-	-	-	-	-	-	-	-	-
Combined Enterprise Funded Series 2010 Principal	-	-	-	-	-	-	-	-	-	-
Combined Enterprise Funded Series 2010 Interest	-	-	-	-	-	-	-	-	-	-
Combined Enterprise System Ref Series 2012 Principal	-	-	-	-	-	-	-	-	-	-
Combined Enterprise System Ref Series 2012 Interest	-	-	-	-	-	-	-	-	-	-
Bladen Bluffs Debt Service Principal	-	-	-	-	-	-	-	-	-	-
Bladen Bluffs Debt Service Interest	-	-	-	-	-	-	-	-	-	-
Operating Capital Expense	4,565,559	532,649	1,304,989	4,423,912	-	-	2,719,238	-	-	1,705,090
Transfer to R&R - Kings Bluff R&R Expense	200,000	400,000	-	-	400,000	600,000	-	450,000	500,000	200,000
Transfer to Enterprise Fund	-	850,000	850,000	-	1,500,000	1,600,000	-	1,900,000	2,000,000	600,000
421 Relocation New Hanover County Loan Principal	-	-	-	-	-	-	-	-	-	-
SRF/7 mile parallel line expenditures	-	-	-	-	-	-	-	-	-	-
Subtotal Operating Expenses	$ 7,456,989	$ 4,631,809	$ 5,171,739	$ 7,618,732	$ 5,284,060	$ 5,785,180	$ 6,518,178	$ 6,376,150	$ 6,767,680	$ 7,029,540
TOTAL EXPENSES	$ 9,121,879	$ 6,379,959	$ 7,007,299	$ 9,546,062	$ 7,307,790	$ 7,910,120	$ 8,749,398	$ 8,718,960	$ 9,227,670	$ 9,612,550
Revenues										
Operating Revenue										
Brunswick County	-	-	-	-	-	-	-	-	-	-
Cape Fear Public Utility Authority	-	-	-	-	-	-	-	-	-	-
Pender County	-	-	-	-	-	-	-	-	-	-
Stepan/Invista	-	-	-	-	-	-	-	-	-	-
Praxair, Inc	-	-	-	-	-	-	-	-	-	-
Bladen Bluffs Reimbursement for Plant Operation Costs	-	-	-	-	-	-	-	-	-	-
Bladen Bluffs Administrative Reimbursement	-	-	-	-	-	-	-	-	-	-
Sales Tax Refund	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Subtotal Operating Revenue	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000
Non-Operating										
Interest	870	910	960	1,010	1,060	1,110	1,170	1,230	1,290	1,350
Other Revenue (Insurance Proceeds/FEMA)	-	-	-	-	-	-	-	-	-	-
Federal Tax Subsidy	-	-	-	-	-	-	-	-	-	-
Rental House Income	-	-	-	-	-	-	-	-	-	-
Transfer In	-	-	-	-	-	-	-	-	-	-
SRF/Parallel Revenue										
Renewal and Replacement Fund Appropriated	-	-	-	-	-	-	-	-	-	-
Fund Balance Appropriated	-	-	-	-	-	-	-	-	-	-
Reimbursement from BB (% of Admin Expenses)	363,119	381,274	400,339	420,355	441,385	463,461	486,641	510,978	536,536	563,367
Subtotal Non-Operating Revenue	$ 363,989	$ 382,184	$ 401,299	$ 421,365	$ 442,445	$ 464,571	$ 487,811	$ 512,208	$ 537,826	$ 564,717
TOTAL REVENUE	$ 463,989	$ 482,184	$ 501,299	$ 521,365	$ 542,445	$ 564,571	$ 587,811	$ 612,208	$ 637,826	$ 664,717
NET REVENUE REQUIREMENT	$ 8,657,890	$ 5,897,775	$ 6,506,000	$ 9,024,697	$ 6,765,346	$ 7,345,549	$ 8,161,587	$ 8,106,752	$ 8,589,845	$ 8,947,833

Exhibit 1
Lower Cape Fear WASA
2023 Rate Study
Historical Financial Information

Description	Projections For Fiscal Year Ending June 30,									
	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Escalation Factors										
Constant Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Labor Escalator Factor (WD)	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500
Other Fringes (WD)	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500
General Inflation Factor	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500	1.0500
Customer Growth Factor	1.0000	2.0000	3.0000	4.0000	5.0000	6.0000	7.0000	8.0000	9.0000	10.0000
Metered Flow Factor	1.0134	1.0134	1.0134	1.0134	1.0135	1.0135	1.0135	1.0135	1.0136	1.0136
Inflation/Customer Growth Factor	1.0500	2.1000	3.1500	4.2000	5.2500	6.3000	7.3500	8.4000	9.4500	10.5000
Inflation/Metered Flow Factor	1.0641	1.0641	1.0641	1.0641	1.0642	1.0642	1.0642	1.0642	1.0643	1.0643
Materials & Supplies	1.0700	1.0700	1.0700	1.0700	1.0700	1.0700	1.0700	1.0700	1.0700	1.0700
Chemical Costs	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
Electrical Costs	1.0700	1.0700	1.0700	1.0700	1.0700	1.0700	1.0700	1.0700	1.0700	1.0700
Eliminate	0.0000	1.0000	2.0000	3.0000	4.0000	5.0000	6.0000	7.0000	8.0000	9.0000

Exhibit 2
Lower Cape Fear WASA
2023 Rate Study
Annual Flows & Revenues

	Historical For Fiscal Years Ended June 30,										Estimated
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Usage (in Gallons)											
Brunswick County	4,104,862	4,085,693	4,138,451	4,236,976	4,502,325	4,818,150	5,157,008	5,095,815	5,246,138	5,510,004	5,710,245
Stepan	531,090	453,240	212,043	182,598	122,460	150,961	287,950	202,660	119,574	306,850	397,941
Praxair, Inc.	13,890	18,363	15,346	15,317	15,171	13,671	10,685	8,137	7,686	7,586	15,581
CFPUA	4,038,823	3,846,216	4,004,487	3,970,821	4,055,680	4,406,808	4,601,557	3,834,778	4,058,426	4,011,323	4,793,236
Pender	242,710	356,715	377,767	425,444	436,477	498,699	570,200	583,988	580,928	574,595	568,801
Total	**8,931,374**	**8,760,227**	**8,748,093**	**8,831,157**	**9,132,113**	**9,888,288**	**10,627,400**	**9,725,379**	**10,012,751**	**10,410,358**	**11,485,804**
Annual Change (Gals)	***N/A***	***(171,148)***	***(12,133)***	***83,063***	***300,957***	***756,175***	***739,111***	***(902,020)***	***287,372***	***397,606***	***1,075,446***
Annual % Change											**5-Yr CAGR**
Brunswick County	-	-0.47%	1.29%	2.38%	6.26%	7.01%	7.03%	-1.19%	2.95%	5.03%	***2.72%***
Stepan	-	-14.66%	-53.22%	-13.89%	-32.93%	23.27%	90.75%	-29.62%	-41.00%	156.62%	***0.00%***
Praxair, Inc.	-	32.20%	-16.43%	-0.19%	-0.95%	-9.89%	-21.84%	-23.84%	-5.55%	-1.31%	***0.00%***
CFPUA	-	-4.77%	4.11%	-0.84%	2.14%	8.66%	4.42%	-16.66%	5.83%	-1.16%	***-1.86%***
Pender	-	46.97%	5.90%	12.62%	2.59%	14.26%	14.34%	2.42%	-0.52%	-1.09%	***2.87%***
Total	-	**-1.92%**	**-0.14%**	**0.95%**	**3.41%**	**8.28%**	**7.47%**	**-8.49%**	**2.95%**	**3.97%**	***1.03%***
Rate											
Brunswick County	$ 0.2617	$ 0.2617	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.3300	$ 0.3600
Stepan	$ 0.2617	$ 0.2617	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.3300	$ 0.3600
Praxair, Inc.	$ 0.2617	$ 0.2617	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.3300	$ 0.3600
CFPUA	$ 0.2617	$ 0.2617	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.3300	$ 0.3600
Pender	$ 0.2617	$ 0.2617	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.2717	$ 0.3300	$ 0.3600
Billed Revenue											
Brunswick County	$ 1,074,242	$ 1,069,226	$ 1,124,417	$ 1,151,187	$ 1,223,282	$ 1,309,091	$ 1,401,159	$ 1,384,533	$ 1,425,376	$ 1,818,301	$ 2,055,688
Stepan	$ 138,986	$ 118,613	$ 57,612	$ 49,612	$ 33,272	$ 41,016	$ 78,236	$ 55,063	$ 32,488	$ 101,260	$ 143,259
Praxair, Inc.	$ 3,635	$ 4,805	$ 4,170	$ 4,162	$ 4,122	$ 3,714	$ 2,903	$ 2,211	$ 2,088	$ 2,503	$ 5,609
CFPUA	$ 1,056,960	$ 1,006,555	$ 1,088,019	$ 1,078,872	$ 1,101,928	$ 1,197,330	$ 1,250,243	$ 1,041,909	$ 1,102,674	$ 1,323,736	$ 1,725,565
Pender	$ 63,517	$ 93,352	$ 102,639	$ 115,593	$ 118,591	$ 135,496	$ 154,923	$ 158,670	$ 157,838	$ 189,616	$ 204,768
Total	**$ 2,337,341**	**$ 2,292,551**	**$ 2,376,857**	**$ 2,399,425**	**$ 2,481,195**	**$ 2,686,648**	**$ 2,887,464**	**$ 2,642,386**	**$ 2,720,464**	**$ 3,435,418**	**$ 4,134,889**

Exhibit 2
Lower Cape Fear WASA
2023 Rate Study
Annual Flows & Revenues

	Test Year	Projected For Fiscal Years Ending June 30,								
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Usage (in Gallons)	Input from Budget									
Brunswick County	4,314,412	4,745,853	4,827,482	4,910,515	4,994,975	5,080,889	5,168,280	5,257,175	5,347,598	5,439,577
Stepan	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000
Praxair, Inc.	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000
CFPUA	4,131,405	4,172,719	4,214,446	4,256,591	4,299,157	4,342,148	4,385,570	4,429,425	4,473,720	4,518,457
Pender	585,400	597,108	609,050	621,231	633,656	646,329	659,255	672,441	685,889	699,607
Total	**9,781,217**	**10,265,680**	**10,400,978**	**10,538,336**	**10,677,788**	**10,819,366**	**10,963,105**	**11,109,041**	**11,257,207**	**11,407,641**
Annual Change (Gals)	***(1,704,587)***	***484,463***	***135,298***	***137,358***	***139,451***	***141,578***	***143,739***	***145,935***	***148,166***	***150,434***
Annual % Change										
Brunswick County	0.00%	10.00%	1.72%	1.72%	1.72%	1.72%	1.72%	1.72%	1.72%	1.72%
Stepan	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Praxair, Inc.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CFPUA	0.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
Pender	0.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Total	**-14.84%**	**4.95%**	**1.32%**	**1.32%**	**1.32%**	**1.33%**	**1.33%**	**1.33%**	**1.33%**	**1.34%**
Rate										
Brunswick County	$ 0.4000	$ 0.4400	$ 0.4800	$ 0.5200	$ 0.5600	$ 0.6000	$ 0.6400	$ 0.6800	$ 0.7100	$ 0.7400
Stepan	$ 0.4000	$ 0.4400	$ 0.4800	$ 0.5200	$ 0.5600	$ 0.6000	$ 0.6400	$ 0.6800	$ 0.7100	$ 0.7400
Praxair, Inc.	$ 0.4000	$ 0.4400	$ 0.4800	$ 0.5200	$ 0.5600	$ 0.6000	$ 0.6400	$ 0.6800	$ 0.7100	$ 0.7400
CFPUA	$ 0.4000	$ 0.4400	$ 0.4800	$ 0.5200	$ 0.5600	$ 0.6000	$ 0.6400	$ 0.6800	$ 0.7100	$ 0.7400
Pender	$ 0.4000	$ 0.4400	$ 0.4800	$ 0.5200	$ 0.5600	$ 0.6000	$ 0.6400	$ 0.6800	$ 0.7100	$ 0.7400
Billed Revenue										
Brunswick County	$ 1,725,765	$ 2,088,175	$ 2,317,191	$ 2,553,468	$ 2,797,186	$ 3,048,533	$ 3,307,699	$ 3,574,879	$ 3,796,795	$ 4,025,287
Stepan	$ 200,000	$ 220,000	$ 240,000	$ 260,000	$ 280,000	$ 300,000	$ 320,000	$ 340,000	$ 355,000	$ 370,000
Praxair, Inc.	$ 100,000	$ 110,000	$ 120,000	$ 130,000	$ 140,000	$ 150,000	$ 160,000	$ 170,000	$ 177,500	$ 185,000
CFPUA	$ 1,652,562	$ 1,835,996	$ 2,022,934	$ 2,213,427	$ 2,407,528	$ 2,605,289	$ 2,806,765	$ 3,012,009	$ 3,176,341	$ 3,343,658
Pender	$ 234,160	$ 262,728	$ 292,344	$ 323,040	$ 354,847	$ 387,797	$ 421,924	$ 457,260	$ 486,981	$ 517,709
Total	**$ 3,912,487**	**$ 4,516,899**	**$ 4,992,470**	**$ 5,479,935**	**$ 5,979,561**	**$ 6,491,620**	**$ 7,016,387**	**$ 7,554,148**	**$ 7,992,617**	**$ 8,441,654**

Exhibit 2
Lower Cape Fear WASA
2023 Rate Study
Annual Flows & Revenues

	Projected For Fiscal Years Ending June 30,									
	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Usage (in Gallons)										
Brunswick County	5,533,138	5,628,307	5,725,114	5,823,586	5,923,752	6,025,641	6,129,282	6,234,705	6,341,942	6,451,024
Stepan	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000
Praxair, Inc.	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000
CFPUA	4,563,641	4,609,278	4,655,371	4,701,924	4,748,944	4,796,433	4,844,397	4,892,841	4,941,770	4,991,187
Pender	713,599	727,871	742,429	757,277	772,423	787,871	803,629	819,701	836,095	852,817
Total	11,560,378	11,715,457	11,872,914	12,032,788	12,195,118	12,359,945	12,527,308	12,697,248	12,869,807	13,045,028
Annual Change (Gals)	152,737	155,078	157,457	159,874	162,330	164,826	167,363	169,940	172,559	175,221
Annual % Change										
Brunswick County	1.72%	1.72%	1.72%	1.72%	1.72%	1.72%	1.72%	1.72%	1.72%	1.72%
Stepan	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Praxair, Inc.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CFPUA	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
Pender	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Total	1.34%	1.34%	1.34%	1.35%	1.35%	1.35%	1.35%	1.36%	1.36%	1.36%
Rate										
Brunswick County	$ 0.7700	$ 0.8000	$ 0.8300	$ 0.8600	$ 0.8900	$ 0.9200	$ 0.9400	$ 0.9600	$ 0.9800	$ 1.0000
Stepan	$ 0.7700	$ 0.8000	$ 0.8300	$ 0.8600	$ 0.8900	$ 0.9200	$ 0.9400	$ 0.9600	$ 0.9800	$ 1.0000
Praxair, Inc.	$ 0.7700	$ 0.8000	$ 0.8300	$ 0.8600	$ 0.8900	$ 0.9200	$ 0.9400	$ 0.9600	$ 0.9800	$ 1.0000
CFPUA	$ 0.7700	$ 0.8000	$ 0.8300	$ 0.8600	$ 0.8900	$ 0.9200	$ 0.9400	$ 0.9600	$ 0.9800	$ 1.0000
Pender	$ 0.7700	$ 0.8000	$ 0.8300	$ 0.8600	$ 0.8900	$ 0.9200	$ 0.9400	$ 0.9600	$ 0.9800	$ 1.0000
Billed Revenue										
Brunswick County	$ 4,260,516	$ 4,502,646	$ 4,751,845	$ 5,008,284	$ 5,272,139	$ 5,543,589	$ 5,761,525	$ 5,985,317	$ 6,215,103	$ 6,451,024
Stepan	$ 385,000	$ 400,000	$ 415,000	$ 430,000	$ 445,000	$ 460,000	$ 470,000	$ 480,000	$ 490,000	$ 500,000
Praxair, Inc.	$ 192,500	$ 200,000	$ 207,500	$ 215,000	$ 222,500	$ 230,000	$ 235,000	$ 240,000	$ 245,000	$ 250,000
CFPUA	$ 3,514,004	$ 3,687,422	$ 3,863,958	$ 4,043,655	$ 4,226,560	$ 4,412,718	$ 4,553,733	$ 4,697,128	$ 4,842,934	$ 4,991,187
Pender	$ 549,471	$ 582,297	$ 616,216	$ 651,258	$ 687,456	$ 724,842	$ 755,411	$ 786,913	$ 819,373	$ 852,817
Total	$ 8,901,491	$ 9,372,365	$ 9,854,518	$ 10,348,198	$ 10,853,655	$ 11,371,149	$ 11,775,669	$ 12,189,358	$ 12,612,411	$ 13,045,028

Exhibit 3
Lower Cape Fear WASA
Kings Bluff Raw Water Facilities
Annual Capital Projects

Project No.	Description	Funding Source	20-Year Total	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034
	R&R Capital Cost Escalator				0.0%	9.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
	Major Capital Facility Cost Escalator				0.0%	9.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
				Lower Cape Fear Water and Sewer Authority Projects (Allocated Across All LCF Customer Base)											
KB 1	New 4th Pump @ King's Bluff PS	Debt Service	$ 4,828,700		$ -	$ 3,569,750	$ 1,258,950								
KB 1	New 4th Pump @ King's Bluff PS	Pay-Go Capital	$ 225,000		$ 225,000										
KB 2	Rebuild High Service Pump Motors	Pay-Go Capital	$ 532,649												
KB 3	New Generators	Debt Service	$ 25,085,210												$ 2,536,422
KB 4	Pig 48" Water Main (KBPS to 3 MG Tank)	Pay-Go Capital	$ 2,719,238												
KB 5	Pig Future 54" Water Main	Pay-Go Capital	$ 2,029,137												$ 2,029,137
KB 6	Walkway & Air Backwash Building Rplcmt	Debt Service	$ 2,180,000		$ -	$ 2,180,000									
KB 6	Walkway & Air Backwash Building Rplcmt	Pay-Go Capital	$ 226,360		$ 226,360										
KB 7	Replace Raw Water Pumps 1, 4, 5	Debt Service	$ 17,903,999							$ 4,769,647					$ 6,087,412
KB 8	New Surge Tank at KBPS	Pay-Go Capital	$ 1,705,090												
KB 9	5 ROW Acquisitions	Pay-Go Capital	$ 309,000	$ 100,000	$ 100,000	$ 109,000									
KB 10	48-Inch PCCP Inspect. and Pig - Grd Tank	Pay-Go Capital	$ 2,842,652				$ 2,632,350	$ 210,302							
KB 11	48-Inch PCCP Repairs	Pay-Go Capital	$ 327,000			$ 327,000									
	Operating Capital (FY 23/24)	Pay-Go Capital	$ 735,000		$ 735,000										
	TOTAL PROJECTS (ALLOCATED TO ALL)		$ 61,649,034	$ 100,000	$ 1,286,360	$ 6,185,750	$ 3,891,300	$ 210,302	$ -	$ 4,769,647	$ -	$ -	$ -	$ -	$10,652,971
				Sources of Funding											
	Pay-Go Capital		$ 11,651,126	$ 100,000	$ 1,286,360	$ 436,000	$ 2,632,350	$ 210,302	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,029,137
	Debt Service		$ 49,997,909	$ -	$ -	$ 5,749,750	$ 1,258,950	$ -	$ -	$ 4,769,647	$ -	$ -	$ -	$ -	$ 8,623,834
	TOTAL FUNDING SOURCES		$ 61,649,034	$ 100,000	$ 1,286,360	$ 6,185,750	$ 3,891,300	$ 210,302	$ -	$ 4,769,647	$ -	$ -	$ -	$ -	$10,652,971
				Cost Sharing Projects											
CS 1	Intermediate Booster PS Shelter	Pay-Go (Cost Share)	$ 926,500			$ 926,500									
CS 2	Intermediate Booster PS Upgrade	Pay-Go (Cost Share)	$ 14,453,577											$ 1,771,469	$12,682,108
CS 3	New 5th Pump at King'sBluff	Pay-Go (Cost Share)	$ -												
CS 4	20 MG Ground Tank	Pay-Go (Cost Share)	$ 28,644,507												
CS 5	7-Mile 48" Parallel Raw Water Main	Already Funded	$ 48,597,615		$15,000,000	$16,350,000	$17,247,615								
CS 6	3-Mile 48" Parallel Raw Water Main	Grants/ARPA	$ 30,794,203					$15,021,563	$15,772,641						
CS 7	100 MGD Reservoir (Possible Grant Funding)	Grants/ARPA	$ 60,911,367									$ 8,764,225	$52,147,142		
	TOTAL PROJECTS (COST SHARING)		$184,327,770	$ -	$15,000,000	$17,276,500	$17,247,615	$15,021,563	$15,772,641	$ -	$ -	$ 8,764,225	$52,147,142	$ 1,771,469	$12,682,108
				Sources of Funding											
	Pay-Go (Cost Share)		$ 8,804,917	$ -	$ -	$ 185,300	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 354,294	$ 2,536,422
	Brunswick		$ 8,593,352	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	CFPUA		$ 12,649,936	$ -	$ -	$ 416,925	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 797,161	$ 5,706,949
	Pender		$ 9,573,921	$ -	$ -	$ 231,625	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 442,867	$ 3,170,527
	Stephan		$ 2,201,229	$ -	$ -	$ 46,325	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 88,573	$ 634,105
	Praxair		$ 2,201,229	$ -	$ -	$ 46,325	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 88,573	$ 634,105
	Debt Service		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Grants/ARPA		$ 91,705,570	$ -	$ -	$ -	$ -	$15,021,563	$15,772,641	$ -	$ -	$ 8,764,225	$52,147,142	$ -	$ -
	Already Funded		$ 48,597,615	$ -	$15,000,000	$16,350,000	$17,247,615	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	TOTAL FUNDING SOURCES		$184,327,770	$ -	$15,000,000	$17,276,500	$17,247,615	$15,021,563	$15,772,641	$ -	$ -	$ 8,764,225	$52,147,142	$ 1,771,469	$12,682,108
	TOTAL - ALL CAPITAL PROJECTS		$245,976,804	$ 100,000	$16,286,360	$23,462,250	$21,138,915	$15,231,864	$15,772,641	$ 4,769,647	$ -	$ 8,764,225	$52,147,142	$ 1,771,469	$23,335,079

Exhibit 3
Lower Cape Fear WASA
Kings Bluff Raw Water Facilities
Annual Capital Projects

