STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

DOCKET NO. W-354, SUB 400

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of Application by Carolina Water Service, Inc.) of North Carolina for Authority to Adjust and) Increase Rates and Charges for Water and) Sewer Utility Service in All Service Areas of) North Carolina and Approval of a Three-) Year Water and Sewer Investment Plan)	REBUTTAL TESTIMONY OF MATTHEW P. SCHELLINGER II ON BEHALF OF CAROLINA WATER SERVICE, INC. OF NORTH CAROLINA

November 10, 2022

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Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Matthew P. Schellinger II. My business address is 5821 Fairview Road, Suite 401, Charlotte, North Carolina 28209.

Q. WHERE ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am Regional Director of Financial Planning and Analysis, East Region for the Corix Group of Companies ("Corix"). In this capacity, I oversee financial planning and analysis for Carolina Water Service, Inc. of North Carolina ("CWSNC" or "Company").

Q. ARE YOU THE SAME MATTHEW SCHELLINGER WHO SUBMITTED CASE-IN-CHIEF TESTIMONY ON BEHALF OF CWSNC IN THIS PROCEEDING?

A. Yes, I am.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. The purpose of my testimony is to respond to positions of the Public Staff in its direct testimony filed in this Docket, particularly as they relate to CWSNC's revenue requirement, pro-forma adjustments, rate design, inflationary adjustments, and rate base through the Water and Sewer Investment Plan ("WSIP" or "MYRP") period.

Q. DOES THE COMPANY AGREE WITH ANY OF PUBLIC STAFF'S ADJUSTMENTS TO THE COMPANY'S REQUESTED REVENUE REQUIREMENT?

A. Yes. The Company believes it is in agreement with the Public Staff on a number of adjustments to the filing, as a result of the ordinary negotiated process of mutual correction of errors, explanations, and provision of additional information.

This includes updates to miscellaneous revenues, reclassification of certain utility accounts, application of insurance proceeds from Hurricane Florence, rate base roll forward through August 31, 2022, reclassification of excess deferred income taxes from miscellaneous expenses, transportation expense, and adjustments for the regulatory rate change. Further, CWSNC agrees with the general calculation and application of certain fallout adjustments such as average tax accruals, cash working capital, and ADIT.

Please note: my failure to rebut any specific positions of the Public Staff is not a tacit acceptance of the Public Staff's position or method of calculation on those issues.

I. UNCOLLECTIBLES

Q. PLEASE DESCRIBE PUBLIC STAFF'S POSITION ON UNCOLLECTIBLES AND ITS CALCULATED UNCOLLECTIBLES RATE.

A. The Public Staff states on Page 14 of the Joint Testimony of Darrell Brown and Lynn Feasel that it is utilizing a previously approved methodology of calculating uncollectibles for each Company Division; it then further takes a five-year normalized average to account for anomalies.

Q. DOES PUBLIC STAFF'S TESTIMONY ACCURATELY REPRESENT PUBLIC STAFF'S ADJUSTMENT TO UNCOLLECTIBLES RATE?

A. No. First, the Public Staff's position on uncollectibles has not been a previously approved methodology for calculating uncollectibles in CWSNC's prior rate cases. Second, the number put forth by Public Staff is not representative of a five-year calculation of uncollectible expenses. Public Staff has used a variety of inconsistent sources of prior Rate Division uncollectible rates in its averaging of uncollectibles expense.

For the twelve months ended March 31, 2021, Public Staff used the uncollectible rates as approved in W-354, Sub 384, a settled case. For the twelve months ended March 31, 2020, Public Staff used the uncollectible rates as calculated from CWSNC's trial balance. For the twelve months ended March 31, 2019, Public Staff used the rates as approved in W-354,

Sub 364. For the twelve months ended March 31, 2018, Public Staff used the uncollectible rates as calculated in CWSNC's trial balance. For the twelve months ended March 31, 2017, Public Staff used the uncollectible rates as calculated from CWSNC's trial balance.

Significantly, in calculating this five-year average, Public Staff did not include recent data after March 31, 2021, as provided for and representative of the test year in this current rate case. [1]

Q. PLEASE DESCRIBE CWSNC'S POSITION ON ITS UNCOLLECTIBLES RATE.

A. The Company has calculated the uncollectibles rate for the base case, and future rate years based on the test year service revenues, bad debt, and uncollectibles expense levels. As shown on Rebuttal Exhibit MPS-1, and in the September 19, 2022 update filing, CWSNC affirms the most reasonable and accurate level of uncollectibles is the twelve months ended 03/31/22, or the test year. The twelve months ended 03/31/22 is representative of the Company's current uncollectibles rate due to the changes in economic pressures as compared to prior periods. An uncollectibles rate for Uniform Rate Division and Bradfield Farms, Fairfield Harbour, Treasure Cove

[1] CWSNC, in discussions with Public Staff, understands that the Public Staff has reviewed and revised its calculation of five-year average uncollectibles expense.

("BF/FH/TC") Rate Division should be set and applied consistently to water and sewer.

	12 Months Ended	Uniform	BFFHTC
Bad Debt / Uncollectibles Rate	3/31/2022	0.98%	1.57%

In the event the Commission determines a five-year average for uncollectibles expense is more representative of future operations, CWSNC believes the following rates, as provided in Rebuttal Exhibit MPS-1, are more accurate, as they reflect the Company's actual experience for each annual period.

	12 Months Ended	Uniform	BFFHTC
Bad Debt / Uncollectibles Rate	3/31/2022	0.98%	1.57%
Bad Debt / Uncollectibles Rate	3/31/2021	0.84%	1.34%
Bad Debt / Uncollectibles Rate	3/31/2020	0.49%	0.99%
Bad Debt / Uncollectibles Rate	3/31/2019	0.76%	1.16%
Bad Debt / Uncollectibles Rate	3/31/2018	0.63%	1.96%
2018-2022 Average (5 Year)		0.75%	1.38%

II. CHEMICAL EXPENSES

Q. PLEASE DESCRIBE PUBLIC STAFF'S POSITION ON CHEMICAL EXPENSES.

A. The Public Staff has stated on Page 10 of the Direct Testimony of Shashi M. Bhatta that it does not agree with the Company's proposed pro-forma adjustment. Public Staff has taken the position that if the pro-forma

adjustment is added to the Company's chemical price, the cost of chemicals would be double counted.

Q. DOES PUBLIC STAFF'S TESTIMONY ACCURATELY DESCRIBE THE COMPANY'S ADJUSTMENT, OR ACCURATELY REFLECT TOTAL CHEMICAL EXPENSES EXPECTED TO BE INCURRED?

A. No. As shown on Rebuttal Exhibit MPS-2, Public Staff's position in testimony and the adjustment as presented are not consistent. As is reflected in CWSNC's pro-forma Chemicals adjustment (Schedule 19):

> The Company received correspondence from Waterguard that identified certain chemical price changes to be effective 7/1/2022. The Company identified WaterGuard invoices in the Test Year. CWSNC analyzed the detailed Test Year chemical purchasing report provided by the vendor, and used the actual quantities purchased, multiplied by the current effective prices to restate test year purchases to reflect the various price increases.

The Company only made adjustments to its Waterguard expenses for known and measurable increases, and layered those increases on the remainder of the Company's booked chemical expenses. Rebuttal Exhibit MPS-2 is a side-by-side comparison of the total Waterguard expenses proposed by Public Staff witness Bhatta and the Company's Schedule 19 expenses, plus the non-Waterguard expenses. As can be seen in the side-by-side, Public Staff is in agreement with CWSNC's chemical costs for

Waterguard, and is actually higher in certain cases, but the Public Staff has not accounted for the known and measurable expenses in the test year that were from other vendors, or for transfers from inventory.

Q. PLEASE DESCRIBE CWSNC'S POSITION ON ITS CHEMICAL EXPENSES.

A. The Company reaffirms its position that the adjustment as represented in Schedule 19 is the most accurate way to account for expense increases from the end of the test year. Public Staff agrees with these expense changes as represented in Rebuttal Exhibit MPS-2, but Public Staff failed to account for expenses from other vendors, or for transfers from inventory. CWSNC has demonstrated that there was no double counting in the Company's pro-forma adjustment, as claimed in witness Bhatta's testimony.

III. SLUDGE HAULING EXPENSE

Q. WHAT DID THE COMPANY PROPOSE WITH RESPECT TO SLUDGE HAULING EXPENSE?

A. The Company proposes to use the current test year sludge hauling expense, unadjusted, as a reasonable basis for sludge hauling expenses going forward.

Q. WHAT IS THE PUBLIC STAFF'S POSITION WITH RESPECT TO SLUDGE HAULING EXPENSE?

A. The Public Staff has used an updated sludge hauling expense representative of the period of September 1, 2021 through August 31, 2022, adjusted for items the Public Staff determined were infrequent events and not representative of operations on a go-forward basis.

Q. DOES THE COMPANY AGREE WITH PUBLIC STAFF'S POSITION WITH RESPECT TO SLUDGE HAULING EXPENSE?

A. No. Witness Franklin's position on sludge hauling expenses is a stark departure from Public Staff's position on sludge hauling expenses in prior rate cases. The testimony of Public Staff Witness Gina Y. Casselberry on page 7 of Docket No. W-354, Sub 384 states the Public Staff's position as the following:

> Sludge removal can vary from year to year, depending on operational changes or system maintenance requirements, in addition to routine sludge removal. For example, system maintenance requirements could include cleaning a digester, clarifier, or equalization tank, or pumping out a retention pond. To determine a representative level for sludge hauling, I reviewed the historical sludge removal expenses from the last two rate cases and the expenses provided by CWSNC in this case to determine the average expense, adjusted for operational changes.

Public Staff has taken this same position in testimony filed in the following dockets, which may not be fully inclusive: Testimony of Witness Darden, W-218 Sub 526; Testimony of Witness Darden W-354 Sub 364; Testimony of Witness Casselberry, W-354 Sub 360; and Testimony of Witness Casselberry, W-354 Sub 356.

Witness Franklin has utilized an inconsistent mix of adjustments for the Public Staff's current position on sludge hauling expenses. The decision to use the twelve months ending August 31, 2022 is no longer representative of the Company's test year expenses. Additionally, on page 8, line 1 through 4, Witness Franklin states, "For Bradfield Farms, I reduced the sludge hauling expense by $16,856 to match the sludge hauling expense more closely for the test year of CWSNC's previous rate case (Docket No. W-354, Sub 384)." In light of the above, CWSNC requests that the Commission approve a three-year average of sludge hauling expenses as has been previously recommended by the Public Staff, and acknowledging the inherent variability in sludge hauling needs. CWSNC's recommended sludge hauling expenses representative of operations going forward are provided in Rebuttal Exhibit MPS-3.

Further, to the extent that Public Staff has made the determination that sludge hauling expenses should not be included in the cost to serve

customers due to an underlying capital need, those costs should be included as a Utility Plant In-Service adjustment to the underlying projects for which the sludge removal is attributed.

IV. REGULATORY COMMISSION EXPENSE

Q. PLEASE DESCRIBE PUBLIC STAFF'S POSITION ON REGULATORY COMMISSION EXPENSE.

A. The Public Staff has stated on Page 18 of the Joint Testimony of Darrell Brown and Lynn Feasel that they have made several adjustments to Regulatory Commission Expense, namely that they are using the actual rate case expenses incurred through the Company's update filing provided on September 19, 2022, and they are proposing a rate case expense amortization over five years for the current and prior unamortized balances of rate case expenses. Additionally, certain Fusion implementation costs have been moved to deferred maintenance expense accounts.

Q. DOES CWSNC AGREE WITH THE PUBLIC STAFF'S POSITION ON REGULATORY COMMISSION EXPENSE?

A. CWSNC agrees with reclassifying certain Fusion implementation costs to deferred maintenance expense. CWSNC disagrees with the rate case expense amortization period as well as the total of 'Miscellaneous

Regulatory Matters per Application' as represented in Brown and Feasel Exhibit I Schedule 3-10.

