



**BUILDING A BETTER FUTURE
WITH WATER**



2017 CAPITAL IMPROVEMENT PLAN
SUPPLEMENT TO THE 2017 FINANCIAL PLAN

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Management Team

C. Tad Bohannon	Chief Executive Officer
Thad Luther, P.E., BCEE	Chief Operating Officer
David Johnson	General Counsel
Robert Hart, P.E., BCEE	Technical Services Officer/ Acting Director of Water Production
Becky Linker	Chief Administrative Officer
Jeff Mascagni, CPA, CGFM	Chief Financial Officer
Douglas Shackelford	Director of Public Affairs & Communications
Terry Bice	Director of Distribution
Jim Ferguson, P.E.	Director of Engineering
Kevin Hall	Director of Environmental Health & Safety
Allen Vincent	Director of Information Services
Randy Easley	Director of Water Quality

Capital Improvement Plan Development Team

Jeff Mascagni, CPA, CGFM	Chief Financial Officer
Todd Fisher, CPA	Finance Manager
Sherry Lippiatt	General Accountant
Leo O'Bannion	General Accountant
Becky Linker	Chief Administrative Officer

EXECUTIVE SUMMARY

Central Arkansas Water's (CAW or the Utility) Capital Improvement Plan (CIP) is a five-year plan that projects the Utility's spending for anticipated capital needs, addressing repair, replacement, and relocation of existing infrastructure as well as the development or acquisition of new facilities, property, and equipment. The CIP serves as a tool to identify capital expenditure needs, coordinate financing, and specify the timing of these improvements.

CAW seeks to proactively address infrastructure needs as part of the Utility's commitment to ensure that customers receive the best possible service. CAW has developed this CIP Supplement to highlight and provide additional details for all planned capital projects with a financial impact greater than \$250,000 over the next five years. Each of these projects is included in this Supplement with descriptive pictures, purpose, estimated costs, duration, anticipated funding source(s), future impact on operations, and related Effective Utility Management (EUM) attributes.

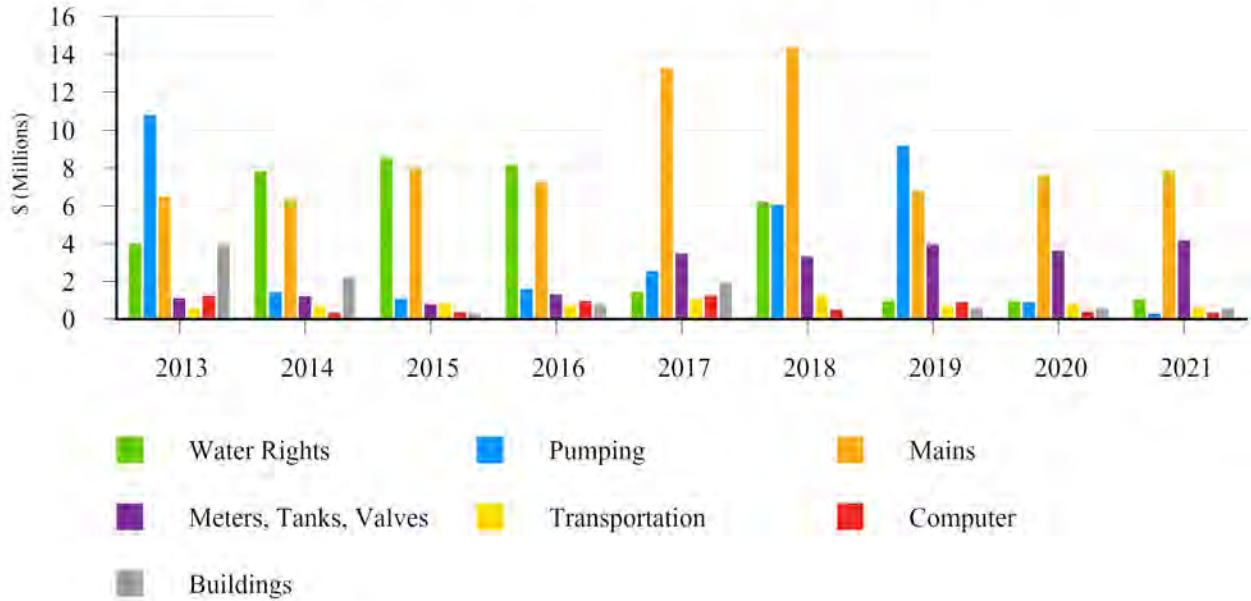
A Focus on Infrastructure Decision-Making

The prioritization process for the CIP involves evaluating capital needs and ranking potential projects or purchases based on a number of criterion including: age and condition of asset to be replaced, operational improvements, compliance and system expansion requirements, and impact on future operating budgets.

CAW goes a step further and utilizes a combination of methodologies for prioritizing underground pipelines for replacement. The most immediate are pipelines that are in the right-of-way of local streets or highways that are undergoing rehabilitation or widening, and require that the existing utilities, including water mains, be relocated out of the way of those improvements. These pipeline assets, more commonly, have not reached the end of their useful live but must be replaced regardless.

Three years ago, CAW staff developed a matrix which assesses every length of pipe in the distribution system through the utilization of historical pipeline data combined with existing GIS information. Staff assigns a numerical value for each of a number of variables which gauge the condition and criticality of that segment of pipe. The matrix then generates a numerical value with the highest number being the highest priority for pipeline replacement. This method identifies geographically disparate segments of pipe across the distribution system. In order to economize the replacement of these mains, minimize the disruption of service to customers, and not have multiple disturbances of local streets and landscapes, CAW staff also evaluates pipelines adjacent to the high-priority segments for replacement. Industry research and CAW's own experience has shown pipe age and break history are very good predictors of future failure. Based on this information, older 2-inch galvanized pipe, along with some older transmission mains will be the focus of CAW's replacement efforts.

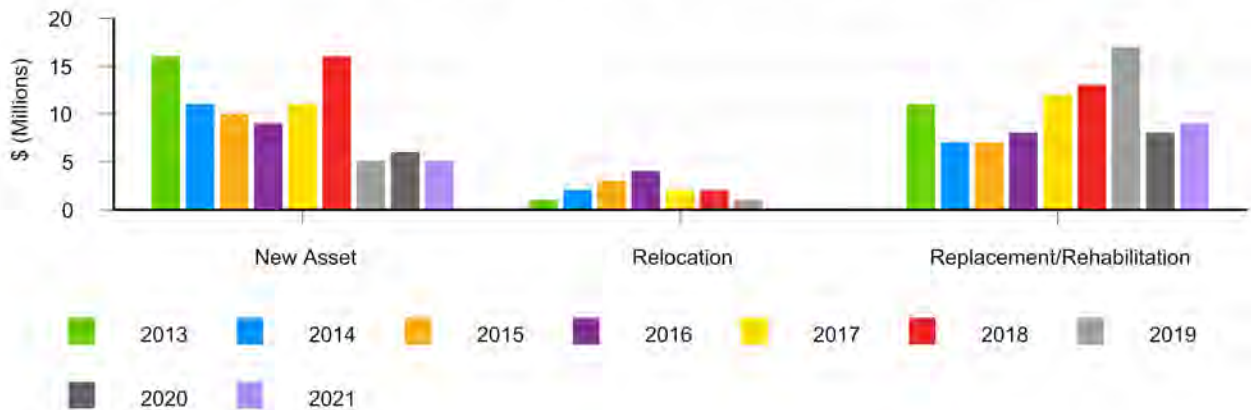
CAPITAL EXPENDITURE BY ASSET CATEGORY



Annual Expenditure Trend

CAW anticipates completing approximately \$109.3 million in capital improvement projects from 2017-2021. During this five-year period, the largest year of capital expenditures is projected to be in 2018, driven primarily by water main replacement projects and bond funded construction at the Ozark Point Plant, Wilson Plant Pump Station #1A, and in the Maumelle Water Management (MWM) service area. Expenditures on pumping related assets spike in 2018-2019 due to the bond funded construction on Wilson Plant Pump Station #1A. Water Rights expenditures drop in 2017 due to the movement of the anticipated Degray Lake water rights purchase to 2018. This purchase has been budgeted yearly since 2014, but has been delayed due to ongoing negotiations with the U.S. Army Corps of Engineers (the Corps).

CAPITAL EXPENDITURE BY ASSET TYPE



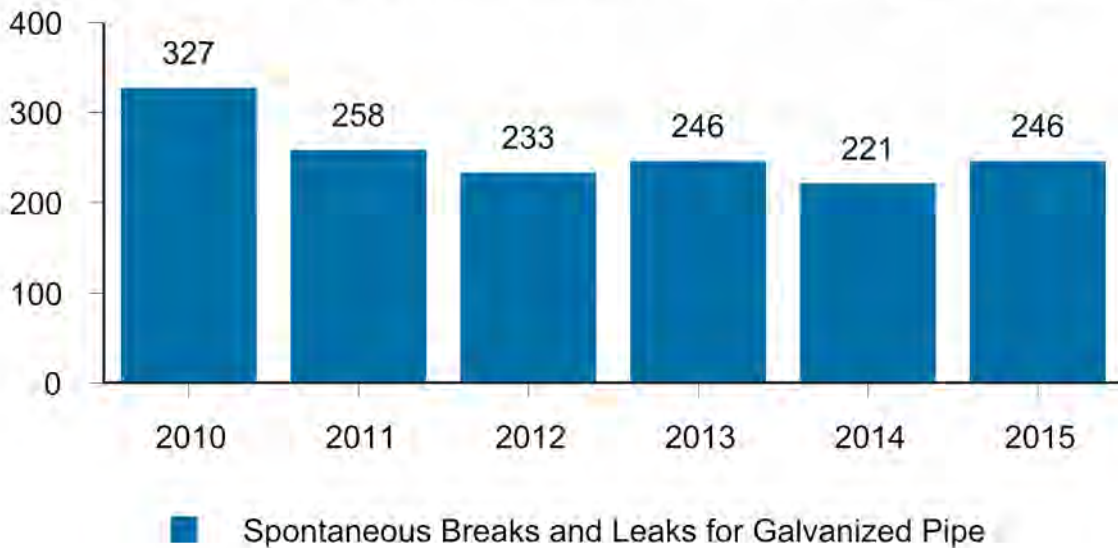
Spikes in replacement and rehabilitation capital expenditures occur in 2018 and 2019 because of the bond funded rehabilitation and modernization of the Ozark Point Plant and Wilson Plant Pump Station #1A. A spike in new asset capital expenditures occurs in 2018 due to the construction of a five mile long 30-inch transmission main to connect the MWM service area to the CAW distribution system.

Increases in capital expenditures for replacement and rehabilitation projects will allow CAW to increase pipe replacements and address aging infrastructure needs at Ozark Point Plant and Wilson Plant Pump Station #1A.

Why Galvanized Pipe

Currently, galvanized pipe accounts for approximately 6% of CAW’s water mains but is responsible for over 40% of the spontaneous breaks throughout the system.

Breaks and Leaks on Galvanized Pipe - Weighted Age 61



CAW currently maintains 129 miles of galvanized pipe within its system. There are segments of galvanized pipe that have been in service for more than 114 years. Galvanized pipe, however, only has an anticipated useful life of 50 years; the Utility’s weighted average age for galvanized pipe is currently at 61 years.

While galvanized pipe presents one of the more critical needs in the CAW distribution system, competing capital needs related to relocation projects required funding for galvanized pipe replacement projects to be greatly reduced in the 2016 through 2019 planning window (\$3.5 million) compared to what had been previously planned (\$12.4 million). A number of projects with uncertain project timing or funding requirements were moved to unfunded status for the 2017-2019 planning horizon. This change allowed funding for all types of pipe replacement to be increased to \$21.7 million for the five-year period and places needed emphasis on pipe replacement efforts. Projects placed in unfunded status are discussed later in this document.

Current System Pipe Types

CAW Distribution Pipe Age as of 9/6/2016

Material	Useful Life	Average Age	Total Feet	Total Miles
Asbestos Cement	60	58	180,587	34.2
Brass	80	20	16,478	3.1
C900 PVC	100	22	7,053	1.3
Cast Iron	100	58	4,243,316	803.7
Copper	80	33	7,019	1.3
Ductile Iron	100	19	4,472,571	847.1
Galvanized Iron	50	61	682,613	129.3
Pre-stressed Concrete Pipe-SP12-ECP	80	36	18,954	3.6
Pre-stressed Concrete Cylinder Pipe -SP5-LCP	80	49	179,146	33.9
PVC	100	24	2,719,334	515
Steel Pipe	60	37	29,615	5.6
Wrought Iron	100	70	20,158	3.8

Overall System Average Age - 36.3

Unfunded Capital Projects

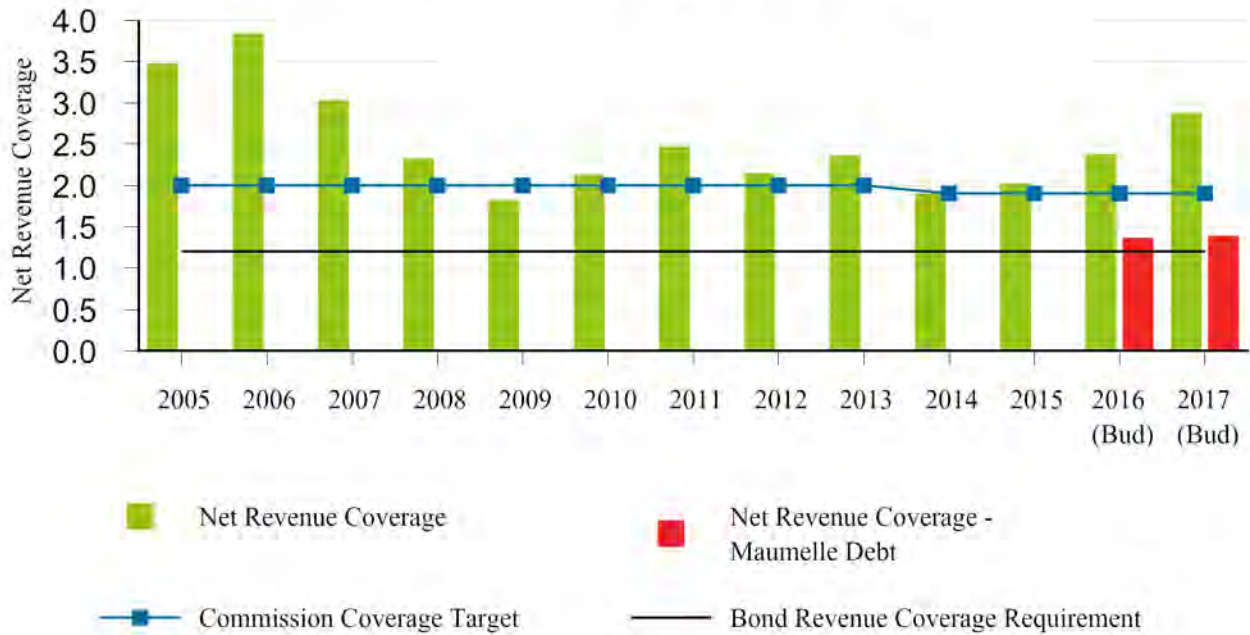
There is currently approximately \$25.6 million in unfunded capital during the latter half of the current five-year planning horizon. These projects include various transmission main upgrades included in the Utility Master Plan, a 1 million gallon storage tank, improvements to the Lake Maumelle dam, and approximately \$9.8 million of relocations related to the Arkansas Highway and Transportation Department (AHTD) 30 Crossing project. The 30 Crossing Project will expand and rebuild the Interstate 30 corridor through downtown Little Rock and North Little Rock. This state bond funded roadway project will also replace the existing Interstate 30 bridge across the Arkansas River. CAW currently has a 24-inch main on the existing bridge which will require relocation to the new bridge structure during the project. Once the funding requirements for these projects become more certain, a funding plan for these projects will be established. Options include funding out of excess revenues over the five-year planning period, or a project specific bond issue. A detailed list of these unfunded projects is presented below.

Description	2017	2018	2019	2020	2021
30 Crossing Project - Relocate 24" Transmission Main - Interstate 30 AR River Bridge Crossing - AHTD	—	—	250,000	2,750,000	1,150,000
30 Crossing Project - Relocate 24"/20"/12"/8" Mains - Interstate 30 Widening - AHTD	—	—	1,867,000	1,367,000	2,366,000
Install Master Plan Transmission Mains - Various	—	—	—	1,000,000	1,000,000
Construct 1.0MG Storage Tank #5B - Pulaski Heights	—	—	—	2,000,000	—
Improve Lake Maumelle Dam - Slope Remediation	—	—	—	4,000,000	4,000,000
Install 24" Transmission Main - N. Locust St/PS #23 - NLR	—	—	—	1,900,000	—
Install 16" Parallel Feed Main to Tanks #14A/14B - Mabelvale	—	—	—	—	2,000,000
	\$ —	\$ —	\$ 2,117,000	\$13,017,000	\$10,516,000

Primary Funding and Financing Methods

The primary funding sources for capital expenditures are revenue bonds and rates. In early 2017 and mid 2018, two separate bonds totaling \$16.0 million will be issued with the Arkansas Natural Resources Commission (ANRC). These ANRC Bond Issue proceeds will be drawn over two years to fund Ozark Point Plant improvements and to partially fund Wilson Plant Pump Station #1A improvements.

Debt-Service Coverage Ratio by Year



CAW's bonds require revenue coverage not less than 120% of debt service. Prior to 2015, the CAW Board of Commissioners maintained a more conservative target of 200% including Rate Stabilization Account transfers. Resolution 2015-01 was enacted in March 2015 and clearly defined triggers for Rate Stabilization Account transfers. The resolution establishes a debt service coverage target of 190%. Coverage at or below 175% at year-end will trigger a transfer from the Rate Stabilization Account to achieve 175% coverage. Conversely, coverage in excess of 200% at year-end shall trigger the transfer of general revenue funds to the Rate Stabilization Account to achieve a 200% coverage ratio.

CAW completed a rate study in 2015 that examined multiple funding mechanisms in order to allow the Utility to meet all revenue requirements. Increased revenues are necessary in order to meet increasing operations and maintenance costs and capital needs in 2017 and beyond. The results of this study allowed capital spending from rates to increase from \$8.5 million in 2016 to \$10.25 million in 2017.

Over the next five years, capital expenditures are projected to average \$21.9 million per year. During this time, CAW will rely primarily on a combination of rate-based revenue and bond proceeds to fund capital improvements. This funding decision will require CAW staff and Board to identify opportunities to increase revenue intended for capital improvements and to prioritize specific asset replacement projects based on limited resources.

Acknowledgment

This Capital Improvement Plan - Supplement to the 2017 Financial Plan is the result of the combined efforts of the Finance department, department directors, and staff to focus on the future capital needs of the Utility, the community, and our customers.

CAPITAL IMPROVEMENT PLAN - FIVE-YEAR PLAN

DESCRIPTION	2017	2018	2019	2020	2021	5yr Total
Land, Water Rights, And Water Source						
Improve Spillway - Lake Winona					75,000	75,000
Forest Restoration and Enhancement - Winrock Grass Farm	50,000					50,000
Purchase DeGray Lake Water Rights		4,640,000				4,640,000
Improve Forest Road(s)	50,000	50,000	50,000	50,000	50,000	250,000
Purchase Conservation Easements	300,000	300,000	300,000	300,000	300,000	1,500,000
Purchase Property	500,000	500,000	500,000	500,000	500,000	2,500,000
Professional Services - Land Surveying	5,000	5,000	5,000	5,000	5,000	25,000
Professional Services - Property Appraisals	5,000	5,000	5,000	5,000	5,000	25,000
River, Floodplain, and Wetland Restoration	100,000	100,000	100,000	100,000	100,000	500,000
Restore Hydrologic Flow - USACE Sec. 206	50,000	350,000				400,000
Data Needs Analysis - Watershed		250,000				250,000
Purchase 1 MGD Water Rights in Lake Ouachita	212,000					212,000
Wetlands Mitigation - Maumelle	183,000					183,000
TOTAL	1,455,000	6,200,000	960,000	960,000	1,035,000	10,610,000
Pumping And Treatment Equipment						
Replace GAC Media	260,000	260,000	260,000	260,000	260,000	1,300,000
Improve Generator Diesel Fuel Tank - Lake Maumelle	40,000					40,000
Rebuild Pump #3 - Lake Maumelle	25,000	200,000	75,000			300,000
Replace On-Line Turbidimeters - Ozark		52,000				52,000
Replace Calcium Hypochlorite Feeders	26,000					26,000
Refurbish Wilson & Ozark Lime Feeder	175,000					175,000
Improve Ozark Point Plant - Engineering Design	909,000					909,000
Improve Ozark Point Plant - Construction		2,631,000	7,894,000			10,525,000
Improve Ozark Point Plant - Construction Management Services		405,000				405,000
Improve Pump Station #1A - Construction Phase 1 - Wilson Plant	924,000	1,585,000	660,000			3,169,000
Improve Pump Station #1A - Engineering Design - Wilson Plant	164,000					164,000
Purchase Vac-Tron		70,000				70,000
Replace Wilson Filter Media and Renovate Basin		25,000	25,000	25,000	25,000	100,000
Construct Booster Pump Station #11 Improvements/Rehabilitation		75,000	250,000			325,000
Construct Manitou Booster Pump Station Improvements - Maumelle		400,000				400,000
Install Pump in Wilson High Service Pump Station #1B - Maumelle		403,000				403,000
Construct Booster Pump Station #17B - Highland Ridge				600,000		600,000
TOTAL	2,523,000	6,106,000	9,164,000	885,000	285,000	18,963,000

CAPITAL IMPROVEMENT PLAN - FIVE-YEAR PLAN

DESCRIPTION	2017	2018	2019	2020	2021	5yr Total
Water Mains						
Developer Funded Capital	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000	12,500,000
Developer Participation - New Mains	50,000	50,000	50,000	50,000	50,000	250,000
Relocate Water Mains - Undesignated/Unknown Locations	100,000	300,000	300,000	250,000	250,000	1,200,000
Install 12-inch Diameter Main - W. Baseline - Interconnection W. Markham and Mabelvale - Proj 4092	340,000					340,000
Install 30-inch Diameter Transmission Main - Maumelle - Construction	4,201,000	5,041,000				9,242,000
Install 30-inch Diameter Transmission Main - Maumelle - Engineering	139,000	128,000				267,000
Install 42/36-inch Diameter Remotely Operated Valves - Northbelt Trans. Main - Rodney Parham Rd	160,000					160,000
Install Distribution System Pressure Improvements - Maumelle	75,000					75,000
Professional Services - Engineering	5,000	5,000	5,000	5,000	5,000	25,000
Relocate 12/8/6-inch Diameter Water Main - Phase 1 - Kanis Rd/Shackleford to Bowman -LR	400,000					400,000
Relocate 16-inch Transmission Main - Capitol Drain/N. Cantrell Rd- LR	100,000	100,000				200,000
Relocate 36-inch Diameter Transmission Main - Mississippi at I-630 - Proj 4030 - AHTD	300,000					300,000
Relocate 8-inch Diameter Water Main - Chicot Rd/Mabelvale Pike - Proj 3903 - LR	300,000					300,000
Relocate 8-inch Diameter Water Main - Geyer Springs Rd Rail Road Bridge - Proj 4239 - LR	120,000					120,000
Relocate 8/12-inch Diameter Water Main - Counts Massie/Crystal Hill Rd - Proj 4037 - Maumelle	400,000					400,000
Replace Control Valve - Storage Tank #23	20,000					20,000
Replace Distribution Mains - Maumelle	606,000	1,213,000				1,819,000
Replace Water Mains - Galv, AC, CI - Systemwide	3,360,000	2,860,000	2,650,000	3,900,000	4,425,000	17,195,000
Relocate 12-inch Diameter Water Main - So. University - 28th/Col. Glenn - LR		500,000				500,000
Relocate 24-inch Diameter Transmission Main - Maryland Avenue - SRWD		1,200,000				1,200,000
Install 20-inch Diameter Swing Connection - Gravity System - Chicot Rd/So. University		75,000				75,000
Relocate 12/8/6-inch Diameter Water Main - Phase 2 - Kanis Rd/Bowman to Gamble -LR			600,000			600,000
Relocate 12/8-inch Diameter Water Main- Hwy 10 Widening/I-430 to Sam Peck - AHTD		300,000	600,000			900,000
Relocate 12/8-inch Diameter Water Main - HWY 10 Widening/I430 to Sam Peck- REIMBURSEMENT			(300,000)			(300,000)
Install Master Plan Distribution Mains - Various				250,000	500,000	750,000
Install 12-inch Diameter Water Main - West Markham to West Markham Pressure Zone Interconnection			250,000			250,000
Install 8-inch Diameter Water Main - Joslin Rd/Oak Grove Looping				200,000		200,000
Install 12-inch Diameter Water Main - Pump Station #28 Suction Improvements				350,000		350,000
TOTAL	13,176,000	14,272,000	6,655,000	7,505,000	7,730,000	49,338,000
Meters, Hydrants, Valves						
Install, Replace, and Relocate Mains	90,000	91,000	93,000	94,000	95,000	463,000
Install Valves	80,000	81,000	82,000	83,000	84,000	410,000
Install Meters for New Services	240,000	243,000	247,000	251,000	255,000	1,236,000
Install Mains - Maumelle	12,000	14,000	15,000	16,000	16,000	73,000

