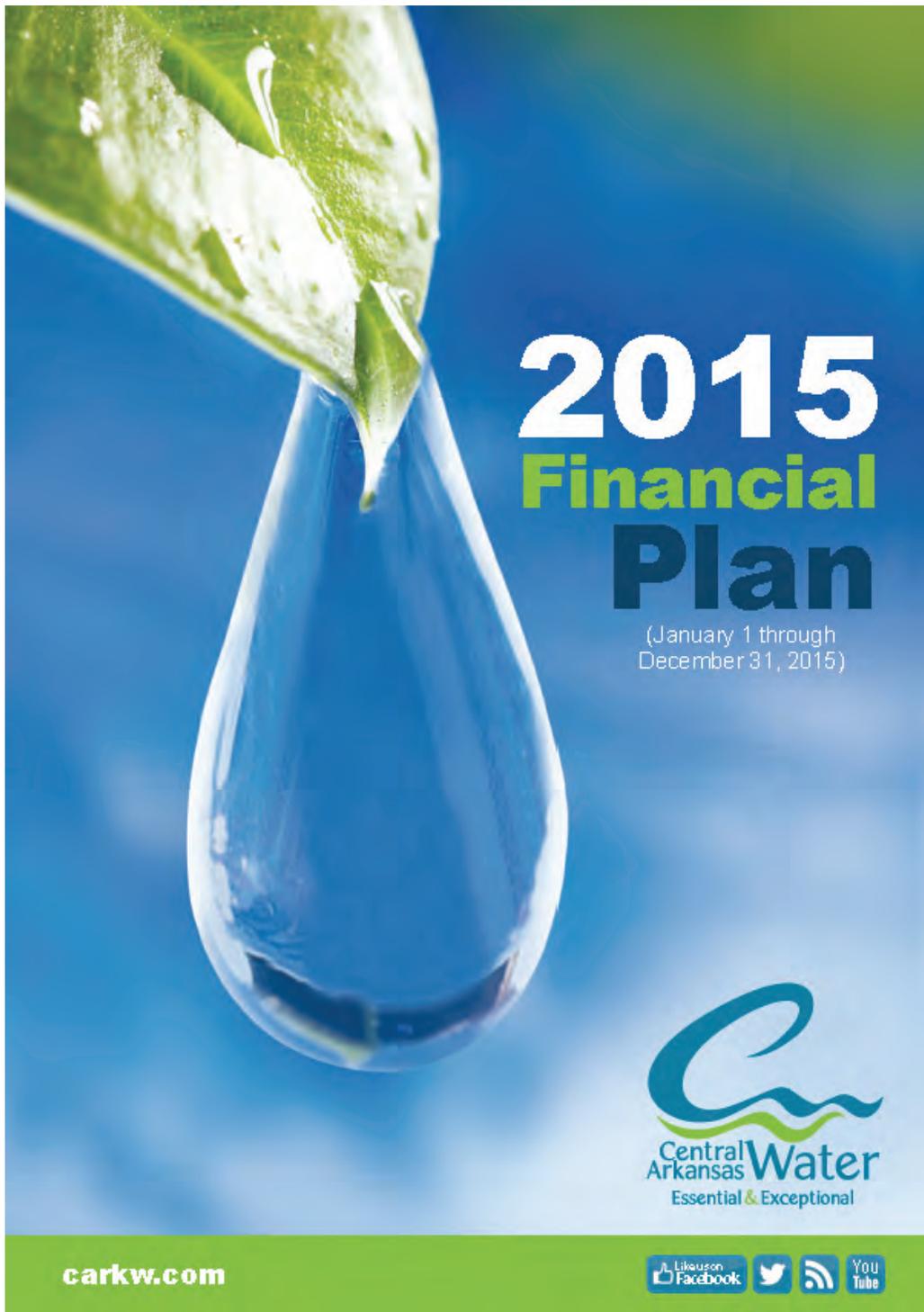


Capital Improvement Plan



12/11/14

Supplement to the 2015 Financial Plan

Introduction



Management Team

Graham W. Rich, P.E., BCEE	Chief Executive Officer
Thad Luther, P.E., BCEE	Chief Operating Officer
C. Tad Bohannon	Chief Legal Counsel
Robert Hart, P.E., BCEE	Technical Services Officer
Becky Wahlgreen	Chief Administrative Officer
Jeff Mascagni, CPA	Chief Financial Officer
John Tynan	Director of Customer Relations & Public Affairs
Darrell Boggs	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 & Operations

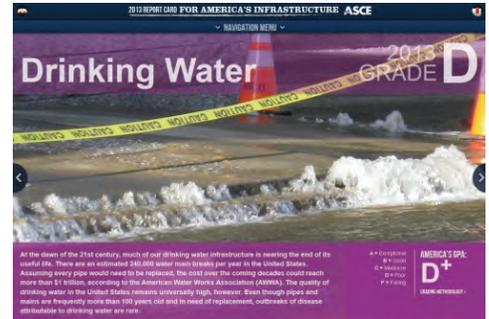
Capital Improvement Plan Development Team

Jeff Mascagni, CPA	Chief Financial Officer
Todd Fisher, CPA	Finance Manager
Leo O'Bannion	General Accountant

EXECUTIVE SUMMARY

Central Arkansas Water's 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.

Across the nation, drinking water infrastructure is considered to be in "poor" overall condition. The American Society of Civil Engineers graded the nation's drinking water infrastructure with a D or "poor" rating in their 2013 Report Card for America's Infrastructure. CAW, however, seeks to proactively address infrastructure needs as part of the Utility's Essential and Exceptional commitment to our community. 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 5 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.

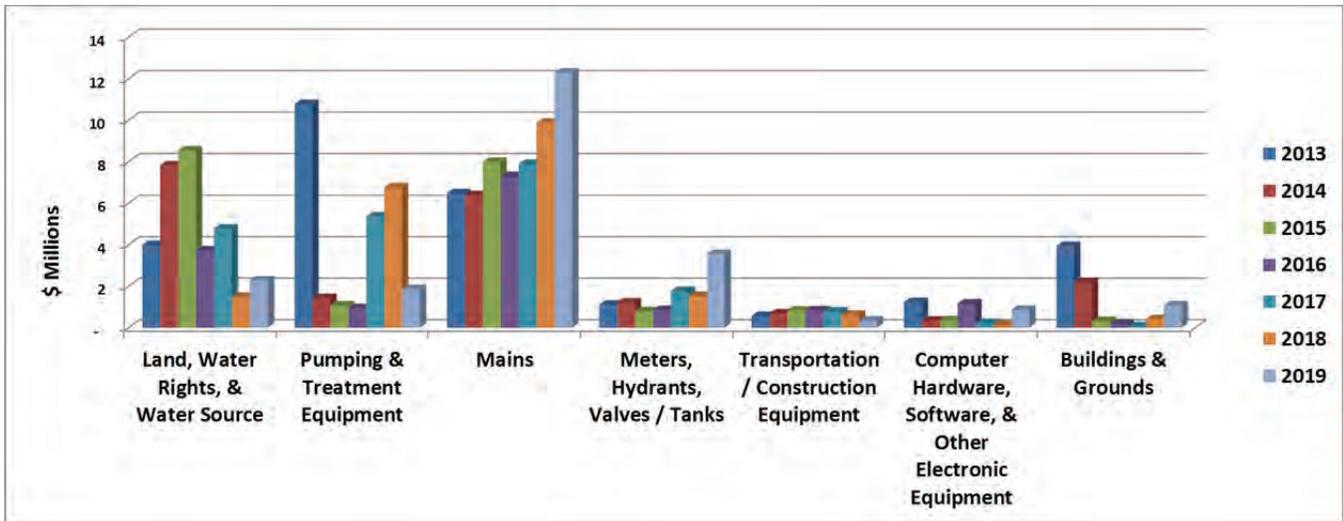


A Focus on Infrastructure Decision-Making

Timing and prioritization of infrastructure replacement and rehabilitation is influenced by a wide range of factors, including, but not limited to, regulatory requirements, relocations driven by local government requirements, age and condition of assets, and availability of financial resources.

The Environmental Protection Agency's (EPA) Safe Drinking Water Act Amendments of 1996 (SDWAA) imposed new and stricter requirements for numerous contaminants in drinking water, including arsenic, radioactive compounds, microbials, and disinfection byproducts. Complying with these EPA requirements has required CAW to expend a significant amount of financial and human capital in recent years. CAW completed a \$17.5 million bond issue in 2012 and used these bond proceeds to upgrade our water treatment plants for regulatory requirements.

Water main relocation projects driven by city, county, and state road and highway improvements have recently placed additional demands on CAW's resources available for capital improvement projects. Annual expenditures for required relocation projects will increase from \$1.0 million in 2012 to over \$2.9 million in 2015, a 190% increase.



Using limited resources, time, and capital to comply with unfunded requirements such as federal water quality regulations and water main relocation requirements leaves less resources, time, and capital available for replacement or rehabilitation of other critical Utility assets. However, the fact remains parts of the water system are 100+ years old, and are in need of replacement or rehabilitation. Deferring infrastructure improvements on these aging assets has contributed to the “poor” rating that drinking water infrastructure received from The American Society of Civil Engineers. Regardless, needed replacement and rehabilitation projects must be clearly identified, planned, funded, and implemented in order to maintain superior water quality and reliability to our customers. This CIP Supplement aids in identifying and planning for the completion of these necessary projects.

Annual Expenditure Trend

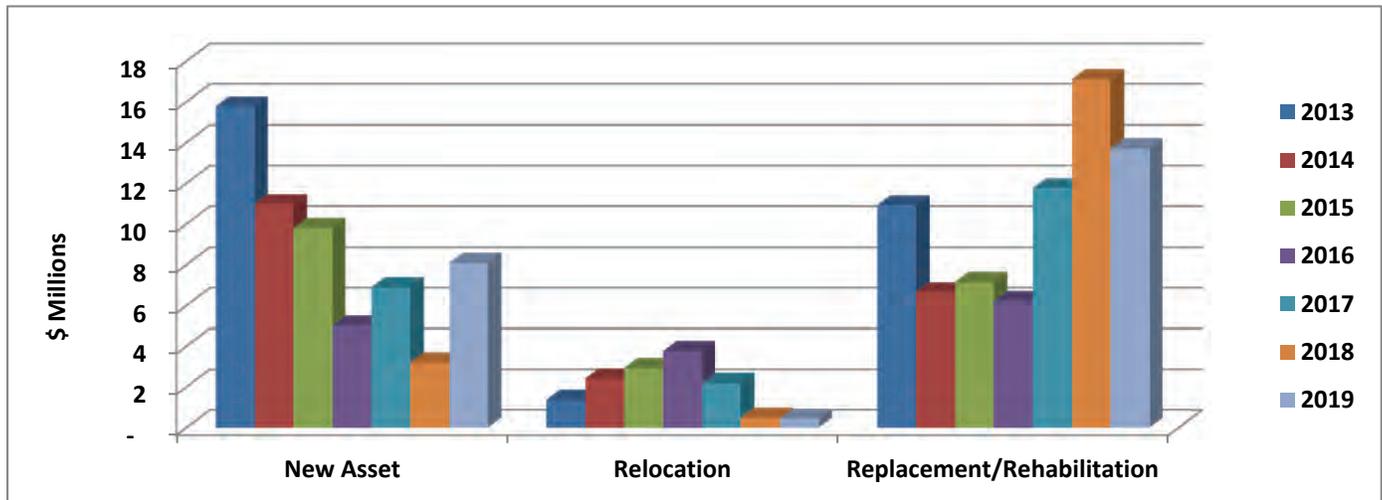
CAW anticipates completing approximately \$98 million in capital improvement projects from 2015-2019. During this five-year period, the largest year of capital expenditures is projected to be in 2019, driven primarily by water main replacement projects.

After CAW completed the water treatment plant improvements related to new EPA regulations, in 2013, new asset capital expenditures trend downward. Spikes in new asset capital expenditures occur in 2017 and 2019 because of the needed addition of a secondary 24”-DIAM (Diameter) water main in 2017, the addition of a new 1.0 million gallon storage tank in 2019, and the addition of a redundant 16”-DIAM water main to tanks #14A/B in 2019.

Relocation expenditures related to required water main relocation projects that occurred or are projected to occur from 2013 through 2016 are expected to trend downward as city and state roadway improvement bond proceeds are fully expended, thereby driving fewer relocation projects.

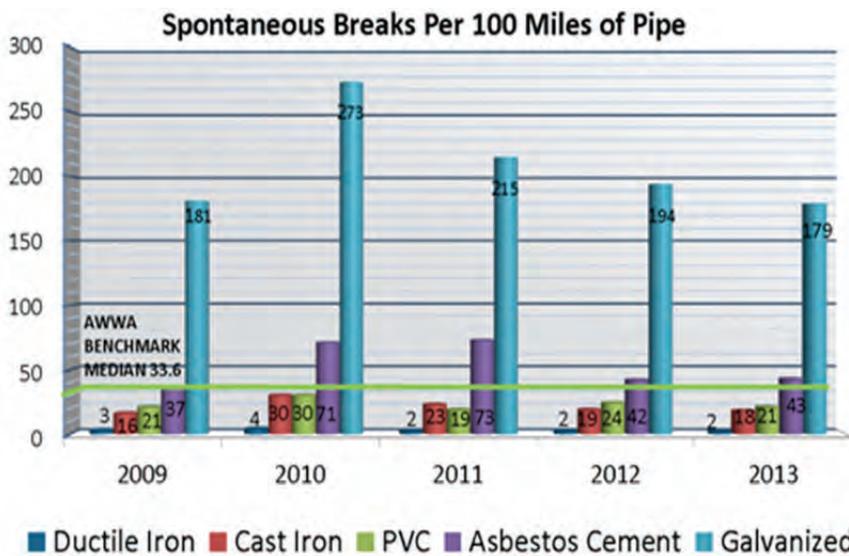
As the new asset and relocation capital expenditures decrease, replacement and rehabilitation expenditures are projected to increase from \$6.0 million in 2014, to \$7.0 million per year in 2015 and

2016, to \$17.0 million in 2018, and to \$13.0 million in 2019. Increases in capital expenditures for replacement and rehabilitation projects will allow CAW to address critical aging infrastructure needs, especially galvanized pipe.



Why Galvanized Pipe

A significant portion of infrastructure expenditures from 2015-2019 is planned to fund galvanized pipe replacement projects. Currently, galvanized pipe accounts for approximately 6% of CAW's water mains but are responsible for over 40% of the spontaneous breaks throughout the system.



CAW currently maintains 137 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 56 years.

To address both the disproportionate impact that galvanized pipe has on water service and the age and condition of CAW's galvanized pipe assets, capital expenditures budgeted for galvanized pipe replacements are planned to increase overall from 2015 to 2019. Planned expenditures for galvanized pipe replacement is \$1.6 million in 2015, \$0.7 million in 2016, \$1.9 million in 2017, \$3.2 million in 2018, and \$5 million in 2019.

Current System Pipe Types

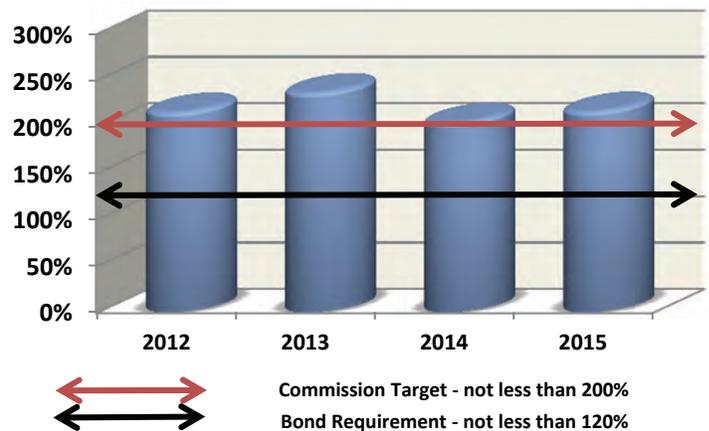
Type Pipe	Miles	Percent of Dist. System	Weighted Age (Yrs)	Age Range (Yrs)	Est. Useful Life (Yrs)
Ductile Iron	810	35 %	17	1 - 50	100
Cast Iron	810	35 %	63	16 – 114+	100
PVC	450	20 %	21	1 – 52	100
Galvanized Iron	137	6 %	56	17 – 114+	50
AC	36	2 %	55	38 - 75	60
PCCP	38	2 %	46	32 – 61	80
Other	12	< 1 %	46	1 - 100	80

Primary Funding and Financing Methods

The primary funding sources for capital expenditures are revenue bonds and rates. The 2015 Financial Plan includes a planned bond issue in 2017 for \$16.5 million. The 2017 Bond Issue proceeds will fund Ozark Point Plant improvements, Wilson Plant Pump Station #1A improvements, and a 24"-DIAM transmission main to pump station #23.

CAW's bonds require revenue coverage not less than 120% of debt service. The CAW Board of Commissioners, however, has established a more conservative target of not less than 200% of debt service, but is currently reviewing this target and will decide in early 2015 whether to lower or continue at the current 200% target. CAW will also complete a rate study in 2015 that will examine multiple funding mechanisms that will allow the Utility to meet all revenue requirements. Increased revenues are expected to be necessary in order to meet increasing operations and maintenance costs, increasing capital needs, and increasing debt-service payments. The 2015 rate study is also expected to examine and recommend various rate structure strategies that will mitigate the impact that climactic variability has on revenue.

Debt-Service Coverage Ratio by Year



Over the next five years, capital expenditures are projected to average \$20.0 million per year. During this time CAW will rely primarily on rate-based revenue to fund capital improvements. This funding decision will require CAW staff and Board identify opportunities to increase revenue intended for capital improvements and to prioritize specific asset replacement projects based on limited resources.

Acknowledgement

The inaugural Capital Improvement Plan – Supplement to the 2015 Financial Plan is 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.

Projects



CAPITAL IMPROVEMENT PLAN – FIVE-YEAR PLAN

Projects In Book Highlighted

DESCRIPTION	2015	2016	2017	2018	2019	5yr Total
Land, Water Rights, & Water Source						
Purchase DeGray Lake Water Rights	4,640,000					4,640,000
Purchase Forest Legacy Projects	2,590,000	3,030,000	3,140,000			8,760,000
Purchase Conservation Easement(s)	300,000		300,000	300,000	300,000	1,200,000
Purchase Property	500,000		500,000	500,000	500,000	2,000,000
Remove Dam / Construct Bridge - Winrock Grass Farm	350,000	350,000	350,000			1,050,000
Professional Services - Engineering	20,000	20,000	20,000	20,000	20,000	100,000
Professional Services - Property Appraisals	5,000	5,000	5,000	5,000	5,000	25,000
Professional Services - Land Surveying	5,000	5,000	5,000	5,000	5,000	25,000
Preliminary Engineering Report - Intake Inspection - Lake Winona/Lake Maumelle/Jackson	90,000					90,000
Preliminary Engineering Report - Alternate Water Source - AR River	120,000					120,000
Improve Dam - Lake Maumelle					1,400,000	1,400,000
Land Coverage Determination - Lake Maumelle		50,000				50,000
Aerial Photography of Watershed - Lake Maumelle		35,000				35,000
Improve - Forest Road(s)		50,000	50,000	50,000	50,000	200,000
Forest Restoration and Enhancement - Winrock Grass Farm		75,000	50,000			125,000
River, Floodplain, and Wetland Restoration - Winrock Grass Farm		100,000	100,000	100,000		300,000
Watershed Assessment					250,000	250,000
TOTAL	\$ 8,620,000	\$ 3,720,000	\$ 4,520,000	\$ 980,000	\$ 2,530,000	\$ 20,370,000
Pumping & Treatment Equipment						
Construct Booster Pump Station #26B - NLR High Pressure Zone	430,000					430,000
Install Variable Frequency Drive - Pump #6 - Scenic Hills	180,000					180,000
Preliminary Engineering Report - Pump Station #1A - Wilson Plant (co)	50,000					50,000
Purchase Online Turbidimeters	70,000					70,000
Replace Filter Controls - Wilson	66,000					66,000
Purchase Online Chlorine Analyzer	28,000					28,000
Replace Influent #3 Flow Meter - Wilson	22,000					22,000
Replace Total Organic Carbon Analyzer	50,000					50,000
Purchase Online System Chlorine Monitor	40,000					40,000
Replace Alum & Lime Feeder View Panel	11,000					11,000
Replace Shimpo Flocculation Drive - Ozark Basin	10,000					10,000

(co) – Carry over from Previous Year

CAPITAL IMPROVEMENT PLAN – FIVE-YEAR PLAN

Projects In Book Highlighted

DESCRIPTION	2015	2016	2017	2018	2019	5yr Total
Pumping & Treatment Equipment (Cont.)						
Variable Frequency Drive - Station #24 - Scenic Hills	7,000					7,000
Purchase Online Fluoride Analyzer	6,000					6,000
Replace Motor #1- Station #29 - 29th Street	5,000					5,000
Purchase New Pressure Calibrator	5,000					5,000
Replace Continuous Chlorine Analyzer - Wilson & Ozark		13,000				13,000
Replace On- Line Turbidimeters - Ozark		52,000				52,000
Replace Gas Chromatograph		125,000				125,000
Preliminary Engineering Report - Winona Low Head Pump			130,000			130,000
Improve Ozark Point WTP		750,000	3,500,000	5,750,000	1,250,000	11,250,000
Update Pump Station #11			220,000			220,000
Improve Pump Station #1A - Wilson			1,500,000	1,000,000		2,500,000
Construct Booster Pump Station #17B - Hi Ridge					600,000	600,000
TOTAL	\$ 980,000	\$ 940,000	\$ 5,350,000	\$ 6,750,000	\$ 1,850,000	\$ 15,870,000
Water Mains						
Capital Labor - Distribution & Engineering	1,975,000	2,000,000	2,050,000	2,075,000	2,150,000	10,250,000
Replace 1"- DIAM Copper Service and Install 1" and 2"- DIAM Services (Projects 1- 4)	468,000	487,000	506,000	526,000	547,000	2,534,000
TRANSMISSION MAINS - NEW CONSTRUCTION						
Construct 24"-DIAM Transmission Main to Pump Station #23 - Montgomery			1,000,000	800,000		1,800,000
Construct 16"-DIAM Parallel Feed Main to Storage Tanks # 14A & # 14B - Mabelvale					2,000,000	2,000,000
Master Plan Transmission Mains					1,000,000	1,000,000
TRANSMISSION MAINS - REPLACEMENTS						
Replace 16"-DIAM Steel Pipe Across Cantrell Road - Pulaski Heights East Feed	300,000					300,000
DISTRIBUTION MAINS - REPLACEMENTS						
Replace 12"-DIAM Asbestos Cement Main - E Roosevelt/Welch St - LR W1	650,000					650,000
Replace 2"-DIAM Galvanized Pipe - N Monroe/Palm/Woodlawn - LR W3	565,000					565,000
Replace 2"-DIAM Galvanized And 6"-DIAM Asbestos Cement Pipe. - Dixie Addition - NLR W2	450,000					450,000
Replace 2"-DIAM Galvanized Pipe - SA Jones/C/Delhaven - NLR W2	230,000					230,000
Replace 2"-DIAM Galvanized Pipe - Rose/Healy - NLR W2	160,000					160,000

