



**EAST MOORE WATER DISTRICT BOARD OF DIRECTORS**

**SPECIAL MEETING**

**TUESDAY, OCTOBER 16, 2018, 4:00 P.M.**

**COMMISSIONERS' MEETING ROOM, HISTORIC COURTHOUSE**

**CALL TO ORDER**

**ITEMS OF BUSINESS:**

- I. Request for Approval of 08/01/2018 EMWD Special Meeting Minutes
- II. Request to Receive Utility Rate Study Recommendations and for Approval of Revised Fee Schedule and Service Contract Amendment
- III. Request for Approval of Purchase Contract and Amendment with Moore County Public Utilities
- IV. Request for Approval of Resolutions Adopting 2018 Water Shortage Response Plans

**ADJOURNMENT**

**EAST MOORE WATER DISTRICT BOARD OF DIRECTORS**

ITEM I  
EMWD  
10/16/2018

**SPECIAL MEETING**

**WEDNESDAY, AUGUST 1, 2018, 10:30 AM**

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The East Moore Water District Board of Directors convened for a Special Meeting at 10:30am, Wednesday, August 1, 2018, in the Moore County Board of Commissioners Meeting Room on the second floor of the Historic Courthouse in Carthage, North Carolina.

**Directors Present:** Chair Catherine Graham, Vice Chair Otis Ritter, Frank Quis

**Directors Absent:** Jerry Daeke, Louis Gregory

Chair Graham called the meeting to order at 5:00 p.m.

**Items of Business:**

Request for of Approval of 06/19/2018 EMWD Special Meeting Minutes

Upon motion made by Director Ritter, seconded by Director Quis, the Board voted 3-0 to approve the June 19, 2018, special meeting minutes of the East Moore Water District Board of Directors.

Request for Approval of Letter of Conditions for Funding of EMWD Phase 4 Project

Public Works Director Randy Gould presented a request for the Board's acceptance of the Letter of Conditions for funding from USDA – Rural Development for the East Moore Water District (EMWD) Phase 4 project. He reviewed information about the project and acknowledged those present with LKC Engineering who had been instrumental in getting the project application prepared and were now anticipated to engineer the design. He also recognized members of the Eastwood community who would be impacted by the project and had worked diligently to bring it to fruition. Mr. Gould introduced Julia Johnson with USDA – Rural Development. Ms. Johnson reviewed with the Board several pertinent portions of the Letter of Conditions, and thanked them for allowing USDA – Rural Development to help with the project. She noted that she had never previously worked on a project for which she had received calls from members of the community and shared how much it thrilled her to receive those. Mr. Gould also noted the efforts of Lynn Whittington, Connie Barner, and Merva Joyner in making the project happen. Mr. Gould reviewed that the next steps would be to get the engineering agreement, start customer sign-ups, do the design/permitting, and then bidding/construction.

Chair Graham made a motion, seconded by Director Ritter, to accept the Letter of Conditions by signing the letter of intent to meet the stated conditions. The motion carried 3-0. Chair Graham thanked everyone involved and said that the work was just beginning with regard to getting support/sign-ups from neighbors. Upon motion made by Director Quis, seconded by Director Ritter, the Board voted 3-0 to adopt a resolution authorizing the Chair to the Board and the Clerk to the Board to sign and attest the necessary documents to complete the funding obligation. Copies of documents signed are hereby incorporated as a part of these minutes by attachment as Appendix A.

County Manager Wayne Vest expressed thanks to everyone involved in the project.

## **ADJOURNMENT**

There being no further business, upon motion made by Director Quis, seconded by Director Ritter, the Board voted 3-0 to adjourn the August 1, 2018, special meeting of the East Moore Water District Board of Directors at 10:51am.

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Catherine Graham, Chair

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Laura M. Williams, Clerk to the Board

**MEMORANDUM TO EMWD BOARD OF DIRECTORS:**

**FROM:** Randy G. Gould, Public Works Director  
**DATE:** October 2, 2018  
**SUBJECT:** Utility Rate Study, Revised Fee Schedule and Service Contract Amendment for East Moore Water District  
**PRESENTER:** Randy G. Gould, PE

**REQUEST:**

Present the recommendations of the Rate Study for the East Moore Water District(EMWD). Approve the revised fee schedule for the East Moore Water District. Approve the Service Contract Amendment between EMWD and Moore County Public Utilities (MCPU).

**BACKGROUND:**

The State's new law which addresses impact and similar fees changed last year. Nelsnick Enterprises was selected to perform rate studies for Moore County Public Utilities and the Water Pollution Control Plant which proposed System Development Fees. The fee schedule was adopted by the Board last year for implementation this year.

The East Moore District Rate Study was performed this year by Nelsnick Enterprises. The following recommendations need to be addressed now:

- 10. Collect all relevant fees related to tapping into the system based on Tables 2.2 and 2.3
- 11. Collect SDF per Tables 2.2 and 2.3 for wastewater treatment and water treatment for the EMWD and transfer to the capital reserve funds of MCPU and WPCP

**IMPLEMENTATION PLAN:**

The implementation of the recommendations in the EMWD Rate Study will require modifications to the EMWD Fee Schedule adopted by the Board. The EMWD-MCPU Service Contract will also need to be amended to accommodate the recommendations of the Rate Study.

**FINANCIAL IMPACT STATEMENT:**

Please refer to the attachments for the Revised Fee Schedule and the Service Contract Amendment.

**RECOMMENDATION SUMMARY:**

Make a motion to approve the revised fee schedule for the East Moore Water District  
Make a motion to approve the attached Resolution and Service Contract Amendment between EMWD and MCPU

**SUPPORTING ATTACHMENTS:**

- EMWD Rate Study
- Revised EMWD Fee Schedule
- Resolution
- Service Contract Amendment between EMWD and MCPU



FINAL | October 1, 2018

Moore County's East Moore Water District  
Utility Rate Study | FINAL  
Moore County, North Carolina

October 1, 2018

Prepared for:  
Moore County Public Works Department

Prepared by:  
Nelsnick Enterprises Inc.  
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Moore County's EMWD  
Utility Rate Study | FINAL

# Executive Summary

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This Final report provides analysis and recommendations for water and wastewater rates, fees and charges for the East Moore Water District located in Moore County, North Carolina. The report is divided into five sections as follows:

- Section 1 – Introduction
- Section 2 – Services Provided
- Section 3 – Cost of Services Analysis
- Section 4 – Revenues and Expenses
- Section 5 – Findings and Recommendations

## *Major Findings*

This report presents an analysis of capacity, operating and capital costs for the East Moore Water District. For FY20, the EMWD should increase rates by 3% to recover the cost of new debt for the planned Phase 4 projects. Additional, 3% annual increases in FY21 through FY24 will allow the EMWD to develop a capital reserve for the future replacement projects. In summary the EMWD:

1. does not provide sufficient revenue to cover depreciation of assets;
2. does generate sufficient revenues to fund current cash related costs;
3. will need to raise rates to fund the debt payment of a proposed USDA loan that will be used to construct Phase 4 projects;
4. has existing cash to cover the cost of other planned projects.

## *Disclaimer*

The results of this study reveal modest 3% rate adjustments are required to maintain a positive fund balance and provide sufficient revenues for debt coverage. It assumes modest cost inflation in operations and billable volume growth. It also assumes that CIP costs do not change and are constructed as scheduled. Nelsnick recommends that these assumptions be validated annually. As part of this project a Comprehensive Financial Model (CFM) has been developed and will be provided to the MCPU staff to check these assumptions as well as to test alternative CIP's and funding scenarios.

## *Recommendations*

The following are recommendations for the MCPU's consideration:

1. Staff Training on the COSA and CFM models (Fall 2018)
2. Refine asset listing to help in managing asset replacement requirements and to allow for higher cost analysis details (Summer 2019)

3. Consider detailed billing audit to determine rate coding issues for the existing customers (Fall 2019)
4. Use CFM to verify FY20 rate increase recommendation of 3% in (Winter 2019)
5. Raise FY20 base charges and unit rates per CFM for July 1, 2019 implementation
6. Update CFM annually
7. Modify Rates as provided in updated CFM (Currently estimated at 3%/year)
8. Full Update of COSA and CFM (FY22) Combined with MCPU/WPCP
9. The annual contract is currently set at \$287,587 with an actual calculated cost of \$295,375 for FY19 based on the percentage of customers served by MCPU within the EMWD compared to the total customers served for the administrative, engineering and water quality expenses. This calculation is shown in Table 2.1. Recommend leaving contract as is currently.
- 10. Collect all relevant fees related to tapping into the systems based on **Tables 2.2 and 2.3****
11. Collect SDF per **Tables 2.2 and 2.3.** for wastewater treatment and collection and water treatment for the EMWD and transfer to the capital reserve funds of MCPU and WPCP.
12. Monitor calculated cost annually to contract<sup>1</sup> fees to ensure reasonableness.

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<sup>1</sup> The current contract has an escalation rate to account for cost.

## Section 1 - Introduction

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### Background Information

On December 18, 2000 the Board of County Commissioners, by resolution, formed the East Moore Water District (EMWD) to provide municipal water services for a specified district in eastern Moore County. The Component Unit's governing body is substantively the same as the governing body of the primary government, and the County has the operational responsibility of the EMWD. The Board of County Commissioners serves as the EMWD Board of Directors. The district does not issue separate financial statements.

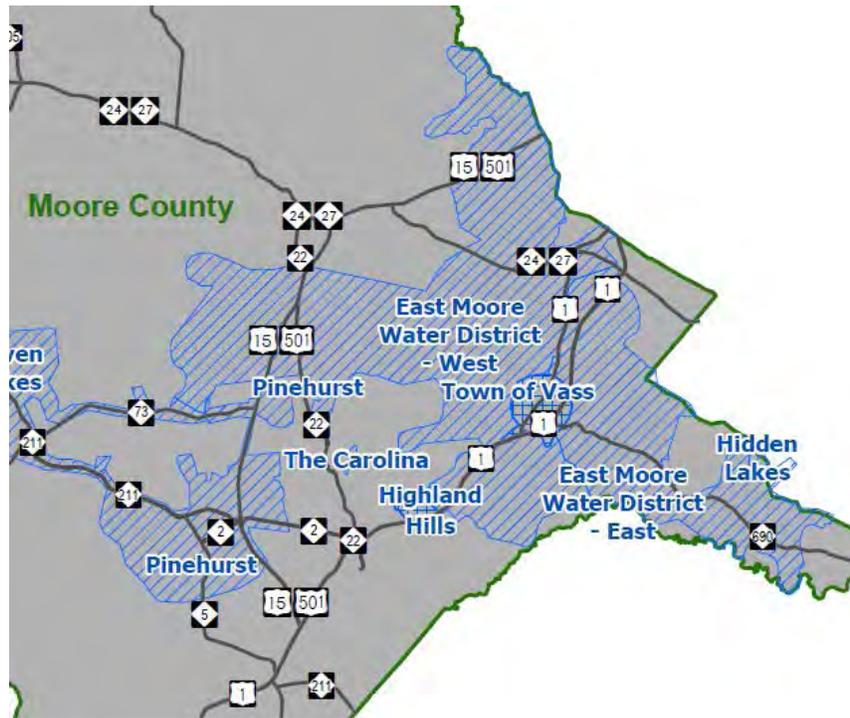
Though EMWD owns its water distribution system, it contracts with the Moore County Public Utilities (MCPU) to manage and operate it. The system currently serves approximately 2,338 residential and 44 commercial accounts. The present system is comprised of approximately 173 miles of water mains, a water tank and a booster pump station.

Water for the EMWD is supplied solely through a purchase agreement with Harnett County whose source is the Cape Fear River. After treatment, finished water is then sold to the EMWD. The present average daily demand of the District is 0.39 MGD and the current maximum contractual amount that can be acquired by Moore County is 3.0 MGD. Moore County pays \$1.85/1000 gallons plus \$0.30/1000 gallons for transport cost (energy fee) or \$2.15/1000 gallons of water resulting in a water bill of approximately \$47,000 per month.

The EMWD sells water to MCPU at five different metered connections. There is a connection located at 844 McCaskill Rd (McCaskill Road Booster Station) that averages 13.5 million gallons per month to the Pinehurst and Seven Lakes water systems. Another connection is located at the intersection of Lobelia Road and White Rock Road that averages at approximately 2.0 million gallons per month to the Vass water system. A third connection is located at the intersection of US-1 and Valley View Road that averages 600,000 gallons per month to the Hyland Hills system. There are additional connections at Union Church Road in Vass and Alma Street. The EMWD's general water district boundary is depicted in the **Figure 1**.