As shown on Brown and Feasel Exhibit I Schedule 3-10, Public Staff has included $4,726 in 'Miscellaneous Regulatory Matters per Application'. This is not representative of the amounts requested in the Application and supported through data request responses to the Public Staff. $4,726 is the amount presented in account 612100 – Regulatory Fees, on CWSNC Schedules B-15 a and b. Public Staff did not include account 612900 – Other Regulatory Expenses in the total Company amount of $140,542.52. These expenses, which largely consist of legal fees directly attributable to regulatory work (regular meetings, report filings, miscellaneous matters and dockets through the normal course of business), are reasonable, prudent, expected to recur, and were not contested by the Public Staff. These expenses should be included in the revenue requirement as an ongoing cost to serve in both the base case and rate years[2].

CWSNC also disagrees with the Public Staff's proposed amortization period for rate case expenses. CWSNC has not finished amortizing prior rate case expenses prior to filing a new rate case, and Public Staff

[2] CWSNC, in discussions with Public Staff, understands that the Public Staff agrees that these amounts were inadvertently not included in the Public Staff's testimony and exhibits.

responded through discovery issued by CWSNC that it is also unaware of a time in which rate case expenses were fully amortized by the time a new rate order was in effect. This has resulted in large unamortized rate case expense balances that continue to accumulate and drive the revenue requirement in future rate proceedings. Currently, the balance of the Company's unamortized prior rate case expenses ($955,284) is larger than CWSNC's estimated rate case expenses in the current MYRP proceeding ($750,000). Additionally, Public Staff has taken the position that five years is the approximate amount of time between consecutive Multi-Year Rate Plan ("MYRP" or "WSIP") filings, which is problematic for two reasons. First, Public Staff is using the WSIP plan approval as justification for their position on amortization of rate case expenses while simultaneously proposing the WSIP be denied. Second, five years between MYRP filings is unsubstantiated and is not well supported by the timelines associated with a MYRP filing. Below, a hypothetical example is provided outlining that if a five-year amortization were to continue to occur, unamortized rate case expenses are likely to continue compounding in the future, even assuming a bridge year with no filing before a future MYRP takes effect. In Year 5, 1 year of unamortized prior rate case expenses would remain, compounding with the new rate case expenses.

	Start	End	Years Amortized
MYRP Year 1	4/1/2023	3/31/2024	1
MYRP Year 2	4/1/2024	3/31/2025	2
MYRP Year 3	4/1/2025	3/31/2026	3
No Filing	4/1/2026	3/31/2027	4
New MYRP Year 1	4/1/2027	3/31/2028	5

In light of the above example, and recognizing Public Staff's concern on rate case expense amortization, CWSNC proposes a four-year amortization period to ensure that prior rate case expenses can be fully amortized at a reasonable level and compounding will be limited for future customers.

Q. IS THE PERIOD IN WHICH RATE CASE EXPENSES ARE AMORTIZED REFLECTED IN OTHER ADJUSTMENTS?

A. Yes, as reflected in Joint Testimony of Darrell Brown and Lynn Feasel on page 15, there is a capitalized salaries adjustment that is aligned with the amortization period of rate case expenses. CWSNC recommends that the capitalized salaries adjustment align with the rate case expense amortization period, and that it be 4 years.

V. SALARIES AND WAGES

Q. DOES CWSNC AGREE WITH THE PUBLIC STAFF'S POSITION ON SALARIES AND WAGES AND ASSOCIATED PAYROLL TAXES AND BENEFITS?

A. Not entirely. Public Staff has taken the position that the salaries and wages should be adjusted for currently vacant positions at the time of the Company's update filing. At the time of the Company's update filing, two positions were vacant. The two vacant positions were for a Lead Water-Wastewater Operator and a Financial Analyst. These positions were not vacated due to turnover at the Company but instead were the result of movement and promotions throughout Corix.

The Company does not agree that whether a position is vacant as of the specific date of its update filing is sufficient justification for the determination that those salaries and wages should not be included in the Company's revenue requirement. Further, the Public Staff's position results in salaries and wage disallowances throughout the Rate Years as requested in the Company's WSIP application. The Company would note that it intends to fill the vacant positions out of necessity, that the positions are not new, and they have not been vacant for an extended period of time. For these reasons, the Company believes that the Public Staff's adjustment to

Salaries and Wages and subsequent fallout adjustments to Payroll Taxes and Pension and Benefits Expense should be rejected as not representative of the Company's operations over the WSIP term.

VI. ALLOWANCE FOR FUNDS USED DURING CONSTRUCTION (AFUDC)

Q. DOES CWSNC AGREE WITH THE PUBLIC STAFF'S POSITION ON AFUDC?

A. No, the Company does not agree with the Public Staff's position on over-calculated interest costs associated with projects closed after March 31, 2019 through August 31, 2021 as identified in the Joint Testimony of Darrell Brown and Lynn Feasel on page 8. The Company agreed to the removal of those amounts as part of a comprehensive settlement in the Sub 384 docket and those amounts should not be removed and deemed approved in CWSNC's last general rate case. In the current rate case, Public Staff has issued a number of data requests related to the Company's AFUDC policy and subsequent AFUDC calculations. In Data Requests #6 and #35, the Company included schedules showing that some of its AFUDC costs had been under-calculated for projects included in Utility Plant-In-Service for the current rate proceeding. CWSNC believes that the miscalculations should generally be noted as rounding errors and immaterial; further, on the whole the miscalculations are in the customer's favor, and the Public Staff's

position has not been consistently applied based on the information available.

VII. DEPRECIATION EXPENSE

Q. DOES CWSNC AGREE WITH THE PUBLIC STAFF'S POSITION ON DEPRECIATION EXPENSE?

A. In large part, CWSNC is in agreement with the methodology used for Depreciation Expense by the Public Staff. To the extent that Utility Plant In-Service amounts change through other adjustments, CWSNC believes that Depreciation Expense will need to be further adjusted.

There are two specific areas in which CWSNC believes Depreciation Expense is understated in the Public Staff's exhibits.

First, on Brown and Feasel Exhibit 1, Schedule 3-14-1(d), line 10, $944,752 in Utility Plant In-Service utilizes a 0% depreciation rate. This plant is the Bradfield Farms WWTP electrical rehab work. The project was incorrectly closed out to account 141230 and should have been closed out to account 141209 and received a 2.5% depreciation rate. [3]

[3] CWSNC, in discussions with Public Staff, understands that the Public Staff agrees that the account for this project should be changed in order to calculate Depreciation Expense.

Second, CWSNC believes that the Depreciation Expense associated with plant from the CWSNC Cost Center (primarily Vehicles) is understated on Brown and Feasel Exhibit 1, Schedule 3-14. Traditionally, Depreciation Expense on plant that is allocated from the CWSNC Cost Center is presented on line 2, Depreciation on Allocated Plant. As seen on Schedule 3-14, this current level of Depreciation on Allocated Plant is $0. On Schedules 3-14-1 (a through d), some Depreciation Expense on Vehicles is accounted for, but is not representative of the actively depreciating vehicles on the Company's books. Below is a table from 3-14-1(a) line 40, 3-14-1(b line 50, 3-14-1(c) line 39, and 3-14-1(d) line 41 showing total Depreciation Expense on Vehicles per Public Staff's exhibits of $98,022.

Line No	New Account No.	Item	Plant In Service	Depreciation Rate	Annual Depreciation
40	141401	Transportation equip.	$306,968	20.00%	61,394
50	141401	Transportation equip.	$183,139	20.00%	36,628
39	141401	Transportation equip.	($26)	20.00%	(5)
41	141401	Vehicles	($26)	0.00%	0

Public Staff should incorporate the below highlighted corrections to Schedule 3-14 in order to properly account for depreciation expense from the Atlantic Region Cost Center and the CWSNC Cost Center. [4]

[4] CWSNC, in discussions with Public Staff, understands that the Public Staff agrees that these amounts were inadvertently not included in the Public Staff's testimony and exhibits.

Line No.		CWSNC Water		CWSNC Sewer		BF/FH/TC Water		BF/FH Sewer	
		(a)		(b)		(c)		(d)	
1	Depreciation on direct plant	$3,378,788	[1]	$3,065,342	[6]	$149,231	[9]	$422,108	[12]
2	Depreciation on allocated plant	202,699	[2]	113,577	[2]	27,377	[2]	27,914	[2]
3	Gain on sale	0	[3]	0	[3]	0	[3]	0	[3]
4	Excess book value	0	[3]	0	[3]	0	[3]	0	[3]
5	Total depreciation expense (Sum of L1 thru L4)	$3,581,487		$3,178,919		$176,608		$450,022	

VIII. RATE DESIGN

Q. WHAT DID THE COMPANY PROPOSE WITH RESPECT TO RATE DESIGN?

A. The Company proposes to maintain the fixed and volumetric rate recovery proportions agreed to in settlement and approved in Sub 384 by the Commission on April 8, 2022 – that is, a 40%/60% fixed/volume ratio for the Uniform Water Rate Division and BF/FH/TC Water Rate Division, and a 60%/40% fixed/volume ratio for the Uniform Sewer Rate Division, as well as maintain the existing ratios for the BF/FH Sewer Rate Division.

Q. WHAT DOES PUBLIC STAFF PROPOSE WITH RESPECT TO RATE DESIGN?

A. The Public Staff has proposed a shift to 30%/70% fixed/volume ratio for the Water Rate Divisions, and a shift to 40%/60% fixed/volume ratio for Uniform Sewer.

Q. DO YOU AGREE WITH THE PUBLIC STAFF'S PROPOSAL? IF NOT, PLEASE EXPLAIN WHY.

A. We do not agree with the Public Staff's position concerning the fixed charge to volumetric charge ratios for water and sewer rate designs for the current proceeding, for several reasons. First, the Public Staff's proposed rate designs represent significant changes, especially with regard to customer bill impacts. Given the potential for significant customer billing volatility and complaints (as occurred following the Company's W-354, Sub 336 rate case, which resulted in significant rate design changes for sewer customers), we believe a more cautious and incremental approach is prudent at this time. The Company has already agreed to, and the Commission has ordered, significant rate design shifts over the last two rate proceedings for CWSNC, the most recent shift being from the prior 50%/50% fixed to volumetric ratio for water customers in Sub 384. As of the update period through August 31, 2022, customers have received no more than five bills with this new rate design from Sub 384. There has not been sufficient time for the impact of this rate design change to be fully realized and observed in customer conservation and efficiency signals, customer billing volatility, or potential revenue stability implications for the Company. Public Staff has stated that their targeted goal for an ideal service revenue

ratio is 30/70 for both water and sewer services, but notes that as a means of mitigating rate shock the recommended service revenue ratios should change gradually and incrementally. A wholesale shift from 50/50 to 30/70 over a two-year period is not gradual and certainly does not allow enough time for customers, the Company, or the Commission to understand the full implications of such changes in rate design.

Additionally, the Commission is in the midst of a generic proceeding addressing rate design (W-100 Sub 59), and we believe it would be appropriate to allow for guidance from the Commission upon the conclusion of the generic proceeding before making any further rate design changes in this or future proceedings, let alone the significant changes proposed by the Public Staff. It is important to note that not only would customers' bills become more volatile under the Public Staff's proposal, but the Company's revenue levels would become more unstable as well. The Company believes the current rate design ratios are fair and reasonable to both CWSNC and its customers as it appropriately balances the competing interests involved. As witness Darden has requested the Public Staff comments in Sub 59 be incorporated into this proceeding, the Company accordingly requests the joint comments of CWSNC and Aqua NC be entered into the record of the current proceeding.