CAPITAL IMPROVEMENT PLAN - FIVE-YEAR PLAN

DESCRIPTION	2017	2018	2019	2020	2021	5yr Total
Install Hydrants - Maumelle	8,000	8,000	8,000	9,000	9,000	42,000
Install Valves - Maumelle	5,000	5,000	6,000	6,000	7,000	29,000
Install Meters - Maumelle	12,000	12,000				24,000
Install, Replace, and Transfer Services - Maumelle	255,000	212,000	215,000	220,000	255,000	1,157,000
Purchase/Install Meters - Change Out Program	592,000	596,000	600,000	605,000	609,000	3,002,000
Install, Replace, and Transfer Services	1,209,000	1,227,000	1,246,000	1,264,000	1,283,000	6,229,000
Install and Replace Hydrants	131,000	133,000	135,000	137,000	139,000	675,000
Meter Change Out Program - Maumelle		475,000	475,000			950,000
Replace Commercial Meters (outdated touchreads)	180,000					180,000
Install AMI/AMR Meters			50,000	50,000	50,000	150,000
Replace Master Meters	100,000	100,000				200,000
TOTAL	2,914,000	3,197,000	3,172,000	2,735,000	2,802,000	14,820,000
Storage Tanks						
Improve Tank Management Systems	35,000		35,000	35,000	35,000	140,000
Restore - Tank #2	400,000				600,000	1,000,000
Restore - Tank #17			200,000			200,000
Restore - Tank #22			600,000			600,000
Restore - Tank #8			55,000			55,000
Restore - Tank #21					850,000	850,000
Restore Ground Storage Tank #2 - Maumelle				773,000		773,000
Restore - Tank #25				210,000		210,000
Construct Structural Improvements to Tank #1 - Maumelle	200,000	200,000				400,000
TOTAL	635,000	200,000	890,000	1,018,000	1,485,000	4,228,000
Transportation Equipment						
Replace Vehicles	842,000	608,000	478,000	457,000	365,000	2,750,000
Replace Dump Truck(s)	188,000	310,000	194,000	215,000	100,000	1,007,000
TOTAL	1,030,000	918,000	672,000	672,000	465,000	3,757,000
Construction Equipment						
Purchase Directional Drilling Machine		235,000				235,000
TOTAL	—	235,000	—	—	—	235,000
Computer Hardware, Software, And Other Electronic Equipment						
Replace SCADA Human Machine Interface	515,000					515,000
Install SCADA in Surge Tank Building - Lake Maumelle	10,000					10,000
Purchase Compliance Backup Data Logging - Wilson	17,000					17,000
Purchase Switchgear Control Node - Wilson	25,000					25,000

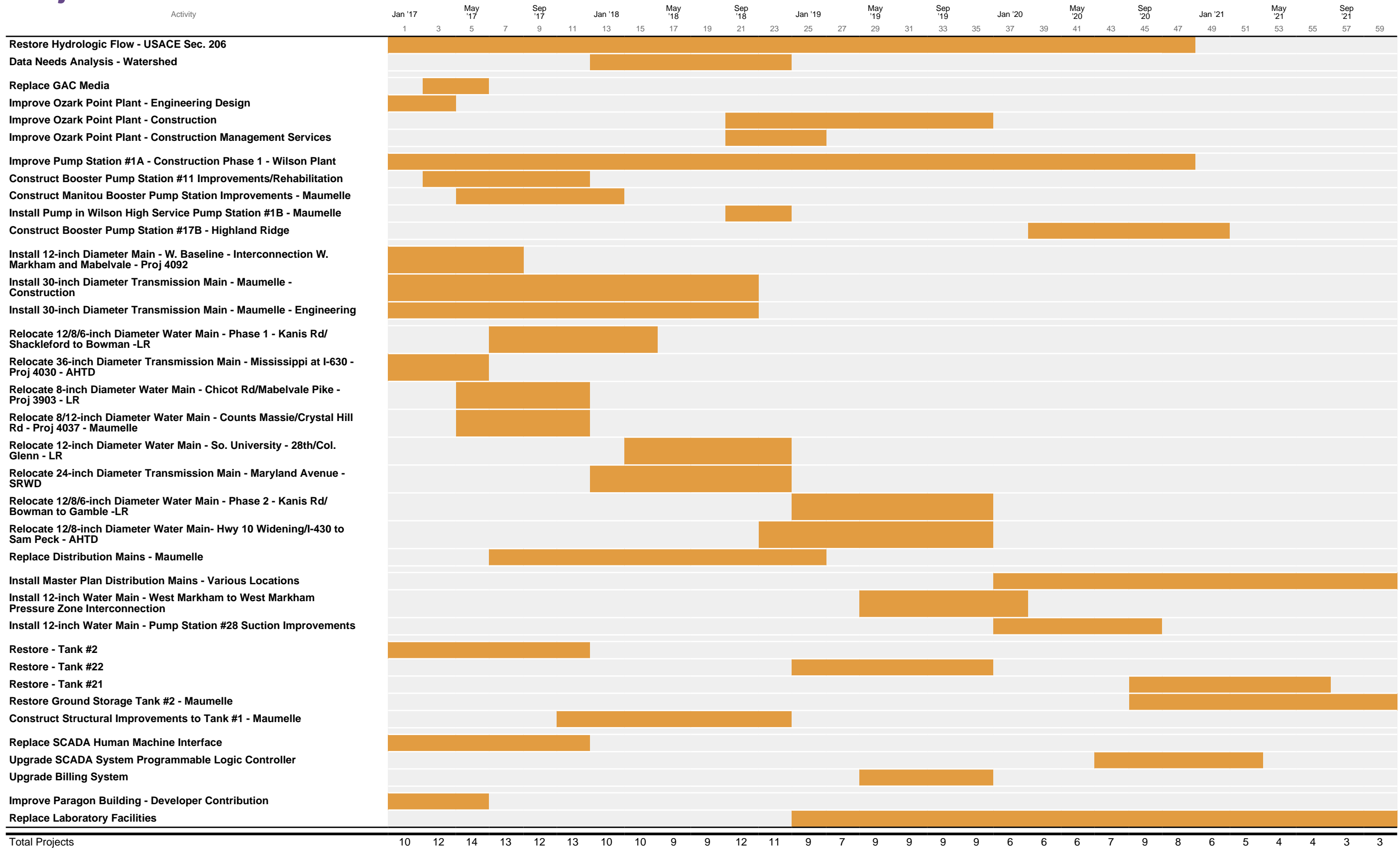
CAPITAL IMPROVEMENT PLAN - FIVE-YEAR PLAN

DESCRIPTION	2017	2018	2019	2020	2021	5yr Total
Purchase SCADA System Radios		50,000	50,000			100,000
Upgrade SCADA Plant Programmable Logic Controller		75,000				75,000
Upgrade SCADA System Programmable Logic Controller				150,000	150,000	300,000
Replace Wilson/Ozark Programmable Logic Controllers five processors and Input/Output Modules		25,000				25,000
Upgrade Zetron Data Line to Cellular	40,000					40,000
Purchase SCADA System Radios		50,000				50,000
Replace Budgeting and Reporting System (Business Intelligence)	95,000					95,000
Purchase and Implement Laboratory Information Management System					50,000	50,000
Replace Ion Chromatograph				100,000		100,000
Replace Inductively Coupled Plasma Mass Spectrometer					150,000	150,000
Improve Customer Service Software - Add Customer Online Chat Capability	35,000					35,000
Purchase Data Storage Protection	50,000					50,000
Improve GIS Custom Map Tools for Cityworks Server	40,000					40,000
Replace GPS Equipment - Utility Wide	30,000			30,000	30,000	90,000
Purchase OnLine New Employee Application Software	30,000					30,000
Purchase OnLine Performance Evaluations Software	30,000					30,000
Purchase Cisco Media Sense - Call Recording	30,000					30,000
Replace and Update Network Switches	40,000				40,000	80,000
Replace Servers	50,000	20,000	20,000	20,000	20,000	130,000
Develop Information Technology Master Plan	175,000					175,000
Replace Wireless Access Points	35,000					35,000
Upgrade Operating Systems on Servers		20,000				20,000
Network PIN Test		15,000				15,000
Purchase Document Management Software		50,000				50,000
Improve IT Systems - IT Master Plan		50,000				50,000
Replace Server Uninterruptable Power Supply Units		20,000				20,000
Replace Network Firewalls		30,000				30,000
Upgrade EnQuesta Server/Sans		85,000				85,000
Purchase Additional SAN Disk VMWare Servers			65,000			65,000
Purchase Microsoft Server Licenses			23,000			23,000
Upgrade Billing System			700,000			700,000
Purchase Billing Printer			48,000			48,000
Upgrade Financial Management Software				40,000		40,000
Purchase enQuesta Disaster Recovery Server - ODA				45,000		45,000
Replace Large Format Scan/Print/Copy Machine				25,000		25,000
Upgrade Phone System				85,000		85,000
Upgrade Phone System - Lake Maumelle					60,000	60,000
Replace SCADA Switches					40,000	40,000

CAPITAL IMPROVEMENT PLAN - FIVE-YEAR PLAN

DESCRIPTION	2017	2018	2019	2020	2021	5yr Total
TOTAL	1,247,000	490,000	906,000	495,000	540,000	3,678,000
Buildings And Grounds						
Replace Cable Reel System	13,000					13,000
Rehabilitate Concrete and Roofs on Cone Valve and Generator Building - Lake Winona	15,000					15,000
Improve SCADA Server Room	30,000					30,000
Enclose One Bay on Valve Shed (heated storage directional drilling machine)	42,000					42,000
Install Generator at Pump Station #16 D	37,000					37,000
Install Truck Wash at Maryland Avenue Complex (MAC)	6,000					6,000
Replace Dry Dirt Bin	30,000					30,000
Replace Wilson East Filter Gallery Roof	28,000					28,000
Improve JTH Office	50,000					50,000
Improve Paragon Building	25,000					25,000
Improve Paragon Building - Developer Contribution	1,300,000					1,300,000
Strategic Planning Initiatives	200,000					200,000
Remove Dam / Construct Bridge - Winrock Grass Farm (Grants)	100,000					100,000
Install Sampling Stations	9,000	9,000	9,000	9,000	10,000	46,000
Install Security Enhancements	35,000	35,000	35,000	35,000	35,000	175,000
Improve Building - Winrock Grass Farm	10,000					10,000
Improve Marina Facility	10,000	10,000	10,000	10,000		40,000
Replace Laboratory Facilities			500,000	500,000	500,000	1,500,000
TOTAL	1,940,000	54,000	554,000	554,000	545,000	3,647,000
GRAND TOTAL	24,920,000	31,672,000	22,973,000	14,824,000	14,887,000	109,276,000

Project Planner



* Projects that are ongoing or that have an indefinite project duration are excluded from the above schedule.

Project Name: Purchase DeGray Lake Water Rights
Department: Engineering
Focus Area: Water Source
Location: DeGray Lake



Name:
Jim Ferguson

Duration: (Months)
N/A

Est Start Date:
December, 2018

Total Cost:
\$4,640,000

PROJECT PURPOSE

This project is the purchase of 100 MGD of the 120 MGD water rights currently under the right of first refusal contract with the Department of the U.S. Army Corps of Engineers. With this purchase, CAW will own or have rights to three water supply sources, ensuring a sustainable long-term water supply which will meet the Utility's needs well into the next century. This purchase will decrease operation and maintenance costs approximately \$88,000 per year and increase debt service costs approximately \$763,000 per year though 2022.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
ARMY	—	4,640,000	0	0	0

O&M Impact

G/L	2017	2018	2019	2020	2021
	0	-88,000	-88,000	-88,000	-88,000

EUM ATTRIBUTE

- **Water Resource Adequacy** - One of the core components of CAW's mission is to ensure a long-term water supply for future generations. The purchase of the 100MGD water rights from DeGray Lake ensures a reliable supply of water, projected to meet CAW needs for over 150 years. This project also adds a third water supply for CAW, ensuring a sustainable, long-term supply of water from a variety of sources.
- **Operational Resiliency** - With this purchase, CAW will have access to a total of three water supply sources. Due to the location of the three sources in relation to each other, it is highly probable that any natural or manmade disaster will only impact a portion of CAW's available water supply

Project Name: Improve Forest Road(s)
Department: Water Quality Department
Focus Area: Watershed Management
Location: CAW-Owned Watershed Properties



Name:
Raven Lawson

Duration: (Months)
Ongoing

Est Start Date:
January 2017

Total Cost:
\$250,000





PROJECT PURPOSE

A comprehensive network of forest and property access roads is needed to maintain, secure, and enhance CAW-owned lands and minimize impacts to water quality. The goal of this project is to improve existing roads and install additional access as-needed using Arkansas Forestry

Commission's Best Management Practices for Water Quality Protection. Currently many of our access roads are in need of repair and many CAW properties have little to no accessibility.

The following objectives will be accomplished:

- Address improvements to existing roads, including washed-out areas, displaced roads, improperly surfaced and maintained roads, replace culverts, etc.
- Create access for ecological timber thinning, prescribed burning, and other forest and wildlife management activities.
- Increase security through road maintenance and gate installation.
- Increase protection by properly addressing fire lanes.
- Create Forest Road Best Management Practice (BMP) demonstration areas to establish and promote stewardship with local governments and landowners in the watershed.
- Increase and improve accessibility to remote areas for emergency response.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
WPF	50,000	50,000	50,000	50,000	50,000

O&M Impact

G/L	2017	2018	2019	2020	2021
	—	—	—	—	—

EUM ATTRIBUTE

This project will enhance Community Sustainability, Product Quality, Water Resource Adequacy, Operational Resiliency, and provide Stakeholder Understanding and Support.

- **Community Sustainability** - Is explicitly cognizant of and attentive to the impacts its decisions have on current and long-term future community and watershed health and welfare. Manages operations, infrastructure, and investments to protect, restore, and enhance the natural environment; efficiently uses water and energy resources; promotes economic vitality; and engenders overall community improvement. Explicitly considers a variety of pollution prevention, watershed, and source water protection approaches as part of an overall strategy to maintain and enhance ecological and community sustainability.

- **Product Quality** - Produces potable water, treated effluent, and process residuals in full compliance with regulatory and reliability requirements and consistent with customer, public health, and ecological needs.
- **Water Resource Adequacy** - Ensures water availability consistent with current and future customer needs through long-term resource supply and demand analysis, conservation, and public education. Explicitly considers its role in water availability and manages operations to provide for long-term aquifer and surface water sustainability and replenishment.
- **Operational Resiliency** - Ensures utility leadership and staff work together to anticipate and avoid problems. Proactively identifies, assesses, establishes tolerance levels for, and effectively manages a full range of business risks (including legal, regulatory, financial, environmental, safety, security, and natural disaster-related) in a proactive way consistent with industry trends and system reliability goals.
- **Stakeholder Understanding and Support** - Engenders understanding and support from oversight bodies, community and watershed interests, and regulatory bodies for service levels, rate structures, operating budgets, capital improvement programs, and risk management decisions. Actively involves stakeholders in the decisions that will affect them.

Managing forest roads and access for the health of the watershed is an important part of CAW's stewardship of its lands. Planning and maintaining roads for management activities will involve identifying which areas need primary and secondary roads that will serve as access for prescribed burning, ecological thinning, and forest maintenance, as well as areas that will serve as firebreaks/lanes. Well planned and managed roads will enable CAW to effectively manage its lands by improving access and security and minimize impacts to water quality. This project is also part of an overall strategy to maintain and enhance ecological and community sustainability and provide watershed landowners and stakeholders with a resource for understanding Forest BMPs pertaining to roads.

Project Name: Purchase Conservation Easements
Department: Water Quality
Focus Area: Watershed Protection
Location: Lake Maumelle Watershed



Name:
Randy Easley

Duration: (Months)
Ongoing

Est Start Date:
January, 2017

Total Cost:
\$1,500,000



PROJECT PURPOSE

Conservation easements are one of the most powerful, effective tools available for the permanent conservation of private lands in the United States. Conservation easements are voluntary, legally binding agreements that limit certain types of land uses and developments in perpetuity. Each easement is a unique arrangement with the property owner. Benefits to the property owner can include cash payment or a substantial tax credit, as well as fulfilling the landowner's long-term conservation vision for their property. Conservation easements benefit the public and the environment while keeping land in private hands.

A conservation easement's purpose will vary depending on the character of the particular property, the goals of CAW, and the needs of the landowners. An easement's purposes might include maintaining and improving water quality, perpetuating and fostering the growth of healthy forests, or ensuring lands are managed so that they are always available to benefit the sustainable use of our water supply.

The ability to utilize conservation easements as opposed to fee title ownership allows the landowner to continue use of their property while achieving the management objectives of the Utility at a reduced cost.

CAW regularly reviews property for fee-simple and conservation easement purchase. However, at this time, specific conservation easement projects have yet to be identified.



PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
WPF	300,000	300,000	300,000	300,000	300,000

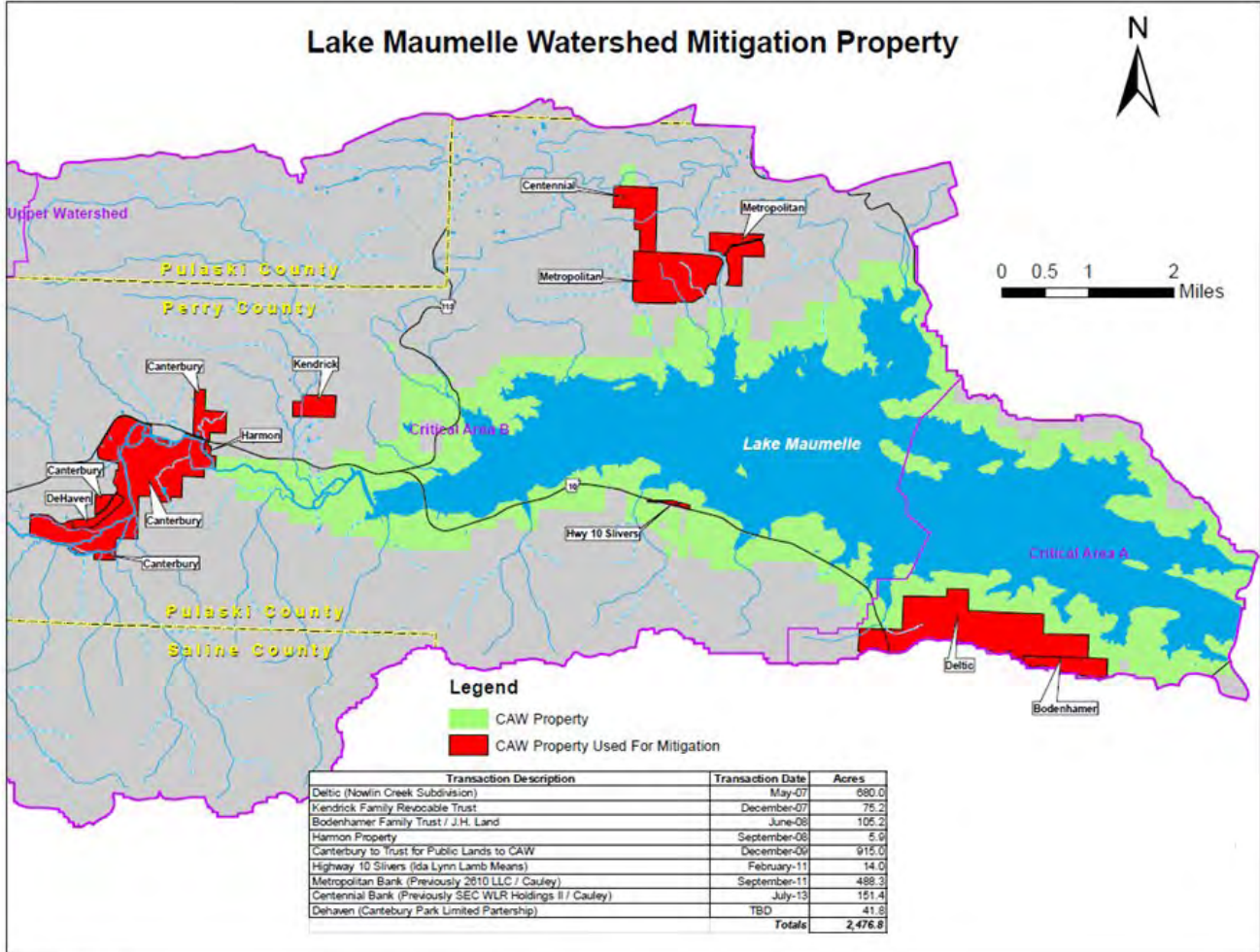
O&M Impact

G/L	2017	2018	2019	2020	2021
Maintenance	3,000	6,000	9,000	12,000	15,000

EUM ATTRIBUTE

- **Community Sustainability** - Is explicitly cognizant of and attentive to the impacts its decisions have on current and long-term future community and watershed health and welfare. Manages operations, infrastructure, and investments to protect, restore, and enhance the natural environment; efficiently uses water and energy resources; promotes economic vitality; and engenders overall community improvement. Explicitly considers a variety of pollution prevention, watershed, and source water protection approaches as part of an overall strategy to maintain and enhance ecological and community sustainability.
- **Infrastructure Stability** - Understands the condition of and costs associated with critical infrastructure assets. Maintains and enhances the condition of all assets over the long-term at the lowest possible life-cycle cost and acceptable risk consistent with customer, community, and regulator-supported service levels, and consistent with anticipated growth and system reliability goals. Assures asset repair, rehabilitation, and replacement efforts are coordinated within the community to minimize disruptions and other negative consequences.
- **Product Quality** - Produces potable water, treated effluent, and process residuals in full compliance with regulatory and reliability requirements and consistent with customer, public health, and ecological needs.
- **Stakeholder Understanding and Support** - Engenders understanding and support from oversight bodies, community and watershed interests, and regulatory bodies for service levels, rate structures, operating budgets, capital improvement programs, and risk management decisions. Actively involves stakeholders in the decisions that will affect them.
- **Water Resource Adequacy** - Ensures water availability consistent with current and future customer needs through long-term resource supply and demand analysis, conservation, and public education. Explicitly considers its role in water availability and manages operations to provide for long-term aquifer and surface water sustainability and replenishment.

Project Name: Purchase Property
Department: Water Quality
Focus Area: Watershed Protection
Location: Lake Maumelle Watershed



Name:
 Randy Easley

Duration: (Months)
 Ongoing

Est Start Date:
 January, 2017

Total Cost:
 \$2,500,000

PROJECT PURPOSE

Land purchases are essential to the protection and management of our watersheds. CAW can best manage the source water from the watersheds of Lake Maumelle and Lake Winona by purchasing land and applying scientifically sound practices and strategies for land and water management and conservation. By acquiring land within these source water areas, CAW can ensure safe, high quality drinking water for current customers and future residents of Central Arkansas.

