Kalamazoo Water System Capacity Study

Section B—Financial Capacity

Project No. 201542
April 27, 2022

APPLIED ASSET MANAGEMENT

fishbeck
Engineers | Architects | Scientists | Constructors

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Introduction

The City of Kalamazoo (City) Water System has the largest groundwater-based drinking water system in the state of Michigan. The system is very complex, consisting of 96 available supply wells, 16 well pump stations, 20 booster/bleeder stations, and 11 pressure districts. The City manages water quality and demands between the pressure districts using the supply wells, the pump stations (some of which provide treatment), and booster/bleeder stations. The water system has developed over several decades and has some assets that are aged. This warrants intense operational activity, life-cycle delivery, managerial oversight, technical competency, and capital investment. These demands may exacerbate the "gap" between the current capacity and what will be necessary to meet system and regulatory requirements.

On December 21, 2020, City Council approved the Administrative Consent Order (ACO), dated December 3, 2020, between the City and the Michigan Department of Environment, Great Lakes, and Energy (EGLE). The ACO requires the City to submit a Capacity Study for EGLE approval by March 31, 2022. The City requested, and EGLE approved, an extension to submit the study no later than April 30, 2022. The City requested assistance from Fishbeck and Applied Asset Management to complete this Capacity Study.

An outline of the Capacity Study report was submitted to EGLE and approved. Based on this outline, the report is divided into four main sections: Technical Capacity, Financial Capacity, Managerial Capacity, and Gap Analysis and Implementation Plan.

For the Technical Capacity section, existing studies and other documents related to the technical capacity of the water system were reviewed for gaps and deficiencies. The reviewed documents are available upon request.

The Financial Capacity section consists of documentation that demonstrates the City's financial capacity. It includes relevant documents such as the annual budget plan for 5 years, Capital Improvements Plan, water rates and fee structure, and Water Resources Division performance-based budgeting programs.

The Managerial Capacity section contains information identifying the organizational structure and required funding to operate and manage the water system in compliance with Safe Drinking Water Act (PA399) permit requirements. In addition to reviewing existing documentation, interviews were conducted with various City staff and the City's water rate consultant to evaluate gaps and deficiencies.

The Gap Analysis and Implementation Plan section includes the deficiencies identified from a review of the first three sections.

Financial Capacity

Section B

THE CITY OF Kalamazoo

APPLIED ASSET MANAGEMENT

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Annual Budget Plan for 5 Years

Section B1

15.12C - Public Services - Enterprise Funds

Enterprise Funds

Public Services Enterprise Funds

Public Services operates the City's two utility systems for Wastewater and Water. Because these systems are funded through utility rates charged to customers of those systems, they are accounted for in separate Enterprise Funds. The Fund Total information is provided on the Enterprise Fund Tab.

This report provides further information on the division level operating expenditures within the utility systems.

Total Expenditures by Fund - Operating Divisions Only

	2019 Actual	2020 Adopted Budget	2020 Amended Budget	2021 Budget
Wastewater	$ 24,117,626	$ 27,510,149	$ 27,697,708	$ 28,714,347
Water	18,438,604	21,872,168	21,729,136	23,655,826
Total	$ 42,556,230	$ 49,382,317	$ 49,426,845	$ 52,370,173

Water Department Description

Provide a safe and continuous water supply service to the public within the Kalamazoo metropolitan service area. Service shall
be at a reasonable cost, consistent with allowing for a fair return, making certain that the customers receive sound value and
highly responsive service within established ordinances, contracts and regulations. Service efforts focus on uninterrupted, high quality water being supplied throughout a service area that covers ten separate municipalities.

Water Fund - Expenditures by Division

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oken down by

ublic Services | Water | Programs ••• | Expenses

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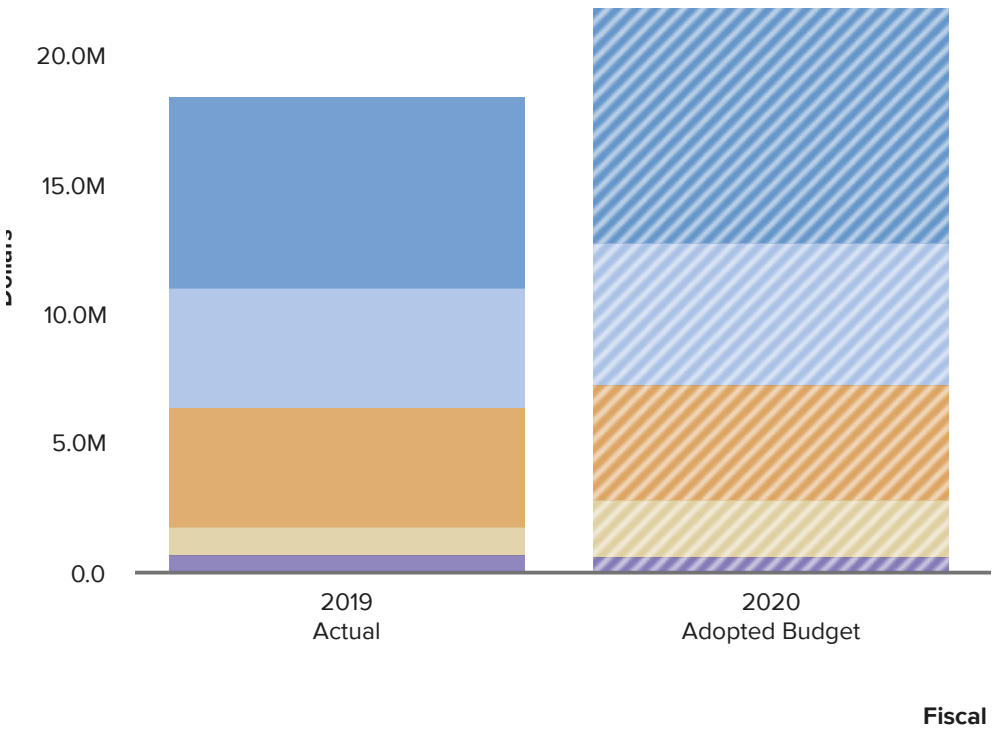
Sort Large to Small



- Water Administration
- Water Pumping/Supply
- Water Distribution
- City Fleet
- Water Building Services
- Water Stores
- Water Accounting

	2019 Actual	2020 Adopted Budget	2020 Amended Budget	2021 Budget
Water Administration	$ 7,348,324	$ 9,082,887	$ 9,123,482	$ 10,000,423
Water Pumping/Supply	4,616,851	5,430,968	5,540,968	6,598,605
Water Distribution	4,641,326	4,520,065	4,226,439	4,883,486
City Fleet	1,131,066	2,178,600	2,178,600	1,544,000
Water Building Services	525,899	551,267	551,267	520,723
Water Stores	102,326	108,381	108,381	108,588
Water Accounting	72,812	0	0	0
Total	$ 18,438,604	$ 21,872,168	$ 21,729,136	$ 23,655,826

Water Positions

Expand All	2020 Allocated FTE	2021 Allocated FTE
▸ Full Time	73.900	73.300
Total	73.900	73.300

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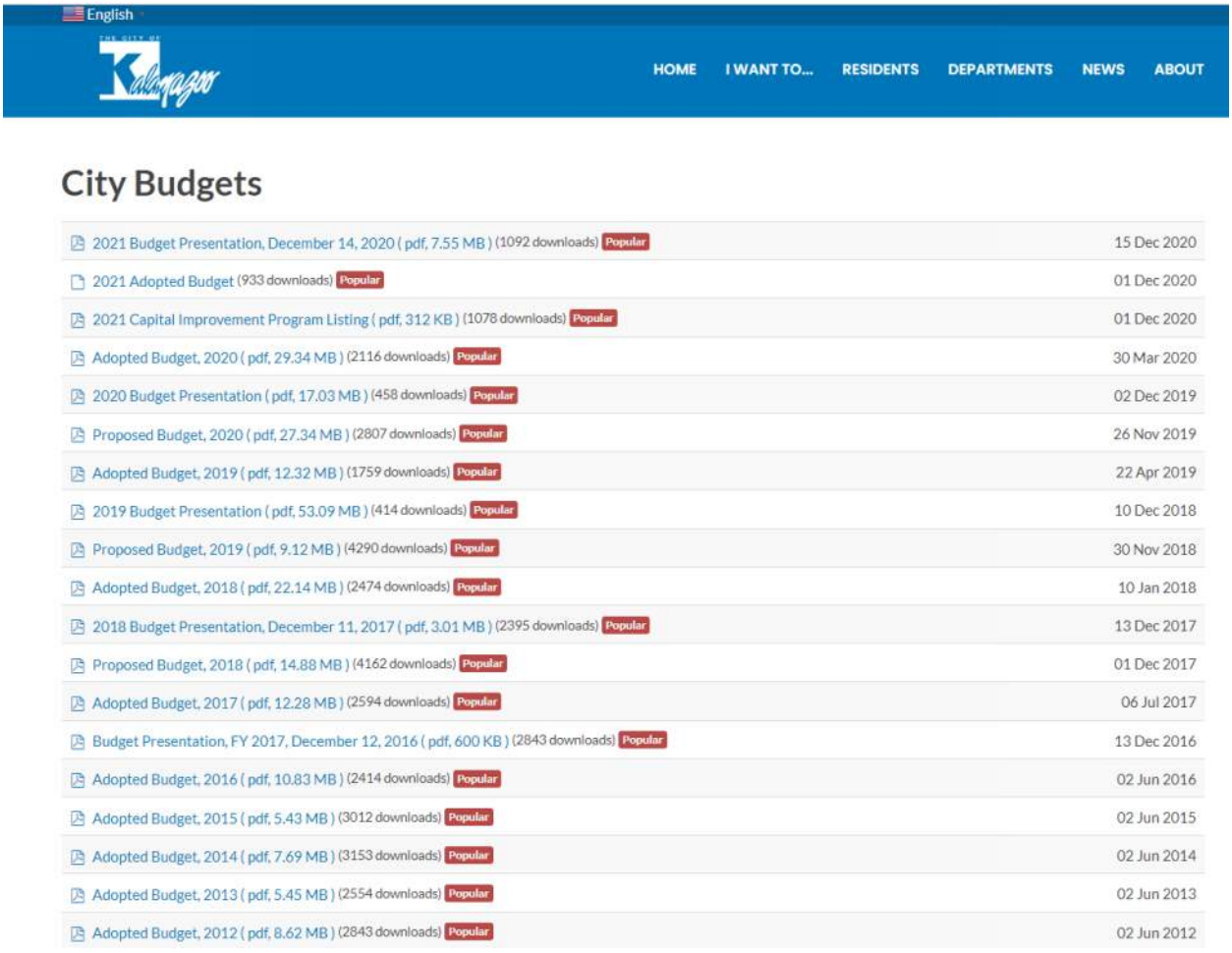
Link to Budget on City of Kalamazoo Website

https://www.kalamazoocity.org/budgets

Note: When you scroll to the bottom of the page you will see 2011 Adopted budget. There is also a button to click on page 2, which has 2008 through 2010 Adopted budgets.