Lastly, witness Darden states that if the MYRP is approved, the Company's revenue sufficiency is further protected by the return on equity banding. This statement is not accurate. The Company's remedy should there be revenue deficiencies under the MYRP due to usage volatility is no different than if the Company did not have an approved MYRP and Consumption Adjustment Mechanism: to file a new base rate case.

It is prudent and reasonable to maintain the current balance between fixed and volumetric charges in CWSNC's rate structure until a large-scale policy and process is codified and implemented on a consistent basis for North Carolina water and sewer utilities, which would allow for more comprehensive and unified customer education measures and messaging as to the priorities and rationales behind the resulting rate design.

IX. WSIP REVENUE REQUIREMENTS

Q. ARE THE PUBLIC STAFF'S PROPOSED REVENUE REQUIREMENTS THROUGH THE WSIP RATE YEARS REPRESENTATIVE OF THE COMPANY'S FORECASTED UTILITY OPERATIONS?

A. No. The Public Staff's calculations and presentation of their WSIP revenue requirements have effectively proposed that Utility Plant In-Service, Depreciation Expense, Accumulated Depreciation, and Retirements occur

on day one of a WSIP Rate Year, instead of reflecting activity as it is expected to occur across the Rate Year.

The Company believes this is not representative of operations in a given Rate Year for several reasons. First, it assumes that every capital project will be in-service on day one of a Rate Year, includes a full year of depreciation on day one of the Rate Year, and assumes a full year of Accumulated Depreciation on day one of the Rate Year. This conceptually does not align with the Company's operations in the applicable Rate Years, nor with the Company's actual operations currently or historically. As the Company completes projects over time, they are placed into Utility Plant-In-Service on a monthly basis, net of retirements. Those projects begin generating Depreciation Expense as they are placed into service. As an example, a project that is expected to be completed and placed into service on October 1, 2023 (midpoint of WSIP Rate Year 1), will only incur 6 months of actual depreciation during the WSIP Rate Year, not a full year of expense. That same project, using the 13-month average of rate base balances, will not have a full year's impact on the Company's rate base for earnings. For these same reasons, that same project will not have a full year of Accumulated Depreciation on day one of the Rate Year.

The Public Staff, by oversimplifying the revenue requirement in the WSIP Rate Years, has presented a revenue requirement that does not align with utility operations, nor align with the expected Annual Review filing format and Earnings Test that will be required of the Company. This issue is further illustrated by the Public Staff's position that the Company is double counting inflation through its expense adjustments, which is simply not true due to the fact that actual incurred expenses for most categories will occur nearly twenty-four months after representative (Test Year or update period) expenses were incurred, not one year later. This is discussed further in my testimony regarding inflation factors.

The Company has organized and prepared its WSIP filing with monthly incremental plant-in-service additions, retirements, and depreciation and the Company has utilized an average of inflationary pressures across WSIP Rate Year 1. These efforts avoid simplifying the Company's revenue requirement, instead more accurately optimizing forecast accuracy, and are therefore factors the Company has accounted for in order to ensure that the revenue requirement requested is representative of the Company's forecasted operations for each measured Rate Year through the WSIP term.

X. INFLATION FACTOR

Q. WHAT DID THE COMPANY PROPOSE WITH RESPECT TO ITS INFLATION FACTORS?

A. The Company is using CPI data obtained from the Bureau of Labor Statistics to project inflation of certain test year expenses for future WSIP years. CWSNC obtained CPI forecast data for 2022 through 2026, and used actual monthly CPI readings through July 2022 to bridge current data to future year forecasts. Inflationary adjustments were updated as part of Schedule 29 in the Company's September 19, 2022, update filing. Additional calculations and support for these inflationary numbers are provided in Rebuttal Exhibit MPS-4. Additionally, I have included the relevant and highlighted portions of Blue Chip Financial Forecasts that CWSNC relied upon for its inflation adjustments, and the most recent Blue Chip Financial Forecast showing actual inflation in September and October, both of which are higher than the estimate used in CWSNC's update filing. CWSNC continues to believe that its proposed inflation factors are reasonable and should be accepted.

Q. DOES THE COMPANY AGREE WITH THE PUBLIC STAFF'S PROPOSAL RELATED TO INFLATION ESCALATORS APPLICABLE TO THE WSIP RATE YEARS?

A. Public Staff accepted the Company's proposed EIF for WSIP Rate Years 2 and 3 but proposed an alternative EIF to bridge the Test Year to WSIP Rate Year 1, which the Company disagrees with on several grounds. To bridge the test year to WSIP Rate Year 1, Public Staff proposes using a single year of the CPI-U (All Items less Food and Energy) index instead of the CPI-A (All Items) index for the period in which the representative expense was incurred in the test year and when a similar expense will recur in Rate Year 1. This methodology understates the actual cost pressures the Company has been facing and will continue to face throughout the first year of the MYRP. For example, even though the Company made a separate adjustment to its own fuel expenses, Staff's CPI-U selection ignores the increase in vendor prices and charges due to the large increase in fuel prices that have been experienced since the beginning of the Test Year.

The Company disagrees with the use of the CPI-U for all items less food and energy as a basis for inflationary pressures as it is a misconception of cost pressures expected to be faced by the Company. CPI-U for all items less food and energy is watched by economic analysts and policy makers

as it is the metric determined that is not within the control of monetary policy. That does not mean that the inflationary pressures for food and energy will not also be inflationary pressures faced by the Company. Further, none of the prominent legislated used of the CPI excludes food and energy, such as social security and federal retirement benefits. The Company would note that the Bureau of Labor Statistics addresses these misconceptions in the use of CPI vs CPI-Core and has included that Q&A as part of Rebuttal Exhibit MPS-4.[5]

Public Staff's proposed EIF to bridge WSIP Rate Year 1 is based on a three-year average, as of August 2022, of the CPI-U (All Items less Food and Energy) index. This extended average further understates the actual cost pressures the Company has experienced in the 20 months since the beginning of the Test Year.

The Public Staff has incorrectly made the determination that the Company's WSIP Rate Year 1 inflation bridge is effectively double counting inflation for increased expenses. This determination is likely directly linked to the Public Staff's accounting determinations for all expenses, plant, and accumulated depreciation occurring on day one of a WSIP Rate Year, as described above.

[5] https://www.bls.gov/cpi/factsheets/common-misconceptions-about-cpi.htm last visited 11/10/22

Not all of the Company's expenses have been updated, and those expenses that have not been adjusted to an August 31, 2022 cost level will incur two full years of inflation in the first WSIP rate year – Test Year ending March 2022 to Rate Year 1 ending March 2024. For example, a traditional Maintenance and Repair Expense incurred in May of 2021 (within CWSNC's Test Year), and a similar expense recurring in May of 2023 (in WSIP Rate Year 1), will have two full years of inflationary pressures, not accounted for by Public Staff's position of a single year inflationary adjustment.

For those expenses that CWSNC has updated to current pricing levels, those expenses too need additional expense inflation as they will be occurring through the entire Rate Year. Depending on the window for the basis of which the expense level was derived, the expense would still need some level of inflationary adjustment to bridge the gap between that historic period and the Rate Year in order to be representative of the costs CWSNC will incur during that period. Public Staff's position that all expenses are incurred on day one of a Rate Year is a flawed assumption that does not properly account for how the cost increase due to inflation would be realized through the Rate Year.

Finally, the Public Staff has used a three-year average of the CPI-U in order to calculate the proposed Rate Year 1 EIF. The specific reason that the Public Staff proposed a three-year average is not clearly explained in their testimony, but CWSNC believes that it does not accurately represent expected expenses and Company operations in Rate Year 1, specifically in light of current inflationary pressures.

XI. RECURRING CAPITAL SPEND

Q. WHAT DID THE COMPANY PROPOSE WITH RESPECT TO ITS RECURRING CAPITAL SPEND?

A. The Company calculated a forty-month average of its non-project-level spend in order to project similar capital additions on a monthly basis through the WSIP rate years. The Company calculated its forty-month average based on the spend figures from January 1, 2019 through April 30, 2022 which was inclusive of the best information on-hand at the time of filing.

Q. WHAT DID THE PUBLIC STAFF PROPOSE WITH RESPECT TO INCLUSION OF RECURRING CAPITAL SPEND?

A. The Public Staff made two primary adjustments to the Company's proposed recurring capital spend through the WSIP rate years. First, the Public Staff utilized a three-year average of 2019, 2020, and 2021, dropping the spend

from January-April 2022, which the Public Staff believes potentially skewed the monthly average. Second, the Public Staff has determined a number of accounts should have zero recurring spend and associated retirements included in the WSIP period, including sewer gravity mains, manholes, services to customers, service lines, meters, meter installations, and transmissions and distribution mains. The Public Staff has made the determination that these accounts should have zero recurring spend based on two factors: that there is significant overlap between the Company's Capital Investment Plan (projects) and the recurring spend, and the plant assets are predominantly associated with new growth that would be offset by Contributions in Aid of Construction (CIAC).

Q. DOES THE COMPANY AGREE WITH THE PUBLIC STAFF'S POSITION ON THE RECURRING CAPITAL SPEND?

A. The Company does not agree with the Public Staff's positions regarding its future recurring capital spend, for a number of reasons.

First, the position that the inclusion of spend from January through April 2022 could potentially skew the results is unfounded. Utilization of the most recent data, inclusive of the most recent cost trends, provides strong supporting data for potential future recurring capital spend.

Additionally, CWSNC does not agree to the removal of certain recurring capital spend categories on the basis that they are not predominantly associated with CIAC offsets. This conclusion of the Company is supported by the Company's books and records, as well as discovery responses provided to the Public Staff. Rebuttal Exhibit MPS-5 shows recurring capital spend by year from January 2019 through April 2022, inclusive of the specific cost accounts that Public Staff has taken the position were predominantly associated with CIAC. Over the forty-month period reviewed, CWSNC spent on average over $200,000 per month above CIAC received for the accounts specifically identified by Public Staff.

Public Staff further supports their position based on the number and scale of projects in the CIP program. CWSNC agrees that there are a number of projects that overlap the general account types represented in the Company's recurring spend but disagrees that the scale and scope of the projects in the CIP would negate the need for recurring capital spend throughout its systems. As a few points of example, CWSNC operates 38 sewer systems in North Carolina, and has wastewater collection system ("WWCS") projects planned for only 11 of those systems over the WSIP term. Further, the WWCS work does not entail rehab of the entire sewer system, but instead reflects discrete activities that address identified or

potential issues. CWSNC operates 93 water systems in North Carolina and has main replacement projects planned for 13 systems through the WSIP term. These water main replacement projects are for specific portions of the water systems and do not account for, nor are they representative of replacing all mains in the entire system. CWSNC having projects planned in some of its systems that address some of the future needs related to main replacements, manholes, and sewer gravity mains does not negate the ongoing replacement work required in other systems. This is the case historically as well, as the Company's historical recurring capital spend on which the forecast is based occurred during years of sometimes significant similar projects across other portions of the Company's water and sewer footprint.

For the reasons detailed above, the Company believes the Public Staff's position is not representative of future capital needs related to recurring capital investments through the WSIP rate years.

XII. RETIREMENTS AND ACCUMULATED DEPRECIATION

Q. DOES THE COMPANY AGREE WITH THE PUBLIC STAFF'S ACCOUNTING FOR RETIREMENTS THROUGH THE WSIP RATE YEARS?

A. No, it does not appear that the Public Staff fully accounted for retirements through the Rate Years. The Company estimated retirements for all projects through the WSIP rate years that were directly replacing assets currently in service. The accounting for these retirements results in a reduction to plant-in-service and an offsetting increase to accumulated depreciation, resulting in a rate base neutral impact, but reducing future Depreciation Expense.