The current wholesale rate to Vass is \$2.40 per 1000 gallons, and for Hyland Hills, Niagara and Pinehurst is \$2.65 per 1000 gallons. Total revenues for EMWD include \$1,267,987 in retail water sales and \$865,313 in wholesale water, taps and other revenues for a total of \$2,133,300 in FY18.

Figure 1.1  
EMWD Water District Boundary



### EMWD Debt

The EMWD has two outstanding debts. This includes a \$3,760,000 – 2011 USDA Bonds due in annual principal installments of \$52,000 to \$153,000 through June 1, 2049, plus interest at 3.25% with a current balance of \$ 3,192,378. And an \$8,750,000 – Series 2016 General Obligation (GO) Refunding Bonds due in annual principal installments of \$165,000 to \$420,000 through June 1, 2046, plus interest at 2.0% to 5.0% with a current balance of \$8,400,000. This results in a total debt serviced by the EMWD Enterprise Fund of \$11,592,378.

On December 15th, 2016, the East Moore Water District (EMWD) issued refunding bonds in the amount of \$8,750,000 for the USDA Bonds being refinanced. The County then issued Limited Obligation Bonds (LOB), Series 2016 to purchase these bonds. When debt service is due, EMWD will remit the debt service payments to the County, who will then remit it to the bondholders. On December 15, 2016, the County paid off the USDA GO Water Bonds, Series 2003, USDA GO Water Bonds, Series 2008A and USDA GO Water Bonds, Series 2008B in the amount of \$8,595,500. The County benefited a total savings of \$373,798 on debt service payments.

The EMWD is a blended component unit of the County. On the fund statements, the amounts owed to the County to make the payments for the LOBs are classified as "Due to Public Utilities (County)" in the EMWD Fund, and as "Due from EMWD" in the Public Utilities Fund. On the government-wide statements, these amounts are eliminated. Therefore, when

government-wide statements' debt totals are compared to the total debt in the notes, the amount will differ by the amount eliminated for this LOB debt. \$8,400,000 is recorded as Due from the EMWD Fund and is eliminated in government-wide statements.

### *Wastewater System*

The EMWD does not own the wastewater system assets within the water district's boundaries. As such, the base and unit rates are calculated as part of the MCPU Water and Sewer Utility Rate Study. The MCPU Water and Sewer Utility Rate Study was performed in 2017 with recommendation for both water and wastewater base and unit charges for the EMWD. However, a formal cost analysis for the EMWD water system was not performed at that time.

### *Maintenance, Extension and Expansion*

Maintenance of system components allows for extending the useful life of infrastructure and increasing its value. Extension projects allow for serving new areas not currently served and expansion projects allow for more customers or volume within an existing service area. The primary funding for capital projects typically comes from three sources: debt issuance, system revenues and connection fees. Maintenance is performed by the MCPU through an existing contract.

### *Data Sources*

For this study, the data sources included the FY17 infrastructure/asset listing, FY13 - FY17 Comprehensive Annual Financial Reports (CAFR), monthly water and wastewater billing volumes, FY18 unaudited estimates, FY19 DRAFT Budget, 2-month revenues for FY19, existing debt amortization schedules, and proposed project costs.

### *Acknowledgements*

The development of this report was made possible through assistance of the Moore County staff. This included provision of data by Mr. Randy Gould, Mr. Leonard McBryde, Ms. Kris Klug, Ms. Megan Skjellerup and Ms. Linda Matthews. Several other Moore County team members provided valuable information and assistance throughout this evaluation. Contributions from Ms. Caroline Xiong, Ms. Mary Munz, are greatly appreciated and acknowledged as well.

### *Definitions*

The following definitions are used as part of this study.

***Capital Improvements Program (CIP)*** – A listing of planned water and wastewater systems' projects and their anticipated costs, design and construction schedule provided by the County and utilized when appropriate in these evaluations.

***Collection Component*** – A component of the wastewater system that is used to transport wastewater from a customer to the treatment plant and includes sewers, interceptors, trunk lines, lift stations and any associated storage or other buildings.

**Book Value** – The value of an asset that is carried on the County's balance sheet. This may also be referred to as its acquisition cost.

**Net Book Value** – The value calculated by taking the acquisition cost (book value) of an asset minus the accumulated depreciation.

**Depreciation** – The reduction of value of physical assets for accounting purposes. There is a strong relationship between an asset's useful life and the time it takes the asset to reach a zero-book value<sup>2</sup>.

**Net Present Value** – The current value of a stream of future payments and/or assets using an acceptable discount rate.

**Developer Contribution** – A contribution of physical assets to the EMWD for either the water or wastewater systems. These assets meet the needs of a specific development and do not typically add additional system-wide distribution or collection capacity. These assets will need to be replaced or upgraded by the EMWD upon completion of their useful life.

**Developer Project or Improvement** – A water or wastewater system project or improvement that serves a specific development. These are usually required as part of the development regulations of the community. These typically become a developer contribution.

**Discount Rate** – The interest rate used in determining net present value for future assets. Generally, the interest rate is set at an expected inflation rate or revenue bond rate and is used to reflect the time value of money.

**Distribution Component** – A component of the water system that is used to provide potable water to the customer and includes transmission lines, pumping stations, storage tanks, additional in-distribution treatment<sup>3</sup>, meters<sup>4</sup> and any associated storage or other buildings.

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<sup>2</sup> A physical asset would usually have usefulness after being fully depreciated; however, when used in some connection fee methodologies, the depreciated asset value provides a more conservative approach by providing a lower system value.

<sup>3</sup> Treatment within the distribution system is needed to maintain water quality standards. These facilities are not for the treatment of raw water.

<sup>4</sup> The initial meter is paid for up front by the customer and not included in the system value for a potential connection fee calculation; replacement meters, however, are included.

***Equivalent Dwelling Unit (EDU)*** – A representative average or peak volume of a single-family household. This volume symbolizes consumption of a  $\frac{5}{8}$ -inch or  $\frac{3}{4}$ -inch meter used to serve a typical single-family dwelling. This may be used as the basis for calculating the potential capacity of larger meters in terms of EDU's.

***Construction-in-progress*** – Projects that have not been completed but started. They do not appear on the asset listing of Moore County. If the completion date extends beyond a single year, they may also be found on the CIP.

***Specialized Contribution*** – A contribution that is not a developer contribution. These contributions may be in the form a public-private arrangement or a public-public arrangement (intergovernmental agreement). They are treated like a developer contribution in that they are not included in the connection fee calculations. However, unlike developer contributions, system capacity may be added. In this situation, the cost of the capacity may require a credit depending on funding source.

***System Project or Improvement*** – A water or wastewater project that provides additional capacity or replaces existing capacity that serves beyond a single development.

***Wastewater Treatment Component*** – A component of the wastewater system used to process raw sewage into a dischargeable form and includes treatment plants, discharge facilities, associated buildings and storage and lift stations at the treatment plants.

***Water Treatment Component*** – A component of the water system used to process raw water into a potable form and includes supply, raw water transmission, treatment plants, associated buildings, storage and pumping stations at the treatment plants.

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## Section 2 – Services Provided

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### Introduction

The EMWD provides potable water to retail customers within its district boundaries. Additionally, water is provided at sufficient pressure and quantity for fighting fires. Finally, the EMWD's water system serves as the main transmission route of water from Harnett County to the Moore County Public Utilities service area. Customers in the EMWD pay a monthly base charge and unit charge for volume of water metered. The rate structure allows cost recovery of debt, purchased water and operations and maintenance of the system. The EMWD does not provide water treatment or laboratory services. Customer service, management and maintenance are provided by the MCPU as discussed below.

### Operations Contract

MCPU provides for the operations, administration, engineering, water quality testing and maintenance of the EMWD. These services are provided by contract, for which, MCPU is compensated on an annual basis in four quarterly installments. Additionally, MCPU receives reimbursement for each new tap installed in the EMWD. The EMWD pays for any capital infrastructure needs, equipment, tools and materials. **Table 2.1** summarizes the cost of services for FY17 – FY19 for MCPU and prorates this cost to the EMWD based on the number of customers.

**Table 2.1**  
**Cost of Services**

<b>Water Services</b>	<b>FY17</b>	<b>FY18</b>	<b>FY19</b>
General Admin/Engineering/Water Qual.	\$1,898,994	\$1,974,953	\$2,053,952
Public Utility Customers	13,374	13,637	13,905
EMWD Customers	2,246	2,290	2,335
<b>Total</b>	<b>15,620</b>	<b>15,927</b>	<b>16,240</b>
Cost of Services			
Public Utility Customers	\$1,625,948	\$1,690,962	\$1,758,577
<b>EMWD Customers</b>	<b>\$273,046</b>	<b>\$283,991</b>	<b>\$295,375</b>

The FY17 Utility Rate Study for MCPU updated the tap fee for new water and wastewater services. A new North Carolina law requires that any capacity related charges, also known as system development fees (SDF), be calculated as part of a system development fee analysis.

Moore County's EMWD  
Utility Rate Study | FINAL

Such an analysis was performed, and it was determined that due to the debt load a SDF could not be charged for the EMWD Distribution System assets. However, the law does not prevent Moore County Public Utilities (MCPU) from charging an SDF related to the Water Treatment component. The SDF Analysis was performed earlier this year and posted for public comment. A public hearing on adoption of the SDF was performed on May 1, 2018. The water treatment component was calculated to be \$932 per Equivalent Dwelling Unit (EDU). A credit for the treatment debt portion  $\$1,143 \times 43\% = \$491/\text{EDU}$  is applied to arrive at a Water Treatment SDF of \$652/EDU.

Since MCPU owns the collection system assets in EMWD, the full wastewater SDF may be charged. The East Moore Water District's wastewater SDF revenues can be collected and provided to MCPU. However, since the rate credit is doubled, the SDF calculates to \$687 per EDU.

Also, a utility can recover the cost of tapping into the water or wastewater system or collect for other user fees. These fees are usually charged for specific services and are recovered directly from the requesting customer.

The latest cost calculation for tap fees was performed in 2017 and resulted in the following fees. An administration fee of \$50 is added to recover administrative tasks related to tracking connection information. The tap fee is for recovering cost associated with materials and labor for the connection from the water or sewer main to the property. The meter set fee (MSF) is added to recover the cost of the meter and its installation. The current operations contract requires the EMWD reimburse MCPU \$1,450 per tap and \$100 per meter set, or \$1,550 total.

**Tables 2.2 and 2.3** provide full cost connection costs with a phased in SDF as recommended in the System Development Fee Analysis dated March 7, 2017 revised April 30, 2017 to address comments received during 45-day review period. Clarification in the contract is recommended on these costs as it relates to meter size. Also, since the SDF law requires accounting the SDF separately, these funds will need to be placed in a capital reserve fund.

**Table 2.2**  
**Fees for New Water System Connections**

Descriptions	Admin	Tap	MSF	SDF Treatment	Total
<b>3/4"</b>	\$50	\$973	\$300	\$652	\$1975
<b>1"</b>	\$50	\$953	\$390	\$1630	\$3023
<b>2"</b>	\$50	\$1,243	\$2,820	\$5,216	\$9,329
<b>3"</b>	\$50	\$8,290	\$2,920	\$10,432	\$21,692
<b>4"</b>	\$50	\$8,148	\$4,190	\$16,300	\$28,688
<b>6"</b>	\$50	\$9,477	\$6,060	\$32,600	\$48,187

**Table 2.3  
 Fees for New Sewer System Connections**

<b>Descriptions</b>	<b>Admin</b>	<b>Tap</b>	<b>SDF</b>	<b>Total</b>
<b>4"</b>	\$50	\$1,158	\$687	\$1,895
<b>6"</b>	\$50	\$1,382	\$687	\$2,119

Please note that a SDF is applicable for both water and sewer connections. The sewer collection assets are part of the MCPU Enterprise Fund and the wastewater treatment plant is part of the WPCP Enterprise Fund. Please note that the \$687 for wastewater is per EDU<sup>5</sup>. The water source assets are owned by MCPU. A System Development Fee Analysis was performed, and a portion of the cost can be collected and provided to each of these Funds under the restrictions set forth in the North Carolina System Development Fee Act. The SDF is a new fee and not included in the original operation contract.