Capital Improvements Plan

Section B2

CITY OF KALAMAZOO
WATER
CAPITAL IMPROVEMENT PROGRAM
2020 - 2025

PROJECT	PROJECT #	START YEAR	FUNDING SOURCE	PRIOR EXPENDITURES	ADOPTED 2020	AMENDED 2020	2021	2022	2023	2024	2025	PROJECT TOTAL
WATER SOURCE AND PUMPING												
wat0100012	WELL REPLACEMENT PROGRAM	ANNUAL	CITY	--	200,000	200,000	300,000	300,000	300,000	300,000	300,000	**1,700,000**
wat0200060	STA #22-ELEVATED STORAGE/BOOSTER	2007	CITY	5,379,058	-	822,636	-	-	-	-		**6,201,694**
wat0200062	WELL #4-6 REPLACEMENT	2015	CITY	60,000	-	170,200						**230,200**
wat0200063	WELL #8-5 REPLACEMENT	2015	CITY	10,738	-	64,462	-	-	-	-		**75,200**
wat0200066	HENSON & SHAFFER AIR RELEASE VALVES	2016	CITY	1,208	-	3,800	-	-	-	-		**5,007**
wat0200067	PUMP STATION #14 ROOF REPLACEMENT	2017	CITY	36,562	-	28,804	-	-	-	-		**65,365**
wat0200069	SAMPLE SITE UPGRADES	2018	CITY	4,226	-	50,281	-	-	-	-		**54,507**
wat0200073	STA #11 UPGRADES	2019	CITY	62,034	-	337,966	-	-	-	-		**400,000**
wat0200074	STA #8 BOOSTER PUMP REPLACEMENT	2019	CITY		-	-	100,000	1,000,000	-	-		**1,100,000**
wat0200075	STA #25 UPGRADES	2021	CITY	52,506	-	647,914	-	-	-	-		**700,420**
wat0200077	PHOSPHATE UPGRADE	2021	CITY	77,573	6,000,000	6,163,088	1,500,000	-	-	-		**7,740,661**
wat0200078	STATION ROADWAY IMPROVEMENTS	ANNUAL	CITY	--	70,000	111,859	70,000	70,000	70,000	70,000	70,000	**461,859**
wat0200080	SUPER HIGH PRESSURE DISTRICT TANK	2021	CITY	429,112	3,500,000	3,866,333	2,500,000	-	-	-		**6,795,445**
wat0200081	STA #39 GENERATOR	2021	CITY		-	-	-	-	600,000	-		**600,000**
wat0200082	STA #24 UPGRADES	2018	CITY	168,511	-	735,169	-	-	-	-		**903,680**
wat0200083	STA #5 BOOSTER PUMP HOUSE REPLACEMENT	2018	CITY	100,459	3,000,000	3,096,541		4,000,000	6,000,000	-		**13,197,000**
wat0200084	CENTRAL STATION PUMPING UPGRADES	2018	CITY		75,000	289,140	200,000	-	-	-		**489,140**
wat0200088	STATION #12 UPGRADES	2019	CITY	19,984	-	125,016	-	-	-	-		**145,000**
wat0200090	STATION #14 RECHARGE BASIN EROSION CONTR	2019	CITY	112,680	-	26,853	-	-	-	-		**139,533**
wat0200093	BLAKESLEE TANK LARGE VALVE REPLACEMENT	2019	CITY		-	-	-	50,000	200,000	-		**250,000**
wat0200094	CENTRAL PS SAND FILTER VALVE REPLACEMENT	ANNUAL	CITY	--	25,000	25,000	25,000	25,000	25,000	25,000	25,000	**150,000**
wat0200096	STA#10 UPGRADES	2019	CITY		180,000	97,604	-	-	-	-		**97,604**
wat0200097	CENTRAL PS AIR STRIPPER MEDIA RPLC	2020	CITY		500,000	500,000	-	-	-	-		**500,000**
wat0200098	CENTRAL PS GENERATORS	2020	CITY		-	-			150,000	2,000,000		**2,150,000**
wat0200099	CENTRAL PS WELL FIELD VALVE RPLC	2020	CITY		50,000	50,000	-	-	-	-		**50,000**
wat0200100	STA#25 GENERATOR	2020	CITY		-	-		100,000	600,000	-		**700,000**
wat0200101	STA#4 UPGRADES	2020	CITY		-	-	200,000	200,000	200,000	200,000	200,000	**1,000,000**
wat0200102	STA#12 UPGRADES	2019	CITY		-	-	150,000	-	-	-		**150,000**
wat0200103	STATION FACILITY UPGRADES	ANNUAL	CITY	--	50,000	-	50,000	50,000	50,000	50,000	50,000	**250,000**
wat0200104	STA#26 REPLACEMENT	2019	CITY		-	-	-	-		100,000	1,000,000	**1,100,000**
wat0200105	STA#9 FLOW CONTROL UPGRADE	2019	CITY		-	-	-	100,000	100,000	-	100,000	**300,000**
wat0200106	STATION PLC REPLACEMENT	2020	CITY		80,000	80,000	20,000	-	-	-		**100,000**
wat0200107	BARRINGTON SHORES PRESS REDUCING VALVES	2020	CITY		-	75,000	-	-	-	-		**75,000**
wat0200108	REPLACE PUMP AND MOTOR-STA#8	2020	CITY		-	35,000	-	-	-	-		**35,000**
wat0200109	REPLACE FREQUENCY DRIVES - PS #24	2020	CITY		-	23,000	-	-	-	-		**23,000**
wat0200110	REPLACE FREQUENCY DRIVES - PS #1	2020	CITY		-	15,000	-	-	-	-		**15,000**
wat0200111	CENTRAL PUMP STATION FILTRATION EXPANSION	2022	CITY							400,000	6,000,000	**6,400,000**
wat0200112	STA #11 GENERATOR	2022	CITY					600,000				**600,000**
wat0200113	STA#6 UPGRADES	2024	CITY							-	100,000	**100,000**
wat0200114	CENTRAL PUMP STATION ROOF REPLACEMENT	2024	CITY							100,000		**100,000**
wat0200115	STA #17 & #18 RECONSTRUCTION	2024	CITY							-	500,000	**500,000**
wat0200116	STATION GENERATOR INSTALLATIONS	ANNUAL	CITY				318,000	328,000	338,000	348,000	358,000	**1,690,000**

CITY OF KALAMAZOO
WATER
CAPITAL IMPROVEMENT PROGRAM
2020 - 2025

PROJECT	PROJECT #	START YEAR	FUNDING SOURCE	PRIOR EXPENDITURES	ADOPTED 2020	AMENDED 2020	2021	2022	2023	2024	2025	PROJECT TOTAL
WATER INFRASTRUCTURE - FUNDED BY CONTRIBUTIONS IN AID OF CAPITAL												
wat03xxxxx	WATER MAINS PROGRAM - DEVELOPMENT	ANNUAL	CIA	--	-	109,272	-	-	-	-		**109,272**
wat0300002	SMALL SERVICE CONNECTION	ANNUAL	CIA	--	515,000	1,020,628	1,000,000	1,030,000	1,061,000	1,093,000	1,126,000	**6,330,628**
wat03xxxxx	LARGE SERVICES PROGRAM	ANNUAL	CIA	--	-	38,808						**38,808**
WATER INFRASTUCTURE												
wat0400224	HYDRANT REPLACEMENT PROGRAM	ANNUAL	CITY	--	150,000	193,041	150,000	150,000	150,000	150,000	150,000	**943,041**
wat0500000	WATER MAIN PROGRAM	ANNUAL	CITY	--	-	-	-	-	-	4,000,000	1,000,000	**5,000,000**
wat0500002	VALVE IMPROVEMENT PROGRAM	ANNUAL	CITY	--	125,000	98,855	125,000	125,000	125,000	125,000	125,000	**723,855**
wat0500264	ROSE STREET MAIN REPLACEMENT	2017	CITY	348,589	-	17,076	-	-	-	-		**365,665**
wat0500300	CORK STREET - PORTAGE TO SPRINKLE	2018	CITY	119,259	1,500,000	3,540,741	-	-	-	-		**3,660,000**
wat0500302	BLAKESLEE WATER MAIN REPLACEMENT	2018	CITY		55,000	-	-	-	-	-		**-**
wat0500307	30TH STREET WATER MAIN CONSTRUCTION	2018	CITY	986,076	-	135,130	-	-	-	-		**1,121,206**
wat0500308	PORTAGE ST (STOCKBRIDGE TO WALNUT)	2018	CITY	11,628	-	10,050	2,500,000	-	-	-		**2,521,678**
wat0500319	OAKLAND DRIVE - HOWARD TO PARKVIEW	2019	CITY	110,520	2,200,000	2,848,819	-	-	-	-		**2,959,339**
wat0500320	FORESMAN WATER MAIN	2019	CITY	34,532	-	315,468	-	-	-	-		**350,000**
wat0500321	BANK STREET RE-ALIGNMENT	2019	CITY		100,000	106,794	-	-	-	-		**106,794**
wat0500322	RICHLAND WATER MAIN EXTENSION	2019	STATE	164,947	-	615,053	-	-	-	-		**780,000**
wat0500322	RICHLAND WATER MAIN EXTENSION	2019	CITY			1,120,694						**1,120,694**
wat0500342	COOPER TOWNSHIP WATER MAIN	2019	DWRF	-	-	254,358	-	-	-	-		**254,358**
wat0500343	GLENDALE BLVD WATER MAIN REPLACEMENT	2019	DWRF	-	-	13,044	838,200	-	-	-		**851,244**
wat0500346	BRACKETT AVE - WATER MAIN RELOCATION	2019	CITY	91,740	-	-	-	-	-	-		**91,740**
wat0500351	33RD ST WATER MAIN	2020	CITY	-	339,500	339,500	5,000,000	-	-	-		**5,339,500**
wat0500352	FELLOWS COURT WATER MAIN REPLACEMENT	2019	CITY	-	20,000	20,000	-	-	150,000	-		**170,000**
wat0500354	NEWTON COURT WATER MAIN REPLACEMENT	2019	CITY	-	20,000	20,000	-	-	150,000	-		**170,000**
wat0500355	PARKVIEW - OAKLAND TO GREENLEAF	2019	CITY	-	230,000	230,000	1,000,000	-	-	-		**1,230,000**
wat0500356	STOCKBRIDGE BRIDGE WATER MAIN RPL	2019	CITY	-	500,000	452,620	-	-	-	-		**452,620**
wat0500357	SUNVALLEY-ANGLING RD TO NORTH CUL-DE-SAC	2019	CITY	-	350,000	350,000	-	-	-	-		**350,000**
wat0500359	NEW COOPER TOWNSHIP WATER MAIN(DWRF)	2019	DWRF	-	2,000,000	2,000,000	8,448,625	-	-	-		**10,448,625**
wat0500362	ANGLING RD-CULVERT REPLACEMENT	2019	CITY		-	-	40,000	300,000	-	-		**340,000**
wat0500363	PRAIRIE-BLAKESLEE TO ALAMO	2019	CITY		-	-	-	-	30,000	300,000		**330,000**
wat0500364	RANSOM STREET RECONSTRUCTION	2020	CITY		-	-	-	150,000	750,000	750,000		**1,650,000**
wat0500368	26TH ST WATER MAIN EXTENSION	2019	CITY	1,647	-	-	-	-	-	-		**1,647**
wat0500369	CLARENDON WATER MAIN PROJECT	2019	CITY	-	-	10,000	-	-	-	-		**10,000**
wat0500379	RICHLAND WATER MAIN PROJECT (DWRF)	2020	DWRF	-	500,000	558,698	1,384,300	-	-	-		**1,942,998**
wat0500385	400 S ROSE ST - VALVE REPAIR	2020	CITY	-	-	26,145	-	-	-	-		**26,145**
wat0500388	BROWNELL CT WATER MAIN	2020	CITY	-	-	6,000	-	-	-	-		**6,000**
wat0500389	CROSSTOWN WATER MAIN REPLACEMENT	2020	CITY	-	-	800,000	-	-	-	-		**800,000**
wat0500393	WESTNEDGE (CORK - HOWARD)	2022	CITY					260,000	1,040,000			**1,300,000**
wat0500394	WHITES (OAKLAND - WESTNEDGE)	2022	CITY					335,000	1,340,000			**1,675,000**
wat0500395	MICHIGAN AVE (DOUGLAS - HARRISON/KALAMAZOO)	2023	CITY						500,000	3,000,000		**3,500,000**
wat0500396	ACADEMY STREET CULVERT MAIN	2024	CITY							103,000		**103,000**
wat0600029	LEAD SERVICE REPLACEMENT	ANNUAL	CITY	--	-	819,504	500,000	2,000,000	2,000,000	2,000,000	2,000,000	**9,319,504**
ffe5010001	KALAMAZOO CITY LEAD SERVICE REPLACEMENTS	2019	FFE	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	**3,500,000**