Project No.	Description	Funding Source	FY2035	FY2036	FY2037	FY2038	FY2039	FY2040	FY2041	FY2042	FY2043	FY2044	FY2045	FY2046	Grand Total
	R&R Capital Cost Escalator		*5.0%*	*5.0%*	*5.0%*	*5.0%*	*5.0%*	*5.0%*	*5.0%*	*5.0%*	*5.0%*	*5.0%*	*5.0%*	*5.0%*	
	Major Capital Facility Cost Escalator		*5.0%*	*5.0%*	*5.0%*	*5.0%*	*5.0%*	*5.0%*	*5.0%*	*5.0%*	*5.0%*	*5.0%*	*5.0%*	*5.0%*	
			Lower Cape Fear Water and Sewer Authority Projects (Allocated Across All LCF Customer Base)												
KB 1	New 4th Pump @ King's Bluff PS	Debt Service													$ 4,828,700
KB 1	New 4th Pump @ King's Bluff PS	Pay-Go Capital													$ 225,000
KB 2	Rebuild High Service Pump Motors	Pay-Go Capital	$ 532,649												$ 532,649
KB 3	New Generators	Debt Service	$22,548,788												$ 25,085,210
KB 4	Pig 48" Water Main (KBPS to 3 MG Tank)	Pay-Go Capital						$ 2,719,238							$ 2,719,238
KB 5	Pig Future 54" Water Main	Pay-Go Capital													$ 2,029,137
KB 6	Walkway & Air Backwash Building Rplcmt	Debt Service													$ 2,180,000
KB 6	Walkway & Air Backwash Building Rplcmt	Pay-Go Capital													
KB 7	Replace Raw Water Pumps 1, 4, 5	Debt Service			$ 7,046,940										$ 17,903,999
KB 8	New Surge Tank at KBPS	Pay-Go Capital									$ 1,705,090				$ 1,705,090
KB 9	5 ROW Acquisitions	Pay-Go Capital													$ 309,000
KB 10	48-Inch PCCP Inspect. and Pig - Grd Tank	Pay-Go Capital													$ 2,842,652
KB 11	48-Inch PCCP Repairs	Pay-Go Capital													$ 327,000
	Operating Capital (FY 23/24)	Pay-Go Capital													
	TOTAL PROJECTS (ALLOCATED TO ALL)		**$23,081,437**	**$ -**	**$ 7,046,940**	**$ -**	**$ -**	**$ 2,719,238**	**$ -**	**$ -**	**$ 1,705,090**	**$ -**	**$ -**	**$ -**	**$ 60,687,674**
			Sources of Funding												
	Pay-Go Capital		$ 532,649	$ -	$ -	$ -	$ -	$ 2,719,238	$ -	$ -	$ 1,705,090	$ -	$ -	$ -	$ 11,651,126
	Debt Service		$22,548,788	$ -	$ 7,046,940	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 49,997,909
	TOTAL FUNDING SOURCES		**$23,081,437**	**$ -**	**$ 7,046,940**	**$ -**	**$ -**	**$ 2,719,238**	**$ -**	**$ -**	**$ 1,705,090**	**$ -**	**$ -**	**$ -**	**$ 61,649,034**
			Cost Sharing Projects												
CS 1	Intermediate Booster PS Shelter	Pay-Go (Cost Share)													$ 926,500
CS 2	Intermediate Booster PS Upgrade	Pay-Go (Cost Share)													$ 14,453,577
CS 3	New 5th Pump at King'sBluff	Pay-Go (Cost Share)										$ 2,754,376	$ 7,230,236	$ 3,340,369	$ 13,324,981
CS 4	20 MG Ground Tank	Pay-Go (Cost Share)		$ 6,524,945	$22,119,562										$ 28,644,507
CS 5	7-Mile 48" Parallel Raw Water Main	Already Funded													$ 48,597,615
CS 6	3-Mile 48" Parallel Raw Water Main	Grants/ARPA													$ 30,794,203
CS 7	100 MGD Reservoir (Possible Grant Funding)	Grants/ARPA													$ 60,911,367
	TOTAL PROJECTS (COST SHARING)		**$ -**	**$ 6,524,945**	**$22,119,562**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 2,754,376**	**$ 7,230,236**	**$ 3,340,369**	**$197,652,751**
	Pay-Go (Cost Share)		**Sources of Funding**												
	LCFWSA		$ -	$ 1,304,989	$ 4,423,912	$ -	$ -	$ -	$ -	$ -	$ -	$ 550,875	$ 1,446,047	$ 668,074	$ 11,469,913
	Brunswick		$ -	$ 1,957,483	$ 6,635,869	$ -	$ -	$ -	$ -	$ -	$ -	$ 826,313	$ 2,169,071	$ 1,002,111	$ 12,590,846
	CFPUA		$ -	$ 1,304,989	$ 4,423,912	$ -	$ -	$ -	$ -	$ -	$ -	$ 550,875	$ 1,446,047	$ 668,074	$ 15,314,932
	Pender		$ -	$ 1,304,989	$ 4,423,912	$ -	$ -	$ -	$ -	$ -	$ -	$ 550,875	$ 1,446,047	$ 668,074	$ 12,238,917
	Stephan		$ -	$ 326,247	$ 1,105,978	$ -	$ -	$ -	$ -	$ -	$ -	$ 137,719	$ 361,512	$ 167,018	$ 2,867,478
	Praxair		$ -	$ 326,247	$ 1,105,978	$ -	$ -	$ -	$ -	$ -	$ -	$ 137,719	$ 361,512	$ 167,018	$ 2,867,478
	Debt Service		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Grants/ARPA		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 91,705,570
	Already Funded		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 48,597,615
	TOTAL FUNDING SOURCES		**$ -**	**$ 6,524,945**	**$22,119,562**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 2,754,376**	**$ 7,230,236**	**$ 3,340,369**	**$197,652,751**
	TOTAL - ALL CAPITAL PROJECTS		**$23,081,437**	**$ 6,524,945**	**$29,166,503**	**$ -**	**$ -**	**$ 2,719,238**	**$ -**	**$ -**	**$ 1,705,090**	**$ 2,754,376**	**$ 7,230,236**	**$ 3,340,369**	**$258,340,425**

Exhibit 4
Lower Cape Fear WASA
Estimates of Future Debt Service

Line	Description		Projected For Fiscal Year Ending June 30, 2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
			Lower Cape Fear Water and Sewer Authority Projects (Allocated Across All LCF Customer Base)									
	Project Costs											
1	New 4th Pump @ King's Bluff PS		$ -	$ 3,569,750	$ 1,258,950	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2	Walkway & Air Backwash Building Rplcmt		$ -	$ 2,180,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
3	New Generators		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
4	Replace Raw Water Pump 1		$ -	$ -	$ -	$ -	$ -	$ 4,769,647	$ -	$ -	$ -	$ -
5	Replace Raw Water Pump 4		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
6	Replace Raw Water Pump 5		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Estimated Debt Service											
	Assumptions:											
7	Interest Rate	5.0%										
8	Term (Yrs)	20										
9	New 4th Pump @ King's Bluff PS		$ -	$ 193,734	$ 387,467	$ 387,467	$ 387,467	$ 387,467	$ 387,467	$ 387,467	$ 387,467	$ 387,467
10	Walkway & Air Backwash Building Rplcmt		$ -	$ 87,464	$ 174,929	$ 174,929	$ 174,929	$ 174,929	$ 174,929	$ 174,929	$ 174,929	$ 174,929
11	New Generators		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
12	Replace Raw Water Pump 1		$ -	$ -	$ -	$ -	$ -	$ 191,364	$ 382,729	$ 382,729	$ 382,729	$ 382,729
13	Replace Raw Water Pump 4		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
14	Replace Raw Water Pump 5		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
13	**Total Debt (Allocated to All Customer Base)**		$ -	$ 281,198	$ 562,396	$ 562,396	$ 562,396	$ 753,761	$ 945,125	$ 945,125	$ 945,125	$ 945,125
			Cost Sharing Projects									
	Project Costs											
14	100 MGD Reservoir (Possible Grant Funding)-CS 7		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
15	Intermediate Booster PS Upgrade		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
16	20 MG Ground Tank		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Estimated Debt Service											
17	Assumptions:											
18	Interest Rate	5.0%										
19	Term (Yrs)	20										
20	100 MGD Reservoir (Possible Grant Funding)-CS 7		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
21	Intermediate Booster PS Upgrade		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
22	20 MG Ground Tank		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
23	**Total Debt (Cost Sharing Projects)**		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
24	**Total Debt Service**		$ -	$ 281,198	$ 562,396	$ 562,396	$ 562,396	$ 753,761	$ 945,125	$ 945,125	$ 945,125	$ 945,125

Exhibit 4
Lower Cape Fear WASA
Estimates of Future Debt Service

Line	Description		Projected For Fiscal Year Ending June 30, 2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
				Lower Cape Fear Water and Sewer Authority Projects (Allocated Across All LCF Customer Base)								
	Project Costs											
1	New 4th Pump @ King's Bluff PS		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2	Walkway & Air Backwash Building Rplcmt		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
3	New Generators		$ 2,536,422	$ 22,548,788	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
4	Replace Raw Water Pump 1		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
5	Replace Raw Water Pump 4		$ 6,087,412	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
6	Replace Raw Water Pump 5		$ -	$ -	$ -	$ 7,046,940	$ -	$ -	$ -	$ -	$ -	$ -
	Estimated Debt Service											
	Assumptions:											
7	Interest Rate	5.0%										
8	Term (Yrs)	20										
9	New 4th Pump @ King's Bluff PS		$ 387,467	$ 387,467	$ 387,467	$ 387,467	$ 387,467	$ 387,467	$ 387,467	$ 387,467	$ 387,467	$ 387,467
10	Walkway & Air Backwash Building Rplcmt		$ 174,929	$ 174,929	$ 174,929	$ 174,929	$ 174,929	$ 174,929	$ 174,929	$ 174,929	$ 174,929	$ 174,929
11	New Generators		$ 1,006,451	$ 2,012,902	$ 2,012,902	$ 2,012,902	$ 2,012,902	$ 2,012,902	$ 2,012,902	$ 2,012,902	$ 2,012,902	$ 2,012,902
12	Replace Raw Water Pump 1		$ 382,729	$ 382,729	$ 382,729	$ 382,729	$ 382,729	$ 382,729	$ 382,729	$ 382,729	$ 382,729	$ 382,729
13	Replace Raw Water Pump 4		$ 244,235	$ 488,470	$ 488,470	$ 488,470	$ 488,470	$ 488,470	$ 488,470	$ 488,470	$ 488,470	$ 488,470
14	Replace Raw Water Pump 5		$ -	$ -	$ -	$ 282,732	$ 565,465	$ 565,465	$ 565,465	$ 565,465	$ 565,465	$ 565,465
13	**Total Debt (Allocated to All Customer Base)**		$ 2,195,811	$ 3,446,497	$ 3,446,497	$ 3,729,229	$ 4,011,962	$ 4,011,962	$ 4,011,962	$ 4,011,962	$ 4,011,962	$ 4,011,962
				Cost Sharing Projects								
	Project Costs											
14	100 MGD Reservoir (Possible Grant Funding)-CS 7		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
15	Intermediate Booster PS Upgrade		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
16	20 MG Ground Tank		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Estimated Debt Service											
17	Assumptions:											
18	Interest Rate	5.0%										
19	Term (Yrs)	20										
20	100 MGD Reservoir (Possible Grant Funding)-CS 7		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
21	Intermediate Booster PS Upgrade		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
22	20 MG Ground Tank		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
23	**Total Debt (Cost Sharing Projects)**		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
24	**Total Debt Service**		$ 2,195,811	$ 3,446,497	$ 3,446,497	$ 3,729,229	$ 4,011,962	$ 4,011,962	$ 4,011,962	$ 4,011,962	$ 4,011,962	$ 4,011,962

Exhibit 5
Lower Cape Fear WASA
Projected Operating Results

Line	Description	Projected For Fiscal Year Ending June 30, 2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
	Revenues										
	Operating Revenues:										
1	Brunswick County	$ 1,553,188	$ 1,898,341	$ 2,124,092	$ 2,357,047	$ 2,597,387	$ 2,845,298	$ 3,100,968	$ 3,364,592	$ 3,636,367	$ 3,862,100
2	Stepan	180,000	200,000	220,000	240,000	260,000	280,000	300,000	320,000	340,000	355,000
3	Praxair, Inc.	90,000	100,000	110,000	120,000	130,000	140,000	150,000	160,000	170,000	177,500
4	CFPUA	1,487,306	1,669,088	1,854,356	2,043,164	2,235,561	2,431,603	2,631,342	2,834,832	3,042,129	3,208,104
5	Pender	210,744	238,843	267,982	298,191	329,501	361,944	395,553	430,362	466,405	496,721
6	*Proposed Water Rate Increase*	*$ 0.040*	*$ 0.040*	*$ 0.040*	*$ 0.040*	*$ 0.040*	*$ 0.040*	*$ 0.040*	*$ 0.040*	*$ 0.030*	*$ 0.030*
7	*Effective Increase in Revenues*	*11.11%*	*10.00%*	*9.09%*	*8.33%*	*7.69%*	*7.14%*	*6.67%*	*6.25%*	*4.41%*	*4.23%*
8	Additional Revenue Due to Increase	$ 391,249	$ 410,627	$ 416,039	$ 421,533	$ 427,112	$ 432,775	$ 438,524	$ 444,362	$ 337,716	$ 342,229
9	**Total Water Charge Revenue**	**$ 3,912,487**	**$ 4,516,899**	**$ 4,992,470**	**$ 5,479,935**	**$ 5,979,561**	**$ 6,491,620**	**$ 7,016,387**	**$ 7,554,148**	**$ 7,992,617**	**$ 8,441,654**
	Other Revenues:										
10	Interest	$ 500	$ 550	$ 590	$ 620	$ 650	$ 680	$ 710	$ 750	$ 790	$ 830
11	Fund Balance Appropriated	0	0	0	0	0	0	0	0	0	0
12	Reimbursement from BB (% of Admin Expenses)	214,218	229,872	245,763	258,050	270,957	284,507	298,732	313,669	329,355	345,826
13	**Total Other Operating Revenues**	$ 214,718	$ 230,422	$ 246,353	$ 258,670	$ 271,607	$ 285,187	$ 299,442	$ 314,419	$ 330,145	$ 346,656
	Other Non-Operating Revenues:										
14	Sales Tax Revenues	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000
15	Miscellaneous	0	0	0	0	0	0	0	0	0	0
16	**Total Other Non Operating Revenues**	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000
17	**TOTAL REVENUES**	$ 4,227,205	$ 4,847,321	$ 5,338,822	$ 5,838,605	$ 6,351,168	$ 6,876,807	$ 7,415,829	$ 7,968,566	$ 8,422,762	$ 8,888,310
	Operating/Administration Expenses										
	Operating Expenses										
18	Sales Tax Expense	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000
19	Utilities/Energy Kings Bluff	786,589	825,920	867,220	910,580	956,110	1,003,920	1,074,190	1,149,380	1,229,840	1,315,930
20	Contract O & M Kings Bluff	686,749	748,560	800,960	841,010	883,060	927,210	973,570	1,022,250	1,073,360	1,127,030
	Administration Expenses										
21	Salaries	203,530	213,710	224,400	235,620	247,400	259,770	272,760	286,400	300,720	315,760
22	Per Diem and Mileage Board Members	64,001	69,760	74,640	78,370	82,290	86,400	90,720	95,260	100,020	105,020
23	Vehicle Allowance	5,200	5,670	6,070	6,370	6,690	7,020	7,370	7,740	8,130	8,540
24	FICA Taxes	20,953	22,000	23,100	24,260	25,470	26,740	28,080	29,480	30,950	32,500
25	Retirement	26,153	27,460	28,830	30,270	31,780	33,370	35,040	36,790	38,630	40,560
26	401K Plan	11,312	11,880	12,470	13,090	13,740	14,430	15,150	15,910	16,710	17,550
27	Miscellaneous Payroll Expenses	2,900	3,050	3,200	3,360	3,530	3,710	3,900	4,100	4,310	4,530
28	Group Insurance	40,176	42,180	44,290	46,500	48,830	51,270	53,830	56,520	59,350	62,320
29	Property and Liability Insurance	103,734	113,070	120,980	127,030	133,380	140,050	147,050	154,400	162,120	170,230
30	Professional Services General	15,000	16,350	17,490	18,360	19,280	20,240	21,250	22,310	23,430	24,600
31	Attorney	50,000	54,500	58,320	61,240	64,300	67,520	70,900	74,450	78,170	82,080
32	Auditor	8,000	8,720	15,000	15,750	16,540	17,370	18,240	19,150	20,110	21,120
33	Engineer	300,000	327,000	349,890	367,380	385,750	405,040	425,290	446,550	468,880	492,320
34	Information Technology	16,000	17,440	18,660	19,590	20,570	21,600	22,680	23,810	25,000	26,250
35	Office Maintenance/Repair/Common Charge	24,000	26,160	27,990	29,390	30,860	32,400	34,020	35,720	37,510	39,390
36	Office Utilities	5,000	5,450	5,830	6,120	6,430	6,750	7,090	7,440	7,810	8,200
37	Office Expenses (telephone, printing, adv)	14,000	15,260	16,330	17,150	18,010	18,910	19,860	20,850	21,890	22,980
38	Office Equipment	10,000	10,900	11,660	12,240	12,850	13,490	14,160	14,870	15,610	16,390
39	Printing and Advertising	5,000	5,450	5,830	6,120	6,430	6,750	7,090	7,440	7,810	8,200
40	Telephone and Internet	3,500	3,820	4,090	4,290	4,500	4,730	4,970	5,220	5,480	5,750
41	Travel and Training	29,000	31,610	33,820	35,510	37,290	39,150	41,110	43,170	45,330	47,600
42	Phone Allowance	520	570	610	640	670	700	740	780	820	860
43	Vehicle Expense	0	0	0	0	0	0	0	0	0	0
44	Miscellaneous Expense	20,000	21,800	23,330	24,500	25,730	27,020	28,370	29,790	31,280	32,840
45	**Total Expenses**	$ 2,551,317	$ 2,728,290	$ 2,895,010	$ 3,034,740	$ 3,181,490	$ 3,335,560	$ 3,517,430	$ 3,709,780	$ 3,913,270	$ 4,128,550
46	**Income Available for Debt Service**	**$ 1,675,887**	**$ 2,119,031**	**$ 2,443,812**	**$ 2,803,865**	**$ 3,169,678**	**$ 3,541,247**	**$ 3,898,399**	**$ 4,258,786**	**$ 4,509,492**	**$ 4,759,760**

Exhibit 5
Lower Cape Fear WASA
Projected Operating Results

Line	Description	Projected For Fiscal Year Ending June 30, 2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
	Debt Service										
47	LCFWSA Capital Projects (Allocated to All)	$ 0	$ 281,198	$ 562,396	$ 562,396	$ 562,396	$ 753,761	$ 945,125	$ 945,125	$ 945,125	$ 945,125
48	Cost Sharing Projects Debt Service	0	0	0	0	0	0	0	0	0	0
49	Future Debt Service #3	0	0	0	0	0	0	0	0	0	0
50	**Total Annual Debt Service-Water**	$ 0	$ 281,198	$ 562,396	$ 562,396	$ 562,396	$ 753,761	$ 945,125	$ 945,125	$ 945,125	$ 945,125
51	**Debt Service Coverage**	*N/A*	*7.54*	*4.35*	*4.99*	*5.64*	*4.70*	*4.12*	*4.51*	*4.77*	*5.04*
52	**Remaining Net Revenue After Debt Service**	$ 1,675,887	$ 1,837,833	$ 1,881,416	$ 2,241,469	$ 2,607,282	$ 2,787,486	$ 2,953,274	$ 3,313,661	$ 3,564,367	$ 3,814,635
	Other Expenses & Transfers In/(Out)										
53	Pay-Go Capital Projects (Allocated to All & Cost Share)	$ (1,286,360)	$ (621,300)	$ (2,632,350)	$ (210,302)	$ 0	$ 0	$ 0	$ 0	$ 0	$ (354,294)
54	Transfer Out to R&R - Kings Bluff R&R Expense	(380,000)	(1,000,000)	(1,000,000)	(1,000,000)	(1,300,000)	(1,200,000)	(1,000,000)	0	0	(400,000)
55	Transfer Out to Enterprise Capital Fund	(100,000)	(150,000)	(500,000)	(1,000,000)	(1,300,000)	(1,300,000)	(1,600,000)	(2,900,000)	(3,500,000)	(3,000,000)
56	Transfer In from R&R Fund	100,000	0	1,900,000	0	0	0	0	0	0	0
57	Transfer In from Enterprise Capital Fund	0	0	400,000	0	0	0	0	0	0	0
58	**Total Other Expenses/Transfers**	$ (1,666,360)	$ (1,771,300)	$ (1,832,350)	$ (2,210,302)	$ (2,600,000)	$ (2,500,000)	$ (2,600,000)	$ (2,900,000)	$ (3,500,000)	$ (3,754,294)
59	**Remaining Funds Available from Annual Operations (Net Income)**	$ 9,527	$ 66,533	$ 49,066	$ 31,167	$ 7,282	$ 287,486	$ 353,274	$ 413,661	$ 64,367	$ 60,341
	Funds - Balance Activity										
	Enterprise Operating Fund										
60	Beginning Fund Balance	$ 2,900,000	$ 2,909,527	$ 2,976,060	$ 3,025,126	$ 3,056,293	$ 3,063,575	$ 3,351,061	$ 3,704,336	$ 4,117,997	$ 4,182,364
61	Plus Remaining Funds from Operations	9,527	66,533	49,066	31,167	7,282	287,486	353,274	413,661	64,367	60,341
62	Transfer In from Operations	0	0	0	0	0	0	0	0	0	0
63	Transfer Out	0	0	0	0	0	0	0	0	0	0
64	**Total Funds Available-Operating Fund**	$ 2,909,527	$ 2,976,060	$ 3,025,126	$ 3,056,293	$ 3,063,575	$ 3,351,061	$ 3,704,336	$ 4,117,997	$ 4,182,364	$ 4,242,705
65	**Working Capital in Enterprise Fund**	*15.00*	*14.00*	*14.00*	*13.00*	*13.00*	*13.00*	*14.00*	*15.00*	*14.00*	*13.00*
	Renewal & Replacement Fund										
66	Beginning Fund Balance	$ 343,311	$ 623,311	$ 1,623,311	$ 723,311	$ 1,723,311	$ 3,023,311	$ 4,223,311	$ 5,223,311	$ 5,223,311	$ 5,223,311
67	Plus: Transfer From Operations	380,000	1,000,000	1,000,000	1,000,000	1,300,000	1,200,000	1,000,000	0	0	400,000
68	Less: R&R Capital Expenses	(100,000)	0	(1,900,000)	0	0	0	0	0	0	0
69	**Total Funds Available-R&R Fund**	$ 623,311	$ 1,623,311	$ 723,311	$ 1,723,311	$ 3,023,311	$ 4,223,311	$ 5,223,311	$ 5,223,311	$ 5,223,311	$ 5,623,311
	Enterprise Capital Fund										
70	Beginning Fund Balance	$ 381,406	$ 481,406	$ 631,406	$ 731,406	$ 1,731,406	$ 3,031,406	$ 4,331,406	$ 5,931,406	$ 8,831,406	$ 12,331,406
71	Plus: Transfer From Operations	100,000	150,000	500,000	1,000,000	1,300,000	1,300,000	1,600,000	2,900,000	3,500,000	3,000,000
72	Less: Capital Project Expense	0	0	(400,000)	0	0	0	0	0	0	0
73	**Total Funds Available-Enterprise Fund**	$ 481,406	$ 631,406	$ 731,406	$ 1,731,406	$ 3,031,406	$ 4,331,406	$ 5,931,406	$ 8,831,406	$ 12,331,406	$ 15,331,406
74	**Total R&R and Capital Funds**	$ 1,104,717	$ 2,254,717	$ 1,454,717	$ 3,454,717	$ 6,054,717	$ 8,554,717	$ 11,154,717	$ 14,054,717	$ 17,554,717	$ 20,954,717
75	**Working Capital (R&R/Capital Funds)**	*6.00*	*11.00*	*7.00*	*15.00*	*25.00*	*34.00*	*42.00*	*50.00*	*59.00*	*66.00*