Public Staff does not appear to have included the increase to Accumulated Depreciation as an offset to the reduction to Utility Plant In-Service, resulting in materially misstating rate base through each of the WSIP rate years[6]. As noted in the Joint Testimony of Hinton, Junis, Sun, and Zhang on page 49, Public Staff only reflected a full year of Depreciation Expense as an adjustment to Accumulated Depreciation. As noted above, regarding a revenue requirement that is representative of the Company's operations, the Company disagrees with the premise of reflecting a full

[6] CWSNC, in discussions with Public Staff, understands that the Public Staff has reviewed and revised their calculation of Accumulated Depreciation related to retirements.

years' worth of Depreciation Expense on day one of the WSIP Rate Year, as it produces a misstated Accumulated Depreciation balance for the Rate Year when compared to the actual expected experience of the Company.

Q. IS THIS TESTIMONY TRUE AND ACCURATE TO THE BEST OF YOUR KNOWLEDGE, INFORMATION, AND BELIEF?

A. Yes.

XIII. CONCLUSION

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does. However, I reserve the right to update or amend this testimony upon receipt of additional relevant data or other information that may become available.

Carolina Water Service, Inc. of North Carolina
W - 354, Sub 400
Test Year: March 31, 2022
WSIP Period: April 1, 2023 - March 31, 2026

Rebuttal Exhibit MPS-1
Uncollectibles Rate Calculation

	12 Months Ended	Uniform Water	Uniform Sewer	BFFHTC Water	BFFHTC Sewer	Uniform	BFFHTC
Service Revenues	3/31/2022	19,962,711	16,289,380	1,432,401	2,280,093	36,252,092	3,712,494
Service Revenues	3/31/2021	19,514,827	15,798,921	1,416,761	2,261,289	35,313,749	3,678,051
Service Revenues	3/31/2020	17,559,522	12,878,818	1,309,805	2,099,596	30,438,341	3,409,401
Service Revenues	3/31/2019	16,048,487	12,025,466	997,201	1,661,694	28,073,953	2,658,894
Service Revenues	3/31/2018	15,639,834	12,098,130	880,058	1,524,994	27,737,964	2,405,052
Service Revenues	3/31/2017	15,114,941	11,719,640	792,165	1,368,773	26,834,582	2,160,938

	12 Months Ended	Uniform Water	Uniform Sewer	BFFHTC Water	BFFHTC Sewer	Uniform	BFFHTC
Bad Debt Expense	3/31/2022	337,867	16,286	49,145	9,154	354,153	58,299
Bad Debt Expense	3/31/2021	171,184	125,307	21,937	27,404	296,491	49,342
Bad Debt Expense	3/31/2020	116,121	33,007	26,007	7,631	149,128	33,639
Bad Debt Expense	3/31/2019	155,592	57,519	20,654	10,281	213,111	30,935
Bad Debt Expense	3/31/2018	129,257	44,916	44,994	2,204	174,173	47,198
Bad Debt Expense	3/31/2017	119,226	35,593	10,076	731	154,819	10,807

	12 Months Ended	Uniform Water	Uniform Sewer	BFFHTC Water	BFFHTC Sewer	Uniform	BFFHTC
Bad Debt / Uncollectibles Rate	3/31/2022	1.69%	0.10%	3.43%	0.40%	0.98%	1.57%
Bad Debt / Uncollectibles Rate	3/31/2021	0.88%	0.79%	1.55%	1.21%	0.84%	1.34%
Bad Debt / Uncollectibles Rate	3/31/2020	0.66%	0.26%	1.99%	0.36%	0.49%	0.99%
Bad Debt / Uncollectibles Rate	3/31/2019	0.97%	0.48%	2.07%	0.62%	0.76%	1.16%
Bad Debt / Uncollectibles Rate	3/31/2018	0.83%	0.37%	5.11%	0.14%	0.63%	1.96%
Bad Debt / Uncollectibles Rate	3/31/2017	0.79%	0.30%	1.27%	0.05%	0.58%	0.50%
2018-2022 Average (5 Year)		1.03%	0.40%	2.70%	0.58%	0.75%	1.38%

Carolina Water Service, Inc. of North Carolina
W - 354, Sub 400
Test Year: March 31, 2022
WSIP Period: April 1, 2023 - March 31, 2026

Rebuttal Exhibit MPS-2
Chemical Expenses

	Public Staff - Bhatta Exhibit No. 1	CWSNC - Chemical Costs	Variance	
Item Description	**Total Company**	**Total Company**	**Total Company**	**Notes**
HYPOCHLORITE SOL - BULK- GALS	151,579.55	149,396.85	2,182.70	Based on Itemized Waterguard Sales Report
HYPOCHLORITE SOL- 5 GAL DRUM	24,987.60	24,987.60	-	Based on Itemized Waterguard Sales Report
HYPOCHLORITE SOL 15 GAL DRUM	33,985.80	33,985.80	-	Based on Itemized Waterguard Sales Report
HYPO 5.25% BULK GALS	1,404.25	1,404.25	-	Based on Itemized Waterguard Sales Report
CALCIUM HYPO GRANULAR, 100#	5,168.00	5,168.00	-	Based on Itemized Waterguard Sales Report
CALCIUM HYPO GRANULAR, 25#	1,885.00	1,885.00	-	Based on Itemized Waterguard Sales Report
BIO-SANITIZER -45# DRUM	18,125.10	18,125.10	-	Based on Itemized Waterguard Sales Report
SOD HEXAMETAPHOSPHATE - 50#(G)	439.00	439.00	-	Based on Itemized Waterguard Sales Report
OP37- 5 GAL DRUM	29,761.10	29,761.10	-	Based on Itemized Waterguard Sales Report
OP37 - 15 GAL DRUM	20,500.20	20,500.20	-	Based on Itemized Waterguard Sales Report
FERROQUEST- BULK, GALLONS	51,516.00	51,516.00	-	Based on Itemized Waterguard Sales Report
CORRGUARD 939 - BULK, GALLONS	2,290.40	2,290.40	-	Based on Itemized Waterguard Sales Report
SODIUM BISULFITE 40% -BULK GAL	28,283.25	28,283.25	-	Based on Itemized Waterguard Sales Report
SODIUM BISULFITE 25%- BULK, GA	21,505.50	21,505.50	-	Based on Itemized Waterguard Sales Report
SODIUM BISULFITE 25%- 15 GAL (	2,587.50	2,587.50	-	Based on Itemized Waterguard Sales Report
DECHLOR-C , BULK GAL	33,045.50	33,045.50	-	Based on Itemized Waterguard Sales Report
AMMONIUM SULFATE 40%, GAL	3,494.40	3,494.40	-	Based on Itemized Waterguard Sales Report
CAUSTIC SODA 25% - BULK, GALS	39,530.10	39,530.10	-	Based on Itemized Waterguard Sales Report
CAUSTIC SODA 25% - 15GAL DRUM	31,036.50	31,036.50	-	Based on Itemized Waterguard Sales Report
CAUSTIC SODA BEADS - 50# BAG	210,816.00	210,816.00	-	Based on Itemized Waterguard Sales Report
WGC-1743, POLYMER 5GAL PAIL	13,386.00	13,386.00	-	Based on Itemized Waterguard Sales Report
MICROC 2000, GAL	97,219.50	97,219.50	-	Based on Itemized Waterguard Sales Report
SODIUM BICARBONATE - 50# BAG	1,400.00	1,400.00	-	Based on Itemized Waterguard Sales Report
SODA ASH LIGHT -50# BAG	13,260.00	13,260.00	-	Based on Itemized Waterguard Sales Report
FERRIC SULFATE LIQUID- GAL	96,539.85	96,539.85	-	Based on Itemized Waterguard Sales Report
FERRIC CHLORIDE SOLUTION -	60,888.00	60,888.00	-	Based on Itemized Waterguard Sales Report
ALUMINUM SULFATE, BULK, GALS	9,958.30	9,958.30	-	Based on Itemized Waterguard Sales Report
LIME, HYDRATED-50# BAG	25,278.00	25,278.00	-	Based on Itemized Waterguard Sales Report
DELIVERY SURCHARGE	8,100.00	8,100.00	-	Based on Itemized Waterguard Sales Report
	1,037,970.40	**1,035,787.70**	**2,182.70**	
Not Included in Schedule 19 -				
CAUSTIC SODA 25% - 5 GAL DRUM	1,712.00	-	1,712.00	Unadjusted Waterguard Purchases from WG Sales Report
Salt, Solar (white) - 50# Bag	428.75	-	428.75	Unadjusted Waterguard Purchases from WG Sales Report
PD051-A30HI LMI PUMP	530.25	-	530.25	Unadjusted Waterguard Purchases from WG Sales Report
BIO-NEUTRALIZER - 45# DRUM	4,917.15	-	4,917.15	Unadjusted Waterguard Purchases from WG Sales Report
DEPOSIT 2.5 GAL	770.00	-	770.00	Unadjusted Waterguard Purchases from WG Sales Report
LB04SA-VTC1-XXX	1,530.95	-	1,530.95	Unadjusted Waterguard Purchases from WG Sales Report
BIOTIFX ULTRA, 10KG PAIL	375.00	-	375.00	Unadjusted Waterguard Purchases from WG Sales Report
DASK PRO BAC GT/BACTERIA BLOCK	432.00	-	432.00	Unadjusted Waterguard Purchases from WG Sales Report
BIOREMOVE FOG BOOST 25# PAIL	478.50	-	478.50	Unadjusted Waterguard Purchases from WG Sales Report
HYPOCHLORITE SOL -4X1 GALS-CAS	38.00	-	38.00	Unadjusted Waterguard Purchases from WG Sales Report
SODIUM BISULFITE 40% - 55 GAL	230.45	-	230.45	Unadjusted Waterguard Purchases from WG Sales Report
PRESTOFLOC C-100, 55GAL DRUM	414.00	-	414.00	Unadjusted Waterguard Purchases from WG Sales Report
PRESTOFLOC C-100, GAL	2,310.00	-	2,310.00	Unadjusted Waterguard Purchases from WG Sales Report
Freight (HDLPE Tanks)	500.00	-	500.00	Unadjusted Waterguard Purchases from WG Sales Report
275 GAL HDLPE DOUBLE WALL TANK	2,850.00	-	2,850.00	Unadjusted Waterguard Purchases from WG Sales Report
EMERGENCY DELIVERY (Muriatic Acid)	100.00	-	100.00	Unadjusted Waterguard Purchases from WG Sales Report
MURIATIC ACID - 4X1 GAL CASE	26.00	-	26.00	Unadjusted Waterguard Purchases from WG Sales Report
	17,643.05	**-**	**17,643.05**	
AQUA SMART, INC.	-	6,163.46	(6,163.46)	Non-Waterguard Chem Purchases from Gen Ledger
AQUAFIX INC	-	1,718.00	(1,718.00)	Non-Waterguard Chem Purchases from Gen Ledger
HILL MANUFACTURING CO, INC	-	1,103.31	(1,103.31)	Non-Waterguard Chem Purchases from Gen Ledger
I. KRUGER INC.	-	10,053.82	(10,053.82)	Non-Waterguard Chem Purchases from Gen Ledger
Jeffrey J Cooke	-	412.22	(412.22)	Non-Waterguard Chem Purchases from Gen Ledger
KOCH SEPARATION SOLUTIONS INC.	-	1,277.80	(1,277.80)	Non-Waterguard Chem Purchases from Gen Ledger
MARYLAND BIOCHEMICAL CO INC	-	659.29	(659.29)	Non-Waterguard Chem Purchases from Gen Ledger
NORWECO, INC	-	22,779.23	(22,779.23)	Non-Waterguard Chem Purchases from Gen Ledger
PULSAFEEDER, INC	-	277.60	(277.60)	Non-Waterguard Chem Purchases from Gen Ledger
RANDY EUDY	-	800.00	(800.00)	Non-Waterguard Chem Purchases from Gen Ledger
TRICE'S LANDSCAPING	-	2,168.00	(2,168.00)	Non-Waterguard Chem Purchases from Gen Ledger
USA BLUEBOOK	-	4,993.75	(4,993.75)	Non-Waterguard Chem Purchases from Gen Ledger
Cost Accounting (Expensed from Warehouse)	-	74,984.80	(74,984.80)	Non-Waterguard Chem Purchases from Gen Ledger
	-	**127,391.28**	**(127,391.28)**	