CITY OF KALAMAZOO
WATER
CAPITAL IMPROVEMENT PROGRAM
2020 - 2025

PROJECT	PROJECT #	START YEAR	FUNDING SOURCE	PRIOR EXPENDITURES	ADOPTED 2020	AMENDED 2020	2021	2022	2023	2024	2025	PROJECT TOTAL
wat0600083	RICHLAND SERVICE EXTENSIONS	2006	STATE	361	-	220,000	-	-	-	-		**220,361**
wat0600455	COOPER TOWNSHIP SERVICES	2019	STATE	217,064	-	567,790	-	-	-	-		**784,854**
wat0600456	PARCHMENT LEAD SERVICE REPLACEMENT	2019	DWRF	274,304	-	1,455,696	-	-	-	-		**1,730,000**
wat0600469	LEAD SERVICES (CITY OF KALAMAZOO) DWRF	2020	DWRF	-	2,000,000	2,000,000	7,528,585	-	-	-		**9,528,585**
wat0700013	PARCHMENT WATER METER REPLACEMENT	2019	CITY	402,043	-	47,957	-	-	-	-		**450,000**
WATER GENERAL CAPITAL												
wat0800000	BUDGET HOLDING-ACCOUNTING USE ONLY	ANNUAL	CITY		500,000	23,988	500,000	500,000	500,000	500,000	500,000	**2,523,988**
wat0800021	ASSET MGMT-MOBILE WORK ORDER	2011	CITY	48,358	-	6,161	-	-	-	-		**54,519**
wat0800033	SCADA HARDWARE AND SOFTWARE	2017	CITY	379,722	-	179,413	-	-	-	-		**559,135**
wat0800046	CENTRAL ROOF & MAU REPLACEMENT	2019	CITY	31,486	-	659,279	-	-	-	-		**690,765**
wat0800047	STOCKBRIDGE FACILITY UPGRADES	2019	CITY	98,312	1,000,000	1,010,924	-	-	-	-		**1,109,235**
wat0800048	ROOF REPLACEMENT PROGRAM	ANNUAL	CITY	--	25,000	25,000	25,000	25,000	25,000	25,000	25,000	**150,000**
TOTAL CAPITAL IMPROVEMENT PROGRAM				**10,335,237**	**26,359,500**	**40,407,171**	**34,972,710**	**12,198,000**	**16,954,000**	**16,139,000**	**14,129,000**	**145,135,118**
WATER CAPITAL OUTLAY (BY DIVISION)												
591-551	WATER ADMINISTRATION	ANNUAL	CITY	--	25,800	41,985	25,800	25,800	25,800	25,800	25,800	**170,985**
591-561	WATER PUMPING/SUPPLY	ANNUAL	CITY	--	51,500	81,500	51,500	51,500	51,500	51,500	51,500	**339,000**
591-562	WATER DISTRIBUTION	ANNUAL	CITY	--	3,350,000	3,117,024	1,500,000	1,500,000	2,000,000	6,000,000	6,000,000	**20,117,024**
591-564	WATER BUILDING SERVICES	ANNUAL	CITY	--	-	-	-					**-**
591-640	CITY FLEET	ANNUAL	CITY	--	1,560,000	1,560,000	857,000	900,000	900,000	900,000	900,000	**6,017,000**
TOTAL CAPITAL OUTLAY				**-**	**4,987,300**	**4,800,509**	**2,434,300**	**2,477,300**	**2,977,300**	**6,977,300**	**6,977,300**	**26,644,009**
GRAND TOTAL WATER CAPITAL				**10,335,237**	**31,346,800**	**45,207,680**	**37,407,010**	**14,675,300**	**19,931,300**	**23,116,300**	**21,106,300**	**171,779,127**
CAPITAL BY FUNDING SOURCE												
	BOND AND RESERVES		CITY	9,178,562	25,831,800	35,854,332	17,707,300	13,145,300	18,370,300	21,523,300	19,480,300	**135,259,394**
	DWRF BONDS		DWRF	274,304	4,500,000	6,281,796	18,199,710	-	-	-	-	**24,755,810**
	CONTRIBUTIONS IN AID OF CAPITAL		CIA	-	515,000	1,168,708	1,000,000	1,030,000	1,061,000	1,093,000	1,126,000	**6,478,708**
	FOUNDATION FOR EXCELLENCE		FFE	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	**3,500,000**
	PRIVATE/LOCAL GRANTS		LOCAL	-	-	-	-	-	-	-	-	**-**
	STATE GRANTS		STATE	382,371	-	1,402,844	-	-	-	-	-	**1,785,215**
	FEDERAL GRANTS		FEDERAL	-	-	-	-	-	-	-	-	**-**
GRAND TOTAL BY FUNDING SOURCE				**10,335,237**	**31,346,800**	**45,207,680**	**37,407,010**	**14,675,300**	**19,931,300**	**23,116,300**	**21,106,300**	**171,779,127**

Water System Rate and Fee Structure

Section B3

WASTEWATER COMMODITY CHARGES
(Rate Schedules "E" & "F")

Rate per cubic meter on all water used (see section on limitations below). Commodity charges are determined by Operating, Maintenance, and Replacement cost (OM&R) plus Capital expense. The components and total commodity charge for each customer class for accounts in the City and Outside the City are detailed below.

Customer Class	OM&R	Capital	Total Commodity Charge
City			
Residential	.704	(.106)	.598
Commercial	.704	(.106)	.598
Industrial	.704	(.106)	.598
Dewatering	.704	(.106)	.598
Outside City			
Residential	.704	.309	1.013
Commercial	.704	.309	1.013
Industrial	.704	.309	1.013
Dewatering	.704	.309	1.013
Municipalities: Master Meter	.512	.179	.691
Municipalities: Non-Master Meter	.589	.246	.835

Limitation on Wastewater Commodity Charges:

Establishment of Sewer Base:

***Small Users Quarterly:** Any quarterly wastewater customer that uses less than 200m; of water during the "winter quarter" (Nov. – Mar.) shall be given a sewer base during the remaining three quarters. The sewer base will be based on the actual usage during the winter quarter however, the maximum quantity billed for shall not exceed 120% of the sewer base established in the winter quarter.

***Small Users Monthly:** Any wastewater customer whose maximum monthly metered water consumption is less than 66m; during the winter months (Nov. – Apr.) shall be given a sewer base during the remaining six months. The sewer base will be based on the actual usage during the winter months however, the maximum quantity billed for shall not exceed 120% of the sewer base established in the winter months.

Large Users: Customers whose metered water consumption exceeds the above limits shall be billed based on actual metered water for all water used.

Special Sewer Metering: Customers with their own water supply require special metering or billing arrangements by ordinance. "Large users" disposing of some wastewater by other than the City wastewater system need special metering arrangements to correctly bill the sewer service. These arrangements are the responsibility of the customer and are subject to prior approval of the Wastewater Division.

How a Bill is Calculated:

The amount shown on the bill for water and for sewer includes an availability fee and a commodity charge.

Sample Billing Calculation

Quarterly residential customers inside the city with 5/8" meter using 70m of water, Schedule "A".

Water

Availability Fee, 5/8"	=	$35.45
Residential Commodity Charge City = .617 per m3 70m X .617	=	$43.19
Total Water	=	$78.64

Wastewater

Availability Fee, 5/8" meter	=	$10.35
Residential Commodity Charge City = .598 per m3 70m X .598	=	$41.86
Total Sewer	=	$52.21
Total Charge Water & Wastewater	**=**	**$130.85**

Water Service Installation Charges

The cost of a full water service line installation is $5,500. This Is the full connection from the water main to the meter setting.

The cost of a partial or yard service is $2,500. This is the Connection from an existing curb valve to the meter setting.

Customers should call 269-337-8000 to determine if they will need a full or partial installation. Unless confirmed, installations will be considered full and the customer will be required to pay the total due or sign a payment agreement prior to installation. The difference will be refunded if only a partial connection is needed.

Collection Policies: Charges for water and sewer are due 21 days after the billing date. After the due date the "gross" amount shown on the bill must be paid, which includes a 5% penalty. Accounts become delinquent 45 days after billing, and service may be discontinued until the bill and $60 collection fee are paid.

Availability Fee & Minimum Charge: This is a fee charged to all active accounts, even if there is no usage. It covers the cost to read and maintain the meter and to process the utility bill, while the service is on and available for use. This charge will be discontinued only when the customer responsible for the account requests the water to be turned off.

Meters: Meters for water customers are furnished and maintained by the City Utilities without charge. Only one customer's name is permitted on a single service. The size of the meter is determined by the Utility, based on peak demand flow required by the customer.

Township Surcharges: A township may elect to impose a Utility Improvement Surcharge. The City of Kalamazoo is contractually obligated to collect and forward the fee to the township office. Any questions regarding this improvement surcharge should be directed to the township office.

Surcharges: Wastewater of unusual strengths and characteristics will be charged special surcharges, according to ordinance. Questions on the application and interpretation of surcharges should be referred to the Wastewater Division, (269) 337-8157.

Billing Units

Kalamazoo's water meters measure in metric units. The billing unit is the cubic meter (m), which is equal to 264.2 gallons. Conversion to other measurements are shown below:

1 cubic meter (m)	=	1,000 liters
1 cubic meter (m)	=	.3531 x 100 cubic feet
1,000 gallons	=	3.785 cubic meters
100 cubic feet	=	2.832 cubic meters

Form No. 557 (Rev. 1/19/2021)

THE CITY OF

Kalamazoo

DEPARTMENT OF PUBLIC UTILITIES

Water and Wastewater Rate Schedules

March 1, 2021

General Office, Billing, and Customer Service:

City Hall
241 W. South Street
Kalamazoo, MI 49007
Phone: (269) 337-8149

Department of Public Services
415 E. Stockbridge Avenue
Kalamazoo, MI 49001
Phone: (269) 337-8660

WATER RATES

The charge for water service is the sum of the availability fee (determined by the size of the water meter) plus the commodity charge (determined by the amount of water used). Commodity rates vary depending on customer class (residential, multi-family, and commercial industrial).

Rates Outside the City of Kalamazoo

Customers outside the corporate limits of the City of Kalamazoo are charged the rates identified "outside city" in the following schedules:

Township Surcharges – Water
Oshtemo – 4%
Comstock – 3%
Kalamazoo – 3%

QUARTERLY WATER AVAILABLITY FEES (Rate Schedule "A")

For all small general and residential customers, billed every three months. Rates are based on a 90-day period.

Meter Size	City	Outside City
5/8-3/4"	$35.45	$37.04
1"	47.48	49.79
1-1/2"	59.52	62.55
2"	92.60	97.62
3"	323.86	354.93
4"	417.27	450.32
6"	623.16	672.89
8"	858.47	927.26

MONTHLY WATER AVAILABILITY FEES (Rate Schedule "B")

For commercial and other users large enough to warrant monthly billing. Rates are based on a 30-day period.

Meter Size	City	Outside City
5/8 – 3/4"	$15.38	$15.77
1"	19.40	20.02
1-1/2"	23.41	24.28
2"	34.45	35.98
3"	115.66	122.07
4"	145.74	153.96
6"	215.92	228.35
8"	296.12	313.38

WATER COMMODITY CHARGES (Rate Schedules "A" & "B")

Rates per cubic meter on all water used.

Customer Class	City	Outside City
Residential (1-3 dwelling units, includes mobile home parks)	$0.617	$0.711
Multi-Family Residential (4 or more Dwelling units)	0.482	0.516
Commercial/ Industrial (Includes institutional)	0.541	0.580

FIRE PROTECTION (Schedule "C")

For water service to accounts with fire protection systems.

Monthly Availability Fee

Rates are based on a 30-day period

Detector Check Size	City	Outside City
4"	$39.85	$43.06
6"	47.90	51.48
8"	64.44	68.77
10"	136.79	143.81

Commodity Charge

Per cubic meter

	City	Outside City
First 15m/month	$0.539	$0.578
Over 15m/month	1.615	1.737

Quarterly Availability Fee

Rates are based on a 90-day period

Size of Detector Check (inches)	City	Outside City
4"	$62.87	$70.00
6"	79.96	93.45
8"	117.70	142.07
10"	319.19	363.32

Fire Hydrants (all areas)**:**
$40.00 per year for each private fire hydrant maintained in service.

SEASONAL USE (Schedule "D")

For those water service accounts that are primarily seasonal in nature and demand, such as lawn sprinkling and air conditioning.

Monthly and Quarterly Availability Fees

Fees under this schedule are based on meter size and service area the account is in and are the same as in Schedules "A" and "B".

Commodity Charge

Rate per cubic meter on all water used.
City: $0.877 per cubic meter
Outside City: $1.012 per cubic meter

WASTEWATER RATES

The charge for wastewater treatment service is the sum of the availability fee (determined by the size of the water meter), plus the commodity charge, (determined by the amount of water used*). Commodity rates vary depending on customer class (residential, multi-family residential, commercial and industrial).

Rates Outside the City

Wastewater treatment customers outside the City of Kalamazoo are charged the rates identified "outside city" in the following schedules.

Township & City Surcharges - Sewer
Oshtemo – 16% (12/1/2020)
Comstock – 25%
Kalamazoo – 18% (4/1/2021)
Parchment – 35% (10/1/2020)
Texas – 15% (1/1/2021)

WASTEWATER CHARGES

All wastewater availability fees, inside and outside the City and both quarterly and monthly, contain a billing cost of $6.33 which is a portion of the operating, maintenance, and replacement (OM&R) fee. In addition to that amount, there is also a capital expense charge. These charges are determined by the meter size and are detailed for accounts in the City and Outside the City as follows:

CITY QUARTERLY BILLING (Rate Schedule "E")

Based on a 90-day period

Meter Size	OM&R	Capital	Total Minimum Charge
5/8"	$11.69	$(1.34)	$10.35
3/4"	12.23	(1.48)	10.75
1"	13.84	(1.88)	11.96
1 ½"	15.98	(2.42)	13.56
2"	21.89	(3.89)	18.00
3"	65.38	(14.80)	50.58
4"	81.49	(18.83)	62.66
6"	119.08	(28.26)	90.82

Flat Rate $61.17

OUTSIDE CITY QUARTERLY BILLING

Based on a 90-day period

Meter Size	OM&R	Capital	Total Minimum Charge
5/8"	$11.69	$4.08	$15.77
3/4"	12.23	4.49	16.72
1"	13.84	5.72	19.56
1 ½"	15.98	7.36	23.34
2"	21.89	11.86	33.75
3"	65.38	44.95	110.33
4"	81.49	57.21	138.70
6"	119.08	85.81	204.89

Flat Rate $102.74

CITY MONTHLY BILLING (Rate Schedule "E")

Based on a 30-day period

Meter Size	OM&R	Capital	Total Minimum Charge
5/8"	$8.11	$(0.44)	$7.67
3/4"	8.29	(0.49)	7.80
1"	8.83	(0.63)	8.20
1 ½"	9.55	(0.82)	8.73
2"	11.52	(1.31)	10.21
3"	26.00	(4.92)	21.08
4"	31.38	(6.28)	25.10
6"	43.90	(9.41)	34.49
Dewatering	6.33	(0.00)	6.33

OUTSIDE CITY MONTHLY BILLING

Based on a 30-day period

Meter Size	OM&R	Capital	Total Minimum Charge
5/8"	$8.11	$1.36	$9.47
3/4"	8.29	1.50	9.79
1"	8.83	1.91	10.74
1 ½"	9.55	2.45	12.00
2"	11.52	3.95	15.47
3"	26.00	15.00	41.00
4"	31.38	19.07	50.45
6"	43.90	28.61	72.51
Municipalities	6.33	0.00	6.33
Dewatering	6.33	0.00	6.33

Report on 2021 Water Rates

December 2020

TFG
THE FOSTER GROUP

TFG

THE FOSTER GROUP

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LEAWOOD, KS 66209
TEL: (913) 345-1410

THE FOSTER GROUP, LLC
BART FOSTER, PRESIDENT
CELL: (913) 530-6240
BFOSTER@FOSTERGROUPLLC.COM

December 16, 2020

Mr. James Baker
Public Services Director
City of Kalamazoo
415 Stockbridge Avenue
Kalamazoo, Michigan 49001-2898

Dear Mr. Baker:

THE FOSTER GROUP is pleased to present our "Report on 2021 Water Rates" for the City of Kalamazoo Department of Public Services. This report is designed to introduce our recommended water rate schedules for 2021.