## EMWD Capital Replacement and Extension/Expansion

The EMWD is responsible for all capital replacements, extensions and expansion needs for the system.

The EMWD water distribution system is relatively new and is in good condition. The expected useful life of the PVC water mains is 50 to 75 years, and the Phase 1 (oldest) water mains have been in service for only 14 to 15 years. There have been no significant problems with water quality or water pressure reported inside the EMWD.

A phase 4 project is under consideration that would expand the EMWD service area for residents living on Murdocksville Rd., Juniper Lake Rd., and adjacent roads. The project is estimated to pick up 113 new residential customers.

There is currently no formal plan for addressing capital needs and existing financial performance indicate that depreciation is currently not being funded. Debt proceeds is an appropriate fund source for expansions and extensions as some of the cost can be deferred to future customers. Replacement of assets, however, should be funded by existing customers and through water and sewer base and unit charges. Given that the system is relatively new, major cost should not occur for several years. A capital asset renewal and replacement fund developed over time would reduce impact to the customers. This process is discussed in detail in Section 4 of this report.

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<sup>5</sup> The EDU for wastewater is 307 gallons per day. Development requiring larger volumes should be charge in EDU equivalent. i.e. a request for 3,070 gallons per day would be 10 EDU’s

## Findings

The EMWD is a geographic area in east Moore County that has unique costs associated with provision of water and wastewater services. The EMWD owns the water distribution assets; however, there are no personnel associated with the district. The Board of Commissioners serve on the EMWD Board. The Moore County Public Utilities provides the staff needed to operate and maintain the system.

A new contract is in process of being written to account for findings of this study and the impact of new State Law. The following recommendations are based on these findings.

1. The annual contract is currently set at \$287,587 with an actual calculated cost of \$295,375 for FY19 based on the percentage of customers served by MCPU within the EMWD compared to the total customers served for the administrative, engineering and water quality expenses. This calculation is shown in Table 2.1 above. Recommend leaving contract as is currently.
2. Collect all relevant fees related to tapping into the systems based on **Tables 2.2 and 2.3.**
3. Collect SDF per **Tables 2.2 and 2.3.** for wastewater treatment and collection and water treatment for the EMWD and transfer to the capital reserve funds of MCPU and WPCP.
4. Monitor calculated cost annually to contract<sup>6</sup> fees to ensure reasonableness.

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<sup>6</sup> The current contract has an escalation rate to account for cost.

## Section 3 – Cost of Service Analysis

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The costs incurred in a water utility are generally responsive to the specific service requirements imposed on the system by its customers. Each of the various water utility facilities are designed, sized and constructed to meet one or more of these cost drivers. Additionally, the capital costs incurred in installation of these facilities as well as the operation and maintenance expenses incurred in running the system are in turn linked to these service requirements. The principle service requirements that drive the costs include the annual volume of water consumed, the peak water demands incurred, the number of customers in the system and the number of fire services required to maintain adequate fire protection.

Each class of customers of the water utility has a specific level of service or cost responsibility associated with each of these cost components.

This section provides an analysis of system expenses to determine if the existing rate structure is adequately addressing various customer class costs. The analysis is based on the American Water Works Association Base-Extra Capacity methodology.

The Base-Extra Capacity methodology is one of the two most widely used methods of allocating costs of system operation and maintenance. In this methodology, costs are usually separated into four primary cost components as follows:

- Base costs
- Extra Capacity costs
- Customer costs
- Direct fire protection costs

Additionally, the extra capacity costs are further divided into peak day and peak hour costs.

### *System Characteristics*

The EMWD pumps an average of 0.39 MGD of water into the retail distribution system based on summation of the water accountability spreadsheets<sup>7</sup> provided by the Moore County. The water accountability spreadsheets were also used to get the total water pumped by month for FY17. The peak month was June 2017 at 0.45 MGD. Peak day and peak hour records were not available, these were estimated using typical peaking factors.

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<sup>7</sup> The water accountability spreadsheets provided billed volume and delivered water for each system within the MCPU on a month to month basis.

**Table 3.1** provides the peak month, day and hour used to calculate the allocation percentages used in subsequent tables.

**Table 3.1  
 System Pumping Characteristics  
 East Moore Water District**

<b>System Statistic</b>	<b>Value</b>	<b>Unit</b>
Average Day	0.39	MGD
Peak Month Average Day	0.45	MGD
Peak Day to Peak Month Average Day Ratio	1.2	Consultant Assumption
Peak Day	0.54	MGD
Peak Hour to Peak Day Ratio	1.7	Consultant Assumption
Peak Hour	0.92	MGD

**Asset Value**

Asset value is assigned to various cost areas based on system characteristics. Water supply primarily serves average (Base) cost and is allocated at 100% to the Base. An average day to peak day ratio of 72% (0.39 MGD/0.54 MGD) is calculated and used for the base cost for pumping, treatment and transmission. Tanks are primarily used at peak-hour demand to maintain system pressures and are allocated at 90% to peak-hour cost. EMWD uses a 12-hour supply for storage tank design criteria. However, the EMWD's tank primarily serves to maintain system pressure in peak-hour demand periods.

Distribution mains are primarily designed for peak-hour usage. The percentage is established by taking the difference between the peak day and peak hour and dividing by the peak hour  $((0.92-0.54)/0.92) = 41.3\%$ . The Base is calculated by taking the average day divided by the peak hour or  $(0.39/0.92) = 42.4\%$ . The remaining 16.3%  $(100\%-41.3\%-42.4\%)$  is allocated to the peak day cost component.

**Table 3.2** provides a summary of how asset value is allocated. General assets are a weighted average of the other asset allocations.

**Tables 3.3 – 3.6** provide the calculations that determine the rate base for the EMWD water system. The rate base for the FY17 test year is used to determine if the current rate structure is adequately addressing various customer class related costs. This will also allow to project future needs and alternative rate structures.

**Table 3.3** provides the net book value of the Moore County's water system. The asset values were provided by the Moore County's Finance Department for the FY17 test year. Each component is then allocated to either base, day, hour, customer or fire related costs.

**Table 3.2**  
**Asset Value Cost Allocation**  
**Base-Extra Capacity**

		Total	Base	Day	Hour	Customer	Fire
	<b>Intangible</b>						
1	Organization		50%	17%	17%	16%	
	<b>Water Supply</b>						
2	Land		100%	0%			
3	Reservoir		100%	0%			
	<b>Pumping</b>						
4	Land		72%	28%			
5	Structures		72%	28%			
6	Pumping Equipment		72%	28%			
7	Other		72%	28%			
	<b>Water Treatment</b>						
8	Structures		72%	28%			
9	Plant		72%	28%			
	<b>Transmission/Distribution</b>						
10	Land		10%		90%		
11	Structures		10%		90%		
12	Tanks		10%		90%		
13	Transmission Mains		72%	28%			
14	Distribution Mains		42%	16%	42%		
15	Service Lines					100%	
16	Meters					100%	
17	Hydrants						100%
	<b>General</b>						
18	Land						
19	Structures		42%	16%	42%	0%	0%
20	Other						
<b>21</b>	<b>Net</b>						
22	Materials & Supplies						
23	Working Capital						
24	Construction-in-Progress		42%	16%	42%		
25	Contributions						
<b>26</b>	<b>Rate Base</b>						

Note: Item 19 General Structures is the weighted average of Items 1-18.

**Table 3.3** uses the latest asset listing (FY18) and the allocations in **Table 3.2** to calculate values for base, day, hour, customer and fire related costs.

**Table 3.3**  
**Assets Net Book Value Cost Allocation**  
**Base-Extra Capacity**

		Total	Base	Day	Hour	Customer	Fire
	<b>Intangible</b>						
1	Organization		\$0	\$0	\$0	\$0	\$0
	<b>Water Supply</b>						
2	Land	\$0	\$0	\$0	\$0	\$0	\$0
3	Reservoir		\$0	\$0	\$0	\$0	\$0
	<b>Pumping</b>						
4	Land	\$0	\$0	\$0	\$0	\$0	\$0
5	Structures	\$0	\$0	\$0	\$0	\$0	\$0
6	Pumping Equipment	\$0	\$0	\$0	\$0	\$0	\$0
7	Other	\$0	\$0	\$0	\$0	\$0	\$0
	<b>Water Treatment</b>						
8	Structures		\$0	\$0	\$0	\$0	\$0
9	Plant	\$0	\$0	\$0	\$0	\$0	\$0
	<b>Transmission/Distribution</b>						
10	Land	\$21,998	\$2,200	\$0	\$19,798	\$0	\$0
11	Structures	\$0	\$0	\$0	\$0	\$0	\$0
12	Tanks	\$0	\$0	\$0	\$0	\$0	\$0
13	Transmission Mains	\$0	\$0	\$0	\$0	\$0	\$0
14	Distribution Mains	\$11,712,133	\$4,964,926	\$1,909,587	\$4,837,620	\$0	\$0
15	Service Lines	\$0	\$0	\$0	\$0	\$0	\$0
16	Meters	\$0	\$0	\$0	\$0	\$0	\$0
17	Hydrants	\$0	\$0	\$0	\$0	\$0	\$0
	<b>General</b>						
18	Land	\$0	\$0	\$0	\$0	\$0	\$0
19	Structures	\$0	\$0	\$0	\$0	\$0	\$0
20	Other	\$0	\$0	\$0	\$0	\$0	\$0
<b>21</b>	<b>Net</b>	<b>\$11,734,131</b>	<b>\$4,967,126</b>	<b>\$1,909,587</b>	<b>\$4,857,418</b>	<b>\$0</b>	<b>\$0</b>
22	Materials & Supplies	\$0	\$0	\$0	\$0	\$0	\$0
23	Working Capital	\$0	\$0	\$0	\$0	\$0	\$0
24	Construction- in- Progress	\$2,449,250	\$1,038,269	\$399,334	\$1,011,647	\$0	\$0
25	Contributions	\$0				\$0	
<b>26</b>	<b>Rate Base</b>	<b>\$14,183,381</b>	<b>\$6,005,395</b>	<b>\$2,308,921</b>	<b>\$5,869,065</b>	<b>\$0</b>	<b>\$0</b>

The total net book value of the water system is \$11,734,131 for FY17. The components of this value are provided in the table above in row ID 21. The construction in progress is related to the Phase 4 project.

**Depreciation**

Depreciation cost is similarly allocated. **Table 3.4** provides depreciation allocations and **Table 3.5** provides the results of these allocations.

**Table 3.4**  
**Allocation Percentages of Depreciation Cost**  
**Base-Extra Capacity**

			Base	Day	Hour	Customer	Fire
	<b>Intangible</b>						
1	Organization		50%	17%	17%	16%	
	<b>Water Supply</b>						
2	Land		100%	0%			
3	Reservoir		100%	0%			
	<b>Pumping</b>						
4	Land		72%	28%			
5	Structures		72%	28%			
6	Pumping Equipment		72%	28%			
7	Other		72%	28%			
	<b>Water Treatment</b>						
8	Structures		72%	28%			
9	Plant		72%	28%			
	<b>Transmission/Distribution</b>						
10	Land		10%		90%		
11	Structures		10%		90%		
12	Tanks		10%		90%		
13	Transmission Mains		72%	28%			
14	Distribution Mains		42%	16%	42%		
15	Service Lines					100%	
16	Meters					100%	
17	Hydrants						100%
	<b>General</b>						
18	Land						
19	Structures		42%	16%	42%	0%	0%
20	Other						
<b>21</b>	<b>Net</b>						
22	Materials & Supplies						
23	Working Capital						
24	Construction in Progress		42%	16%	42%		
25	Contributions						
<b>26</b>	<b>Rate Base</b>						

Note: Item 19 General Structures is the weighted average of Items 1-18. Allocations may differ from those in **Table 3.2** due to assets having different depreciation schedules.