Since 2007, CAW has purchased over 2,500 additional acres for watershed protection and improvement of water quality. The continuation of land purchases is consistent with recommendations of the 2007 Watershed Management Plan and will assist in the full implementation of the plan.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
WPF	500,000	500,000	500,000	500,000	500,000

O&M Impact

G/L	2017	2018	2019	2020	2021
Maintenance	2,500	5,000	7,500	10,000	12,500

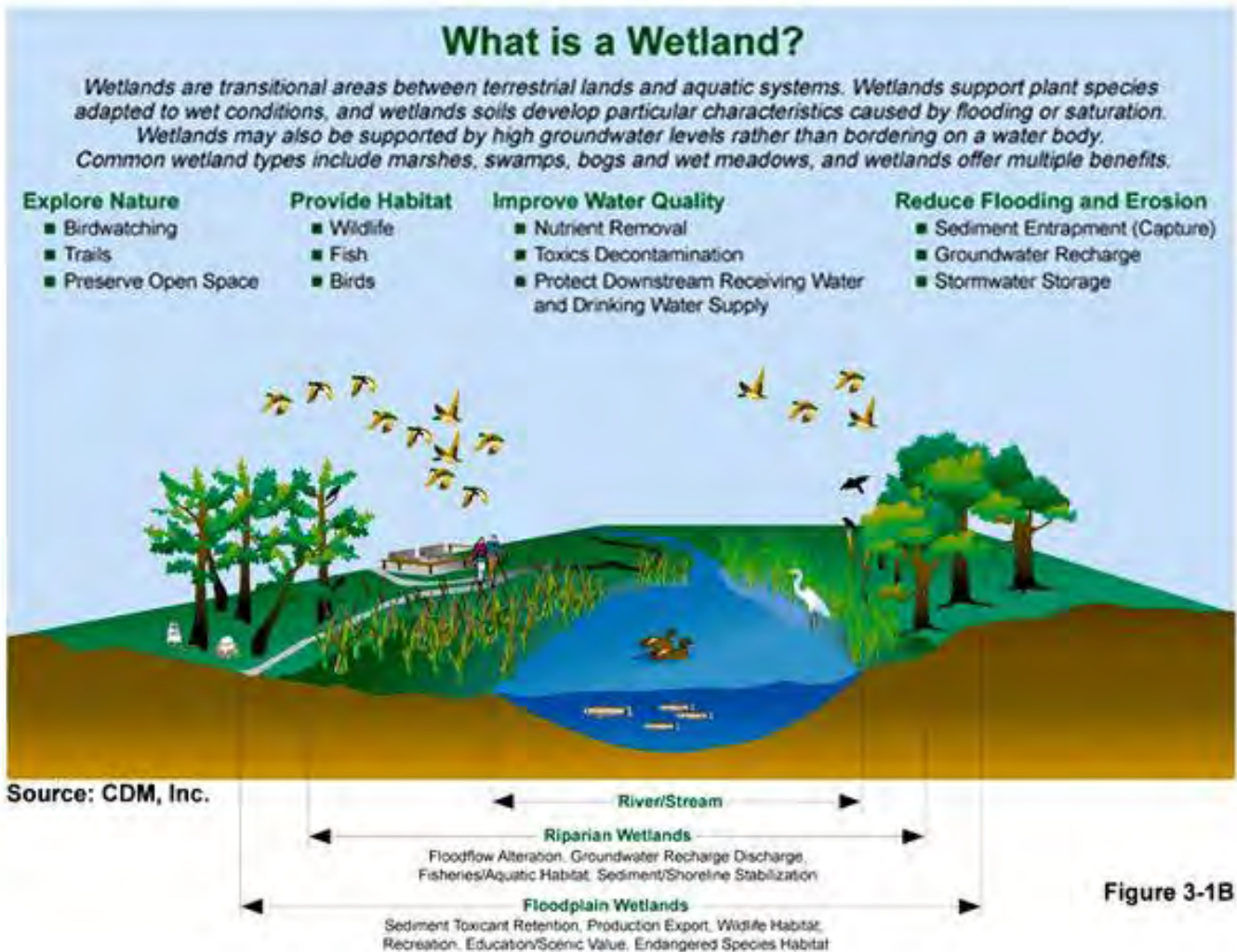
EUM ATTRIBUTE

- **Community Sustainability** - CAW can best manage its water supply sources via direct ownership of lands within its source water areas. Through application of sound practices and strategies for land conservation and water management, CAW can help to ensure safe drinking water, thriving wildlife and aquatic ecosystems, and recreational opportunities for current and future residents of Central Arkansas.
- **Product Quality** - Ensuring the quality of water entering CAW's lakes is one of the best ways CAW can ensure quality treated water is provided to its customers. The ecosystems surrounding the water source lakes provide a natural filtering mechanism which reduces the amount of silt and contaminants entering the source water supply. By protecting

these natural filters, CAW is able to ensure the highest quality source water, and thus the highest quality treated water possible.

- **Water Resource Adequacy** - Effective management of our current water sources is a key component of protecting overall water resource adequacy. Direct land ownership within CAW's watershed areas best positions the Utility to implement sound conservation and land management practices which will provide for long-term surface water sustainability and replenishment.

Project Name: River, Floodplain, and Wetland Restoration
Department: Water Quality
Focus Area: Watershed Protection
Location: Lake Maumelle Watershed



Name:
Randy Easley

Duration: (Months)
Ongoing

Est Start Date:
January, 2017

Total Cost:
\$500,000

PROJECT PURPOSE

CAW acquired approximately 900 acres in the watershed of Lake Maumelle, which is the drinking water supply for 400,000 people in several central Arkansas communities. A portion of the property was acquired through the U.S Department of Agriculture (USDA) Forest Legacy program with the intent of restoring the former Winrock Zoysia grass farm to native habitats, primarily forest, for the purpose of protecting the watershed. Several restoration and conservation projects are aimed to restore function to river, floodplain, and wetland resources.

The following objectives will be accomplished:

- River and stream channel restoration will result in better defined riffle, pool, run, and glide features that will provide improved aquatic habitat for fisheries and macro-invertebrates, while improving assimilation of nutrients from the water column.
 - Reducing streambank erosion and increasing attenuation and filtration of flood waters will help to reduce the sedimentation and nutrient loadings to the Maumelle River and, subsequently, Lake Maumelle.
 - Increasing ecological and recreational connectivity.
 - Improve Water Quality.
-

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
WPF	100,000	100,000	100,000	100,000	100,000

O&M Impact

G/L	2017	2018	2019	2020	2021
Maintenance	2,000	4,000	6,000	8,000	10,000

EUM ATTRIBUTE

- **Community Sustainability** - Through application of sound practices and strategies for land conservation and water management, CAW can help to ensure safe drinking water, thriving wildlife and aquatic ecosystems, and recreational opportunities for current and future residents of Central Arkansas.
- **Product Quality** - Ensuring the quality of water entering CAW's lakes is one of the best ways CAW can ensure quality treated water is provided to its customers. The ecosystems surrounding the water source lakes provide a natural filtering mechanism which reduces the amount of silt and contaminants entering the source water supply. By protecting these natural filters, CAW is able to ensure the highest quality source water, and thus the highest quality treated water possible.

Project Name: Restore Hydrologic Flow - USACE Sec. 206
Department: Water Quality
Focus Area: Watershed Protection
Location: Lake Maumelle Watershed



Name:
Randy Easley

Duration: (Months)
48 Months

Est Start Date:
January, 2017

Total Cost:
\$400,000

PROJECT PURPOSE

The hydrological flows of the Maumelle River through the former Winrock Grass Farm have been altered over the years with man-made low water crossings, construction of a levee system, and side-channel cut-offs to provide water supply for irrigation and control flooding. These physical alterations have induced a variety of impacts to both water quality and the ecosystem over time. Enhancing and restoring these systems is part of a larger restoration and management plan for the Winrock Grass Farm, which has already undergone some reforestation and other restoration of the property. CAW's efforts on this property are part of our mission toward responsible environmental stewardship to enhance the quality of life for Central Arkansas by protecting a long-term water supply for future generations.

This project is contingent on receipt of federal grant funding. CAW will act as sponsor for a U.S. Army Corp of Engineers, Section 206 Project. The first \$100,000 in funding for a feasibility study will be fully federally funded and any feasibility study costs above that would be cost-shared 50% federal and 50% non-federal. The total current estimated cost of the feasibility study is \$200,000; meaning an estimated share of the study by CAW would be \$50,000 in FY 2017.

Should the study determine a federal interest, a 65% federal and 35% non-federal cost-share would be required for design and implementation of the project. Those costs are currently estimated at \$1,000,000 (\$650,000-Federal/ \$350,000-Non-Federal).

The project will aim to restore hydrological flow of the Maumelle River at the former Winrock Grass Farm to historic, pre-farmed conditions. This project may include the removal of the remaining concrete river crossings, restoration of the river bank, re-establishing flow through wetland areas, etc.

If funded, the project will accomplish the following objectives:

- Reduce streambank erosion and increase attenuation and filtration of flood waters, ultimately reducing sediment and nutrient loadings to the Maumelle River and Lake Maumelle
 - Produce better-defined riffle, pool, run, and glide features of the river and restore flow into wetlands areas that will improve assimilation of nutrients from the water column, provide improved aquatic habitat for fisheries and macro-invertebrates, and minimize the potential for flooding on surrounding property.
-

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
WPF	50,000	350,000	—	—	—

O&M Impact

G/L	2017	2018	2019	2020	2021
Maintenance	—	—	10,000	7,500	5,000

EUM ATTRIBUTE

- Community Sustainability** - Through application of sound practices and strategies for river restoration, land conservation, and water management, CAW can help to ensure safe drinking water and thriving wildlife and aquatic ecosystems.
- Product Quality** - Ensuring the quality of water entering CAW's lakes is one of the best ways CAW can ensure quality treated water is provided to its customers. The ecosystems surrounding the water source lakes provide a natural filtering mechanism which reduces the amount of silt and contaminants entering the source water supply. By protecting these natural filters, CAW is able to ensure the highest quality source water, and thus the highest quality treated water possible.
- Water Resource Adequacy** - Effective restoration and management of our current water sources is a key component of protecting overall water resource adequacy. Restoring CAW's watershed areas and source tributaries best positions the Utility to provide for long-term surface water sustainability and replenishment.

Project Name: Data Needs Analysis - Watershed
Department: Water Quality
Focus Area: Watershed Management
Location: Lake Winona and Lake Maumelle and Watersheds



Name:
Randy Easley

Duration: (Months)
12 Months

Est Start Date:
January 2018

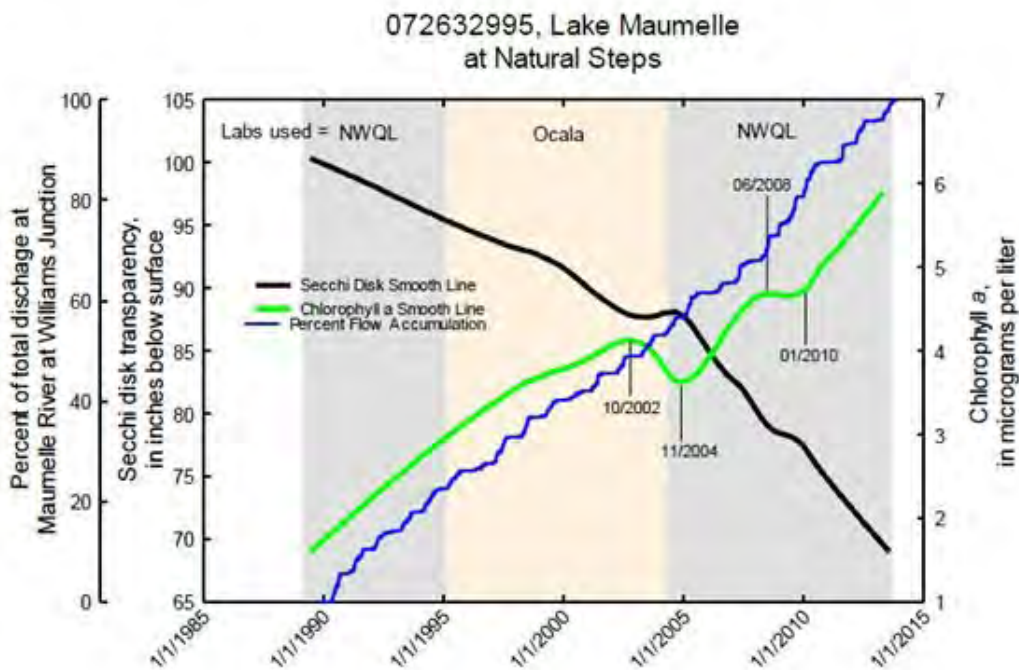
Total Cost:
\$250,000

PROJECT PURPOSE

Because watersheds are dynamic entities that respond to changes in land use, forest management, climate, and other factors, a comprehensive water quality evaluation is important to the ongoing assessment of the impact of these changes.

Consistent water quality and biota monitoring of the lakes and their tributaries collected as part of this project will provide data and information that will document the success of our watershed protection efforts and guide the direction and priority of future efforts. As a component of this effort, CAW will seek a partnership with an organization that specializes in multiple aspects of water quality analysis. During this evaluation, the lakes, tributaries, and other areas of the watersheds will be monitored and assessed for seasonal and land use impacts. Data from chemical, physical, and biological monitoring, as well as stream flow and meteorological data such as Next Generation Weather Radar (NEXRAD), will help provide an overall picture of the health of the watersheds and demonstrate any trends in improvement or degradation in the watersheds of Lake Winona and Lake Maumelle.

New data will allow watershed models to simulate changes associated with land use (as affected by the rules and regulations outlined above), such as impacts from storm water runoff and provide direction for adaptive management of CAW's Watershed Protection Plan.

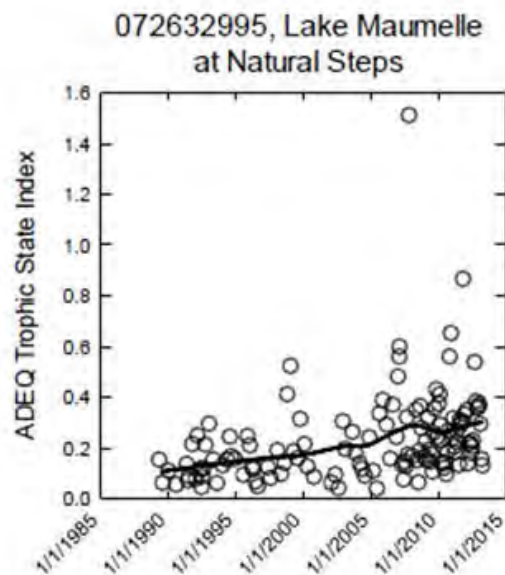
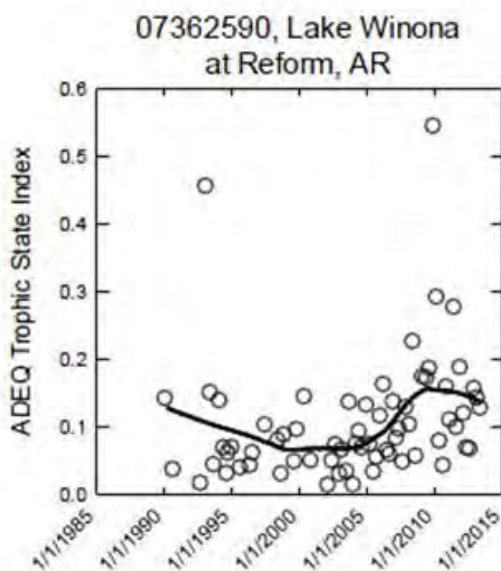




Cyanobacteria - also known as blue-green algae, are a major concern for surface drinking water utilities.



Mayfly Nymph - (Order Ephemeroptera) are a pollution sensitive species that are often used to monitor and track water resource health.





PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
WPF	—	250,000	—	—	—

O&M Impact

G/L	2017	2018	2019	2020	2021
	—	—	—	—	—

EUM ATTRIBUTE

- Community Sustainability** - The resultant water quality assessment will assist CAW Watershed Protection staff in protecting, restoring, and enhancing the natural environment in the watersheds. It will help in development of future pollution prevention, watershed, and source water protection approaches as part of an overall strategy to maintain and enhance ecological and community sustainability.
- Product Quality** - Data from this project will help define conservation objectives, public education projects, and sustainability measures to protect water quality through adaptive management of the Watershed Protection Plan.
- Water Resource Adequacy** - Effective management of our current water sources is a key component of protecting overall water resource adequacy. The data produced by this project will provide development of future pollution prevention, watershed, and source water protection. Implementation of these approaches will help to ensure long-term surface water adequacy and sustainability for CAW's customers.

Project Name: Replace GAC Media
Department: Water Production
Focus Area: Treatment
Location: Ozark Point Plant



Name:
Randy Easley

Duration: (Months)
3 Months

Est Start Date:
March 2017

Total Cost:
\$1,300,000



PROJECT PURPOSE

Activated carbon is commonly used to adsorb natural organic compounds, taste and odor compounds, and synthetic organic chemicals in drinking water treatment. Adsorption is both the physical and chemical process of accumulating a substance at the interface between liquid and solids phases. Activated carbon is an effective adsorbent because it is a highly porous material and provides a large surface area to which contaminants may adsorb. Central Arkansas Water utilizes the granular activated carbon (GAC) form in its filtration-adsorption process in which all of the filter media is GAC.

The need to periodically 'reactivate (regenerate)' or replace the GAC to maintain the adsorption capability is a significant consideration when using GAC. How often the GAC should be changed needs to be based on contaminant levels and water use. Several factors must be assessed when considering carbon change out or reactivation. The most critical is the remaining adsorption capacity of the carbon. Significant capacity is required if an important fraction of DOC, and consequently of DBP precursors, must be removed.

Specifications for filter media follow the AWWA Standard for Granular Filter Material, ANSI/AWWA B100-01, American Water works Association.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
RATES	260,000	260,000	260,000	260,000	260,000

O&M Impact

G/L	2017	2018	2019	2020	2021
Maintenance	—	—	—	—	—

EUM ATTRIBUTE

- **Infrastructure Stability** - Replacing GAC media on a routine basis ensures the integrity of filter operations in providing high quality water exceeding EPA water quality parameters for our rate payers.
- **Product Quality** - Replacing GAC media enhances filter operation for optimal treatment and water quality.

Project Name: Improve Ozark Point Plant - Engineering Design
Department: Engineering
Focus Area: Rehabilitation of Ozark Point Plant
Location: Ozark Point Plant



Name:
Jim Ferguson

Duration: (Months)
16 Months

Est Start Date:
September, 2016

Total Cost:
\$1,214,400



PROJECT PURPOSE

This project consists of the engineering and design work for the necessary rehabilitation and improvements to Ozark Point Plant that will increase functional life, efficiency, and effectiveness of the 78 year old treatment plant. The project will identify and design the structural rehabilitation and improvements to the flocculation and sedimentation basins, clearwells, filter/control/chemical building, filter pipe gallery, and the backwash/sludge/wastewater system.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2016	2017	2018	2019	2020
ANRC	305,000	909,000	—	—	—

O&M Impact

G/L	2016	2017	2018	2019	2020
	—	—	—	—	—

EUM ATTRIBUTE

- **Infrastructure Stability** - Without water treatment plants, CAW cannot fulfill its mission of delivering high quality drinking water to the residents of Central Arkansas. While the Ozark Point Plant has provided many years of great service to the Utility, upgrades are necessary to maintain this key piece of CAW infrastructure in order to preserve the long term stability of the overall water treatment capacity for the Utility.
- **Product Quality** - Providing high quality water is at the forefront of CAW's mission. These needed upgrades will allow the Ozark Point Plant to continue to provide the highest quality water possible by updating systems to newer technology and addressing areas of wear and tear before they can impact the quality of treated water produced by the plant.
- **Operational Optimization** - A well designed and maintained treatment system is key to providing high quality water to CAW's customers in an efficient manner.

Project Name: Improve Ozark Point Plant - Construction
Department: Engineering
Focus Area: Rehabilitation of Ozark Point Plant
Location: Ozark Point Plant



Name:
Jim Ferguson

Duration: (Months)
16 Months

Est Start Date:
September, 2018

Total Cost:
\$10,525,000



PROJECT PURPOSE

This project consists of the construction activities necessary to rehabilitate and improve the Ozark Point Plant and to increase functional life, efficiency, and effectiveness of the 78 year old plant. The engineering and design for this project is currently planned to be performed in 2016 and 2017. The work will consist of structural rehabilitation of and improvements to the flocculation and sedimentation basins, clearwells, filter/control/chemical building, filter pipe gallery, and the backwash/sludge/ wastewater system.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
ANRC	—	2,631,000	7,894,000	—	—

O&M Impact

G/L	2017	2018	2019	2020	2021
	—	—	—	—	—

EUM ATTRIBUTE

- **Infrastructure Stability** - Without water treatment plants, CAW cannot fulfill its mission of delivering high quality drinking water to the residents of Central Arkansas. While the Ozark Point Plant has provided many years of great service to the Utility, upgrades are necessary to maintain this key piece of CAW infrastructure in order to preserve the long term stability of the overall water treatment capacity for the Utility.
- **Product Quality** - Providing high quality water is at the forefront of CAW's mission. These needed upgrades will allow the Ozark Point Plant to continue to provide the highest quality water possible by updating systems to newer technology and addressing areas of wear and tear before they can impact the quality of treated water produced by the plant.
- **Operational Optimization** - A well designed and maintained treatment system is key to providing high quality water to CAW's customers in an efficient manner.

Project Name: Improve Ozark Point Plant - Construction Management Services
Department: Engineering
Focus Area: Rehabilitation of Ozark Point Plant
Location: Ozark Point Plant



Name:
 Jim Ferguson

Duration: (Months)
 4 Months

Est Start Date:
 September, 2018

Total Cost:
 \$405,000



PROJECT PURPOSE

This project consists of the construction activities engineering will provide during the construction phase of rehabilitation and improvement of the Ozark Point Plant. The engineering and design for this project is currently planned to be performed in 2016 and 2017. The work will consist of structural rehabilitation of and improvements to the flocculation and sedimentation basins, clearwells, filter/control/chemical building, filter pipe gallery, and the backwash/sludge/ wastewater system.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
ANRC	—	405,000	—	—	—

O&M Impact

G/L	2017	2018	2019	2020	2021
	—	—	—	—	—

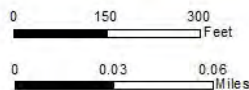
EUM ATTRIBUTE

- **Infrastructure Stability** - Without water treatment plants, CAW cannot fulfill its mission of delivering high quality drinking water to the residents of Central Arkansas. While the Ozark Point Plant has provided many years of great service to the Utility, upgrades are necessary to maintain this key piece of CAW infrastructure in order to preserve the long term stability of the overall water treatment capacity for the Utility.
- **Product Quality** - Providing high quality water is at the forefront of CAW's mission. These needed upgrades will allow the Ozark Point Plant to continue to provide the highest quality water possible by updating systems to newer technology and addressing areas of wear and tear before they can impact the quality of treated water produced by the plant.
- **Operational Optimization** - A well designed and maintained treatment system is key to providing high quality water to CAW's customers in an efficient manner.

Project Name: Improve Pump Station #1A - Construction Phase 1 - Wilson Plant
Department: Engineering
Focus Area: Pumping System
Location: Wilson Plant



**IMPROVEMENTS TO
PUMP STATION NO. 1A
JACK WILSON WTP**



Disclaimer of Warranties: This map has been provided as a convenience without guarantees or warranties of any kind, express or implied, arising by law or otherwise. Any improvements, facilities, and other information shown on this map may not be factually, dimensionally or graphically correct. The size and location of all improvements and facilities should be field verified.