The 2021 Water Rates have been calculated to support the penultimate step of the "glide path" towards Equalized Water Rates for City Customer and Township Customers starting in 2022, as established by the recently negotiated new service agreement for Township Customers. In order to implement that strategy, the report focusses on introducing revenue requirements and cost of service allocations for a 2022 Test Year – the year for which the initial Equalized Water Rates are intended to be implemented.

We appreciate this opportunity to be of service to the City of Kalamazoo.

Very truly yours,

THE FOSTER GROUP

Bart Foster
President

Enclosures

Table of Contents

Background

This report was prepared for the City of Kalamazoo, Michigan (the "City") to document analyses conducted to result in a schedule of proposed water rates designed to become effective in January 2021 (the "2021 Water Rates"). The 2021 Water Rates have been developed to implement the fourth year of a five-year "glide path" towards a strategic goal of equalizing rates between City Customers and Township Customers, as defined herein. A brief introduction of these basic customer classes is appropriate to introduce the approach used to establish the 2021 Water Rates.

The City of Kalamazoo owns and operates a water utility (the "System") that provides potable water service to residents and businesses inside the City limits of Kalamazoo and to residents and businesses located in various townships, cities, and villages located outside the City limits. All service is retail – there are not any customers of the System that purchase wholesale water. For purposes of establishing water rates, retail customers of the System have traditionally been classified as "City Customers" and "Township Customers", with the Township Customer class including all outside City customers.

Representatives of the City and the Townships have recently reached a new Water Services Agreement dictating how service will be provided to the Township Customers[1]. The new agreement embraces two core principles related to the development of water rates:

- Establish via contract a formal process for Township Customer representatives to have direct input to major decisions regarding the operations, maintenance, repair, replacement of the System, including financing plans, etc.;
- Equalize water rates between City Customers and Township Customers.

The second core principle ("Equalized Water Rates"), requires the parties to recognize and acknowledge:

- That traditional water rate development methodologies contained certain elements that resulted in lower rates for City Customers, and certain other elements that resulted in lower rates for Township Customers;

[1] A historical summary of water rate development for City Customers and Township Customers is set forth at the end of this report.

- A desire to establish a water rate methodology that results in shared benefits and simplifies the process of setting water rates;
- A willingness to implement Equalized Water Rates in a manner that embraces rate stability objectives.

Through negotiations of the new agreement, the parties have been working under the assumption that Equalized Water Rates would be accomplished by 2022, via a "glide path" designed to mitigate significant, one-time changes. Water rates over the past several years have implemented the glide path, which effectuates steady, uniform increases to City Customer water rates, and lower increases to Township Customer water rates.

The 2021 Water Rates are designed to reflect the penultimate step in the glide path, as water rates for 2022 will reflect the Equalized Rate provision of the new service agreement. This study has been prepared to recommend the 2021 Water Rates in accordance with that intent. Herein we calculate ***projected*** Equalized Rates for a 2022 Test Year, and ***proposed*** 2021 Water Rates designed to implement the strategy set forth by the agreement. **To the extent that the 2022 budget and service characteristics are not materially different from the projections in this report, it would be reasonable to implement the *projected* Test Year 2022 water rates in January 2022 without further modification.**

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Introduction

This report presents results of our calculations to prepare proposed Water Rates for 2021, (the "2021 Water Rates"). As noted in the Background, the principal objective of our study is to establish a schedule of water rates that reflects the conditions of the new service agreement with Township Customers. References to the new agreement are specifically set forth where appropriate in this report.

Any thorough evaluation of municipal utility rates contains three fundamental assessments, as noted below. This report is structured in a manner to present study findings that specifically address each of the assessments undertaken to develop the proposed 2020 Water Rates.

1. A ***Revenue Requirements*** analysis, designed to essentially answer the question *"How much money is needed?"* to support the utility's operating and capital financing functions;
2. A ***Cost of Services*** analysis, designed to allocated the revenue requirements to customer classes and answer the question *"From whom should the money be collected?"*; and
3. A ***Rate Design*** analysis, designed to answer the question *"How should services be priced?"* to equitably recover the allocated costs of service.

The purpose of this study is to prepare water rate calculations that accurately reflect the financial data, operating and capital budgets, and system usage projections in order to:

- Review and evaluate existing policies and procedures affecting water rates;
- Evaluate the adequacy of projected revenues under existing rates to meet projected revenue requirements;
- Develop a sound financial plan for the Water Utility covering a five-year study period for both ongoing operations and planned capital improvements;

- Allocate the Water Utility's projected revenue requirements to the various customer classes in accordance with the respective service requirements;
- Develop a suitable schedule of water rates which will produce revenues adequate to meet financial needs on a basis which recognizes customer costs of service, contractual commitments, and local policy considerations and objectives.

In order to produce recommended rates that embrace the City's rate stability objectives, and to implement the "glide path" to equalized water rates, we have conducted cost of service allocations for a "test year" of 2022 in this report. A test year is defined as a year for which revenue requirements are allocated to customer classes for purposes of designing water rates and charges. Our prior studies and reports have effectively aligned the test year with the upcoming budget year, since rates were designed with a single year focus. The strategy embedded in this study seeks to establish proposed water rate schedules that reflect the final step in the glide path.

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Chapter 1 - Revenue Requirements

"How much money is needed?"

The first evaluation goal of this study is the design of Revenue Requirements. For purposes of establishing proposed water rates, it is only necessary to establish such amounts for a single period. However, we believe that providing a longer-term revenue requirement forecast is beneficial to stakeholders as they review proposed modifications to water rate schedules. As such, the Revenue Requirements analysis provides a six-year (from 2020 through 2025) forecast[2] of potential operating and capital financing plans for the Water Utility. In reviewing these projections, stakeholders should take note that:

- The first year (2020) is ***estimated***, based on a review of 2020 budgeted, year to date actual, and estimated activity.
- The second year (2021) is ***proposed***, and supported by the City's official 2021 Budget Request and the water rate schedule being proposed herein.
- The next two year (2022) is ***forecasted***, and while it does not reflect any formal budget being acted upon by the City, analysis of projections for this years is fundamental to the Equalized Rate implementation strategy set forth in the proposed rates.
- The final three years (2023 through 2025) are ***forecasted***, and do not reflect any proposals for consideration or action.

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[2] *The projections set forth herein are intended as "forward-looking statements". In formulating these projections, we have made certain assumptions with respect to conditions, events, and circumstances that may occur in the future. The methodology we utilized in performing these analyses follows generally accepted practices for such projections. Such assumptions and methodologies are reasonable and appropriate for the purpose for which they are used. While we believe the assumptions are reasonable and the projection methodology valid, actual results may differ materially from those projected, as influenced by conditions, events, and circumstances that may actually occur. Such factors may include, among other things, the City's ability to execute the CIP as scheduled and within budget, regional climate and weather conditions affecting the amount of water sold and wastewater treated, and any adverse legislative, regulatory or legal decisions (including environmental laws and regulations) affecting the City's ability to manage the utilities and maintain compliance with regulations.*

The revenue requirement forecast summarized in this chapter of the report is similar in format to prior reports we have prepared on this topic.

Table 1 presents baseline customer usage and revenue projections, including projected Water Utility customer accounts, water sales volumes and revenue under the existing water rate schedule. The table introduces the information for Test Year 2022, but actually reflects static assumptions for the entirety of the forecast period. In arriving at these projections, we have conducted a detailed review of historical data. While there has been a recent moderate increase in customer accounts, water sales volumes have fluctuated moderately and we conclude that a stable forecast of units of service is reasonable. ***For purposes of this study, we have assumed that stability will continue, and have projected future water sales volumes equivalent to existing levels throughout the five-year study period. As a result, the projected billing units and overall revenue stream is "flat" for the study period.***

Note that the top of Table 1 consolidates units of service for both City Customers and Township Customers into Customer Classes differentiated by property and service type. In the Equalized Water Rate environment for Test Year 2022 there is no need to distinguish between City Customers and Township Customers in order to perform cost of service and rate design calculations. The bottom of the table separates the data for City Customers and Township Customers in order to support impact analysis of the Equalized Water Rates. This format continues throughout the report.

Annual operation and maintenance expenses of the Water Utility include costs related to payroll and benefits, chemicals, other supplies, power, natural gas, and other items. Projected operation and maintenance expense for the study period is shown in Table 2. The 2021 budget serves as the basis for the first year of the projections. Projections for the period 2022 through 2025 are based on budgeted 2021 levels adjusted to reflect increased costs due to inflationary factors.

The Water Utility makes two separate payments to finance costs related to "Other Post Employment Benefits" (OPEB). The first is related to the Water Fund's share of payments on bonds issued to finance a portion of the City's obligation on this matter, as shown on Line 10. Funds generated by these bonds are held in a specific trust, outside the City's

control. The agreement also requires annual deposits to that Trust. The Water Fund's share of those annual deposits is shown on Line 11. The City's accounting practices treats these payments as operating expenses, and the City's bond counsel has opined that they are operating expenses for purposes of complying with the City's water revenue bond ordinances.

Various inflation factors have been applied throughout the study period based on conversations with Utility financial management.

Table 3 presents a projected plan to finance the System's capital improvement program throughout the study period. The projected expenditures for the Water Utility Capital Improvement Program (CIP) for 2020 through 2025 are presented on Lines 1 through 10 of Table 3, in categories that support assignment of cost responsibility to cost pools and customers. The CIP was developed by Utility management and consists of capital improvement projects anticipated to be designed and constructed during the next five years. The CIP represents a significant increase in annual investments compared to recent years.

Lines 11 through 18 indicate capital financing sources. The forecasted sources reflect a strategic combination of bond issuances, revenue financing and use of reserves in a manner that supports the fiscal policies of the Water Utility.

The beginning balance figure shown on Line 11 for 2020 represents (as of December 31, 2019) remaining proceeds from revenue bonds issued in 2019 and 2020 plus an allocation of revenue generated funds that are not required for other reserve balances. Line 12 presents use of revenue generated funds to finance short lived assets contained in the CIP. To the extent that specific CIP projects are to be financed via contributions in aid of construction, those sources are shown on Line 13. The City has recently secured commitments from the Michigan Drinking Water Revolving Fund ("DWRF") to finance specific CIP projects with low interest loans. Reimbursements of amounts projected to be spent on those projects are illustrated on Line 14. Any additional capital financing is assumed to be financed via issuance of new revenue bonds, as presented on Lines 15 through 17. The capital financing plan is designed to provide sufficient year end Improvement Fund balances to carry over into subsequent years.

Utility Financial Policy

Table 4 presents a projected Operating Fund financing plan for the study period, developed within the framework of the Utility Financial Policy and to accommodate overall revenue stability. The original Utility Financial Policy was developed in 1995 to establish guiding principles when developing financial plans for the City's Water and Wastewater systems. The goals of the original Utility Financial Policy included:

1. Maintain a Reasonable Level of Reserves
2. Maintain the Net Worth of Both Systems
3. Uphold Obligations to Bond Holders
4. Keep Level of Debt and Debt to Equity Ratios Reasonable
5. Keep Rates at a Level Comparable to Other Michigan Utilities

The policy established guiding principles designed to meet these goals, which included:

1. Establish and maintain operating and capital reserve funds within a designated range.
2. Achieve annual debt service coverage ratios of 140%.
3. Protect owner's equity by providing revenue financing for the current capital improvement and reserve requirements that is at least equal to annual depreciation expense, less the principal payment portion of debt service.

The existing Utility Financial Policy seeks to achieve each of these principles, while acknowledging that circumstances may dictate that each may not be attained in every year. The key to sound financial planning and long-term utility financial health is achieving the appropriate balance of the three, while striving to realize all of them over the long-term.

The "core principles" envisioned by the new contract language include participation by Township Customer representatives in establishing recommended financial objectives and policies for the System.