CAPITAL IMPROVEMENT PLAN – FIVE-YEAR PLAN

Projects In Book Highlighted

DESCRIPTION	2015	2016	2017	2018	2019	5yr Total
Water Mains (Cont.)						
DISTRIBUTION MAINS - REPLACEMENTS (cont.)						
Replace 2"-DIAM Galvanized Pipe - Creekridge - Sherwood W4	160,000					160,000
Replace 2"-DIAM Galvanized Pipe - Meadowcliff - LR W7		525,000				525,000
Replace 2"-DIAM Galvanized Pipe & 6"-DIAM Cast Iron Pipe - W6th St/Center St		500,000				500,000
Replace 2"-DIAM Galvanized Pipe - Jackson/Rose/Elm - LR W3			500,000			500,000
Replace 2"-DIAM Galvanized Pipe & 6"-DIAM Cast Iron Pipe- Warren/Arapaho - LR W2			580,000			580,000
Replace 2"-DIAM Galvanized Pipe - Alexander/Sardis/Man - LR W7			400,000			400,000
Replace 2"-DIAM Galvanized Pipe - Parkhill/Lakewood - NLR W1		150,000	550,000			700,000
Replace 2"-DIAM Galvanized Pipe & 16" Case Iron Pipe - W. 5th St & Broadway St			550,000			550,000
Replace 8"-DIAM Cast Iron Pipe - River Rd - NLR W2&3			60,000			60,000
Replace 2"-DIAM Galvanized Pipe Undesignated/Unknown Locations				3,200,000	5,000,000	8,200,000
Replace 6"/8"/12"-DIAM Cast Iron/Asbestos Cement Pipe Undesignated/Unknown Locations				1,000,000	1,000,000	2,000,000
Replace 2"-DIAM Galvanized Pipe - Twin Lakes/Hicks Add. - LR W6				800,000		800,000
Replace 2"-DIAM Galvanized Pipe & 6"-DIAM Asbestos Cement Pipe - Lone Pine - JP 3				780,000		780,000
TRANSMISSION MAINS - RELOCATIONS						
Relocate 20"-DIAM Main Across Ark. River - Broadway Bridge Attachment - AHTD		1,400,000				1,400,000
Relocate 16"/12"-DIAM Main - McCain/Fairfax RR Bridge	580,000					580,000
Relocate 16"-DIAM Main - Capitol Drain/N. Cantrell Road	100,000	100,000				200,000
Relocate 24"-DIAM Main - Maryland Avenue - CSherwood			1,200,000			1,200,000
DISTRIBUTION MAINS - RELOCATIONS						
Relocate 2"-DIAM Main - Schiller St - LR	40,000					40,000
Relocate 12"-DIAM Main - Zoo Dr - LR	25,000					25,000
Relocate 8"-DIAM Main - Woodson St -LR	40,000					40,000
Relocate 12"-DIAM Main - Sheila Ln & Meyer Rd - LR	17,000					17,000
Relocate 8"-DIAM Main - Victoria at Woodford - LR	20,000					20,000
Relocate 2"-DIAM Main - Sandy Ln - LR	8,000					8,000
Relocate 6"-DIAM Main - Thompson Rd - LR	95,000					95,000
Relocate 8"-DIAM Main - Hawthorne at Tyler - LR	15,000					15,000
Relocate 12"-DIAM Main - Pinnacle Valley Rd - LR	30,000					30,000

CAPITAL IMPROVEMENT PLAN – FIVE-YEAR PLAN

Projects In Book Highlighted

DESCRIPTION	2015	2016	2017	2018	2019	5yr Total
Water Mains (Cont.)						
DISTRIBUTION MAINS - RELOCATION (cont.)						
Relocate 12"-DIAM Main - Hinson & Pebble Beach - LR	10,000					10,000
Relocate 6"-DIAM Main - McAdoo Drainage - LR	25,000					25,000
Relocate 8"-DIAM Main - Dorado Beach - LR	5,000					5,000
Relocate 8"-DIAM Main - Overlook Dr - LR	35,000					35,000
Relocate 12"-DIAM Main - 'W' St at Grant - LR	45,000					45,000
Relocate 12"-DIAM Main - Taylor Loop Rd - LR	175,000					175,000
Relocate 12"-DIAM Main - W 36th & Shackelford - LR	15,000					15,000
Relocate 2"-DIAM Main - W 44th - LR	50,000					50,000
Relocate 8"-DIAM Main - 'P' St - LR	15,000					15,000
Relocate 2"/6"/12"-DIAM Main - Potter St - LR	25,000					25,000
Relocate 8"-DIAM Main - Yarberry Ln - LR	6,000					6,000
Relocate 12"-DIAM Main - Chicot Rd at Mabelvale Pike - LR	190,000					190,000
Relocate 2"-DIAM Main - Malloy St - LR	30,000					30,000
Relocate 6"/8"-DIAM Main - N. Pine St - LR	60,000					60,000
Relocate 8"-DIAM Main - 17th St - LR	30,000					30,000
Relocate 6"-DIAM Main - Adams St - LR	65,000					65,000
Relocate 12"/8"/6"-DIAM Main - Counts Massie/Old Crystal Hill Rd - NLR/Maumelle	375,000					375,000
Relocate 2"-DIAM Main - Schaer St - NLR	20,000					20,000
Relocate 8"-DIAM Main - Poe St - NLR	35,000					35,000
Relocate 2"/6"-DIAM Main - 39th St - NLR	30,000					30,000
Relocate 8"-DIAM Main - Oakbrooke Dr - Sherwood	5,000					5,000
Relocate 12"-DIAM Main - Arch St - AHTD	300,000					300,000
Relocate 8"/3"-DIAM Main - I-430 & Hwy 10 (Cantrell Rd) - AHTD	60,000					60,000
Relocate 12"-DIAM Main - MacArthur Rd - AHTD	150,000	150,000				300,000
Relocate Undesignated/Unknown Locations - LR	50,000	300,000	300,000	200,000	150,000	1,000,000
Relocate Undesignated/Unknown Locations - NLR	50,000	150,000	150,000	150,000	150,000	650,000
Relocate Undesignated/Unknown Locations - Sherwood	10,000	25,000	25,000	25,000	25,000	110,000
Relocate Undesignated/Unknown Locations - Pulaski County	10,000	10,000	10,000	10,000	10,000	50,000
Relocate Undesignated/Unknown Locations - AHTD	75,000	100,000	100,000	100,000	100,000	475,000
Relocate 2"-DIAM Main - Clarkston St - LR		5,000				5,000
Relocate 3"-DIAM Main - Longlea Ct		15,000				15,000
Relocate 6"/8"/12"-DIAM Main - Kanis Rd -LR		1,300,000				1,300,000
Relocate 12"-DIAM Main - Gamble Rd - LR		150,000				150,000
Relocate 6"-DIAM Main - Marlborough St - LR		50,000				50,000
Relocate 12"/8"-DIAM Mains - Hwy 10 Widening at Rodney Parham - AHTD			400,000			400,000

CAPITAL IMPROVEMENT PLAN – FIVE-YEAR PLAN

Projects In Book Highlighted

DESCRIPTION	2015	2016	2017	2018	2019	5yr Total
Water Mains (Cont.)						
DISTRIBUTION MAINS - NEW CONSTRUCTION						
Developer Participation - New Mains	100,000	100,000	100,000	100,000	100,000	500,000
Install 12"-DIAM W. Baseline Road - Interconnection W. Markham and Mabelvale		375,000				375,000
Extend 8"-DIAM Looping - Joslin to Oak Grove			200,000			200,000
Master Plan Distribution Mains				250,000	250,000	500,000
TOTAL	\$ 7,979,000	\$ 7,892,000	\$ 8,681,000	\$ 10,016,000	\$ 12,482,000	\$ 47,050,000
Meters, Hydrants, Valves						
Purchase/Install Meters - Change-Out Program	442,000	460,000	478,000	497,000	517,000	2,394,000
Purchase/Install - New Service Meters	144,000	151,000	157,000	163,000	169,000	784,000
Replace 2" and Larger Meters	75,000	175,000	175,000	200,000	200,000	825,000
Replace Hydrants	58,000	60,000	62,000	64,000	66,000	310,000
Install AMI / AMR Meters	75,000	100,000	100,000	100,000	100,000	475,000
Replace Control Valve at Storage Tank #23			20,000			20,000
TOTAL	\$ 794,000	\$ 946,000	\$ 992,000	\$ 1,024,000	\$ 1,052,000	\$ 4,808,000
Storage Tanks						
Restore - Tank #2			900,000			900,000
Restore - Tank #25				210,000		210,000
Restore - Tank #17				145,000		145,000
Restore - Tank(s)				350,000	700,000	1,050,000
Construct 10 MG Storage Tank #5B - Pulaski Heights					2,500,000	2,500,000
TOTAL	\$ -	\$ -	\$ 900,000	\$ 705,000	\$ 3,200,000	\$ 4,805,000
Transportation Equipment						
Replace (4) Backhoe Trailers	67,000	69,000				136,000
Install Truck Lift in Maintenance Shop - CAW 50% (LRWW 50%)	12,000					12,000
Replace Dump Truck	92,000	95,000	98,000	101,000	104,000	490,000
Replace Vehicles	617,000	647,000	665,000	487,000	210,000	2,626,000
TOTAL	\$ 788,000	\$ 811,000	\$ 763,000	\$ 588,000	\$ 314,000	\$ 3,264,000

CAPITAL IMPROVEMENT PLAN – FIVE-YEAR PLAN

Projects In Book Highlighted

DESCRIPTION	2015	2016	2017	2018	2019	5yr Total
Construction Equipment						
Purchase Miscellaneous Boring Attachments	20,000	20,000	20,000	20,000	20,000	100,000
Purchase Air Piercing Tools	9,000					9,000
TOTAL	\$ 29,000	\$ 20,000	\$ 20,000	\$ 20,000	\$ 20,000	\$ 109,000
Computer Hardware, Software, & Other Electronic Equipment						
Purchase Additional SAN Disk VMWare Servers	32,000				65,000	97,000
Replace Servers	20,000	20,000	20,000	20,000	20,000	100,000
Replace Phone System - Lake Maumelle	30,000					30,000
Purchase Custom Tools for Map Server Platform	40,000					40,000
Purchase Network Management Software	10,000					10,000
Upgrade Financial Management Software	35,000			30,000		65,000
Replace enQuesta Data Server	60,000					60,000
Replace Network Firewall	20,000					20,000
Replace Global Positioning System Equipment	30,000	15,000				45,000
Replace Phone System - JTH	44,000					44,000
Purchase Payment Kiosk - JTH	25,000					25,000
Replace Backup Batteries For Remote Telemetry Units and Computer Processing Units	15,000					15,000
Replace SCADA Human Machine Interface		700,000				700,000
Purchase SCADA System Radios		50,000	50,000			100,000
Upgrade SCADA Plant Programmable Logic Controller		75,000				75,000
Upgrade SCADA System Programable Logic Controller		150,000	100,000	50,000		300,000
Install SCADA - Maumelle Surge Tank Building		25,000				25,000
Upgrade Operating Systems On Servers		20,000		20,000	20,000	60,000
Purchase Billing Printer		45,000				45,000
Purchase Mac Server For iPad Management		6,000				6,000
Purchase Payment App For Mobile Devices		40,000				40,000
Purchase Compliance Backup Data Logging		15,000				15,000
Replace and Upgrade Network Switches			40,000			40,000
Replace Server UPS Units				20,000		20,000
Upgrade/Replace Billing System					700,000	700,000
Replace Camera/DVR Equipment - JTH					32,000	32,000
Purchase Microsoft Server Licenses					22,500	22,500
TOTAL	\$ 361,000	\$ 1,161,000	\$ 210,000	\$ 140,000	\$ 859,500	\$ 2,731,500

CAPITAL IMPROVEMENT PLAN – FIVE-YEAR PLAN

Projects In Book Highlighted

DESCRIPTION	2015	2016	2017	2018	2019	5yr Total
Buildings & Grounds						
Replace Roof - JTH	150,000					150,000
Security Enhancements	100,000	35,000	35,000	35,000	36,000	241,000
Improve Building - Winrock Grass Farm	50,000	75,000				125,000
Improve Marina Facility	10,000	10,000	10,000	10,000	10,000	50,000
Improve Enclose Shed Area - Clearwater		50,000				50,000
Purchase Property Maintenance Equipment		25,000	10,000	10,000	10,000	55,000
Replace Fence - Jackson Reservoir				350,000		350,000
Improve Laboratory Facilities					1,000,000	1,000,000
Replace Building Roofs - Lake Winona					10,000	10,000
TOTAL	\$ 310,000	\$ 195,000	\$ 55,000	\$ 405,000	\$ 1,066,000	\$ 2,031,000
GRAND TOTAL	\$ 19,861,000	\$ 15,685,000	\$ 21,491,000	\$ 20,628,000	\$ 23,373,500	\$ 101,038,500

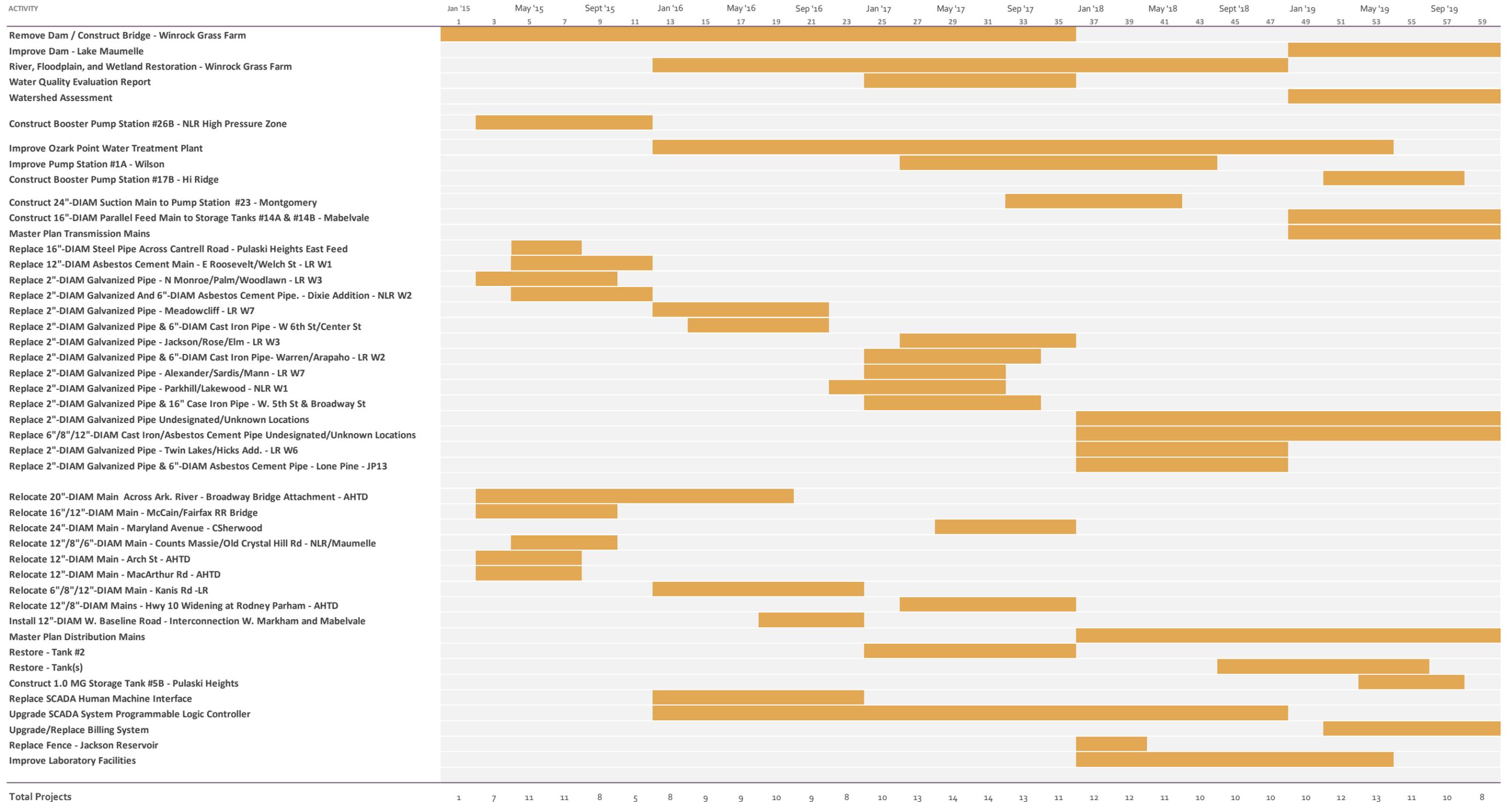
Summary of Changes
(Between Financial Plan and CIP Document)

2015	2016	2017	2018	2019	5yr Total
19,861,000	14,990,000	20,821,000	20,778,000	22,230,500	2015 Financial Plan
(75,000)	500,000	(50,000)	(500,000)	200,000	
(75,000)	100,000	(250,000)	200,000	500,000	
75,000	95,000	175,000	150,000	193,000	
75,000		90,000		250,000	
		550,000			
		155,000			
19,861,000	15,685,000	21,491,000	20,628,000	23,373,500	2015 CIP Plan

* 2015 – Remove Install Automatic Reading Meters - Route #5754	-\$75,000
* 2015 – Remove Replace Commercial Meters	-\$75,000
* 2015 – Add Replace 2" and Larger Meters	+\$75,000
* 2015 – Increase Install AMI/AMR Meters	+\$75,000
* 2016 – Add Replace 2" Galvanized Pipe & 6"-DIAM Cast Iron Pipe W 6th St/Center St	+\$500,000
* 2016 – Add Replace 2" and Larger Meters	+\$100,000
* 2016 – Increase Capital Labor	+\$95,000
* 2017 – Remove Replace Commercial Meters	-\$50,000
* 2017 – Remove Water Quality Evaluation Report	-\$250,000
* 2017 – Add Replace 2" and Larger Meters	+\$175,000
* 2017 – Add Replace 2"-DIAM Galvanized Pipe - Jackson/Rose /Elm - LR W3	+\$90,000

* 2017 – Add Replace 2"-DIAM Galvanized Pipe & 16" Case Iron Pipe - W. 5th St & Broadway St	+\$550,000
* 2017 – Increase Capital Labor	+\$155,000
* 2018 – Remove Update Watershed Mgmt. Plan	-\$500,000
* 2018 – Add Replace 2" and Larger Meters	+\$200,000
* 2018 – Increase Capital Labor	+150,000
* 2019 – Add Replace 2" and Larger Meters	+\$200,000
* 2019 – Increase Construct 1.0 MG Storage tank #5B – Pulaski Heights	+\$500,000
* 2019 – Increase Capital Labor	+\$193,000
* 2019 – Add Watershed Assessment	+\$250,000

Project Planner



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



Name:
Jim Ferguson
Est Start Date:
January, 2015

Duration: (Months)
N/A
Total Cost:
\$4,640,000

PROJECT PURPOSE

This project is the purchase of 100 MGD of the 120 MGD water rights currently under a right of first refusal contract with the Department of U.S. Army. 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 operations and maintenance costs approximately \$88,000 and increase debt service costs approximately \$560,000 per year.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2015	2016	2017	2018	2019
ARMY	4,640,000	0	0	0	0

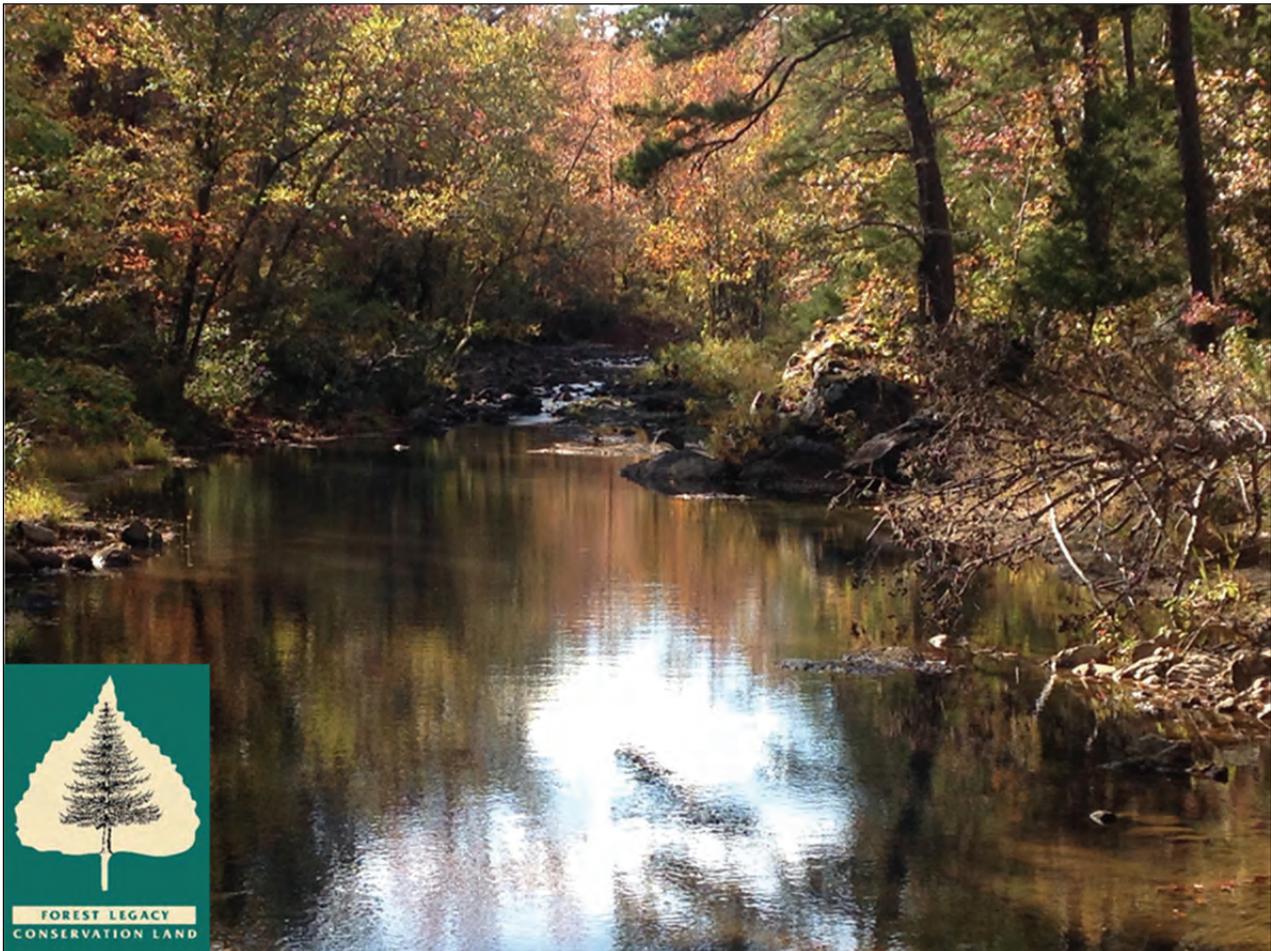
O&M Impact

G/L	2015	2016	2017	2018	2019
	-88,000	-88,000	-88,000	-88,000	-88,000

EUM ATTRIBUTE

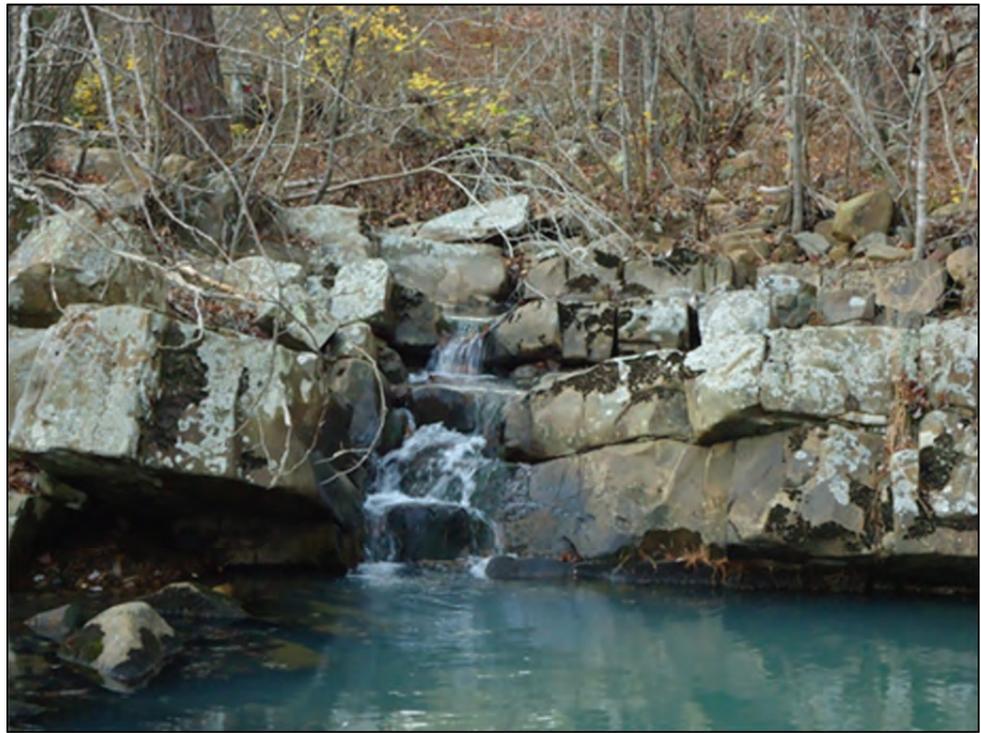
- **Water Resource Adequacy** – One of the core components of CAW's mission is to ensure a long-term water supply for future generations. The purchase of the 100MGD water rights from DeGray Lake ensures a reliable supply of water, projected to meet CAW needs for over 150 years. Project adds a third supply for CAW, ensuring a sustainable, long-term supply.
- **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 probably that any natural or manmade disaster will only impact a portion of CAW's available water supply.