Name:
Jim Ferguson

Duration: (Months)
48 Months

Est Start Date:
January, 2017

Total Cost:
\$3,169,000



PROJECT PURPOSE

This project consists of the construction element of Phase 1 of the recommended pump, structure, and electrical improvements to the existing Wilson Plant Pump Station #1A that will be designed in 2016. A Preliminary Engineering Report (PER) was completed in 2015 that details needed improvements for Booster Pump Station #1A, the original pump station located at the Wilson Plant. This pump station is the primary station pumping into the LR Intermediate and the Pulaski Heights pressure systems. Originally constructed in 1964, the station is capable of delivering 57 MGD into the Intermediate system through five pumps and 17 MGD into the Pulaski Heights system through five pumps. Items to be addressed include the pump bodies, motors, motor starters, other electrical components, control equipment, and building integrity. The station also has a suction cavitation problem that will be addressed. The 2015 PER provided an Opinion of Probable Cost that is used in the projected budget needs shown in the 2017 - 2021 capital budgets.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
ANRC	924,000	1,585,000	660,000	—	—

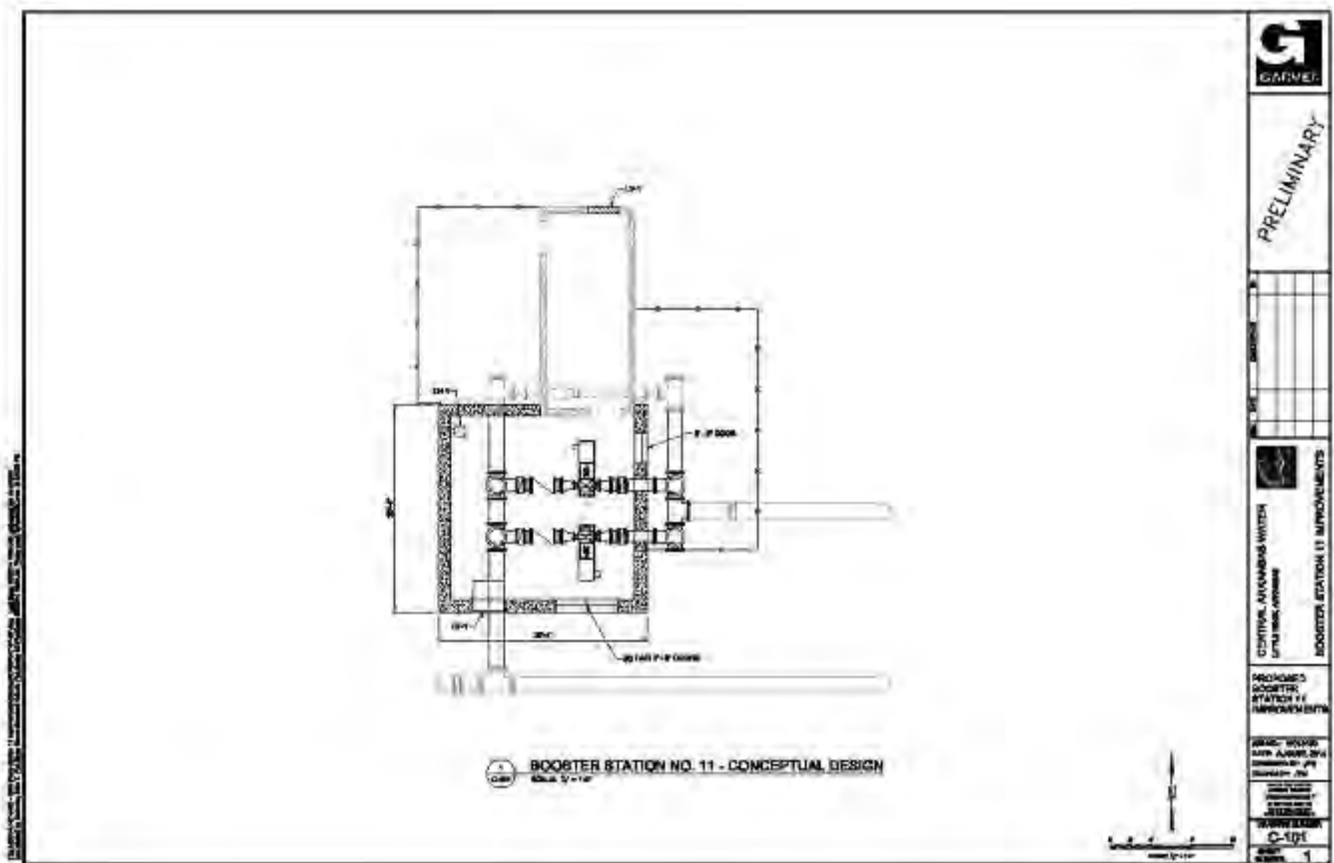
O&M Impact

G/L	2017	2018	2019	2020	2021
	—	—	—	—	—

EUM ATTRIBUTE

- Infrastructure Stability** - Booster pumps are a vital piece of the CAW water distribution system and are necessary to maintain adequate volume and pressure to meet customer needs. Maintaining and, when necessary, replacing these critical pieces of infrastructure is vital to the long term stability of the distribution system. These activities must be carefully managed and coordinated to minimize disruptions to the system and other negative consequences.
- Operational Optimization** - A well designed and maintained distribution system is key to providing water to CAW's customers in an efficient manner. Failure to adequately design and maintain these vital assets presents the opportunity for impacts to the customer from low water pressure and unplanned outages, as well as costs to the Utility due to lost water from leaks, etc.

Project Name: Construct Booster Pump Station #11 Improvements/Rehabilitation
Department: Engineering
Focus Area: Pumping System
Location: Little Rock



PRELIMINARY

CENTRAL ARKANSAS WATER
 1000 W. UNIVERSITY BLVD.
 LITTLE ROCK, AR 72202
 BOOSTER STATION #11 IMPROVEMENTS

PROJECT: BOOSTER STATION #11 IMPROVEMENTS
 DATE: 10/11/17
 DRAWN BY: JF
 CHECKED BY: JF
 SCALE: 1/4" = 1'-0"
 SHEET NO. 1

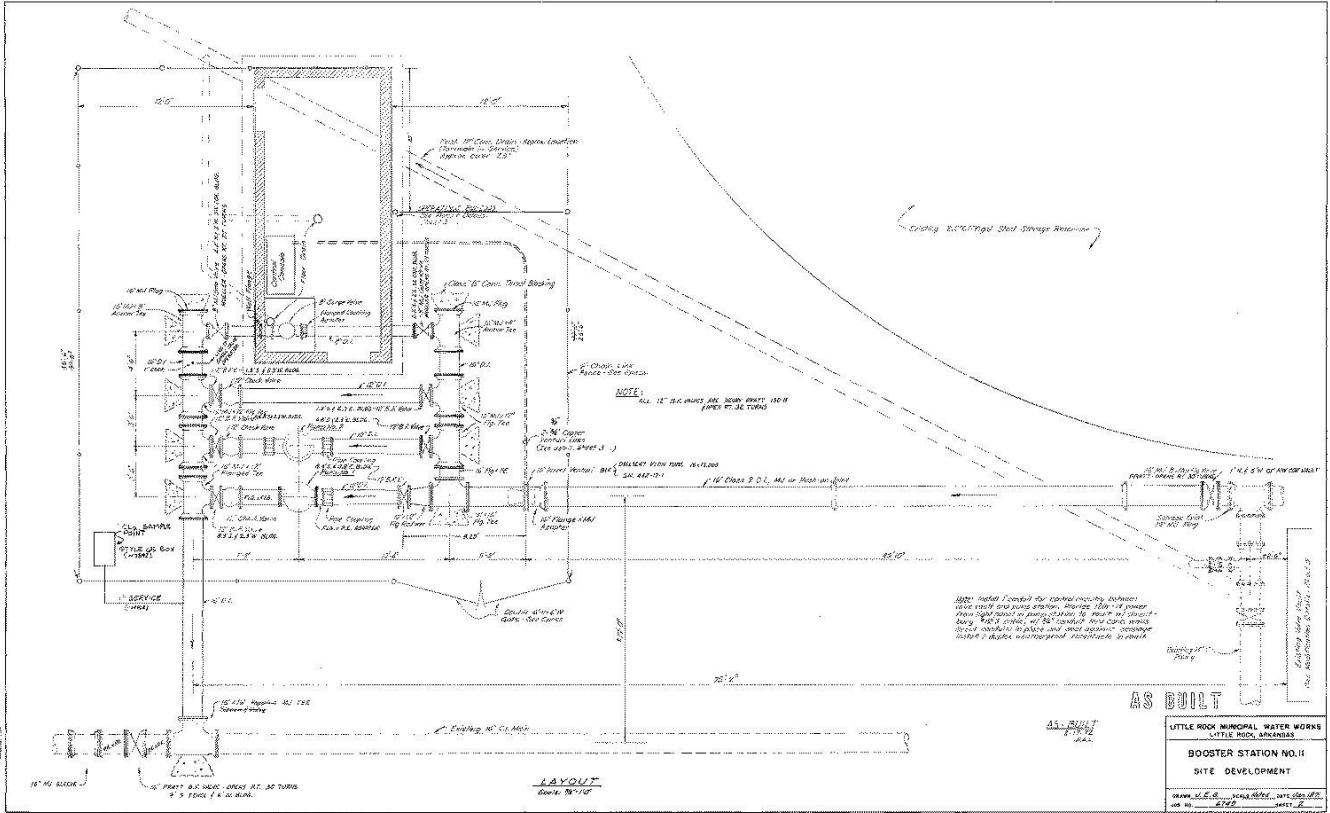


Name:
 Jim Ferguson

Duration: (Months)
 10 Months

Est Start Date:
 March, 2018

Total Cost:
 \$325,000



PROJECT PURPOSE

Booster Pump Station #11 (Doyle Springs) is an existing station that is 45 years old. It has duplex pumping units that are original to the initial construction of the station. The units are exterior exposed, buried “can” type vertical turbine units that are now quite obsolete. Both repair parts and experienced labor to maintain these pumps are very difficult to acquire. The proposed rehabilitation of this booster pump station would consist of the removal of the existing pumps and motors and the construction of a new building extension attached to the existing electrical/control building. The new building extension would be used to house the installation of new duplex, split-case water booster pumps of modern and current design. New horizontally mounted motors would also be installed. The electrical and control equipment is of recent replacement and does not currently require replacement or rehabilitation.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
RATES	—	75,000	250,000	—	—

O&M Impact

G/L	2017	2018	2019	2020	2021
	—	—	—	—	—

EUM ATTRIBUTE

- **Operational Optimization** - Improving/rehabilitating the station for covering the motors and pumps will provide for better and easier maintenance of the units and decreased maintenance costs.

Project Name: Construct Manitou Booster Pump Station Improvements - Maumelle
Department: Engineering
Focus Area: Pumping System
Location: Maumelle



Name:
 Jim Ferguson

Duration: (Months)
 8 Months

Est Start Date:
 May, 2018

Total Cost:
 \$400,000

PROJECT PURPOSE

In its current configuration, the existing 8-inch diameter water main that is the suction side supply line for the Manitou Booster Pump Station is inadequate. Currently the station is not able to provide adequate flow during high demand periods, including fire flow demands. Construction of approximately 3,500 linear feet of new 8-inch diameter water main on the suction side of the pump station will provide adequate suction side capacity for the existing pumps in the station to provide the necessary high demand flows.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
MWM-BOND	—	400,000	—	—	—

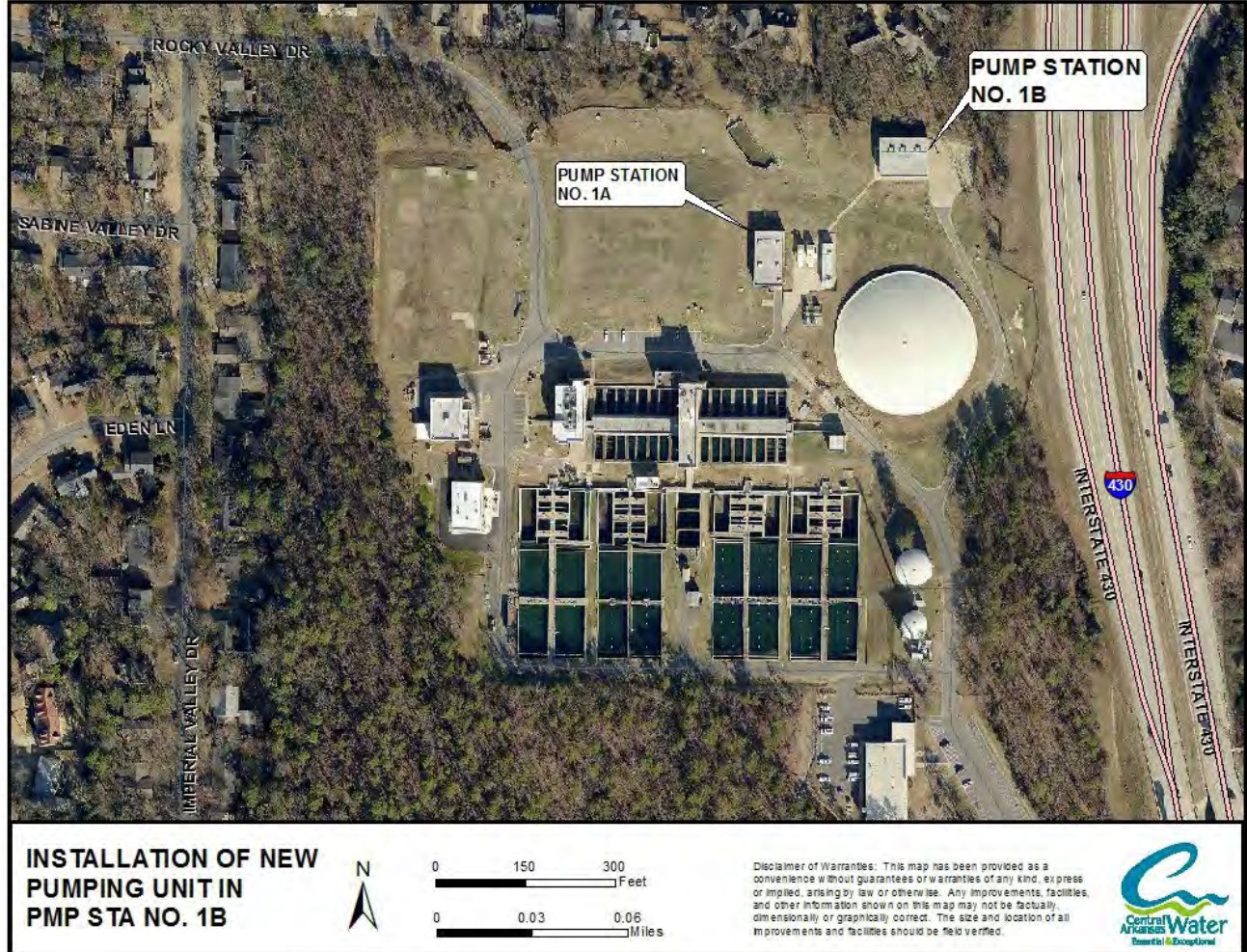
O&M Impact

G/L	2017	2018	2019	2020	2021
	—	—	—	—	—

EUM ATTRIBUTE

- **Operational Optimization** - Construction of suction side water main improvements will allow the booster pump station to operate at sufficient capacity as demands require.

Project Name: Install Pump in Wilson High Service Pump Station #1B - Maumelle
Department: Engineering
Focus Area: Pumping System
Location: Wilson Plant



Name:
 Jim Ferguson

Duration: (Months)
 4 Months

Est Start Date:
 September, 2018

Total Cost:
 \$403,000

PROJECT PURPOSE

This project is the installation of a new pump and motor pair in the existing Wilson Plant High Service Pump Station #1B. This 10,000 GPM pumping unit will provide the necessary flow for the newly merged Maumelle Water Management service area (City of Maumelle). This will allow the subsequent shut down of the existing Maumelle raw water wells and water treatment plant. This installation is in conformance with the CAW/MWM merger agreement.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
MWM-Bond	—	403,000	—	—	—

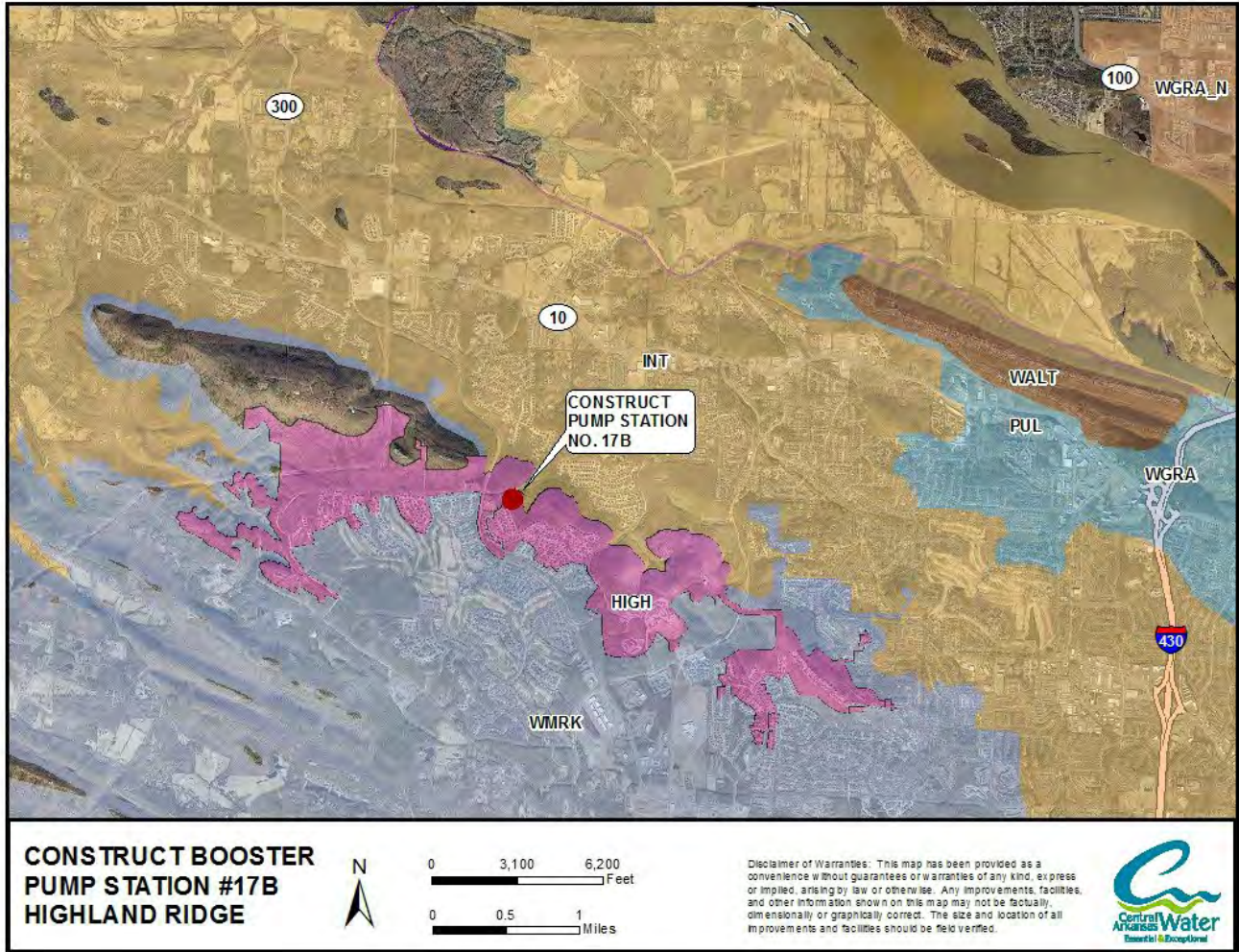
O&M Impact

G/L	2017	2018	2019	2020	2021
	—	—	—	—	—

EUM ATTRIBUTE

- **Operational Resiliency** - The project will provide a long-term high quality treated water supply to the City of Maumelle.
- **Infrastructure Stability** - Expanding the CAW water system is critical to providing a treated water supply to the City of Maumelle.
- **Operational Optimization** - The project will provide for the adequate flow of treated water supply from CAW to the City of Maumelle.

Project Name: Construct Booster Pump Station #17B - Highland Ridge
Department: Engineering
Focus Area: Mains
Location: Little Rock



Name:
Jim Ferguson

Duration: (Months)
10 Months

Est Start Date:
March, 2020

Total Cost:
\$600,000

PROJECT PURPOSE

The Highland Ridge pressure system is currently served by two booster pumping stations, pump station #17 and pump station #16B, with a combined capacity to deliver 1.25 MGD into the pressure system. Pump station #16B was temporarily modified to pump into Highland Ridge in 2005 due to a pumping capacity deficiency existing at that time. Demand continues to grow in the Highland Ridge system. As identified in the 2010 Master Plan, a new booster pump station needs to be constructed to serve the zone and meet growing consumption demand.



PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
RATES	—	—	—	600,000	—

O&M Impact

G/L	2017	2018	2019	2020	2021
	—	—	—	—	—

EUM ATTRIBUTE

- **Operational Optimization** - Construction of a new booster pump station will provide the necessary flows to meet the demands of the zone being served.

Project Name: Developer Funded Capital
Department: Engineering
Focus Area: Mains
Location: CAW System



Name:
Jim Ferguson

Duration: (Months)
Ongoing

Est Start Date:
January 2017

Total Cost:
\$12,500,000

PROJECT PURPOSE

This project consists of improvements made to the CAW distribution system by developers constructing new projects within the CAW service area. These improvements consist of distribution mains, valves and fire hydrants in new subdivisions, and distribution infrastructure to service large new commercial developments. All improvements are reviewed and approved by CAW engineering staff both in the planning phase and upon completion of construction to ensure compliance with Utility design standards.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
DEV	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000

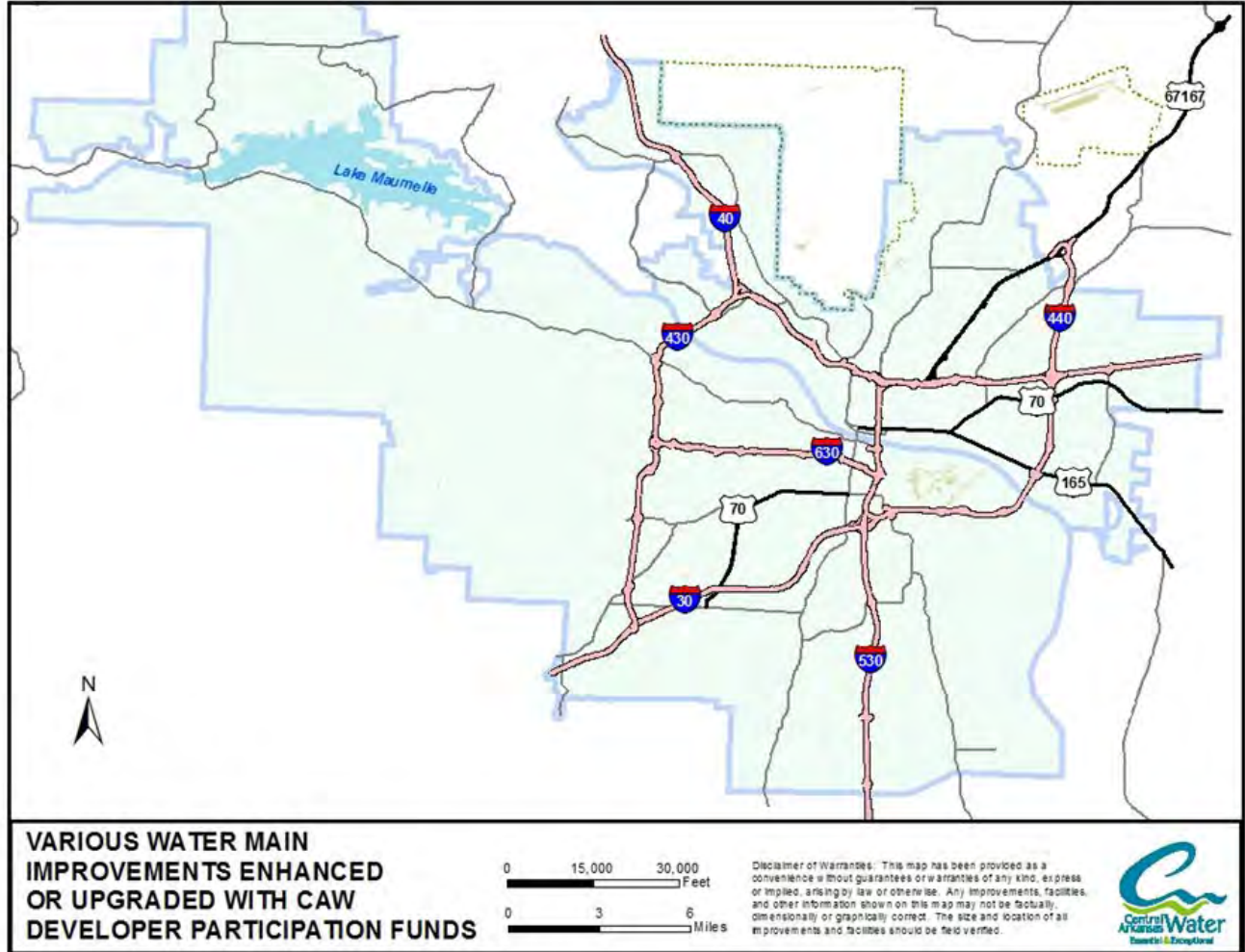
O&M Impact

G/L	2017	2018	2019	2020	2021
	—	—	—	—	—

EUM ATTRIBUTE

- **Infrastructure Stability** - Maintaining the CAW water main network is critical to providing water to the Utility's customers. Due to new developments and growth in demand in areas of the distribution system, new mains and upgrades are necessary in order to keep the distribution system operating as designed.
- **Operational Optimization** - A well maintained distribution system is key to providing water to CAW's customers in an efficient manner. Failure to maintain these vital assets presents the opportunity for impacts to the customer from unplanned outages and costs to the Utility due to lost water from leaks, etc.