Exhibit 5
Lower Cape Fear WASA
Projected Operating Results

Line	Description	Projected For Fiscal Year Ending June 30, 2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
	Revenues										
	Operating Revenues:										
1	Brunswick County	$ 4,094,522	$ 4,333,797	$ 4,580,091	$ 4,833,577	$ 5,094,427	$ 5,362,820	$ 5,638,939	$ 5,860,623	$ 6,088,264	$ 6,322,003
2	Stepan	370,000	385,000	400,000	415,000	430,000	445,000	460,000	470,000	480,000	490,000
3	Praxair, Inc.	185,000	192,500	200,000	207,500	215,000	222,500	230,000	235,000	240,000	245,000
4	CFPUA	3,377,095	3,549,144	3,724,296	3,902,597	4,084,091	4,268,825	4,456,845	4,599,271	4,744,099	4,891,364
5	Pender	528,064	560,461	593,943	628,540	664,284	701,205	739,338	770,519	802,652	835,761
6	*Proposed Water Rate Increase*	*$ 0.030*	*$ 0.030*	*$ 0.030*	*$ 0.030*	*$ 0.030*	*$ 0.030*	*$ 0.020*	*$ 0.020*	*$ 0.020*	*$ 0.020*
7	*Effective Increase in Revenues*	*4.05%*	*3.90%*	*3.75%*	*3.61%*	*3.49%*	*3.37%*	*2.17%*	*2.13%*	*2.08%*	*2.04%*
8	Additional Revenue Due to Increase	$ 346,811	$ 351,464	$ 356,187	$ 360,984	$ 365,854	$ 370,798	$ 250,546	$ 253,945	$ 257,396	$ 260,901
9	**Total Water Charge Revenue**	$ 8,901,491	$ 9,372,365	$ 9,854,518	$ 10,348,198	$ 10,853,655	$ 11,371,149	$ 11,775,669	$ 12,189,358	$ 12,612,411	$ 13,045,028
	Other Revenues:										
10	Interest	$ 870	$ 910	$ 960	$ 1,010	$ 1,060	$ 1,110	$ 1,170	$ 1,230	$ 1,290	$ 1,350
11	Fund Balance Appropriated	0	0	0	0	0	0	0	0	0	0
12	Reimbursement from BB (% of Admin Expenses)	363,119	381,274	400,339	420,355	441,385	463,461	486,641	510,978	536,536	563,367
13	**Total Other Operating Revenues**	$ 363,989	$ 382,184	$ 401,299	$ 421,365	$ 442,445	$ 464,571	$ 487,811	$ 512,208	$ 537,826	$ 564,717
	Other Non-Operating Revenues:										
14	Sales Tax Revenues	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000
15	Miscellaneous	0	0	0	0	0	0	0	0	0	0
16	**Total Other Non Operating Revenues**	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000
17	**TOTAL REVENUES**	$ 9,365,481	$ 9,854,549	$ 10,355,818	$ 10,869,563	$ 11,396,100	$ 11,935,720	$ 12,363,480	$ 12,801,566	$ 13,250,237	$ 13,709,745
	Operating/Administration Expenses										
	Operating Expenses										
18	Sales Tax Expense	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000
19	Utilities/Energy Kings Bluff	1,408,050	1,506,610	1,612,070	1,724,910	1,845,650	1,974,850	2,113,090	2,261,010	2,419,280	2,588,630
20	Contract O & M Kings Bluff	1,183,380	1,242,550	1,304,680	1,369,910	1,438,410	1,510,330	1,585,850	1,665,140	1,748,400	1,835,820
	Administration Expenses										
21	Salaries	331,550	348,130	365,540	383,820	403,010	423,160	444,320	466,540	489,870	514,360
22	Per Diem and Mileage Board Members	110,270	115,780	121,570	127,650	134,030	140,730	147,770	155,160	162,920	171,070
23	Vehicle Allowance	8,970	9,420	9,890	10,380	10,900	11,450	12,020	12,620	13,250	13,910
24	FICA Taxes	34,130	35,840	37,630	39,510	41,490	43,560	45,740	48,030	50,430	52,950
25	Retirement	42,590	44,720	46,960	49,310	51,780	54,370	57,090	59,940	62,940	66,090
26	401K Plan	18,430	19,350	20,320	21,340	22,410	23,530	24,710	25,950	27,250	28,610
27	Miscellaneous Payroll Expenses	4,760	5,000	5,250	5,510	5,790	6,080	6,380	6,700	7,040	7,390
28	Group Insurance	65,440	68,710	72,150	75,760	79,550	83,530	87,710	92,100	96,710	101,550
29	Property and Liability Insurance	178,740	187,680	197,060	206,910	217,260	228,120	239,530	251,510	264,090	277,290
30	Professional Services General	25,830	27,120	28,480	29,900	31,400	32,970	34,620	36,350	38,170	40,080
31	Attorney	86,180	90,490	95,010	99,760	104,750	109,990	115,490	121,260	127,320	133,690
32	Auditor	22,180	23,290	24,450	25,670	26,950	28,300	29,720	31,210	32,770	34,410
33	Engineer	516,940	542,790	569,930	598,430	628,350	659,770	692,760	727,400	763,770	801,960
34	Information Technology	27,560	28,940	30,390	31,910	33,510	35,190	36,950	38,800	40,740	42,780
35	Office Maintenance/Repair/Common Charge	41,360	43,430	45,600	47,880	50,270	52,780	55,420	58,190	61,100	64,160
36	Office Utilities	8,610	9,040	9,490	9,960	10,460	10,980	11,530	12,110	12,720	13,360
37	Office Expenses (telephone, printing, adv)	24,130	25,340	26,610	27,940	29,340	30,810	32,350	33,970	35,670	37,450
38	Office Equipment	17,210	18,070	18,970	19,920	20,920	21,970	23,070	24,220	25,430	26,700
39	Printing and Advertising	8,610	9,040	9,490	9,960	10,460	10,980	11,530	12,110	12,720	13,360
40	Telephone and Internet	6,040	6,340	6,660	6,990	7,340	7,710	8,100	8,510	8,940	9,390
41	Travel and Training	49,980	52,480	55,100	57,860	60,750	63,790	66,980	70,330	73,850	77,540
42	Phone Allowance	900	950	1,000	1,050	1,100	1,160	1,220	1,280	1,340	1,410
43	Vehicle Expense	0	0	0	0	0	0	0	0	0	0
44	Miscellaneous Expense	34,480	36,200	38,010	39,910	41,910	44,010	46,210	48,520	50,950	53,500
45	**Total Expenses**	$ 4,356,320	$ 4,597,310	$ 4,852,310	$ 5,122,150	$ 5,407,790	$ 5,710,120	$ 6,030,160	$ 6,368,960	$ 6,727,670	$ 7,107,460
46	**Income Available for Debt Service**	$ 5,009,161	$ 5,257,239	$ 5,503,508	$ 5,747,413	$ 5,988,310	$ 6,225,600	$ 6,333,320	$ 6,432,606	$ 6,522,567	$ 6,602,285

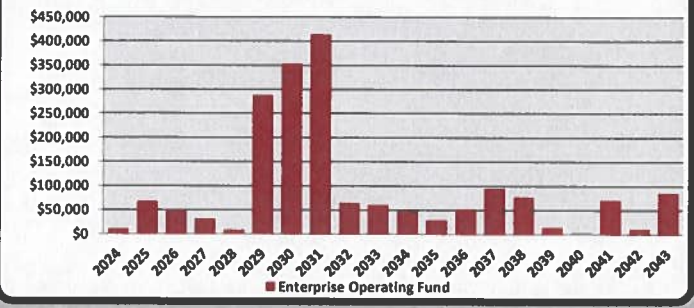
Exhibit 5
Lower Cape Fear WASA
Projected Operating Results

Line	Description	Projected For Fiscal Year Ending June 30, 2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
	Debt Service										
47	LCFWSA Capital Projects (Allocated to All)	$ 2,195,811	$ 3,446,497	$ 3,446,497	$ 3,729,229	$ 4,011,962	$ 4,011,962	$ 4,011,962	$ 4,011,962	$ 4,011,962	$ 4,011,962
48	Cost Sharing Projects Debt Service	0	0	0	0	0	0	0	0	0	0
49	Future Debt Service #3	0	0	0	0	0	0	0	0	0	0
50	**Total Annual Debt Service-Water**	$ 2,195,811	$ 3,446,497	$ 3,446,497	$ 3,729,229	$ 4,011,962	$ 4,011,962	$ 4,011,962	$ 4,011,962	$ 4,011,962	$ 4,011,962
51	**Debt Service Coverage**	*2.28*	*1.53*	*1.60*	*1.54*	*1.49*	*1.55*	*1.58*	*1.60*	*1.63*	*1.65*
52	**Remaining Net Revenue After Debt Service**	$ 2,813,350	$ 1,810,742	$ 2,057,011	$ 2,018,184	$ 1,976,348	$ 2,213,639	$ 2,321,359	$ 2,420,644	$ 2,510,605	$ 2,590,324
	Other Expenses & Transfers In/(Out)										
53	Pay-Go Capital Projects (Allocated to All & Cost Share)	$ (4,565,559)	$ (532,649)	$ (1,304,989)	$ (4,423,912)	$ 0	$ 0	$ (2,719,238)	$ 0	$ 0	$ (1,705,090)
54	Transfer Out to R&R - Kings Bluff R&R Expense	(200,000)	(400,000)	0	0	(400,000)	(600,000)	0	(450,000)	(500,000)	(200,000)
55	Transfer Out to Enterprise Capital Fund	0	(850,000)	(850,000)	0	(1,500,000)	(1,600,000)	0	(1,900,000)	(2,000,000)	(600,000)
56	Transfer In from R&R Fund	0	0	0	0	0	0	0	0	0	0
57	Transfer In from Enterprise Capital Fund	2,000,000	0	150,000	2,500,000	0	0	400,000	0	0	0
58	**Total Other Expenses/Transfers**	$ (2,765,559)	$ (1,782,649)	$ (2,004,989)	$ (1,923,912)	$ (1,900,000)	$ (2,200,000)	$ (2,319,238)	$ (2,350,000)	$ (2,500,000)	$ (2,505,090)
59	**Remaining Funds Available from Annual Operations (Net Income)**	$ 47,791	$ 28,093	$ 52,022	$ 94,271	$ 76,348	$ 13,639	$ 2,121	$ 70,644	$ 10,605	$ 85,234
	Funds - Balance Activity										
	Enterprise Operating Fund										
60	Beginning Fund Balance	$ 4,242,705	$ 4,290,496	$ 4,318,589	$ 4,370,611	$ 4,464,882	$ 4,541,230	$ 4,554,869	$ 4,556,990	$ 4,627,634	$ 4,638,239
61	Plus Remaining Funds from Operations	47,791	28,093	52,022	94,271	76,348	13,639	2,121	70,644	10,605	85,234
62	Transfer In from Operations	0	0	0	0	0	0	0	0	0	0
63	Transfer Out	0	0	0	0	0	0	0	0	0	0
64	**Total Funds Available-Operating Fund**	$ 4,290,496	$ 4,318,589	$ 4,370,611	$ 4,464,882	$ 4,541,230	$ 4,554,869	$ 4,556,990	$ 4,627,634	$ 4,638,239	$ 4,723,472
65	**Working Capital in Enterprise Fund**	*13.00*	*12.00*	*12.00*	*11.00*	*11.00*	*10.00*	*10.00*	*9.00*	*9.00*	*9.00*
	Renewal & Replacement Fund										
66	Beginning Fund Balance	$ 5,623,311	$ 5,823,311	$ 6,223,311	$ 6,223,311	$ 6,223,311	$ 6,623,311	$ 7,223,311	$ 7,223,311	$ 7,673,311	$ 8,173,311
67	Plus: Transfer From Operations	200,000	400,000	0	0	400,000	600,000	0	450,000	500,000	200,000
68	Less: R&R Capital Expenses	0	0	0	0	0	0	0	0	0	0
69	**Total Funds Available-R&R Fund**	$ 5,823,311	$ 6,223,311	$ 6,223,311	$ 6,223,311	$ 6,623,311	$ 7,223,311	$ 7,223,311	$ 7,673,311	$ 8,173,311	$ 8,373,311
	Enterprise Capital Fund										
70	Beginning Fund Balance	$ 15,331,406	$ 13,331,406	$ 14,181,406	$ 14,881,406	$ 12,381,406	$ 13,881,406	$ 15,481,406	$ 15,081,406	$ 16,981,406	$ 18,981,406
71	Plus: Transfer From Operations	0	850,000	850,000	0	1,500,000	1,600,000	0	1,900,000	2,000,000	600,000
72	Less: Capital Project Expense	(2,000,000)	0	(150,000)	(2,500,000)	0	0	(400,000)	0	0	0
73	**Total Funds Available-Enterprise Fund**	$ 13,331,406	$ 14,181,406	$ 14,881,406	$ 12,381,406	$ 13,881,406	$ 15,481,406	$ 15,081,406	$ 16,981,406	$ 18,981,406	$ 19,581,406
74	**Total R&R and Capital Funds**	$ 19,154,717	$ 20,404,717	$ 21,104,717	$ 18,604,717	$ 20,504,717	$ 22,704,717	$ 22,304,717	$ 24,654,717	$ 27,154,717	$ 27,954,717
75	**Working Capital (R&R/Capital Funds)**	*58.00*	*58.00*	*57.00*	*47.00*	*50.00*	*52.00*	*48.00*	*51.00*	*53.00*	*51.00*

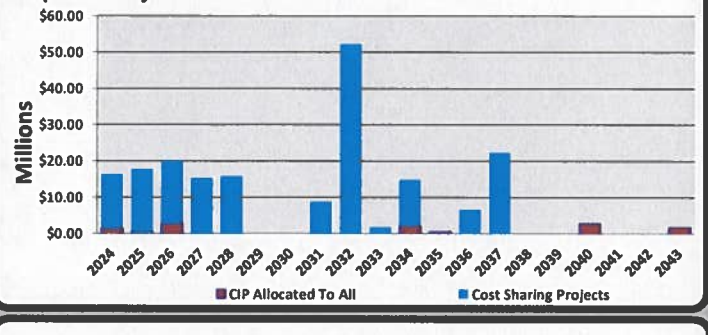
Exhibit 6
Lower Cape Fear WSA
FY 2024 Rate Study
Financial Dashboard

WILLDAN Financial Services

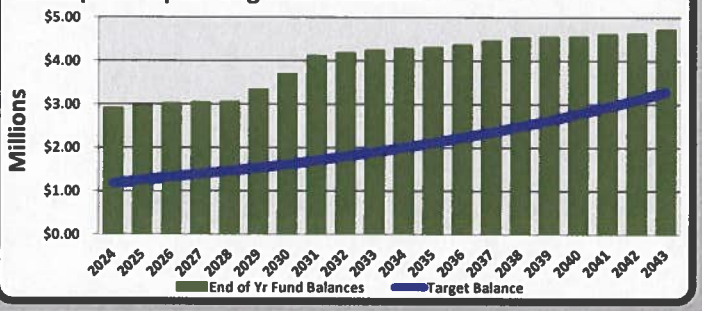
Projected Operating Results (Net Income)



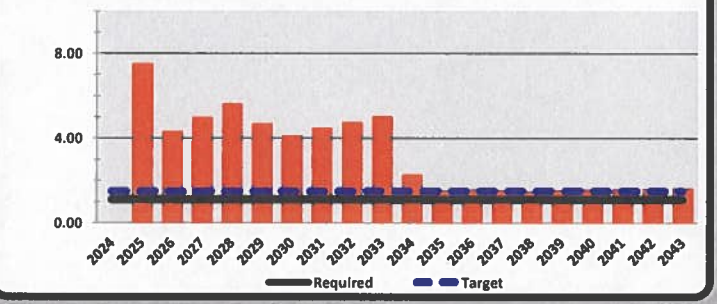
Capital Projects



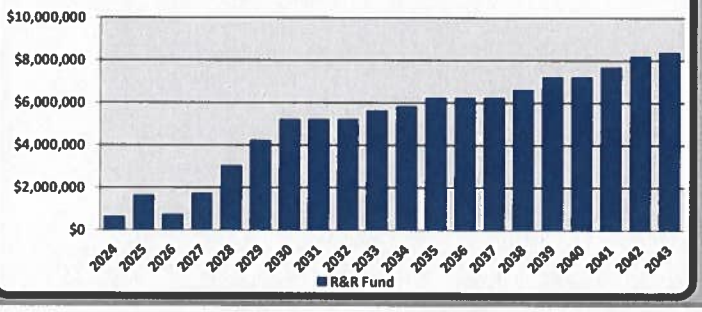
Enterprise Operating Fund Balance



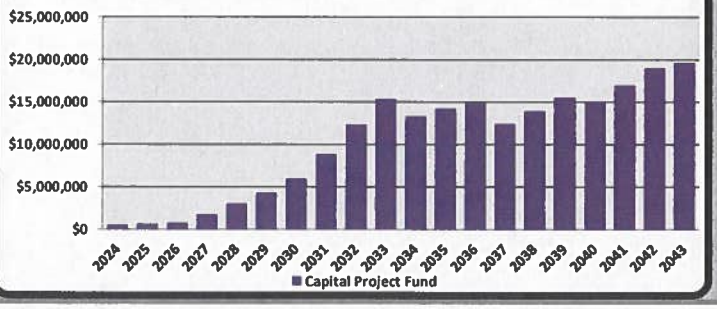
Debt Service Coverage



Renewal & Replacement Fund



Enterprise Capital Fund



	2024	2025	2026	2027	2028	2029	2030
Volumetric Increase	$ 0.040	$ 0.040	$ 0.040	$ 0.040	$ 0.040	$ 0.040	$ 0.040

	2031	2032	2033	2034	2035	2036	2037
Volumetric Increase	$ 0.040	$ 0.030	$ 0.030	$ 0.030	$ 0.030	$ 0.030	$ 0.030

	2038	2039	2040	2041	2042	2043	2044
Volumetric Increase	$ 0.030	$ 0.030	$ 0.020	$ 0.020	$ 0.020	$ 0.020	$ -

Lower Cape Fear Water & Sewer Authority

Personnel Committee Meeting Minutes

September 11th, 2023

Chairman Blanchard called to order the Finance Committee Meeting on September 11th, 2023, at 8:45 a.m. The meeting was held at the Authority's office located at 1107 New Pointe Boulevard, Suite 17, Leland, North Carolina.

Present: Norwood Blanchard, Wayne Edge, Harry Knight, Al Leonard, Jackie Newton, Scott Phillips, and Charlie Rivenbark

Present by Virtual Attendance: Bill Sue

Absent: Bill Saffo

Staff: Tim Holloman, Executive Director; Matthew Nichols, General Counsel; Sam Shore, COG; and Danielle Hertzog, Financial Administrative Assistant

Guest: Director Patrick DeVane, Director Chris Smith, and Jorgen Holmberg, Computer Warriors

Discussion: Update on Financial Administration Assistant Clerk Certification Course for 2023 and Executive Director Accepted to Leadership Brunswick

Executive Director Holloman gave an update on Danielle Hertzog's Clerk Certification process. She will have her final week of class between October 16 through October 20. Mrs. Hertzog also attended the North Carolina Clerks Association Conference in August 2023, the first time the LCFWASA clerk participated. Executive Director Holloman was accepted to the leadership Brunswick, and the first seminar will be held on September 20, 2023.

ADJOURNMENT

There being no further business, Chairman Blanchard adjourned the meeting at 8:49 a.m.

Respectfully Submitted,

_____

Tim Holloman, Executive Director

COUNTY OF BRUNSWICK
PUBLIC UTILITIES DEPARTMENT
Kings Bluff Pump Station

246 Private Road
Riegelwood, NC 28456
(910) 655-4799 Office
(910) 655-4798 FAX

TO: Tim Holloman

FROM: Greg Lazorchak

DATE: 10/02/2023

SUBJECT: Monthly maintenance report for September 2023

Mr. Holloman,

The Maintenance and Operations of the king's bluff facility for the month of September were performed as prescribed in the station SOP'S and other items are as follows.
The diesel drive booster pumps along with the standby SCADA generator located at the raw tank and the SCADA generator located at INVISTA / CFPUA vaults off HWY 421 were run and tested weekly and verified standby ready.
KB personnel completed all locates issued by the 811 system.
KB personnel cleaned and power washed generators of debris.
KB personnel assisted S&M.E. & Mid-Atlanic with Drilling at river and DAK.
KB personnel painted air storage tanks for revitalization.
KB personnel power washed buildings and walkway at river.
KB personnel replaced old boards along walkway at river.
KB personnel painted surge tanks.
KB personnel aided McKim & Creed with R.O.W.inspection.
KB personnel prepped the floor at plant for paint.

Contractors:
Power Secure came for quarterly checks at R.t 421, raw tank, and plant.
S&M.E. and Mid-Atlantic Drilling went to Kings Bluff and DAK for drilling.
Pursuit Cleaning came to Kings Bluff office for bi-monthly cleaning.
LJ's Landscaping cut grass at Kings Bluff pump station and authority property.
LJ's Landscaping began cutting R.O.W at Pender County.
McKim & Creed inspected R.O.W.
Newcomb came to change filters for HVAC.
AT&T fixed phone and internet.