Project Name: Purchase Forest Legacy Projects
Department: Water Quality & Operations
Focus Area: Watershed Protection
Location: Lake Maumelle Watershed



Name:
Randy Easley
Est Start Date:
January, 2015

Duration: (Months)
Ongoing
Total Cost:
\$8,760,000



PROJECT PURPOSE

Development of forested areas in the Maumelle Watershed poses an increasing threat to maintaining the integrity of Central Arkansas's water supply. Intact forest lands supply timber products, wildlife habitat, soil and watershed protection, aesthetics, and recreational opportunities. However, as these forested areas disappear, so do the benefits they provide. While local governmental partners have guided development in the Maumelle Watershed through traditional land use controls (i.e. zoning and subdivision regulations), these measures are not always sufficient to fully protect the forested component of our natural resources.

The Forest Legacy Program (FLP) is a federal program that supports local efforts to protect environmentally sensitive forest lands and is one funding mechanism available to CAW for protection of significant properties. Protecting tracts of land in the Lake Maumelle Watershed through the FLP will protect forests critical to Central Arkansas' drinking water supply, help meet regulatory provisions under the Safe Drinking Water and Clean Water Acts, restore sustainable forest land use, protect steep sloped areas from development, protect habitat important to wildlife, and provide recreational opportunities within eight miles of the state capital.

Central Arkansas Water (CAW) will practice sustainable forest management for water quality, reduction of wildfire risk, and wildlife habitat enhancement on these properties, further enhancing the water quality value of these forested areas.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2015	2016	2017	2018	2019
GRANTS	1,915,000	2,275,000	2,355,000	0	0
WPF	675,000	755,000	785,000	0	0

O&M Impact

G/L	2015	2016	2017	2018	2019
Maintenance	12,950	28,100	43,800	43,800	43,800

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: Purchase Conservation Easement(s)
Department: Water Quality & Operations
Focus Area: Watershed Protection
Location: Lake Maumelle Watershed



Name:
Randy Easley
Est Start Date:
January, 2015

Duration: (Months)
Ongoing
Total Cost:
\$1,200,000



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. 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 may include: maintaining and improving water quality, perpetuating and fostering the growth of healthy forest, 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 meeting the water quality protection objectives of the Utility at a significantly reduced capital cost.





PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2015	2016	2017	2018	2019
WPF	300,000	0	300,000	300,000	300,000

O&M Impact

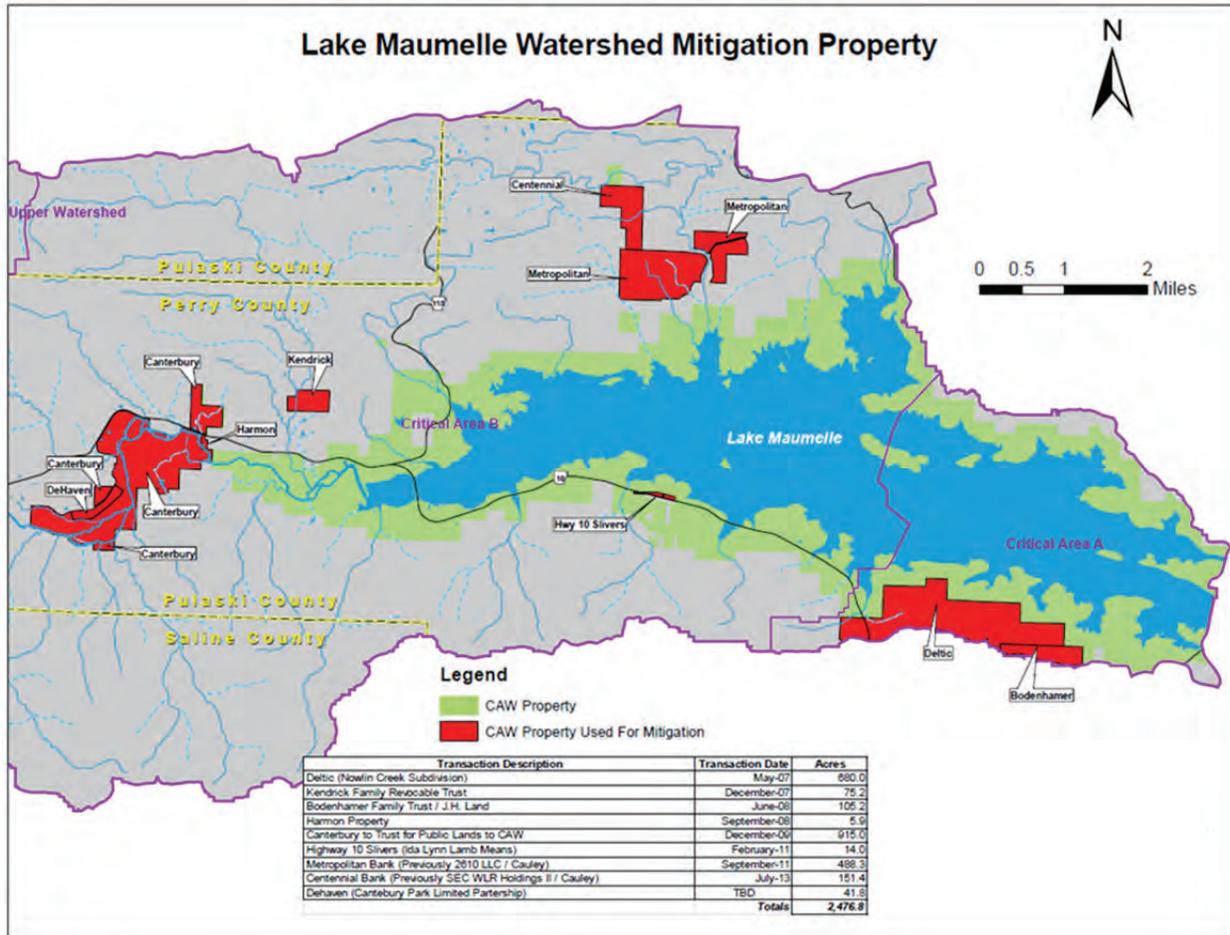
G/L	2015	2016	2017	2018	2019
Maintenance	3,500	3,000	6,000	9,000	12,000



EUM ATTRIBUTE

- **Community Sustainability** - Through the use of sound practices and strategies for land conservation and water quality management, CAW will help to ensure high quality source water, thriving wildlife and aquatic ecosystems, and recreational opportunities for current and future residents of Central Arkansas.
- **Product Quality** – Preventing or limiting the conversion of forest land to residential development through the use of conservation easements is an extremely effective way to ensure protection of source water quality in Lake Maumelle. The watershed protections gained by conservation easements help provide exceptional water quality by providing mitigation land to offset development exempt from regulation, preventing increased pollutant loads to the lake, and maintaining critical water quality functions of forested areas.
- **Stakeholder Understanding and Support** – By actively involving area landowners in water quality protection through the use of conservation easements CAW engenders understanding and support from watershed landowners as well as other community stakeholders. Because conservation easements are voluntary agreements that are tailored to the specific needs and goals of the landowner and CAW, the use of this watershed protection tool actively engages and educates individual landowners about conservation-oriented land management and water quality protection activities.
- **Water Resource Adequacy** - Effective management of our current water sources is a key component of protecting overall water resource adequacy. Conservation easements are a cost effective means of allowing CAW to achieve long-term protection of critical areas and encourage land management practices that provide water quality protection functions. The use of conservation easements provides CAW with long-term surface water protection without the operational responsibilities of direct ownership of these properties.

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



Name:
Randy Easley
Est Start Date:
January, 2015

Duration: (Months)
Ongoing
Total Cost:
\$2,000,000

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 obtaining land and applying scientifically sound practices and strategies for land and water management and conservation. By purchasing land around and within these source water areas, CAW can help to ensure safe drinking water and thriving wildlife and aquatic ecosystems for current customers and future residents of Central Arkansas.

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

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2015	2016	2017	2018	2019
WPF	500,000	0	500,000	500,000	500,000

O&M Impact

G/L	2015	2016	2017	2018	2019
Maintenance	2,500	2,500	5,000	7,500	10,000

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: Remove Dam/Construct Bridge – Winrock Grass Farm
Department: Water Quality & Operations
Focus Area: Watershed Protection
Location: Winrock Grass Farm

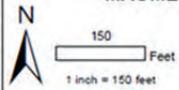


Name:
Randy Easley
Est Start Date:
January, 2015

Duration: (Months)
36 Months
Total Cost:
\$1,050,000

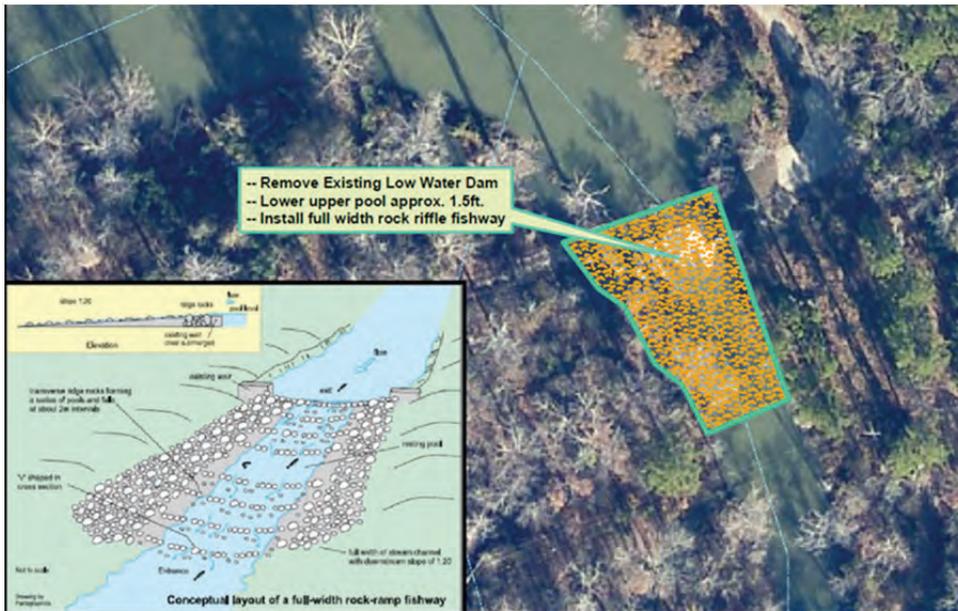


Disclaimer of Warranties: This map has been provided as a convenience without guarantees or warranties of any kind, express or implied, arising by law or otherwise. Any improvements, facilities, and other information shown on this map may not be dimensionally or graphically correct. The size and location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

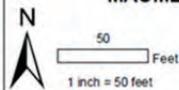


MAUMELLE RIVER FISH PASSAGE PROJECT

Central Arkansas Water
 Winrock Grass Farm
 42121 Hwy 10
 Bigelow, AR 72016



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 dimensionally or graphically correct. The size and location of all improvements and facilities should be field verified.



MAUMELLE RIVER FISH PASSAGE PROJECT

Conceptual Rock Riffle Installation



PROJECT PURPOSE

Contingent on the receipt of matching grant funds in 2015, CAW plans to remove a dam on the grass farm along the Maumelle River that has obstructed flow and prevented fish passage upstream on the Maumelle River. The project will remove the concrete river crossings, restore the river bank, and construct an elevated crossing downstream to provide access to the rest of the property.

The 2015 dam removal 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 that will improve assimilation of nutrients from the water column and will also provide improved aquatic habitat for fisheries and macro-invertebrates.
 - Minimize the potential for flooding on Highway 10 resulting from debris build-up in standpipe of the structure.
 - Improve fish passage and fishery health and provide opportunities to allow sensitive species to move back into the area.
-

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2015	2016	2017	2018	2019
GRANT	200,000	100,000	100,000	0	0
WPF	150,000	250,000	250,000	0	0

O&M Impact

G/L	2015	2016	2017	2018	2019
Maintenance	2,500	5,000	7,500	7,500	7,500

EUM ATTRIBUTE

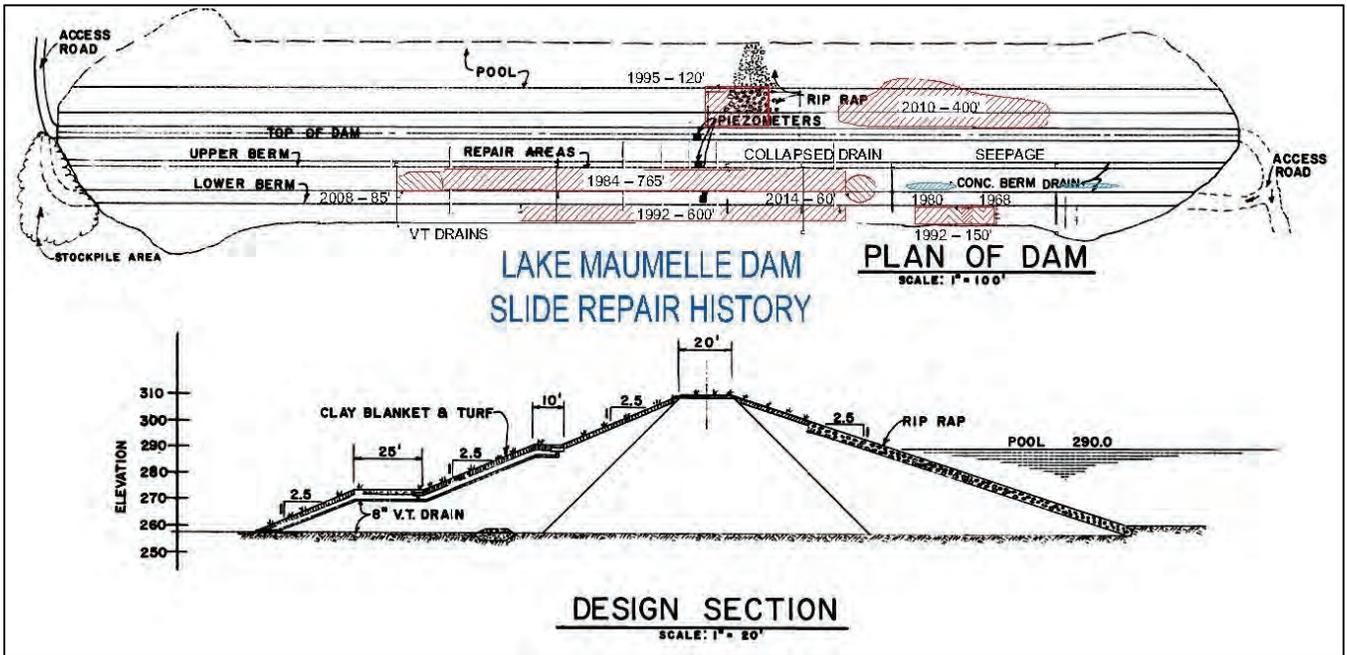
- **Community Sustainability** - This project is also part of an overall strategy to maintain and enhance ecological and community sustainability.
- **Product Quality** - River, floodplain, and wetland restoration and conservation will enable CAW to better protect the quality of our source water through pollution reduction and general watershed protection.

Project Name: Improve Dam – Lake Maumelle
Department: Water Quality & Operations
Focus Area: Water Source
Location: Lake Maumelle



Name:
Randy Easley
Est Start Date:
January, 2019

Duration: (Months)
12 Months
Total Cost:
\$1,400,000



PROJECT PURPOSE

Due to the number and frequency of dirt slides on the face of the Lake Maumelle Dam, an improvement to the Dam is recommended to reduce the chances of future slides and correct suspected problems with the filter system. Staff is currently awaiting the results of a recent Dam Inspection and review of the slope stability analysis in order to determine the best course of action to remedy the Lake Maumelle Dam. Improvements to the Dam will ensure the prolonged use and reliability of Lake Maumelle as the utility's primary source of drinking water.

The two approaches being reviewed for the Dam improvement involve addressing the slides at the surface slopes of the Dam. One concept is in agreement with the more modern designs for dams (large filter blanket areas, shallower slopes and no berms or "steps") and focuses on modification of the dry side of the dam. This modification would install a filter, eliminate the horizontal and vertical drains on the berms, and install enough material to cover the dam with a steady sloping surface from the crest to the toe. This would make maintenance easier and safer, reduce the number of slides and sink areas, as well as place a large mass overburden behind and over the dam to "backstop" the dam. The second approach would involve mixing a type of soil cement into the top surface layer of the wet and dry side of the Dam. This concept would alleviate the shrinkage and cracking of the surface layer which is believed to cause the slides currently experienced on the face of the Dam. This second option would also include replacement of the horizontal drains so that they function as originally designed. These options are being reviewed by the Dam engineering consultants and their best recommendation will be included in the forthcoming Dam Inspection and Analysis Report.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2015	2016	2017	2018	2019
RATES	0	0	0	0	1,400,000

O&M Impact

G/L	2015	2016	2017	2018	2019

EUM ATTRIBUTE

- **Infrastructure Stability** – The Lake Maumelle Dam is the backbone of the primary water supply for central Arkansas. Failure to maintain this key piece of infrastructure puts not only the water supply for the region at risk, but also life and property downstream of the dam if it is allowed to deteriorate over the long term. This project will remedy ongoing issues with the dam and ensure prolonged use and reliability of Lake Maumelle as the Utility's primary source of drinking water.

Project Name: River, Floodplain, & Wetland Restoration – Winrock Grass Farm
Department: Water Quality & Operations
Focus Area: Watershed Protection
Location: Winrock Grass Farm

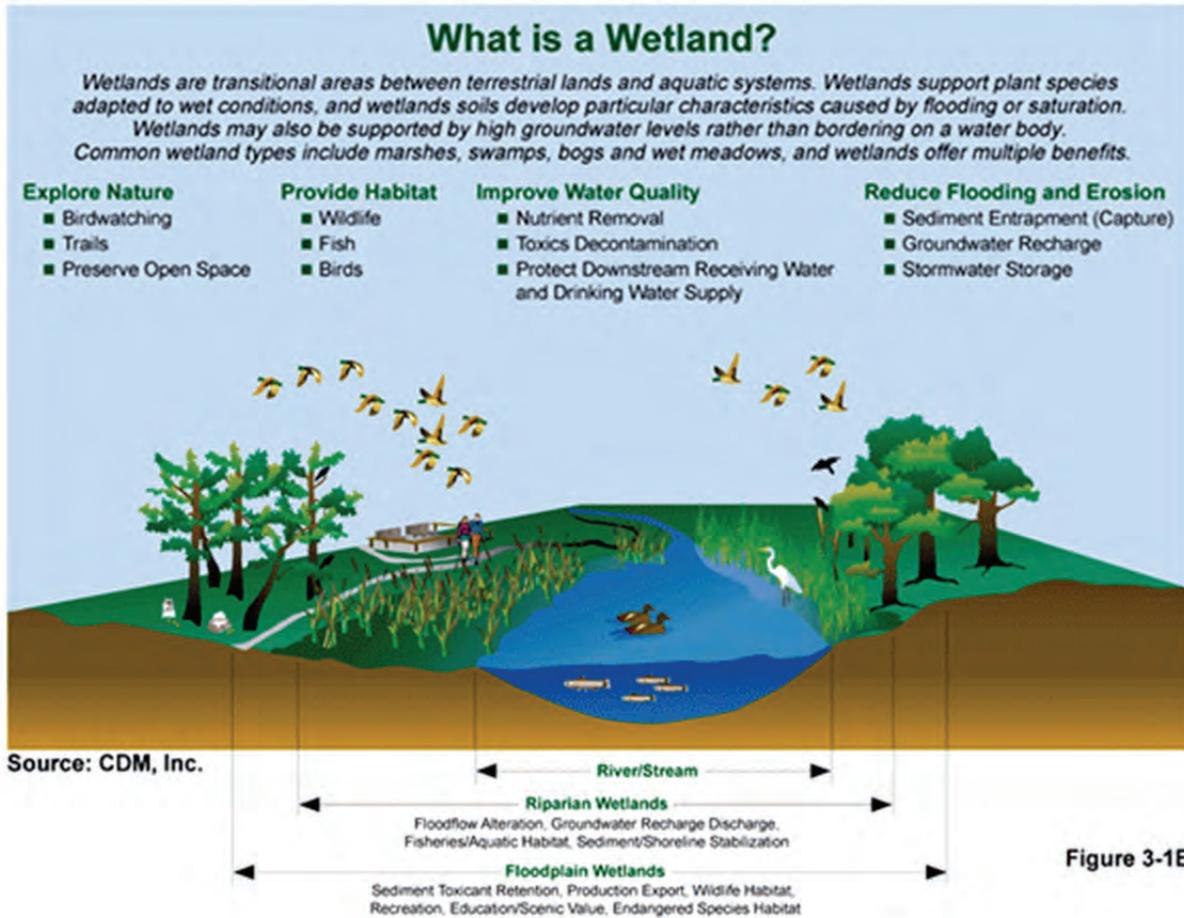


Figure 3-1B

Name:
Randy Easley
Est Start Date:
January, 2016

Duration: (Months)
36 Months
Total Cost:
\$300,000



PROJECT PURPOSE

CAW acquired approximately 900 acres of the former Winrock grass farm in the watershed of Lake Maumelle in 2009. A portion of the property was acquired through the USDA Forest Legacy program with the intent of restoring it to primarily forested conditions, for the purpose of protecting the watershed and improving water quality. In the next five years CAW intends to complete a number of river, floodplain, and wetland restoration and conservation projects aimed at restoring natural water quality and watershed protection functions to these resources.