Project Name: Developer Participation - New Mains
Department: Engineering
Focus Area: Mains
Location: CAW System



Name:
Jim Ferguson

Duration: (Months)
Ongoing

Est Start Date:
January, 2017

Total Cost:
\$250,000

PROJECT PURPOSE

Consistent with CAW's water main extension policies, Developers/Builders are required to design and install new mains to CAW specifications. If CAW determines, upon engineering review of plans submitted by Developers/Builders, that a larger length, different position, or increased capacity is needed due to current or future CAW system needs, CAW may financially participate with the Developer/Builder to make these modifications. This project includes these types of activities.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
RATES	50,000	50,000	50,000	50,000	50,000

O&M Impact

G/L	2017	2018	2019	2020	2021
	—	—	—	—	—

EUM ATTRIBUTE

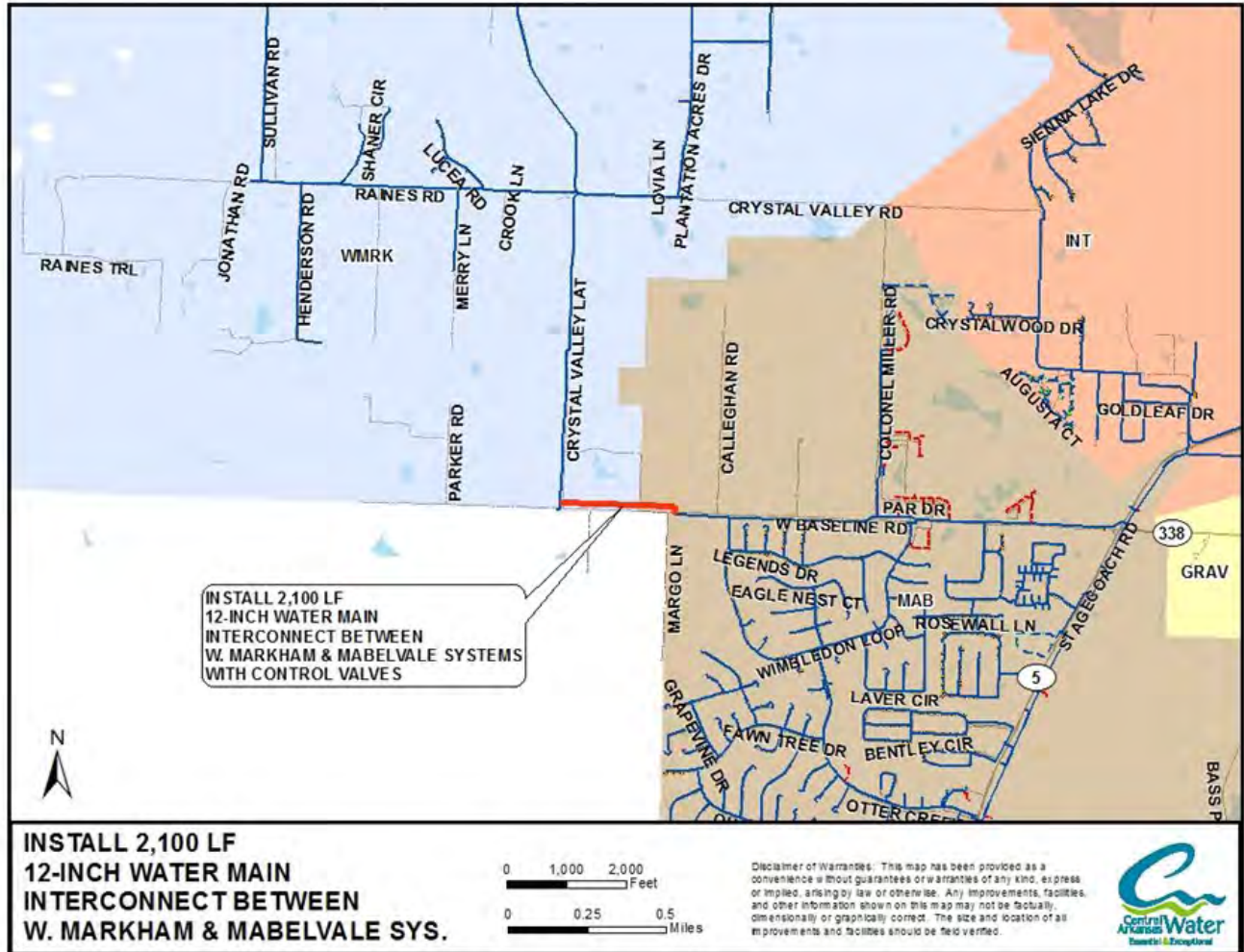
- **Infrastructure Stability** - Maintaining the CAW water main network is critical to providing water to the Utility's customers. Due to new developments and growth in the demand in areas of the distribution system, new mains and upgrades are necessary in order to keep the distribution system operating as designed. This project will address those needs in future years as they are identified in partnership with area developers, thus returning stability to the distribution system and ensuring capacity for future growth.
- **Operational Optimization** - A well maintained distribution system is key to providing water to CAW's customers in an efficient manner. Failure to maintain these vital assets presents the opportunity for impacts to the customer from unplanned outages and costs to the Utility due to lost water from leaks, etc.

Project Name: Install 12-inch Diameter Main - W. Baseline - Interconnection
W. Markham and Mabelvale - Proj 4092

Department: Engineering

Focus Area: Interconnection

Location: Little Rock



Name:
Jim Ferguson

Duration: (Months)
7 Months

Est Start Date:
April, 2017

Total Cost:
\$340,000

PROJECT PURPOSE

This project consists of the installation of approximately 2,100 linear feet of 12-inch diameter water main to interconnect the West Markham Pressure Zone with the Mabelvale Pressure Zone. This interconnection, controlled by a remotely operated valve, will allow water to flow from the West Markham zone to the Mabelvale zone at a rate of approximately 0.5 MGD, thus providing redundancy and pressure assistance to the Mabelvale zone when needed.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
RATES	340,000	—	—	—	—

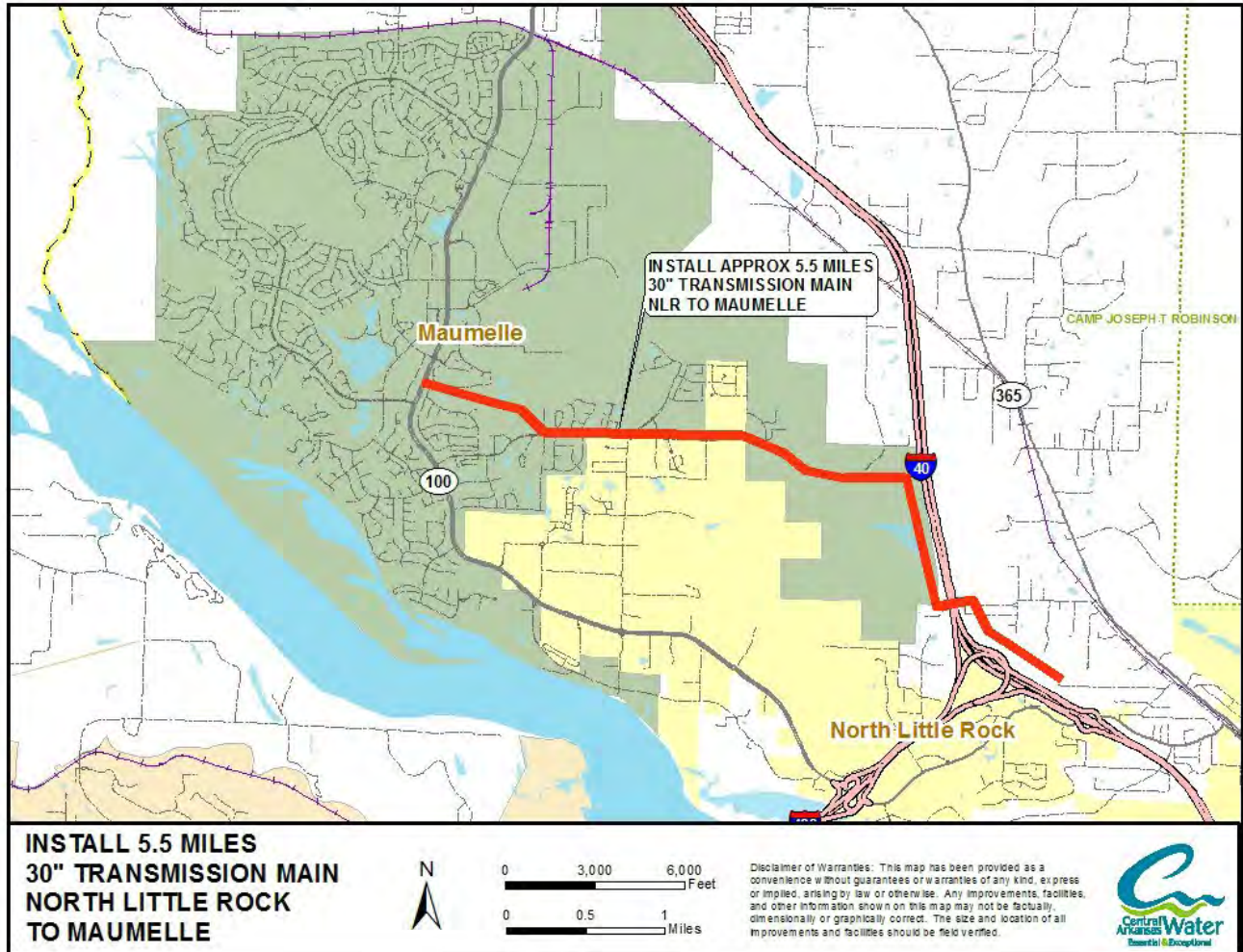
O&M Impact

G/L	2017	2018	2019	2020	2021
	—	—	—	—	—

EUM ATTRIBUTE

- **Operational Optimization** - A well interconnected system provides redundancy and broader operational options within the distribution system. Loss of service incidents are reduced with such operational optimization.

Project Name: Install 30-inch Diameter Transmission Main - Maumelle - Construction
Department: Engineering
Focus Area: Mains
Location: Maumelle



Name:
Jim Ferguson

Duration: (Months)
24 Months

Est Start Date:
September, 2016

Total Cost:
\$9,492,000

PROJECT PURPOSE

This project is the construction phase of the installation of approximately 5.5 miles of 30-inch diameter transmission main extending from the North Little Rock Northbelt Transmission Main to Maumelle Blvd. in the City of Maumelle. This will allow the connection of Maumelle to the CAW service area and the subsequent shut down of the existing Maumelle raw water wells and water treatment plant. This is in conformance with the CAW/MWM merger agreement.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2016	2017	2018	2019	2020
MWM-BOND	250,000	4,201,000	5,041,000	—	—

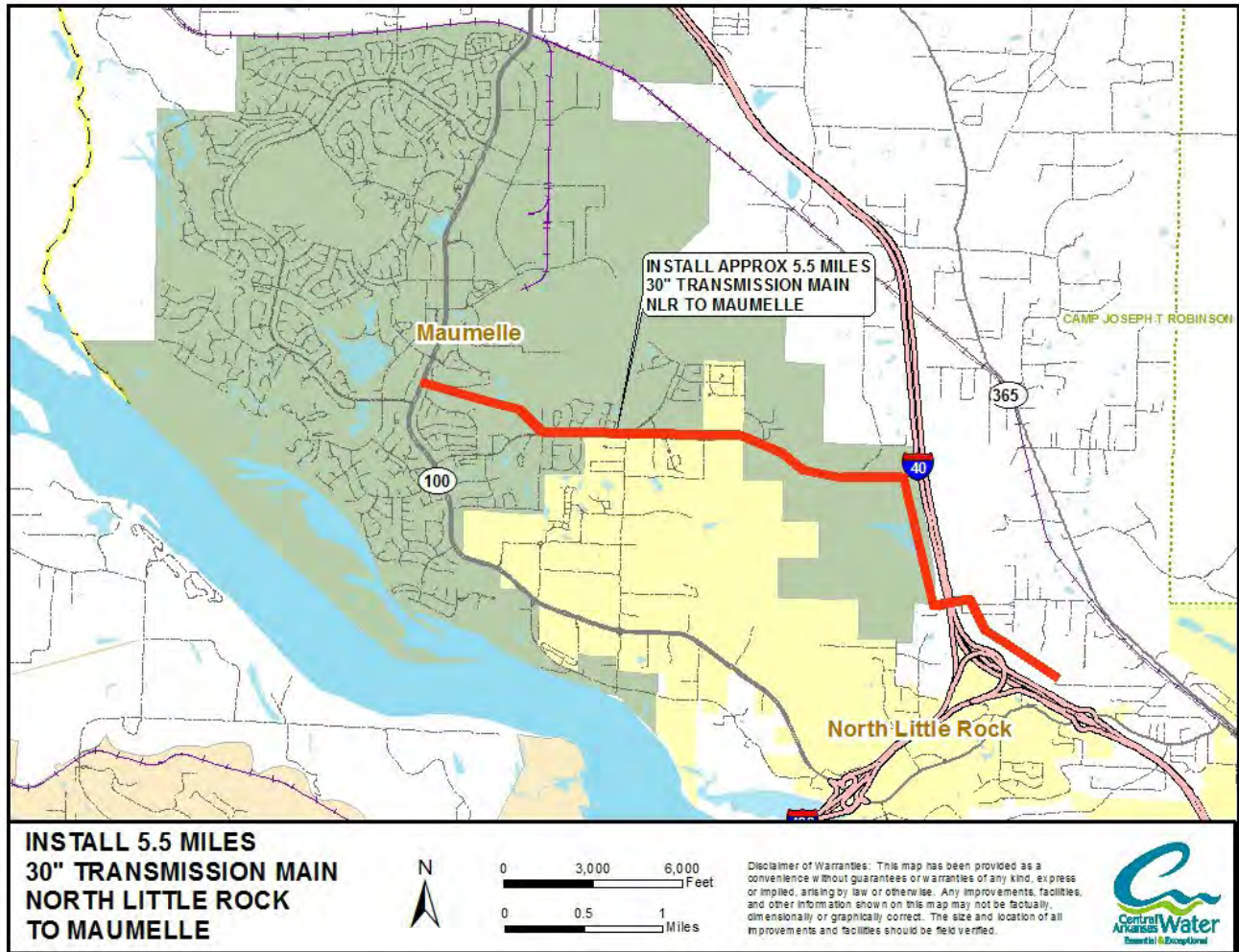
O&M Impact

G/L	2017	2018	2019	2020	2021
	—	—	—	—	—

EUM ATTRIBUTE

- **Operational Resiliency** - The project will provide a long-term high quality treated water supply to the City of Maumelle.
- **Infrastructure Stability** - Expanding the CAW water system is critical to providing a treated water supply to the City of Maumelle.
- **Operational Optimization** - The project will provide a conduit of treated water supply from CAW to the City of Maumelle.

Project Name: Install 30-inch Diameter Transmission Main - Maumelle - Engineering
Department: Engineering
Focus Area: Mains
Location: Maumelle



Name:
Jim Ferguson

Duration: (Months)
30 Months

Est Start Date:
April, 2016

Total Cost:
\$827,000

PROJECT PURPOSE

This project is the engineering design phase of the installation of approximately 5.5 miles of 30-inch diameter transmission main extending from the North Little Rock Northbelt Transmission Main to Maumelle Blvd. in the City of Maumelle. This will allow the connection of Maumelle to the CAW service area and the subsequent shut down of the existing Maumelle raw water wells and water treatment plant. This is in conformance with the CAW/MWM merger agreement.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2016	2017	2018	2019	2020
MWM-BOND	560,000	139,000	128,000	—	—

O&M Impact

G/L	2017	2018	2019	2020	2021
	—	—	—	—	—

EUM ATTRIBUTE

- **Operational Resiliency** - The project will provide a long-term high quality treated water supply to the City of Maumelle.
- **Infrastructure Stability** - Expanding the CAW water system is critical to providing a treated water supply to the City of Maumelle.
- **Operational Optimization** - The project will provide a conduit of treated water supply from CAW to the City of Maumelle.

Project Name: Transmission and Distribution Main Relocation Projects
Department: Engineering
Focus Area: Mandatory Relocation Projects
Location: CAW System



PROJECT PURPOSE

As a condition of CAW water mains and other infrastructure components occupying roadway right of way areas, the Utility has a legal obligation to relocate these assets if they are in conflict with street or drainage improvement projects. Relocation of mains are budgeted as required within the CAW service area due to the street, road, drainage, or other public work improvements.

While relocations do result in newer infrastructure, these projects are not dictated by CAW system needs or assets that are past their useful life. Therefore, these mandatory projects compete for limited infrastructure funds that could otherwise be used for replacing aging infrastructure that is past its useful life or that has a chronic history of spontaneous breakage. The Utility was able to accommodate these relocations in 2016 without a significant reduction in the replacement of galvanized pipe by using excess working capital funds (EWC) and has continued this practice in 2017 as relocation projects have decreased. Funds for relocations in 2017 - 2020 result in the decrease of galvanized pipe replacement projects in these years.

EUM ATTRIBUTE

- **Operational Resiliency** - As a condition of CAW water mains and other infrastructure components occupying roadway right of way areas, the Utility has a legal obligation to relocate these assets if they are in conflict with roadway expansion projects. CAW coordinates with its local government partners in advance of such expansion projects and this capital project is a result of this planning process.

Project Name: Relocate 12/8/6-inch Diameter Water Main - Phase 1 - Kanis Rd/Shackleford to Bowman - LR



Est Start Date:
July, 2017
Duration: (Months)
9 Months
Total Cost:
\$400,000

Source	2017	2018	2019	2020	2021
CIC	400,000	—	—	—	—

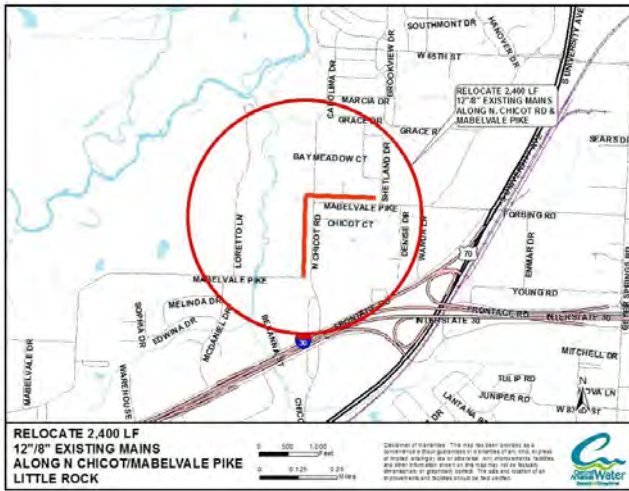
Project Name: Relocate 36-inch Diameter Transmission Main - Mississippi at I-630 - Proj 4030 - AHTD



Est Start Date:
January, 2017
Duration: (Months)
6 Months
Total Cost:
\$300,000

Source	2017	2018	2019	2020	2021
CIC	300,000	—	—	—	—

Project Name: Relocate 8-inch Diameter Water Main - Chicot Rd/Mabelvale Pike - Proj 3903 - LR



Est Start Date:
April, 2017
Duration: (Months)
8 Months
Total Cost:
\$300,000

Source	2017	2018	2019	2020	2021
RATES	300,000	—	—	—	—

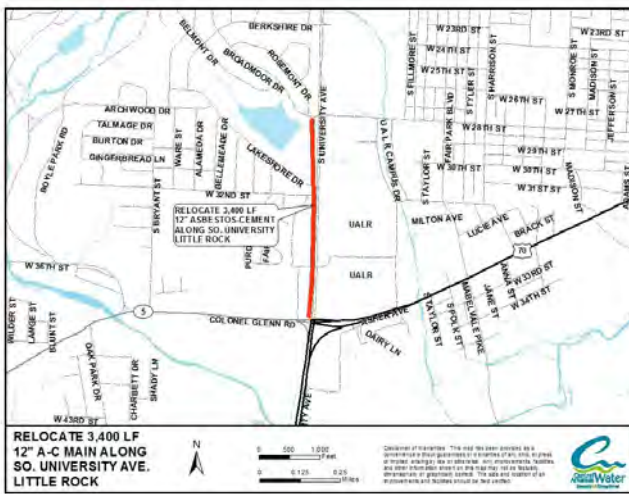
Project Name: Relocate 8/12-inch Diameter Water Main - Counts Massie/Crystal Hill Rd - Proj 4037 - Maumelle



Est Start Date:
April, 2017
Duration: (Months)
8 Months
Total Cost:
\$400,000

Source	2017	2018	2019	2020	2021
RATES	400,000	—	—	—	—

Project Name: Relocate 12-inch Diameter Water Main - So. University - 28th/Col. Glenn - LR



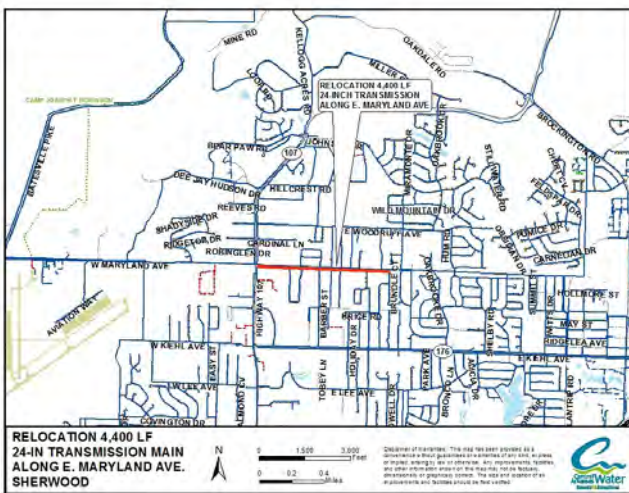
Est Start Date:
March, 2018

Duration: (Months)
10 Months

Total Cost:
\$500,000

Source	2017	2018	2019	2020	2021
RATES	—	500,000	—	—	—

Project Name: Relocate 24-inch Diameter Transmission Main - Maryland Avenue - SRWD



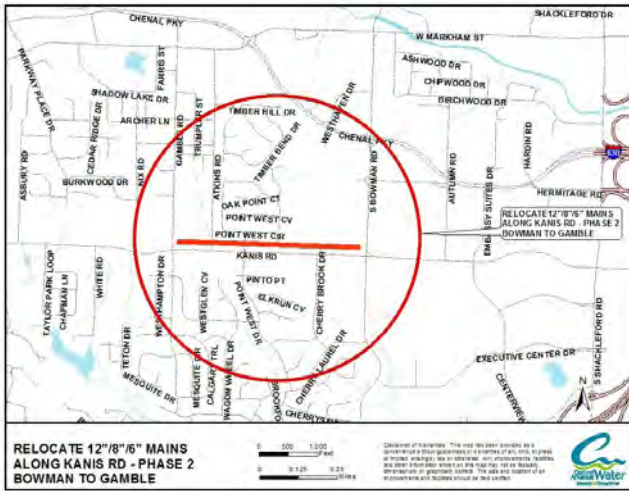
Est Start Date:
January, 2018

Duration: (Months)
12 Months

Total Cost:
\$1,200,000

Source	2017	2018	2019	2020	2021
RATES	—	1,200,000	—	—	—

Project Name: Relocate 12/8/6-inch Diameter Water Main - Phase 2 - Kanis Rd/Bowman to Gamble - LR