**Table 3.5**  
**Allocation of Depreciation Cost**  
**Base-Extra Capacity**

		Total	Base	Day	Hour	Customer	Fire
	<b>Intangible</b>						
1	Organization	\$0	\$0	\$0	\$0	\$0	\$0
	<b>Water Supply</b>						
2	Land	\$0	\$0	\$0	\$0	\$0	\$0
3	Reservoir	\$0	\$0	\$0	\$0	\$0	\$0
	<b>Pumping</b>						
4	Land	\$0	\$0	\$0	\$0	\$0	\$0
5	Structures	\$0	\$0	\$0	\$0	\$0	\$0
6	Pumping Equipment	\$0	\$0	\$0	\$0	\$0	\$0
7	Other	\$0	\$0	\$0	\$0	\$0	\$0
	<b>Water Treatment</b>						
8	Structures	\$0	\$0	\$0	\$0	\$0	\$0
9	Plant	\$0	\$0	\$0	\$0	\$0	\$0
	<b>Transmission/Distribution</b>						
10	Land	\$0	\$0	\$0	\$0	\$0	\$0
11	Structures	\$0	\$0	\$0	\$0	\$0	\$0
12	Tanks	\$0	\$0	\$0	\$0	\$0	\$0
13	Transmission Mains	\$0	\$0	\$0	\$0	\$0	\$0
14	Distribution Mains	\$481,804	\$204,243	\$78,555	\$199,006	\$0	\$0
15	Service Lines	\$0	\$0	\$0	\$0	\$0	\$0
16	Meters		\$0	\$0	\$0	\$0	\$0
17	Hydrants	\$0	\$0	\$0	\$0	\$0	\$0
	<b>General</b>						
18	Land	\$0	\$0	\$0	\$0	\$0	\$0
19	Structures	\$0	\$0	\$0	\$0	\$0	\$0
20	Other	\$0	\$0	\$0	\$0	\$0	\$0
<b>21</b>	<b>Net</b>	<b>\$481,804</b>	<b>\$204,243</b>	<b>\$78,555</b>	<b>\$199,006</b>	<b>\$0</b>	<b>\$0</b>
22	Materials & Supplies	\$0	\$0	\$0	\$0	\$0	\$0
23	Working Capital	\$0	\$0	\$0	\$0	\$0	\$0
24	Construction- in- Progress	\$0	\$0	\$0	\$0	\$0	\$0
25	Contributions	\$0				\$0	
<b>26</b>	<b>Rate Base</b>	<b>\$481,804</b>	<b>\$204,243</b>	<b>\$78,555</b>	<b>\$199,006</b>	<b>\$0</b>	<b>\$0</b>

*Operations and Maintenance (O&M)*

**Table 3.6** provides the allocation percentages used on operation and maintenance costs. Uncollected Accounts and administration and general costs are based on the weighted average of the other allocations. Hydrants are allocated 100% to fire protection. Though hydrants are also used of flushing the system and hydrant meter sales, their primary purpose is for fire protection. Please note that though fire protection will incur a peak hour and peak day cost, this is accounted for later in **Table 3.8**.

**Table 3.6**  
**Allocation Percentages of O&M Cost**  
**Base-Extra Capacity**

		Total	Base	Day	Hour	Meters & Services	Billing & Collection	Fire
	<b>Intangible</b>							
1	Supplied Water		100%	0%	0%	0%		
	<b>Pumping</b>							
2	Purchased Power		90%	10%				
3	Other		72%	28%				
	<b>Water Treatment</b>							
4	Chemicals		100%	0%				
5	Other		72%	28%				
	<b>Transmission/Distribution</b>							
6	Storage		10%		90%			
7	Transmission Mains		72%	28%				
8	Distribution Mains		42%	16%	42%			
9	Meters & Services					100%		
10	Hydrants							100%
11	Other		42%	16%	42%	0%	0%	0%
	<b>Customer Accounting</b>		10%		90%			
12	Meter Reading/Billing						100%	
13	Uncollected Accounts		86%	4%	10%	0%	0%	0%
	<b>Admin &amp; General</b>							
14	Salaries		86%	4%	10%	0%	0%	0%
15	Benefits		86%	4%	10%	0%	0%	0%
16	Insurance		86%	4%	10%	0%	0%	0%
17	Other		86%	4%	10%	0%	0%	0%
18	Total O&M Expenses							
19	Non-rate Revenue		86%	4%	10%	0%	0%	0%

Note: Items 13 – 19 are the weighted average of items 1 - 12

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**Table 3.7 below**, allocates the O&M costs. The values are based on the FY17 actual costs obtained from the Public Utility Historic Comparison spreadsheet. A few categories of cost in the Transmission/Distribution area are estimated based on professional judgement. The non-rate revenue is an estimate only and includes tap fees and wholesale water to other communities/jurisdictions.

**Table 3.7  
Allocation of O&M Cost  
Base-Extra Capacity**

		Total	Base	Day	Hour	Meters & Services	Billing & Collection	Fire
	<b>Intangible</b>							
1	Supplied Water	\$974,298	\$974,298	\$0	\$0	\$0		\$0
	<b>Pumping</b>							
2	Purchased Power	\$0	\$0	\$0	\$0	\$0		\$0
3	Other	\$0	\$0	\$0	\$0	\$0		\$0
	<b>Water Treatment</b>							
4	Chemicals	\$0	\$0	\$0	\$0	\$0		\$0
5	Other	\$0	\$0	\$0	\$0	\$0		\$0
	<b>Transmission/Distribution</b>							
6	Storage	\$0	\$0	\$0	\$0	\$0		\$0
7	Transmission Mains	\$0	\$0	\$0	\$0	\$0		\$0
8	Distribution Mains	\$305,461	\$129,489	\$49,803	\$126,169	\$0		\$0
9	Meters & Services	\$0	\$0	\$0	\$0	\$0		\$0
10	Hydrants	\$0	\$0	\$0	\$0	\$0		\$0
11	Other	\$0	\$0	\$0	\$0	\$0		\$0
	<b>Customer Accounting</b>							
12	Meter Reading/Billing	\$0	\$0	\$0	\$0	\$0	\$0	\$0
13	Uncollected Accounts	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	<b>Admin &amp; General</b>							
14	Salaries	\$0	\$0	\$0	\$0	\$0	\$0	\$0
15	Benefits	\$0	\$0	\$0	\$0	\$0	\$0	\$0
16	Insurance	\$0	\$0	\$0	\$0	\$0	\$0	\$0
17	Other	\$0	\$0	\$0	\$0	\$0	\$0	\$0
18	Total O&M Expenses	\$1,279,759	\$1,103,787	\$49,803	\$126,169	\$0	\$0	\$0
19	Non-rate Revenue	\$700,000	\$603,747	\$27,241	\$69,011	\$0	\$0	\$0

**Volumes**

Volumes are used to determine how to allocate these costs to each customer class. Peaking factors for each customer class is estimated using monthly billed volumes and the AWWA M1 manual methodology for coincident peaking factors. Fire protection volume is estimated for a typical fire. Meters are allocated based on an equivalency ratio provided by the AWWA M1 manual. **Table 3.8** summarizes the volume characteristics by customer class and for fire protection.

**Table 3.8**  
**Volumes by Class**  
**Base-Extra Capacity**

	Customer Class	Base Volume (1000 Gallons)		Maximum Day Units			Peak Hour Units			Customer Related		
		Annual	Avg.	Peaking Factor	Total	Extra	Peaking Factor	Total	Extra	Meters in EDU's	Acct's	Billings
1	Residential	116,203	318	1.72	548	230	3.52	1,120	572	2,636	2,354	31,638
2	Commercial	11,625	32	1.51	48	16	3.09	99	51	194	64	768
3	Fire Protection		-		180	180		2,160	1,980	-		-
4	Total	127,828	350		776	426		3,379	2,603	2,830		32,406

**Table 3.9** summarizes the breakdown of costs using the total units provided in **Table 3.8**.

**Table 3.9**  
**Allocation of Cost**  
**Base-Extra Capacity**

		Total	Base	Day	Hour	Meters & Services	Billing & Collection	Fire
1	Total System		127,828	426	2,603	2,830	32,406	
	Units		1000 gal	1000 gpd	1000 gpd	Meter Equivalent	Bills	
	<b>O&amp;M Expenses</b>							
2	Total	\$1,279,759	\$1,103,787	\$49,803	\$126,169	\$0	\$0	\$0
3	\$/Unit		\$8.63	\$116.91	\$48.47	\$0.00	\$0.00	
	<b>Depreciation</b>							
4	Total	\$481,804	\$204,243	\$78,555	\$199,006	\$0		\$0
5	\$/Unit		\$1.60	\$184.40	\$76.45	\$0.00		
	<b>Non-rate Revenue</b>							
6	Total	-\$700,000	-\$603,747	-\$27,241	-\$69,011	\$0	\$0	\$0
7	\$/Unit		(\$4.72)	(\$63.95)	(\$26.51)	\$0.00	\$0.00	
	<b>Rate Base</b>							
8	Total	\$14,183,381	\$6,005,395	\$2,308,921	\$5,869,065	\$0		\$0
9	\$/Unit		\$46.98	\$5,420.00	\$2,254.73	\$0.00		
	<b>Unit Return on Rate Base (3%)</b>							
10	Retail		\$1.41	\$162.60	\$67.64	\$0.00		
11	\$/Unit		\$6.92	\$399.96	\$166.05	\$0.00	\$0.00	

**Table 3.10** allocates these costs to each customer class and to fire protection. The fire protection costs can be recouped through monthly billing or through rates. These costs are compared to actual revenues received to determine rate increase requirements in **Table 3.11**.

**Table 3.10**  
**Allocation of Cost to Customer Classes and Fire Protection**  
**Base-Extra Capacity**

			Base Volume	Peak Day	Peak Hour	EDU's	Bills
	<b>Residential</b>						
2	Units		116,203	230	572	2,636	31,638
3	Allocated Cost	\$990,985	\$804,011	\$91,992	\$94,982	\$0	\$0
	<b>Commercial</b>						
4	Units		11,625	16	51	194	2,327
5	Allocated Cost	\$95,302	\$80,434	\$6,399	\$8,469	\$0	\$0
	<b>Fire Protection</b>						
6	Units		-	180	1,980	-	-
7	Allocated Cost	\$400,778	\$0	\$71,994	\$328,784	\$0	\$0
<b>8</b>	<b>Total Cost</b>	<b>\$1,487,064</b>	<b>\$884,445</b>	<b>\$170,385</b>	<b>\$432,235</b>	<b>\$0</b>	<b>\$0</b>

These costs can be compared to existing collection of revenues by customer class to determine if the current rate structure is fair and adequate. These evaluations are presented in **Section 4** of this report. The fire protection costs are prorated based on meter equivalency to determine the overall need.

The calculated FY17 total customer cost requirement through rates is \$1,487,064 as shown in **Table 3.10 Line item 8**. This is a calculated cost estimate based on the AWWA Base-Extra Capacity methodology. It is a management goal to maintain the lowest rates while still being able to cover operation and maintenance costs and to generate sufficient revenues for replacement of assets. This objective can be accomplished by obtaining new debt with revenues covering new debt service, pay-as-you-go with revenues covering capital needs, or a combination of both alternatives. Moore County prefers to use pay-as-you go with future debt being short-term (10-years) only if needed.

**Table 3.11** summarizes the result of the FY17 test year of customer class service costs.

**Table 3.11**  
**Cost of Service Test Year**  
**By Customer Class**

	FY17 (Test Year)			
	Actual*	Required	Difference	Increase Needed
Commercial	\$81,000	\$122,760	(\$41,760)	51.6%
Residential	\$1,176,982	\$1,364,304	(\$187,322)	15.9%
Total	\$1,257,982	\$1,487,064	(\$229,082)	

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Please note the AWWA base-extra capacity methodology uses the utility basis for determining cost. *It is an acceptable method for determining relative cost by customer class.* Also, FY17 is the latest audit available and was therefore used as the test year. The increases shown are primarily due to unfunded depreciation. *However, many government-owned water and wastewater systems budget on a cash needs basis,* which will be used for FY18 and projecting forward. In the next section, we explore the cash needs of the EMWD. This will include an analysis of recently acquired debt, proposed new debt and the proposed capital improvements program (CIP). By combining the AWWA COSA methodology with a cash flow analysis, we will be able to make recommendations for rates by customer class, service, and service area.

## Section 4 – Revenues and Expenses

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### Revenues

Revenues and expenses have been projected over the next five years to determine rate increase requirements to maintain minimal debt coverage ratios and positive fund balances. Historic revenues and expenses were analyzed to determine system base growth trends.