Future river, floodplain, and wetland restoration activities will be identified and prioritized based on water quality and watershed protection benefits, matching funding availability, and other utility needs.

Future river, floodplain, and wetland restoration activities 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 that will improve assimilation of nutrients from the water column and will also provide improved aquatic habitat for fisheries and macro-invertebrates.
- Minimize the potential for flooding on Highway 10 resulting from debris build-up in standpipe of the structure.
- Improve fish passage and fishery health and provide opportunities to allow sensitive species to move back into the area.



PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2015	2016	2017	2018	2019
WPF	0	100,000	100,000	100,000	0

O&M Impact

G/L	2015	2016	2017	2018	2019
	0	2,000	4,000	6,000	6,000

EUM ATTRIBUTE

- **Community Sustainability** - This project is also part of an overall strategy to maintain and enhance ecological and community sustainability.
- **Product Quality** - River, floodplain, and wetland restoration and conservation will enable CAW to better protect the quality of our source water through pollution reduction and general watershed protection.

Project Name: Watershed Assessment
Department: Water Quality & Operations
Focus Area: Watershed Protection
Location: Lake Maumelle Watershed



Name:
Randy Easley
Est Start Date:
January, 2019

Duration: (Months)
12 Months
Total Cost:
\$250,000

PROJECT PURPOSE

In 2007, the CAW Board of commissioners unanimously adopted the “Lake Maumelle Watershed Management Plan,” developed by Tetra Tech (with oversight from appointed task groups). Much has changed since the adoption of that plan, and it has proven to be a great guidance tool for the management of our watershed since 2007.

Based on recommendations in the Plan, Pulaski County undertook several measures to assist in the protection of this water source. Most notably: The Subdivision and Development Code of Pulaski County, Arkansas adopted in April 30, 2009; the Pulaski County the Stormwater Management and Drainage Manual and Site Evaluation Tool for the Lake Maumelle Watershed was adopted in June, 2010; and the Pulaski County Lake Maumelle Watershed Zoning Code was adopted in April 2013, with a moratorium delaying implementation until April 2014.

It is necessary to provide time for these aforementioned measures to be implemented, along with monitoring and tracking watershed development, before their impact can be evaluated.

In recent years, AWWA has developed a new series of utility management standards for utilities in the form of its “G Series” Standards. The Utility Management Standards (G Series) provide a means to assess service quality and management efficiency. Utilities choosing to use the Utility Management Standards are encouraged to undertake the EUM self-assessment, addressing the 10 attributes of EUM to gain a better understanding of which attributes need the most improvement.

Assessment of current watershed conditions along with aligning to the AWWA G300 Standard will take the Utility into the next phase of watershed management. AWWA standards are designed to assist utilities and their service providers to meet expectations of their customers, investors, and government regulators.

Specifically, the G300 Standard was designed to meet the needs of water utility challenges with Source Water Protection. The utility management standards are developed using formal, American National Standards Institute recognized, AWWA-managed process. AWWA approved and published the G300 Standard effective July 1, 2007. In 2014 an updated version of the G300 Standard was approved.

Source water protection is a highly site-specific process that reflects the inherent diversity of natural waters and the areas from which they are derived. Successful source water protection programs may vary widely in their details; but it is a premise of the G300 Standard that successful watershed protection programs share several fundamental elements.



PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2015	2016	2017	2018	2019
WPF	0	0	0	0	250,000

O&M Impact

G/L	2015	2016	2017	2018	2019
	0	0	0	0	25,000

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 the 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 current 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: Construct Booster Pump Station #26B – NLR High Pressure Zone

Department: Engineering

Focus Area: Pump Station

Location: North Little Rock



Name:
Jim Ferguson
Est Start Date:
March, 2015

Duration: (Months)
9 Months
Total Cost:
\$430,000

PROJECT PURPOSE

This project consists of the construction of a new booster pump station #26B for the North Little Rock High Pressure service area. The pump station will be located off Batesville Pike Road, north of the North Little Rock Airport and east of Camp Robinson. This station is needed to provide additional potable water and fire flow capacity to the High Pressure service area, which has no capacity for additional customer growth in the service area. The NLR High Pressure service area is currently served by two booster pump stations that run full time due to the system being a closed-loop system, without any water storage tanks being operational within the service area. Construction of this booster pump station will provide redundancy for the system and increase the system capacity to provide for future growth. This pump station is expected to increase O&M costs approximately \$750 per month.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2015	2016	2017	2018	2019
RATES	430,000	0	0	0	0

O&M Impact

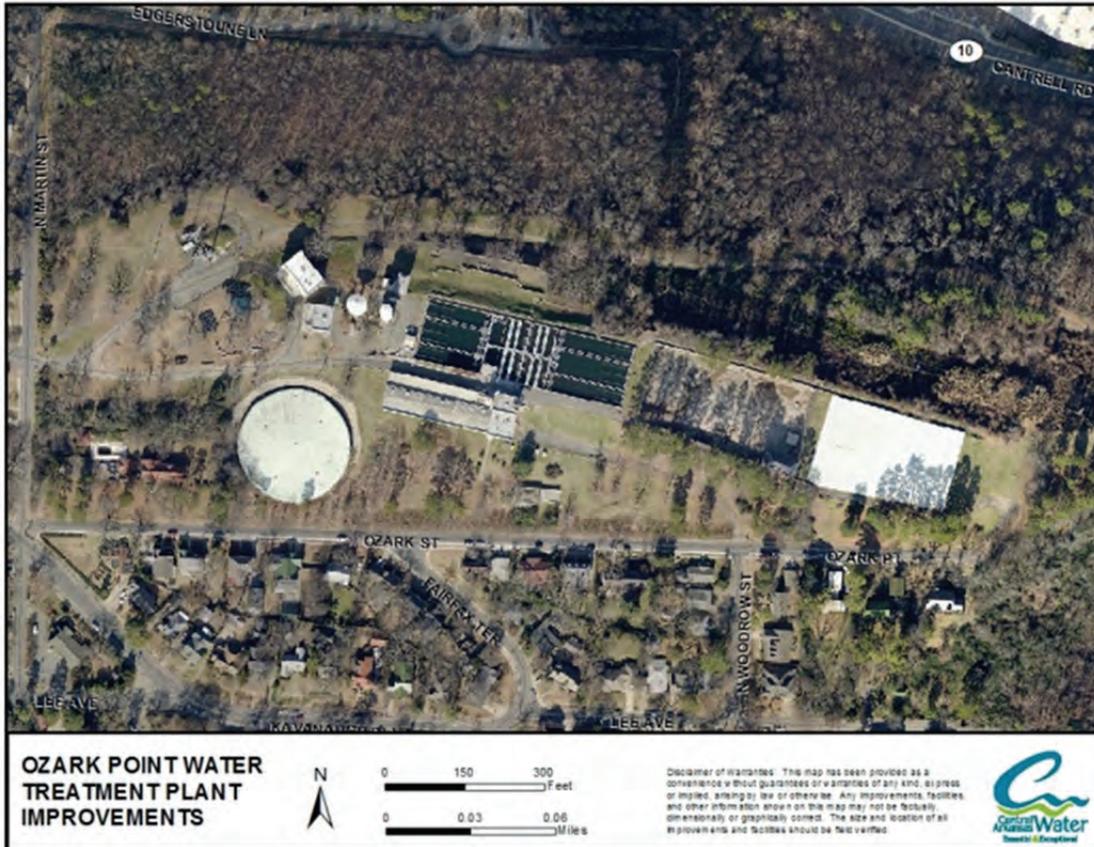
G/L	2015	2016	2017	2018	2019
	9,000	9,180	9,360	9,550	9,741

*Est Primarily electrical utility billing with a 2% annual increase

EUM ATTRIBUTE

- **Infrastructure Stability** – Booster pumps are a vital piece of the CAW water distribution system in order to maintain adequate volume and pressure to meet customer needs. Providing for these critical pieces of infrastructure is vital to the long term stability of the distribution system
- **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. These impacts are counter to an optimized water distribution system.

Project Name: Improve Ozark Point Water Treatment Plant
Department: Engineering
Focus Area: Rehabilitation of Ozark Point Plant
Location: Ozark Point Plant

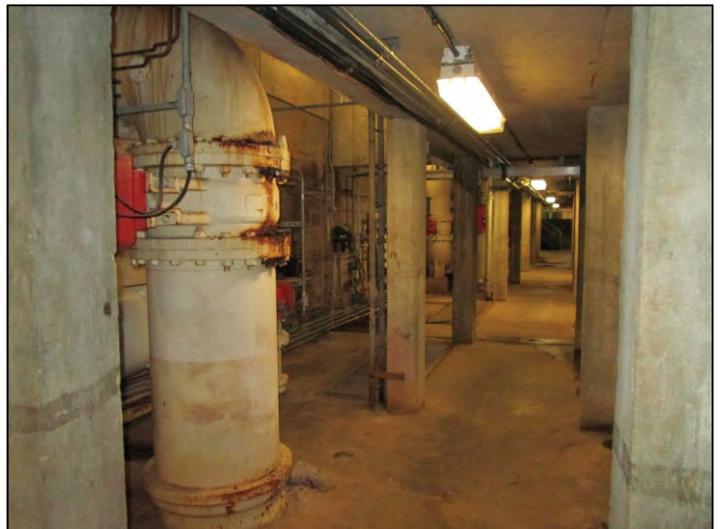


Name:
Jim Ferguson
Est Start Date:
January, 2016

Duration: (Months)
42 Months
Total Cost:
\$11,250,000

PROJECT PURPOSE

This project will rehabilitate and improve the Ozark Point Plant to increase the functional life, efficiency, and effectiveness of the plant, which was constructed in 1938. The project will begin with engineering design work in 2016 and construction implementation in 2017 through 2019. The project 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	2015	2016	2017	2018	2019
BOND 2017	0	750,000	3,500,000	5,750,000	1,250,000

O&M Impact

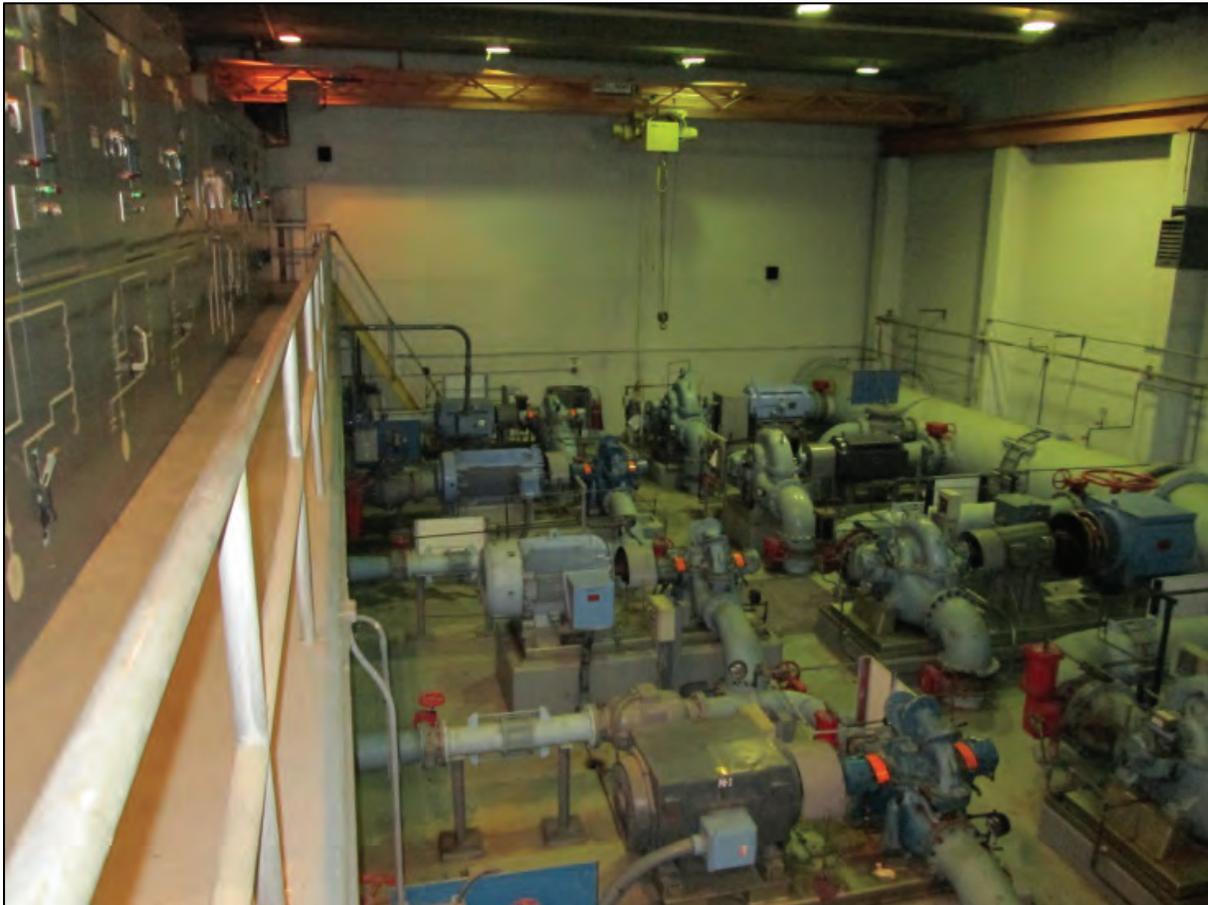
G/L	2015	2016	2017	2018	2019



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 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 Plant to continue to provide the highest quality water possible by updating systems to newer technology and addressing areas of wear 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 water to high quality water 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. These impacts are counter to an optimized water system.

Project Name: Improve Pump Station #1A - Wilson
Department: Engineering
Focus Area: Pumping System
Location: Jack H. Wilson Water Treatment Plant



Name:
Jim Ferguson
Est Start Date:
March, 2017

Duration: (Months)
18 Months
Total Cost:
\$2,500,000



PROJECT PURPOSE

A Preliminary Engineering Report (PER) will be completed in 2015 that will detail suggested 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 45 MGD into the intermediate system through five pumps and 20 MGD into the Pulaski Heights system through five pumps. Possible items to be addressed/modified/rehabilitated include the pump bodies, motors, motor starters and other electrical components, control equipment, and building integrity. The station also has a cavitation problem that will need to be addressed. The 2015 PER will provide an Opinion of Probable Cost that will be used to update projected budget needs as shown in the 2017 - 2018 capital budgets.



PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2015	2016	2017	2018	2019
BOND 2017	0	0	1,500,000	1,000,000	0

O&M Impact

G/L	2015	2016	2017	2018	2019



EUM ATTRIBUTE

- Infrastructure Stability** – Booster pumps are a vital piece of the CAW water distribution system in order to maintain adequate volume and pressure to meet customer needs. Providing for 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. These impacts are counter to an optimized water distribution system.

Project Name: Construct Booster Pump Station #17B – Hi Ridge
Department: Engineering
Focus Area: New Pump Station Construction
Location: Highland Ridge Pressure System



Name:
Jim Ferguson
Est Start Date:
February, 2019

Duration: (Months)
9 Months
Total Cost:
\$600,000



PROJECT PURPOSE

The Highland Ridge pressure system is currently served by two booster pumping stations, #17 and #16B, with a combined capacity to deliver 1.25 MGD into the pressure system. 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	2015	2016	2017	2018	2019
RATES	0	0	0	0	600,000

O&M Impact

G/L	2015	2016	2017	2018	2019



EUM ATTRIBUTE

- Infrastructure Stability** – Booster pumps are a vital piece of the CAW water distribution system in order to maintain adequate volume and pressure to meet customer needs. Providing for 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. These impacts are counter to an optimized water distribution system.

Project Name: Capital Labor
Department: Distribution and Engineering
Focus Area: Capital Projects
Location: CAW System



Name:
Darrell Boggs / Jim Ferguson
Est Start Date:
January, 2015

Duration: (Months)
Ongoing
Total Cost:
\$10,250,000

PROJECT PURPOSE

This project is for the capitalization of labor costs for work performed on CAW capital improvement projects during the period of 2015 through 2019. This work will be performed by members of the distribution and engineering departments.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2015	2016	2017	2018	2019
RATES	1,975,000	2,000,000	2,050,000	2,075,000	2,150,000

O&M Impact

G/L	2015	2016	2017	2018	2019

EUM ATTRIBUTE

- **Infrastructure Stability** – Accounting standards allow labor costs associated with capital projects to be capitalized and depreciated over the useful life of the project. Capital projects relate to the asset repair, rehabilitation, and replacement efforts outlined in the document. All items enhance the infrastructure stability.

Project Name: Replace 1"-DIAM Copper Service and Install 1" and 2"-DIAM Services (Projects 1-4)

Department: Distribution

Focus Area: Services

Location: CAW System



Name:
Darrell Boggs
Est Start Date:
January, 2015

Duration: (Months)
Ongoing
Total Cost:
\$2,534,000

PROJECT PURPOSE

The project will consist of installing new services for residential and commercial customers and developers. The project also includes the replacement of services due to failure and/or preventative maintenance.



PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2015	2016	2017	2018	2019
RATES	468,000	487,000	506,000	526,000	547,000

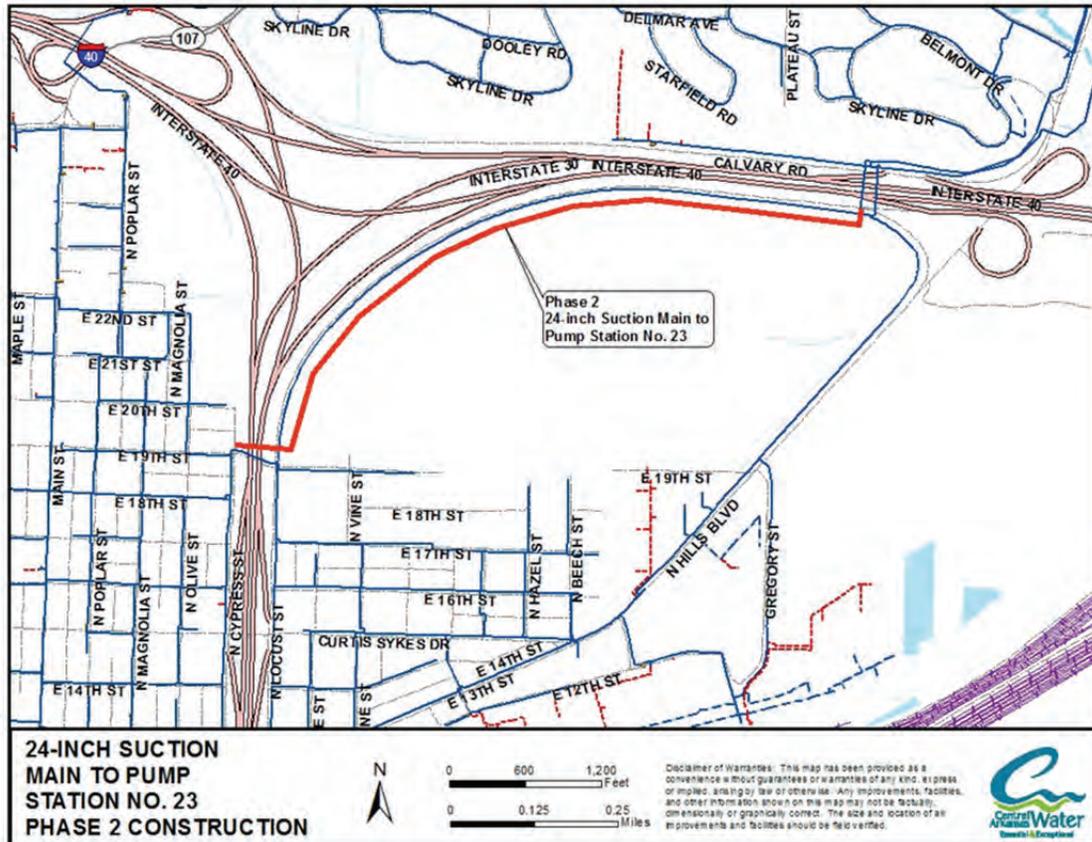
O&M Impact

G/L	2015	2016	2017	2018	2019

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 are 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.
- **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 24"-DIAM Transmission Main to Pump Station #23
Department: Engineering
Focus Area: New Transmission Main Construction
Location: North Little Rock



Name:
Jim Ferguson
Est Start Date:
September, 2017

Duration: (Months)
9 Months
Total Cost:
\$1,800,000

PROJECT PURPOSE

This project consists of the installation of approximately 6,100 linear feet of 24-inch transmission main to parallel an existing 50 year old 20-inch transmission main. This main is the primary transmission main to Water Storage Tank #23 and booster pump station #23. The existing transmission main has suffered frequent leaks and breaks since its installation. The existing transmission main is a cast iron pipe that was installed in corrosive soil without any protective coating suitable for the environment. The purpose of the new 24-inch transmission main is to provide increased flow capacity and redundant flow to the tank and pump station. This project will be the second phase of the redundant transmission main, with the northern portion installed under Phase 1 in 2007.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2015	2016	2017	2018	2019
BOND 2017	0	0	1,000,000	800,000	0