Est Start Date:
January, 2019
Duration: (Months)
12 Months
Total Cost:
\$600,000

Source	2017	2018	2019	2020	2021
RATES	—	—	600,000	—	—

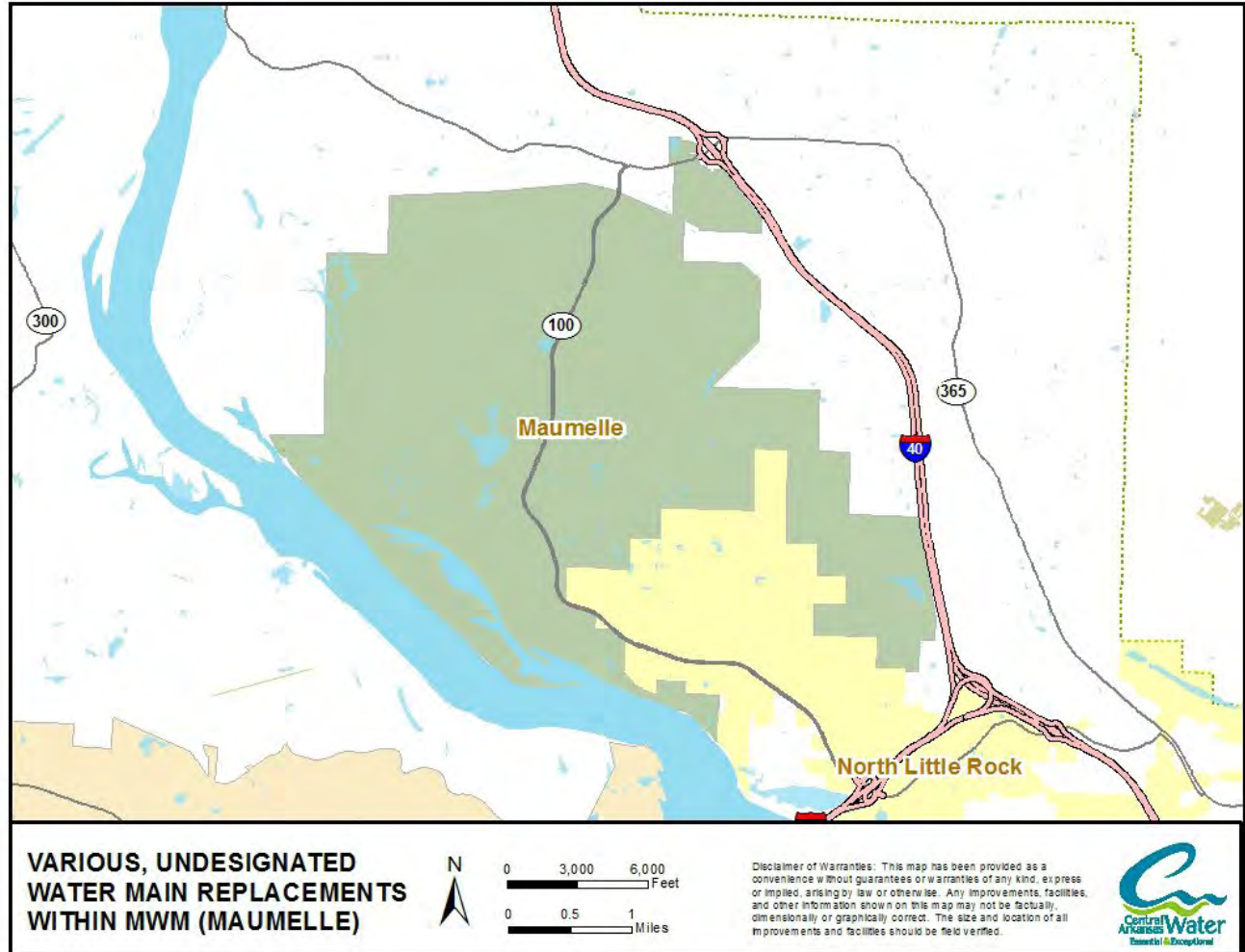
Project Name: Relocate 12/8-inch Diameter Water Main- Hwy 10 Widening/I-430 to Sam Peck - AHTD



Est Start Date:
October, 2018
Duration: (Months)
12 Months
Total Cost:
\$600,000

Source	2017	2018	2019	2020	2021
RATES	—	300,000	600,000	—	—
REIMB	—	—	(300,000)	—	—

Project Name: Replace Distribution Mains - Maumelle
Department: Engineering
Focus Area: Mains
Location: Maumelle



Name:
 Jim Ferguson

Duration: (Months)
 18 Months

Est Start Date:
 July, 2017

Total Cost:
 \$1,819,000

PROJECT PURPOSE

This project will consist of the replacement of various undersized and/or high maintenance existing water mains located within the City of Maumelle. The location, size, and type of water mains to be replaced have not been finalized at this time, but funding is provided in the merger funding. This replacement project is in conformance with the CAW/MWM merger agreement.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
MWM-BOND	606,000	1,213,000	—	—	—

O&M Impact

G/L	2017	2018	2019	2020	2021
	—	—	—	—	—

EUM ATTRIBUTE

- **Operational Resiliency** - This project is a component of a larger plan to provide a long-term high quality treated water supply to the City of Maumelle. A well maintained distribution system is key to providing water to customers in an efficient manner. Failure to adequately maintain these assets presents opportunity to impact customers with unplanned service outages and additional costs to the Utility due to leaks and breaks.
- **Infrastructure Stability** - Due to age or material related deterioration of water pipes, replacements are necessary in order to keep the distribution system operating as designed and desired. This project will contribute to maintaining stability throughout the City of Maumelle.
- **Operational Optimization** - The project will provide for the adequate flow of treated water supply from CAW to the City of Maumelle.

Project Name: Transmission and Distribution Main Replacement Projects
Department: Engineering
Focus Area: Asset Replacement
Location: CAW System



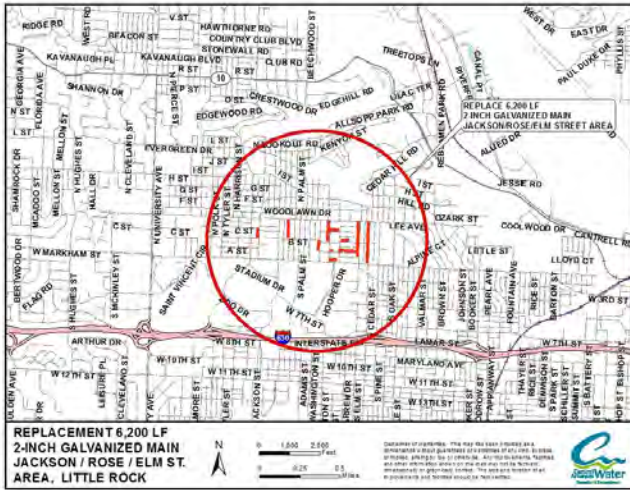
PROJECT PURPOSE

The replacements are prioritized as needed based on water main service life expectancy, as well as mains that experience numerous leaks and breaks resulting in uncontrolled loss of water service. Replacement of the aging water mains provides an improved level of service to customers in the affected areas and reduces maintenance costs associated with leaks and breaks.

EUM ATTRIBUTE

- **Infrastructure Stability** - Maintaining the CAW water main network is critical to providing water to the Utility's customers. Due to age related deterioration and demand growth, replacement and upgrades are necessary in order to keep the distribution system operating as designed. These projects will address those needs in future years as they are identified, thus maintaining stability throughout the distribution system.
- **Operational Resiliency** - A well maintained distribution system is key to providing water to CAW's customers in an efficient manner. Failure to maintain these vital assets presents opportunity to impact customers with unplanned outages and costs to the Utility due to lost water from leaks, etc.

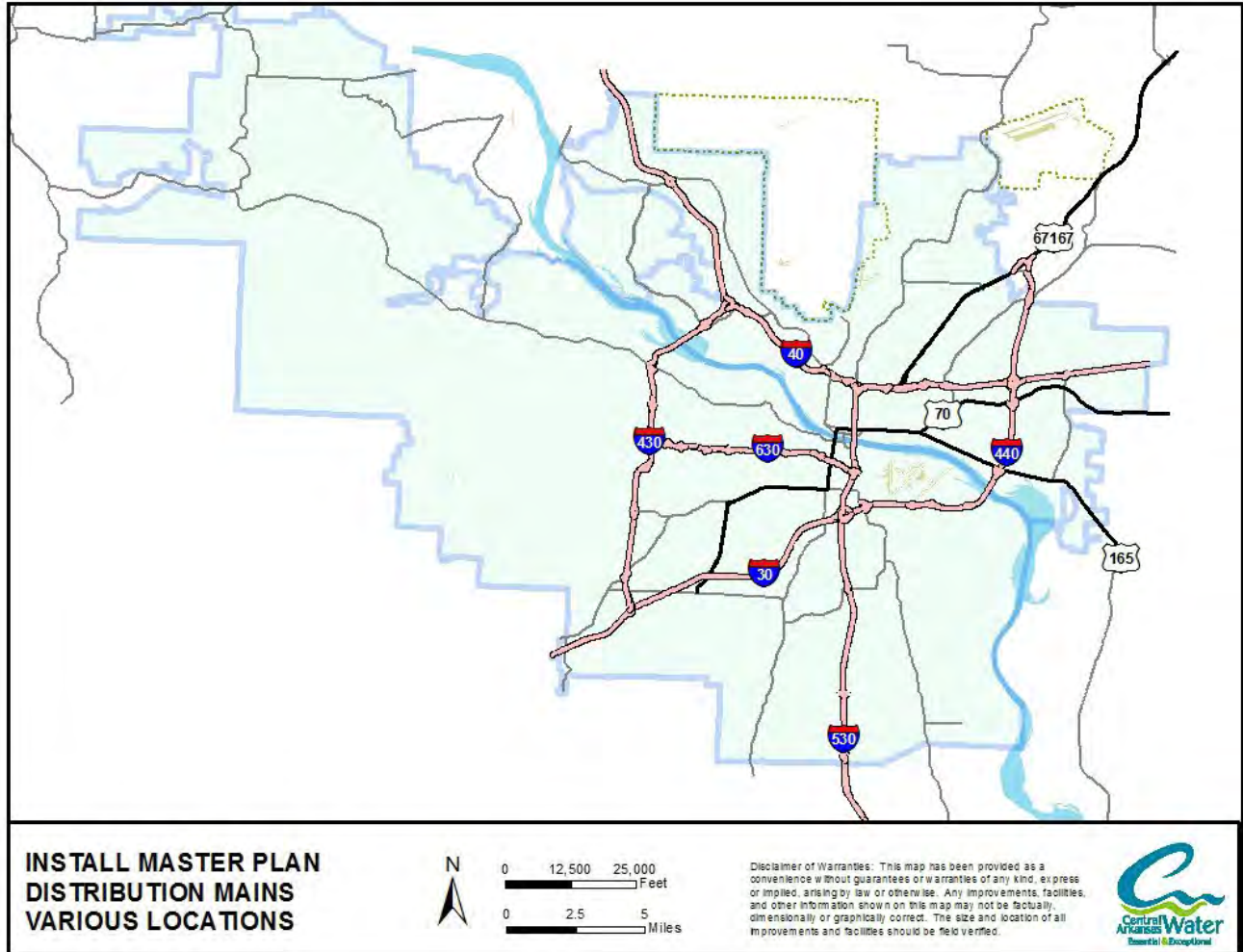
Project Name: Replace Water Mains - Galv, AC, CI - Systemwide



Est Start Date:
January, 2017
Duration: (Months)
Ongoing
Total Cost:
\$17,195,000

Source	2017	2018	2019	2020	2021
RATES	3,360,000	2,860,000	2,650,000	3,900,000	4,425,000

Project Name: Install Master Plan Distribution Mains - Various
Department: Engineering
Focus Area: Mains
Location: Systemwide



Name:
Jim Ferguson

Duration: (Months)
24 Months

Est Start Date:
January, 2020

Total Cost:
\$750,000

PROJECT PURPOSE

Installation of various sized distribution water mains as per recommendations from the CAW Utility Master Plan.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
RATES	—	—	—	250,000	500,000

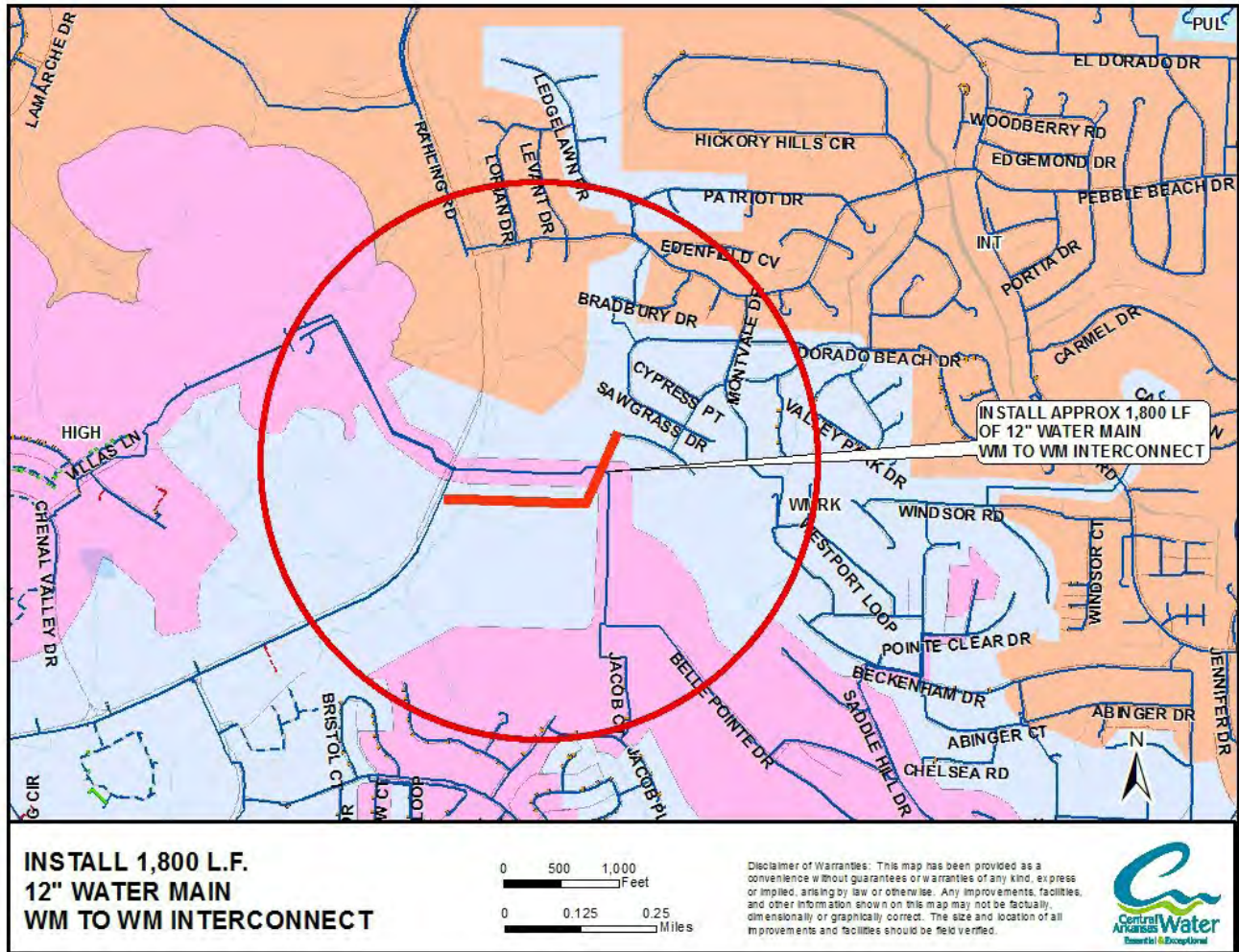
O&M Impact

G/L	2017	2018	2019	2020	2021
	—	—	—	—	—

EUM ATTRIBUTE

- **Infrastructure Stability** - Maintaining the CAW water main network is critical to providing water to the Utility's customers. Due to issues such as deterioration due to age and growth in the demand in areas of the distribution system, replacement and upgrades are necessary in order to keep the distribution system operating as designed.
- **Operational Optimization** - A well maintained distribution system is key to providing water to CAW's customers in an efficient manner. Failure to maintain these vital assets presents the opportunity for impacts to the customer from unplanned outages and costs to the Utility due to lost water from leaks, etc. The new water mains will allow better flow of water through the system and provide more consistent pressures, water quality, and water quantity.

Project Name: Install 12-inch Diameter Water Main - West Markham to West Markham Pressure Zone Interconnection
Department: Engineering
Focus Area: Mains
Location: Little Rock



Name:
Jim Ferguson

Duration: (Months)
9 Months

Est Start Date:
April, 2019

Total Cost:
\$250,000

PROJECT PURPOSE

Installation of approximately 1,800 linear feet of 12-inch diameter water main to provide better looping and flows within the West Markham Pressure Zone in west Little Rock. This work will provide more consistent pressures and water quality within the West Markham zone.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
RATES	—	—	250,000	—	—

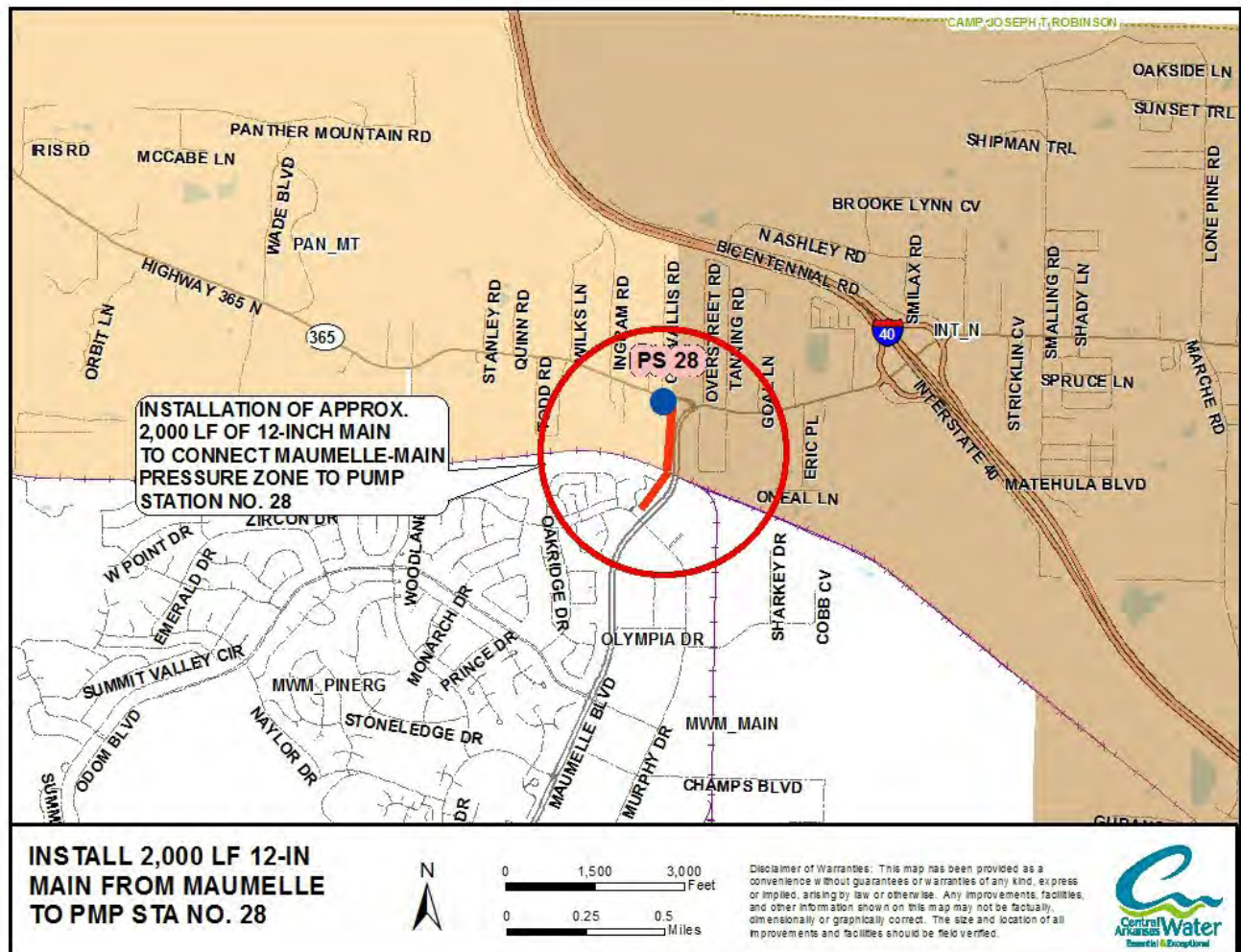
O&M Impact

G/L	2017	2018	2019	2020	2021
	—	—	—	—	—

EUM ATTRIBUTE

- **Infrastructure Stability** - Maintaining the CAW water main network is critical to providing water to the Utility's customers. Due to issues such as deterioration due to age and growth in the demand in areas of the distribution system, replacement and upgrades are necessary in order to keep the distribution system operating as designed. This project will address needed improvements in one pressure area of the CAW system, thus returning stability to the distribution system by improving pressure control, water flow, and water quality in the area.
- **Operational Optimization** - A well maintained distribution system is key to providing water to CAW's customers in an efficient manner. Failure to maintain these vital assets presents the opportunity for impacts to the customer from unplanned outages and costs to the Utility due to lost water from leaks, etc. The new water main will allow better flow of water through the pressure zone and provide more consistent pressures and water quality.

Project Name: Install 12-inch Diameter Water Main - Pump Station #28 Suction Improvements
Department: Engineering
Focus Area: Mains
Location: Maumelle/Morgan



Name:
 Jim Ferguson

Duration: (Months)
 9 Months

Est Start Date:
 January, 2020

Total Cost:
 \$350,000

PROJECT PURPOSE

This project will construct approximately 2,000 linear feet of 12-inch diameter water main to interconnect the Maumelle Main Pressure Zone with the suction side of pump station #28. This pump station experiences low suction pressure during high demand periods. Installation of an interconnection will provide additional flow and pressure to the pumping station when needed.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
RATES	—	—	—	350,000	—

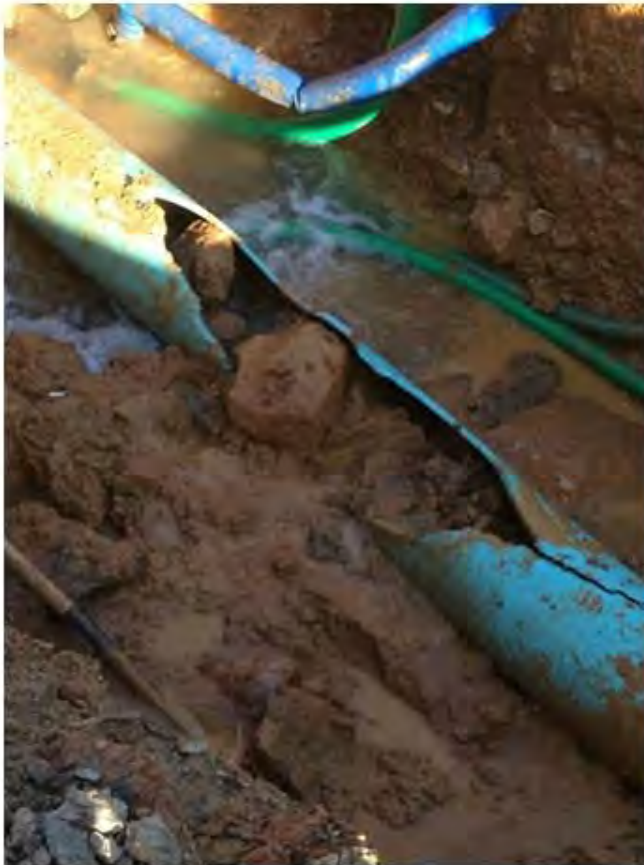
O&M Impact

G/L	2017	2018	2019	2020	2021
	—	—	—	—	—

EUM ATTRIBUTE

- **Infrastructure Stability** - Maintaining the CAW water main network is critical to providing water to the Utility's customers. Due to issues such as deterioration due to age and growth in the demand in areas of the distribution system, replacement and upgrades are necessary in order to keep the distribution system operating as designed. This project will address needed improvements to deliver additional water from one pressure to another to improve the operation of booster pump station #28 improving pressure control, water flow, and water quality in the area.
- **Operational Optimization** - A well maintained distribution system is key to providing water to CAW's customers in an efficient manner. Failure to maintain these vital assets presents the opportunity for impacts to the customer from unplanned outages and costs to the Utility due to lost water from leaks, etc.

Project Name: Install, Replace, and Relocate Mains
Department: Distribution
Focus Area: Mains
Location: Systemwide



Name:
Terry Bice

Duration: (Months)
Ongoing

Est Start Date:
January, 2017

Total Cost:
\$463,000

PROJECT PURPOSE

The project will consist of the relocation, replacement, and repair of existing mains that can be capitalized.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
RATES	90,000	91,000	93,000	94,000	95,000

O&M Impact

G/L	2017	2018	2019	2020	2021
	—	—	—	—	—

EUM ATTRIBUTE

- **Infrastructure Stability** - Distribution mains are the basis of the distribution system that serves our community safe drinking water and provides fire protection as well. Failure to maintain these assets has the potential of placing lives and property in harm's way within the CAW service area. Maintenance is also critical to the long term stability of the distribution system. Maintenance activities must be carefully managed and coordinated to minimize disruptions to the system and other negative consequences.
- **Operational Optimization** - A well maintained distribution system is key to providing water to CAW's customers in an efficient manner. Failure to maintain these vital assets presents the opportunity for impacts to the customer from unplanned outages and costs to the utility due to lost water from leaks, etc.

Project Name: Install Valves
Department: Distribution
Focus Area: Valves
Location: Systemwide



Name:
Terry Bice

Duration: (Months)
Ongoing

Est Start Date:
January, 2017

Total Cost:
\$410,000

PROJECT PURPOSE

The project will consist of the installation of new valves, as well as the replacement of existing valves that can be capitalized.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
RATES	80,000	81,000	82,000	83,000	84,000

O&M Impact

G/L	2017	2018	2019	2020	2021
	—	—	—	—	—

EUM ATTRIBUTE

- **Infrastructure Stability** - Distribution valves allow the control of the distribution system that serves our community safe drinking water and provides fire protection as well. Failure to maintain these assets has the potential of placing lives and property in harm's way within the CAW service area. Maintenance is also critical to the long term stability of the distribution system. Maintenance activities must be carefully managed and coordinated to minimize disruptions to the system and other negative consequences.
- **Operational Optimization** - A well maintained distribution system is key to providing water to CAW's customers in an efficient manner. Failure to maintain these vital assets presents the opportunity for impacts to the customer from unplanned outages and costs to the utility due to lost water from leaks, etc.