**Table 4.1** provides historical revenues from FY16 – FY18<sup>8</sup>.

**Table 4.1**  
**EMWD’s Water and Sewer Revenues**

	Actuals		
	FY16	FY17	FY18
Water Sales	\$1,132,348	\$1,223,722	\$1,484,912
Sewer Sales	\$5,898	\$5,477	\$5,458
Irrigation	\$7,321	\$18,248	\$17,448
Other	\$700,000	\$700,000	\$700,000
EMWD Water Sales Projections	\$0	\$0	\$0
<b>Total</b>	<b>\$1,845,567</b>	<b>\$1,947,447</b>	<b>\$2,207,818</b>

### Expenses

**Table 4.2** summarizes the EMWD cash expenses for water and sewer<sup>9</sup>. These are compared to total revenues to determine net cash. Depreciation is not included for determining cash flow. It should also be noted that sewer expenses are minimal as most customers within the EMWD appear to be on septic systems.

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<sup>8</sup> Source: Billing Data Analysis

<sup>9</sup> Source: Comprehensive Annual Financial Reports

**Table 4.2**  
**EMWD's Water and Sewer Expenses**

East Moore WD	Actual		
	FY16	FY17	FY18
<b>EMWD Expenses</b>	<b>\$1,601,706</b>	<b>\$1,907,560</b>	<b>\$1,951,561</b>
General Expenses			
Operational Expenses	\$753,281	\$862,113	\$974,298
Professional Services	\$167,024	\$227,024	\$305,461
Principal Payment on Existing Debt	\$190,500	\$350,000	\$224,000
Interest Payment on Existing Debt	\$490,901	\$468,423	\$447,802
Total Water/Sewer Operations <sup>10</sup>	\$1,601,706	\$1,907,560	\$1,951,561
Total Outgoing Operations	\$1,601,706	\$1,907,560	\$1,951,561
Total Incoming Revenue	\$1,845,567	\$1,947,447	\$2,273,768
<b>Net</b>	<b>\$243,861</b>	<b>\$39,887</b>	<b>\$322,207</b>

*Capital Program*

**Table 4.3** provides the EMWD's Capital Program. Construction of Phase 4 would result in expansion of the EMWD boundaries. The proposed funding source for this project is a USDA Rural Development loan. The tap fees for this area will be subsidized with owners paying \$250 each. In the East Moore Phase 4 Preliminary Engineering Report, it is estimated that the project will require an increase of \$2.57 in the monthly bill to pay for the 40-year loan at 2.625% interest rate. The interest rate is now estimated to be 3.125% per year, which would add about \$10,000 per year in debt finance costs. This would be approximately 7% increase on the current rates.

**Table 4.3**  
**EMWD's Water and Sewer Capital Program**

Priority Ranking	Description	FY20	FY21	FY22	FY23	FY24
1	Thurlow Booster Pump Station Upgrade		\$667,744			
2	Murdocksville Road Water System Expansion (EMWD Phase 4)	\$2,513,721				
3	Hidden Lakes Water Main Connection			\$108,824		
<b>TOTAL EMWD CIP COST PER YEAR</b>		<b>\$2,513,721</b>	<b>\$667,744</b>	<b>\$108,824</b>	<b>\$0</b>	<b>\$0</b>

<sup>10</sup> Does not include transfer to Capital Reserve

The remaining projects could be funded with existing cash on hand. However, this would deplete any capital or working capital reserve for the EMWD.

*EMWD Revenue Plan*

**Table 4.4** provides the net cash available to address the renewal and replacement of the existing assets. In FY19, the USDA loan will put the EMWD in a negative net cash assuming the existing rates are in place and a full payment is made in FY19. The total income assumes modest system growth and annual rate increases to recover the cost of additional debt and to begin building a capital and working capital reserves. It is possible that due to the timing of the Phase 4 project, the first payment would not occur until FY20. **Table 4.5** projects the cash on hand through FY24.

**Table 4.4  
East Moore Water District  
Net Cash Available for Projects**

East Moore WD	Projected					
	FY19	FY20	FY21	FY22	FY23	FY24
<b>EMWD Expenses</b>	\$2,109,883	\$2,163,221	\$2,226,774	\$2,281,026	\$2,346,235	\$2,400,522
General Expenses						
Operational Expenses	\$1,013,270	\$1,053,801	\$1,095,953	\$1,139,791	\$1,185,382	\$1,232,798
Professional Services	\$317,679	\$330,387	\$343,602	\$357,346	\$371,640	\$386,506
Principal	\$229,550	\$229,075	\$227,675	\$226,050	\$223,300	\$221,425
Interest	\$436,384	\$436,959	\$446,544	\$444,839	\$452,912	\$446,794
Phase 4 USDA Loan	\$113,000	\$113,000	\$113,000	\$113,000	\$113,000	\$113,000
Total Water/Sewer Operations	\$2,109,883	\$2,163,221	\$2,226,774	\$2,281,026	\$2,346,235	\$2,400,522
Base and Unit Charge Increase		3.0%	3.0%	3.0%	3.0%	3.0%
Total Outgoing Operations	\$2,109,883	\$2,163,221	\$2,226,774	\$2,281,026	\$2,346,235	\$2,400,522
Total Incoming Revenue	\$2,092,376	\$2,169,378	\$2,249,500	\$2,333,082	\$2,420,253	\$2,511,526
Net Revenues	-\$17,507	\$6,157	\$22,726	\$52,056	\$74,019	\$111,003

**Table 4.5  
East Moore Water District  
Cash Flow**

	FY19	FY20	FY21	FY22	FY23	FY24
Cash on Hand Beginning	\$1,300,000	\$3,782,493	\$1,274,928	\$629,910	\$573,142	\$647,161
New Debt Proceeds	\$2,500,000	\$0				
Net Revenues	-\$17,507	\$6,157	\$22,726	\$52,056	\$74,019	\$111,003
Capital Expenditures	\$0	\$2,513,721	\$667,744	\$108,824		
Total	\$3,782,493	\$1,274,928	\$629,910	\$573,142	\$647,161	\$758,164

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*Rate Adjustments*

This scenario would result in raising FY19 approved base charges and unit rates by 3% in FY20. Additionally, rates would be raised by 3% per year for the next five years. This will be discussed with staff to confirm management goals. **Table 4.5** shows a simple 3% increase for discussion purposes. The actual increase needed should be verified in winter of 2019 as part of the FY20 Budget preparation process.

**Table 4.5  
EMWD FY19 and FY20 Base Charge and Unit Rates**

<b>Rates</b>	<b>FY19</b>	<b>FY20</b>
<b>Monthly Base Rate for East Moore Water District (including irrigation)</b>		
¾-inch meter	\$24.60	\$25.34
1-inch meter	\$27.30	\$28.12
2-inch meter	\$40.15	\$41.35
Sewer Rate EMWD ¾ inch	\$24.60	\$25.34
Sewer Rate EMWD 1 inch	\$27.30	\$28.12
Sewer Rate EMWD 2 inch	\$40.15	\$41.35
<b>Water Residential Commodity Charges</b>		
Charge per 1000 gallons (0 - 2000 gallons)	\$3.05	\$3.14
Charge per 1000 gallons (2001 - 4000 gallons)	\$4.00	\$4.12
Charge per 1000 gallons (4001 - 8000 gallons)	\$4.60	\$4.74
Charge per 1000 gallons (8001 - 12000 gallons)	\$5.00	\$5.15
Charge per 1000 gallons (12001 + gallons)	\$7.00	\$7.21
<b>Sewer Residential Commodity Charges</b>		
Charge per 1000 gallons (0 - 2000 gallons)	\$4.25	\$4.34
Charge per 1000 gallons (2001 - 4000 gallons)	\$5.20	\$5.30
Charge per 1000 gallons (4001 - 8000 gallons)	\$5.80	\$5.92
Charge per 1000 gallons (8001 - 12000 gallons)	\$6.20	\$6.32
Charge per 1000 gallons (12001 + gallons)	\$8.20	\$8.36

<b>Rates</b>	<b>FY19</b>	<b>FY20</b>
<b>Irrigation Commodity Charges</b>		
Charge per 1000 gallons (0 - 4000 gallons)	\$4.60	\$4.74
Charge per 1000 gallons (>4000 gallons)	\$7.00	\$7.21
<b>Water Commercial Commodity Charges</b>		

Moore County's EMWD  
Utility Rate Study | FINAL

Rates	FY19	FY20
Charge per 1000 gallons (0 - 4000 gallons)	\$4.10	\$4.22
Charge per 1000 gallons (4001 - 8000 gallons)	\$4.80	\$4.94
Charge per 1000 gallons (8001 + gallons)	\$5.80	\$5.97
<b>Sewer Commercial Commodity Charges</b>		
Charge per 1000 gallons (0 - 4000 gallons)	\$5.30	\$5.41
Charge per 1000 gallons (4001 - 8000 gallons)	\$6.30	\$6.43
Charge per 1000 gallons (8001 + gallons)	\$7.00	\$7.14

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## Section 5 - Findings/Recommendations

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### *Findings*

This report presents an analysis of capacity, operating and capital costs for the East Moore Water District. The findings and recommendations are summarized in this section. For FY20, the EMWD should increase rates by 3% to recover the cost of new debt for the planned Phase 4 projects. Additional 3% annual increases in FY21 through FY24 will allow the EMWD to develop a capital reserve for the future replacement projects.

The fixed asset listing provided sufficient level of detail for the analysis presented in this report. However, additional details would allow for both a higher level of analysis and potential future replacement costs. Many asset descriptions were based on information provided from purchase from other entities. In some cases, fixed assets were consolidated under a single heading/description.

The report also provides an analysis of the cost of services to residential and commercial customer classes. The analysis uses the American Water Works Association (AWWA) methodology described in M1 manual for "Base-Extra Capacity". The resulting allocation of cost to each customer class could then be applied to the rates needed to maintain sufficient cash flow. The results show a short-fall for residential and commercial customer for the FY17 test year. **Table 4.5** in the previous section provides an inflationary 3% base/unit rate increase to maintain sufficient revenues for FY19. Additionally, **Table 4.4** shows a 3% per year increase to account for cost inflation should be sufficient through FY24.

### *Disclaimer*

The results of this study reveal modest 3% rate adjustments are required to maintain a positive fund balance and provide sufficient revenues for debt coverage. It assumes modest cost inflation in operations and billable volume growth. It also assumes that CIP costs do not change and are constructed as scheduled. Nelsnick recommends that these assumptions be validated annually. As part of this project a Comprehensive Financial Model (CFM) has been developed and will be provided to the MCPU staff to check these assumptions as well as to test alternative CIP's and funding scenarios.

### *Recommendations*

The following are recommendations for the MCPU's consideration:

1. Staff Training on the COSA and CFM models (Fall 2018)
2. Refine asset listing to help in managing asset replacement requirements and to allow for higher cost analysis details (Summer 2019)
3. Consider detailed billing audit to determine rate coding issues for the existing customers (Fall 2019)

## Moore County's EMWD

### Utility Rate Study | FINAL

4. Use CFM to verify FY20 rate increase recommendation of 3% in (Winter 2019)
5. Raise FY20 base charges and unit rates per CFM for July 1, 2019 implementation
6. Update CFM annually
7. Modify Rates as provided in updated CFM (Currently estimated at 3%/year)
8. Full Update of COSA and CFM (FY22) Combined with MCPU/WPCP
9. The annual contract is currently set at \$287,587 with an actual calculated cost of \$295,375 for FY19 based on the percentage of customers served by MCPU within the EMWD compared to the total customers served for the administrative, engineering and water quality expenses. This calculation is shown in Table 2.1. Recommend leaving contract as is currently.
- 10. Collect all relevant fees related to tapping into the systems based on **Tables 2.2 and 2.3****
11. Collect SDF per **Tables 2.2 and 2.3.** for wastewater treatment and collection and water treatment for the EMWD and transfer to the capital reserve funds of MCPU and WPCP.
12. Monitor calculated cost annually to contract<sup>11</sup> fees to ensure reasonableness.

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<sup>11</sup> The current contract has an escalation rate to account for cost.

## Fee Schedule

### Public Works - Public Utilities Division/East Moore Water District

Mission: The mission of the Public Utilities Division of Public Works is to preserve and enhance the quality of life in Moore County by providing an adequate supply of safe water to all customers, and to provide environmentally sound collection services for those communities connected to the County's sewer collection systems.