Summarized in Table 4 are the annual revenues and revenue requirements showing end of year annual and cumulative balances and/or deficits of funds available for subsequent years' operations and indicated required increases in operating revenues.

Revenues under the existing rate schedule (as developed in Table 1) are presented on Line 1. The Operating Fund financing plan is designed based upon annual "system" rate increases of 14% in 2021 and 2022, and 7% for 2023 through 2025, as indicated on Lines 2 through 6[3]. Total projected revenue from water rates is shown on Line 7.

Other revenues from miscellaneous and non-operating sources are indicated on Lines 8 through 11, and result in total projected revenues on Line 12. The majority of the "other revenue on Line 8 is related to the Administrative Revenue Credit identified in Table 2.

Total revenue requirements are shown on Lines 13 through 23. Operation and maintenance expenses from Table 2 are brought forth to Line 13. Projected Payment in Lieu of Taxes (PILOT) to the City of Kalamazoo is shown on Line 14. ***The new contract language caps this amount at $300,000 annually, which has been reflected in these projections.***

Debt service is separated between that on existing bonds (Line 15), proposed revenue bonds (Line 16), and repayments of DWRF Loans (Line 17) – based on anticipated financing from Table 3. The debt service on the DWRF Loans reflects and interest rate of 2.0% and interest is only applied as amounts are drawn, creating an attractive financing vehicle. Transfers of operating funds to finance capital improvements are indicated on Lines 19 through 21. In addition, revenue requirements include any amounts necessary to maintain minimum reserve fund balances established as part of the Utility Financial Policy, as shown on Line 22.

Total revenue requirements are indicated on Line 23. The projected annual balance/deficit indicates the extent to which projected revenues can meet annual revenue requirements. Any deficits must be met from existing reserves, as limited by two factors: (1) projected actual Operating Fund balances compared to levels recommended by the Utility Financial Policy; and (2) annual debt service coverage requirements.

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[3] While the forecast is designed to support the City's rate stability objective, forecasted system rate increases after 2022 are merely projections and are NOT part of any formal recommendation as part of this report. The existence and magnitude of any subsequent rate increases for the Utility is largely predicated on the actual progress of the Capital Improvement Program and potential changes in the need for capital financing from what is represented in this report.

Projected Operating Fund activity is summarized on Lines 27 through 29 of the table. The projected cumulative Operating Reserve balances are shown on Line 29. Line 30 presents the minimum target balance in this reserve as established by the Utility Financial Policy.

Readers should recognize that the "system rate increase" figures discussed above represent **overall** System revenue increases. Based on the results of the cost of service analyses presented in this report, the cost of service based rate increases can be expected to vary from this average for the various customer classes.

Presented in Table 5 are summaries of the projected annual activity, and beginning and ending balances in the various funds of the Water Utility.

A graphical depiction of the financial forecast summarized in Tables 1 through 5 is contained in Appendix A to this report.

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Chapter 2 - Cost of Service Allocations

"From whom should the money be collected?"

Test Year Cost of Service

The revenue requirements to be derived from rates and charges for water service are synonymous with the definition of cost of service. The cost of service analyses described herein reflect an evaluation of the Test Year 2022 revenue requirements established in the prior section of the report.

The determination of the cost of service to be recovered through charges for water service is summarized in Lines 1 through 11 of Table 6. ***The depiction of revenue requirements in Table 6 is consistent with the new contract language.*** These lines summarize the cash basis revenue requirements. The total Test Year 2022 cost of service shown on Line 11 matches the projected rate revenue from water service shown on Line 7 in Table 4.

The cash basis revenue requirements are converted into their utility basis counterparts on Lines 12 through 16. The operation and maintenance expense and payment in lieu of taxes elements are expressed at the cash basis values. Test Year 2022 depreciation expense is projected based on a detailed evaluation of the Water Utility's fixed asset records and capital improvement program, and is shown on Line 14. This figure excludes depreciation expense associated with assets funded by contributions in aid of construction. Deducting depreciation expense and payment in lieu of taxes from the total cash basis capital requirements leaves the balance (Line 15) that represents the System return on rate base.

Prior to implementation of the Equalized Rate strategy, it was necessary to apply different approaches to determine the return on rate base allocable to the City Customers and Township Customers, as the applicable rate of return was different for each class. Under the Equalized Water Rates protocol, all customers are allocated costs of service based on application of a uniform rate of return. The Test Year 2022 rate of return reflects the total return on rate base divided by the rate base developed in a subsequent table. The uniform rate of return is 5.28% for Test Year 2022, as shown on Line 19 of Table 6.

Allocation to Functional Cost Components

In order to assign costs of service to customer classes, the costs much first be allocated to functional cost components that align with measures of how customers use the System. Each element of cost is allocated to functional cost components on the basis of the

parameter or parameters having the most significant influence on the magnitude of that element of cost.

Prior to implementation of the Equalized Rate strategy, it was necessary to establish "common to all" functional components and separate "City Customer only" and "Township Customer only" functional components. Under the Equalized Water Rates protocol all costs are effectively "common to all" and there is no such need to differentiate based on facility locality.

The functional components are designed following the base-extra capacity method of cost allocation, as summarized below:

- Source of supply and treatment facilities are considered "max day" facilities. Max day facility costs are allocated 47% to the Base component and 53% to the Max Day component based on a review of System production statistics.
- Transmission and distribution mains are considered "peak hour" facilities.
    - The cost allocation methodology recognizes that a portion of the costs associated with distribution mains are appropriately allocable based on "readiness to serve", rather than actual water use statistics. As such, one-third (33%) of distribution system costs are assigned to the Meters and Services component.
    - The remaining costs associated with distribution mains, and all of the costs associated with transmission mains, are allocated 35% to the Base component, 40% to the Max Day component, and 25% to the Peak Hour component, again based on a review of System production statistics.
- Reservoirs and elevated storage tank facilities exist primarily to meet peak hour requirements. Costs associated with these facilities are allocated 10% to the Base component, and 90% to the Peak Hour component.
- Operating costs related to chemicals reflect commodity costs only, irrespective of demand conditions. These costs are directly assigned to the Base component.
- Operating costs related to pumping reflect the fact that purchased electric costs, in addition to commodity charges, have a demand component. These costs are allocated 70% to the Base component, 15% to the Max Day component, and 15% to the Peak Hour component.
- Costs associated with service lines and meter installation and maintenance are directly assigned to the Meters and Services component.

- Costs associated with fire hydrant installation and maintenance are directly assigned to the Fire Protection component.
- Costs associated with meter reading and customer billing are directly assigned to the Billing component.
- All other "general" costs are allocated to functional components based on subtotal allocation percentages indicated by the directly allocated facilities.

Projected test year 2022 operation and maintenance expense that was presented in Table 4 is allocated to the functional cost components in Table 7. The allocation follows the approach and allocation factors outlined above.

Under the Utility Basis, the allocation of capital related costs to the various customer classes is based on the City's estimated investment in water system facilities. A summary of the projected Test Year 2022 capital asset values is presented in Table 8.

A detailed review of the System's fixed asset portfolio as of 12/31/19 served as the starting point for these projections. ***This analysis results in a schedule stipulated as "Appendix B" in the new water service agreement. The initial "Appendix B" is set forth (appropriately enough) as Appendix B to this report.*** We then added projected capital investments from the CIP, and deducted projected depreciation expense to arrive at the Test Year 2022 projections. The results are set forth in Table 8, which presents projected asset values for Original Cost, Accumulated Depreciation, Net Book Value, and Annual Depreciation Expense for each asset category. The table also identifies the estimated amount of each figure that was funded via a contribution in aid of construction (CIAC). The difference between the total amount and the CIAC portion is deemed to be "Local" and serves as the asset value for purposes of allocating costs of service to customers.

The allocation of estimated plant investment serving water customers is defined as the "rate base" under the Utility Basis for Test Year 2022 is shown in Table 9. This investment represents the projected original cost less depreciation of property, plant and equipment assets, as shown on Table 8. Total rate base on which the Water Utility is entitled to earn a return is the sum of net plant in service plus a working capital allowance of 90 days and inventory.

The allocation of rate base to the functional cost components follows the approach and allocation factors outlined above. On Line 14 the uniform rate of return of 5.28% from Table 6 is applied to the total rate base to compute allocated return on rate base of $6.11

million to functional components. Table 9 also indicates allocation of Test Year 2022 PILOT to cost components, shown on Line 15. PILOT is limited to $300,000 annually and is only allocated to Base and Extra Capacity functions.

The allocation of Test Year 2022 depreciation expense (as established in Table 8) to functional cost components follows the same approach, and is illustrated in Table 10.

The total cost responsibility of each class of service may be established by developing unit costs of service for each cost function. These "prices" may then be used to assign costs to customer classes in correlation with the level of service that each class is projected to purchase from the Water Utility, as determined by their respective Base, Extra Capacity, Customer, and Fire Protection units of service.

Units of Service

The number of units of service required by each customer class provides a means for the proportionate distribution of cost previously allocated to respective cost categories. Table 11 summarizes the development of units of service for the various customer classes.

The responsibility for base costs varies with the volume of water used and is distributed to customer classes on that basis. Extra capacity costs are those associated with meeting peak rates of water use, and are distributed to customer classes on the basis of their respective capacity requirements in excess of average rates of use.

In determining the responsibility of each customer class for extra capacity costs, non-coincidental peak requirements of the various classes are estimated on the basis of past experience in the study of the Kalamazoo system and other similar water utility systems. The manner by which customer class extra capacity requirements are determined is via application of max day and peak hour "peaking factors" to base (average daily) water sales. The most recent update to peaking factors for the Water Utility was conducted in support of the 2010 Water Rates. For the Single Family customer class, that study indicated higher peaking factors for Township Customers than for City Customers. The peaking factors for all other customer classes were uniformly established.

Prior to implementation of the Equalized Rate strategy, the different peaking factors for Single Family City Customers and Single Family Township Customers contributed to differential water rates for those customer classes. Under the Equalized Water Rates protocol all costs this differential is eliminated. The Single Family extra capacity

demands shown on Line 1 of Table 11 reflect a consolidated customer class approach for the City Customer and Township Customer demands.

The same approach is applied to the other customer classes, but since the peaking factors are uniform irrespective of locale, there is not differential impact for the Test Year 2022 units of service.

Determination of peaking factors and extra capacity demands for future cost of service studies will be aided by implementation of metering technology included in the CIP.

A portion of the maximum day and maximum hour costs are allocated directly to the fire protection class to recognize, in part, peak fire flow requirements established by the Insurance Services Office. A portion of distribution main costs, as well as service line and meter installation and maintenance costs, are allocated on the basis of the number of number of equivalent 5/8 inch connections. Meter reading and billing services and meter costs are allocated based on the number of bills for each customer class. Fire protection costs are allocated among classes based on their number of equivalent hydrants.

As previously introduced, the top of Table 11 presents the consolidated units of service used to determine the unit costs of service discussed in the subsequent section. The bottom of the table separates the data for City Customers and Township Customers in order to support impact analysis of the Equalized Water Rates.

Initial Cost of Service Allocations

Costs of service are allocated to the customer classes by application of unit costs of service to respective service requirements. Unit costs of service are based upon the total costs previously allocated to functional components and the total number of applicable units of service. Dividing the costs allocated to functional cost components by the respective total units of service requirements develops unit costs of operation and maintenance expense, payment in lieu of taxes, depreciation expense, and return on rate base.

Unit Costs of Service

Unit costs of service are established for Test Year 2022 in Table 12. The total units of service from Table 11 are indicated on Line 1. Total Test Year 2022 operation and maintenance expense, payment in lieu of taxes, depreciation expense, and rate base are shown allocated to functional cost component as taken from Tables 7, 9, and 10.

Unit costs are determined for each revenue requirement element and are indicated in Table 11. The total unit costs of service for each cost component are shown on Line 11 of the table.

Distribution of Costs of Service to Customer Classes

The customer class responsibility for service is obtained by applying the unit costs of service to the number of units for which the customer class is responsible. This process is illustrated for Test Year 2022 in Table 13, in which the unit costs of service from Table 12 are applied to the customer class units of service from Table 11. Individual elements are summed for each customer class to result in the total allocated test year cost of service indicated in Column 1.

Once again, the top of Table 13 presents the consolidated customer class cost of service allocations. The bottom of the table separates the results for City Customers and Township Customers in order to support impact analysis of the Equalized Water Rates.

Adequacy of Existing Rates to Meet Cost of Service

Presented in Table 14 is a comparison of the allocated Test Year 2022 cost of service and revenue under existing rates by individual customer class and for the System in total. The total allocated cost of service from Table 13 is shown in Column 1. These figures are then adjusted to reflect two specific policies employed by the Water Utility in developing water rates.

The first adjustment is related to the Utility's approach to recovery of costs associated with public fire protection. The City employs a policy that foregoes direct recovery of public fire protection costs from municipalities. These revenue requirements are recovered from all customers of the System based on their relative equivalent connections. Private fire protections costs continue to be limited to $40/hydrant/year, as established in the 1999 Report. The costs originally allocated to fire protection over and above these amounts must be recovered from all other customers of the system. This is accomplished in Column 2 of Table 14.