Project Name: Install Meters for New Services
Department: Distribution
Focus Area: Meters
Location: Systemwide



Name:
 Terry Bice

Duration: (Months)
 Ongoing

Est Start Date:
 January, 2017

Total Cost:
 \$1,236,000

PROJECT PURPOSE

These meters are dedicated to the installation of new residential, commercial, and industrial service accounts. They are requested for new construction and infrastructure additions. These meters range from 5/8-inch to 6-inch in diameter and are essential for revenue generation.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
RATES	240,000	243,000	247,000	251,000	255,000

O&M Impact

G/L	2017	2018	2019	2020	2021
	—	—	—	—	—

EUM ATTRIBUTE

- **Financial Viability** - Water meters serve as the main tool for determining how much water customers consume on a monthly basis and in turn, the Utility's ability to recoup for those services provided to the customer. As meters age, they begin to slow down, and in some cases fail, reducing the amounts metered and, in turn, billed to the customer. Proactive replacement of meters before slowdown and failure allows the Utility to maintain its ability to accurately bill for water provided to customers and serves to keep all customers' rates reasonable in light of lower amounts of unbilled water leaving the system.
- **Operational Optimization** - A well maintained distribution system is key to providing water to CAW's customers in an efficient manner. Failure to maintain these vital assets presents the opportunity for impacts to the customer from unplanned outages and costs to the utility due to lost water from leaks, etc.

Project Name: Install, Replace, and Transfer Services - Maumelle
Department: Distribution
Focus Area: Services
Location: Maumelle



Name:
Terry Bice

Duration: (Months)
Ongoing

Est Start Date:
January, 2017

Total Cost:
\$1,236,000

PROJECT PURPOSE

The project will consist of the relocation, replacement, and repair of services for residential and commercial customers due to deterioration and/or failure.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
MWM - RATES	255,000	212,000	215,000	220,000	255,000

O&M Impact

G/L	2017	2018	2019	2020	2021
	—	—	—	—	—

EUM ATTRIBUTE

- **Infrastructure Stability** - Service lines serve as the connection point between CAW customers and the water distribution system. Planning for and maintaining these assets is vital to CAW being able to fulfill its mission of providing quality water to the customers of Central Arkansas and to the long-term stability of the distribution system.
- **Financial Viability** - A well maintained distribution system is key to providing water to CAW's customers in an efficient manner. Failure to maintain these vital assets presents the opportunity for impacts to the customer from unplanned outages and costs to the Utility due to lost water from leaks, etc.

Project Name: Purchase/Install Meters - Change Out Program
Department: Distribution
Focus Area: Meters
Location: Systemwide



Name:
 Terry Bice

Duration: (Months)
 Ongoing

Est Start Date:
 January, 2017

Total Cost:
 \$3,002,000

PROJECT PURPOSE

The meter change out program consists of a routine cycle to change out meters which have reached the end of their useful lives as determined through prior research: 16 years for 5/8 - inch diameter meters; 10 years for 1-inch diameter meters; 12 years for 3/4-inch diameter meters; 8 years for 1-1/2-inch diameter meters; and 6 years for 2-inch diameter meters.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
RATES	592,000	596,000	600,000	605,000	609,000

O&M Impact

G/L	2017	2018	2019	2020	2021
	—	—	—	—	—

EUM ATTRIBUTE

- **Infrastructure Stability** - As meters age, they may affect the ability of the Utility to accurately measure water provided to customers throughout the system. Proactive replacement of meters preserves the Utility's ability to accurately account for water distributed throughout the system.
- **Financial Viability** - Water meters serve as the main tool for determining how much water customers consume on a monthly basis and in turn, the Utility's ability to recoup for those services provided to the customer. As meters age, they begin to slow down, and in some cases fail, reducing the amounts metered and, in turn, billed to the customer. Proactive replacement of meters before slowdown and failure allows the Utility to maintain its ability to accurately bill for water provided to customers and serves to keep all customers' rates reasonable in light of lower amounts of unbilled water leaving the system.

Project Name: Install, Replace, and Transfer Services
Department: Distribution
Focus Area: Services
Location: CAW System



Name:
Terry Bice

Duration: (Months)
Ongoing

Est Start Date:
January, 2017

Total Cost:
\$6,229,000

PROJECT PURPOSE

The project will consist of installing services for residential and commercial customers due to failure and/or preventative maintenance.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
RATES	1,209,000	1,227,000	1,246,000	1,264,000	1,283,000

O&M Impact

G/L	2017	2018	2019	2020	2021
	—	—	—	—	—

EUM ATTRIBUTE

- **Infrastructure Stability** - Service lines serve as the connection point between CAW customers and the water distribution system. Planning for and maintaining these assets is vital to CAW fulfilling its mission of providing quality water to the customers of Central Arkansas and to the long-term stability of the distribution system.
- **Financial Viability** - A well maintained distribution system is key to providing water to CAW's customers in an efficient manner. Failure to maintain these vital assets presents the opportunity for impacts to the customer from unplanned outages and costs to the Utility due to lost water from leaks, etc.

Project Name: Install and Replace Hydrants
Department: Distribution
Focus Area: Hydrants
Location: CAW System



Name:
Terry Bice

Duration: (Months)
Ongoing

Est Start Date:
January, 2017

Total Cost:
\$675,000

PROJECT PURPOSE

The project will consist of installing new hydrants and the replacement of existing hydrants that have been hit and damaged by vehicles.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
RATES	131,000	133,000	135,000	137,000	139,000

O&M Impact

G/L	2017	2018	2019	2020	2021
	—	—	—	—	—

EUM ATTRIBUTE

- **Infrastructure Stability** - Fire hydrants serve the extremely important purpose of providing water for fire protection in the community. Failure to maintain these assets has the potential of placing lives and property in harm's way. Maintenance is also critical to the long term stability of the distribution system. Maintenance activities must be carefully managed and coordinated to minimize disruptions to the system and other negative consequences.
- **Operational Optimization** - A well maintained distribution system is key to providing water to CAW's customers in an efficient manner. Failure to maintain these vital assets presents the opportunity for impacts to the customer from unplanned outages and costs to the utility due to lost water from leaks, etc.

Project Name: Meter Change Out Program - Maumelle
Department: Distribution
Focus Area: Meters
Location: Maumelle



Name:
Terry Bice

Duration: (Months)
Ongoing

Est Start Date:
April 2018

Total Cost:
\$950,000

PROJECT PURPOSE

The meter change out program consists of changing out the meters in the Maumelle area (which measure in gallons and have also reached the end of their useful lives) with standard meters used in the CAW system (which measure in cubic feet).

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
MWM - RATES	—	475,000	475,000	—	—

O&M Impact

G/L	2017	2018	2019	2020	2021
	—	—	—	—	—

EUM ATTRIBUTE

- **Infrastructure Stability** - As meters age, they may affect the ability of the Utility to accurately measure water provided to customers throughout the system. Proactive replacement of meters preserves the Utility's ability to accurately account for water distributed throughout the system.
- **Financial Viability** - Water meters serve as the main tool for determining how much water customers consume on a monthly basis and in turn, the Utility's ability to recoup for those services provided to the customer. As meters age, they begin to slow down, and in some cases fail, reducing the amounts metered and, in turn, billed to the customer. Proactive replacement of meters before slowdown and failure allows the Utility to maintain its ability to accurately bill for water provided to customers and serves to keep all customers' rates reasonable in light of lower amounts of unbilled water leaving the system.

Project Name: Restore - Tank #2
Department: Distribution
Focus Area: Tanks
Location: Little Rock



Name:
Terry Bice

Duration: (Months)
12 Months

Est Start Date:
January, 2017

Total Cost:
\$1,000,000



PROJECT PURPOSE

The project consists of required improvements to steel water storage tanks. Treated water storage tanks are an integral part of the CAW water distribution system, allowing CAW to meet peak hourly demand needs as well as to provide appropriate water pressure and fire flows without the need for constant pump operation.

Regular tank maintenance is necessary to sustain high quality water and prevent corrosion and damage that results from normal wear and tear on the tanks. Tanks will be sandblasted and/or painted.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
RATES	400,000	—	—	—	600,000

O&M Impact

G/L	2017	2018	2019	2020	2021
	—	—	—	—	—

EUM ATTRIBUTE

- **Infrastructure Stability** - Treated water storage tanks are an integral part of the CAW water distribution system. Maintaining these critical pieces of infrastructure is vital to the long term stability of the distribution system. These activities must be carefully managed and coordinated to minimize disruptions to the system and other negative consequences.
- **Operational Optimization** - A well maintained distribution system is key to providing water to CAW's customers in an efficient manner. Failure to maintain these vital assets presents the opportunity for impacts to the customer from unplanned outages and costs to the Utility due to lost water from leaks, etc.

Project Name: Restore - Tank #22
Department: Distribution
Focus Area: Tanks
Location: Systemwide



Name:
 Terry Bice

Duration: (Months)
 12 Months

Est Start Date:
 January, 2019

Total Cost:
 \$600,000



PROJECT PURPOSE

The project consists of required improvements to steel tanks. Tanks will be sandblasted and/or painted.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
RATES	—	—	600,000	—	—

O&M Impact

G/L	2017	2018	2019	2020	2021
	—	—	—	—	—

EUM ATTRIBUTE

- **Infrastructure Stability** - Treated water storage tanks are an integral part of the CAW water distribution system. Maintaining these critical pieces of infrastructure is vital to the long term stability of the distribution system. These activities must be carefully managed and coordinated to minimize disruptions to the system and other negative consequences.
- **Operational Optimization** - A well maintained distribution system is key to providing water to CAW's customers in an efficient manner. Failure to maintain these vital assets presents the opportunity for impacts to the customer from unplanned outages and costs to the Utility due to lost water from leaks, etc. These impacts are counter to an optimized water distribution system.

Project Name: Restore - Tank #21
Department: Distribution
Focus Area: Tanks
Location: Systemwide



Name:
Terry Bice

Duration: (Months)
12 Months

Est Start Date:
September, 2020

Total Cost:
\$850,000



PROJECT PURPOSE

The project consists of required improvements to steel tanks. Tanks will be sandblasted and/or painted.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
RATES	—	—	—	—	850,000

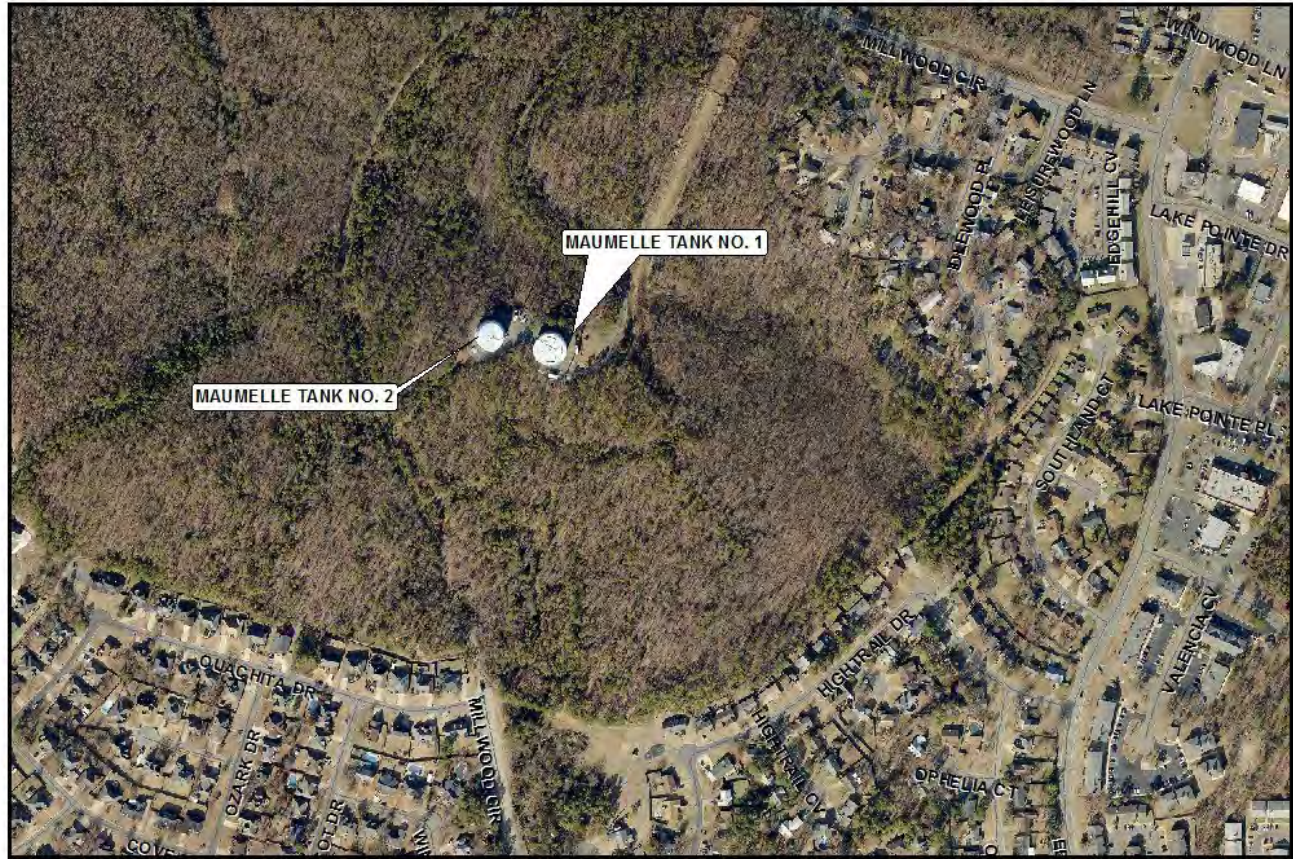
O&M Impact

G/L	2017	2018	2019	2020	2021
	—	—	—	—	—

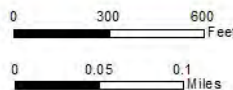
EUM ATTRIBUTE

- **Infrastructure Stability** - Treated water storage tanks are an integral part of the CAW water distribution system. Maintaining these critical pieces of infrastructure is vital to the long term stability of the distribution system. These activities must be carefully managed and coordinated to minimize disruptions to the system and other negative consequences.
- **Operational Optimization** - A well maintained distribution system is key to providing water to CAW's customers in an efficient manner. Failure to maintain these vital assets presents the opportunity for impacts to the customer from unplanned outages and costs to the Utility due to lost water from leaks, etc. These impacts are counter to an optimized water distribution system.

Project Name: Restore Ground Storage Tank #2 - Maumelle
Department: Engineering
Focus Area: Tanks
Location: Maumelle



**CONSTRUCT STRUCTURAL
 REPAIR (ROOF)
 TANK NO.1 - MAUMELLE**



Disclaimer of Warranties: This map has been provided as a convenience without guarantees or warranties of any kind, express or implied, arising by law or otherwise. Any improvements, facilities, and other information shown on this map may not be factually, dimensionally, or graphically correct. The size and location of all improvements and facilities should be field verified.



Name:
 Jim Ferguson

Duration: (Months)
 12 Months

Est Start Date:
 January, 2020

Total Cost:
 \$773,000

PROJECT PURPOSE

The project consists of required improvements to ground storage tank #2 in the MWM service area. The tank interior requires sandblasting and re-painting in order to prevent future structural damage or water quality issues.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
MWM - RATES	—	—	—	773,000	—

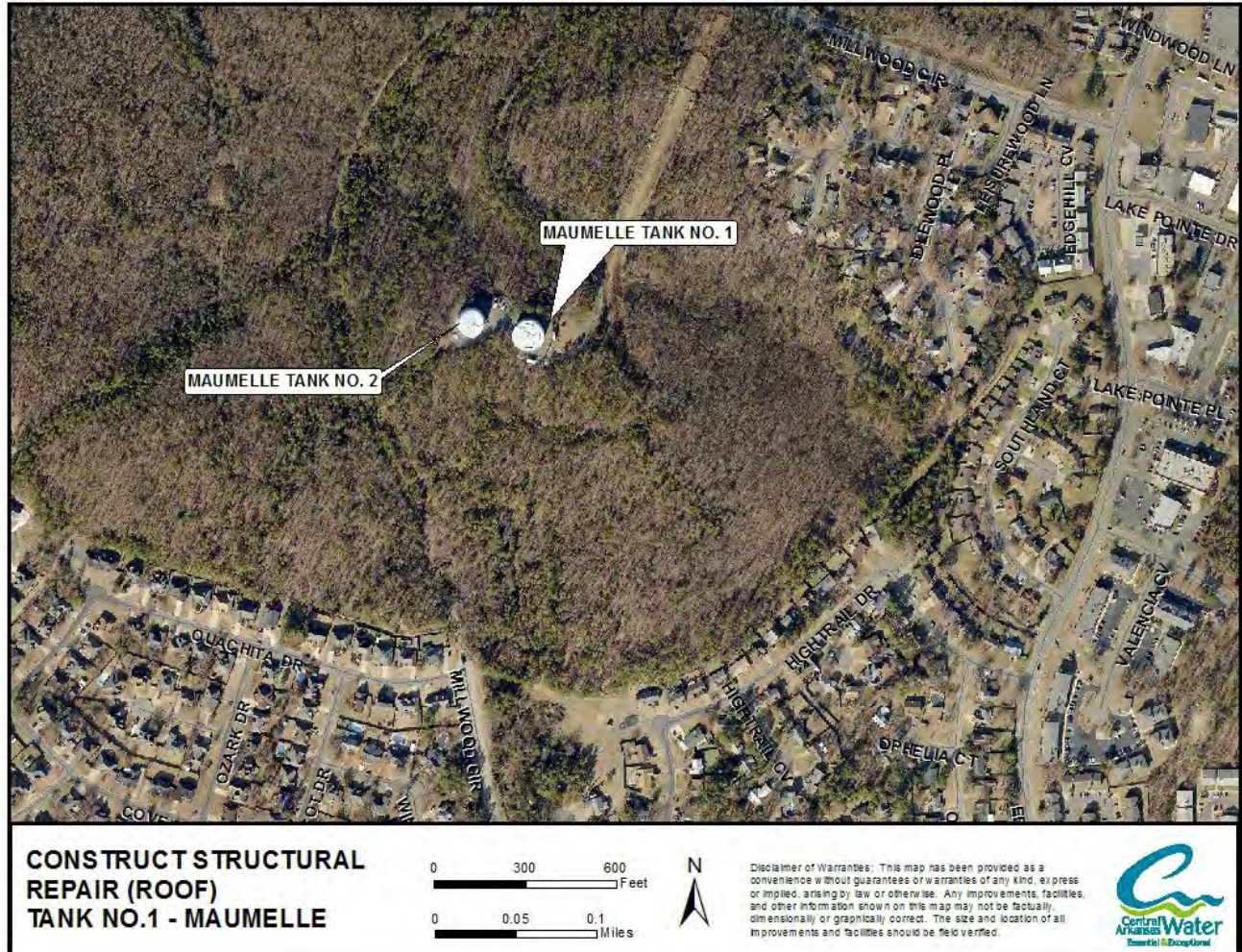
O&M Impact

G/L	2017	2018	2019	2020	2021
	—	—	—	—	—

EUM ATTRIBUTE

- **Infrastructure Stability** - Treated water storage tanks are an integral part of the CAW water distribution system. Maintaining these critical pieces of infrastructure is vital to the long term stability of the distribution system. These activities must be carefully managed and coordinated to minimize disruptions to the system and other negative consequences.
- **Operational Optimization** - A well maintained distribution system is key to providing water to CAW's customers in an efficient manner. Failure to maintain these vital assets presents the opportunity for impacts to the customer from unplanned outages and costs to the Utility due to lost water from leaks, etc. These impacts are counter to an optimized water distribution system.

Project Name: Construct Structural Improvements to Tank #1 - Maumelle
Department: Engineering
Focus Area: Tanks
Location: Maumelle



Name:
Jim Ferguson

Duration: (Months)
14 Months

Est Start Date:
October, 2017

Total Cost:
\$400,000

PROJECT PURPOSE

As identified in the CAW/MWM merger report, it is necessary to replace the roof on Maumelle Tank #1. This tank is approximately 75 years old. Originally constructed as an open-top tank, a roof was added in 1972. The roof structure was subsequently damaged in 2002 when the tank was over pressurized. The existing roof will be removed and a new roof installed. The estimated construction cost for this project is \$400,000.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
MWM-BOND	200,000	200,000	—	—	—

O&M Impact

G/L	2017	2018	2019	2020	2021
	—	—	—	—	—

EUM ATTRIBUTE

- **Operational Resiliency** - This project will ensure the continued operation of one-half of the Maumelle treated water storage capacity.

Project Name: Replace Vehicles
Department: All
Focus Area: Vehicles
Location: James T. Harvey Administration and Clearwater



Name:
Various

Duration: (Months)
N/A

Est Start Date:
January, 2017

Total Cost:
\$2,784,000

PROJECT PURPOSE

The Utility utilizes a fleet management plan as the primary guide to CAW's fleet management decisions. Truck replacements are determined based on chronic repair needs and projected mileage. Vehicle age also factors in to replacement but is a secondary factor behind repair needs and mileage. Current draft fleet management guidelines dictate that a vehicle should be replaced when it reaches 100,000 miles or when chronic repair needs dictate replacement.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
RATES	842,000	642,000	478,000	457,000	365,000

O&M Impact

G/L	2017	2018	2019	2020	2021
	—	—	—	—	—

NOTE : Vehicle replacements will reduce expenses related to maintenance of older trucks with higher mileage; however, other trucks in the fleet will accrue higher mileage. Therefore, the O&M impact will be negligible. Should vehicle optimization analysis result in a different type of vehicle purchase, O&M may be reduced due to lower repair costs and/or fuel costs.

EUM ATTRIBUTE

- **Operational Optimization** - Vehicle replacements will occur according to the Utility's fleet management plan, dictating that vehicles with approximately 100,000 miles or chronic repair needs should be replaced. This is based on historical fleet management data and provides for a more efficient use of vehicles. In addition, the lifecycle cost-effectiveness of vehicles that fit Departmental needs will drive the specific vehicles purchased.
- **Community Sustainability** - Evaluation of more fuel-efficient vehicles is a key component to replacement analysis. By purchasing more fuel-efficient vehicles, the Utility can reduce vehicle emissions associated with its operations while, at the same time, reducing fuel costs for the Utility.
- **Infrastructure Stability** - By completing a lifecycle cost analysis to determine the most cost-effective vehicle that meets the needs of a Department, the Utility will continue to enhance the operating condition of assets at the lowest life-cycle cost.