Fee Schedule - Item	FY18/19 Fee Amount				
**Water (Domestic & Irrigation) Connection Fees	Tap	SDF	MSF	Admin Fee	Total FCCF
<b>**Developer installed connections are not required to pay the Tap portion. The SDF, MSF and Admin Fee apply</b>					
Water Fee - 3/4 inch meter	\$973	\$627	\$300	\$50	\$1,950
Water Fee - 1 inch meter	\$953	\$1,568	\$390	\$50	\$2,961
Water Fee - 2 inch meter	\$1,243	\$5,019	\$2,820	\$50	\$9,132
Water Connection Fee - 3 inch meter	\$8,290	\$10,038	\$2,920	\$50	\$21,298
Water Fee - 4 inch meter	\$8,148	\$15,684	\$4,190	\$50	\$28,072
Water Fee - 6 inch meter	\$9,477	\$31,369	\$6,060	\$50	\$46,956
Irrigation Fee - 3/4 inch meter	\$973	\$627	\$300	\$50	\$1,950
Irrigation Fee - 1 inch meter	\$953	\$1,568	\$390	\$50	\$2,961
Irrigation Fee - 2 inch meter	\$1,243	\$5,019	\$2,820	\$50	\$9,132
Irrigation Fee - 3 inch meter	\$8,290	\$10,038	\$2,920	\$50	\$21,298
Irrigation Fee - 4 inch meter	\$8,148	\$15,684	\$4,190	\$50	\$28,072
Irrigation Fee - 6 inch meter	\$9,477	\$31,369	\$6,060	\$50	\$46,956
<b>**Dual Service Domestic (Residential) &amp; Irrigation</b>					
**Developer installed connections are not required to pay the Tap portion. The SDF, MSF and Admin Fee apply	Tap	SDF	MSF	Admin Fee	Total FCCF
Combination 3/4 inch water meter \$1950 + Irrigation Meter \$977	\$973	\$1,254	\$600	\$100	\$2,927
(must be installed at same time for reduced rate)					
<b>**Sewer Connection Fees</b>					
**Developer installed connections are not required to pay the Tap portion. The SDF and Admin Fee apply	Tap	SDF	MSF	Admin Fee	Total FCCF
Sewer Fee - 3/4 inch meter	\$1,047	\$1,092		\$50	\$2,189
Sewer Fee - 1 inch meter	\$1,047	\$2,184		\$50	\$3,281
Sewer Fee - 2 inch meter	\$1,047	\$6,989		\$50	\$8,086
Sewer Fee - 3 inch meter	\$1,047	\$13,978		\$50	\$15,075
Sewer Fee - 4 inch meter	\$1,047	\$21,840		\$50	\$22,937
Sewer Fee - 6 inch meter	\$1,047	\$43,680		\$50	\$44,777
Sewer Fee - 8 inch meter	\$1,047	\$69,888		\$50	\$70,985
Fire Main Connection- all sizes					At Cost
<b>**Repair Fees are imposed if any additional work is required to provide a service connection</b>				<b>Min Fee</b>	<b>Max Fee</b>
Repair Fee 3/4" service				Min \$125	Max \$973
Repair Fee 1" service				Min \$125	Max \$953
Repair Fee 2" service				At Cost	Max \$1243
Repair Fee Sewer				At Cost	Max \$1047
<b>**East Moore Water (Domestic &amp; Irrigation) Connection Fees</b>					
**Developer installed connections are not required to pay the Tap portion. The SDF, MSF and Admin Fee apply	Tap	SDF	MSF	Admin Fee	Total FCCF
Water Fee - 3/4 inch meter	\$973	\$652	\$300	\$50	\$1,975
Water Fee - 1 inch meter	\$953	\$1,630	\$390	\$50	\$3,023
Water Fee - 2 inch meter	\$1,243	\$5,216	\$2,820	\$50	\$9,329
Water Tap Fee - 3 inch meter	\$8,290	\$10,432	\$2,920	\$50	\$21,692
Water Tap Fee - 4 inch meter	\$8,148	\$16,300	\$4,190	\$50	\$28,688
Water Tap Fee - 6 inch meter	\$9,477	\$32,600	\$6,060	\$50	\$48,187
Irrigation Fee - 3/4 inch meter	\$973	\$652	\$300	\$50	\$1,975
Irrigation Fee - 1 inch meter	\$953	\$1,630	\$390	\$50	\$3,023
Irrigation Fee - 2 inch meter	\$1,243	\$5,216	\$2,820	\$50	\$9,329
Irrigation Fee - 3 inch meter	\$8,290	\$10,432	\$2,920	\$50	\$21,692
Irrigation Fee - 4 inch meter	\$8,148	\$16,300	\$4,190	\$50	\$28,688
Irrigation Fee - 6 inch meter	\$9,477	\$32,600	\$6,060	\$50	\$48,187
<b>**East Moore Sewer Connection Fees</b>					
**Developer installed connections are not required to pay the Tap portion. The SDF and Admin Fee apply	Tap	SDF	MSF	Admin Fee	Total FCCF
Sewer Fee - 3/4 inch meter	From \$1047 to \$1158.	\$687		\$50	From \$1784 to \$1895.
Sewer Fee - 1 inch meter	From \$1047 to \$1158.	\$2,184		\$50	From \$3281 to \$3392
Sewer Fee - 2 inch meter	From \$1047 to \$1158.	\$6,552		\$50	From \$7649 to \$7760.
Sewer Fee - 3 inch meter	From \$1047 to \$1382.	\$14,196		\$50	From \$15293 to \$15628.
Sewer Fee - 4 inch meter	From \$1047 to \$1382.	\$21,840		\$50	From \$22937 to \$23272.
Sewer Fee - 6 inch meter	From \$1047 to \$1382.	\$43,680		\$50	From \$44777 to \$45112
Sewer Fee - 8 inch meter	From \$1047 to \$1382.	\$69,888		\$50	From \$70985 to \$71320.

RESOLUTION APPROVING AMENDMENT 1 TO THE SERVICES CONTRACT  
BETWEEN THE COUNTY OF MOORE AND EAST MOORE WATER DISTRICT

WHEREAS, the County and EMWD previously entered into an agreement on June 20, 2017, which was for the purpose of the County operating and maintaining EMWD's water distribution system (the "Original Agreement"); and

WHEREAS, the Original Agreement included a fee schedule for set out the fees to be accessed for meter installation and tap completion; and

WHEREAS, the parties now desire to amend the aforementioned fee schedule based upon the findings of rate study finalized on October 1, 2018.

NOW, THEREFORE, BE IT RESOLVED, the East Moore Water District does hereby approve Amendment 1 to the Services Contract between the County of Moore and the East Moore Water District.

Adopted this the \_\_\_\_ day of October, 2018.

\_\_\_\_\_  
By: \_\_\_\_\_  
East Moore Water District

Attest:

\_\_\_\_\_  
Laura M. Williams  
Clerk to the Board

STATE OF NORTH CAROLINA

This Contract Amendment No. 1 (this “Amendment”), is made the \_\_\_\_ day of October, 2018, between the County of Moore (the “County”) and East Moore Water District (“EMWD”).

WITNESSETH

WHEREAS, the County and EMWD previously entered into an agreement on June 20, 2017, which was for the purpose of the County operating and maintaining EMWD’s water distribution system (the “Original Agreement”); and

WHEREAS, the Original Agreement included a fee schedule for set out the fees to be accessed for meter installation and tap completion;

WHEREAS, the parties now desire to amend the aforementioned fee schedule based upon the findings of rate study finalized on October 1, 2018;

NOW, THEREFORE, for and in consideration of the mutual covenants and agreements made herein, the parties agree as follows:

1. Section 4 (COMPENSATION) of the Original Agreement will be amended to include the tables below.

<b>Rate Schedule - 1 July 2017 - 15 October 2018</b>	
<b>Cost Component</b>	<b>Fee</b>
Meter Installation	\$100.00
Tap Completion	\$1,450.00

<b>Rate Schedule -15 October 2018 - 30 June 2022</b>	
<b>Cost Component</b>	<b>Fee</b>
<b>Tap fee</b>	\$973.00
<b>System Development Fee</b>	\$652.00
<b>Meter set fee</b>	\$300.00
<b>Administrative fee</b>	\$50.00

2. Except as provided for by this Amendment, the Original Agreement will remain in full force and effect.

The parties have expressed their agreement to these terms by causing this Contract Amendment No. 1 to be executed by their duly authorized officers or agents. This Amendment is effective as of the date first written above.

**EAST MOORE WATER DISTRICT**

By: \_\_\_\_\_  
East Moore Water District Board

ATTEST:

\_\_\_\_\_  
Laura M. Williams  
Clerk to the Board

Preaudit Certificate (EMWD)

This instrument has been preaudited in the manner required by the Local Government Budget and Fiscal Control Act.

\_\_\_\_\_  
Finance Officer

**COUNTY OF MOORE**

By: \_\_\_\_\_  
Moore County Board of Commissioners

ATTEST:

\_\_\_\_\_  
Laura M. Williams  
Clerk to the Board

Preaudit Certificate (County of Moore)

This instrument has been preaudited in the manner required by the Local Government Budget and Fiscal Control Act.

\_\_\_\_\_  
Finance Officer

**Agenda Item:** III  
**Meeting Date:** 10/16/18

**MEMORANDUM TO EMWD BOARD OF DIRECTORS:**

**FROM:** Randy G. Gould, Public Works Director  
**DATE:** October 11, 2018  
**SUBJECT:** Purchase Contract and Amendment between MCPU and EMWD  
**PRESENTER:** Randy G. Gould, PE

**REQUEST:**

Approve the purchase contract amendment between Moore County Public Utilities (MCPU) and the East Moore Water District (EMWD).

**BACKGROUND:**

The contract amendment and accompanying resolution extends the contract term to October 15, 2018. The water purchase contract and accompanying resolution are revised and extended to October 15, 2028. The payment terms are basically unchanged.

**IMPLEMENTATION PLAN:**

Approve the water purchase agreement.

**FINANCIAL IMPACT STATEMENT:**

No change.

**RECOMMENDATION SUMMARY:**

Make a motion to approve the Water Purchase Contract and Amendment between EMWD and MCPU.

**SUPPORTING ATTACHMENTS:**

Contract Amendment No. 1  
Water Purchase Agreement  
Resolution

COUNTY OF MOORE

CONTRACT AMENDMENT NO. 1

STATE OF NORTH CAROLINA

This Contract Amendment No. 1 (this "Amendment"), is made the 16th day of October, 2018, between the County of Moore (the "County") and East Moore Water District ("EMWD").

**WITNESSETH**

**WHEREAS**, the County and EMWD previously entered into an agreement on March 15, 2011, pursuant to which the County is purchasing water from the EMWD (the "Original Agreement"); and

**WHEREAS**, the term of the Original Agreement was from March 15, 2011, through March 14, 2016; and

**WHEREAS**, the Original Agreement included an option to extend the term of the agreement upon agreement of the parties; and

**WHEREAS**, the parties now desire to retroactively approve an extension of the Original Agreement for a period of time to begin on March 15, 2016, and end on October 15, 2018.

**NOW, THEREFORE**, for and in consideration of the mutual covenants and agreements made herein, the parties agree as follows:

1. The term of the Original Agreement will be extended from March 15, 2016, through October 15, 2018.
2. Except as provided for by this Amendment, the Original Agreement will remain in full force and effect.

The parties have expressed their agreement to these terms by causing this Contract Amendment No. 1 to be executed by their duly authorized officers or agents. This Amendment is effective as of the date first written above.

**[Signatures on the following page.]**

**EAST MOORE WATER DISTRICT**

\_\_\_\_\_  
By: \_\_\_\_\_  
East Moore Water District Board

ATTEST:

\_\_\_\_\_  
Laura M. Williams  
Clerk to the Board

Preaudit Certificate (EMWD)

This instrument has been preaudited in the manner required by the Local Government Budget and Fiscal Control Act.

\_\_\_\_\_  
Finance Officer

**COUNTY OF MOORE**

\_\_\_\_\_  
Catherine Graham, Chair  
Moore County Board of Commissioners

ATTEST:

\_\_\_\_\_  
Laura M. Williams  
Clerk to the Board

Preaudit Certificate (County of Moore)

This instrument has been preaudited in the manner required by the Local Government Budget and Fiscal Control Act.