The second policy adjustment relates to cost of service rates established for the Seasonal customer class. The original cost of service allocated to this class would produce commodity water rates that are actually greater than the combined water and wastewater commodity charge for an entity that would seek Seasonal classification, effectively negating the rationale of the Seasonal class. An adjustment is calculated in Column 3 to

rectify this effect, and to allocate the adjusted revenue requirements to other customer classes, similar to the fire protection adjustment.

Applying the two adjustments produces the "Adjusted Allocated Cost of Service" for Test Year 2022 in Column 4. Column 5 presents the projected revenue under the existing (2020) rate structure for each customer class. Column 6 compares these values, and indicates the adequacy of existing rates to recover the ***adjusted*** allocated cost of service for all customer classes. As indicated on Line 10 of the table, the existing rates in total need to be increased by 30% percent to recover allocated Test Year 2022 costs of service. ***This is equivalent to the compounded projected annual System rate increases of 14% each year for 2021 and 2022 as identified in Table 4.***

The potential impacts of Test Year 2022 cost of service allocations on the various City Customer and Township Customer classes are illustrated at the bottom of the table. The different relative results for City Customers and Township Customers indicate the impact of fully implementing Equalized Water Rates for Test Year 2022.

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Chapter 3 – Rate Design

"How should services be priced?"

Potential Test Year 2022 "Ultimate" Water Rates

The Test Year 2022 cost of service allocations discussed in Chapter 2 establish a basis for design of ***potential*** water rates for Test Year 2022. As noted previously, the intent of this study and report is to prepare ***proposed*** water rates for 2021. In order to fully implement the rate stability strategy towards Equalized Water Rates, the "ultimate" equalized rates must first be determined.

The proposed water rate schedule will continue to consist 3 separate charges:

1. *Commodity Charges* applied to metered water sales. The commodity charges are designed to recover costs allocated to base and extra capacity functional components and will vary by customer class to reflect their respective extra capacity demands.
2. *Meter Service Charges* billed in equivalent monthly or quarterly amounts. These charges are designed to recover the costs allocated to the "customer" functional components and will vary based on meter size.
3. *Fire Protection Charges* billed in equivalent monthly or quarterly amounts. These charges are designed to recover the costs allocated to the fire protection functional component and will vary based on connection size.

Tables 15 and 16 illustrate the first step towards preparing an Equalized Water Rate schedule for Test Year 2022. Table 15 presents the calculation of commodity charges and meter service charges for "regular customers, or all rates other than fire protection charges. Commodity charges for each customer class are simply the result of dividing the allocated cost of service for base and extra capacity functional components from Table 13 (as slightly modified for the adjustments noted in Table 14) by the projected water sales from Table 1. The meter service charges are designed to uniformly recover allocated billing charges based on the number of bills for the class, and to graduate the allocated meter and service costs based on connection size.

Table 16 presents the fire protection charges for the detector check accounts. The commodity charge is limited to that applied to the Commercial customer class. The difference between the originally allocated commodity revenue requirement and this level is recovered via billing charges. A similar graduated scale, based on equivalent hydrant

ratios, is applied to allocated meter and service allocated meter and service and direct fire protection costs.

Test Year 2022 Rate Schedules

The current water rates are reflected under the "Existing Rates" column heading in Table 17. The potential Test Year 2022 water rate schedule is identical in format to the existing schedule. The different relative results for City Customers and Township Customers are generally consistent with the Test Year 2022 cost of service results. The percentage variances in Column 4 indicates the cumulative percentage adjustment in each rate element that would be required to implement the ultimate Equalized Water Rates for Test Year 2022. ***These indices establish the implementation strategy for the Proposed 2021 Water Rates discussed in the next section.***

Test Year 2022 Typical Bills

Typical bills shown in Table 18 indicate the potential impact of implementing the Test Year 2022 water rates on the Utility's various customers. Once again, the different relative results for City Customers and Township Customers are generally consistent with the Test Year 2022 cost of service results.

Proposed 2021 Water Rates

The proposed 2021 Rates are designed in a manner to accommodate a goal of rate stability, and reflect the penultimate step along the "glide path" to Equalized Water Rates in 2022, as set forth in the new contract language.

Water Rate Equalization Implementation Strategy

The Test Year 2022 Equalized Water Rate Schedules computed in the prior section establishes the "finish line" of the glide path. The strategy employed for the proposed 2021 Water Rates is simply to plan for two equal adjustments between existing rates and the finish line for each specific element of the rate schedule. The implementation of this strategy is illustrated in Table 19.

The relative percentage variances in Column 4 of Table 17 can be used to establish "Glide Path Annual Indices" necessary to implement the glide path. In effect the indices, which are shown in Column 2 of Table 19, represent one half (adjusted for compounding effects) of the overall percentage adjustment. For instance, in order to increase the existing Inside City Single Family commodity charge by 54.6% to arrive at the Test Year 2022 Equalized

Water Single Family commodity charge, it needs to be increased 26.2% annually in 2021, and then again in 2022. The proposed 2021 Water Rates simply reflect the first of these annual adjustments, as shown in Column 3 of the table.

Column 4 of the table indicates the *projected* rates for 2022. These projected rates are based on the second annual adjustment indicated by the glide path indices. Column 5 of the table indicates the *projected* Test Year 2022 rates, originally presented in Table 17. ***These projected rates are not NECESSARILY intended to represent rate proposals for 2022, as it is possible that updated Test Year 2022 cost of service study based on the 2022 budget and units of service may be conducted in later 2021. Having said that, to the extent that the 2022 budget and service characteristics are not materially different from the projections in this report, it would be reasonable to implement the projected Test Year 2022 water rates in January 2022 without further modification.***

Typical Bills

Typical bills shown in Table 20 indicate the projected impact of implementing the 2021 Water Rates on the Utility's various customers.

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Water Rate History

This section presents a brief historical discussion of water rates charged to City Customers and Township Customers, and developments over time that led to the negotiation of the new service agreement.

Prior to 1982, there were actually two separate Township Customer classes, designated as Service Area 1 and Service Area 2. Retail water rates to these customer classes were computed by applying a multiplier to the corresponding rates charged to City Customers. The multiplier was 1.25 for customers in Service Area 1 and 1.50 for customers in Service Area 2.

In 1981 the State of Michigan enacted Public Act 89, which (in summary) required any municipal utility that served customers outside its territorial limits, and which provided water service to over one percent of the population of the state, to compute water rates on the "Utility Basis" of ratemaking. The System met the definition set forth by the statute, and the City engaged a consultant (CH2M Hill) to conduct a water rate study using the Utility Basis. The CH2M Hill study resulted in recommended water rates for 1982, which the City proposed to implement. Township representatives objected to certain aspects of the rate methodology recommended by the CH2M Hill study, and discussions ensued. The parties agreed upon specific modifications to the recommended CH2M Hill methodology, resulting in an "agreement in principle" rate methodology. That methodology (the "1982 Methodology") was utilized to develop the 1982 Water Rates, which were approved by the City Commission and implemented in the spring of 1982.

The 1982 Methodology eliminated the Service Area 1 and Service Area 2 designations. A uniform schedule of water rates was established for all Township Customers. Water rates charged to City Customers and Township Customers continued to be different due to specific methodology approaches which recognized:

- Specific allocation of costs of distribution system facilities located inside the City to City Customers and of costs of distribution system facilities located outside the City to Township Customers;[4]
- Relative water use characteristics between City Customers and Township Customers;

[4] Under the 1982 Methodology depreciation expense on assets contributed (via contributions in aid of construction) to the System was included as a Utility Basis revenue requirement.

- A differential in the Utility Basis rate of return included in Township Customer rates compared to City Customer rates. The rate of return differential was "capped" by the 1982 Methodology agreement at 5%.

In essence, the 1982 Water Rates still resulted in a differential between Township Customer rates and City Customer rates that could be expressed as a multiplier. With respect to a quarterly water bill for a "typical" residential customer, the 1982 Water Rates produced a multiplier of 1.36. In other words, the water bill to a "typical" residential Township Customer was 1.36 times that of a similar customer in the City.

The 1982 Methodology remained in place through 2017, and the overarching principles regarding the development of water rates remained consistent over time. Many minor adjustments were implemented over the years, as reflected in water rate studies that implemented the 1982 Methodology through various cost of service studies. There were two more material adjustments during this time.

Water rates developed for 2004 initiated a three-year phase out of the five percent cap on the differential in the rate of return applied to Township Customers and City Customers under the 1982 Methodology. Water rates computed for 2006, the third and final year of the phase out, computed a rate of return for Township Customers that employed a methodology in alignment with the ***wastewater*** rate methodology employed by the City, which limited the rate of return via contractual and legal agreements.

Water rates developed for 2010 continued to employ the basic 1982 Methodology, as moderately adjusted in 2004. However, as part of that study, certain of the major water rate methodology assumptions and approaches, which had been static since 1982, were subjected to a rigorous review and modifications were made. Those modifications were documented in a January 2010 report (the "2010 Report") and its appendices, and included a change in approach to certain aspects. The slightly modified "2010 Methodology":

- Continued to specifically allocate costs of distribution system facilities located inside the City to City Customers and of costs of distribution system facilities located outside the City to Township Customers;
- Eliminated depreciation expense on contributed assets as a Utility Basis revenue requirement;
- More definitively recognized relative water use characteristics – specifically differential peak residential water use characteristics - between City Customers and Township Customers;

- Completely eliminated any artificial limitations on the Utility Basis rate of return included in Township Customer rates, and employed a "reasonableness" standard.

The 2010 Methodology was employed to update water rates in 2011, 2012, and 2014.

Subsequent to implementation of the 2014 Water Rates, in early 2015 the City entered negotiations with Township Customer representatives in an effort to establish a new water service agreement. The parties discussed possible modifications and/or refinements to existing water rate methodologies, and the mechanisms for recognizing such methodologies in a service agreement. Negotiations continued through December 2016 without producing an agreement, and in January 2017 the City increased all water rates "across the board" by 8.0% (resulting in the "2017 Water Rates").

Over time (from 1982 through 2017) the relative Township Customer / City Customer "multiplier" ranged from 1.32 to 1.88. The principal elements that created variances in this metric are related to different capital structures, financing plans, debt levels, and resulting rate of return calculations. The effective multiplier under the 2017 Water Rates was 1.66.

Negotiations continued through December 2017, again without producing an agreement. Through the discussions the parties gained additional knowledge regarding specific assets of the System, and began to develop some core principles for an agreement. The 2010 Methodology was employed, along with the knowledge gained during the negotiations, to calculate water rates for 2018. The 2018 Water Rates were actually designed to serve as the initial year of three-year phase in implementation plan of knowledge gained during the negotiations, in order to achieve rate stability objectives. The expectation embraced by the 2018 Water Rates was that a modified version of the 2010 Methodology would emerge from the negotiations that would continue to differentiate water rates between City Customers and Township Customers.

Negotiations continued through December 2018, again without producing an agreement. However new core principles emerged through the discussions, which are embraced in the new service agreement and are set forth earlier in this report. The core principles were utilize to establish water rate schedules for 2019 and 2020, which served as initial steps along the "glide path" towards Equalized Water Rates.