Thank you,
Gregory Lazorchak

Smithfield®

To: Tim Holloman - LCFWASA

From: James Kern – Bladen Bluffs SWTP ORC

Date: 10/4/23

Subject: September 2023 Operations

During the month of September, Bladen Bluffs SWTP operated a total of 18 days, treating 53.13 million gallons of water.

We used:

37,754 lbs. of aluminum sulfate (Alum)

10,878 lbs. of sodium hydroxide (Caustic)

1,776 lbs. of sodium hypochlorite (3,566 gallons of 6% Chlorine Bleach)

James Kern
Water Treatment Plant
Supervisor

Smithfield
Good food. Responsibly.®

(910) 862-3114
(910) 862-3146
(910) 733-0016 mobile
jkern@smithfield.com

Bladen Bluffs Surface Water Treatment Plant
17014 Highway 87 West
Tar Heel, NC 28392
www.smithfieldfoods.com

Bladen Bluffs SWTP Maintenance Report

Date: 10/4/2023

ISSUE:	PLAN OF ACTION:
Air on finished water line (from GAC)	All valves installed
All PLC need updated	Getting quotes
Vault intrusion electrical needs sealed	Quote approved
Few lights out on basin	COMPLETE
Chlorine Pump #1 flow meter broken	Part received, scheduled repair
Chlorine Pump #2 leaking around pump	Scheduling repair with Tencarva, part ordered
Tree down on fence (tropical storm)	COMPLETE
Main generator has radiator leak	Quote approved, parts ordered
Clearwell #1 level indictor issue	Scheduled
Previously installed labels already fading	Contractor replacing
Front gate issue	FIXED

Monthly Operating Reports (MORs) Summary

(No user data entry – all values are auto-populated.)

Year: 2023 **Month:** September **PWS Name:** Bladen Bluffs Water System **Facility Name:** Bladen Bluff **PWSID# :** NC5009012

Combined Filter Effluent (CFE)Turbidity

Samples exceeding 1 NTU (count):	0	Number of samples required:	97
Samples exceeding .3 NTU (count):	0	Number of samples taken:	97
Samples exceeding .3 NTU (pct):	0.0%	Highest single turbidity reading NTU:	0.136
		Monthly average turbidity NTU:	0.078

Individual Filter Effluent (IFE) Turbidity

1)	Was each filter continuously monitored for turbidity?	Yes	X	No	
2)	Was each filter's monitoring results recorded every 15 minutes?	Yes	X	No	
3)	Was there a failure of the continuous turbidity monitoring equipment?	Yes		No	X
4)	Was any individual filter turbidity level > 1.0 NTU in two consecutive measurements ?	Yes		No	X
5)	Was any individual filter turbidity level > 0.5 NTU in two consecutive measurements at the end of 4 hours of operation after the filter has been backwashed or otherwise taken offline ?	Yes		No	X
6)	Was any individual filter turbidity level > 1.0 NTU in two consecutive measurements in each 3 consecutive months ?	Yes		No	X
7)	Was any individual filter turbidity level > 2.0 NTU in two consecutive measurements in 2 consecutive months ?	Yes		No	X

Entry Point Residual Disinfectant Concentration (EPRD)

Disinfectant Used	Chlorine	Number of samples required	97
Minimum EPRD concentration	0.4600	Number of samples taken	97

Distribution Residual Disinfectant Concentration

Number of samples under 0.010 mg/L (without any detectable) excluding where HPC is ≤ 500/mL: 0

Contact Time (CT) Ratio

Lowest CT ratio reading	16.30	Number of CT ratios required	18
Number of CT ratios below 1.0	0	Number of CT ratios calculated	18

Remarks From General Info Worksheet

☑ By checking this box, the ORC certifies that the requirements of 15A NCAC 18C .1301 "General Requirements", .1302 "Tests, Forms, and Reporting", and .1303 "Facility Oversight" have been met for the month of September, 2023 and that records documenting compliance with this rule are maintained on the premises and available for inspection upon request.

NCDENR/DEH
PWSS
Version: V02.10-00

COMPLETED BY: James Kern

CERTIFICATE GRADE: A - Surface CERTIFICATE NUMBER: 120147

New Business (NB1)	Lower Cape Fear Water & Sewer Authority

AGENDA ITEM

To: CHAIRMAN BLACHARD AND BOARD MEMBERS

From: TIM H. HOLLOMAN, EXECUTIVE DIRECTOR

Date: October 9, 2023

Re: Resolution Accepting the *Lower Cape Fear Water & Sewer Authority Kings Bluff Regional Raw Water Supply Facilities FY 2023-2024 Annual Inspection Report* (Tony Boahn, P.E., McKim & Creed)

Background: The existing Standard Provisions for Water Supply Agreements with all customers and the current Bond Order require an annual inspection of all the facilities associated with the pump station by a qualified engineer to report on readiness, identify any deficiencies, and make recommended repairs and capital improvements. A copy of the report will be provided to Brunswick County Utilities as operator of the facility.

Enclosed is an excerpt of the report summarizing the inspection items.

Mr. Powell will present an overview of the report.

Resolution Accepting the *Lower Cape Fear Water & Sewer Authority Kings Bluff Regional Raw Water Supply Facilities FY 2023-2024 Annual Inspection Report*

Action Requested: Motion to approve/disapprove.

Resolution Accepting the Lower Cape Fear Water & Sewer Authority Kings Bluff Regional Raw Water Supply Facilities FY 2023-2024 Annual Inspection Report

Whereas, the Lower Cape Fear Water & Sewer Authority, (the Authority) provides within its Standard Provisions for Water Supply Agreements with all customers in Article II, Section 2.5 entitled Inspection of the System, and which reads, in part, "As required by any applicable Bond Order, the Authority shall cause a consulting engineer to inspect the System at least once every 12 months and to submit to the Authority a report identifying any operational, maintenance, or repair problems of the Water System and setting forth for the next ensuing 12-month period his recommendations as to any revisions that should be made in the methods of operation or maintenance of the water system and any repairs that must be made to maintain the water system in such period;" and

Whereas, the existing Bond Order Series 2010 Section 7.06, Consulting Engineer reads, in part, "the Authority covenants that it will, for the purpose of carrying out the duties imposed on the Consulting Engineers by this Bond Order, employ an independent engineer or engineering firm or corporation as Consulting Engineers. The Authority further covenants that it will cause the Consulting Engineers to make an inspection of the System at least once each Fiscal Year and promptly submit to the Authority Executive Director a report setting forth (a) their findings whether the properties of the System have been maintained in good repair, working order and condition and whether they have been operated efficiently and economically and (b) their recommendations respecting the proper maintenance, repair and operation of the System during the ensuing Fiscal Year"; and

Whereas, the Authority budgets on an annual basis, appropriations for the operation and maintenance of the Kings Bluff Raw Water System with Brunswick County Utilities under a long-term Operation and Maintenance Agreement; and

Whereas, in accordance with the above references and the annual operating budget for FY 2023-2024, the Authority's consulting engineer has provided the Annual Inspection Report with recommendations for repairs or normal maintenance items; and

Now Therefore Be It Resolved, that the Chairman and Board of Directors for the Authority, accepts the *Lower Cape Fear Water & Sewer Authority Kings Bluff Regional Raw Water Supply Facilities FY 2023-2024 Annual Inspection Report.*

Adopted this 9th day of October 2023

_____

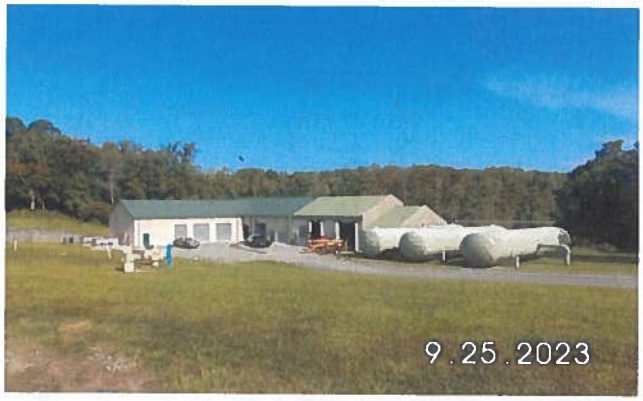
Norwood Blanchard, Chairman

ATTEST:

_____

Patrick DeVane, Secretary

Lower Cape Fear Water & Sewer Authority
Kings Bluff Regional Raw Water Supply Facilities
FY 2023-2024 Annual Inspection Report FINAL DRAFT



Kings Bluff Raw Water Pump Station

Interim Raw Water Booster Pump Station

Prepared by

McKIM & CREED
243 North Front Street
Wilmington North Carolina
F-1222

Prepared for

LOWER CAPE FEAR WATER AND SEWER AUTHORITY
WATER
GOVERNMENT
INDUSTRY
INCORPORATED 1970

September 2023

LOWER CAPE FEAR WATER AND SEWER AUTHORITY
KINGS BLUFF REGIONAL RAW WATER SUPPLY SYSTEM
ANNUAL INSPECTION REPORT
TABLE OF CONTENTS

FIGURES

APPENDICES

SECTION 1 - INTRODUCTION

1.1 FACILITIES

The Lower Cape Fear Water and Sewer Authority is a regional organization with sponsoring members that are comprised of Bladen, Brunswick, Columbus, New Hanover, and Pender Counties, and the City of Wilmington. The Authority was created to aid development of a water supply system for the sponsoring member governments, which are primarily located in southeastern North Carolina (Refer to Figure 1 for a map of the Authority's current service area). The Authority's current facilities at King's Bluff consist of the following:

- Two (2) Raw Water Intake Pipes and Associated Intake Screens
- Kings Bluff Raw Water Pumping Station
- Interim Booster Pumping Station
- Raw Water Transmission Main Piping
- Raw Water Storage Reservoir
- Miscellaneous items such as, SCADA, Metering Vaults, Air Release Valves, etc.
- Pump Station Standby Power (Kings Bluff Raw Water Pumping Station) consisting of Two Separately Housed Primary Diesel-Powered Generators with Automatic Transfer Switchgear.
- Two (2) oxidation catalysts installed on each primary standby generator.
- One Low-Duty Diesel Powered Generator
- Transmission Main Pigging Facilities
- Air Surge Tank System

The Authority obtains raw water from the Cape Fear River via two (2) raw water intake pipes (48-inch and 60-inch diameter) located just above Lock & Dam No. 1 in Bladen County. Raw water is conveyed by various raw water transmission mains to several governmental and industrial users in the region. The Authority's current customers are as follows:

- Brunswick County (governmental entity)
- Cape Fear Public Utility Authority (CFPUA - governmental entity)
- Pender County (governmental entity)
- Invista (private industry)
- Praxair Incorporated (private industry)

Phase I of the Authority's facilities, completed in 1984, consists of a 45 million gallon per day (MGD) raw water pumping station and intake structure, approximately 14 miles of 48-inch

transmission main, and a 3 million-gallon (MG) storage reservoir. Phase 2 extended the system approximately 10 miles to serve the industries of Invista and Praxair along US 421 and the City of Wilmington. This phase consisted of 60-inch and 48-inch transmission lines that were placed into service in April 1992. The Phase 1 and Phase 2 facilities are shown in Figure 1.

In December 2003, the two 3.0 Megawatt (MW) standby generators were placed into full-time operational status at the Kings Bluff Pumping Station. The generators are housed in a separate building co-located with the pumping facilities at the Kings Bluff site. Major components of the standby power facilities include (2) reconditioned generators, automatic electrical switchgear, and (2) 12,000-gallon capacity fuel tanks. In 2007 the Authority completed a major rebuild of both 3.0 MW standby generators.

In 2005 it was recommended that the Authority conduct pigging of the 48-inch raw water transmission main to clean the pipe of the sedimentation and sand accumulation that was reducing the output due to increased friction in the pipeline. This project included the installation of pig launch and retrieval facilities and the completion of four (4) 'pig' runs to scour the pipe interior. The pig launch facility is located near the Kings Bluff Pumping Station, while the pig retrieval facility is located at the storage reservoir site.

In 2009 a comprehensive expansion and upgrade to the Kings Bluff Pumping Station was completed that included the following major components:

- Three (3) new 1,600 HP vertical turbine raw water pumps
- Additional wet well expansion to accommodate a total of five (5) raw water pumps
- New electrical building housing three (3) variable frequency drives
- New operations office with restrooms, shower facilities, and overnight accommodations
- SCADA and telemetry upgrades
- Valving and raw water main piping modifications for future parallel raw water main connection
- Retention of two (2) existing 1,000 HP vertical turbine raw water pumps (note that both 1,000 HP pumps have recently been permanently removed from the facility)
- Additional air surge tank

In 2010, a new 60-inch diameter parallel raw water intake pipe and three (3) intake screens were constructed at the Kings Bluff Pumping Station. The 60-inch intake was placed into service in December 2010 and was constructed parallel to the existing 48-inch intake pipe. The 60-inch intake piping and existing 48-inch intake pipe were designed and constructed such that the station can be supplied raw water from either intake pipe or both simultaneously, thus providing ultimate operational flexibility at the Kings Bluff facility. In conjunction with the intake project, a new integrated air backwash system and building was constructed adjacent to the original air backwash building. The purpose of the backwash system is to allow for periodic

cleaning of silt and debris buildup at the intake screens via a pressurized air burst through the screen assemblies.

Primary components of the parallel 60-inch intake system are as follows:

- 1,100 feet of 60-inch ductile iron intake pipe
- Three (3) *Johnson* stainless steel intake screens rated at 27.5 MGD each
- New air backwash building
- *Johnson Hydro-burst* integrated air backwash system and 2,000 Gallon air tank

Interim Booster Pump Station

In 2013 the Authority completed construction of the Interim Booster Pump Station (IBPS), which is located at the 3 MG ground tank site. The IBPS provides a capacity of 29.1 MGD, as well as increased pressures, to customers on the US Highway 421 portion of the system, which are Pender County, Invista, Praxair, and CFPUA. The IBPS consists primarily of three (3) diesel driven pumps that deliver increased flow and pressure to meet peak summer demands for Authority customers. Originally, the IBPS pumps, fuel cells, and standby generator were provided under rental agreement to the Authority with *Mersino Pumps*. However, the Authority has since purchased this equipment and the IBPS is a now permanent facility completely owned and operated by the Authority.

Primary Components of the IBPS are as follows:

- Three (3) diesel-driven pumps
- Three (3) 500-gallon capacity diesel fuel storage tanks
- One (1) 45 KW diesel generator
- 265 feet of 24-inch ductile iron pipe
- 700 feet of 48-inch ductile iron pipe
- Piping, valves, miscellaneous appurtenances
- SCADA/Telemetry controls for operation of the IBS

Hurricane Matthew Raw Water Main Failure

On October 13, 2016, a significant failure of the LCFWSA's existing 48-inch PCCP raw water transmission main was identified by staff in the community of Riegelwood, Columbus County, NC. The failure occurred in a low topographical area that has limited drainage and is prone to flooding. Upon identification of the leak, a multi-organizational effort to repair and restore the pipeline was undertaken. The repair effort included extensive dewatering, a temporary access

road, a temporary repair band, a temporary by-pass pipe, and full replacement of the failed pipe sections with DIP.

Based on evaluation of the failed transmission pipeline, it was determined that the pipe bedding and foundation had been undermined and that the pipe had settled causing the joints to separate and leak. In review of events leading up to the pipe failure, it was determined that Hurricane Matthew had passed the area on October 8, 2016, delivering 8-inches of rain over a 24-hour period. After this event, the nearby Cape Fear River crested at approximately 28 feet on October 13th-14th, 2016 which directly coincided with the pipeline failure of October 13, 2016. It was surmised that the flooded conditions and the significant impacts attributed to Hurricane Matthew undermined the pipe bedding and foundation, causing settlement of the pipe, separation of the pipe joints, and failure of the pipeline.

Repair efforts included the following:

- Installation of approximately 1,000 linear feet of 36-inch HDPE bypass piping with two (2) wet taps on the existing 48-inch main.
- Removal of approximately 80 linear feet of 48-inch PCCP raw water main.
- Installation of approximately 80 linear feet of new 48" DIP raw water main.
- New in-line 48-inch gate valve
- New 48-inch Tee

The total project cost to repair the pipeline was $2,766,690, which was 100% reimbursed through FEMA disaster relief funds.

Pure Technologies SmartBall Inspection

As a result of the pipe failure and age of the existing 48-inch PCCP raw water main, the Authority contracted with *Pure Technologies* to perform a leak inspection of the 14-mile pipeline section from the Kings Bluff Raw Water Pump Station to the 3 MG Ground Tank. The inspection involved insertion of a "SmartBall" acoustic device in the pipeline for the length of pipe to be inspected. The "SmartBall" travels along the pipeline and utilizes acoustic methods to determine potential leaks along the pipeline. The field inspection of the pipeline was completed on May 18, 2017. Results from the inspection indicated no major leaks but did note a potential small leak near the 3 MGD Ground Tank. Based on the Pure *Technologies* report, the leak was likely the result of "bleed through" of the existing valve at the 3 MG ground tank and did not represent an actual leak from the pipe. No further action was taken upon completion of the report; however, McKim & Creed recommends that the existing valve at the 3 MG ground tank be monitored for potential leaks or other issues.

54-Inch Parallel Raw Water Main

In December of 2019, construction of a new parallel 54-inch raw water transmission main began and was placed into service in November of 2021. The project was subsequently completed in April of 2022 after installing strategic interconnections with the existing 48-inch pipeline. The new 14-mile pipeline now parallels the existing 48-inch raw water main from the Kings Bluff Raw Water Pump Station to the 3-million-gallon ground tank near the Brunswick County Northwest Water Treatment Plant. The pipe was constructed of welded steel with a cement mortar liner and exterior polyurethane coating. Cathodic protection for the new pipe was installed along the entire pipeline route. Four primary interconnections with the existing 48-inch raw water main were constructed to provide resiliency and operational flexibility for the conveyance system. With the completion of the new parallel pipeline, the Kings Bluff Raw Water Pump Station has a firm permitted capacity of 62 MGD.

Kings Bluff Raw Water Pump Station 4th Pump Design & Permitting

The Board of Directors authorized the design and permitting of a new 4th raw water pump for the Kings Bluff facility in July of 2020. The design was completed in the fall of 2020 and a permit modification was submitted to NCDEQ Public Water Supply to increase the station capacity to an anticipated 90 MGD. The modified permit was approved in February of 2021; however, the 54-inch parallel pipeline noted was not complete and operational at the time for the Authority to fully realize the increased capacity that would be available from the 4th pump; therefore, the project was put on hold until after completion of the pipeline. The Authority's master planning document outlines that the project will begin in fiscal year 2024 and will be complete and operational by fiscal year 2026.

48-Inch Raw Water Main Failure near DAK Industries Site

On November 3, 2021, a pressure spike in the raw water transmission main system resulted in a significant failure of the LCFWSA's existing 48-inch PCCP raw water transmission main. The failure was identified by Brunswick County staff in the area behind the DAK Industries site near the Cape Fear River. Upon identification of the leak, a multi-organizational effort to repair and restore the pipeline was undertaken as downstream customers (CFPUA, Pender, 421 Industries) were receiving reduced flows as a result of the failure in the pipeline.

Brunswick County utilized their emergency services contract with State Utilities to mobilize personnel and equipment to the project area and begin installation of bypass piping and repair of the damaged pipe sections (approximately 220 feet total). The repair of the section of 48" pipe was completed on January 15th, 2022 and the line was restored to service. The total cost to complete the emergency repair was $2,521,503.84.

Black Rock Rd. Raw Water Main Repair

In April of 2022 during a punch list inspection for the 54-inch raw water transmission main project, McKim & Creed staff observed water bubbling up from the ground along the 48-inch pipeline alignment near Black Rock Rd. With the new 54-inch pipeline in service, LCFWASA staff were able to isolate the section of pipeline to excavation and identify the leak. Brunswick County staff received bids to remove the two pipe segments on either side of the damaged joint and replace them with 48" ductile iron pipe the Authority had in storage. TA Loving was placed under contract to make the repairs and this work was completed in August of 2022. The total cost of the repair was $85,474.80.

New Access Walkway over Livingston Creek

In January of 2023 Intracoastal Marine completed the installation of a walkway connecting the 54" steel pipe access walkway to a new walkway spanning the aerial portion of the existing 48" PCCP pipe. This new structure will be used for future maintenance and inspections of the existing 48" PCCP pipe.

Also completed by Intracoastal Marine during the same time was a joint repair on the existing 48" PCCP elevated pipe where degradation of one of the existing joints had occurred. The contractor repaired the joint in accordance with specifications provided by the pipe manufacturer and at the direction of McKim & Creed's structural engineer. (See Photograph II)

1.2 BASIS OF ANNUAL INSPECTION

A condition of the authorizing Bond Order requires an annual inspection of all facilities by a qualified Engineer who shall report on their readiness, identify any deficiencies, and make recommendations on capital improvements.

1.3 OPERATING ARRANGEMENTS

The Authority maintains limited full-time staff, consisting of an Executive Director and an Administrative Assistant, for the administration of the Authority's programs and the coordination of water supply activities in the Region. The Authority contracts for operations and maintenance of the Regional Water Supply System with Brunswick County. The Brunswick County Utilities Department provides the personnel and resources to operate and maintain the Authority's raw water facilities and administers outside maintenance contracts as needed for effective operation of the system. Thus, Brunswick County is designated the "Contract Operator" of the system.

1.4 SCOPE OF WORK

The annual inspection program is comprised of several major focus points:

- Detailed in-the-field inspection of the Kings Bluff Pumping Station, pipeline route, air relief valve assemblies, line valves, metering stations, reservoir facilities and grounds, and general appurtenances throughout, to assess general level of maintenance and to identify the need for equipment replacement, repairs, or remedial activities.
- Review of Authority's operation and maintenance records, protocols, and processes to identify the level of maintenance and potential adjustment toward improved efficiency.
- The identification of capital improvements or major repairs that merit immediate attention or further investigation and definition.

The results and findings of this annual inspection are summarized in the following sections of this report. The FY 2023 - 2024 inspection of the Authority's facilities was conducted during September 2023.

SECTION 2 - KINGS BLUFF PUMPING STATION

2.1 GENERAL STATUS

The components of the Kings Bluff Pumping Station consist of:

- A 48-inch raw water intake pipe with three 15 MGD intake screens and air backwash system with a total rated capacity of 45 MGD
- A 60-inch raw water intake pipe with three 27.5 MGD intake screens and air backwash system with a total rated capacity of 82.5 MGD
- Three 1,600 HP vertical turbine pumps with variable frequency drives
- One light duty (480 Volt) generator
- Two 3.0 MW (medium Voltage) primary backup generators with oxidation catalysts
- Two 12,000-gallon concrete diesel fuel tanks
- Electrical building and operators control room
- SCADA and telemetry system for monitoring and control
- 24 miles of 48-inch and 60-inch raw water transmission main
- Three (3) air surge tanks
- Pig Launcher & Pig Retriever on 54" RWM
- 14 miles of 54-inch raw water transmission main
- 4- Interconnections between "48" RWM and 54" RWM
- 24" & "30" Pressure Reducing Valve Assemblies
- New Flow Meter Vault
- New Elevated Platform with ARV and piping over Livingston Creek for both 48" PCCP pipe and 54" STL pipe.