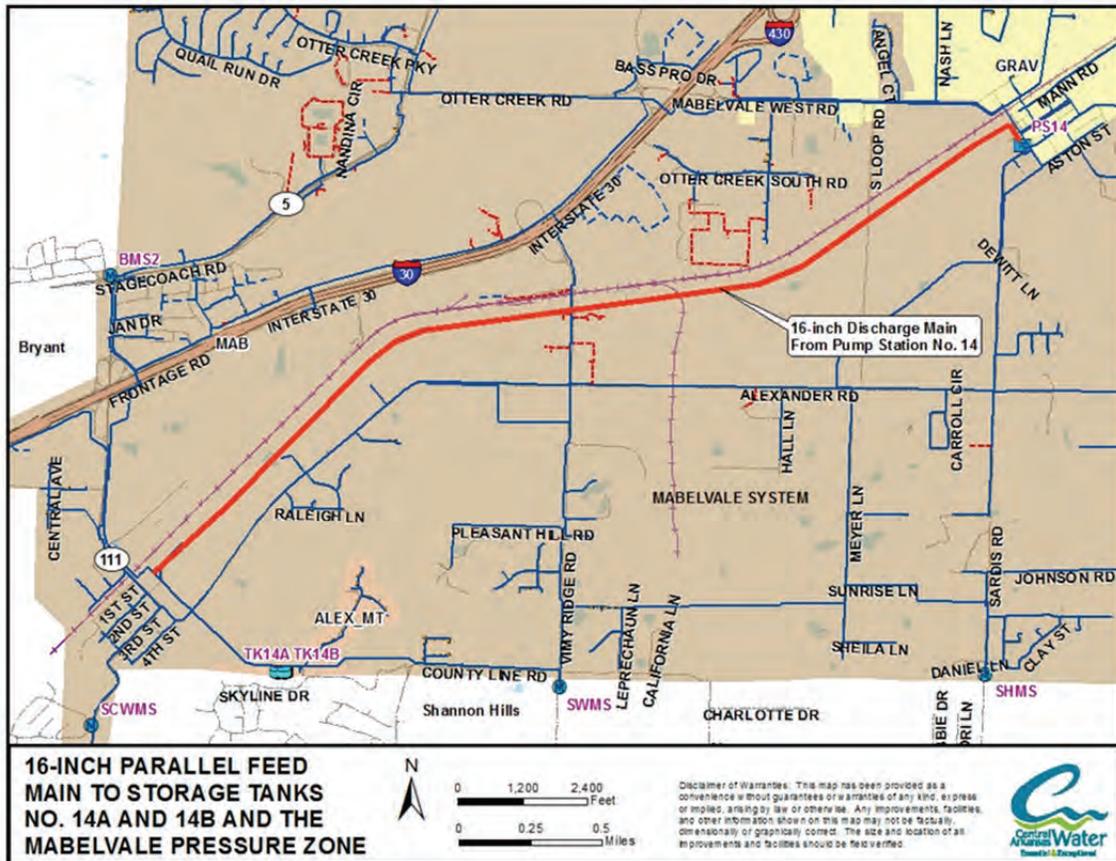
O&M Impact

G/L	2015	2016	2017	2018	2019

EUM ATTRIBUTE

- **Infrastructure Stability** – Maintaining the CAW water main network is critical to providing water to the Utility’s customers. The existing water main supplying this area has created a number of issues which at times hinders the ability to supply water to this area of the system without interruption. This project will resolve those issues by providing a redundant supply of water to this area of the system as well as improve overall system capacity, thus returning stability to this portion of the distribution system.
- **Operational Resiliency** – The existing 20” main supplying this area has been identified as a key improvement area in support of operational resiliency. The existing main has a history of failure due to age and corrosion and limits flow to the area during peak demand situations. This project will increase flow to the area and provide a redundant supply of water to the area.

Project Name: Construct 16"-DIAM Parallel Feed Main to Storage Tanks #14A & #14B
Department: Engineering
Focus Area: New Transmission Main Construction
Location: Mabelvale Pressure System



Name:
Jim Ferguson
Est Start Date:
January, 2019

Duration: (Months)
12 Months
Total Cost:
\$2,000,000

PROJECT PURPOSE

This project consists of the installation of approximately 19,000 linear feet of 16-inch transmission main extending from the existing booster pump station #14 to the vicinity of the existing Water Storage Tanks #14A and #14B. This main is necessary to allow increased output from the pump station. Due to current discharge pipe restrictions, only two of the four pumps in the station can be operated simultaneously. With future improvements, the capacity of this pump station could be increased from 8 MGD to 12 MGD. Contribution from the City of Bryant would be required to complete the full extent of this project.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2015	2016	2017	2018	2019
RATES	0	0	0	0	2,000,000

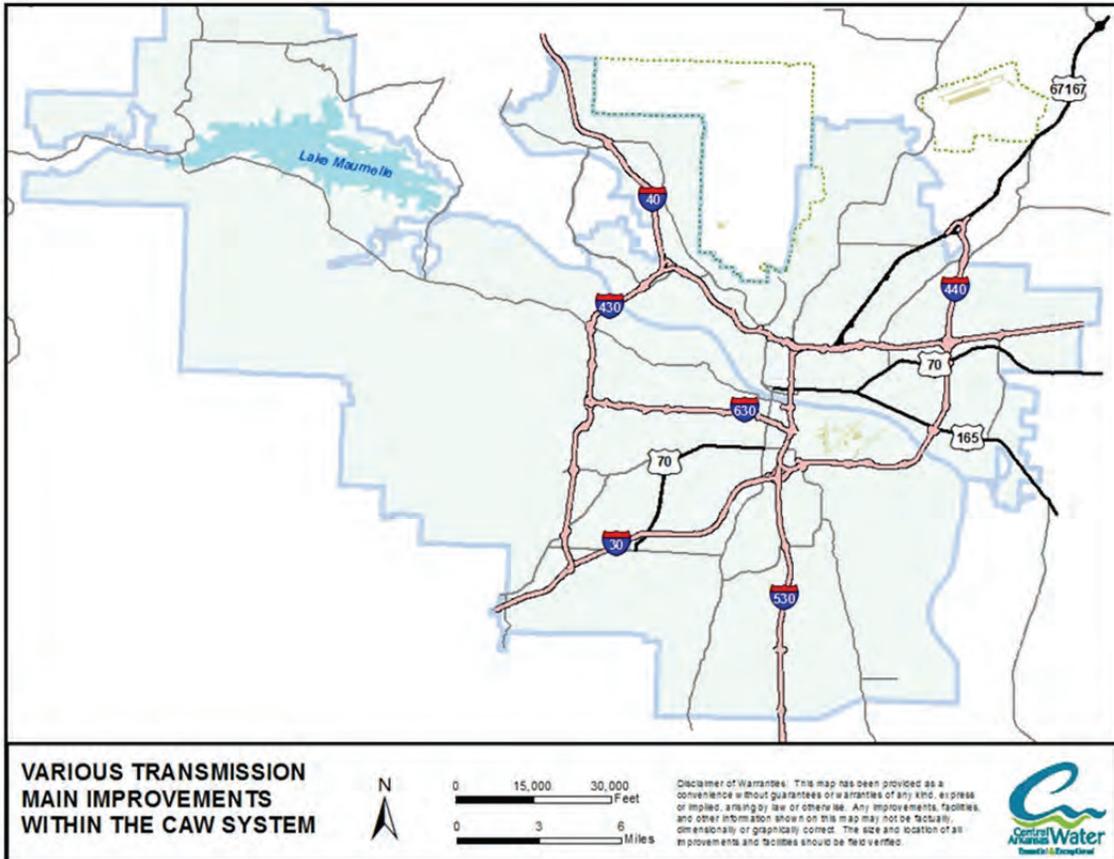
O&M Impact

G/L	2015	2016	2017	2018	2019

EUM ATTRIBUTE

- **Infrastructure Stability** – Maintaining the CAW water main network is critical to providing water to the Utility’s customers. The existing water main supplying this area is insufficient to supply the demand generated in this area of the system. This project will resolve the issue by providing a redundant supply of water to this area of the system as well as improve overall system capacity, thus returning stability to this portion of the distribution 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. These impacts are counter to an optimized water distribution system.

Project Name: Master Plan Transmission Mains
Department: Engineering
Focus Area: Future Capacity
Location: CAW System



Name:
Jim Ferguson
Est Start Date:
January, 2019

Duration: (Months)
12 Months
Total Cost:
\$1,000,000

PROJECT PURPOSE

Installation of transmission main improvements within the CAW system as recommended by the Master Plan or as needs and priorities develop for system growth.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2015	2016	2017	2018	2019
RATES	0	0	0	0	1,000,000

O&M Impact

G/L	2015	2016	2017	2018	2019

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 those needs in future years as they are identified, thus returning stability the distribution 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. These impacts are counter to an optimized water distribution system.

Transmission & Distribution Main Replacement Projects

Department: Engineering
Location: CAW System



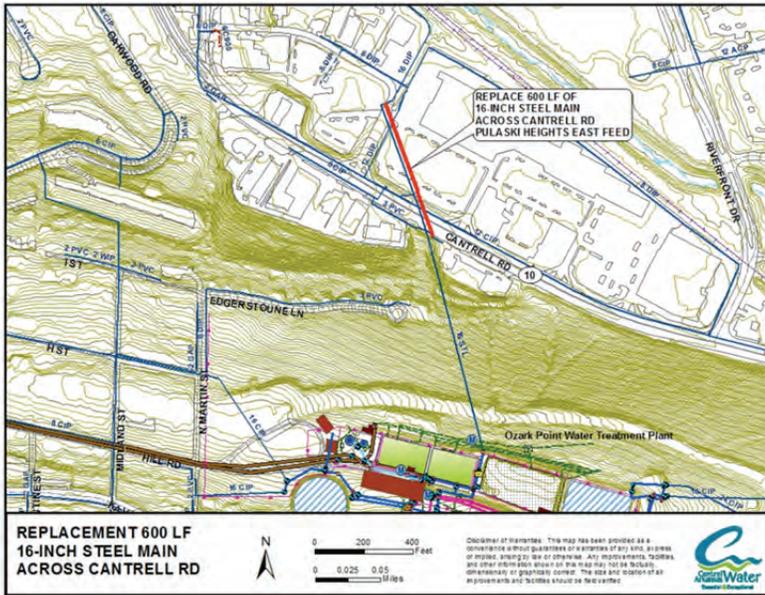
OVERALL PROJECT PURPOSE

The replacements are prioritized as needed based on water mains that will have experienced numerous leaks and breaks resulting in uncontrolled loss of water service, and service life expectancy. Replacement of the old water mains provide an improved level of service to customers in the effected areas and reduce 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. These impacts are counter to an optimized water distribution system.

Project Name: Replace 16"-DIAM Steel Pipe Across Cantrell Road – Pulaski Heights East Feed



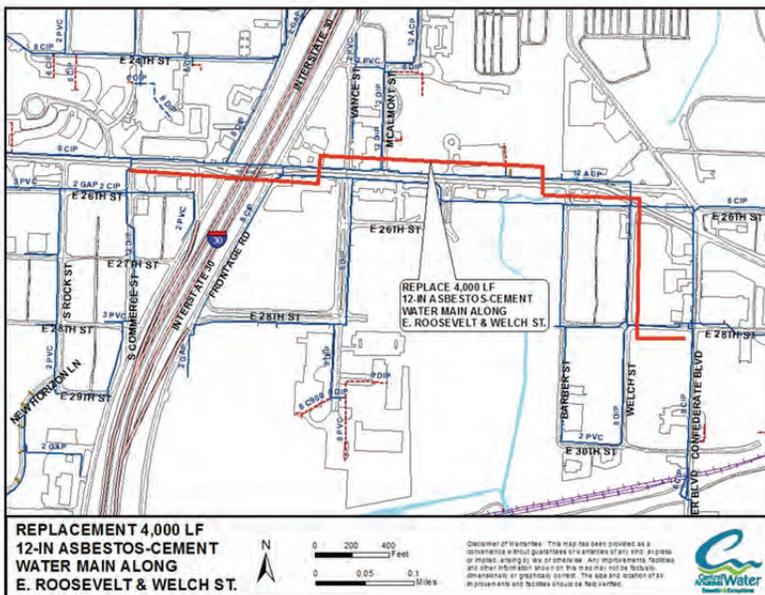
Est Start Date:
May, 2015

Duration: (Months)
4 Months

Total Cost:
\$300,000

Source	2015	2016	2017	2018	2019
RATES	300,000	0	0	0	0

Project Name: Replace 12"-DIAM Asbestos Cement Main – E Roosevelt/Welch St – LR W1



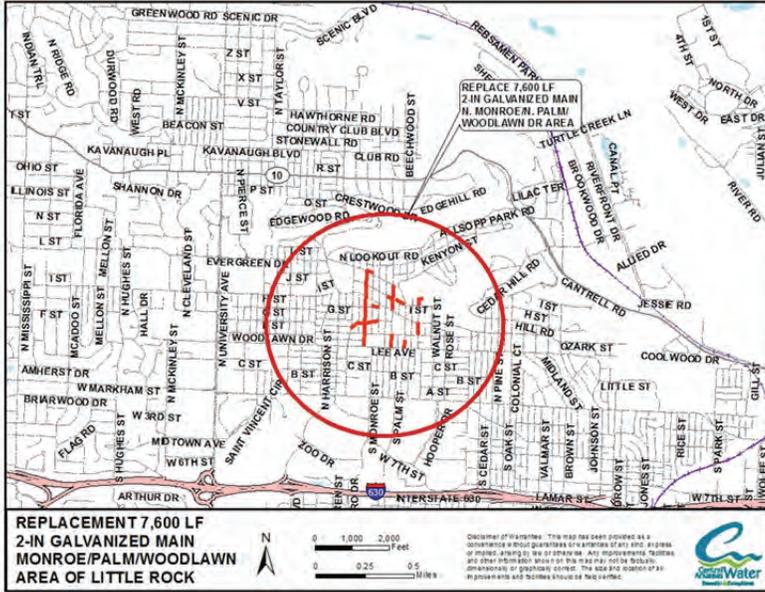
Est Start Date:
April, 2015

Duration: (Months)
9 Months

Total Cost:
\$650,000

Source	2015	2016	2017	2018	2019
RATES	650,000	0	0	0	0

Project Name: Replace 2"-DIAM Galvanized Pipe – N Monroe/Palm/Woodlawn – LR W3



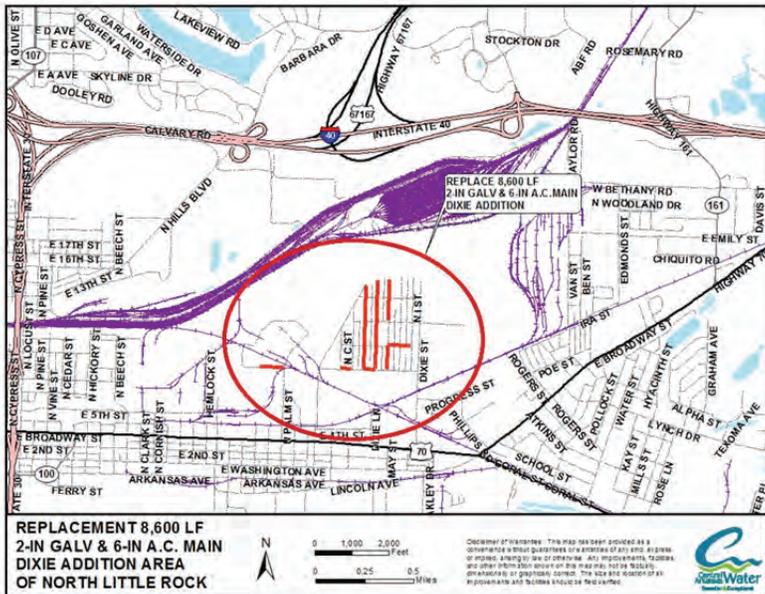
Est Start Date:
February, 2015

Duration: (Months)
8 Months

Total Cost:
\$565,000

Source	2015	2016	2017	2018	2019
RATES	565,000	0	0	0	0

Project Name: Replace 2"-DIAM Galvanized And 6"-DIAM Asbestos Cement Pipe – Dixie Addition – NLR W2



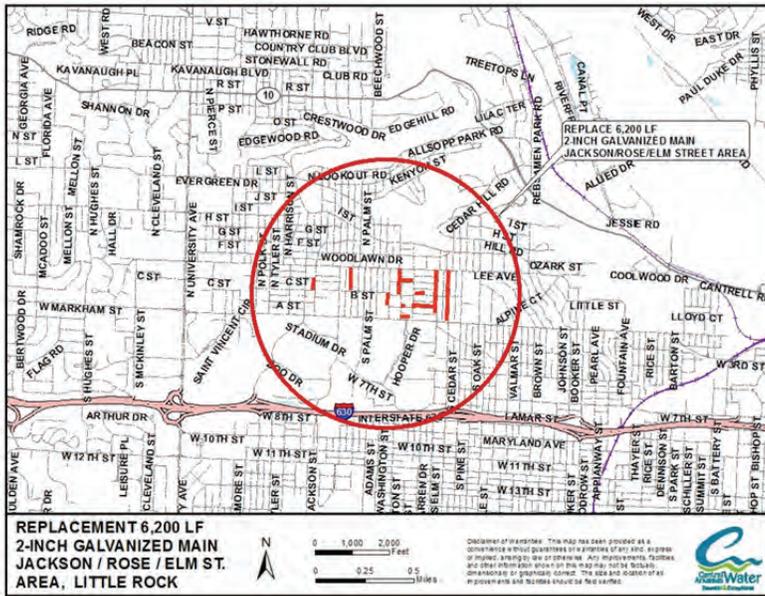
Est Start Date:
May, 2015

Duration: (Months)
7 Months

Total Cost:
\$450,000

Source	2015	2016	2017	2018	2019
RATES	450,000	0	0	0	0

Project Name: Replace 2"-DIAM Galvanized Pipe – Jackson/Rose/Elm – LR W3



Est Start Date:
March, 2017

Duration: (Months)
10 Months

Total Cost:
\$500,000

Source	2015	2016	2017	2018	2019
RATES	0	0	500,000	0	0

Project Name: Replace 2"-DIAM Galvanized Pipe & 6"-DIAM Cast Iron Pipe – Warren/Arapaho – LR W2



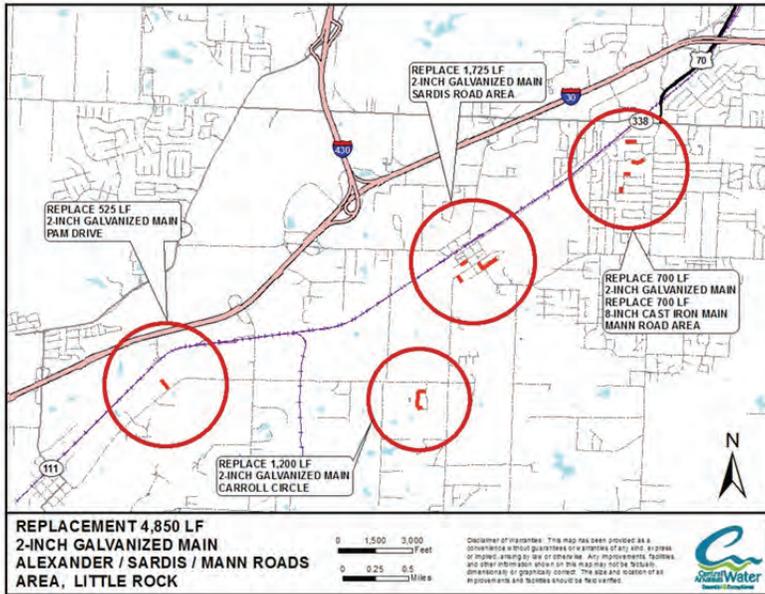
Est Start Date:
January, 2017

Duration: (Months)
10 Months

Total Cost:
\$580,000

Source	2015	2016	2017	2018	2019
RATES	0	0	580,000	0	0

Project Name: Replace 2"-DIAM Galvanized Pipe– Alexander/Sardis/Mann –LR W7



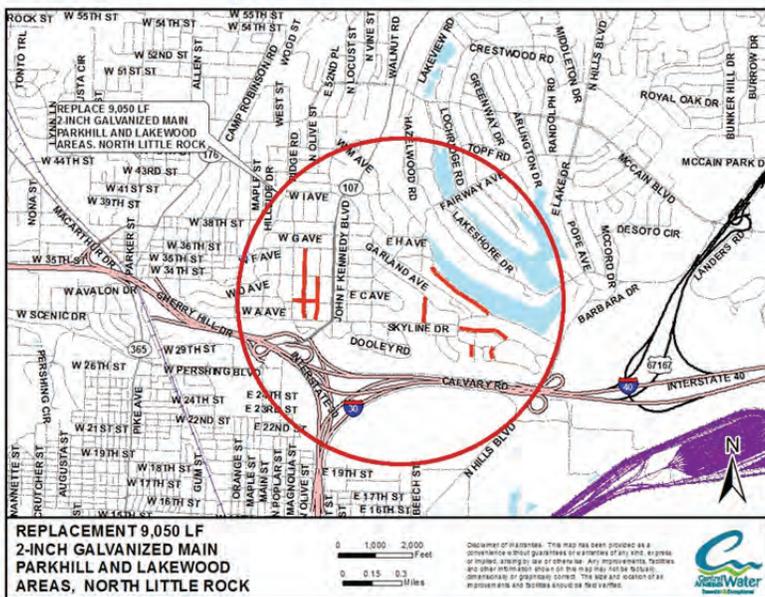
Est Start Date:
June, 2017

Duration: (Months)
7 Months

Total Cost:
\$400,000

Source	2015	2016	2017	2018	2019
RATES	0	0	400,000	0	0

Project Name: Replace 2"-DIAM Galvanized Pipe– Parkhill/Lakewood – NLR W1



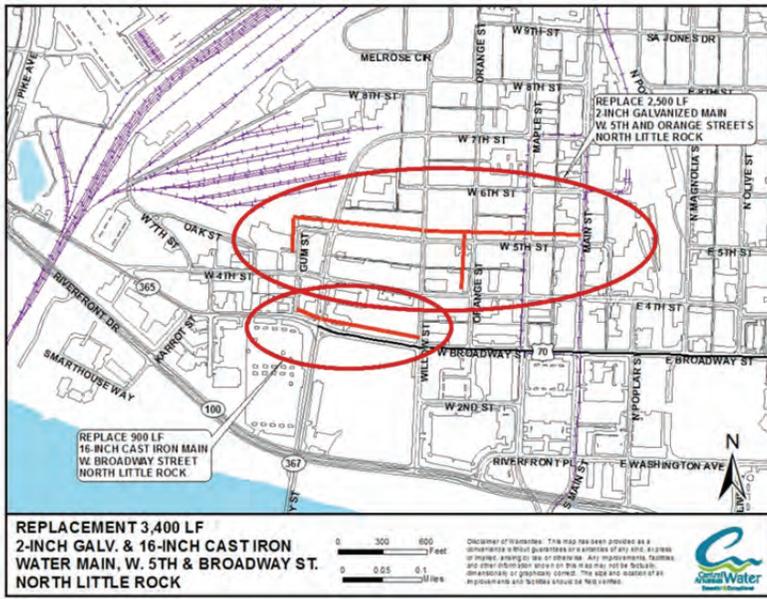
Est Start Date:
October, 2016

Duration: (Months)
10 Months

Total Cost:
\$700,000

Source	2015	2016	2017	2018	2019
RATES	0	150,000	550,000	0	0

Project Name: Replace 2"-DIAM Galvanized Pipe & 16" Case Iron Pipe - W. 5th St & Broadway St