Report Tables

Table 1
Water Utility

Baseline Units of Service and Revenue Projections
Test Year 2022

Line No.		(1) Estimated Accounts	(2) Estimated Sales	(3) Estimated Revenue
	REGULAR CUSTOMERS			
1	Single Family	36,695	9,533,800	10,999,000
2	Multi-Family	1,834	3,408,200	2,084,800
3	Commercial/Industrial	3,556	8,239,800	4,987,200
4	Seasonal	291	954,500	442,800
5	Subtotal	42,376	22,136,300	18,513,800
	FIRE PROTECTION			
6	Detector Checks	918	14,000	493,900
7	Private Hydrants	801		32,000
8	Subtotal	1,719	14,000	525,900
9	TOTAL	44,095	22,150,300	19,039,700
	Customer Class Detail			
	City Customers			
10	*Single Family*	*18,187*	*4,073,900*	*4,259,100*
11	*Multi-Family*	*964*	*1,753,500*	*971,900*
12	*Commercial/Industrial*	*2,116*	*5,260,400*	*2,963,200*
13	*Seasonal*	*175*	*520,500*	*195,000*
14	*Subtotal*	*21,442*	*11,608,300*	*8,389,200*
	City Fire Protection			
15	*Detector Checks*	*513*	*10,800*	*253,700*
16	*Private Hydrants*	*350*		*14,000*
17	*Subtotal*	*863*	*10,800*	*267,700*
18	*Total City Customers*	*21,955*	*11,619,100*	*8,642,900*
	Township Customers			
19	*Single Family*	*18,508*	*5,459,900*	*6,739,900*
20	*Multi-Family*	*870*	*1,654,700*	*1,112,900*
21	*Commercial/Industrial*	*1,440*	*2,979,400*	*2,024,000*
22	*Seasonal*	*116*	*434,000*	*247,800*
23	*Subtotal*	*20,934*	*10,528,000*	*10,124,600*
	Township Fire Protection			
24	*Detector Checks*	*405*	*3,200*	*240,200*
25	*Private Hydrants*	*451*		*18,000*
26	*Subtotal*	*856*	*3,200*	*258,200*
27	*Total Township Customers*	*21,339*	*10,531,200*	*10,364,800*

Table 2
Water Utility

Estimated and Projected Operation and Maintenance Expenses
Forecast Period 2021-2025

Line No.		(1)	(2)	(3)	(4)	(5)
		Projected				
		2021	2022	2023	2024	2025
		$	*$*	*$*	*$*	*$*
1	Personnel	5,169,100	5,298,400	5,430,800	5,566,500	5,705,700
	Supplies					
2	Chemicals	784,000	807,500	831,700	856,700	882,400
3	Other	1,572,100	1,619,300	1,667,900	1,717,900	1,769,400
4	Subtotal	2,356,100	2,426,800	2,499,600	2,574,600	2,651,800
	Services					
5	Power	2,105,000	2,168,200	2,233,200	2,300,200	2,369,200
6	Gas	57,000	58,700	60,500	62,300	64,200
7	Other	5,898,200	6,075,200	6,257,400	6,445,100	6,638,400
8	Subtotal	8,060,200	8,302,100	8,551,100	8,807,600	9,071,800
9	Subtotal "Normal" O&M Budget	15,585,400	16,027,300	16,481,500	16,948,700	17,429,300
10	OPEB Amortization	551,500	551,500	551,500	551,500	551,500
11	OPEB Fund Deposit	283,600	283,600	283,600	283,600	283,600
12	**Total O&M Expense**	**16,420,500**	**16,862,400**	**17,316,600**	**17,783,800**	**18,264,400**
13	*less: Administrative Revenue Credit (a)*	*(1,333,700)*	*(1,373,700)*	*(1,414,900)*	*(1,457,300)*	*(1,501,000)*
14	*Net O&M to Recover from Rates*	*15,086,800*	*15,488,700*	*15,901,700*	*16,326,500*	*16,763,400*

(a) Charged to Other City Funds to recover costs of combined Public Services activities budgeted in Water.

Table 3
Water Utility

Estimated and Projected Capital Improvement Program Flow of Funds
Forecast Period 2021-2025

Line No.		*0* Estimated 2020 $	(1) Projected 2021 $	(2) 2022 $	(3) 2023 $	(4) 2024 $	(5) 2025 $
	CIP Financing Requirements						
1	Water Pumping	6,687,300	2,647,600	11,501,200	6,889,800	2,940,200	7,216,500
2	Elevated Storage Tank	2,215,600	1,672,300	845,900	3,421,300	0	0
3	Transmission Mains	2,781,800	6,271,100	1,894,900	3,058,800	6,399,600	914,500
4	Distribution Mains	2,244,100	7,231,700	1,353,500	268,800	327,500	0
5	Service Connections	1,908,600	6,039,400	5,126,300	2,493,500	2,513,500	2,541,000
6	Water Metering Devices	1,424,300	1,003,400	2,537,800	1,629,200	4,875,900	4,877,100
7	Hydrants	95,000	100,300	253,800	122,200	121,900	121,900
8	Subtotal	17,356,700	24,965,800	23,513,400	17,883,600	17,178,600	15,671,000
9	Water General	1,236,600	1,502,300	3,466,000	1,671,300	1,507,300	1,510,100
10	**Total Requirements**	18,593,300	26,468,100	26,979,400	19,554,900	18,685,900	17,181,100
	CIP Financing Sources						
11	Beginning Balance	31,247,600	15,687,800	2,198,700	1,751,700	1,454,700	1,357,900
12	Operating Fund Transfers	1,533,500	2,979,000	2,282,700	4,552,900	3,884,100	4,938,600
13	Contributions in Aid of Constructio	0	0	0	0	0	0
14	DWRF Reimbursements	1,500,000	10,000,000	14,469,700	0	0	0
15	Projected Bond Issues	0	0	10,000,000	15,000,000	15,000,000	12,500,000
16	less: Issuance Expenses	0	0	(220,000)	(295,000)	(295,000)	(257,500)
17	Net Bond Proceeds	0	0	9,780,000	14,705,000	14,705,000	12,242,500
18	**Total Sources**	34,281,100	28,666,800	28,731,100	21,009,600	20,043,800	18,539,000
19	Ending Balance	15,687,800	2,198,700	1,751,700	1,454,700	1,357,900	1,357,900

Table 4
Water Utility

Estimated and Projected Operating Fund Financing Plan *(Revenues and Revenue Requirements)*
Forecast Period 2021-2025

Line No.		*0* Estimated 2020 $	(1) Projected 2021 $	(2) 2022 $	(3) 2023 $	(4) 2024 $	(5) 2025 $
	Revenue						
	Operating Revenue						
1	Revenue @ Existing Rates	18,925,300	19,039,700	19,039,700	19,039,700	19,039,700	19,039,700
	Projected Rate Increases						
2	2021 Rate Increase 14.0%		2,665,600	2,665,600	2,665,600	2,665,600	2,665,600
3	2022 Rate Increase 14.0%			3,038,700	3,038,700	3,038,700	3,038,700
4	2023 Rate Increase 7.0%				1,732,100	1,732,100	1,732,100
5	2024 Rate Increase 7.0%					1,853,300	1,853,300
6	2025 Rate Increase 7.0%						1,983,100
7	Total Rate Revenue	18,925,300	21,705,300	24,744,000	26,476,100	28,329,400	30,312,500
8	Other	1,810,500	1,810,500	1,864,800	1,920,700	1,978,300	2,037,600
	Non-Operating Revenue						
	Interest Income						
9	Operating Fund	48,400	49,400	45,700	54,700	57,100	65,400
10	Other Funds	336,100	78,100	57,000	60,400	64,600	68,700
11	Other	5,000	5,000	5,200	5,400	5,600	5,800
12	**Total Revenue**	21,125,300	23,648,300	26,716,700	28,517,300	30,435,000	32,490,000
	Revenue Requirements						
13	Operation and Maintenance	15,876,200	16,420,500	16,862,400	17,316,600	17,783,800	18,264,400
14	Payment In Lieu of Taxes	623,100	623,100	300,000	300,000	300,000	300,000
	Debt Service						
15	Existing Revenue Bonds	2,897,100	3,901,200	3,915,800	3,911,100	3,912,400	3,919,700
16	Proposed Bonds	0	0	360,000	1,153,300	2,073,300	2,903,300
17	DWRF Loans	60,200	510,200	1,447,000	1,448,400	1,584,300	1,585,000
18	Total Debt Service	2,957,300	4,411,400	5,722,800	6,512,800	7,570,000	8,408,000
	Transfers to the Improvement Fund						
19	Revenue Designated CIP	1,533,500	1,765,800	2,198,700	1,751,700	1,454,700	1,357,900
20	Other Major CIP	0	1,213,200	84,000	2,801,200	2,429,400	3,580,700
21	Total Revenue Funded Improvements	1,533,500	2,979,000	2,282,700	4,552,900	3,884,100	4,938,600
22	Req'd Transfer to Emerg Cap Fund	112,600	81,700	66,300	68,100	70,100	72,100
23	Total Revenue Requirements	21,102,700	24,515,700	25,234,200	28,750,400	29,608,000	31,983,100
24	Annual Balance/(Deficit)	22,600	(867,400)	1,482,500	(233,100)	827,000	506,900
25	Use of Reserves	22,600	(867,400)	1,482,500	(233,100)	827,000	506,900
26	Rate Covenant DS Coverage	177%	164%	172%	172%	167%	169%
27	Beginning Balance	3,781,300	3,803,900	2,936,500	4,419,000	4,185,900	5,012,900
28	Net Operations	22,600	(867,400)	1,482,500	(233,100)	827,000	506,900
29	Cumulative Operating Reserve Balance	3,803,900	2,936,500	4,419,000	4,185,900	5,012,900	5,519,800
30	*Minimum Target Balance*	*3,969,100*	*4,105,100*	*4,215,600*	*4,329,200*	*4,446,000*	*4,566,100*

Table 5
Water Utility

Estimated and Projected Fund Balances Under Projected Rates *(Excludes Bond Reserve Account)*
Forecast Period 2021-2025

Line No.		*0* Estimated 2020 $	(1) Projected 2021 $	(2) 2022 $	(3) 2023 $	(4) 2024 $	(5) 2025 $
	Improvement Fund						
1	Beginning Balance	31,247,600	15,687,800	2,198,700	1,751,700	1,454,700	1,357,900
	Deposits						
2	Net Transfers & CIA	1,533,500	2,979,000	2,282,700	4,552,900	3,884,100	4,938,600
3	Bond Proceeds	0	0	9,780,000	14,705,000	14,705,000	12,242,500
4	DWRF Reimbursements	1,500,000	10,000,000	14,469,700	0	0	0
	Withdrawals						
5	Capital Expenditures	(18,593,300)	(26,468,100)	(26,979,400)	(19,554,900)	(18,685,900)	(17,181,100)
6	Ending Balance	15,687,800	2,198,700	1,751,700	1,454,700	1,357,900	1,357,900
	Operating Reserve Fund *(a)*						
7	Beginning Balance	3,781,300	3,803,900	2,936,500	4,419,000	4,185,900	5,012,900
8	Net Operations	22,600	(867,400)	1,482,500	(233,100)	827,000	506,900
9	Ending Balance	3,803,900	2,936,500	4,419,000	4,185,900	5,012,900	5,519,800
	Emergency Capital Reserve Fund *(a)*						
10	Beginning Balance	2,268,800	2,381,400	2,463,100	2,529,400	2,597,500	2,667,600
	Deposits						
11	Net Transfers	112,600	81,700	66,300	68,100	70,100	72,100
	Withdrawals						
12	Transfer to Imp. Fund	0	0	0	0	0	0
13	Ending Balance	2,381,400	2,463,100	2,529,400	2,597,500	2,667,600	2,739,700
14	**Total Ending Balance**	21,873,100	7,598,300	8,700,100	8,238,100	9,038,400	9,617,400
15	*(a) Subtotal "Reserves"*	*6,185,300*	*5,399,600*	*6,948,400*	*6,783,400*	*7,680,500*	*8,259,500*

Table 6
Water Utility

Cost of Service to be Recovered from Rates
Test Year 2022

Line No.		(1) O&M Expense $	(2) Capital Costs $	(3) Total $
	Revenue Requirements			
1	Operation and Maintenance Expense *(a)*	14,653,600		14,653,600
2	OPEB Debt Service and Contribution	835,100		835,100
3	Debt Service		5,722,800	5,722,800
4	Payment in Lieu of Taxes		300,000	300,000
5	Revenue Financed Capital & Reserves		2,349,000	2,349,000
6	Total Revenue Requirements	15,488,700	8,371,800	23,860,500
	Less Other Income Sources			
7	Interest Income	(21,600)	(86,300)	(107,900)
8	Other Income	(491,100)		(491,100)
9	Available Operating Reserves		1,482,500	1,482,500
10	Total Other Sources	(512,700)	1,396,200	883,500
11	Total Cost of Service to be Recovered From Rates	14,976,000	9,768,000	24,744,000
	Total Cost of Service on a Utility Basis			
12	*Operation and Maintenance Expense*	*14,976,000*		*14,976,000*
13	*Payment in Lieu of Taxes*		*300,000*	*300,000*
14	*Depreciation Expense Recovered*		*3,357,000*	*3,357,000*
15	*Return on Rate Base*		*6,111,000*	*6,111,000*
16	*Total Cost of Service to be Recovered from Rates*	*14,976,000*	*9,768,000*	*24,744,000*
	Rate of Return Calculation			
17	Return on Rate Base *(from Line 15)*		*6,111,000*	
18	Rate Base *(from Table 9)*		*115,769,500*	
19	Rate of Return *(18) / (17)*		*5.28%*	

(a) *Net of Administrative Revenue Credit*

Table 7
Water Utility

Allocation of Operation and Maintenance Expense to Functional Cost Components
Test Year 2022