\_\_\_\_\_  
Finance Officer

**STATE OF NORTH CAROLINA**

**WATER PURCHASE CONTRACT**

**COUNTY OF MOORE**

THIS CONTRACT for the sale and purchase of water is made and entered into this the 16th day of October, 2018, by and between the EAST MOORE WATER DISTRICT (hereinafter referred to as "Seller"), and the COUNTY OF MOORE (hereinafter referred to as "Purchaser").

**WITNESSETH:**

**WHEREAS**, the Purchaser is a political subdivision of the State of North Carolina; and

**WHEREAS**, the Seller is a county water district, duly organized and existing under the laws of the State of North Carolina; and

**WHEREAS**, the Purchaser, among its other functions, owns and operates a water supply and distribution system serving water users within its boundaries, and is in need of an additional supply of treated water therefore; and

**WHEREAS**, the Seller owns a water supply and distribution system; and

**WHEREAS**, the Seller currently has excess capacity of treated water sufficient to supply the request of the Purchaser as set forth in this Contract and to satisfy the present and anticipated needs of its customers;

**WHEREAS**, the Seller desires to sell to Purchaser and Purchaser desires to buy from Seller a supply of potable water as set forth herein; and

**WHEREAS**, the Seller and Purchaser have agreed upon certain terms regarding the sale of water as mentioned above, and now desire to set forth the terms of their agreement; and

**WHEREAS**, by Resolution adopted by the Board of Commissioner of the East Moore Water District at its meeting on October 16, 2018, the sale of said water to the Purchaser as provided herein was approved, and the execution of this Contract by the Seller was duly authorized; and

**WHEREAS**, by Resolution adopted by the Moore County Board of Commissioner at its meeting on October 16, 2018, the purchase of said water from the Seller as provided herein was approved, and the execution of this Contract by the Purchaser was duly authorized; and

**NOW, THEREFORE**, for and in consideration of the foregoing and the mutual agreements hereinafter set forth, the parties agree as follows:

A. **SELLER'S OBLIGATIONS**

1) (Quality and Quantity). To furnish the Purchaser at the point of delivery hereinafter specified, during the term of this Contract or any renewal or extension thereof, potable treated water meeting applicable purity standards of the State of North Carolina, Rules Governing Public Water Systems, 15 NCAC 18C, in such quantity as may be required by the Purchaser not to exceed **one million, two hundred fifty thousand (1,250,000)** gallons per day comprised of the following:

- a) Two hundred thousand (200,000) maximum per day for the Vass system with no minimum; and
- b) Fifty thousand (50,000) gallons per day for the Hyland Hills system with no minimum; and
- c) One million gallons (1,000,000) gallons per day for the Pinehurst/Seven Lakes system with no minimum.

2) (Point of Delivery and Pressure). That water will be furnished at a reasonably constant pressure from an existing main supply line owned by the Seller. The points of delivery for Vass shall be at meter facilities owned by the Purchaser and located at the following:

- a) 4637 Union Church Road, Vass, NC

b) 555 Main Street, Vass, NC

c) 336 North Alma Street, Vass NC

The point of delivery for Hyland Hills shall be at meter facilities owned by the Purchaser and located at the following:

- a) 1710 Valley View Road, Southern Pines, NC

The point of delivery for Pinehurst and Seven Lakes shall be at Pump Station owned by the Purchaser and located at the following:

- a) McCaskill Booster Pump Station at 844 McCaskill Road, Carthage, NC

If a greater pressure than that normally available at the point of delivery is required by the Purchaser, the cost of providing such greater pressure shall be borne by the Purchaser. Emergency failures of pressure or supply due to main supply lines breaks, power failure, water source contamination, flood, drought, fire and use of water to fight fire, earthquake, or other catastrophe shall excuse the Seller from this provision for such reasonable period of time as may be necessary to restore service.

3) (Metering Equipment). The metering equipment owned by the Purchaser and located at locations described in Paragraph A.2 hereof shall be read on the last day of each month. An appropriate official of the Purchaser shall have access at all reasonable times to the meter for the purpose of verifying its readings.

4) (Billing Procedure). To furnish the Purchaser, not later than the tenth (10<sup>th</sup>) day of each month, with an itemized statement of the amount of water furnished the Purchaser during the preceding month.

B. **PURCHASER'S OBLIGATIONS**

1) (Rates and Payment Date). To pay the Seller, a sum as full compensation, which will be paid in monthly installments not later than the twenty-fifth (25<sup>th</sup>) day of each month for water delivered in accordance with the following rates:

- a) MCPU Vass system – the Seller's cost plus \$0.25 per One

Thousand (1,000) gallons;

b) MCPU Hyland Hills system – the Seller’s cost plus \$0.50 per One Thousand (1,000) gallons; and

c) MCPU Pinehurst system – the Seller’s cost plus \$0.50 per One Thousand (1,000) gallons.

There is no availability fee for any of the above-named systems.

2) (Metering Equipment). To operate at its own expense the metering equipment described in Paragraph A.3 hereof, and to maintain the same, and to calibrate such metering equipment whenever requested by the Seller, but not more frequently than once every twelve (12) months. A meter registering not more than two percent (2%) above or below the test results shall be deemed to be accurate. The previous readings of any meter disclosed by test to be inaccurate shall be corrected for the two (2) months previous to such test in accordance with the percentage of inaccuracy found by such tests. If any meter fails to register for any period, the amount of water furnished during such period shall be deemed to be the amount of water delivered in accordance with the corresponding period immediately prior to the failure, unless the Seller and the Purchaser shall agree upon a different amount. A running time meter may be used to verify meter readings.

**C. IT IS FURTHER AGREED BETWEEN THE SELLER AND THE PURCHASER AS FOLLOWS**

1) (Term of Contract). That this Contract shall extend for a term of ten (10) years beginning on October 16, 2018 and ending on October 15, 2028.

2) (Emergency Services). That the Seller and the Purchaser shall endeavor to provide such quantities of water each to the other as may be needed in the case of emergency water needs, such as water source contamination, production facility failure, natural disaster, or other catastrophe. The cost of such water shall be at the rate described in Paragraph B.1.

3) (Failure to Deliver). That the Seller will, at all times, operate and maintain its system in an efficient manner and will take such action as may be necessary to furnish the Purchaser with quantities of water required under the terms of this Contract by the Purchaser. Temporary or partial failure to deliver water shall be remedied with all possible dispatch. In the event of an extended shortage of water, or the supply of water available to the Seller is otherwise diminished over an extended period of time, the supply of water to the Purchaser shall be reduced or diminished in the same ratio or proportion as the supply to the Seller’s consumers is reduced or diminished.

4) (Modification of Contract). That the provisions of this Contract may be modified or altered by mutual agreement of the parties.

5) (Termination). This Contract may be terminated, for cause, by the non-breaching party notifying the breaching party of a substantial failure to perform in accordance with the provisions of this Contract and if the failure is not corrected within ten (10) days of the receipt of the notification. Upon such termination, the parties shall be entitled to such additional rights and remedies as may be allowed by applicable law.

Termination of this Contract shall not form the basis of any claim for loss of anticipated profits by either party.

6) (Notices). Any notices required to be given hereunder by the Seller to the Purchaser shall be made by the Seller in writing and hand-delivered, mailed first class mail, or transmitted by facsimile to the County Manager, County of Moore at the following address:

Historic Courthouse  
P.O. Box 905,  
Carthage, NC 28327,  
Or by facsimile at (910) 947-1874

Notice shall be effective upon receipt.

Any notices required to be given hereunder by the Purchaser to the Seller shall be made by the Purchaser in writing and hand-delivered, mailed by first class mail, or transmitted by facsimile to the Chairman, Board of Commissioner, East Moore Water District, at the following address:

Historic Courthouse  
P.O. Box 905,  
Carthage, NC 28327,  
Or by facsimile at (910) 947-1874

Notice shall be effective upon receipt.

7) (Regulatory Agencies). This Contract is subject to such rules, regulations, or laws as may be applicable to similar agreements in this State, and the Seller and the Purchaser will collaborate in obtaining such permits, certificates, or the like, as may be required to comply therewith.

8) (Governing Law). This Contract shall be governed by and in accordance with the laws of the State of North Carolina. All actions relating in any way to this Contract shall be brought in the General Court of Justice

**[The rest of this page left blank intentionally. Signatures on the following page.]**

**IN WITNES WHEREOF**, the parties hereto, acting under authority of their respective governing bodies, have made and executed this Agreement as of the day and year first written above.

**EAST MOORE WATER DISTRICT**

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Catherine Graham, Chair  
Board of Commissioners

ATTEST:

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Laura M. Williams  
Clerk to the Board

PREAUDIT CERTIFICATE

This instrument has been preaudited in the manner required by the Local Government Budget and Fiscal Control Act.

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Finance Officer

**COUNTY OF MOORE**

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Otis Ritter, Vice Chair  
Board of Commissioners

ATTEST:

---

Laura M. Williams  
Clerk to the Board

PREAUDIT CERTIFICATE

This instrument has been preaudited in the manner required by the Local Government Budget and Fiscal Control Act.

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Finance Officer

**RESOLUTION APPROVING WATER PURCHASE CONTRACT BETWEEN THE  
COUNTY OF MOORE AND EAST MOORE WATER DISTRICT**

**WHEREAS**, Moore County Public Utilities has a need for water to serve its system in Vass; and

**WHEREAS**, the District currently purchases water from Harnett County and has contracted for enough capacity to serve all proposed phases of East Moore Water District, as well as enough capacity to serve the Moore County Public Utilities systems serving Vass, Hyland Hills, and a portion of Seven Lakes and Pinehurst; and

**WHEREAS**, a water purchase contract between the District and the County has been developed at cost plus 0.25/1,000 gallons for the Vass system and cost plus 0.50/1,000 gallons for the Hyland Hills and Pinehurst/Seven Lakes systems; and

**NOW, THEREFORE**, be it resolved, the East Moore Water District does hereby approve the services contract and the water purchase contract between Moore County and the East Moore Water District.

Adopted this the 16th day of October, 2018.

**EAST MOORE WATER DISTRICT**

\_\_\_\_\_  
By: \_\_\_\_\_  
East Moore Water District

**ATTEST:**

\_\_\_\_\_  
Laura M. Williams  
Clerk to the Board

**MEMORANDUM TO EMWD BOARD OF DIRECTORS:**

**FROM:** Randy Gould, Public Works Director

**DATE:** October 4, 2018

**SUBJECT:** Water Shortage Response Plan

**PRESENTER:** Randy Gould, PE

**REQUEST:**

Approve resolutions adopting the 2018 Water Shortage Response Plans (WSRP) for the East Moore Water District (EMWD) water system.

**BACKGROUND:**

North Carolina General Statute 143-355 (1) requires that each unit of local government that provides public water service and each large community water system develop and implement water conservation measures to respond to drought or other water shortage conditions as set out in a Water Shortage Response Plan and submitted to the Department for review and approval. A Water Shortage Response Plan for the East Moore Water District water system was developed and submitted to the NCDEQ. NCDEQ has provided notification that the WSRP for the EMWD water system meets the minimum criteria and must now be adopted by the Board of Directors.

The plan is written to reduce potable water demand and supplement existing drinking water supplies whenever existing water supply sources are inadequate to meet current demands for potable water. The plan includes notification procedures, determines levels of response and identifies triggers in the event of a water shortage.

**IMPLEMENTATION PLAN:**

Approve the 2018 Water Shortage Response Plan for the East Moore Water District water system.

**FINANCIAL IMPACT STATEMENT:**

No financial impact is expected.

**RECOMMENDATION SUMMARY:**

Make a motion to approve the 2018 Water Shortage Response Plan for the East Moore Water District water system.

**SUPPORTING ATTACHMENTS:**

- East Moore Water District Water Resolution
- The 2018 Water Shortage Response Plans (WSRP) for the East Moore Water District water system.