Carolina Water Service, Inc. of North Carolina
W - 354, Sub 400
Test Year: March 31, 2022
WSIP Period: April 1, 2023 - March 31, 2026

Rebuttal Exhibit MPS-3
Sludge Removal

Sludge Removal

CWSNC - Uniform Sewer

Bus. Unit	Fusion Dept#	Service Area	[1] Sub 360 Test Year Ending Dec-17 Amount	[1] Sub 364 Test Year Ending Mar-19 Amount	[1] Sub 384 Test Year Ending Mar-21 Amount	[2] Sub 400 Test Year Ending Mar-22 Amount	Average Unless Noted	Notes on Average
182101	320010	Kynwood Abington	22,333	24,325	85,523	68,172	38,277	Average of Sub 360, Sub 364, Sub 400
102	320011	Brandybay Wine/Spooners Cr.	28,380	9,180	10,280	7,953	9,138	Average of Sub 364, Sub 384, Sub 400
107	320015	Sugar Mountain	18,410	18,470	17,075	26,123	20,556	Average of Sub 364, Sub 384, Sub 400
110	320018	Saddlewood	5,262	1,290	3,321	1,965	2,192	Average of Sub 364, Sub 384, Sub 400
115	320023	Ashley Hills	52,643	21,393	19,515	27,847	22,918	Average of Sub 364, Sub 384, Sub 400
117	320024	Corolla Light	13,350	13,950	-	-	-	Corolla interconnected with Monterray Shores
120	320026	Hestron Park	4,320	5,400	3,780	4,516	4,565	Average of Sub 364, Sub 384, Sub 400
123	320029	Hound Ears	500	1,435	-	-	478	Average of Sub 364, Sub 384, Sub 400
126	320032	Willowbrook	9,846	8,767	6,059	7,389	7,405	Average of Sub 364, Sub 384, Sub 400
130	320036	Wolf Laurel	1,080	9,475	1,550	5,350	5,458	Average of Sub 364, Sub 384, Sub 400
136	320042	Kings Grant - Raleigh	2,562	2,916	3,930	7,560	4,802	Average of Sub 364, Sub 384, Sub 400
138	320044	Bent Creek	14,000	13,325	21,320	30,645	21,763	Average of Sub 364, Sub 384, Sub 400
149	320055	Bear Paw Resort	4,500	-	-		-	
155	320061	Kings Grant Charlotte	-	-	-	-	-	
160	320066	College Park	-	-	-	-	-	
173	320076	Monteray Shores	51,850	50,730	139,649	54,843	52,474	Average of Sub 360, Sub 364, Sub 400
176	320079	Olde Point	1,575	2,205	1,713		1,959	Average of Sub 364, Sub 384, Sub 400
178	320081	Independent/Hemby	28,162	26,198	28,673	17,587	24,153	Average of Sub 364, Sub 384, Sub 400
190	320090	Danby	40,422	33,438	61,932	44,647	53,289	Average of Sub 384, Sub 400
197	320093	Queens harbor	3,100	1,375	3,320	18,175	7,623	Average of Sub 364, Sub 384, Sub 400
209	320102	Nags Head	15,845	32,170	42,053	54,000	42,741	Average of Sub 364, Sub 384, Sub 400
217	320109	Regalwood	9,270	7,020	21,073	10,337	8,876	Average of Sub 360, Sub 364, Sub 400
218	320110	White Oak Estates	25,380	16,200	27,872	12,948	19,007	Average of Sub 364, Sub 384, Sub 400
233	320013	Belvedere Plantation	24,570	18,750	33,660	22,725	25,045	Average of Sub 364, Sub 384, Sub 400
236	320126	Riverpointe	5,373	7,102	3,105	5,174	5,127	Average of Sub 364, Sub 384, Sub 400
241	320131	Carolina Pines	11,430	4,170	5,130	11,462	6,921	Average of Sub 364, Sub 384, Sub 400
243	320133	Nero / Amherst	4,372	6,557	5,618	7,279	6,485	Average of Sub 364, Sub 384, Sub 400
2247	320137	Ridges at Mountain Harbor	-	-	-	-	-	Average of Sub 364, Sub 384, Sub 400
181101	320007	Elk River	5,160	4,755	2,407	2,580	3,247	Average of Sub 364, Sub 384, Sub 400
183102	320150	Sapphire Valley	17,377	20,876	14,860	13,360	16,365	Average of Sub 364, Sub 384, Sub 400
183109	320157	Fairfield Mountain	-	-	-	-	-	Average of Sub 364, Sub 384, Sub 400
183115	320180	Ashley Hills North	-	41,614	44,672	-	-	
187101	320198	Carolina Trace	41,732	34,962	22,294	7,905	15,100	Average Sub 384, Sub 400
188101	320201	Transylvania	17,325	16,750	24,350	26,400	22,500	Average of Sub 364, Sub 384, Sub 400
140	320046	Mt Carmel	-	-	1,600	-	533	Average of Sub 364, Sub 384, Sub 400
		Total CWSNC - Uniform Sewer	$ 480,129	$ 454,798	$ 656,334	$ 496,939	$ 448,997	

Carolina Water Service, Inc. of North Carolina
W - 354, Sub 400
Test Year: March 31, 2022
WSIP Period: April 1, 2023 - March 31, 2026

Rebuttal Exhibit MPS-3
Sludge Removal

Sludge Removal

Bradfield Farms/Fairfield Harbor/Treasure Cove

Bus. Unit		Service Area	[1] Sub 360 Test Year Ending Dec-17 Amount	[1] Sub 364 Test Year Ending Mar-19 Amount	[1] Sub 384 Test Year Ending Mar-21 Amount	[2] Sub 400 Test Year Ending Mar-22 Amount	Average Unless Noted	Notes on Average
191101	320205	Bradfield Farms	57,935	38,299	31,707	55,739	41,915	Average of Sub 364, Sub 384, Sub 400
183106	320154	Fairfield Harbor	22,498	31,410	19,602	34,938	28,650	Average of Sub 364, Sub 384, Sub 400
		Total BF/FH/TC	$ 80,433	$ 69,709	$ 51,309	$ 90,677	$ 70,565	

Notes

	Unrepresentative expense levels excluded from calculations, per Casselberry Exhibit 2 in Docket No. W-354, Sub 384
[1]	Sub 360, Sub 364, Sub 384 numbers are from Casselberry Exhibit 2 in Docket No. W-354, Sub 384
[2]	Test Year actuals (April 2021 - March 2022)

Carolina Water Service, Inc. of North Carolina
W - 354, Sub 400
Test Year: March 31, 2022
WSIP Period: April 1, 2023 - March 31, 2026

Rebuttal Exhibit MPS-4
CPI Calculations

	Actual	Actual	Actual	Actual	Estimated	Estimated	Estimated	Estimated	Estimated	Forecast	Forecast	Forecast	
	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Average
Bridge Period	8.3	8.6	9.1	8.5	7.6	6.7	5.9	5.0	4.1	3.2	3.2	3.2	6.11

	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	
	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Average
WSIP 1	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	2.4	2.4	2.4	3.00

	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	
	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Average
WSIP 2	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.40

	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	
	Apr-25	May-25	Jun-25	Jul-25	Aug-25	Sep-25	Oct-25	Nov-25	Dec-25	Jan-26	Feb-26	Mar-26	Average
WSIP 3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.40

	Rate	**Formula**
Compounded WSIP Year 1 Rate	9.30%	=(1+(6.11/100))*(1+(3.00/100))-1
WSIP Year 2 Rate	2.40%	
WSIP Year 3 Rate	2.40%	
Pro Forma WSIP Year 1 Rate	7.60%	=((1+(AVERAGE(Sept 2022:March2023)/100))*(1+(AVERAGE(April 2023:March2024)/100)))-1

Notes:
Actuals through July 2022 - Blue Chip Financial Forecasts Vol. 41, No. 9, September 1, 2022, page 15
August 2022 through December 2022 - Transition from current CPI to Jan 23 Forecasted CPI spread over 5 months.
January 2023-March 2026 - Blue Chip Financial Forecasts Vol 41, No. 6, June 1, 2022, Page 14

Carolina Water Service, Inc. of North Carolina
W - 354, Sub 400
Test Year: March 31, 2022
WSIP Period: April 1, 2023 - March 31, 2026

Rebuttal Exhibit MPS-4
CPI Calculations

Compounded WSIP Year 1 Rate Check

Test Year	**Apr-21**	**May-21**	**Jun-21**	**Jul-21**	**Aug-21**	**Sep-21**	**Oct-21**	**Nov-21**	**Dec-21**	**Jan-22**	**Feb-22**	**Mar-22**	**Total**	
Sample Expense	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	1,200.00	
	Apr-22	**May-22**	**Jun-22**	**Jul-22**	**Aug-22**	**Sep-22**	**Oct-22**	**Nov-22**	**Dec-22**	**Jan-23**	**Feb-23**	**Mar-23**	**Total**	**% increase**
One Year Inflation	108.30	108.60	109.10	108.50	107.62	106.73	105.85	104.97	104.08	103.20	103.20	103.20	1,273.35	6.1%
WSIP Rate Year 1	**Apr-23**	**May-23**	**Jun-23**	**Jul-23**	**Aug-23**	**Sep-23**	**Oct-23**	**Nov-23**	**Dec-23**	**Jan-24**	**Feb-24**	**Mar-24**	**Total**	**% increase**
Two Years Inflation	111.77	112.08	112.59	111.97	111.06	110.15	109.24	108.33	107.41	105.68	105.68	105.68	1,311.62	3.0%

=(1311.62-1200)/1200 = 9.30%

Long-Range Survey:

The table below contains the results of our twice-annual long-range CONSENSUS survey. There are also Top 10 and Bottom 10 averages for each variable. Shown are consensus estimates for the years 2023 through 2028 and averages for the five-year periods 2024-2028 and 2029-2033. Apply these projections cautiously. Few if any economic, demographic and political forces can be evaluated accurately over such long time spans.