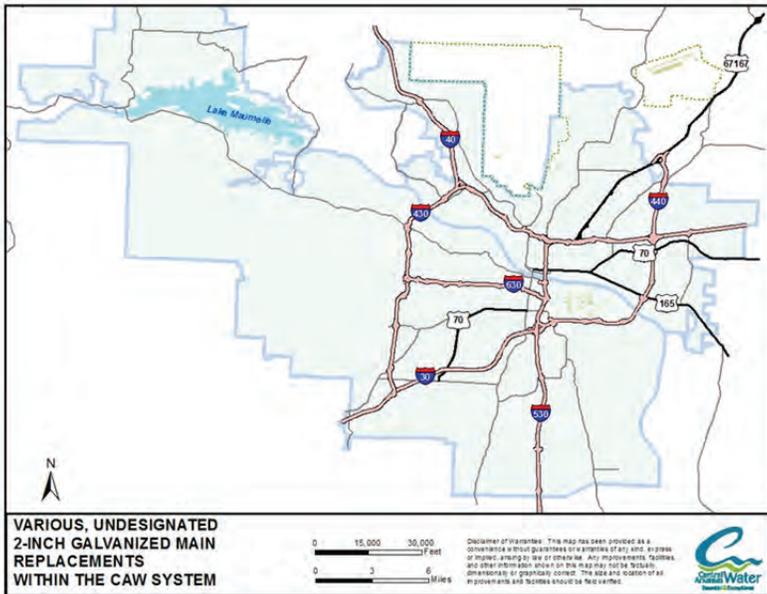
Est Start Date:
January, 2017

Duration: (Months)
9 Months

Total Cost:
\$550,000

Source	2015	2016	2017	2018	2019
RATES	0	0	550,000	0	0

Project Name: Replace 2"-DIAM Galvanized Pipe Undesignated/Unknown Locations



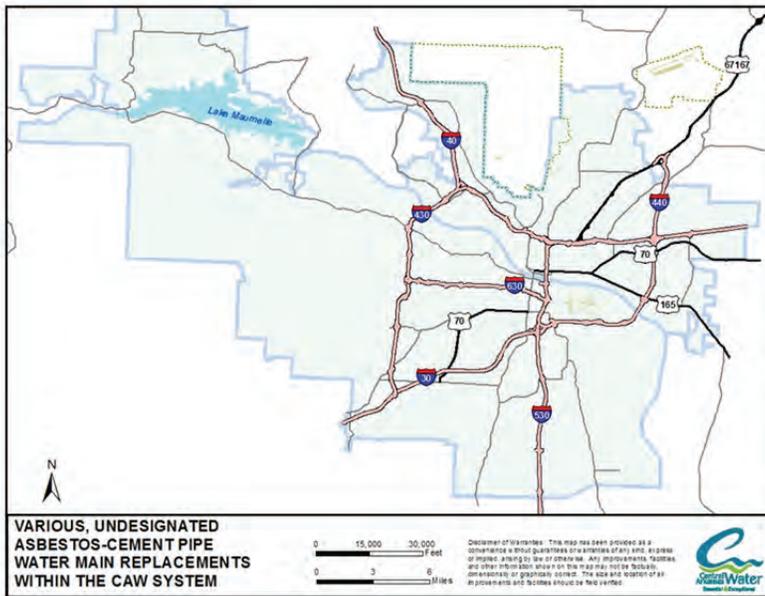
Est Start Date:
January, 2018

Duration: (Months)
24 Months

Total Cost:
\$8,200,000

Source	2015	2016	2017	2018	2019
RATES	0	0	0	3,200,000	5,000,000

Project Name: Replace 6"/8"/12"-DIAM Cast Iron/Asbestos Cement Pipe Undesignated/Unknown Locations



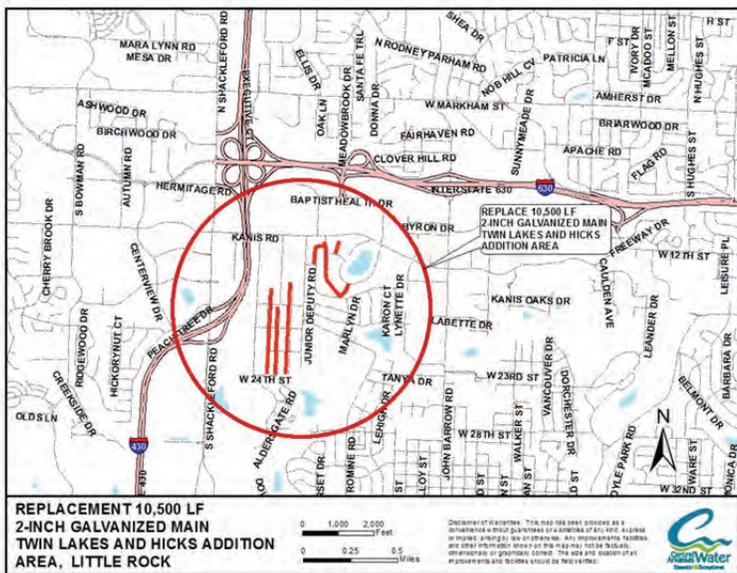
Est Start Date:
January, 2018

Duration: (Months)
24 Months

Total Cost:
\$2,000,000

Source	2015	2016	2017	2018	2019
RATES	0	0	0	1,000,000	1,000,000

Project Name: Replace 2"-DIAM Galvanized Pipe– Twin Lakes/Hicks Add – LR W6



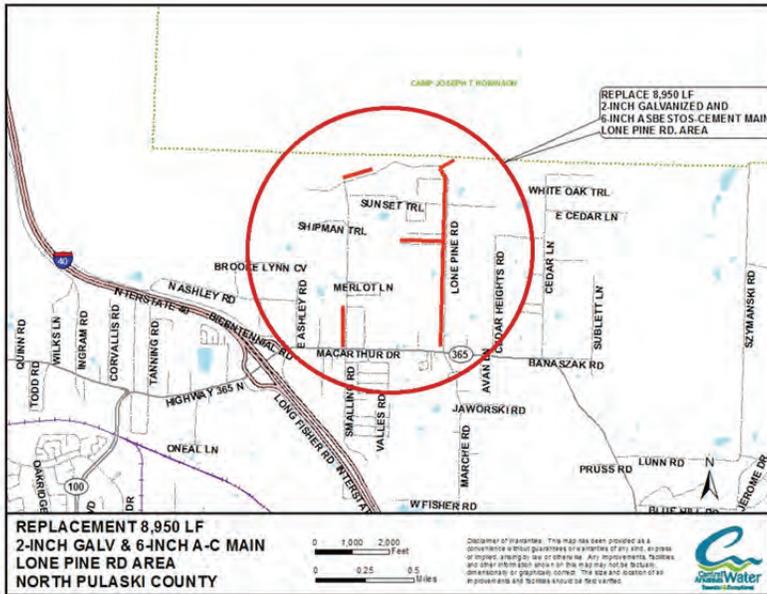
Est Start Date:
January, 2018

Duration: (Months)
12 Months

Total Cost:
\$800,000

Source	2015	2016	2017	2018	2019
RATES	0	0	0	800,000	0

Project Name: Replace 2"-DIAM Galvanized Pipe & 6"-DIAM Asbestos Cement Pipe – Lone Pine – JP 13



Est Start Date:
January, 2018

Duration: (Months)
11 Months

Total Cost:
\$780,000

Source	2015	2016	2017	2018	2019
RATES	0	0	0	780,000	0

Project Name: Relocate 20"-DIAM Main Across Ark. River – Broadway Bridge Attachment - AHTD

Department: Engineering

Focus Area: Mains

Location: Broadway Bridge



Name:
Jim Ferguson
Est Start Date:
March, 2015

Duration: (Months)
18 Months
Total Cost:
\$1,400,000

PROJECT PURPOSE

This project includes replacement of approximately 1,400 linear feet of 16-inch steel and cast iron pipe currently attached to the Broadway Bridge over the Arkansas River. The Arkansas State Highway and Transportation Department will replace the current bridge with a new structure in 2015-2016. A new 20-inch water main crossing will be installed on the new bridge.



PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2015	2016	2017	2018	2019
RATES	0	1,400,000	0	0	0

O&M Impact

G/L	2015	2016	2017	2018	2019



EUM ATTRIBUTE

This water main relocation project addresses the following 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.

Transmission & Distribution Main Relocation Projects

Department: Engineering
Location: CAW System



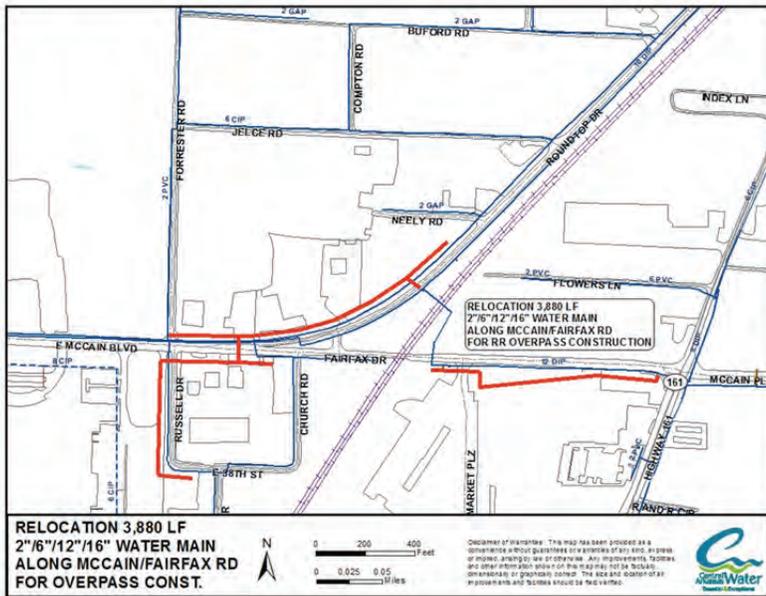
OVERALL PROJECT PURPOSE

Relocation of mains are budgeted as required within the Central Arkansas Water service area due to street, road, drainage, or other public work improvements.

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 16"/12"-DIAM Main – McCain/Fairfax RR Bridge



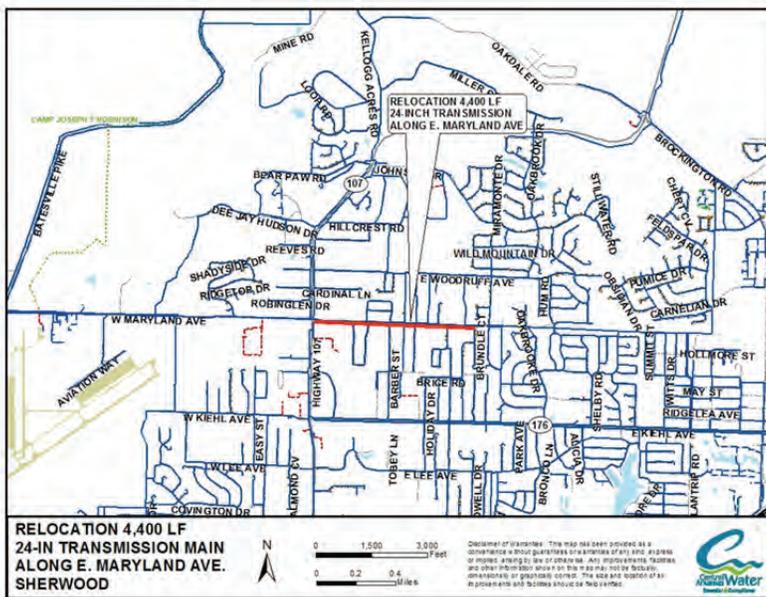
Est Start Date:
February, 2015

Duration: (Months)
8 Months

Total Cost:
\$580,000

Source	2015	2016	2017	2018	2019
EWC	580,000	0	0	0	0

Project Name: Relocate 24"-DIAM Main – Maryland Avenue



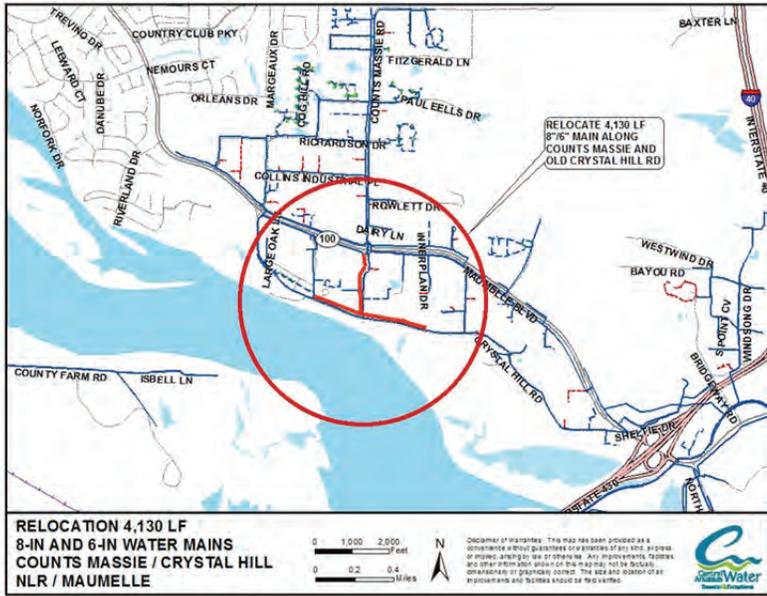
Est Start Date:
April, 2017

Duration: (Months)
9 Months

Total Cost:
\$1,200,000

Source	2015	2016	2017	2018	2019
RATES	0	0	1,200,000	0	0

Project Name: Relocate 12"/8"/6"-DIAM Main – Counts Massie/Old Crystal Hill Rd – NLR/Maumelle



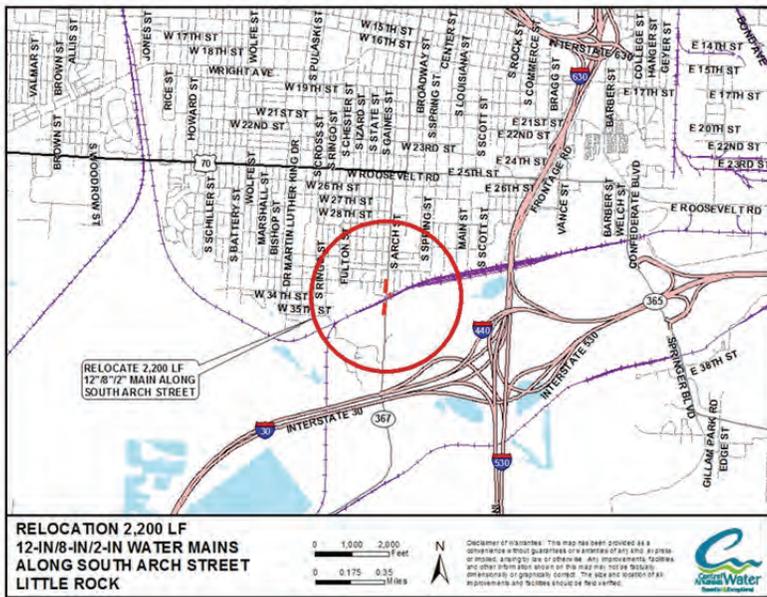
Est Start Date:
April, 2015

Duration: (Months)
6 Months

Total Cost:
\$375,000

Source	2015	2016	2017	2018	2019
EWC	375,000	0	0	0	0

Project Name: Relocate 12"-DIAM Main – Arch St – AHTD



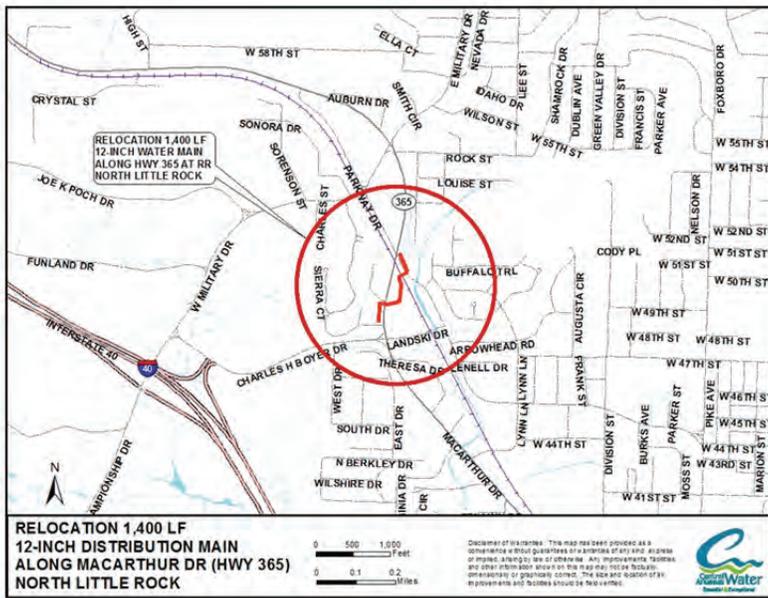
Est Start Date:
March, 2015

Duration: (Months)
6 Months

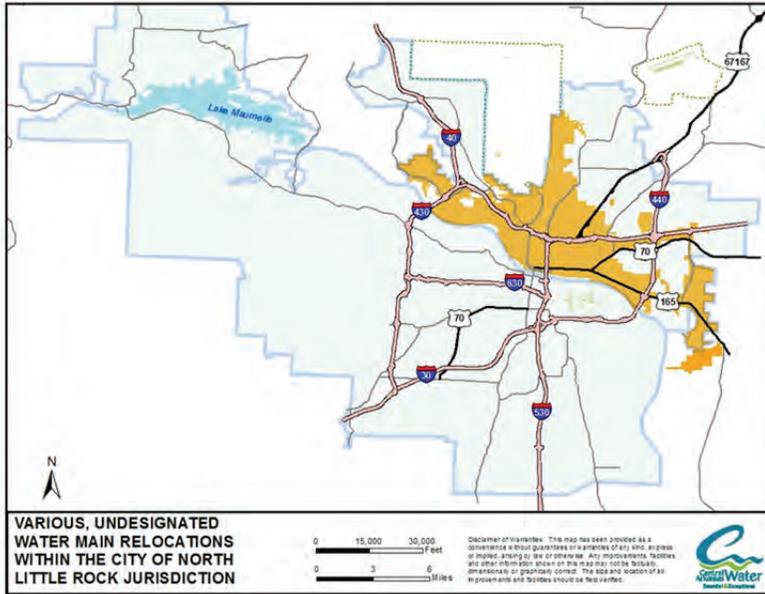
Total Cost:
\$300,000

Source	2015	2016	2017	2018	2019
EWC	300,000	0	0	0	0

Project Name: Relocate 12"-DIAM Main – McArthur Rd - AHTD



Project Name: Relocate Undesignated/Unknown Locations – NLR



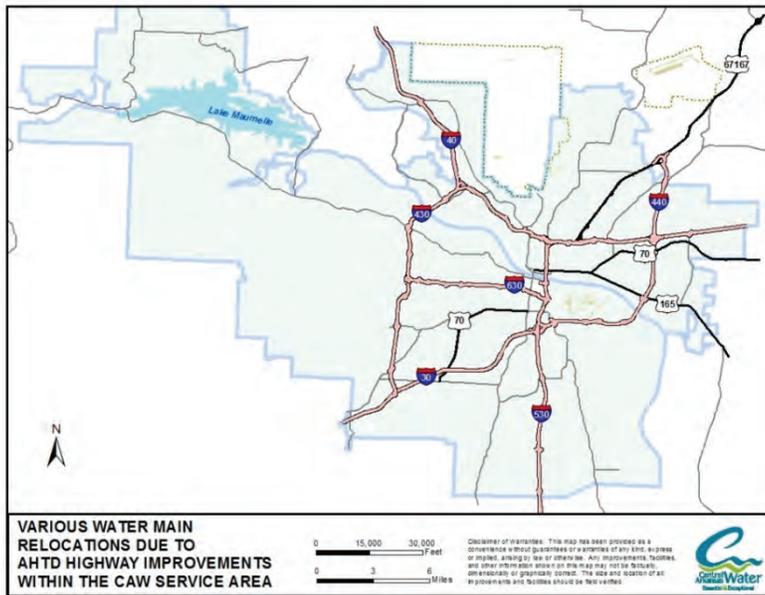
Est Start Date:
January, 2015

Duration: (Months)
Ongoing

Total Cost:
\$650,000

Source	2015	2016	2017	2018	2019
EWC	50,000	0	0	0	0
RATES	0	150,000	150,000	150,000	150,000

Project Name: Relocate Undesignated/Unknown Locations - AHTD



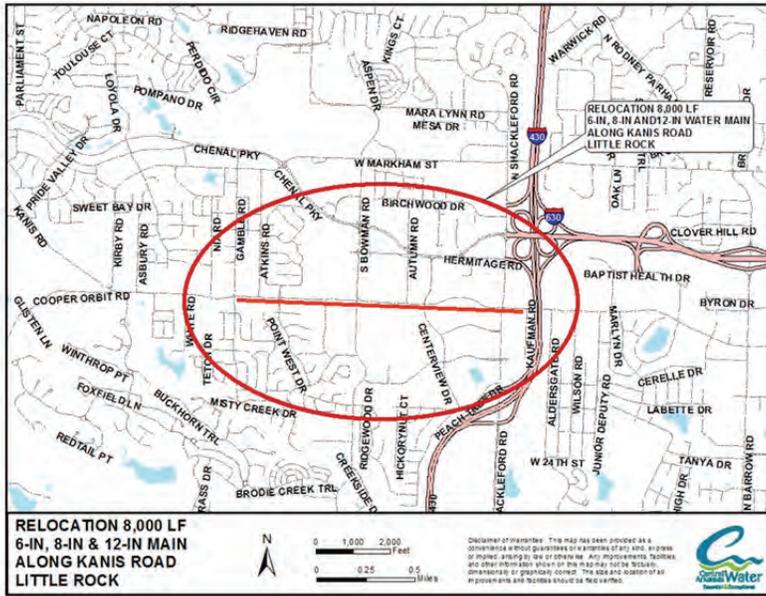
Est Start Date:
January, 2015

Duration: (Months)
Ongoing

Total Cost:
\$475,000

Source	2015	2016	2017	2018	2019
EWC	75,000	0	0	0	0
RATES	0	100,000	100,000	100,000	100,000