2.2 EQUIPMENT AND SYSTEM INSPECTION SUMMARY

An inspection of all major equipment was completed, and the findings are tabulated in *Appendix A*.

2.3 PUMP OPERATIONS

Power Sources

Primary power is purchased from Duke Energy Progress at Medium Voltage levels (4,160 Volts). The level of service provided enables the pumping station to be operated at its full rated capacity with two of the three 1,600 HP electrically driven pumps operating in parallel.

In the event of primary power interruption, the two 3.0 Mega Watt generators at the Kings Bluff pumping station energize automatically to provide dedicated, and reliable power to the pumping station. The generators allow the raw water pumps to be started and operated in order to meet the raw water demands of the Authority's customers. Overall, the generators were inspected and found to be in good operating condition.

In addition to providing emergency power to the station, LCFWSA entered into a power curtailment agreement (Demand Response Automation – DRA) with Duke Power. Under this agreement, the Authority's emergency power system was activated when requested by Duke causing the plant load to be shed from the main utility power system. For each activation, the Authority received compensation which was then used to offset the cost of operating the pump station. The generators are equipped with catalytic converters that meet required NCDEQ Air Quality Emissions standards to maintain participation in the DRA program. LCFWSA has a separate contract with PowerSecure to monitor the performance of the catalytic converters to ensure they are operating withing Air Quality constraints.

During this year's inspection, the station's generators were not started. Additionally minor items requiring correction were noted and are listed in Appendix A.

The Authority's SCADA system and main computers, upgraded in 2009 as part of the pump station expansion/upgrade, are sufficient for current operations.

Pumps & Electrical Facilities

During this year's inspection, the 1,600 HP vertical turbine pumps (installed as part of the 2009 expansion/upgrade of the Kings Bluff facility) were inspected and found to be in excellent condition and meeting the needs of the Authority's customers (See ***Appendix F -Photograph A***). Staff indicated that the scheduled service of Pump 5 was completed this year. During this visit, it was noted that the check valve on pump 1 was leaking significantly. Staff indicated that Underwood was in the process of rebuilding the check valve removed from 5 (noted above) for installation at pump 1 (See ***Appendix F - Photographs B***).

In June 2017, Pump 4 was removed from service due to an oil leak and was then repaired by Charles Underwood Pump Company. After the pump was placed back in service, the bearing was observed to be operating at a lower temperature, similar to Pumps 1 and 5 (or slightly

lower). A definitive answer was not provided by the pump manufacturer as to the reduction in bearing temperature, however, it has continually operated in a normal range since this repair and appears to be in satisfactory condition.

During the 2016 inspection staff suspected the Pump 4 had a cooling water leak in the upper bearing chamber that could be contributing to the high temperature. It was recommended that this be inspected and addressed immediately. The Authority staff did investigate this issue and no leak was found. As a protective measure, the Authority has purchased a spare cooling coil in the event of failure of a cooling coil on the 1600 HP pumps. The coil is interchangeable with each pump.

Noted in the 2014 inspection, Pumps 2 and 3 (1,000 HP each) have been permanently removed from the old pump station section. Openings have been capped and conductor conduits have been capped flush with the slab.

The 1,600 HP pumps are controlled by a separate electrical control room housing variable frequency drives and motor starters. During the 2016 inspection, it appeared that the masonry wall to wall joints located inside the new pump station electrical building had shifted producing cracked paint at the intersection of the walls. The most noticeable crack is located on the masonry wall joint located west of the western most roll up door. Since the 2016 inspection, Engineer reviewed the joints and found that the issue was not structurally detrimental; however, it was recommended that staff should continue to monitor the issue. During this inspection, visual observation indicated that the size of the separation did not appear to have increased (See ***Appendix F - Photographs C***). It is recommended that the wall separation continue to be monitored.

During a previous review, it was noted many items were being stored inside the electrical room creating a potential fire hazard and impeding access to exit doors. It was therefore recommended the room be cleared of excessive storage and those items that remain be moved so as to not obstruct exit from the building Staff has minimized the storage and obstruction as of this review (See ***Appendix F - Photographs D***).

Adjacent to the new electrical control room is an HVAC room housing the HVAC equipment (See ***Appendix F - Photographs E***). As noted during the last inspection, a new HVAC unit had been installed outside with an associated air handler inside. It was recommended then that the HVAC openings which allow duct work to pass between the HVAC room to the electrical room be sealed to prevent short circuiting of the unit and the unnecessary cooling of the HVAC room. As of this inspection, opening is still present, however staff indicated it was soon to be addressed (See ***Appendix F - Photographs F***). All exterior HVAC units were reviewed and were clear of any debris blocking the radiator coils. It was however noted that HVAC piping insulation outside had failed in a few areas and thus it is recommended it be addressed (See ***Appendix F - Photographs G***).

Pump Station Metering

The raw water pump station is provided with two flow meters that measure flow leaving the station. In the past, the flow meter readings at the station have been significantly different than

the sum of the customer flow meters. Historically, the summation of the customer meters has been generally within 1-2% of the station meter totals. Per our understanding, County staff has conducted field testing and determined that the customer flow meters appear to be within acceptable ranges; therefore, customer billing appears to be normal and generally accurate. It is recommended that the County and Authority continue to monitor the metering conditions for accuracy at the Kings Bluff Pump Station. No issues were reported as a result of this year's inspection. The flow meter vault was inspected and found to be in good condition ***Appendix F - Photographs H***).

2.4 EXTERNAL DIESEL FUEL TANKS

The two 3.0 Mega Watt standby generators are supplied fuel by (2) 12,000-gallon concrete fuel tanks, which are located adjacent to the generator building. The tanks were installed with a 110% secondary containment wall to capture overflow, ruptures, or spills of diesel fuel. The external fuel tanks were inspected and found to be in acceptable condition. Rainwater collects in the containment area and is drained by LCFWSA operator after each significant rain event. On both tanks, during past inspections, significant efflorescence was noted. Tanks were coated again last year; however, during this year's inspection one tank was again exhibiting efflorescence (See ***Appendix F – Photograph I***). The diesel storage tank 1 leak detection test button was found to be failed and needs to be addressed (***Appendix F - Photographs J***).

2.5 PUMP STATION BUILDINGS

The combined new and old buildings were inspected and found to be in good overall condition. Noted during the previous inspection, both Hellan Strainer backwash control panels had inoperable indicator lights that required replacement. As of this inspection, lights have been addressed.

During a previous inspection, cracks were found in the new pump station concrete flooring of the pump room. These cracks were analyzed and monitored and do not appear to be detrimental to operations. Both pump station piping galleries need to be cleaned for bugs, debris, etc. All observed issues detailed below are also noted in ***Appendix A***:

- During the time of the 2011-2012 inspection, O&M staff noted that the containment area provided in the new pump station building for storage of oil floods and then subsides with heavy rains. Staff has addressed this issue by installing a French drain outside of the facility. The drain was placed against the wall and appears to be reducing the hydrostatic water load against the wall. In addition, staff applied another layer of sealant to the interior face of the CMU wall. No water/moisture was present during the inspection and staff reported the drain and sealant appear to be working. During the 2019 inspection, staff indicated they had placed approximately 12 inches of concrete in

the pit area and recoated with sealant. No evidence of leaking was observed during this time. During this year's inspection, it was noted that both pump station piping rooms need to be cleaned out due to bugs and debris. With respect to the new pump station storage room, this room was found to be sustainably filled with stored items during the last inspection. Since then, items have been relocated/stored to not impede access to the exit door (See ***Appendix F – Photograph K***).

2.6 GROUNDS

The grounds consist of a paved access drive and parking area, and the grassed area surrounding the pumping station. During 2003 a new chain link security fence was installed around the complete pump station site. The new fence has an electronically controlled gate with a keypad entry system which was installed during the spring of 2003. The fence provides an enhanced level of security for the pumping station and the maintenance staff.

In recent years, sink holes have appeared behind the pump station, at the generator building transformers, and at the small generator. The Authority recently implemented repairs to a leaking storm drainpipe as well as capping an abandoned pipe that was suspected of contributing to the sink hole issues. During this inspection, sink holes or drainage issues were not observed or noted and appear to have been corrected.

During the 2018 inspection, it was noted that several valve operator wheels were broken. The handwheels were replaced with operator nuts, correcting the problem, as documented in the 2019 inspection.

2.7 AIR SURGE TANK SYSTEM

The air surge tank system consists of three tanks and provides for surge relief and protection from water 'hammer.' During the 2019 inspection, it was noted that the anchor bolts which secure the steel air tank piers to the concrete base footings had been replaced.

During the 2019 inspection, it was noted that all tanks had been painted and the fill line has been provided with heat tracing and insulation to prevent freezing as previously recommended. Additionally, surge tank 3 exterior air piping has been painted as previously recommended.

During the 2021 inspection, six (6) drain valves were observed to have been replaced. During this inspection, the tankage appears to be in good condition.

During this inspection, it was noted that the paint was failing in several areas especially on the tank drain valves and tank #3 (See ***Appendix F – Photograph L and M).*** Staff are in the process of addressing the situation.

During the last inspection and with regards to the surge tank control panels located inside the pump station, several indicator lights still required replacement. Lights have since been replaced as of this inspection. Also, during this inspection, surge tanks 1 and 2 had their respective controls turned on, however tank 3 controls were off (***See Appendix F – Photograph***

N). Please note that for proper operation and protection of the new force main, all 3 surge tanks are required to operate.

2.8 PIER

The pipe corridor of the 60-inch intake pipeline is located parallel and adjacent to the existing pier. A review of this area indicated that vegetative cover is established, and that the area is slightly flooded. (See ***Appendix F - Photograph O***).

During the 2018 inspection, it was observed that the pier and walkways to the air-backwash control buildings needed repair. Several deck boards and handrails were in poor shape. During the 2019 inspection, it was noted that some repairs had been made (stair and plank replacement); however, more are still required. Also noted in previous reports, several areas on the older building's wall panels are still showing signs of rot. As of this inspection, the dock remains in bad condition (See ***Appendix F - Photographs P***). The old backwash building remains in need of repair as wall boards are rotted. It is noted that the LCFWSA is currently under contract with McKim & Creed to design a replacement of the pier and air backwash buildings, however, it is recommended that the pier and buildings be maintained until such a time that project is completed.

2.9 GENERATOR BUILDING

The generator building was inspected, and findings are presented in ***Appendix B***. The facility was found to be in good condition. Staff noted that during the Duke Energy curtailments (and other events) excessive heat is generated inside the building even though all exhaust fans were running and the exterior roll up doors were open. Staff noted the excessive heat caused damage to the batteries adjacent to the generators.

To eliminate the battery damage issue, the staff has completed the installation of an air start system on the generators. In addition, the staff is currently working to replace the 84v pre-lube motors with 24v motors. Once completed, all deep cell batteries can be removed and replaced with two standard car batteries and thus the impact of the heat will be significantly diminished.

As previously noted during prior inspections, the building interior insulation surface appears to have been affected by the heat making it brittle. Because of this, surface repair tape will not attach thus making tear or rip repairs not possible. Replacement of the insulation should be investigated. The generator radiators were observed to be in good condition.

Also noted previously, the building personnel doors have rusted to such an extent that holes have appeared. Staff indicated new doors have been ordered and would be installed when they arrive. **(See *Appendix F – Photograph Q*).**

Also noted previously, it was observed that the breaker panel located in the generator room had an excessive amount of failed indicator lights and thus should be serviced. This issue has been addressed.

Generator radiators were reviewed during this inspection and were found to be in operable condition; however, rust was found to have advanced significantly on the underside fan shroud (See ***Appendix F – Photograph R)***. It is recommended staff monitor the area and plan to address the issue in the future.

The pneumericator panel located in the generator electrical room was found to be in alarm. It is recommended that staff address the issue.

2.10 LIGHT DUTY GENERATOR

The existing light duty generator located in front of the pump station is no longer functional. Staff brought in a portable generator and plan to connect the generator to the existing 480V panel located in the old pump station pump room. The portable generator being used at the pump station previously provided 480v power to the motor operated valve at the Booster Pump Station. As the staff now use the "spin doctor" to open and close the motor operated valve, the portable generator is no longer needed.

2.11 STAFFING

The Authority currently contracts with Brunswick County Utilities for O&M staffing for its raw water facilities and does not directly employ any O&M staff. Generally, the station is not manned 24-hours per day and on-site operator duties are shared by multiple County employees on staggered work shifts.

2.12 RADIO ANTENNA

The antenna, fencing, and support equipment appeared to be in good working order. The antenna was stuck by lightning over the past year and as a result was serviced. Due to the lightning strike, a new PLC was installed in the comm. cabinet. During this work, Staff installed a new empty 2-inch conduit from the antenna to the generator building for a future fiber optic connection to the tower.

2.13 ON SITE POTABLE WELL

In 2019, staff installed a water line (1-inch service) from a Bladen County water line tap to the pump station. The existing well system was switched over to County water thus mitigating the quality issue. There were no water quality issues noted in this year's inspection.

2.14 INTAKE SCREEN AND WARNING SIGNS

As of this inspection, there is no signage in the river to indicate the screen's locations and warn boaters. Staff indicated the sign was swept away by flooding due to Hurricane Matthew. During the 2019 inspection, Staff indicated that the automated system for backwashing the screens had been disabled and the operation is conducted manually at the backwash buildings. Staff indicated visuals checks of the river are performed prior to backwashing, thus replacement of the signage was unnecessary. Our recommendation is for signage to be placed on the bank as low water levels in the river could cause deep draft vessels to potentially damage the screens.

2.15 SEPTIC SYSTEM

The facility provides wastewater disposal via a small pump system with an on-site subsurface drain field. In 2019, Staff indicated the system grinder pump had been replaced recently and that the system was operating without issues. During this inspection, there was no indication of septic issues observed.

SECTION 3 - RESERVOIR & INTERIM BOOSTER STATION

3.1 GENERAL

The three-million-gallon raw water reservoir is located near Brunswick County's Northwest Water Treatment Plant and is surrounded by an earthen berm to hold any overflow which may arise from the storage tank. There is a small control building adjacent to the tank and the entire site is enclosed within a chain link fence. The reservoir is in good condition as are most of the other components at the reservoir site.

The reservoir is a pre-stressed concrete tank, coated with an external paint system for protection and appearance. There are several places where visible seams on the outside wall of the tank appear to have calcified due to leaks, but no visibly wet seams were noted (See ***Appendix F - Photograph R***). During the previous inspections, O&M staff indicated that the *Crom Corporation* (original tank manufacturer) had been contacted to evaluate the seams and provide recommendations for repair.

Interim Booster Pump Station

The interim booster station (IBS) was inspected and found to be in excellent condition and no issues were present that required corrective action. It is recommended that O&M staff periodically test the system for functionality and develop/modify protocols as required for maintenance and operation. It is also recommended that the IBS be exercised and tested under actual flow conditions to ensure proper operation when the IBS is required.

Interim Booster Pump Station Freeze Damage

In January 2017, the interim booster station sustained damage as a result of freezing temperatures. The pumps are equipped with drain valves and air release valves, which froze and burst because of abnormally low temperatures during this period. Additionally, damage was sustained to electronic controllers used for pump operation, likely a result of a lightning strike. As of the date of this report, all pumps have been repaired and are operational. Brunswick County staff are in process of conducting pump tests in conjunction with Pender County and CFPUA to verify operational viability of all components. It is our understanding that Brunswick County will also develop a Standard Operating Procedure to test the pumps periodically.

In November 2018, the Authority obtained bids to implement improvements to the facility to include a shelter-style cover, freeze protection, and additional lighting. Based on bids received, the Authority chose to delay the improvements to a future date.

SECTION 4 - PIPELINE

4.1 GENERAL

The Authority's initial pipeline (Phase I) was comprised of approximately 73,000 feet of 48-inch diameter pre-stressed concrete cylinder pipe. Air relief/vacuum valves are located at high points on the pipeline to allow trapped air to be vented from the pipeline and to allow the introduction of air into the pipeline in the event that 'vacuum' conditions occur. The Phase 2 raw water main extension was comprised of approximately 52,300 feet of 60-inch and 48-inch diameter pre-stressed concrete cylinder and ductile iron pipe. The Phase II pipeline is also similarly equipped with air relief/vacuum and isolation valves. No inspections were made of the underground sections of the raw water main, however, the pipes are safely within the expected useful life of their respective materials and no significant issues are anticipated with the raw water transmission system. The pipeline between the Kings Bluff station and the 3 MG ground tank was pigged in 2005. While not critical to current operations, a future pigging project should be considered to maintain maximum transmission capacity. The recent completion of the parallel 54" pipeline has added 74,000 feet of pipe to the system, paralleling the original Phase I pipeline.

4.2 RIGHT-OF-WAY

The pipeline right-of-way was inspected and found to be in good condition. Several wet areas are frequently inaccessible due to water levels in swampy areas and highly overgrown areas (See ***Appendix F - Photograph AA***). It is recommended that these areas be mowed/cleared when possible and inaccessible areas inspected. A substantial portion of the pipeline right-of-way includes a gravel/soil access road, and farmland or adjacent railroad right-of-way and is well maintained and in good condition. Much of the right-of-way is well maintained with adequate accessibility. The entire right-of-way width of 75' was cleared during the construction of the parallel 54" RWM. All areas of the right-of-way are in good condition. During the recent inspection, the pipeline right-of-way mowing was underway.

In 2005, all vaults and blow offs were marked in the right-of-way with high visibility 8-foot PVC pipe markers. However, it is noted that the orange paint has faded, and the PVC pipes show signs of deterioration (See ***Appendix F - Photograph BB***) and should be replaced and/or repainted. These measures have been successful in eliminating the majority of such encroachments and there have been no major problems.

The raw water main is also identified in the field by markers, which are blue in color with the Kings Bluff phone number stenciled in front. It also has "Lower Cape Fear Water & Sewer Authority" identified on the front of the marker with the phone number to the main office listed. This provides a visual notification of the approximate location of the pipeline and can help

avoid potential impacts from construction, etc. within the Authority's right-of-way. All blue markers need to be updated at roadway crossings throughout the pipeline corridor.

The 54-inch parallel pipeline which is recently completed provided "blue" utility markers to denote the location of new pipeline along the right-of-way corridor. The remainder of the Right-of-way should be reviewed, and marker posts replaced or added as needed. *(See Appendix F – Photograph CC)*

As previously noted, a valve manhole exists along the access road to "The Bluffs" development that is adjacent to the roadway. It is recommended that bollards be placed at this location to protect the manhole from a vehicular accident that could damage the manhole and/or the raw water transmission main.

4.3 AIR RELIEF VALVES

The air relief valves that exist on the raw water mains consist of a 6-inch main valve to expel air and a 2-inch air valve to allow air into the pipe when drained, thus preventing a vacuum. Periodic exercising and verification of "open condition" is necessary for these valves to protect the pipeline from excess air surges, and possible rupture. Similar to blow-off valves, it is recommended that these valves be exercised at least once per year to maintain operational viability. Additionally, there are 25 new air relief valves along the 54" RWM route. ***Appendix F - Photograph DD***) for photos of existing ARV and new ARV on the 54" RWM. See ***Appendix C*** for a list of inspected air relief valves.

4.4 BLOW-OFF VALVES

The blow-off valves located on the Phase I and II pipelines were inspected and appear to be in good condition. It is recommended the blow off valves be exercised at least once per year to ensure continued operability. Additionally, the blow-off valves should be repainted regularly, and new marker posts set on each side. See ***Appendix D*** for a comprehensive list of inspected blow-off valves on the 48" RWM. There are a total of 8 new blow-offs along the 54" RWM route. See ***Photographs GG*** of existing blow-off and new blow-offs on 54" RWM.

4.5 METER VAULTS

Metering facilities are installed at the customer connections at Brunswick County, Praxair Inc., Invista and the CFPUA. Standby power exists at all meters and allows the Authority to collect data during major power outages and minimizes the amount of non-billed water due to loss of commercial power. All meters were inspected and appear to be in good working condition. It is recommended that all piping be evaluated and routinely painted at each vault if required. A summary of the inspection of all meter vaults is provided in ***Appendix A***.

4.6 CHECK VALVES

The 48-inch check valve manholes were opened during annual inspection in October 2022. All check valves appear to be in good condition and no major problems were identified during the annual inspection (See ***Appendix E***). It is recommended that all valves be evaluated and routinely painted at each vault if required.

4.7 EMERGENCY CONNECTION – PREVIOUS DAK INDUSTRIES SITE

During repair of the pipeline that failed following Hurricane Matthew, Brunswick County installed an emergency connection to the existing raw water main near the former Dak Industries site. The connection consists of a tap on the main line, a valve, and an above ground connection pipe. The intent of this connection is to provide a potential emergency water source, whereby water could be withdrawn from the previous Dak Industries fire pond or possibly from the nearby Cape Fear River. Based on field inspection, this emergency connection is in good condition and requires no corrective action. It is recommended that the valve be periodically operated, and the external piping painted on a yearly basis. Additionally, with the closure of Dak Industries, the right of way in this area is not maintained and should be included in the recurring right of way maintenance. The connection is shown in (***Appendix F – Photograph EE.***)

4.8 NEW 54-INCH PARALLEL RAW WATER MAIN

Construction of the new 54-inch parallel raw water main was complete in April of 2022. Garney Construction has installed approximately 74,000 linear feet of 54-inch raw water transmission main pipe. The pipeline was placed into service in November of 2022 and the 48-inch PCCP raw water main was taken out of service to install strategic interconnections along the 14-mile alignment. There are a total of four interconnections between the 54-inch pipeline and the 48-inch pipeline between the pump station and the 3 MG tank. The interconnections are located at the flowing locations:

1.) Narrow Gap Road

2.) John Reigel Road

3.) Blue Banks Road

4.) Behind BC Northwest Water Treatment Plant adjacent to the new flow meter vault.

(See Appendix F – Photograph HH)

4.9 GENERAL

The Authority utilizes both electronic and manual record keeping monitoring the operation of its raw water facilities. The SCADA system provides indication of and continuously records vital operational statistics for the major mechanical components located at the pumping station, raw water storage reservoir and the metering vaults. The O&M staff have the capability to generate manual as well as electronic records reflecting the pumping station's normal operations. The current level of record keeping provides the O&M staff a means to review information for critical analysis of system performance and diagnostics for critical malfunctions.