Project Name: Replace Dump Truck(s)
Department: Distribution
Focus Area: Construction Equipment
Location: Clearwater and Maryland Ave. Complexes



Name:
 Terry Bice

Duration: (Months)
 N/A

Est Start Date:
 January, 2017

Total Cost:
 \$1,007,000

PROJECT PURPOSE

Dump trucks are used throughout the CAW system for various activities in support of utility operations from hauling excavated materials, proper fill, and road repair materials to towing construction equipment. In line with the CAW fleet management plan, these trucks are evaluated regularly to project vehicle replacement needs. Dump truck replacements are determined based on chronic repair needs. Dump trucks are typically replaced when a major repair need dictates replacement, when excessive maintenance costs occur, or when parts are no longer available.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
RATES	188,000	310,000	194,000	215,000	100,000

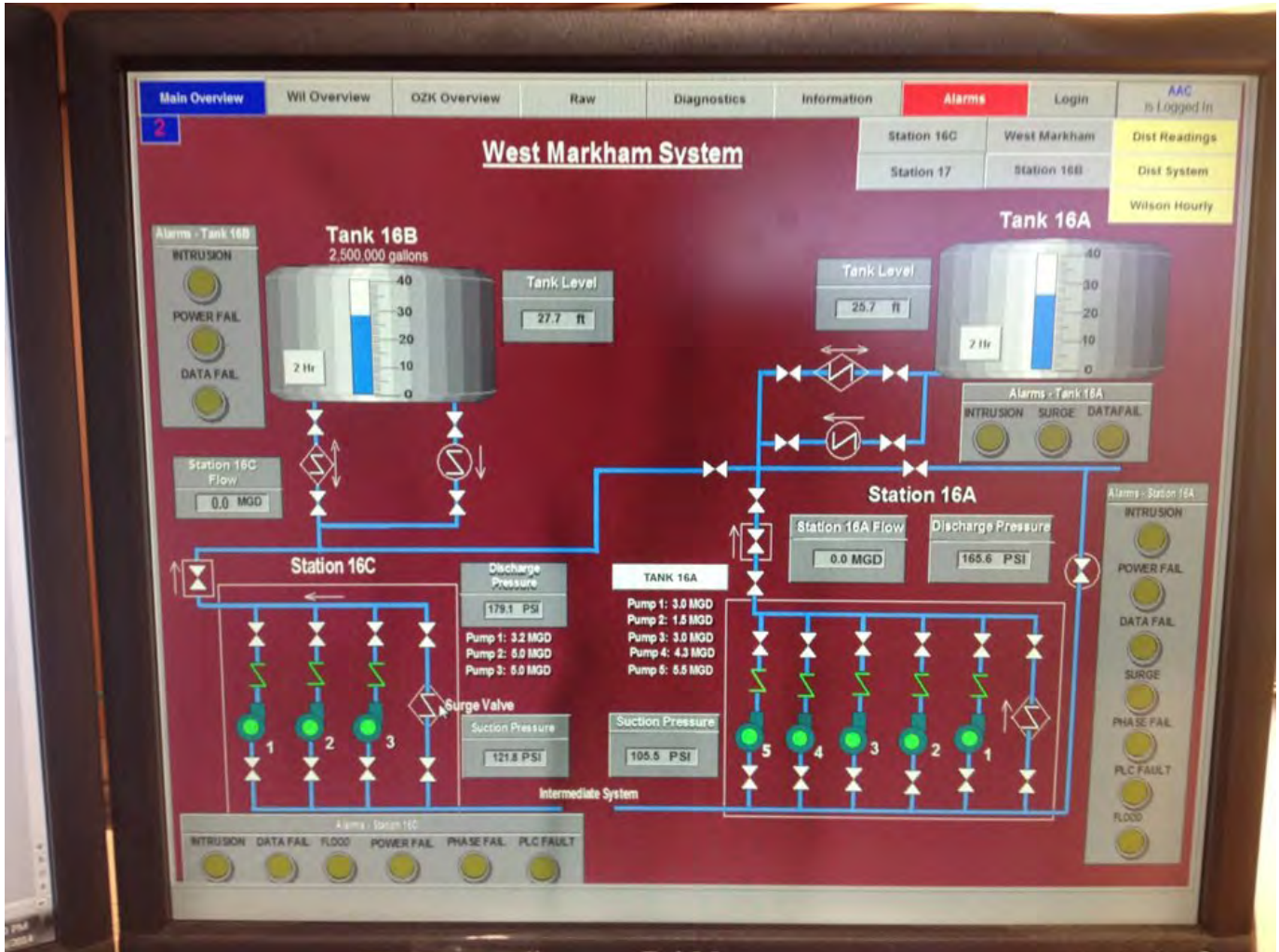
O&M Impact

G/L	2017	2018	2019	2020	2021
	—	—	—	—	—

EUM ATTRIBUTE

- **Operational Optimization** - Vehicle replacements will occur according to the Utility's fleet management plan. The dump truck replacement schedule is based on historical fleet management data and allows for the most efficient use of these vehicles.

Project Name: Replace SCADA Human Machine Interface
Department: Water Quality
Focus Area: SCADA HMI
Location: Wilson Plant and Ozark Point Plant



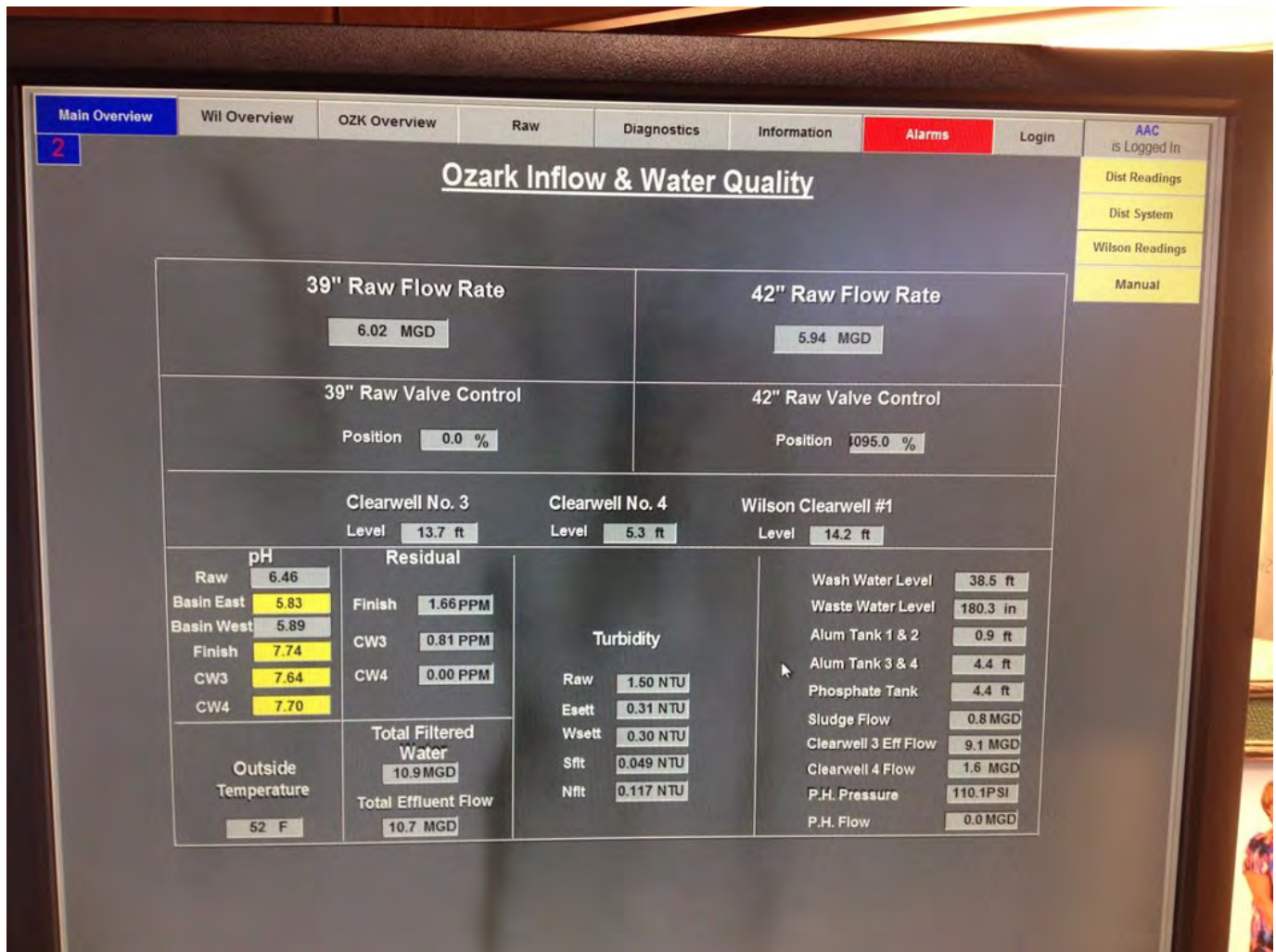
Name:
 Randy Easley

Duration: (Months)
 12 Months

Est Start Date:
 January, 2017

Total Cost:
 \$515,000

PROJECT PURPOSE



Upgrading the SCADA HMI system will allow additional CAW staff to become familiar with the workings of SCADA HMI from the ground up, provide uniform code and screens as well as reducing dependence on a single source to repair and maintain the major components of the HMI system.

The present SCADA HMI was installed in 1995 and has been upgraded numerous times, but has kept the same code for controlling objects, alarms, and viewing data from the treatment plants and throughout the distribution system. Upgrades have allowed advances in our driver over time, but have not resulted in improvements to the HMI code portion of the SCADA system other than those version upgrades necessary to maintain customer service support. As a result, the SCADA screens and coding are not uniform from one CAW facility to another because different entities have developed portions of the HMI over the past 19 years.

Inability to modify our current HMI code makes our SCADA system less resilient and in need of upgrade. Advances in industry software packages have been made that make current SCADA coding much simpler to configure, maintain, and troubleshoot. In addition, much of what was accomplished previously in custom scripting is now part of newer HMI packages, providing the opportunity for customer support to assist with any issues that may arise.

The HMI system upgrade will require new servers and computers along with screen and database development for communicating with our driver. This will be brought on-line in parallel with our present system in order to test and verify all system elements while maintaining our current system operation.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
RATES	515,000	—	—	—	—

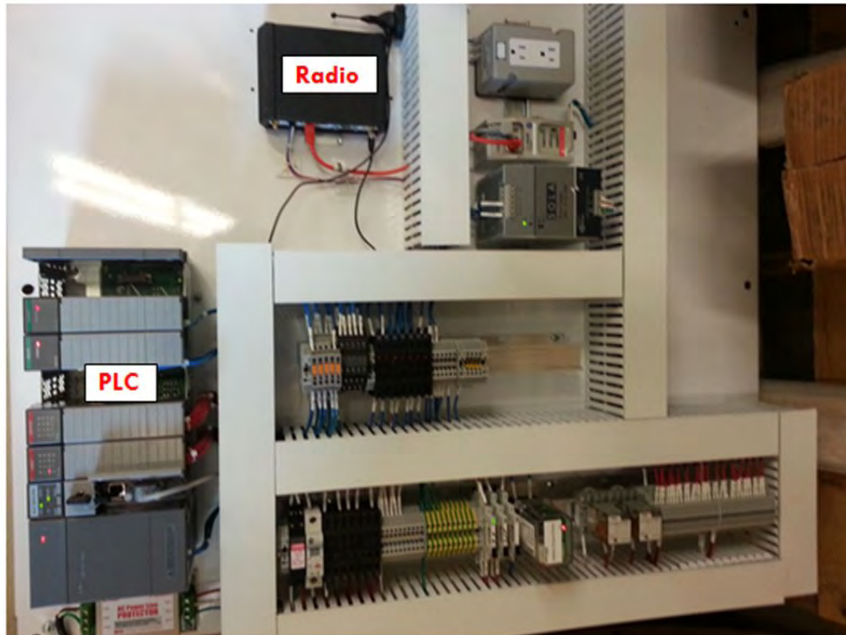
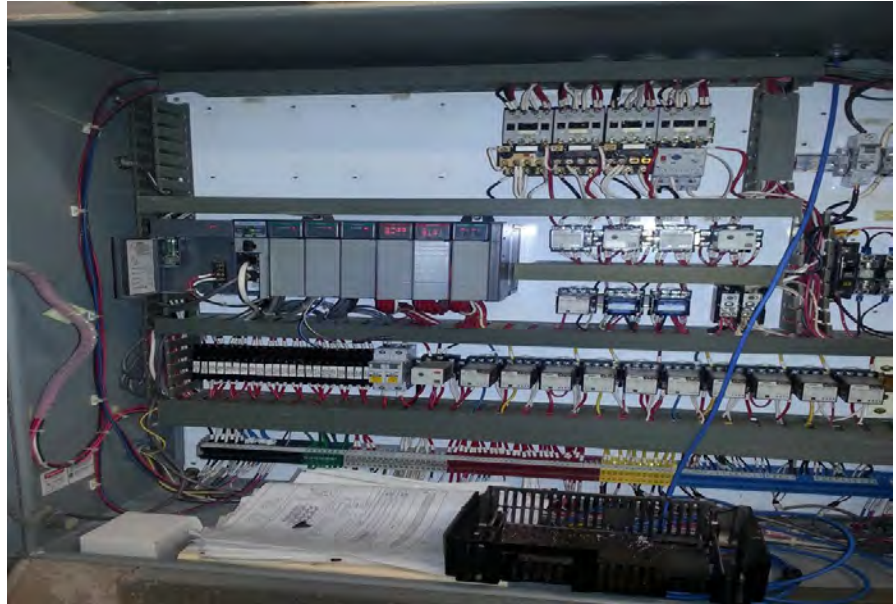
O&M Impact

G/L	2017	2018	2019	2020	2021
	—	—	—	—	—

EUM ATTRIBUTE

- **Infrastructure Stability** - The SCADA HMI system is a critical interface system which coordinates the operation of CAW's water treatment and distribution systems. Coordinated upgrades and replacement of this system will ensure that CAW minimizes disruptions and other negative consequences to its customers.
- **Operational Optimization** - The SCADA system is a key to ensuring the ongoing, timely, cost-effective, reliable, and sustainable performance of CAW's water treatment and distribution operations. This upgrade will bring the system to the current generation of technology and reduce impacts to day-to-day operations due to the outdated nature of the current system. Timely adoption of improvements will allow CAW to realize many improvements and system optimization that current technology provides.
- **Operational Resiliency** - Proactive replacement/upgrade of the current SCADA system will mitigate a number of business risks which exist with the current system. The new system will reduce financial risk due to unplanned downtime and emergency repairs, improve safety and security controls due to newer technology, and provide CAW with a more reliable system consistent with current industry technology trends to enable better management of the treatment and distribution systems.

Project Name: Upgrade SCADA System Programmable Logic Controller
Department: Water Quality
Focus Area: SCADA HMI
Location: Wilson Plant and Ozark Point Plant



Name:
Doug Graham

Duration: (Months)
10 Months

Est Start Date:
June, 2020

Total Cost:
\$300,000



PROJECT PURPOSE

Replacement of the current PLC's, in the treatment plants, due to the equipment becoming outdated will provide us with up to date support regarding hardware and software. Recently, some equipment has been replaced with newer hardware and software due to expense of the legacy items and the functionality of the newer hardware and software.

Some of the SCADA hardware was installed and placed in operation in late 1995 with additions made during projects in 1999, 2010, and 2014. These will need replacing due to these items not being supported by the manufacturer any longer (legacy). This equipment is critical to monitoring, controlling and maintaining treatment integrity/water quality and distribution for our rate payers.

The equipment can be purchased and replaced by CAW staff. This can be scheduled so we are not in an emergency situation due to unforeseen circumstances.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
RATES	—	—	—	150,000	150,000

O&M Impact

G/L	2017	2018	2019	2020	2021
	—	—	—	—	—

EUM ATTRIBUTE

- **Operational Resiliency** - Proactive replacement/upgrade of the current SCADA system will mitigate a number of business risks which exist with the current system. The new system will reduce financial risk due to unplanned downtime and emergency repairs, improve safety and security controls due to newer technology, and provide CAW with a more reliable system consistent with current industry technology trends to enable better management of the treatment and distribution systems.

Project Name: Upgrade Billing System
Department: Information Services
Focus Area: Customer Billing
Location: CAW System



HTML 5 Inquiry Portal



Communication Preferences			
Notification Type	Paper	Email	SMS/Text
Customer Correspondence	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Payment Reminder	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bill is Ready Notification	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Shut Off Notification	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Customer Public Notice	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Conservation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Communication Preferences

As devices and displays become more diverse (larger monitors, tablet devices) - so should your customer information system. enQuesta 5R's Inquiry Portal has been redesigned with a responsive layout to leverage the various devices and display sizes preferred by the individual users.

With enQuesta 5R's new Communication Preference and Notification Management, utilities can now give their customers the option of signing up for account-based reminders via a range of methods - ranging from Email to Text Messaging.

Name:
Allen Vincent

Duration: (Months)
9 Months

Est Start Date:
March 2019

Total Cost:
\$700,000



PROJECT PURPOSE

The current enQuesta 4 system will only be supported until 2019, at which time the vendor (Systems & Software) will force CAW to upgrade. The newer system is expected to support a variety of new payment methods, new ways of interacting with CAW customers, as well as different ways to access the data. With the upgrade, there will be some additional tools we can use to enhance CAW workflow. Some examples include:

- GO - A mobile app that will allow customer account registration, service requests, account histories, and usage graphs on our customers' mobile devices.
 - Identify Table and Field Names within enQuesta interface where enQuesta 5R allows business users to point-and-click to find the associated enQuesta table and field names from within the application to allow for easy report writing.
 - Advanced Searches to provide a powerful way to locate customer accounts with AND/OR search parameters, similar to Google, where a user may view potential search results as they type. The goal is that each search is satisfied without the user having to scroll or page through a long list of results.
 - An improved Inquiry Portal that is redesigned with a responsive layout to leverage the various devices and display sizes preferred by the individual users.
-

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2016	2017	2018	2019	2020
RATES	—	—	—	700,000	—

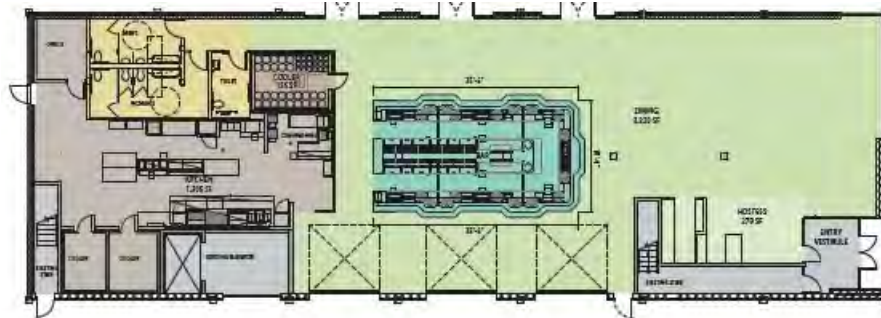
O&M Impact

G/L	2015	2016	2017	2018	2019
	—	—	—	—	—

EUM ATTRIBUTE

- **Customer Satisfaction** - The upgraded enQuesta interface will provide a number of new customer-facing interface options to provide customers with improved account management and informational sources. This will facilitate improved customer understanding of usage patterns, as well as improved customer satisfaction through the ability to identify leaks, establish usage alerts, and other features.
- **Operational Optimization** - Upgrading to the latest release of the enQuesta system will ensure ongoing, timely, cost-effective, and reliable performance of CAW's business operations. Enhancements available in more current software releases will provide a number of improvements which will provide for not only efficiency gains within CAW's operations, but also to CAW's customers; allowing them to more efficiently manage their water usage and interaction with CAW.

Project Name: Improve Paragon Building - Developer Contribution
Department: Administration
Focus Area: Buildings and Grounds
Location: Little Rock



scheme 1
SCALE: 1"=16'



scheme 2a
SCALE: 1"=16'



Name:
Jim Ferguson

Duration: (Months)
6 Months

Est Start Date:
January, 2017

Total Cost:
\$1,300,000



The Paragon Building Existing North Facade 2015



The Paragon Building Proposed North Facade

PROJECT PURPOSE

This project consists of leaseholder funded improvements to the first floor and exterior of the Paragon Building in the 300 block of Capitol Avenue in downtown Little Rock. These improvements will allow for the opening of a restaurant, allow for continued use of the second floor by CAW for document storage, and provide a source of revenue to the Utility.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
DEV	1,300,000	—	—	—	—

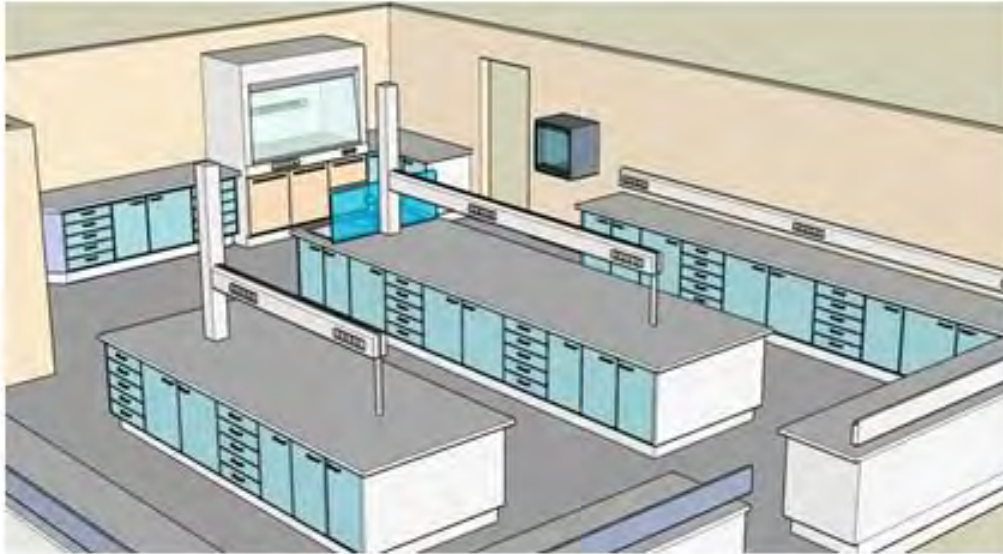
O&M Impact

G/L	2017	2018	2019	2020	2021
	—	—	—	—	—

EUM ATTRIBUTE

- **Financial Viability** - Developer funded renovation of this structure will provide a stable income stream to the Utility, as well as improve a portion of downtown Little Rock currently undergoing revitalization efforts with redevelopment of residential and commercial properties.
- **Community Sustainability** - By capitalizing on developer interest in the area, CAW is able to contribute to the revitalization efforts in downtown Little Rock and convert a currently underutilized property into a productive property in the downtown area.

Project Name: Replace Laboratory Facilities
Department: Water Quality
Focus Area: Laboratory Analyses
Location: CAW Laboratory



Name:
 Randy Easley

Duration: (Months)
 36 Months

Est Start Date:
 January, 2019

Total Cost:
 \$1,500,000

PROJECT PURPOSE

To improve the capability, efficiency, and safety of the laboratory facility, as well as bring the lab into compliance with Good Laboratory Practices (GLP) and ADA standards. GLP is a set of principles that provides a framework within which laboratory analyses are planned, performed, monitored, recorded, reported, and archived. GLP helps assure regulatory authorities that the data submitted are a true reflection of the results obtained during analyses and can therefore be relied upon when making risk/safety assessments.

Water quality targets, objectives, and standards are set to evaluate the quality of the water resources, both surface and subsurface water bodies, to characterize ecological status (for surface waters) and to establish satisfactory condition for intended uses of the aquifer(s). The laboratory data define whether that condition is being met and whether the water is at acceptable quality for the purpose.

It is important to note that good, high quality laboratory work requires appropriate planning, design, and construction of the laboratory facility. Depending on the planned use of the laboratory, i.e., for research and/or monitoring; chemical, radiochemical, biological or microbiological analyses, etc., appropriate space, and basic laboratory facilities should be available.

This project would enhance CAW's Laboratory's ability to maintain its current Arkansas Department of Health Certification, as well as the ability to obtain additional certifications from the Arkansas Department of Environmental Quality and Environmental Protection Agency.

Additionally, the Laboratory management systems would be technologically upgraded to support a Laboratory Information Management System for the electronic integration of data from all laboratory instrumentation and computers as well as the reporting and storage of data.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2017	2018	2019	2020	2021
RATES	—	—	500,000	500,000	500,000

O&M Impact

G/L	2017	2018	2019	2020	2021
	—	—	—	—	—

EUM ATTRIBUTE

- **Operational Optimization** - CAW's laboratory aids in maximizing process control by providing data that will help optimize chemical usage, as well as contribute to energy efficiency.
- **Product Quality** - A state of the art lab is a vital part of CAW's production of exceptional quality water that exceeds all regulatory requirements for protecting public health. The laboratory plays an important role in monitoring the quality of water in Lake Maumelle, Lake Winona, and their tributaries.

Glossary of Acronyms and Abbreviations

ADA	Americans with Disability Act
AHTD	Arkansas Highway & Transportation Department
AMI	Advanced Metering Infrastructure
AMR	Automated Meter Reading
ANSI	American National Standards Institute
AWWA	American Water Works Association
BMP	Best Management Practice
CAW	Central Arkansas Water
CIP	Capital Improvement Plan
CRPA	Customer Relations & Public Affairs
CO	Carryover
EPA	Environmental Protection Agency
EUM	Effective Utility Management
EWC	Excess Working Capital
FLP	Forest Legacy Program
F/T	Full-Time Employee
GAC	Granular Activated Carbon
GLP	Good Laboratory Practice
GPM	Gallons per Minute
HMI	Human Machine Interface
LR	Little Rock
MGD	Million Gallons per Day
MWM	Maumelle Water Management
NEXRAD	Next Generation Weather Radar
NLR	North Little Rock
PER	Preliminary Engineering Report
PLC	Programmable Logic Controller
P/T	Part-Time Employee
PVC	Polyvinyl Chloride
RSA	Rate Stabilization Account
RTU	Remote Terminal Unit
SCADA	Supervisory Control and Data Acquisition System

SDWAA

Safe Drinking Water Act Amendments of 1996

SRWD

Sherwood

USDA

U.S. Department of Agriculture

WPCWA

West Pulaski County Water Authority