Project Name: Relocate 6"/8"/12"-DIAM Main – Kanis Rd – LR



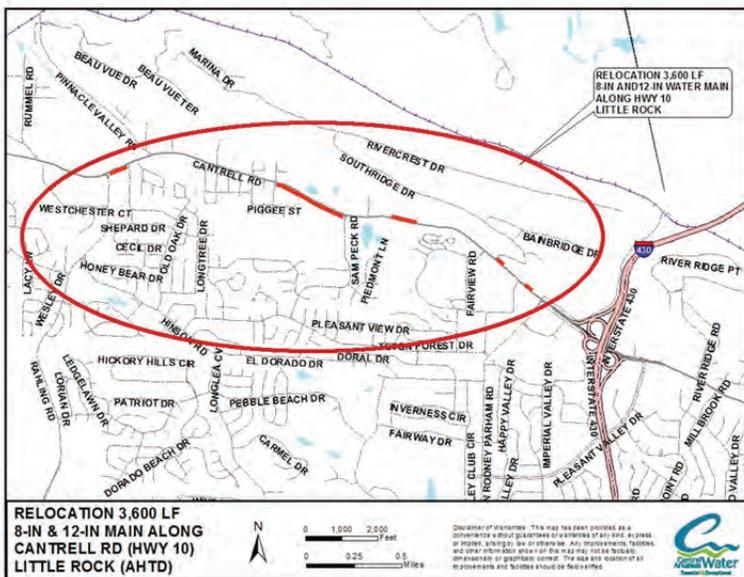
Est Start Date:
January, 2016

Duration: (Months)
12 Months

Total Cost:
\$1,300,000

Source	2015	2016	2017	2018	2019
RATES	0	1,300,000	0	0	0

Project Name: Relocate 12"/8"-DIAM Mains – Hwy 10 widening at Rodney Parham – AHTD



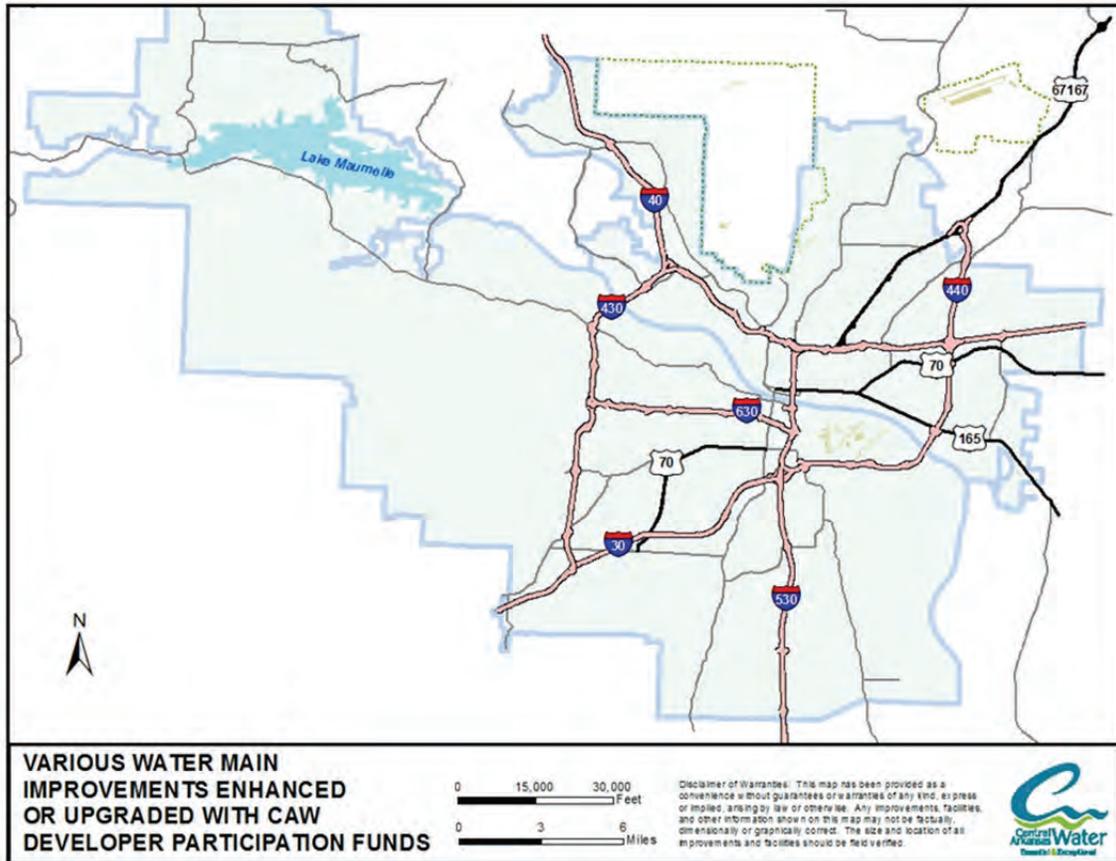
Est Start Date:
March, 2017

Duration: (Months)
9 Months

Total Cost:
\$400,000

Source	2015	2016	2017	2018	2019
RATES	0	0	400,000	0	0

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



Name:
Jim Ferguson
Est Start Date:
January, 2015

Duration: (Months)
Ongoing
Total Cost:
\$500,000

PROJECT PURPOSE

Installation of water main improvements within the CAW system by Developers/Builders upgraded in length, position, or capacity with participation funds from Central Arkansas Water. CAW will typically participate with a Developer/Builder to increase the size of a water main for future demands.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2015	2016	2017	2018	2019
RATES	100,000	100,000	100,000	100,000	100,000

O&M Impact

G/L	2015	2016	2017	2018	2019

EUM ATTRIBUTE

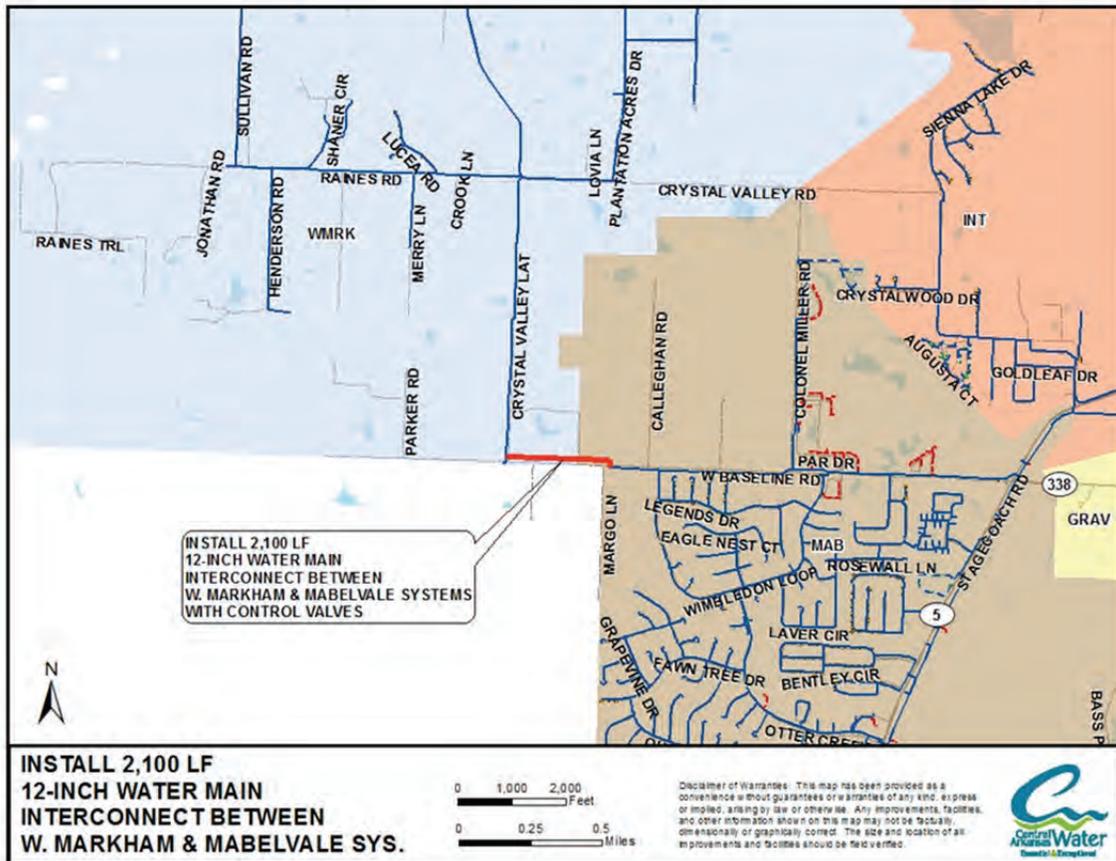
- **Infrastructure Stability** – Maintaining the CAW water main network is critical to providing water to the Utility’s customers. Due to new developments and growth in the demand in areas of the distribution system, new mains and upgrades are necessary in order to keep the distribution system operating as designed. This project will address those needs in future years as they are identified in partnership with area developers, thus returning stability 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. These impacts are counter to an optimized water distribution system.

Project Name: Install 12"-DIAM W. Baseline Road – Interconnection W. Markham and Mabelvale

Department: Engineering

Focus Area: Interconnection

Location: Little Rock



Name:	
	Jim Ferguson
Est Start Date:	
	June, 2016

Duration: (Months)	
	6 Months
Total Cost:	
	\$375,000

PROJECT PURPOSE

This project consists of the installation of approximately 2,100 linear feet of 12-inch water main and a control valve along West Baseline Road to provide an interconnection between the West Markham and Mabelvale pressure systems. This interconnection will allow transfer of water between the two systems to help maintain pressures, flows, and water quality in both pressure systems.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2015	2016	2017	2018	2019
RATES	0	375,000	0	0	0

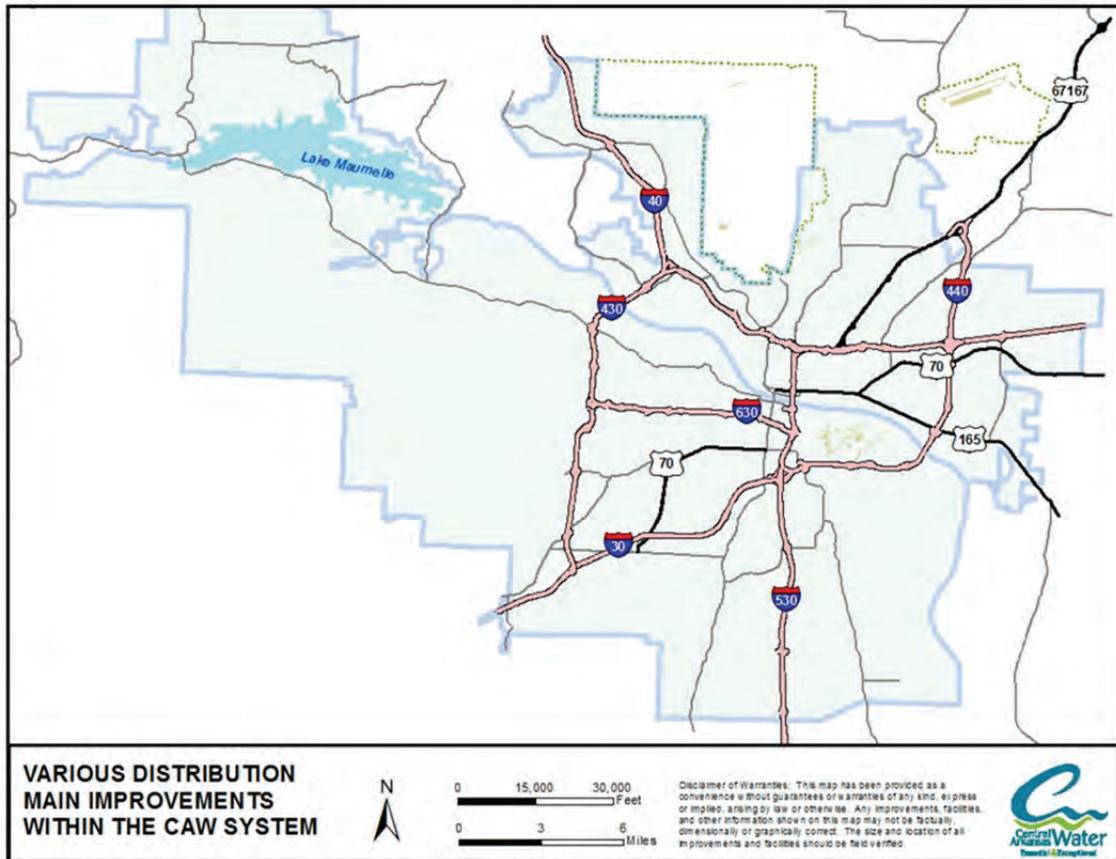
O&M Impact

G/L	2015	2016	2017	2018	2019

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 two pressure areas of the CAW system, thus returning stability the distribution system by improving pressure control, water flow, and water quality in these areas.
- **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: Master Plan Distribution Mains
Department: Engineering
Focus Area: Mains
Location: CAW System



Name:
Jim Ferguson
Est Start Date:
January, 2018

Duration: (Months)
24 Months
Total Cost:
\$500,000

PROJECT PURPOSE

Installation of distribution main improvements within the CAW system as recommended by the Master Plan or as needs and priorities develop for system growth.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2015	2016	2017	2018	2019
RATES	0	0	0	250,000	250,000

O&M Impact

G/L	2015	2016	2017	2018	2019

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 those needs in future years as they are identified, thus returning stability the distribution 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. These impacts are counter to an optimized water distribution system.

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



Name:
Darrell Boggs
Est Start Date:
January, 2015

Duration: (Months)
Ongoing
Total Cost:
\$2,394,000



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" meters; 10 years for 1" meters; 12 years for 3/4" meters; 8 years for 1- 1/2" meters; and 6 years for 2" meters.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2015	2016	2017	2018	2019
RATES	442,000	460,000	478,000	497,000	517,000

O&M Impact

G/L	2015	2016	2017	2018	2019

EUM ATTRIBUTE

- **Infrastructure Stability** – As meters age, they become more troublesome and impair the ability of the Utility to accurately measure water provided to customers throughout the system. Proactive replacement of meters prior to slowdown/failure 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: Purchase/install New Service Meters
Department: Distribution
Focus Area: Meters
Location: CAW System



Name:
Darrell Boggs
Est Start Date:
January, 2015

Duration: (Months)
Ongoing
Total Cost:
\$784,000

PROJECT PURPOSE

These meters are dedicated to the installation of new services accounts to include residential, commercial, and industrial. These meters generally range from 5/8” to 6” in diameter and are essential in revenue generation.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2015	2016	2017	2018	2019
RATES	144,000	151,000	157,000	163,000	169,000

O&M Impact

G/L	2015	2016	2017	2018	2019

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 charge for those services provided to the customer. Installation of new meters is a critical activity for the utility because of the link between consumption and revenue generation.

Project Name: Replace 2"-DIAM and Larger Meters
Department: Distribution
Focus Area: Meters
Location: CAW System



Name:
Darrell Boggs
Est Start Date:
January, 2015

Duration: (Months)
Ongoing
Total Cost:
\$825,000



PROJECT PURPOSE

The project will consist of replacing our large commercial meters that have been discontinued and parts are no longer available or as meters reach the end of their useful life on a volumetric scale.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2015	2016	2017	2018	2019
RATES	75,000	175,000	175,000	200,000	200,000

O&M Impact

G/L	2015	2016	2017	2018	2019

EUM ATTRIBUTE

- **Infrastructure Stability** – As meters age, they become more troublesome and impair the ability of the Utility to accurately measure water provided to customers throughout the system. Proactive replacement of meters prior to slowdown/failure 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: Replace Hydrants
Department: Distribution
Focus Area: Hydrants
Location: CAW System



Name:
Darrell Boggs
Est Start Date:
January, 2015

Duration: (Months)
Ongoing
Total Cost:
\$310,000



PROJECT PURPOSE

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

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2015	2016	2017	2018	2019
RATES	58,000	60,000	62,000	64,000	66,000

O&M Impact

G/L	2015	2016	2017	2018	2019

EUM ATTRIBUTE

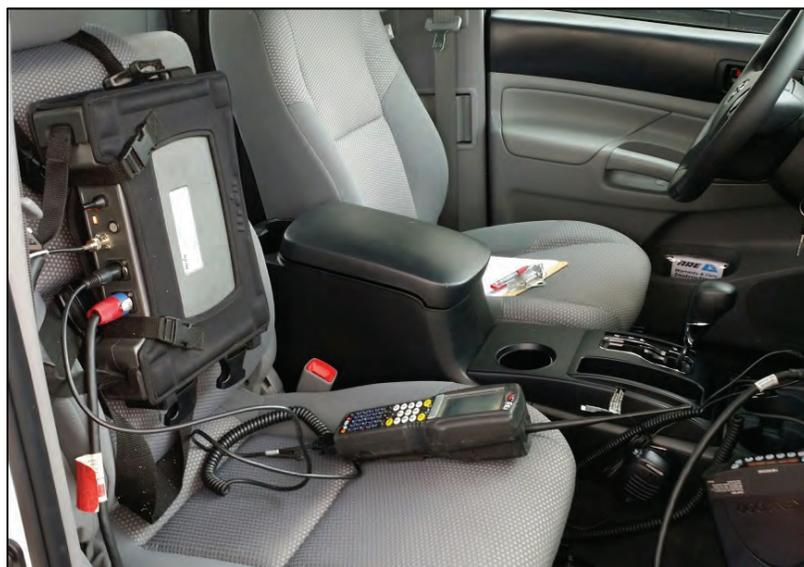
- **Infrastructure Stability** – Fire hydrants serve the extremely important purpose of providing water for fire protection in the community. Failure to maintain these assets has the potential of placing lives and property in harm's way within the CAW service area. Maintenance is also critical to the 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. These impacts are counter to an optimized water distribution system.

Project Name: Install AMI/AMR Meters
Department: Customer Relations & Public Affairs
Focus Area: Meters
Location: CAW System



Name:
John Tynan
Est Start Date:
January, 2015

Duration: (Months)
Ongoing
Total Cost:
\$475,000



PROJECT PURPOSE

This project purpose is to convert routes of direct-read meters to routes equipped with automated meter reading (AMR) or advanced metering infrastructure (AMI) technology when shown to be cost-effective and/or advantageous for other route-specific reasons.

Annually the Customer Relations and Public Affairs (CRPA) Department evaluates the cost, efficiency, and specific route needs of meter routes that Part-Time Meter Readers (P/T), Full-Time Meter Readers (F/T), and Customer Service Specialists (Specialists) read. Route-specific needs include a consistent reader, a non-production driven reader, specialized reading devices, or other items due to the consumption patterns, customer type, accessibility, and other items related to the accounts in the route.

As part of this annual route evaluation, staff determine if routes may be read by a more cost-effective direct-read method (P/T < F/T < Specialists) or AMR/AMI method. If AMR/AMI provides a more cost-effective read method, the ROI for the route conversion to AMR/AMI is calculated based on the annual O&M difference between direct-read and AMR/AMI read methods. If the ROI is <10 years, the project is considered for implementation.

Cost savings and ROI may not be the sole drivers of an AMR/AMI project. Safety considerations for direct-read routes, level of customer service provided to affected customers, improved usage data analytics, and other soft-costs may also be considered when proposing a route for conversion to AMR/AMI. It is extremely unlikely, however, that a route with an ROI >15 years will be considered for conversion due to replacement timeframes for direct-read meter infrastructure.

It should be noted that this is a complement to other meter replacement and asset management programs within the utility. As such, AMR/AMI may be installed through other projects and reduce the need for this project in any given year. In addition, utility asset management guidelines dictate that all AMR/AMI conversions on 1.5" meters and smaller will necessitate a

new meter installation (existing direct-read meters removed will be tested and returned to inventory). AMR/AMI conversions on 2" meters and larger will require that staff track the age of the AMR/AMI equipment separately from the meter in order to allow for AMR/AMI replacement when the useful life / battery life of the AMR/AMI technology is reached.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2015	2016	2017	2018	2019
RATES	75,000	100,000	100,000	100,000	100,000

O&M Impact

G/L	2015	2016	2017	2018	2019
	0	0	0	0	0

NOTE that the project will provide savings in meter-reading labor at no additional O&M expenses. However, time previously devoted to meter reading will be reallocated to other customer service functions. At an undetermined level of AMR/AMI meter saturation, meter reader staffing may be able to be adjusted downwards, resulting in substantial cost savings for the utility.

EUM ATTRIBUTE

- Operational Optimization** – A core foundation of AMI/AMR installation is cost-effectiveness of meter reading. As discussed previously, meter routes will be evaluated annually to ensure that meter reading is optimized to the most cost-effective read type. When found to be cost-effective and employed, AMI/AMR usage will allow CAW to devote highly skilled staff members to functions other than basic meter reading towards other critical functions – for example direct customer assistance regarding usage and billing concerns. Where AMI is utilized, it will take advantage of the existing fixed network area and will not require any additional costs (capital or operational) to add additional meters to the network. In addition, potential safety improvements and detailed usage tracking of key accounts provide other opportunities for optimization of utility efforts.
- Customer Satisfaction** – The use of AMI/AMR will provide customers with additional information regarding their water consumption. AMI equipped meters will provide customers with real-time access to usage information in 15 – 60 minute increments. AMR

will provide customers with daily usage increments for the 30 days prior to the last meter read. 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 abilities.

- **Water Resource Adequacy** – The ability of AMI/AMR to provide customers with additional data and usage patterns will also provide customers with the ability to modify behavior in order to reduce water consumption, therefore prolonging the life of our existing supplies, treatment, and distribution capacity. In addition, customers will be able to self-identify and fix leaks and, in turn, will reduce water loss.
- **Community Sustainability** – Use of AMI/AMR will also reduce energy, fuel, and chemical usage associated with water production and meter reading costs. Water loss reductions and customer conservation efforts will not only extend the life of our water sources, but will also lead to reduced energy costs and reduced chemical costs associated with less water treatment. Where AMI is used for meter reading, fuel costs can be nearly eliminated as no vehicles will be required to obtain meter readings. Where AMR is used for meter readings, fuel efficiency of vehicles will significantly increase through a substantial reduction in starts/stops and idling as a slow, but constant speed can be maintained to obtain readings.
- **Infrastructure Stability** – Installation of AMI/AMR will be completed in compliance with utility guidelines on meter asset management. All AMR/AMI conversions on 1.5” meters and smaller will necessitate a new meter installation (existing direct-read meters removed will be tested and returned to inventory). AMR/AMI conversions on 2” meters and larger will require that staff track the age of the AMR/AMI equipment separately from the meter in order to allow for AMR/AMI replacement when the useful life / battery life of the AMR/AMI technology is reached.