4.10 ELECTRONIC RECORD KEEPING

The SCADA system provides the capability to expand the O&M staffs' electronic record keeping. Operators can utilize the SCADA system to create custom reports to reflect pumping station operations, log difficulties, maintain long-term records, and to provide 'trending' of the station operations. Internet access allows the operator to electronically receive and send files and provides efficient communication abilities. Operational trends for flow (total and specifically for each customer) can be easily obtained via the CITEK software that is utilized at the Kings Bluff Pumping Station. Thus, the Authority has instantaneous access to all relevant data collected by the SCADA system and the CITEK programming.

SECTION 5 - SUMMARY

5.1 READINESS

The Authority's Regional Water Supply System, consisting of the Kings Bluff Pumping Station, Interim Booster Pumping Station, standby generators, pipelines, metering vaults and the 3 MG raw water storage reservoir is in good condition and sufficient state of readiness. The facilities have been well maintained and are fully capable of providing a high level of service to its customers.

SUMMARY OF RECOMMENDED ACTION ITEMS

Items identified in this report that require attention or corrective actions are summarized as follows and detailed in the enclosed appendices. Items with a **(New)** designation are items that were observed during the current year inspection and all others are items that remain from the previous year inspection findings:

Kings Bluff Pump Station Facility, Raw Water Intakes & Air Backwash Systems

1. Continue to monitor bearing temperatures for all raw water pumps.
2. Continue to monitor meter accuracies at the Kings Bluff Pump Station.
3. Continue to Monitor storage containment area in pump building for leaks during rain events.
4. **(New)** Address emergency light battery failure alarm in the pipe gallery.
5. **(New)** Clean surge tank vessels periodically
6. **(New)** Replace overhead lights as required in the oil storage room.
7. **(New)** Repair overhead insulation in oil storage room.
8. **(New)** Replace thermostat in oil storage room.
9. **(New)** Verify proper operation of surge tank control systems.
10. Continue to maintain warning signage for the intake screens in the Cape Fear River and ensure that it is in readable and viewable condition.
11. Continue to monitor and replace broken deck boards and handrails on piers leading to air backwash buildings. Note that the CIP project has been identified to replace the walkway at a future date.
12. Evaluate older air backwash building for structural repairs due to visible signs of rot on exterior walls.
13. **(New)** Clean the old backwash building to remove debris and bugs.
14. **(New)** Replace the light inside of the old backwash building and clean the air valve of dirt and bugs.

15. Investigate surge tank system for proper configuration and operation.
16. Replace surge tank system indicator lights.
17. Monitor and repaint surge tank piping mounted to pump station exterior wall as required on a yearly basis.
18. Recommend yearly monitoring and painting of 1,000-gallon surge air tanks.

Generator Building

1. Evaluate generator building for replacement of failing insulation in conjunction with possible addition of exhaust fans to improve conditions in the generator building.
2. Monitor and repair diesel fuel storage tank coatings as required.

3 Million Gallon Ground Reservoir & Interim Booster Pump Station

1. Calcification present on exterior tank wall. O&M staff should continue to monitor the tank walls for any new cracks or leaks.
2. Recommend coordinating annual test of Interim Booster PS with CFPUA and Brunswick County.
3. **(New)** Recommend construction of future shelter or structure to improve protection of the station from freezing and sun damage (as currently identified in the Authority's Capital Improvements Plan).

Raw Water Main System

1. Mow/Clear overgrown areas along pipeline route.
2. Continue to monitor and evaluate need to paint manhole ring and covers and concrete flat-tops for manholes, valves, blow-offs where required.
3. Repaint, replace, or upgrade PVC pole markers or provide "Blue makers" as installed during 54" RWM project.
4. Exercise all valves and blow-offs annually.
5. Add bollards to protect manhole within "The Bluffs" development access drive.
6. Monitor and evaluate for repair the eroded pipe joint in the ARV manhole near Phelps Truck Sales on US-421.
7. Periodically operate the emergency connection at the Dak Industries (former) site.
8. Ensure that valves and ARV's can be properly operated with current valve box configuration. Noted that some valve boxes appeared to be out of plumb and could create issues with operations.

END OF REPORT

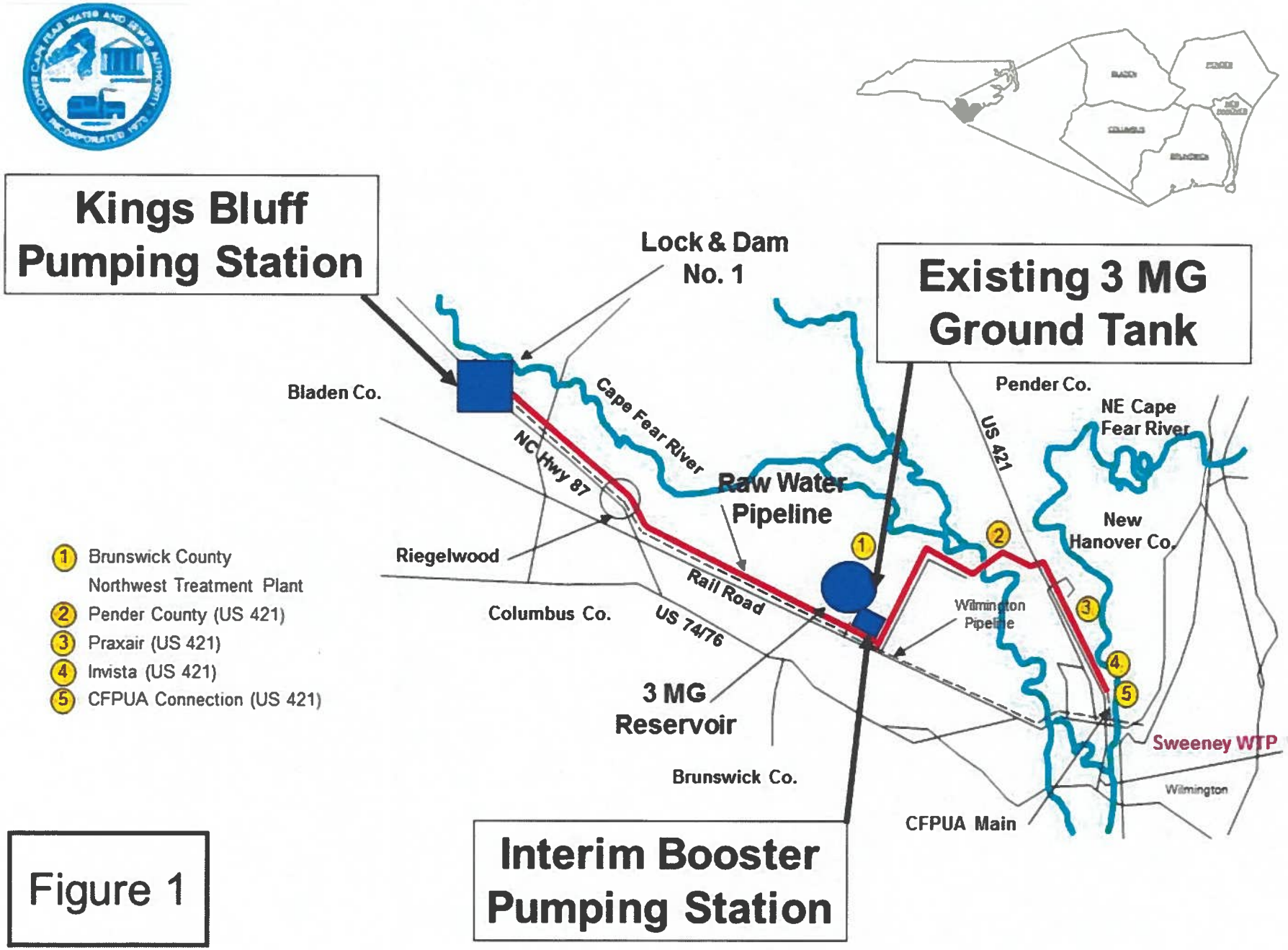

Kings Bluff Pumping Station
Lock & Dam No. 1
Existing 3 MG Ground Tank
Bladen Co.
Cape Fear River
NC Hwy 87
Raw Water Pipeline
Pender Co.
NE Cape Fear River
US 421
New Hanover Co.
Riegelwood
Rail Road
Columbus Co.
US 74/76
Wilmington Pipeline
3 MG Reservoir
Brunswick Co.
Sweeney WTP
Wilmington
CFPUA Main
Interim Booster Pumping Station
1 Brunswick County Northwest Treatment Plant
2 Pender County (US 421)
3 Praxair (US 421)
4 Invista (US 421)
5 CFPUA Connection (US 421)

Figure 1

Kings Bluff Pumping Station Annual Inspection

Lower Cape Fear Water and Sewer Authority

Appendix A – Pumping Station Facility, Ground Reservoir, Meter Vaults Annual Inspection

Equipment	Satisfactory	Needs Attention	Remarks
Grounds			
Septic Tank	X		
Pump Station	X		
Phone Line	X		
Drainage	X		
Fence	X		
Radio Tower	X		
Site	X		Trench needs to be filled in and sidewalk repaired on water side of pump station.
Valve Hand wheel Operators	X		
Original Pumping Station			
Structure	X		
Flooring	X		
Roofing	X		
Old Control Room			
Air Conditioning - Office	X		
Lights	X		
Plumbing	X		
Water Heater	X		

Equipment	Satisfactory	Needs Attention	Remarks
Well			N/A
Ceiling	X		
Service Sink	X		
Roof	X		Roof is fading and peeling. Voids can be seen inside break panels.
Bathroom	X		
Old Pump Room			
Lights	X		
Air Compressors #1	X		
Air Compressors #2	X		
Air Storage Tank #1	X		
Air Storage Tank #2	X		
Air Dryer	X		
Pump #1	X		
Pump #2 Slot	X		Pump removed and opening capped.
Pump #3 Slot	X		Pump removed and opening capped.
Light Duty Generator		X	Inoperable (see 2.10)
Surge Tank Air and Water Piping & Control System Piping	X		Evaluate operational requirements of the surge system.
Surge Tanks	X		Repaint as necessary
Original Pipe Gallery			
Structure	X		Clean for bugs, debris, etc.
Lights	X		
Piping	X		
Equipment	X		

Equipment	Satisfactory	Needs Attention	Remarks
Water Strainer		X	Hellan strainer motor conductor termination box leaking water- address and resolve as could be an electrical hazard
Heater	X		
Fan	X		
New Control Room			
Ceiling	X		
Flooring	X		
Structure	X		
Bathrooms	X		
Storage Room	X		
Break Room	X		
Oil Storage Room	X		
New Pump Room			
Pump #4	X		
Pump #5	X		
Structure	X		
Lights	X		
Piping	X		
Flooring	X		
HVAC	X		
New Pipe Gallery			
Structure	X		Needs to be cleaned due to bugs and leaves etc.
Lights	X		

Equipment	Satisfactory	Needs Attention	Remarks
Piping	X		
Water Strainer	X		
Station Flow Meters	X		Continue to monitor flow meter accuracy
New Electrical Room			
Electrical Equipment	X		
Ceiling	X		
Floors	X		
Walls	X		Continue to monitor wall separation.
Overhead Doors	X		
New HVAC Room and HVAC Equipment			
Ceiling	X		
Floors	X		
Walls	X		Duct penetration needs to be sealed
Equipment	X		
Pier			
Structure		X	Broken /Rotted walk boards and railing need to be replaced
Old Control Building		X	Evaluate building for replacement of rotten wall panels
New Control Building	X		
Intake Pipe Site Restoration	X		
Old Electrical			
Air Line	X		
Air Tank	X		

Equipment	Satisfactory	Needs Attention	Remarks
48-Inch Intake Screens			
Piping	X		
Air Backwash	X		
Controls	X		
New Electrical			
Air Line	X		
Air Tank	X		
60-Inch Intake Screens			
Air Backwash		X	Install warning signage in readable and observable condition on riverbank.
Controls	X		
1,000 Gallon Air Tank	X		
2,000 Gallon Air Tank	X		Air valve positions do not match position on control panel. Issue needs to be addressed.
Instrumentation			
SCADA	X		
3 Million Gallon Reservoir & Interim Booster Pump Station			
Ground Storage Tank	X		Calcification remain on outside of tank
Interim Booster Pump Station System Testing	X		.
Grounds	X		
Control Building	X		
Tower	X		
Instrumentation	X		
Pig Launcher	X		

Equipment	Satisfactory	Needs Attention	Remarks
Meter Vaults			
Brunswick Northwest			
Meter	X		
Piping	X		
Sump Pump	X		
Grounds	X		
Praxair			
Meter	X		
Piping	X		
Sump Pump	X		
Grounds	X		
Structure	X		
Invista			
Meter	X		
Piping	X		
Sump Pump	X		
Grounds	X		
Structure	X		
CFPUA			
Meter	X		
Piping	X		
Sump Pump	X		
Grounds			
Structure	X		
54" RWM Meter Vault			

Equipment	Satisfactory	Needs Attention	Remarks
Meter	X		New Flow Meter not operational until Water Plant Expansion completed
Piping	X		
Sump Pump	X		
Grounds	X		
Structure	X		

Kings Bluff Pumping Station
Lower Cape Fear Water and Sewer Authority
Appendix B – Generator Building Annual Inspection

Equipment	Satisfactory	Needs Attention	Remarks
Grounds			
Fencing	X		
Driveway Entrance	X		
Building		X	Exterior doors exhibit rust – corrective action underway
Fuel Tank Area			
Exterior Piping	X		Piping needs labeling
Containment	X		
Tank #1	X		Efflorescence exposed on tank surface
Tank #2	X		Tank sensor test button in operable.
Tank Signage	X		
Diesel Tank Piping	X		
Generator Radiator	X		Significant rusting observed on underside-attention will be required in future
Garage Area			
Storage Area	X		
Flooring	X		
Generator Room			
Generators and Piping		X	Label all radiator piping
Air Start System	X		
Lights	X		
MCC	X		
Floors	X		Flooring needs to be cleaning due to presence of dead bugs and other.
Ceiling/Roof		X	Insulation failing in several locations.
Electrical Room	X		
Roll-Up Doors	X		
Walls		X	Paint failing in one section. Repair/repaint.
Flooring	X		Flooring needs to be cleaning due to presence of dead bugs and other.

Kings Bluff Pumping Station

Lower Cape Fear Water and Sewer Authority

Appendix C – Summary Air Relief Valve Annual Inspection

48" RWM Air Relief Valve No.	Station	Conditions/Remarks
1.	4+00	At Entrance Road to Kings Bluff Pump Station – Good Condition
2.	37+65	Black Rock Road- Good Condition – Access is through a locked gate.
3.	97+50	Waterline Way – Off N.C. Hwy 11- Good Condition
4.	175+80	Narrow Gap Road- Good Condition.
5.	228+60	Carroll Johnson Farm- Good Condition
6.	268+50	Good Condition- Good condition "Big Field"
7.	293+15	Riegel Course Road (SR 1816) – Good condition
8.	322+60	Entrance to Federal Paper /IP (off Warren Ln.)
9.	383+00	At Livingston Creek on Elevated Pipe-
10.	394+50	Behind Momentive Chemicals (Neil's Eddy Rd at Bethel Baptist Church) - OK.
11.	416+00	Ellis Farm Road - Good condition-
12.	426+80	In the field off 410 Ellis Farm Road.
13.	463+73	Mills Trail – Good condition. Off Port Royal Road
14.	529+55	Off access road adjacent to 5028 Gooseneck Road- Good condition.
15.	566+00	Off Vernon Rd.- In Pasture- Did not access MH structure
16.	617+00	Off Northwest Road (SR1423) - (Peterson Land) -Good condition
17.	651+50	Between Rattlesnake Branch and Hood Creed, did not cross Hood Creek due to high water.
18.	730+00	LCFWSA- Near 3 MG Raw Tank- Ground water present, underwater.

48" RWM Air Relief Valve No.	Station	Conditions/Remarks
19.	57+88	The Bluffs Entrance Road- Good Condition- Ground water present
20.	145+00	In landscaping along entrance road to "The Bluffs - Good condition
21.	235+86	CF River at 90-degree bend behind DAK Industries/ DuPont- OK
22.	248+90	DAK Industries/ DuPont at Hill- Good Condition
23.	295+57	DAK Industries- At Test Well # 11- Good Condition
24.	369+10	Behind PCU-WTP - Entrance gained via Pender County Water Treatment Facility – Ground water present - Good condition
25.	446+97	5400 US Hwy 421 North-Billy Phelps Trucking. Steel visible at coupling at pipe joint, New concrete collar may need to be poured. Flat-top is deteriorating and has rebar showing. Mowers /bush-hog hitting top of MH breaking off concrete
54" RWM Air Relief Valve No.	**Station**	**Conditions / Remarks**
1	101+75	Good Condition – Behind Generator Building
2	141+50	Good Condition – East of Macon Property- MH R/C bolted down by Garney Const from Warranty Inspection
3	200+25	Good Condition – Along Waterline Way
4	225+00	Good Condition – West side of Weyman Creek
5	279+56	Good Condition – Traynham Gate
6	321+25	Good Condition – Eastside of Double Branch
7	332+55	Good Condition – Woodburn Property
8	397+12	Good Condition – East of Reigel Course Road
9	425+81	Good Condition – Off John Reigel Road
10	468+25	Good Condition – Behind IP
11	477+50	Good Condition – Behind IP
12	488+66	Good Condition – Livingston Creek

48" RWM Air Relief Valve No.	Station	Conditions/Remarks
13	500+10	Good Condition – East side of Livingston Creek
14	526+54	Good Condition – East side of Neils Eddy Road
15	534+25	Good Condition – Ellis Farm
16	568+79	Good Condition – Off Mills Trail / Port Royal Road
17	600+30	Good Condition -East side of Grice Property
18	634+86	Good Condition – Goose Neck Road
19	658+75	Good Condition – Carroll Farm
20	722+21	Good Condition – Peterson Farm
21	750+90	Good Condition – Duke Energy Easement- Did not access
22	755+87	Good Condition – East side of Duke Easement- Did not access
23	774+50	Good Condition – West side of Hood Creek – Did not access
24	792+75	Good Condition – East side of Hood Creek
25	800+83	Good Condition – Behind NW Water Plant

Summary of Recommended Action Items:

1. All concrete vaults appear to be in good condition. Recommend repainting all existing manhole ring and covers and concrete flat-tops. Repaint all existing air relief valves, blow-offs, check valves, butterfly valves and piping should be repainted "blue".
2. Blow-Off Valves and Air Release Valves need to be exercised on an annual basis. It was discussed with staff that some of the valve boxes are not plumb so getting to the top nut on the valve may be difficult. Recommend County review and ensure that valves can be accessed and operated as required to maintain the system.
3. New signage is needed along the entire right-of-way route and at edge of NCDOT right-of-way where LCFWSA raw water transmission main crosses roadways. Also provide painted 2-inch PVC poles painted "orange" to mark each Air Release Manhole structure. Previous poles were installed by LCFWSA Operators. All these poles and markers have degraded or are missing from the LCFWSA right-of-way. All poles and markers are recommended to be updated and painted in the upcoming fiscal year.
4. The mowing contract is currently under review, right-of-way has been easily accessed due to recent construction of new 54" RWM. LCFWSA / BC personnel are currently working to provide closer cutting and clearing to allow better access to all MH or vault structures.
5. Recommend new marker signs for raw water main routes adjacent to all roadways and along Hwy 421 North to show waterline route and throughout pipeline corridor.
6. Repair concrete diaper at ARV near Phelps Truck Sales on US 421. The concrete flat-top of structure has been degraded by bush-hogging and mowers cutting ROW.
7. Install bollards for protection at the ARV manhole located along the entrance to "The Bluffs" development.

Pipeline Annual Inspection

Lower Cape Fear Water and Sewer Authority

Appendix D – Summary 12" Existing Blow-Off Valves Annual Inspection

12" Blow Off Valves on 48" RWM	Station	Conditions/Remarks
1.	70+00	Blanks Farm- OK -
2.	122+00	N.C. Hwy 11 / Weyman Creek- Good condition
3.	221+00	"Big Field" - Good condition
4.	358+00	At International Paper – Good condition.
5.	439+00	Off Ellis Farm Road - Good condition
6.	487+00	Gooseneck Road- Good condition
7.	685+80	Hood Creek, Behind NWWTP - Good condition

12" Blow Off Valves on 54" RWM	Station	Conditions/Remarks
1.	175+40	Beaver Dam Creek – Good Condition
2.	228+30	Weyman Creek- Good condition
3.	323+25	Woodburn Farm - "Big Field" - Good condition
4.	506+90	Mills Creek – Good condition.
5.	543+50	Ellis Farm - Good condition
6.	588+02	Bear Branch Road- Good condition
7.	749+50	Rattlesnake Branch - Good condition
8.	789+65	Hood Creek – Good condition

Summary of Recommended Action Items:

1. Recommend operation of blow-offs on an annual basis.
2. Recommend painted 2-inch PVC poles painted "orange" to mark each blow-off structure.
3. Recommend all blow-off structures on 48" RWM to be re-painted "blue" as paint has faded and deteriorated.
4. Brush/ Grass from all structures needs to be cut.

Kings Bluff Pumping Station

Lower Cape Fear Water and Sewer Authority

Appendix E – Summary Check Valves, Butterfly Valves - Annual Inspection

48" Check Valves	Station	Conditions/Remarks
1.	730+00	At LCFWSA 3MG Raw Tank- Good condition, some rust present. Underwater during inspection.
2.	56+06	At Railroad Tracks on Green Loop Road. Good condition
3.	126+60	The Bluffs Entrance- Ground water present. Good condition
4.	236+50	Behind DAK - Good condition
48" Butterfly Valves or Gate Valves	**Station**	**Conditions/Remarks**
1.	310+25	Gate Valve is located just west of John L. Riegel Road. Good condition – new valve recently installed during repair of the leak after Hurricane Matthew. Currently inside fenced area for new Interconnect location.
2.	369+85	Butterfly Valve behind PCU WTP Facility. Good condition. New risers have been installed due to recent flooding from Hurricane Florence.
2.	235+50	Butterfly Valve behind DuPont/DAK. Has hand wheel. At Cape Fear River at 90-degree bend- Good condition – Groundwater present.

Summary of Recommended Action Items:

1. Recommend painted 2" PVC poles painted "orange" to mark each valve structure.
2. Recommend all valve structures to be re-painted "blue".
3. Additional markers are needed to mark valve locations.