		Average For The Year						Five-Year Averages	
		2023	2024	2025	2026	2027	2028	2024-2028	2029-2033
1. Federal Funds Rate	**CONSENSUS**	**3.0**	**2.7**	**2.5**	**2.5**	**2.5**	**2.5**	**2.6**	**2.5**
	Top 10 Average	3.5	3.3	3.0	2.8	2.8	2.8	3.0	2.8
	Bottom 10 Average	2.6	2.1	2.0	2.2	2.2	2.2	2.2	2.1
2. Prime Rate	**CONSENSUS**	**6.1**	**5.9**	**5.7**	**5.6**	**5.6**	**5.6**	**5.7**	**5.6**
	Top 10 Average	6.6	6.4	6.1	6.0	6.0	6.0	6.1	5.9
	Bottom 10 Average	5.6	5.3	5.2	5.3	5.3	5.3	5.3	5.2
3. SOFR	**CONSENSUS**	**3.0**	**2.8**	**2.5**	**2.5**	**2.5**	**2.5**	**2.6**	**2.5**
	Top 10 Average	3.4	3.3	3.0	2.9	2.8	2.8	3.0	2.8
	Bottom 10 Average	2.7	2.2	2.0	2.2	2.2	2.2	2.2	2.1
4. Commercial Paper, 1-Mo	**CONSENSUS**	**3.2**	**2.9**	**2.6**	**2.6**	**2.6**	**2.6**	**2.7**	**2.6**
	Top 10 Average	3.5	3.4	3.1	2.9	2.9	2.9	3.0	2.9
	Bottom 10 Average	2.8	2.5	2.3	2.4	2.4	2.3	2.3	2.3
5. Treasury Bill Yield, 3-Mo	**CONSENSUS**	**3.0**	**2.8**	**2.6**	**2.6**	**2.6**	**2.5**	**2.6**	**2.5**
	Top 10 Average	3.6	3.4	3.1	3.1	3.0	2.9	3.1	2.9
	Bottom 10 Average	2.5	2.2	2.0	2.1	2.2	2.2	2.1	2.2
6. Treasury Bill Yield, 6-Mo	**CONSENSUS**	**3.2**	**2.9**	**2.7**	**2.7**	**2.7**	**2.6**	**2.7**	**2.6**
	Top 10 Average	3.8	3.6	3.2	3.2	3.1	3.0	3.2	3.0
	Bottom 10 Average	2.6	2.2	2.1	2.2	2.3	2.3	2.2	2.3
7. Treasury Bill Yield, 1-Yr	**CONSENSUS**	**3.2**	**3.0**	**2.9**	**2.9**	**2.8**	**2.8**	**2.9**	**2.8**
	Top 10 Average	3.9	3.8	3.5	3.4	3.3	3.2	3.4	3.2
	Bottom 10 Average	2.6	2.4	2.2	2.4	2.4	2.4	2.3	2.4
8. Treasury Note Yield, 2-Yr	**CONSENSUS**	**3.4**	**3.2**	**3.1**	**3.1**	**3.0**	**3.0**	**3.1**	**3.0**
	Top 10 Average	4.3	4.1	3.8	3.6	3.5	3.5	3.7	3.5
	Bottom 10 Average	2.7	2.4	2.3	2.5	2.6	2.5	2.4	2.5
9. Treasury Note Yield, 5-Yr	**CONSENSUS**	**3.5**	**3.4**	**3.3**	**3.3**	**3.3**	**3.2**	**3.3**	**3.3**
	Top 10 Average	4.3	4.2	4.1	3.9	3.8	3.8	3.9	3.8
	Bottom 10 Average	2.8	2.6	2.5	2.7	2.7	2.7	2.6	2.8
10. Treasury Note Yield, 10-Yr	**CONSENSUS**	**3.5**	**3.5**	**3.4**	**3.5**	**3.5**	**3.4**	**3.5**	**3.5**
	Top 10 Average	4.4	4.4	4.2	4.2	4.1	4.1	4.2	4.1
	Bottom 10 Average	2.8	2.5	2.6	2.9	2.9	2.8	2.7	2.8
11. Treasury Bond Yield, 30-Yr	**CONSENSUS**	**3.8**	**3.8**	**3.8**	**3.9**	**3.8**	**3.8**	**3.8**	**3.9**
	Top 10 Average	4.6	4.7	4.5	4.5	4.4	4.5	4.5	4.5
	Bottom 10 Average	3.0	2.9	3.0	3.3	3.2	3.2	3.1	3.2
12. Corporate Aaa Bond Yield	**CONSENSUS**	**5.0**	**5.0**	**4.9**	**5.0**	**5.0**	**4.9**	**4.9**	**5.0**
	Top 10 Average	5.7	5.7	5.6	5.5	5.5	5.5	5.5	5.6
	Bottom 10 Average	4.4	4.2	4.3	4.4	4.4	4.4	4.3	4.4
13. Corporate Baa Bond Yield	**CONSENSUS**	**6.0**	**5.9**	**5.8**	**5.9**	**5.9**	**5.9**	**5.9**	**5.9**
	Top 10 Average	6.6	6.6	6.4	6.3	6.3	6.3	6.4	6.4
	Bottom 10 Average	5.4	5.3	5.2	5.4	5.4	5.4	5.3	5.4
14. State & Local Bonds Yield	**CONSENSUS**	**4.3**	**4.3**	**4.2**	**4.3**	**4.3**	**4.3**	**4.3**	**4.3**
	Top 10 Average	5.0	5.0	4.8	4.8	4.7	4.7	4.8	4.8
	Bottom 10 Average	3.7	3.7	3.7	3.9	3.9	3.9	3.8	3.9
15. Home Mortgage Rate	**CONSENSUS**	**5.7**	**5.5**	**5.4**	**5.4**	**5.4**	**5.4**	**5.4**	**5.4**
	Top 10 Average	6.4	6.4	6.1	6.0	6.0	6.0	6.1	6.0
	Bottom 10 Average	4.9	4.7	4.6	4.8	4.8	4.8	4.7	4.8
A. Fed's AFE Nominal $ Index	**CONSENSUS**	**113.8**	**112.8**	**111.9**	**111.0**	**110.6**	**110.4**	**111.3**	**109.8**
	Top 10 Average	115.6	114.7	114.0	113.4	113.1	112.8	113.6	112.7
	Bottom 10 Average	112.2	111.0	109.9	108.8	108.2	107.9	109.2	107.4
		Year-Over-Year, % Change						Five-Year Averages	
		2023	2024	2025	2026	2027	2028	2024-2028	2029-2033
B. Real GDP	**CONSENSUS**	**2.0**	**2.0**	**2.1**	**2.1**	**2.1**	**2.1**	**2.1**	**2.0**
	Top 10 Average	2.6	2.4	2.4	2.4	2.4	2.4	2.4	2.3
	Bottom 10 Average	1.5	1.5	1.8	1.8	1.8	1.8	1.7	1.8
C. GDP Chained Price Index	**CONSENSUS**	**3.0**	**2.4**	**2.3**	**2.3**	**2.2**	**2.2**	**2.3**	**2.2**
	Top 10 Average	3.7	2.8	2.7	2.6	2.6	2.6	2.7	2.6
	Bottom 10 Average	2.3	2.0	1.9	1.9	1.9	1.9	1.9	1.9
D. Consumer Price Index	**CONSENSUS**	**3.2**	**2.4**	**2.4**	**2.4**	**2.3**	**2.3**	**2.4**	**2.3**
	Top 10 Average	4.1	3.0	2.9	2.8	2.7	2.7	2.8	2.7
	Bottom 10 Average	2.3	1.8	2.0	2.0	1.9	1.9	1.9	1.9
E. PCE Price Index	**CONSENSUS**	**3.0**	**2.3**	**2.3**	**2.3**	**2.3**	**2.2**	**2.3**	**2.3**
	Top 10 Average	3.8	2.8	2.8	2.7	2.7	2.6	2.7	2.7
	Bottom 10 Average	2.2	1.8	1.9	1.9	1.9	1.8	1.9	1.9

Databank:

2022 Historical Data

Monthly Indicator	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Retail and Food Service Sales (a)	2.7	1.7	1.2	0.7	0.4	0.8	0.0	....	....	....	....	....
Auto & Light Truck Sales (b)	15.05	13.98	13.41	14.51	12.77	13.02	13.33	....	....	....	....	....
Personal Income (a, current $)	0.0	0.6	0.6	0.4	0.6	0.7	0.2	....	....	....	....	....
Personal Consumption (a, current $)	1.9	0.6	1.2	0.4	0.5	1.0	0.1	....	....	....	....	....
Consumer Credit (e)	4.3	9.4	12.6	9.3	6.3	10.5	....	....	....	....	....	....
Consumer Sentiment (U. of Mich.)	67.2	62.8	59.4	65.2	58.4	50.0	51.5	58.2	....	....	....	....
Household Employment (c)	1199	548	736	-353	321	-315	179	....	....	....	....	....
Nonfarm Payroll Employment (c)	504	714	398	368	386	398	528	....	....	....	....	....
Unemployment Rate (%)	4.0	3.8	3.6	3.6	3.6	3.6	3.5	....	....	....	....	....
Average Hourly Earnings (All, cur. $)	31.56	31.60	31.75	31.86	31.98	32.12	32.27	....	....	....	....	....
Average Workweek (All, hrs.)	34.6	34.7	34.6	34.6	34.6	34.6	34.6	....	....	....	....	....
Industrial Production (d)	2.9	6.9	4.8	5.3	4.4	4.0	3.9	....	....	....	....	....
Capacity Utilization (%)	78.9	79.4	79.9	80.3	80.1	79.9	80.3	....	....	....	....	....
ISM Manufacturing Index (g)	57.6	58.6	57.1	55.4	56.1	53.0	52.8	....	....	....	....	....
ISM Nonmanufacturing Index (g)	59.9	56.5	58.3	57.1	55.9	55.3	56.7	....	....	....	....	....
Housing Starts (b)	1.666	1.777	1.716	1.805	1.562	1.599	1.446	....	....	....	....	....
Housing Permits (b)	1.841	1.857	1.879	1.823	1.695	1.696	1.685	....	....	....	....	....
New Home Sales (1-family, c)	831	790	707	619	630	585	511	....	....	....	....	....
Construction Expenditures (a)	2.7	1.5	0.9	0.7	0.1	-1.1	....	....	....	....	....	....
Consumer Price Index (nsa, d)	7.5	7.9	8.5	8.3	8.6	9.1	8.5	....	....	....	....	....
CPI ex. Food and Energy (nsa, d)	6.0	6.4	6.5	6.2	6.0	5.9	5.9	....	....	....	....	....
PCE Chain Price Index (d)	6.0	6.3	6.6	6.3	6.3	6.8	6.3	....	....	....	....	....
Core PCE Chain Price Index (d)	5.1	5.3	5.2	4.9	4.7	4.8	4.6	....	....	....	....	....
Producer Price Index (nsa, d)	10.1	10.4	11.7	11.2	11.1	11.3	9.8	....	....	....	....	....
Durable Goods Orders (a)	3.1	-0.7	0.7	0.4	0.8	2.2	0.0	....	....	....	....	....
Leading Economic Indicators (a)	-0.7	0.8	-0.1	-0.5	-0.7	-0.7	-0.4	....	....	....	....	....
Balance of Trade & Services (f)	-88.0	-88.1	-107.7	-86.7	-84.9	-79.6	....	....	....	....	....	....
Federal Funds Rate (%)	0.08	0.08	0.20	0.33	0.77	1.21	1.68	....	....	....	....	....
3-Mo. Treasury Bill Rate (%)	0.15	0.31	0.45	0.76	0.99	1.54	2.30	....	....	....	....	....
10-Year Treasury Note Yield (%)	1.76	1.93	2.13	2.75	2.90	3.14	2.90	....	....	....	....	....