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



Name:
Darrell Boggs
Est Start Date:
January, 2017

Duration: (Months)
12 Months
Total Cost:
\$900,000



PROJECT PURPOSE

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



PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2015	2016	2017	2018	2019
RATES	0	0	900,000	0	0

O&M Impact

G/L	2015	2016	2017	2018	2019



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(s)
Department: Distribution
Focus Area: Tanks
Location: North Little Rock



Name:
Darrell Boggs
Est Start Date:
September, 2018

Duration: (Months)
12 Months
Total Cost:
\$1,050,000



PROJECT PURPOSE

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

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2015	2016	2017	2018	2019
RATES	0	0	0	350,000	700,000

O&M Impact

G/L	2015	2016	2017	2018	2019



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 1.0 MG Storage Tank #5B – Pulaski Heights
Department: Engineering
Focus Area: New Elevated Water Tank Construction
Location: Little Rock



Name:
Jim Ferguson
Est Start Date:
May, 2019

Duration: (Months)
6 Months
Total Cost:
\$2,500,000

PROJECT PURPOSE

As recommended in the 2010 Master Plan, it will be necessary to construct additional water storage capacity in the Pulaski Heights pressure system due to water consumption growth. The Pulaski Heights system currently has two 0.5 MG storage tanks. The Master Plan recommendation is to construct a third tank in the system with a capacity of 1.0 MG to complement the two existing tanks and help reduce peak hour pumping into the Pulaski Heights system from the Ozark Point Plant and Wilson Plant.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2015	2016	2017	2018	2019
RATES	0	0	0	0	2,000,000

O&M Impact

G/L	2015	2016	2017	2018	2019

EUM ATTRIBUTE

- **Infrastructure Stability** – Treated water storage tanks are an integral part of the CAW water distribution system. Lack of storage capacity within the Pulaski Heights pressure zone is impacting overall system stability by requiring constant pumping during peak demand periods in order to maintain system pressure. This project will correct this issue and provide for further growth within this portion of the distribution system.
- **Operational Optimization** – A well maintained distribution system is key to providing water to CAW's customers in an efficient manner. The current system is lacking in storage capacity during peak usage times and water must be continuously pumped in. This is far less efficient than feeding from storage capacity within the pressure system. Failure to provide adequate supply capacity presents the opportunity for impacts to the customer from unplanned outages and places unnecessary stress on other components of the distribution system. These impacts are counter to an optimized water distribution system.

Project Name: Replace Dump Trucks
Department: Distribution
Focus Area: Construction Equipment
Location: Clearwater and Maryland Ave. Complex



Name:
Darrell Boggs
Est Start Date:
January, 2015

Duration: (Months)
Ongoing
Total Cost:
\$490,000



PROJECT PURPOSE

Dump trucks are used throughout the CAW system for various activities in support of utility operations from hauling off excavated materials to hauling in proper fill and road repair materials and towing construction equipment. In line with the draft CAW fleet management plan, these trucks are evaluated regularly to project vehicle replacement needs. 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 10 years of service.

As chronic repair needs are difficult to forecast, the primary driver for capital planning is projected mileage. This project consists of replacing trucks which have reached or exceeded their expected service life per the CAW fleet management plan. The utility anticipates replacing one dump truck per year over the next five years.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2015	2016	2017	2018	2019
RATES	92,000	95,000	98,000	101,000	104,000

O&M Impact

G/L	2015	2016	2017	2018	2019



EUM ATTRIBUTE

- Operational Optimization** – Vehicle replacements will occur according to the Utility’s fleet management plan, dictating that vehicles with 100,000 miles or 10 years of service or greater 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.
- 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 ensure continue to enhance the conditions of assets at the lowest lifecycle cost.
- 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.

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



Name:
Various
Est Start Date:
January, 2015

Duration: (Months)
N/A
Total Cost:
\$2,626,000



PROJECT PURPOSE

The Purchasing section of CAW has provided a draft fleet management plan for the Utility and is currently finalizing this guiding document in partnership with various Departments. This plan is 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 10 years of service.

As chronic repair needs are difficult to forecast, the primary driver for capital planning is projected mileage and vehicle age.

- Three CS-Field trucks will be replaced in 2015
- Four CS-Field trucks will be replaced in 2016
- Four CS-Field trucks and will be replaced in 2017
- Five CS-Field trucks will be replaced in 2018
- One CS-Field truck will be replaced in 2019

A key component of the fleet management plan is a vehicle “rightsizing” or optimization analysis prior to any new vehicle purchases. Therefore, all vehicles will be evaluated according to this analysis and purchases will be adjusted accordingly. The estimated budget for this item is based upon replacing vehicles with like vehicles. However, smaller trucks, sedans, hybrid, and other vehicles will be evaluated to determine if Departmental needs can be met at a lower lifecycle cost.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2015	2016	2017	2018	2019
RATES	617,000	647,000	665,000	487,000	210,000

O&M Impact

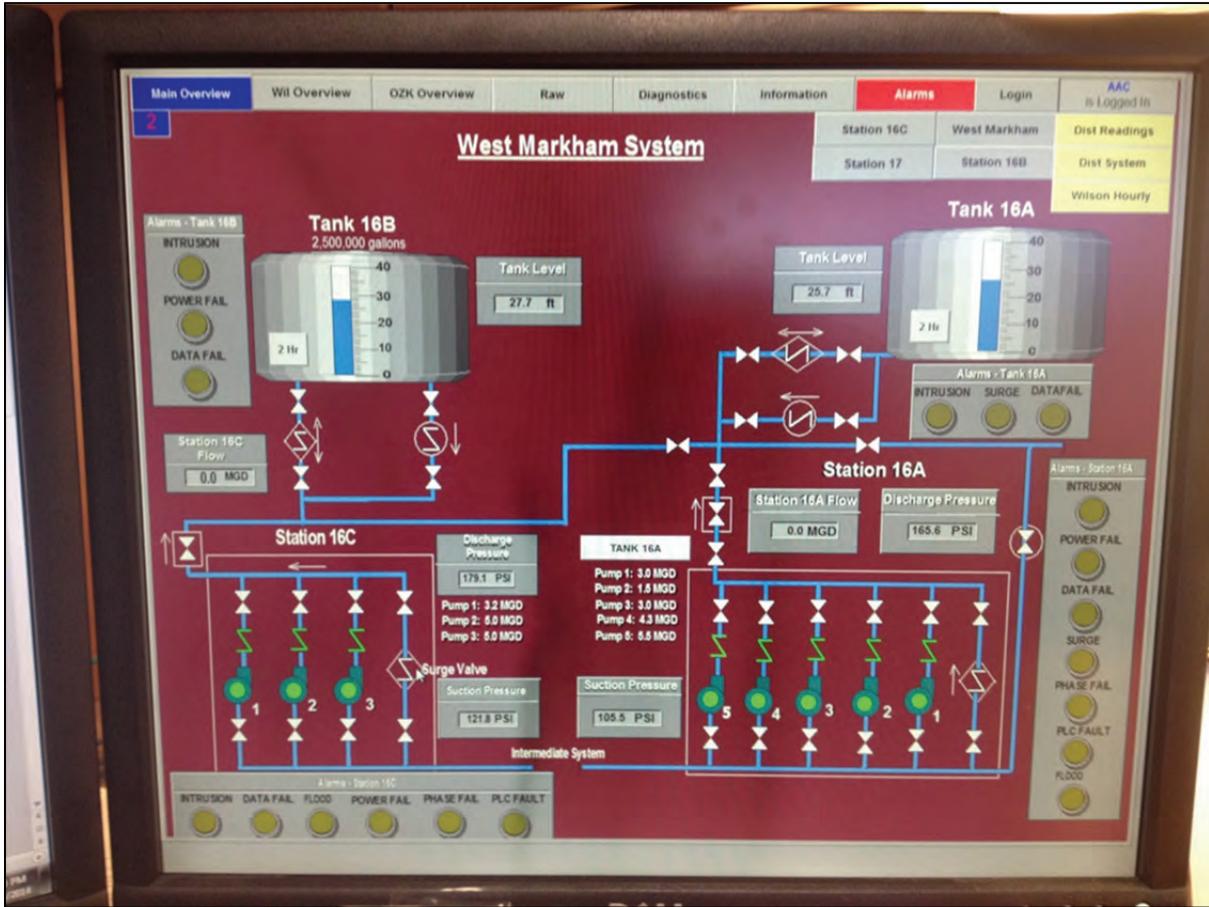
G/L	2015	2016	2017	2018	2019

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 drive 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 100,000 miles or 10 years of service or greater 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 ensure continue to enhance the conditions of assets at the lowest lifecycle cost

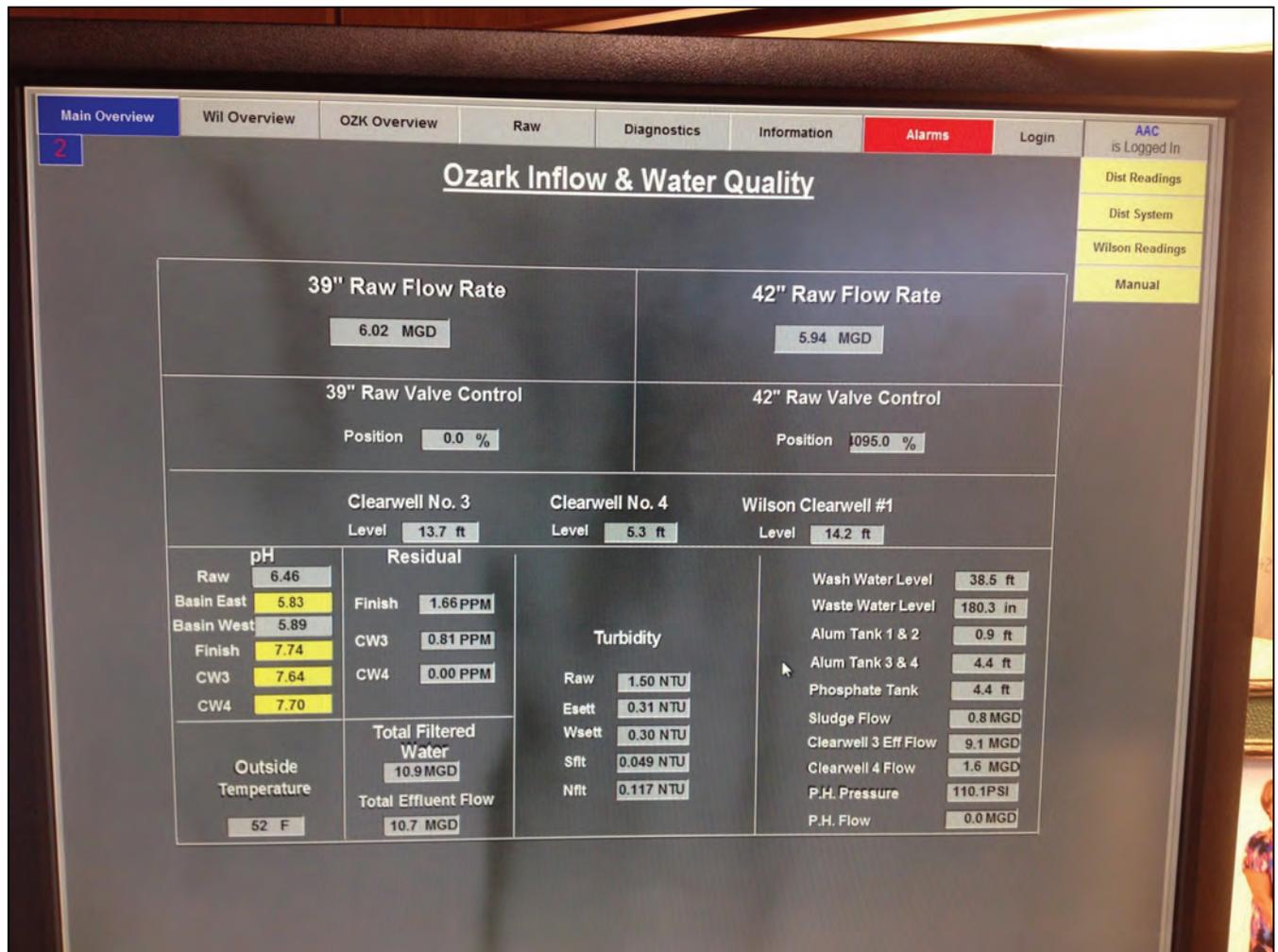
Project Name: Replace SCADA Human Machine Interface
Department: Water Quality and Operations
Focus Area: SCADA HMI
Location: Wilson Plant & Ozark Point Plant



Name:
Randy Easley
Est Start Date:
January, 2016

Duration: (Months)
12 Months
Total Cost:
\$700,000

PROJECT PURPOSE



Upgrading the SCADA Human Machine Interface (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 for 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.

A lack of staff with the skills and abilities to modify our current HMI code makes our SCADA system less resilient and need to be upgraded. Advances in industry software packages have been made that make 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	2015	2016	2017	2018	2019
RATES	0	1,000,000	150,000	50,000	0

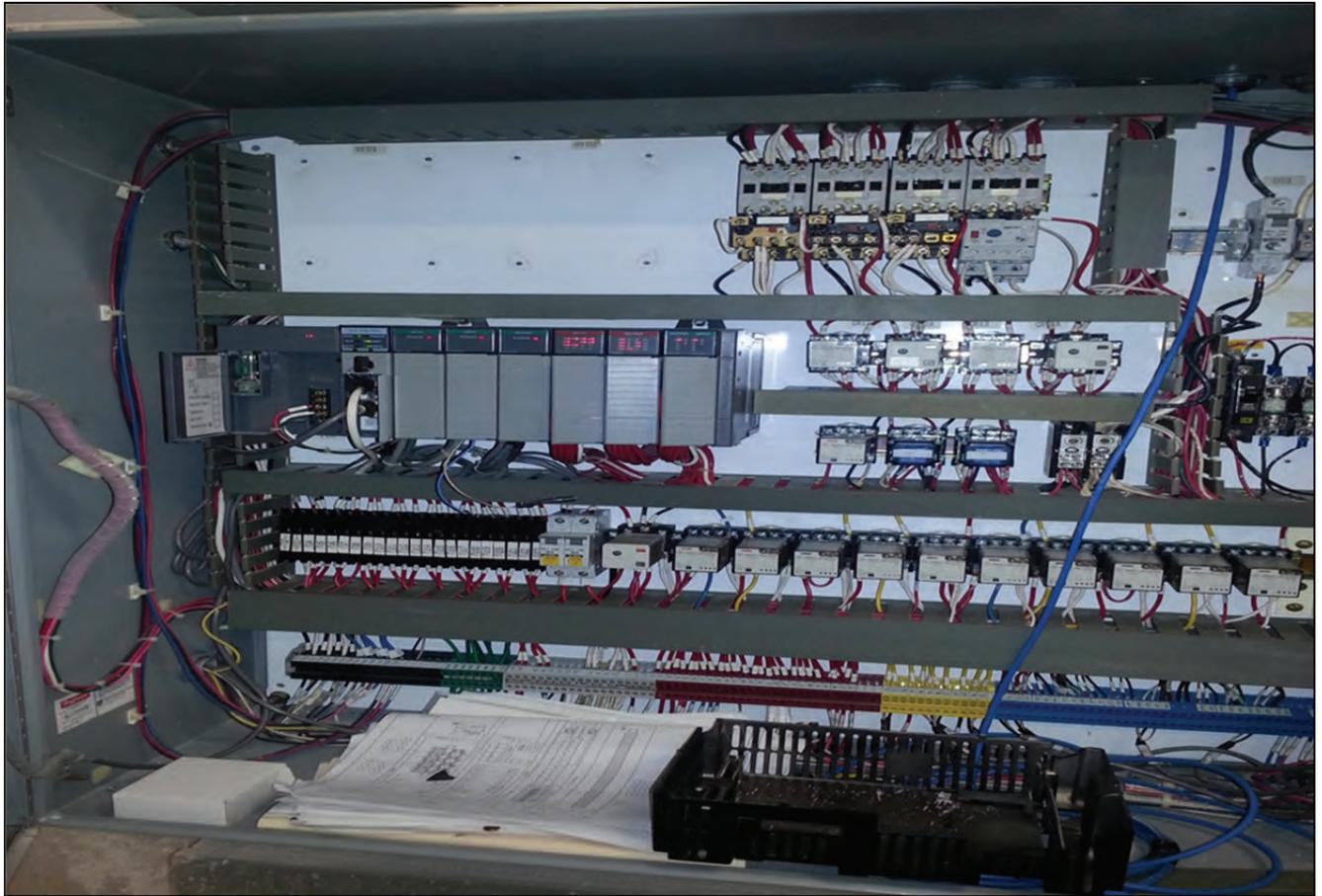
O&M Impact

G/L	2015	2016	2017	2018	2019

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 unreliable 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 the 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 and Operations
Focus Area: SCADA HMI
Location: Wilson Plant & Ozark Point Plant



Name:
Randy Easley
Est Start Date:
January, 2016

Duration: (Months)
36 Months
Total Cost:
\$300,000



PROJECT PURPOSE

This project will replace the current Programmable Logic Controllers (PLCs), in the treatment plants which have functioned well past their expected useful life and are no longer vendor supported. The project will provide us with up to date hardware and software support. Recently, it has been necessary to replace some equipment with newer hardware and software due to expense of the legacy items and improved functionality of the newer hardware and software.

Numerous PLCs were installed in 1995 with additions made during projects in 1999, 2010 and 2014. These PLCs are now obsolete and need to be replaced. This equipment is critical to monitoring, controlling and maintaining water treatment integrity/water quality and distribution systems.

The equipment can be purchased and installed by CAW staff. Equipment replacement can be scheduled to prevent emergency upgrades.

PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2015	2016	2017	2018	2019
RATES	0	150,000	100,000	50,000	0

O&M Impact

G/L	2015	2016	2017	2018	2019



EUM ATTRIBUTE

Replacement of the SCADA HMI system will address the following EUM attributes

- 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 unreliable 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 the 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/Replace 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 CIS. 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
Est Start Date:
March 2019

Duration: (Months)
9 Months
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, 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 the idea is that the user checks the results as they type. The goal is that each search is satisfied without the user having to scroll or page through the 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	2015	2016	2017	2018	2019
RATES	0	0	0	0	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 improve customer understanding of usage patterns as well as improved customer satisfaction through the ability to identify leaks, establish usage alerts, and other abilities.
- **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: Replace Fence – Jackson Reservoir
Department: Water Quality & Operations
Focus Area: Security
Location: Little Rock



Name:
Randy Easley
Est Start Date:
January, 2018

Duration: (Months)
4 Months
Total Cost:
\$350,000



PROJECT PURPOSE

Just off Cantrell Road in Little Rock, Jackson Reservoir is surrounded by an existing galvanized chain link fence which is approaching the end of its useful life. As shown above, the existing fence exhibits wide spread deterioration from rust as well as areas of failure due to tree and brush encroachment. The existing fence is 6-ft tall which is 2-ft below our recommended standard for secure fencing around protected assets. Staff recommends replacing the existing fence with 7,600 LF of 8-ft PVC coated fence.



PROJECT ESTIMATED COSTS & DURATION

Capital Expenditure

Source	2015	2016	2017	2018	2019
RATES	0	0	0	350,000	0

O&M Impact

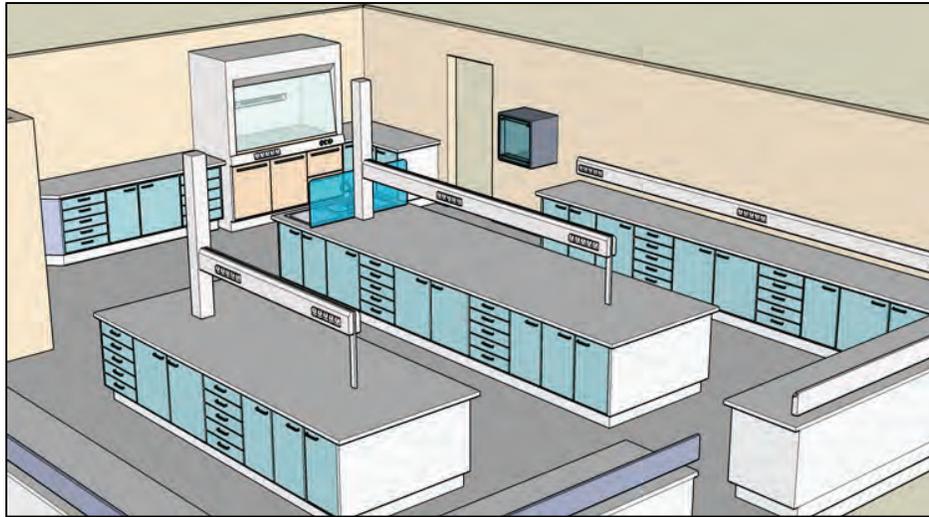
G/L	2015	2016	2017	2018	2019



EUM ATTRIBUTE

- **Infrastructure Stability** – Jackson Reservoir is a key piece of CAW’s water supply infrastructure and is located in the heart of an urbanized area. Replacement of the fence which secures this facility will ensure that this infrastructure remains protected and will limit the potential for service disruptions or other negative consequences should this facility be compromised in some manner.

Project Name: Improve Laboratory Facilities
Department: Water Quality & Operations
Focus Area: Laboratory
Location: Wilson Plant



Name:
Randy Easley
Est Start Date:
January, 2018

Duration: (Months)
18 Months
Total Cost:
\$1,000,000



PROJECT PURPOSE

This project is proposed 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 Americans with Disability Act (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 water source. The laboratory data defines whether that condition is being met, and whether the water is of acceptable quality to fit 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 for research, monitoring, or chemical, radiochemical, biological or microbiological analyses, appropriate space and basic laboratory facilities should be available.

This project will enhance the CAW 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 the U.S. Environmental Protection Agency.

Additionally, the laboratory data management system will be 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	2015	2016	2017	2018	2019
RATES	0	0	0	0	1,000,000

O&M Impact

G/L	2015	2016	2017	2018	2019



EUM ATTRIBUTE

Improvement of laboratory facilities will address the following EUM attributes

- Infrastructure Stability** – CAW’s lab facility is a key piece of infrastructure which helps to ensure the water treatment plants are producing treated water of the highest quality which meets all applicable regulatory guidelines. By upgrading this facility to current industry standards, CAW will ensure that its treatment facilities continue to produce high quality water with minimal disruptions or negative consequences to the community.
- 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 also plays an important role in monitoring the quality of water in Lake Maumelle, Lake Winona, and their tributaries. A fully renovated laboratory will meet CAW’s needs for decades.

Glossary



Glossary of Acronyms and Abbreviations

ADA	Americans with Disability Act
AHTD	Arkansas Highway & Transportation Department
AMI	Advanced Metering Infrastructure
AMR	Automated Meter Reading
AWWA	American Water Works Association
CAW	Central Arkansas Water
CIP	Capital Improvement Plan
CRPA	Customer Service & Public Affairs
CO	Carry Over
DIAM	Diameter
EPA	Environmental Protection Agency
EUM	Effective Utility Management
FLP	Forest Legacy Program
F/T	Full-Time Employee
GLP	Good Laboratory Practices
NEXRAD	Next Generation Weather Radar
PER	Preliminary Engineering Report
PLC	Programmable Logic Controllers
P/T	Part-Time Employee
RSA	Rate Stabilization Account
RTU	Remote Terminal Unit
SDWAA	Safe Drinking Water Act Amendments of 1996