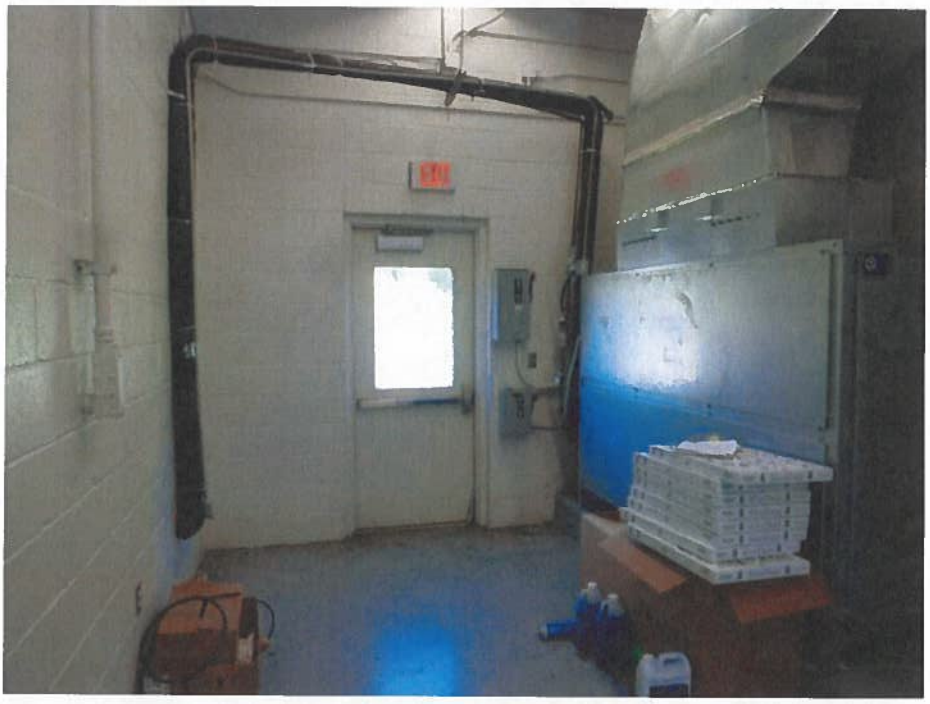
Appendix F – Photographs

Photograph A – Pump #4 and #5

Photograph B – Check Valve on Pump #1 Leaking

Photograph C – Existing Crack in Electrical Building Wall

Photograph D –Electrical Room



Photograph E –HVAC Room

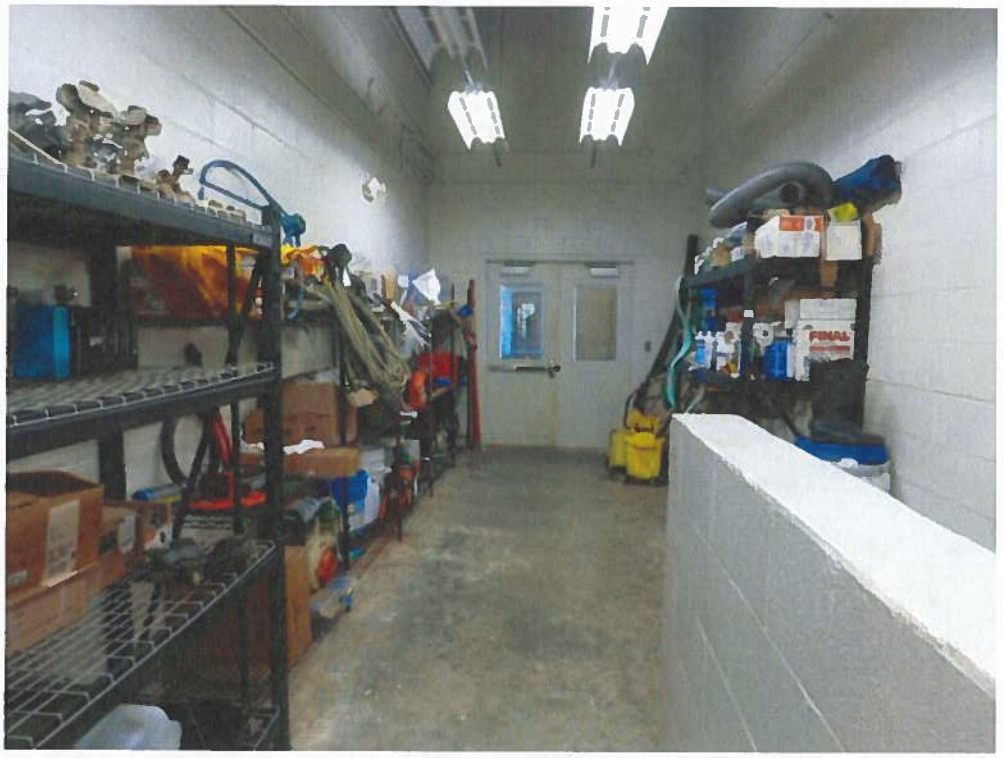
Photograph F –HVAC Penetration into Electrical Room

Photograph G – Failing HVAC Coolant Insulation

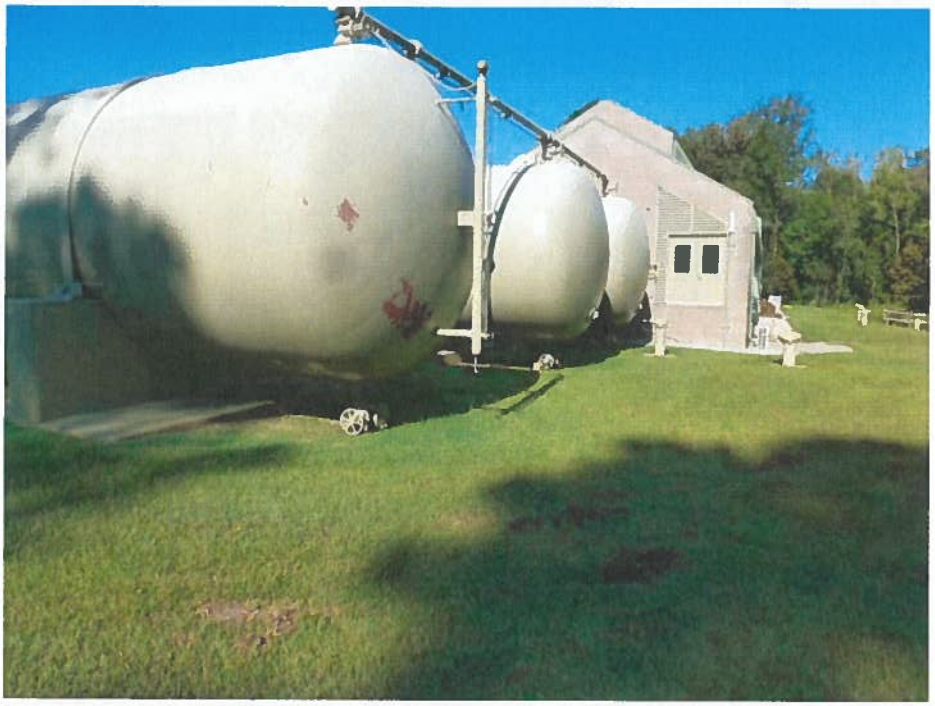
Photograph H –Pump Station Effluent Flow Meter

Photograph I – Diesel Storage Taank Efflorescence

Photograph J – Diesel Tank with Failed Leak Sensor Panel



Photograph K –Storage Room Access



Photograph L- Surge Tank 3 Paint Pealing

Photograph M- Surge Tank Valves Paint Pealing

Photograph N- Surge Tank Control Panels

Photograph O – 60-inch Intake Pipeline Corridor

Photograph P – Distressed Air Backwash Pier Access

Photograph Q –Generator Building Corroded Doors

Photograph R – Corroded Radiator Fan Shroud

Photograph S – Interim Booster Station

Photograph AA – Overgrown Area along Right-of-Way

Photograph BB – Orange Painted Structure Marker Deterioration

Photograph CC – New Blue Marker Post from 54" RWM project.

Photograph DD – Old ARV on 48″ RWM and New ARV on 54″ RWM

Photograph EE- Emergency Intake Pipe Adjacent to Pond behind DAK / DuPont

Photograph FF- Right-of-Way at US Hwy 421 from 2019 - 48" RWM Relocation Project

Photograph GG- Old Blow-off on 48" RWM and new Blow-off on 54" RWM

Photograph HH- Interconnect off Blue Banks Road

Photograph II- Walkway Access across Livingston Creek on Existing 48" PCCP pipe

New Business (NB2)	Lower Cape Fear Water & Sewer Authority

AGENDA ITEM

To: CHAIRMAN BLANCHARD AND BOARD MEMBERS

From: TIM H. HOLLOMAN, EXECUTIVE DIRECTOR

Date: October 9, 2023

Re: Resolution Accepting the *Lower Cape Fear Water & Sewer Authority Bladen Bluff Regional Raw Water Supply Facilities FY 2032-2043 Annual Inspection Report* (Tony Boahn, P.E., McKim & Creed)

Background: The existing Standard Provision for Water Supply Agreements with all customers and the current Bond Order requires an annual inspection of all the facilities associated with the pump station by a qualified engineer to report on readiness, identify deficiencies, and make recommended repairs and capital improvements. A copy of the report will be provided to Smithfield Foods, the operator of the facility.

Enclosed is an excerpt of the report summarizing the inspection items.

Mr. Powell will present an overview of the report.

Resolution Accepting the *Lower Cape Fear Water & Sewer Authority Bladen Bluff Regional Raw Water Supply Facilities FY 2023-2024 Annual Inspection Report*

Action Requested: Motion to approve/disapprove

Resolution Accepting the Lower Cape Fear Water & Sewer Authority Bladen Bluffs Regional Surface Water Treatment Facilities Annual Inspection Report for FY 2023-2024

Whereas, the existing Bond Order Series 2010, section 7.06 entitled *Consulting Engineer* reads, in part, "the Authority covenants that it will, for the purpose of carrying out the duties imposed on the Consulting Engineers by this Bond Order, employ an independent engineer or engineering firm or corporation as Consulting Engineers. The Authority further covenants that it will cause the Consulting Engineer to make an inspection of the System at least once each Fiscal Year and promptly submit to the Authority Executive Director a report setting forth (a) their findings whether the properties of the System have been maintained in good repair, working order and condition and whether they have been operated efficiently and economically and (b) their recommendations respecting the proper maintenance, repair and operation of the System during the ensuing Fiscal Year"; and

Whereas, the Authority budgets on an annual basis appropriations for the operation and maintenance of the Bladen Bluffs Regional Surface Water System with Smithfield Farmland Company under an Operation and Maintenance Agreement dated March 1, 2012.

Whereas, in accordance with the above references and the annual operating budget for FY 2023-2024, the Authority's consulting engineer has provided the Annual Inspection Report acknowledging the condition of the system with a focus on normal maintenance items.

Now Therefore Be It Resolved, that the Chairman and Board of Directors for the Authority, accepts the *Lower Cape Fear Water & Sewer Authority Bladen Bluffs Regional Surface Water Treatment Facilities Annual Inspection Report for FY 2023-2024.*

This Resolution adopted this 9th day of October 2023.

_____

Norwood Blanchard, Chairman

ATTEST:

_____

Patrick DeVane, Secretary

Lower Cape Fear Water & Sewer Authority

Bladen Bluffs Regional Surface Water Treatment Facilities

FY 2023-2024 Annual Inspection Report FINAL DRAFT

Prepared by

McKIM&CREED
243 North Front Street
Wilmington North Carolina
F-1222

Prepared For
Lower Cape Fear Water and Sewer Authority

September 2023

LOWER CAPE FEAR WATER AND SEWER AUTHORITY
BLADEN BLUFFS REGIONAL SURFACE
WATER TREATMENT FACILITY
ANNUAL INSPECTION REPORT
TABLE OF CONTENTS

SECTION 1 - INTRODUCTION

1.1 FACILITIES

The Lower Cape Fear Water and Sewer Authority is a regional organization with sponsoring members that are comprised of Bladen, Brunswick, Columbus, New Hanover, and Pender Counties, as well as the City of Wilmington. The Authority was created to aid development of a water supply system for the sponsoring member governments, which are primarily located in southeastern North Carolina. The Authority currently owns and operates, in partnership with Smithfield Farmland Corporation, the Bladen Bluffs Regional Surface Water Treatment Facility (BBRSWTF), which sources its raw water supply from the Cape Fear River. The facility is a 6.0 Million Gallon per Day (MGD) drinking water facility located near the Town of Tarheel in Bladen County, approximately opposite the Smithfield Farmland Corporation Facility on NC Highway 87. Construction was completed March 1, 2012 and the facility was placed into service on April 1, 2012. Primary components of the facility include:

- 30 MGD Raw Water Intake
- 12 MGD (Current Maximum Pumping Capacity) Raw Water Pumping Station & Raw Water Pipeline. The Raw Water Pumping Station includes two (2) - 6 MGD pumps, with a slot for a third future pump.
- Four (4) Sand Filters
- Flocculation and Settling Tanks
- Two (2) - 1.7 MG Residuals Basins
- Two (2) Standby Generators
- Four (4) Granular Activated Carbon Tanks
- Chemical Building
- Administration Building
- Two (2) - 2 MGD Clear Wells (Owned by Smithfield Farmland Corporation)

The Bladen Bluffs facility currently only supplies treated water to Smithfield Farmland Corporation, as there are currently no other customers served by BBRSWTF.

1.2 BASIS OF ANNUAL INSPECTION & SCOPE OF WORK

A condition of the authorizing Bond Order requires the following shall be provided by an independent engineering firm:

- Inspect the project at least once each fiscal year
- Prepare a report that sets forth:

- ✓ Whether the properties or facilities have been maintained in good repair, working order, and condition
- ✓ Whether they have been operated efficiently and economically

- Recommendations with respect to maintenance, repair, and operation of the facility during the ensuing Fiscal Year, and an estimate of the appropriations that should be made for such purposes
- The insurance to be carried for the facility per the bond requirements
- Extensions, improvements, renewals, and replacements that should be made during the ensuing fiscal year
- Any necessary or advisable revisions to the service charges

The results and findings of this annual inspection are summarized in the following sections of this report. The FY 2023-2024 inspection of the Authority's facilities was conducted in September 2023.

1.3 OPERATING ARRANGEMENTS

The Authority maintains limited full-time staff, consisting of an Executive Director and an Administrative Assistant, for the administration of the Authority's programs and the coordination of water supply activities in the Region. The Authority contracts for operations and maintenance of BBRSWTF with Smithfield Farmland Corporation. Smithfield Farmland Corporation provides the personnel and resources to operate and maintain the Authority's water treatment facility and administers outside maintenance contracts as needed for effective operation of the system. Thus, Smithfield Farmland Corporation is designated the "Contract Operator" of the system. Currently, BBRSWTF generally operates on a 5-day work week (Sunday through Thursday) and the treatment process is in shut-down mode over most weekends. This schedule varies depending upon the production requirements of the Smithfield Farmland Corporation facility.

SECTION 2 - BLADEN BLUFFS SURFACE WATER TREATMENT FACILITIES – INSPECTION AND FINDINGS

A summary of the findings and recommendations, based on inspection of the Bladen Bluffs Surface Water Treatment Facility, is provided in ***Appendix A***. Detailed findings for each primary process or facility are summarized as follows.

2.1 RAW WATER PUMP STATION

A) Intake Screen

The intake screen system is submerged in the Cape Fear River (See ***Appendix B – Photograph A***). The raw water intake system is comprised of three (3) submerged screens, each with individual stainless-steel air backwash piping. Screen markers installed during previous repairs to the airlines in 2016 were removed by subsequent hurricanes. To date, markers have not been replaced. Additionally, the shoreline sign denoting the existence of the screens was damaged during Hurricanes Mathew and Florence but has since been replaced and was noted in good shape during the 2023 inspection. Also, in the Fall of 2018 Hurricane Florence impacted river air backwash piping and a significant portion of the shoreline eroded. This erosion exposed a portion of the stainless-steel backwash air piping. As a result of the erosion, LCFWSA applied for and was granted FEMA funding to restore the eroded bank. The restoration project, *Bladen Bluffs Regional Surface Water Treatment Facility Cape Fear Riverbank Restoration Project* was completed in 2020 and successfully restored the bank to its original condition. The project integrated a mixture of bioengineering techniques and rip rap to provide protection from future erosion along the riverbank. As of the date of the previous report, erosion had re-occurred along the restored bank due to several high-water events. The bulk of the erosion had occurred on the upstream portion of the bank according to plant staff. The eroded area was repaired and replanted by a contractor. Due to the growth of vegetation along the slope, pictures of the erosion were difficult to attain; however, during this inspection what could be observed did not indicate any further erosion has occurred. (See ***Appendix B – Photograph B***).

B) Grounds

The grounds at the Raw Water Pump Station and the 400-foot-long intake screen access boardwalk were noted to be in good condition. All deck and handrail boards were replaced in 2020 and most are still in good condition. The area inside the fence and around the boardwalk has been weeded and the grass has been cut since the last inspection. Recently boardwalk lights were added along with security cameras for the pump station and surrounding area (See ***Appendix B – Photograph C and D***).

C) Wet Well and Pumps

The wet well and associated piping were reviewed during the inspection and found to be in good working order. (See ***Appendix B – Photograph E and F***).

D) Electrical Building

Building and electrical devices are in good condition (See ***Appendix B – Photograph G***). Bug infestation prevention measures installed three years ago by staff are working; however, during this inspection there were a few dead bugs observed in the fixtures. The lighting circuit junction box on the East wall noted in the prior inspection that required a cover to be NEC compliant has been provided a cover.

E) Generator and Automatic Transfer Switch

During the field inspection, staff indicated that the generator and transfer switch are being exercised on a regular basis. No issues were noted that would require corrective action. Cleaning of the interior of the generator enclosure is recommended. (See ***Appendix B – Photograph H***).

F) Access Road to Pump Station

Overall, the road is in great shape. Areas along the access road that were previously being eroded during heavy rain events were addressed by raising the road elevation to prevent water from spilling across the road. Other areas that were suffering erosion have been stabilized with rip rap and stone infill. (See ***Appendix B – Photograph I***).

G) Air Backwash Compressor Skid

Staff indicated that all appears to function correctly. Skid framing corrosion previously noted was addressed in 2020 and appears to be holding up. (See ***Appendix B – Photograph J***).

2.2 INFLUENT FLOW METER VAULT

During the inspection, the vault was found to be in good condition and all exposed instrument displays were covered properly. Since the last inspection, the staff has instituted a policy of pumping out vaults on a regular basis using a mobile sump pump system. It was noted during this visit that the flow meter display box which is made of fiberglass is deteriorating and should be replaced in the near future. (See ***Appendix B- Photograph K and L)***.

2.3 FLOCCULATORS & RAPID MIX BASIN

The flocculators consist of two (2), four-part flocculation chambers with four (4) 1 horsepower mixers in each flocculator. This facility appeared to be operating properly and without issue.

The rapid mix basin equipment consists of the rapid mix structure and two (2) - 10 horsepower mixers. No issues were observed for this facility during the inspection.

2.4 SEDIMENTATION BASINS

There are two (2) basins equipped with air operated sludge pumps and each basin is emptied and washed quarterly (See ***Appendix B – Photograph M***). The sludge from the basins is pumped directly into tanker trucks and is then hauled off for land application disposal utilizing a subcontractor. No issues were observed requiring corrective action for this facility during the inspection.

2.5 FILTERS

The facility is equipped with four (4) sand filters, which are currently backwashed every 96 hours. All filters were in good working order.

2.6 FILTER PIPE AND VALVE GALLERY

A) Concrete Structure Walls

As during previous inspections, several calcified non-leaking cracks were observed during inspection. This type of crack is common in heavy cast-in-place concrete construction. During this inspection, cracks appeared to be as active as before. During the previous visit, humidity was an issue in the area, however during this visit it was low. (See ***Appendix B – Photographs N).*** During this visit, a small leak was observed coming from behind the transformer located in the "additional" filter area. It is recommended that the staff monitor this leak and address it if it worsens. (See ***Appendix B – Photographs O).***

2.7 TRANSFER PUMP STATION AND VAULT

A) Pump Station

The pump station interior/exterior and control were reviewed and found to be in good condition and operating properly. It was noted during the inspection that the Level Indicating Instrument (LIT) was not provided a cover for protection from the sun. It is recommended this display be covered to prevent UV degradation (See ***Appendix B - Photograph*** P). Additionally, it was found that a hatch safety grate hinge was broken and requires replacement.

B) Pump Station Valve Vault

The valve vault was reviewed and found to be in good working order, however a minor amount of water covered the floor (See ***Appendix B – Photograph Q).***

C) Transfer Pump Station Check Valve Vault

During inspection, the valve vault was found to be flooded and the sump pump for the vault was not energized. It is recommended the sump pump be repaired, vault dewatered and inspected for any issues. **(See *Appendix B - Photograph* R).**

2.8 GRANULAR ACTIVATED CARBON VESSELS

Per the previous report, the GAC vessels have been placed back in operation at the request of the State. The vessels were filled with a new type of granular activated carbon recommended by Calgon (See ***Appendix B – Photograph S***). Corrosion of vessel supports was noted during a previous inspection and has since been addressed as of this inspection.

Mag-flow meters used to meter the flow through the filters appear to be in good condition and fully functional. It was noted in the 2020 inspection that the flow meter displays for the mag meters were missing covers to prevent deterioration from the sun. Covers were in place as of this inspection.

Vessel air release and vacuum air release valves (VARV) noted to be leaking during previous reviews were replaced with new and have been provided with drain pans to not allow leaking water to run down and stain vessels, which contributes to support frame rusting. During this inspection, the vacuum portion of the Air Release Vacuum Valves (ARVs) atop the tanks were leaking. Staff indicated this was probably a result of the vessel liquid elevation being at or near that of the storage tanks causing the ball seats not to be tight, thus allowing leakage.

Staff indicated last year that the vessel anti-siphon piping VARVs were replaced with a new type which is advertised to close with less pressure. This was done in an effort to resolve air being drawn into the discharge piping which causes discharge meter issues. It was also observed last year that these new type VARVs were introduced at two discharge pipe locations, also to reduce entrapped air.

Staff indicated that the GAC tank VARVs were going to be replaced with the new type this coming year.

2.9 CHEMICAL ROOM

A) Chemical Tanks, Pumps, and Electrical

The Facility was reviewed in its entirety and no issues were found. During a previous year inspection, staff indicated they had entered into a maintenance agreement for their chemical pumps. During this year's inspection, it was clear the agreement was providing a benefit to Owner.

B) Building

During this inspection, the structure was reviewed, and one issue was found. The water piping along the west wall was found to be dripping onto a column base plate causing significant rust (See ***Appendix B – Photograph T***). It is recommended this issue be addressed. Other than the one issue, the building was in good condition. The Electrical room was also reviewed and, although a lot of materials were being stored within the room, the room appeared to be in good condition and A/C was functioning properly. (See ***Appendix B – Photograph U***).