2021 Historical Data

Monthly Indicator	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Retail and Food Service Sales (a)	5.5	-1.8	11.2	0.0	-0.5	1.0	-1.5	0.9	1.0	1.6	0.6	-1.6
Auto & Light Truck Sales (b)	16.78	15.93	17.64	18.30	16.89	15.47	14.66	13.09	12.29	13.05	13.04	12.54
Personal Income (a, current $)	9.9	-7.2	21.0	-13.3	-2.0	0.3	1.3	0.4	-0.9	0.8	0.7	0.5
Personal Consumption (a, current $)	3.3	-1.1	5.2	1.0	0.0	1.1	0.1	1.1	0.6	1.4	0.5	-0.9
Consumer Credit (e)	3.1	5.1	4.3	5.3	7.6	6.5	4.5	5.1	6.6	5.8	8.7	6.2
Consumer Sentiment (U. of Mich.)	79.0	76.8	84.9	88.3	82.9	85.5	81.2	70.3	72.8	71.7	67.4	70.6
Household Employment (c)	121	363	573	319	291	62	1092	463	639	428	1090	651
Nonfarm Payroll Employment (c)	520	710	704	263	447	557	689	517	424	677	647	588
Unemployment Rate (%)	6.4	6.2	6.0	6.0	5.8	5.9	5.4	5.2	4.7	4.6	4.2	3.9
Average Hourly Earnings (All, cur. $)	29.93	30.04	30.06	30.20	30.36	30.52	30.67	30.76	30.92	31.11	31.23	31.38
Average Workweek (All, hrs.)	35.0	34.6	34.9	34.9	34.9	34.8	34.8	34.7	34.8	34.8	34.8	34.8
Industrial Production (d)	-2.0	-5.4	1.0	16.6	15.6	9.2	5.9	4.9	3.9	4.7	5.0	3.7
Capacity Utilization (%)	76.4	74.2	76.3	76.6	77.3	77.7	78.2	78.2	77.4	78.6	79.0	78.7
ISM Manufacturing Index (g)	59.4	60.9	63.7	60.6	61.6	60.9	59.9	59.7	60.5	60.8	60.6	58.8
ISM Nonmanufacturing Index (g)	58.5	55.9	62.2	62.7	63.2	60.7	64.1	62.2	62.6	66.7	68.4	62.3
Housing Starts (b)	1.602	1.430	1.711	1.505	1.605	1.664	1.573	1.576	1.559	1.563	1.706	1.768
Housing Permits (b)	1.843	1.743	1.773	1.765	1.691	1.661	1.655	1.772	1.615	1.698	1.729	1.896
New Home Sales (1-family, c)	911	768	881	809	740	714	726	686	732	671	756	839
Construction Expenditures (a)	1.1	-0.9	2.0	0.5	0.8	0.4	0.6	0.3	-0.5	0.7	1.3	1.0
Consumer Price Index (nsa, d)	1.4	1.7	2.6	4.2	5.0	5.4	5.4	5.3	5.4	6.2	6.8	7.0
CPI ex. Food and Energy (nsa, d)	1.4	1.3	1.6	3.0	3.8	4.5	4.3	4.0	4.0	4.6	4.9	5.5
PCE Chain Price Index (d)	1.4	1.6	2.5	3.6	4.0	4.0	4.2	4.2	4.4	5.1	5.6	5.8
Core PCE Chain Price Index (d)	1.5	1.5	2.0	3.1	3.5	3.6	3.6	3.6	3.7	4.2	4.7	4.9
Producer Price Index (nsa, d)	1.6	3.0	4.1	6.5	7.0	7.6	8.0	8.7	8.8	8.9	9.9	10.0
Durable Goods Orders (a)	2.5	0.1	1.6	-2.0	2.1	1.8	0.4	1.6	-1.5	1.5	1.4	0.9
Leading Economic Indicators (a)	0.6	-0.1	1.1	1.1	0.9	0.6	1.0	0.7	0.2	0.4	0.6	0.4
Balance of Trade & Services (f)	-63.8	-65.3	-68.1	-65.7	-66.6	-71.4	-69.4	-71.4	-78.3	-68.2	-78.0	-78.9
Federal Funds Rate (%)	0.09	0.08	0.07	0.07	0.06	0.08	0.10	0.09	0.08	0.08	0.08	0.08
3-Mo. Treasury Bill Rate (%)	0.08	0.04	0.03	0.02	0.02	0.04	0.05	0.05	0.04	0.05	0.05	0.06
10-Year Treasury Note Yield (%)	1.08	1.26	1.61	1.64	1.62	1.52	1.32	1.28	1.37	1.58	1.56	1.47

(a) month-over-month % change; (b) millions, saar; (c) month-over-month change, thousands; (d) year-over-year % change; (e) annualized % change; (f) $ billions; (g) level. Most series are subject to frequent government revisions. Use with care.

Databank:

2022 Historical Data

Monthly Indicator	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Retail and Food Service Sales (a)	2.7	1.7	1.2	0.7	0.4	1.0	-0.4	0.4	0.0	....	....	....
Auto & Light Truck Sales (b)	15.11	13.71	13.55	14.28	12.58	13.05	13.32	13.19	13.58	....	....	....
Personal Income (a, current $)	-0.1	0.5	0.5	0.3	0.6	0.6	0.4	0.4	0.4	....	....	....
Personal Consumption (a, current $)	1.2	0.7	1.2	0.4	0.7	1.2	-0.2	0.6	0.6	....	....	....
Consumer Credit (e)	3.9	9.1	12.1	8.3	7.1	10.4	6.8	8.3	....	....	....	....
Consumer Sentiment (U. of Mich.)	67.2	62.8	59.4	65.2	58.4	50.0	51.5	58.2	58.6	59.9	....	....
Household Employment (c)	1199	548	736	-353	321	-315	179	442	204	....	....	....
Nonfarm Payroll Employment (c)	504	714	398	368	386	293	537	315	263	....	....	....
Unemployment Rate (%)	4.0	3.8	3.6	3.6	3.6	3.6	3.5	3.7	3.5	....	....	....
Average Hourly Earnings (All, cur. $)	31.56	31.60	31.75	31.86	31.98	32.11	32.27	32.36	32.46	....	....	....
Average Workweek (All, hrs.)	34.6	34.7	34.6	34.6	34.6	34.5	34.5	34.5	34.5	....	....	....
Industrial Production (d)	2.9	6.9	4.8	5.3	4.4	3.9	3.9	3.9	5.3	....	....	....
Capacity Utilization (%)	78.9	79.4	79.8	80.2	80.0	79.8	80.3	80.1	80.3	....	....	....
ISM Manufacturing Index (g)	57.6	58.6	57.1	55.4	56.1	53.0	52.8	52.8	50.9	....	....	....
ISM Nonmanufacturing Index (g)	59.9	56.5	58.3	57.1	55.9	55.3	56.7	56.9	56.7	....	....	....
Housing Starts (b)	1.666	1.777	1.716	1.805	1.562	1.575	1.377	1.566	1.439	....	....	....
Housing Permits (b)	1.841	1.857	1.879	1.823	1.695	1.696	1.685	1.542	1.564	....	....	....
New Home Sales (1-family, c)	831	790	707	619	636	571	543	677	603	....	....	....
Construction Expenditures (a)	2.7	1.5	0.9	0.7	0.7	0.6	-0.6	-0.7	....	....	....	....
Consumer Price Index (nsa, d)	7.5	7.9	8.5	8.3	8.6	9.1	8.5	8.3	8.2	....	....	....
CPI ex. Food and Energy (nsa, d)	6.0	6.4	6.5	6.2	6.0	5.9	5.9	6.3	6.6	....	....	....
PCE Chain Price Index (d)	6.1	6.4	6.8	6.4	6.5	7.0	6.4	6.2	6.2	....	....	....
Core PCE Chain Price Index (d)	5.2	5.4	5.4	5.0	4.9	5.0	4.7	4.9	5.1	....	....	....
Producer Price Index (nsa, d)	10.1	10.4	11.7	11.2	11.1	11.3	9.8	8.7	8.5	....	....	....
Durable Goods Orders (a)	3.1	-0.7	0.7	0.4	0.8	2.3	-0.1	0.2	0.4	....	....	....
Leading Economic Indicators (a)	-0.7	0.8	-0.1	-0.5	-0.7	-0.7	-0.6	0.0	-0.4	....	....	....
Balance of Trade & Services (f)	-88.0	-87.8	-106.9	-86.7	-85.9	-80.9	-70.5	-67.4	....	....	....	....
Federal Funds Rate (%)	0.08	0.08	0.20	0.33	0.77	1.21	1.68	2.33	2.56	....	....	....
3-Mo. Treasury Bill Rate (%)	0.15	0.31	0.45	0.76	0.99	1.54	2.30	2.72	3.22	....	....	....
10-Year Treasury Note Yield (%)	1.76	1.93	2.13	2.75	2.90	3.14	2.90	2.90	3.52	....	....	....

2021 Historical Data

Monthly Indicator	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Retail and Food Service Sales (a)	5.5	-1.8	11.2	0.0	-0.5	1.0	-1.6	1.0	1.1	1.4	0.6	-1.6
Auto & Light Truck Sales (b)	16.82	15.65	17.72	18.17	16.69	15.28	14.62	13.06	12.31	13.22	13.10	12.72
Personal Income (a, current $)	9.6	-7.1	20.7	-13.1	-1.9	0.1	1.1	0.3	-0.8	0.8	0.5	0.3
Personal Consumption (a, current $)	2.5	-0.6	5.2	0.6	0.4	1.2	0.4	0.7	0.8	1.3	0.5	-0.2
Consumer Credit (e)	3.1	5.1	4.3	5.3	7.6	6.5	4.5	5.1	6.6	5.7	8.7	6.3
Consumer Sentiment (U. of Mich.)	79.0	76.8	84.9	88.3	82.9	85.5	81.2	70.3	72.8	71.7	67.4	70.6
Household Employment (c)	121	363	573	319	291	62	1092	463	639	428	1090	651
Nonfarm Payroll Employment (c)	520	710	704	263	447	557	689	517	424	677	647	588
Unemployment Rate (%)	6.4	6.2	6.0	6.0	5.8	5.9	5.4	5.2	4.7	4.6	4.2	3.9
Average Hourly Earnings (All, cur. $)	29.93	30.04	30.06	30.20	30.36	30.52	30.67	30.76	30.92	31.11	31.23	31.38
Average Workweek (All, hrs.)	35.0	34.6	34.9	34.9	34.9	34.8	34.8	34.7	34.8	34.8	34.8	34.8
Industrial Production (d)	-2.0	-5.4	1.0	16.6	15.6	9.2	5.9	4.9	3.9	4.7	5.0	3.7
Capacity Utilization (%)	76.4	74.2	76.3	76.6	77.3	77.7	78.2	78.2	77.4	78.6	79.0	78.7
ISM Manufacturing Index (g)	59.4	60.9	63.7	60.6	61.6	60.9	59.9	59.7	60.5	60.8	60.6	58.8
ISM Nonmanufacturing Index (g)	58.5	55.9	62.2	62.7	63.2	60.7	64.1	62.2	62.6	66.7	68.4	62.3
Housing Starts (b)	1.602	1.430	1.711	1.505	1.605	1.664	1.573	1.576	1.559	1.563	1.706	1.768
Housing Permits (b)	1.843	1.743	1.773	1.765	1.691	1.661	1.655	1.772	1.615	1.698	1.729	1.896
New Home Sales (1-family, c)	911	768	881	809	740	714	726	686	732	671	756	839
Construction Expenditures (a)	1.1	-0.9	2.0	0.5	0.8	0.4	0.6	0.3	-0.5	0.7	1.3	1.0
Consumer Price Index (nsa, d)	1.4	1.7	2.6	4.2	5.0	5.4	5.4	5.3	5.4	6.2	6.8	7.0
CPI ex. Food and Energy (nsa, d)	1.4	1.3	1.6	3.0	3.8	4.5	4.3	4.0	4.0	4.6	4.9	5.5
PCE Chain Price Index (d)	1.5	1.7	2.5	3.6	4.0	4.3	4.4	4.5	4.7	5.2	5.9	6.0
Core PCE Chain Price Index (d)	1.6	1.6	2.0	3.1	3.5	3.8	3.9	3.9	3.9	4.3	4.8	5.0
Producer Price Index (nsa, d)	1.6	3.0	4.1	6.5	7.0	7.6	8.0	8.7	8.8	8.9	9.9	10.0
Durable Goods Orders (a)	2.5	0.1	1.6	-2.0	2.1	1.8	0.4	1.6	-1.5	1.5	1.4	0.9
Leading Economic Indicators (a)	0.6	-0.1	1.1	1.1	0.9	0.6	1.0	0.7	0.2	0.4	0.6	0.4
Balance of Trade & Services (f)	-63.8	-65.3	-68.1	-65.7	-66.6	-71.4	-69.4	-71.4	-78.3	-68.2	-78.0	-78.9
Federal Funds Rate (%)	0.09	0.08	0.07	0.07	0.06	0.08	0.10	0.09	0.08	0.08	0.08	0.08
3-Mo. Treasury Bill Rate (%)	0.08	0.04	0.03	0.02	0.02	0.04	0.05	0.05	0.04	0.05	0.05	0.06
10-Year Treasury Note Yield (%)	1.08	1.26	1.61	1.64	1.62	1.52	1.32	1.28	1.37	1.58	1.56	1.47

(a) month-over-month % change; (b) millions, saar; (c) month-over-month change, thousands; (d) year-over-year % change; (e) annualized % change; (f) $ billions; (g) level. Most series are subject to frequent government revisions. Use with care.