**RESOLUTION FOR APPROVING WATER SHORTAGE RESPONSE PLAN  
FOR EAST MOORE WATER DISTRICT WATER SYSTEM**

WHEREAS, North Carolina General Statute 143-355 (l) requires that each unit of local government that provides public water service and each large community water system shall develop and implement water conservation measures to respond to drought or other water shortage conditions as set out in a Water Shortage Response Plan and submitted to the Department for review and approval; and

WHEREAS, as required by the statute and in the interests of sound local planning, a Water Shortage Response Plan for East Moore Water District Water System, has been developed and submitted to the for approval; and

WHEREAS, the East Moore Water District Board of Directors finds that the Water Shortage Response Plan is in accordance with the provisions of North Carolina General Statute 143-355 (l) and that it will provide appropriate guidance for the future management of water supplies for East Moore Water District Water System as well as useful information to the Department of Environment and Natural Resources for the development of a state water supply plan as required by statute;

NOW, THEREFORE, BE IT RESOLVED by the East Moore Water District Board of Directors that the Water Shortage Response Plan entitled, Water Shortage Response Plan dated March 28, 2018, is hereby approved and shall be submitted to the Department of Environment and Natural Resources, Division of Water Resources; and

BE IT FURTHER RESOLVED that the East Moore Water District Board of Directors intends that this plan shall be revised to reflect changes in relevant data and projections at least once every five years or as otherwise requested by the Department, in accordance with the statute and sound planning practice.

This the 16th day of October, 2018.

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Signature: \_\_\_\_\_

ATTEST:

Water Shortage Response Ordinance  
East Moore Water District  
Moore County, North Carolina



<u>Originally Adopted</u>	August 19, 2002
<u>Ordinance Repealed</u>	October 5, 2010 at 11:50pm
<u>Adopted</u>	October 5, 2010
<u>Effective Date</u>	October 6, 2010 at 12:00am
<u>Updated Date</u>	March 28, 2018

# Water Shortage Response Ordinance

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## **Water Shortage Response Plan East Moore Water District, North Carolina**

The procedures herein are written to reduce potable water demand and supplement existing drinking water supplies whenever existing water supply sources are inadequate to meet current demands for potable water.

### **I. Authorization**

The Moore County Manager shall enact the following water shortage response provisions whenever the trigger conditions outlined in Section IV are met. In his absence, the Director of Public Works will assume this role.

Mr. Wayne Vest  
Manager Moore County  
Phone: (910) 947-4100  
E-mail: [wvest@moorecountync.gov](mailto:wvest@moorecountync.gov)

Mr. Randy Gould  
Director of Moore County Public Works  
East Moore Water District  
Phone: (910) 947-4300  
E-mail: [rgould@moorecountync.gov](mailto:rgould@moorecountync.gov)

### **II. Notification**

The following notification methods will be used to inform water system employees and customers of a water shortage declaration: employee e-mail announcements, notices at municipal buildings, notices in water bills. Required water shortage response measures will be communicated through the County of Moore Public Information Officer for distribution to all media outlets such as local newspapers, PSA announcements on local radio and cable stations and on the County's website <http://www.moorecountync.gov/>. Declaration of emergency water restrictions or water rationing will be communicated to all customers by telephone via reverse E911.

### **III. Levels of Response**

Five levels of water shortage response are outlined in the table below. The five levels of water shortage response are: voluntary conservation, moderate and severe mandatory conservation, emergency mandatory conservation and water rationing. A detailed description of each response level and corresponding water conservation measures follow below.

Stage	Response	Description
1	Voluntary Conservation	Water users are encouraged to reduce their water use and improve water use efficiency; however, no penalties apply for noncompliance. Water supply conditions indicate a potential for shortage.
2	Moderate Mandatory Conservation	Water users must abide required water use reduction and efficiency measures; penalties apply for noncompliance. Water supply conditions are significantly lower than the seasonal norm and water shortage conditions are expected to persist.
3	Severe Mandatory Conservation	Same as in Stage 2
4	Emergency Mandatory Conservation	Water supply conditions are substantially diminished and pose an imminent threat to human health or environmental integrity.
5	Water Rationing	Water supply conditions are substantially diminished and remaining supplies must be allocated to preserve human health and environmental integrity.

In Stage 1, Voluntary Conservation, all water users will be encouraged to reduce their normal water use by 20%. Customer education and outreach programs will encourage water conservation and efficiency measures including:

- a. Check plumbing, faucets and toilets for leaks, and if necessary repair.
- b. Store drinking water in the refrigerator to avoid trying to run it cool at the tap.
- c. Use shower for bathing purposes or reduce the depth of water used for tub baths. Limit showers to five (5) minutes where possible.
- d. Refrain from running faucets while shaving, rinsing dishes or brushing teeth.
- e. Install water flow restrictive devices in faucets and showerheads.
- f. Install water-saving devices such as plastic bottles or commercial units in toilet tanks of older model toilets or retrofit older model toilets to low flow type.
- g. Review water uses and where feasible install recycle systems, particularly commercial and industrial customers.
- h. Limit the use of clothes washers and dishwashers, and when used, operate fully loaded.
- i. Reduce the flushing of toilets to the minimum whenever practical.
- j. Limit lawn watering to only when grass shows signs of withering and apply water as slow as possible to achieve deep penetration to encourage root growth; preventing water waste, runoff and watering impervious surfaces. Irrigate landscapes a maximum of one inch per week.
- k. Limit shrubbery watering to the minimum using spring-loaded nozzles on garden hoses only.
- l. Limit car washing to the minimum using spring-loaded nozzles on garden hoses only.
- m. Limit wash downs of outside areas such as sidewalks, patios, driveways, or other similar purposes unless for health or safety reasons.
- n. Limit hours of operation of water-cooled air conditioners where possible.

o. Use biodegradable disposable dishes and utensils, both for residential and commercial purposes, where feasible.

In Stage 2, Moderate Mandatory Conservation, all customers are expected to reduce their water use by 30% in comparison to their previous month's water bill. In addition to continuing to encourage all voluntary reduction actions, the level of the conservation effort shall be increased to require the following mandatory measures. No person shall:

- a. Water lawns, grass, trees, shrubbery, flowers, golf greens or vegetable gardens except between the hours of 5:00 p.m. and 12:00 midnight, twice weekly with even number addresses allowed to irrigate on Mondays and Thursdays; and odd number addresses allowed to irrigate on Tuesdays and Fridays. Total irrigation is limited to a half inch per week.
- b. Introduce water into wading pools or swimming pools except to the extent necessary to replenish losses due to evaporation or spillage, and maintain operation of chemical feed equipment.
- c. Use drinking water for washing impervious surfaces such as sidewalks, patios, driveways, or for other similar purposes unless for health or safety reasons.
- d. Introduce water into any decorative fountain, pool or pond except where the water is recycled.
- e. Serve water in a restaurant or similar establishment, except upon request.
- f. Use drinking water for any unnecessary purpose or intentionally waste drinking water.
- g. Wash the exterior of a motor vehicle except for commercial washing or where a private well system is used.
- h. Use drinking water for testing and training purposes (e.g. fire protection).

All industrial, manufacturing and commercial enterprises shall reduce consumption with a goal reduction of at least 30%. Such enterprises shall document the specific efforts they have made to reduce consumption.

In Stage 3, Severe Mandatory Conservation, customers shall be encouraged to observe the conservation measures in Stage I and required to continue observing the mandatory requirements in Stage II. The level of the conservation effort shall increase to require the following additional mandatory measures. All non-essential uses of drinking water are banned. Additionally, in Stage 3, a drought surcharge of 1.5 times the normal water rate applies. Customers must reduce water use by 40% compared to their previous month's water bill. No person shall:

- a. Use drinking water to irrigate any lawn, grass, trees, or golf greens beyond the minimum amount necessary for survival.
- b. Use drinking water to irrigate any vegetable garden or ornamental shrubs beyond the minimum amount necessary for survival.
- c. Use drinking water to fill any wading pool or swimming pool or replenish any filled pool.
- d. Make nonessential use of water for commercial or public use.

e. Operate water-cooled air conditioners or other equipment that do not recycle cooling water, except when health and safety are adversely affected.

All industrial, manufacturing and commercial enterprises shall reduce consumption with a goal of reduction of at least forty (40%) percent. Such enterprises shall document the specific efforts they have made to reduce consumption.

In Stage 4, Emergency Mandatory Conservation, Customers shall be encouraged to observe the conservation measures in Stage I and required to continue observing the mandatory requirements in Stages II and III. The level of the conservation effort shall increase to require the following additional mandatory measures. Customers must continue all actions from previous stages and further reduce their water use by 50% compared to their previous month's water bill. A ban on all use of drinking water except to protect public health and safety is implemented and drought surcharges increase to 2 times the normal water rate. No person shall:

- a. Use water outside a structure except in an emergency involving fire.
  - b. Operate evaporative air conditioning units which recycle water except during the= operating hours of the business.
  - c. Use any swimming pool or wading pool.
  - d. Wash any motor vehicle, including commercial washing unless a private well is used.
- In addition to the conservation measures enumerated above, customers shall use plates, glasses, cups and eating utensils that are disposable and biodegradable.

The goal of Stage 5, Water Rationing, is to provide drinking water to protect public health (e.g. residences, residential health care facilities and correctional facilities). Customers shall be encouraged to observe the conservation measures in Stage I and required to continue observing the mandatory requirements of Stages II, III and IV. In Stage 5, all customers are only permitted to use water at the minimum required for public health protection. Drought surcharges increase to 5 times the normal water rate. The level of the conservation effort shall increase to require the following mandatory measures:

- a. Fire protection in the water system will be maintained, but where possible, tank trucks shall use raw water.
- b. All industrial uses of water shall be prohibited.
- c. All other uses of water will be limited to those necessary to meet minimum health and safety needs of the customers as determined by the county manager upon consultation with the director of public utilities in light of conditions present.

Pickup locations for distributing potable water will be announced according to East Moore Water District's Emergency Response Plan. Failure to act in accordance therewith or use of water in any manner or attempt to evade or avoid water rationing restrictions, shall be unlawful.

#### IV. Triggers

East Moore Water District is provided water solely by purchase from Harnett County. When Harnett County declares a water shortage East Moore Water District is required to do so as well. During this time the Director of Public Works, on behalf of East Moore Water District, will stay in close contact with Harnett County and follow their triggers.

#### Return to Normal

When water shortage conditions have abated and the situation is returning to normal, water conservation measures employed during each phase should be decreased in reverse order of implementation. Permanent measures directed toward long-term monitoring and conservation should be implemented or continued so that the community will be in a better position to prevent shortages and respond to recurring water shortage conditions.

#### V. Enforcement

The provisions of the water shortage response plan will be enforced by Moore County Public Utilities personnel and local law enforcement. Violators may be reported to the County's phone line. Citations are assessed according to the following schedule depending on the number of prior violations and current level of water shortage.

<b>Water Shortage Level</b>	<b>First Violation</b>	<b>Second Violation</b>	<b>Third Violation</b>
Voluntary Conservation	N/A	N/A	N/A
Moderate and Severe Mandatory Conservation (Stages 2 and 3)	Warning	\$250	Discontinuation of Service
Emergency Mandatory Conservation	\$250	Discontinuation of Service	Discontinuation of Service
Water Rationing	\$500	Discontinuation of Service	Discontinuation of Service

Drought surcharge rates are effective in Stages 3, 4 and 5.

#### VI. Public Comment

Customers will have multiple opportunities to comment on the provisions of the water shortage response plan. First, a draft plan will be available at County Offices for customers to view. A notice will be included in customer water bill notifying them of such. Also notice of the draft plan will be published in *The Southern Pines Pilot*. Notices of all subsequent revisions to the draft plan will be published at least 30 days prior to an adoption vote by the East Moore Board of Directors.

## **VII. Variance Protocols**

Applications for water use variance requests are available from the County Offices. All applications must be submitted to the County Office for review by the County Manager or his designee. A decision to approve or deny individual variance requests will be determined within two weeks of submittal after careful consideration of the following criteria: impact on water demand, expected duration, alternative source options, social and economic importance, purpose (i.e. necessary use of drinking water) and the prevention of structural damage.

## **VIII. Effectiveness**

The effectiveness of the East Moore Water District water shortage response plan will be determined by comparing the stated water conservation goals with observed water use reduction data. Other factors to be considered include frequency of plan activation, any problem periods without activation, total number of violation citations, desired reductions attained and evaluation of demand reductions compared to the previous year's seasonal data.

## **IX. Revision**

The water shortage response plan will be reviewed and revised as needed to adapt to new circumstances affecting water supply and demand, following implementation of emergency restrictions, and at a minimum of every five years in conjunction with the updating of our Local Water Supply Plan. Further, a water shortage response planning work group will review procedures following each emergency or rationing stage to recommend any necessary improvements to the plan to the East Moore Board of Directors. The Director of Moore County Public Works is responsible for initiating all subsequent revisions.