C) Chemical Carrier Water

Previously, staff changed the chemical carrier water from the Bladen County system to increase reliability and reduce cost. In the process of doing so, the staff added a backflow preventer (RPZ) which is currently mounted in the caustic chemical containment area. In the unlikely event that the caustic tanks ruptured, caustic would have the potential to submerge the RPZ, thus preventing the RPZ from functioning as intended. It is recommended that Smithfield address the RPZ installation location with PWS (Public Water Supply) to verify there is no issue with its location from a regulatory standpoint. As of this review, the RPZ remains in its original location.

2.10 ADMINISTRATION BUILDING

No issues were noted in the administration building at the time of the inspection.

2.11 RESIDUALS BASINS

During the inspection, the basins were observed to be in good condition (See ***Appendix B – Photograph V***).

Previously, staff noted a tear in the liner at an outfall connection slab. The staff had a specialist review the issue and make recommendations for correction. To date, the repair has not been made but is scheduled to be conducted in the future when the basin is out of service.

2.12 BBRSWTF EMERGENCY POWER

A) Generator

The generator was inspected and found to be in good working condition. No corrective actions are required.

B) Diesel Storage Tank Leak Detection Panel

During a previous inspection, the diesel tank level and leak detection panel were found to be inoperable due to a lack of power. It was recommended that this be corrected. As of this review, the panel has been corrected.

2.13 NPDES METER VAULT

This vault and associated chemical injection vault serve to condition the discharge water for both pH adjustment and de-chlorination before entering the river. During this inspection, the meter vault was in good condition (See *Appendix B- Photograph W*).

2.14 RECYCLE PUMP STATION/METER VAULT

During previous inspections, the recycle system was reviewed; however, according to staff information, the system was not in use due to economic reasons. Staff indicated at that time that they were supporting other instruments by utilizing parts from instruments that were no longer functional that were associated with that system. No further inspection of this facility was made.

2.15 SCADA – TELEMETRY SYSTEM

Based on conversations with Staff and cursory review of the SCADA system, there are no known issues that were identified for corrective measures at the time of the inspection. Staff previously incorporated a new VT Scada software which provides redundancy within their server system. In case there is an issue with one of their SCADA systems, there is now a standby system that can be utilized if required.

2.16 OPERATION OF FACILITY

Based upon observation of the facility and procedures currently employed by Staff, it is the opinion of McKim & Creed that the facility has been operated efficiently and effectively.

2.17 FISCAL YEAR APPROPRIATIONS

No major appropriations for the upcoming fiscal year are anticipated beyond the contracted operations and maintenance agreement responsibilities.

SECTION 3 - INSURANCE PROVISIONS AND SERVICE CHARGES

3.1 INSURANCE PROVISIONS

A cursory review of the Authority's fiscal year 2022/2023 insurance coverage was conducted and was noted to be similar to that of the previous year. At the time of this report, the coverage was deemed to be sufficient, and no major changes are recommended.

3.2 SERVICE CHARGES

At the time of this report, Smithfield Farmland Corporation is the only customer currently provided treated water from BBSWTF. Therefore, no changes to the current service charges are applicable.

Appendix A – Summary of Inspection Items

Bladen Bluffs Surface Water Treatment Facility - Annual Inspection

Lower Cape Fear Water and Sewer Authority

Facility	Satisfactory	Needs Attention	Remarks
Raw Water Pump Station			
Intake Screens	X		
Grounds	X		
Wet Well	X		
Dock	X		
Electrical Building	X		
Generator and ATS	X		Clean interior of structure
Valve Vault	X		
Rapid Mix Basin			
Influent Flow Meter	X		
Structure	X		
Mixers	X		
Flocculators			
Flocculation Chambers	X		
Mixers	X		
Sedimentation Basins			
Basins	X		
Air Operated Sludge Pumps	X		Not Used
Filters			
Filters 1, 2 and 3	X		
Filter 4	X		Monitor wall leaks
Filter Pipe and Valve Gallery			
Structure Walls	X		Crack leakage needs to be monitored.
Structure Floors	X		
Environment	X		
Transfer Pump Station & Vault			
Pump Station Valve Vault	X		

Granular Activated Carbon Vessels			
Vessel Exteriors	X		
Chemical Room			
Chemical Tanks	X		
RPZ Location	X		
Building		X	Address column corrosion
Administration Building			
Building	X		Clean blower room
Residuals Basins			
Basins	X		Make liner repair as time allows
BBRSWTF Emergency Power			
Generator and ATS	X		
Diesel Storage Tank Panel	X		
Effluent Flow Meter Vault			
Meter Digital Display	X		
NPDES Meter Vault			
Meter Digital Displays	X		
Recycle Pump Station			
Meters and Displays	X		
Instrumentation			
SCADA & Telemetry	X		

Appendix B – Photographs

Photograph A – Intake Location

Photograph B – Cape Fear Riverbank Restoration Project Area

Photograph C – River Access Walkway

Photograph D – River Access Walkway

Photograph E – Raw Water Pump Station Level Display and Panels

Photograph F - Raw Water Pump Station Wet Well

Photograph G – Pump Station Electrical Room

Photograph H – Influent Pump Station Generator Enclosure

Photograph I – Access Road

Photograph J - Restored air compressor skid support framing

Photograph K -Influent Flow Meter Vault

Photograph L – Influent Flow Meter Vault Instrument Display

Photograph M – Sedimentation Basins

Photograph N – Filter Gallery

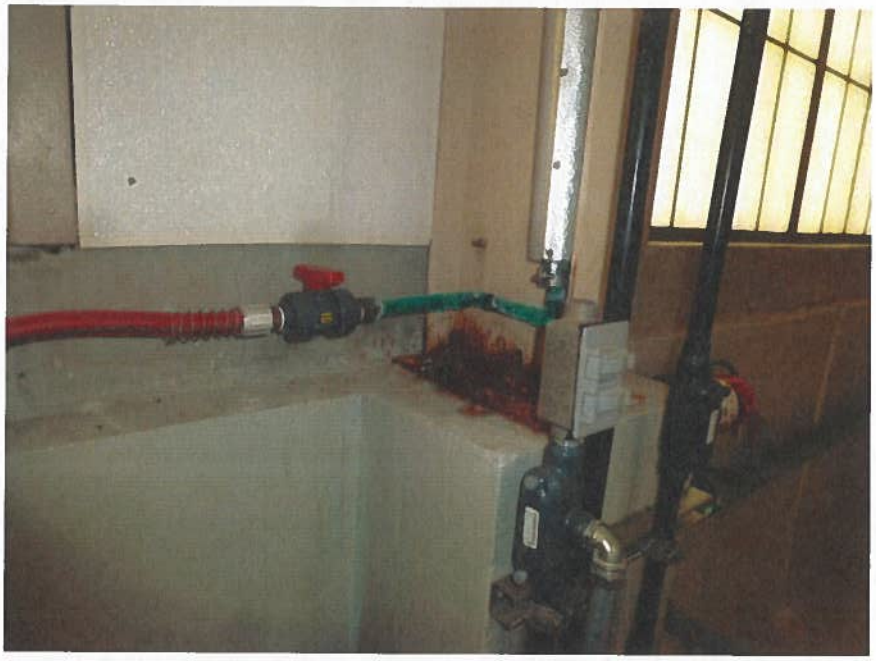
Photograph O – Filter Gallery Leak

Photograph P – Transfer Pump Station

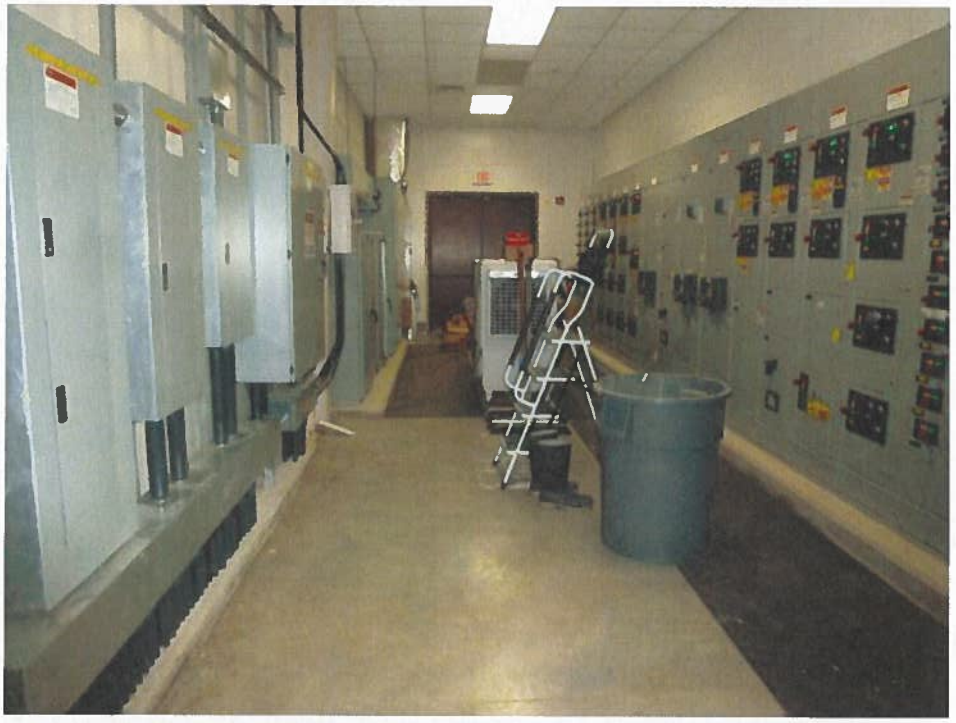
Photograph Q – Transfer Pump Station Valve Vault

Photograph R – Transfer Pumps Station Check Valve Vault

Photograph S –GAC Filters



Photograph T –Chemical Building Corroding Column



Photograph U –Chemical Building Electrical Room

Photograph V –Residuals Basins

Photograph W –NPDES Meter Vault

Executive Director's Report (EDR1-3)	Lower Cape Fear Water & Sewer Authority

AGENDA ITEM

To: CHAIRMAN BLANCHARD AND BOARD MEMBERS

From: TIM H. HOLLOMAN, EXECUTIVE DIRECTOR

Date: October 9, 2023

Re: Executive Director's Report

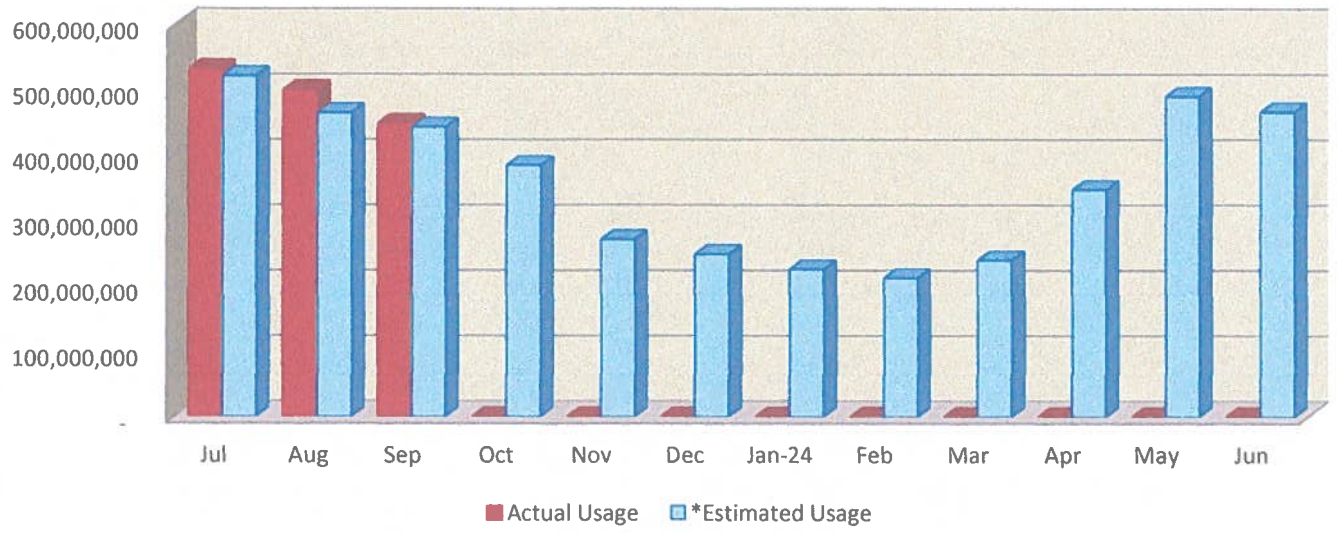
EDR1 - Comments on Customers' Water Usage and Raw Water Revenue for Fiscal Year to Date Ending September 30, 2023

EDR2 - Operating Budget Status, Ending August 31, 2023

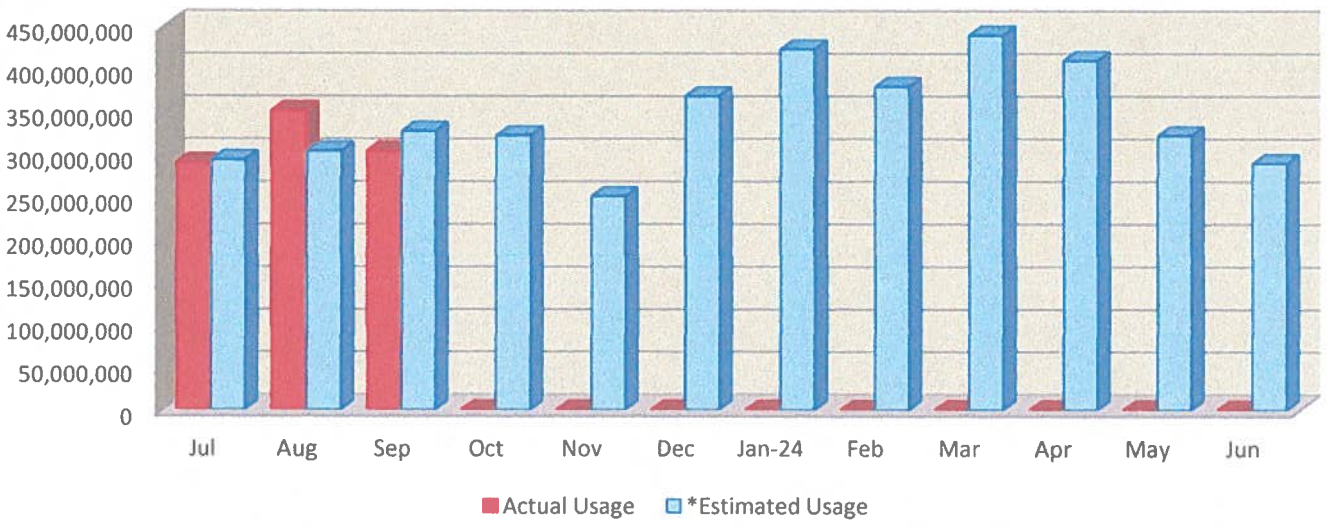
EDR3 - Summary of Activities.

Action Requested: For information purposes.

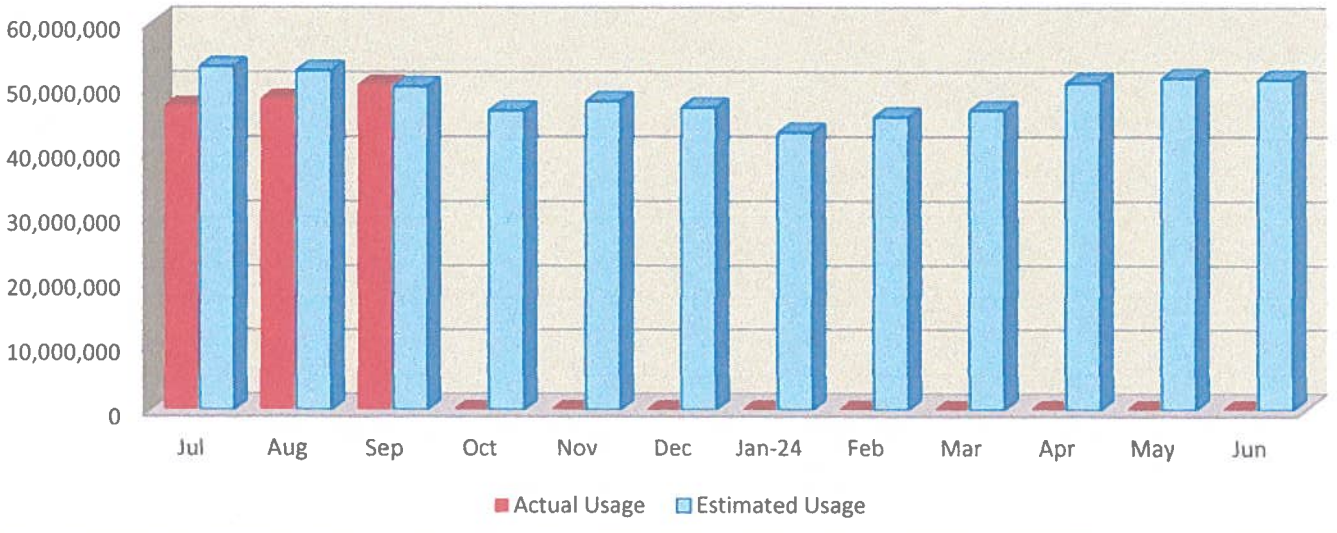
Brunswick County Water Usage FY 22-23



CFPUA Water Usage FY 22-23



Pender County Water Usage FY 22-23



OPERATING FUND BUDGET PERFORMANCE

Jul-1 through Aug-31

	Approved Annual Budget	Jul 1- Aug 31 Kings Bluff	Jul 1- Aug 31 Bladen Bluffs	Jul 1- Aug 31 OF BUDGET	Budget As of 8/31/21
Income					
3000-01 · OPERATING REVENUE					
3001-01 · 01 Bruns County Public Utility	1,725,765	411,968		411,968	24%
3002-01 · 01 CFPUA	1,652,562	256,288		256,288	16%
3003-01 · 01 Pender County	234,160	38,222		38,222	16%
3004-01 · 01 HWY 421 - Invista	200,000	23,018		23,018	12%
3005-01 · 01 Praxair, Inc	100,000	2,918		2,918	3%
3006-01 · 01 Bladen Bluffs Revenue	4,938,603		738,895	738,895	15%
Bladen Admin Reimb	110,473		26,459	26,459	24%
3007-01 · Sales Tax Refund Revenue	100,000		0	0	0%
Total 3000-01 · OPERATING REVENUE	9,061,563	732,414	765,354	1,497,768	17%
3100-00 · OF NONOPERATING REVENUE					
3120-00 · Revenue-Other					
Interest & Investment Revenue	500	4,879		4,879	976%
FEMA Reimbursement	0	0		0	0%
Refunds / Insurance Proceeds/ Other	0	437		437	0%
3180-00 · SRF/Parallel Revenue	2,500,000	11,250		11,250	0%
3900-01 R&R Fund Appropriated	0	0		0	0%
2900-00 Fund Balance	0	0		0	0%
Total 3100-00 · OF NONOPERATING REVENUE	2,500,500	16,566	0	16,566	1%
Total Income	11,562,063	748,980	765,354	1,514,335	13%
Expense					
4000-01 · ADMINISTRATION EXPENDITURES					
4001-01 · Salary - gross	203,530	18,829	10,177	29,006	14%
4010-01 · Per Diem= mileage+per diem pay	64,001	6,125	3,200	9,325	15%
4012-01 · Vehicle Allowance	5,200	540	260	800	15%
4070-02 · Phone Allowance	520	54	26	80	15%
4015-01 · Payroll Taxes	20,953	1,891	1,048	2,938	14%
4029-01 · Retirement Employer's Part	26,153	2,752	1,308	4,060	16%
4035-01 · 401K Employer PD Contribution	11,312	1,101	566	1,666	15%
4036-01 · Payroll Processing Exp	2,900	377		377	13%
4038-01 · Insurance Group	40,176	5,329	1,004	6,334	16%
4039-01 · Insurance, Property	103,734	23,151	5,187	28,338	27%
4046-00 Professional Services General	15,000	0	0	0	0%
4046-01 · Attorney	50,000	6,628		6,628	13%
4047-01 · Auditor	8,000	1,200	2,800	4,000	50%
4048-01 · Engineer	300,000	14,544		14,544	5%
4049-01 Information Technology	16,000	3,677		3,677	23%
4055-01 · Office Maint/Repair	24,000	443		443	2%
4058-01 Office Utilities	5,000	260		260	5%
4059-01 Office Expense	14,000	1,188		1,188	8%
4062-01 Office Equipment	10,000	2,611		2,611	26%
4064-01 Printing & Advertising	5,000	0		0	0%
4065-01 Telephone and Internet	3,500	540		540	15%
4070-01 · Travel & Training	29,000	2,275		2,275	8%
4080-01 · Miscellaneous Expenses	20,000	5,322		5,322	27%
Total 4000-01 · ADMINISTRATION EXPENDITURES	977,979	98,839	25,575	124,414	13%
4500-01 · OPERATING EXPENDITURES					
4501-00 · Sales Tax Expense - Other	100,000		19,540	19,540	20%
4510-01 · Bladen Bluffs Expenses	3,324,385		595,742	595,742	18%
4520-01 · Utilities-Energy Pump Station	786,589	126,653		126,653	16%
4530-01 · Kings Bluff O&M Expenses	686,749	64,785		64,785	9%
4535-01 Kings Bluff Hurricane Other FEMA	0	0		0	0%
4543-01 · Series 2012 Bond Principal (ST)	0	0		0	0%
4544-01 · Series 2012 Bond Interest (ST)	0	0		0	0%
4545-01 · Series 2010 Bond Principal (BB)	970,000		0	0	0%
4546-01 · Series 2010 Bond Interest (BB)	450,000		98,122	98,122	22%
5180-00 · SRF/Parallel Expenditures	2,500,000		338,902	338,902	14%
7400-01 · Operating Capital Expense	1,286,360		0	0	
4998-05- Transfer to R&R- KB R&R Expense	380,000		0	0	0%
4998-05- Transfer to Enterprise Fund	100,000		0	0	0%
Total 4500-01 · OPERATING EXPENDITURES	10,584,083	191,439	1,052,307	1,243,745	12%
Total Expense	11,562,062	290,278	1,077,882	1,368,159	12%

Executive Director Highlighted Activities:

- Meeting with CFPUA to review financial submissions and the State process.
- Reviewed the rate study presented to our partners on September 15, 2023, with Rick McClung of Willdan, John Nichols, and Aaron Smith.
- Work with McKim and Creed to move forward with the roofing project for Kings Bluff.
- Checked on upcoming work with Underwood Pumps on the Kings Bluff facility as budgeted in FY 2023-24.
- Participated in the orientation meeting for Leadership Brunswick for the 2023-24 Cohort
- Did not attend the Leadership Water Summitt due to a death in the family.
- Attended a LCFWASA Director's Luncheon
- Scheduled a directors' meeting with area Water Authorities