Common Misconceptions about the Consumer Price Index: Questions and Answers

An August 2008 Monthly Labor Review article by BLS economists John Greenlees and Robert McClelland reviews and analyzes some common misconceptions about the Consumer Price Index (CPI.) Those analyses are summarized here:

Has the BLS removed food or energy prices in its official measure of inflation?

No. The BLS publishes thousands of CPI indexes each month, including the headline All Items CPI for All Urban Consumers (CPI-U) and the CPI-U for All Items Less Food and Energy. The latter series, widely referred to as the "core" CPI, is closely watched by many economic analysts and policymakers under the belief that food and energy prices are volatile and are subject to price shocks that cannot be damped through monetary policy. However, all consumer goods and services, including food and energy, are represented in the headline CPI.

Most importantly, none of the prominent legislated uses of the CPI excludes food and energy. Social security and federal retirement benefits are updated each year for inflation by the All Items CPI for Urban Wage Earners and Clerical Workers (CPI-W). Individual income tax parameters and Treasury Inflation-Protected Securities (TIPS) returns are based on the All Items CPI-U.

The CPI used to include the value of a house in calculating inflation and now they use an estimate of what each house would rent for -- doesn't this switch simply lower the official inflation rate?

No. Until 1983, the CPI measure of homeowner cost was based largely on house prices. The long-recognized flaw of that approach was that owner-occupied housing combines both consumption and investment elements, and the CPI is designed to exclude investment items. The approach now used in the CPI, called rental equivalence, measures the value of shelter to owner-occupants as the amount they forgo by not renting out their homes.

The rental equivalence approach is grounded in economic theory, receives broad support from academic economists and each of the prominent panels, and agencies that have reviewed the CPI, and is the most commonly used method by countries in the Organization for Economic Cooperation and Development (OECD). Critics often assume that the BLS adopted rental equivalence in order to lower the measured rate of inflation. It is certainly true that an index based on home prices would be more volatile, and might move differently from other CPI indexes over any given time period. However, when it was first introduced, rental equivalence actually increased the rate of change of the CPI shelter index, and in the long run there is no evidence that the CPI method yields lower inflation rates than some other alternatives. For example, according to the National Association of Realtors, between 1983 and 2007 the monthly principal and interest payment required to purchase a median-priced existing home in the United States rose by 79 percent, much less than the rental equivalence increase of 140 percent over that same period.

When the cost of food rises, does the CPI assume that consumers switch to less desired foods, such as substituting hamburger for steak?

No. In January 1999, the BLS began using a geometric mean formula in the CPI that reflects the fact that consumers shift their purchases toward products that have fallen in relative price. Some critics charge that by reflecting consumer substitution the BLS is subtracting from the CPI a certain amount of inflation that consumers can "live with" by reducing their standard of living. This is incorrect: the CPI's objective is to calculate the change in the amount consumers need to spend to maintain a constant level of satisfaction.

Specifically, in constructing the "headline" CPI-U and CPI-W, the BLS is not assuming that consumers substitute hamburgers for steak. Substitution is only assumed to occur within basic CPI index categories, such as among types of ground beef in Chicago. Hamburger and steak are in different CPI item categories, so no substitution between them is built into the CPI-U or CPI-W.

Furthermore, the CPI doesn't implicitly assume that consumers always substitute toward the less desirable good. Within the beef steaks item category, for example, the assumption is that consumers on average would move up from flank steak to filet mignon if the price of flank steak rose by a greater amount (or fell by less) than filet mignon prices. If both types of beef steak rose in price by the same amount, the geometric mean would assume no substitution.

In using the geometric mean the BLS is following a recognized best practice for statistical agencies. The formula is widely used by statistical agencies around the world and is recommended by, for example, the International Monetary Fund and the Statistical Office of the European Communities.

Is the use of "hedonic quality adjustment" in the CPI simply a way of lowering the inflation rate?

No. The International Labour Office refers to the hedonic approach as "powerful, objective and scientific". Hedonic modeling is just one of many methods that the BLS uses to determine what portion of a price difference is viewed by consumers as reflecting quality differences. It refers to a statistical procedure in which the market valuation of a feature is estimated by comparing the prices of items with and without that feature. Then, for example, if a television in the CPI is replaced by one with a larger screen and higher price, the BLS can make an adjustment to the price difference by estimating what the old television would have cost had it had the larger screen size.

Many of the challenges in producing a CPI arise because the number and types of goods and services found in the market are constantly changing. If the CPI tried to maintain a fixed sample of products, that sample quickly would shrink and become unrepresentative of what consumers were purchasing. Each time that an item

in the CPI sample permanently disappears from the shelves, the BLS has to choose another, and then has to make some determination about the relative qualities of the old and replacement item. If it did not--for example, if it treated all new items as identical to those they replaced -- significant upward or downward CPI biases would result.

Critics often incorrectly assume that BLS only adjusts for quality increases, not for decreases, and that hedonic adjustments have a large downward impact on the CPI. On the contrary, BLS has used hedonic models in the CPI shelter and apparel components for roughly two decades, and on average hedonic adjustments usually increase the rate of change of those indexes. Since 1998, hedonic models have been introduced in several other components, mostly consumer durables such as personal computers and televisions, but these newer areas have a combined weight of only about one percent in the CPI. A recent article by BLS economists estimated that the hedonic models currently used in the CPI outside of the shelter and apparel areas have increased the annual rate of change of the All Items CPI, but by only about 0.005 percent per year.

Has the BLS selected the methodological changes to the CPI over the last 30 years with the intent of lowering the reported rate of inflation?

No. The improvements chosen by the BLS that some critics construe to be a response to short term political pressure were, in fact, the result of analysis and recommendations made over a period of decades, and those changes are consistent with international standards for statistics. The methods continue to be reviewed by outside commissions and advisory panels, and they are widely used by statistical agencies of other nations.

Moreover, the sizes and effects of the changes implemented by the BLS are often over-estimated by critics. Some have argued that if the CPI were computed using the methods in place in the late 1970s, the index would now be growing at a rates as high as 11 or 12 percent per year. Those estimates are based on the belief that the use of a geometric mean index lowered the annual rate of change of the CPI by three percentage points per year, and a belief that other BLS changes, such as the use of hedonic models and rental equivalence, have lowered the growth rate of the CPI by four percentage points per year.

Neither belief is supported by evidence. BLS calculations have shown that the geometric mean formula has reduced the annual growth rate of the CPI by less than 0.3 percentage points. Hedonic quality adjustments for shelter regularly increase the rate of change of the CPI, and those for apparel have had both upward and downward impacts at different points in time and for different types of clothing. The BLS estimates that the overall impact of hedonic quality adjustments in use in other categories has been extremely small. Furthermore, if the CPI were using the pre-1983 asset-based method instead of rental equivalence to measure homeowner shelter cost it would yield a sharply lower current measure of shelter inflation, given that house prices are now declining in many parts of the country.

Does the Bureau of Labor Statistics calculate the CPI the same way as other nations? Do any differences in method keep the US CPI lower than the CPIs of those other nations?

Yes, the methods described above are used widely by nations in the OECD and the European Union. A recent report shows that rental equivalence is the most common method used to measure changes in the cost of shelter by the OECD -- with 13 of 30 nations employing it. The next most common method is for a nation to omit shelter from the CPI. The hedonic method of quality adjustment is used by at least 11 of the 29 other OECD nations, and five of the G-7 nations. Eurostat reports that the geometric mean is used by 20 of 30 countries for its Harmonized Indices of Consumer Prices.

Each nation's inflation experience is the result of its unique economic circumstances, so comparing the change in the U.S. CPI-U with inflation rates in other countries does not gauge the accuracy of U.S. inflation measures. Nevertheless, over the 1997-2007 period the U.S. CPI-U increased faster than the CPIs of 16 of the other 29 OECD nations, and faster than the CPIs of all of the other G-7 nations, including Canada, the United States' largest trading partner. Similarly, between the first quarters of 2007 and 2008 the U.S. CPI rose by more than the CPIs of 20 of the other 29 OECD nations and by more than any of the other G-7 nations, including Canada.

Find out more in "Addressing misconceptions about the Consumer Price Index" in the August 2008 Monthly Labor Review.

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Carolina Water Service, Inc. of North Carolina
W - 354, Sub 400
Test Year: March 31, 2022
WSIP Period: April 1, 2023 - March 31, 2026

Rebuttal Exhibit MPS-5
Recurring Spend and CIAC

Capital Investment Plan - Recurring Spend vs CIAC

40 Month Average: 203,020.10

			Total:	2,831,821	2,090,684	2,336,776	861,523
				Actual	Actual	Actual	Actual
Spend Category	**Rate Group**	**Utility Type**	**Obj. Acct.**	**2019 Total**	**2020 Total**	**2021 Total**	**2022 - Apr**
Sewer Gravity Main	BF-FH-TC	Sewer	141242	54,292	48,140	59,640	1,422
Manholes	BF-FH-TC	Sewer	141243	19,866	1,763	-	2,618
Service to Customers	BF-FH-TC	Sewer	141245	8,873	96,625	199,930	51,380
Trans and Distr Mains	BF-FH-TC	Water	141232	52,735	30,167	19,388	10,598
Service Lines	BF-FH-TC	Water	141233	112,926	68,838	98,143	19,471
Meters	BF-FH-TC	Water	141234	10,656	8,385	44,664	3,267
Meter Installations	BF-FH-TC	Water	141235	9,785	12,826	6,975	9,590
Sewer Gravity Main	CWS - NC Uniform	Sewer	141242	97,768	194,085	193,683	49,293
Manholes	CWS - NC Uniform	Sewer	141243	53,550	151,042	98,588	14,609
Service to Customers	CWS - NC Uniform	Sewer	141245	160,034	243,657	194,286	93,686
Trans and Distr Mains	CWS - NC Uniform	Water	141232	1,215,292	914,197	1,035,701	275,815
Service Lines	CWS - NC Uniform	Water	141233	1,084,614	887,200	1,046,434	311,288
Meters	CWS - NC Uniform	Water	141234	77,008	71,432	164,308	48,947
Meter Installations	CWS - NC Uniform	Water	141235	39,222	100,874	123,865	6,809
CIAC - Structure/Improvement Treatment Plant			271008	-	(7,106)	(24,991)	-
CIAC - Structure/Improvement Generator Plant			271011	-	(0)	(17,655)	-
CIAC - Trans and Distr Mains			271024	-	(111,986)	-	-
CIAC - Service Lines			271025	-	(58,880)	-	-
CIAC - Hydrants			271028	-	(19,300)	-	-
CIAC - Tap Fee			271036	(120,168)	(176,769)	(667,052)	(23,924)
CIAC - Management Fee			271037	(150)	(350)	(1,350)	-
CIAC - Plant Mod Fee			271040	(25,300)	(91,280)	(60,961)	(3,181)
CIAC - Plant Meter Fee			271041	(19,183)	(19,391)	(88,947)	(10,165)
CIAC - Sewer Gravity Main			271043	-	(133,344)	(28,830)	-
CIAC - Manholes			271044	-	(65,100)	(59,042)	-
CIAC - Service to Customers			271046	-	(55,040)	-	-