Line No.		Allocation Basis	(1) Total	(2) Base	(3) Extra Capacity Max Day	(4) Extra Capacity Peak Hour	(5) Customers Meters and Services	(6) Customers Billing	(7) Fire Protection
1	Administrative & General		2,979,600	778,900	880,200	92,400	764,100	370,300	93,700
	Supply & Pumping								
2	Source of Supply	*Max Day*	921,100	432,900	488,200	0	0	0	0
3	Pumping - Power	*Power*	2,056,700	1,439,700	308,500	308,500	0	0	0
4	Pumping - Other	*Max Day*	927,200	435,800	491,400	0	0	0	0
5	Treatment - Chemicals	*Base*	806,200	806,200	0	0	0	0	0
6	Treatment - Other	*Max Day*	375,500	176,500	199,000	0	0	0	0
7	Supply/Pumping/Treatment Maint	*Max Day*	1,613,800	758,500	855,300	0	0	0	0
8	Total Supply & Pumping		6,700,500	4,049,600	2,342,400	308,500	0	0	0
	Distribution System								
9	Distribution Operations	*Subtotal*	66,400	7,700	8,800	5,500	39,000	0	5,400
10	Main Maintenance	*Mains*	1,499,200	351,600	401,800	251,100	494,700	0	0
11	Service Lines	*Svcs*	1,277,700	0	0	0	1,277,700	0	0
12	Hydrants	*Hydrs*	244,500	0	0	0	0	0	244,500
13	Jobbing	*Subtotal*	0	0	0	0	0	0	0
14	System Maintenance	*Subtotal*	0	0	0	0	0	0	0
15	General Maintenance	*Subtotal*	63,900	0	0	0	53,600	0	10,300
16	Total Distribution System		3,151,700	359,300	410,600	256,600	1,865,000	0	260,200
	Commercial Activities								
17	Meter Reading	*Cust*	257,100	0	0	0	0	257,100	0
18	Meter Maintenance	*Eq Mtrs*	257,100	0	0	0	257,100	0	0
19	Customer Billing / Cust Svc	*Cust*	771,300	0	0	0	0	771,300	0
20	Total Commercial Activities		1,285,500	0	0	0	257,100	1,028,400	0
21	Building Services	*Subtotal*	671,500	175,500	198,400	20,800	172,200	83,500	21,100
22	Fleet	*Subtotal*	699,900	699,900	0	0	0	0	0
23	**GRAND TOTAL O&M**		**15,488,700**	**6,063,200**	**3,831,600**	**678,300**	**3,058,400**	**1,482,200**	**375,000**
24	less: Credit for Other Income		(512,700)	(200,700)	(126,800)	(22,500)	(101,200)	(49,100)	(12,400)
25	Net Allocated Total		**14,976,000**	**5,862,500**	**3,704,800**	**655,800**	**2,957,200**	**1,433,100**	**362,600**

Table 8
Water Utility

Development of Capital Asset Values for Cost of Service
Test Year 2022

Line No.		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
		Original Cost			Accumulated Depreciation			Original Cost Less Depreciation			Annual Depreciation Expense		
			Funding			Funding			Funding			Funding	
		Total	CIAC	Local	Total	CIAC	Local	Total	CIAC	Local	Total	CIAC	Local
1	Water Pumping	60,341,500	1,124,500	59,217,000	25,958,400	735,300	25,223,100	34,383,100	389,200	33,993,900	1,050,800	17,200	1,033,600
2	Elevated Storage Tank	12,811,200	0	12,811,200	4,660,800	0	4,660,800	8,150,400	0	8,150,400	240,900	0	240,900
3	Transmission Mains	22,877,900	7,641,300	15,236,600	5,722,500	3,570,000	2,152,500	17,155,400	4,071,300	13,084,100	283,400	146,900	136,500
4	Distribution Mains	74,273,200	47,945,100	26,328,100	28,745,000	22,271,700	6,473,300	45,528,200	25,673,400	19,854,800	1,194,200	887,400	306,800
5	Service Connections	57,619,500	35,411,800	22,207,700	18,901,500	15,862,600	3,038,900	38,718,000	19,549,200	19,168,800	1,048,200	611,300	436,900
6	Water Metering Devices	13,852,400	0	13,852,400	8,081,900	0	8,081,900	5,770,500	0	5,770,500	561,500	0	561,500
7	Hydrants	10,759,300	7,465,500	3,293,800	4,278,100	3,188,600	1,089,500	6,481,200	4,276,900	2,204,300	194,700	141,500	53,200
8	Subtotal	252,535,000	99,588,200	152,946,800	96,348,200	45,628,200	50,720,000	156,186,800	53,960,000	102,226,800	4,573,700	1,804,300	2,769,400
9	Water General	14,222,400	0	14,222,400	6,574,400	0	6,574,400	7,648,000	0	7,648,000	587,600	0	587,600
10	**TOTAL**	266,757,400	99,588,200	167,169,200	102,922,600	45,628,200	57,294,400	163,834,800	53,960,000	109,874,800	5,161,300	1,804,300	3,357,000

Table 9
Water Utility

Allocation of Rate Base to Functional Cost Components
Test Year 2022

Line No.		Allocation Basis	(1) Total	(2) Base	(3) Extra Capacity Max Day	(4) Extra Capacity Peak Hour	(5) Customers Meters and Services	(6) Customers Billing	(7) Fire Protection
1	Water Pumping	*Max Day*	33,993,900	15,977,100	18,016,800	0	0	0	0
2	Elevated Storage Tank	*Storage*	8,150,400	815,000	0	7,335,400	0	0	0
3	Transmission Mains	*Peak Hour*	13,084,100	4,579,500	5,233,600	3,271,000	0	0	0
4	Distribution Mains	*Mains*	19,854,800	4,656,000	5,321,100	3,325,700	6,552,000	0	0
5	Service Connections	*Svcs*	19,168,800	0	0	0	19,168,800	0	0
6	Water Metering Devices	*Mtrs*	7,013,200	0	0	0	7,013,200	0	0
7	Hydrants	*Hydrs*	2,204,300	0	0	0	0	0	2,204,300
8	Subtotal		103,469,500	26,027,600	28,571,500	13,932,100	32,734,000	0	2,204,300
9	Water General	*Subtotal*	7,647,900	1,947,200	2,137,500	1,042,300	2,356,000	0	164,900
10	Net Plant Investment		111,117,400	27,974,800	30,709,000	14,974,400	35,090,000	0	2,369,200
	Plus:								
11	Working Capital	*Subtotal*	4,215,500	1,073,300	1,178,200	574,500	1,298,600	0	90,900
12	Inventory	*Subtotal*	436,600	111,200	122,000	59,500	134,500	0	9,400
13	**Total Rate Base**		115,769,500	29,159,300	32,009,200	15,608,400	36,523,100	0	2,469,500
14	*Return on Rate Base @ 5.28%*		*6,111,000*	*1,539,200*	*1,689,600*	*823,900*	*1,927,900*	*0*	*130,400*
15	Payment in Lieu of Taxes (PILOT)		300,000	113,900	125,100	61,000	0	0	0

Table 10
Water Utility

Allocation of Depreciation Expense to Functional Cost Components
Test Year 2022

Line No.		Allocation Basis	(1) Total	(2) Base	(3) Extra Capacity Max Day	(4) Extra Capacity Peak Hour	(5) Customers Meters and Services	(6) Customers Billing	(7) Fire Protection
1	Water Pumping	*Max Day*	1,033,600	485,800	547,800	0	0	0	0
2	Elevated Storage Tank	*Storage*	240,900	24,100	0	216,800	0	0	0
3	Transmission Mains	*Peak Hour*	136,500	47,800	54,600	34,100	0	0	0
4	Dist Mains - City	*Mains*	306,800	71,900	82,200	51,400	101,300	0	0
5	Service Conn - City	*Svcs*	436,900	0	0	0	436,900	0	0
6	Water Metering Devices	*Mtrs*	561,500	0	0	0	561,500	0	0
7	Hydrants	*Hydrs*	53,200	0	0	0	0	0	53,200
8	Subtotal		2,769,400	629,600	684,600	302,300	1,099,700	0	53,200
9	Water General	*Subtotal*	587,600	133,600	145,300	64,100	233,300	0	11,300
10	Net Plant Investment		3,357,000	763,200	829,900	366,400	1,333,000	0	64,500

Table 11
Water Utility

Customer Class Units of Service
Test Year 2022

Line No.		(1) Base cu mtr	(2) Extra Capacity Max Day *cu mtr/day*	(3) Extra Capacity Peak Hour *cu mtr/hr*	(4) Customers Meters and Services *eq conn*	(5) Customers Billing *bills*	(6) Fire Protection *eq hyd*
	REGULAR CUSTOMERS						
1	Single Family	9,604,400	45,007	18,826	42,280	149,100	0
2	Multi-Family	3,344,100	7,329	3,666	4,922	20,296	0
3	Commercial/Industrial	7,674,800	25,232	8,412	10,874	34,036	0
4	Seasonal	418,700	3,157	4,306	704	3,000	0
5	Total Regular Customers	21,042,000	80,725	35,210	58,780	206,432	0
	FIRE PROTECTION						
6	Detector Checks	12,200	2,483	3,522	1,756	10,844	845
7	Public Fire Hydrants	0	12,098	16,938	0	4,063	4,063
8	Private Fire Hydrants	0	2,385	3,339	0	801	801
9	Total Fire Protection	12,200	16,966	23,799	1,756	15,708	5,709
10	TOTAL	21,054,200	97,691	59,009	60,536	222,140	5,709
	Customer Class Detail						
	City Customers						
11	*Single Family*	*3,939,000*	*18,458*	*7,721*	*19,166*	*73,084*	*0*
12	*Multi-Family*	*1,647,600*	*3,611*	*1,806*	*2,532*	*10,000*	*0*
13	*Commercial/Industrial*	*4,893,100*	*16,087*	*5,363*	*6,431*	*19,708*	*0*
14	*Seasonal*	*201,700*	*1,521*	*2,074*	*459*	*1,756*	*0*
15	*Subtotal*	*10,681,400*	*39,677*	*16,965*	*28,588*	*104,548*	*0*
	City Fire Protection						
16	*Detector Checks*	*8,000*	*1,363*	*1,938*	*959*	*6,012*	*465*
17	*Public Fire Hydrants*	*0*	*5,693*	*7,971*	*0*	*1,912*	*1,912*
18	*Private Fire Hydrants*	*0*	*1,042*	*1,459*	*0*	*350*	*350*
19	*Subtotal*	*8,000*	*8,098*	*11,368*	*959*	*8,274*	*2,727*
20	*Total City Customers*	*10,689,400*	*47,775*	*28,333*	*29,547*	*112,822*	*2,727*
	Township Customers						
21	*Single Family*	*5,665,400*	*26,549*	*11,105*	*23,114*	*76,016*	*0*
22	*Multi-Family*	*1,696,500*	*3,718*	*1,860*	*2,390*	*10,296*	*0*
23	*Commercial/Industrial*	*2,781,700*	*9,145*	*3,049*	*4,443*	*14,328*	*0*
24	*Seasonal*	*217,000*	*1,636*	*2,232*	*245*	*1,244*	*0*
25	*Subtotal*	*10,360,600*	*41,048*	*18,245*	*30,192*	*101,884*	*0*
	Township Fire Protection						
26	*Detector Checks*	*4,200*	*1,120*	*1,584*	*797*	*4,832*	*380*
27	*Public Fire Hydrants*	*0*	*6,405*	*8,967*	*0*	*2,151*	*2,151*
28	*Private Fire Hydrants*	*0*	*1,343*	*1,880*	*0*	*451*	*451*
29	*Subtotal*	*4,200*	*8,868*	*12,431*	*797*	*7,434*	*2,982*
30	*Total Township Customers*	*10,364,800*	*49,916*	*30,676*	*30,989*	*109,318*	*2,982*

Table 12
Water Utility

Unit Costs of Service
Test Year 2022

Line No.		Total	(1) Base	(2) Extra Capacity Max Day	(3) Extra Capacity Peak Hour	(4) Customers Meters and Services	(5) Customers Billing	(6) Fire Protection
1	Units of Service *Units*		21,054,200 *cu mtr*	97,691 *cu mtr/day*	59,009 *cu mtr/hr*	60,536 *eq conn*	222,140 *bills*	5,709 *eq hyd*
2	Net Operating Expense	14,976,000	5,862,500	3,704,800	655,800	2,957,200	1,433,100	362,600
3	Unit Cost, /Unit		0.2784	37.9237	11.1136	48.8503	6.4513	63.5138
4	Payment in Lieu of Taxes	300,000	113,900	125,100	61,000	0	0	0
5	Unit Cost, /Unit		0.0054	1.2806	1.0337	0.0000	0.0000	0.0000
6	Depreciation Expense	3,357,000	763,200	829,900	366,400	1,333,000	0	64,500
7	Unit Cost, /Unit		0.0362	8.4952	6.2092	22.0200	0.0000	11.2980
8	Return on Rate Base	6,111,000	1,539,200	1,689,600	823,900	1,927,900	0	130,400
9	Unit Cost, /Unit		0.0731	17.2953	13.9623	31.8472	0.0000	22.8411
10	TOTAL Cost of Service	24,744,000	8,278,800	6,349,400	1,907,100	6,218,100	1,433,100	557,500
11	Unit Cost, /Unit		0.3932	64.9947	32.3188	102.7174	6.4513	97.6528

Table 13
Water Utility

Initial Allocation of Cost of Service to Customer Classes
Test Year 2022

Line No.		(1) Total	(2) Base	(3) Extra Capacity Max Day	(4) Extra Capacity Peak Hour	(5) Customers Meters and Services	(6) Customers Billing	(7) Fire Protection
1	Total Cost of Service	24,744,000	8,278,800	6,349,400	1,907,100	6,218,100	1,433,100	557,500
2	Unit Costs of Service		0.3932	64.9947	32.3188	102.7174	6.4513	97.6528
	REGULAR CUSTOMERS							
3	Single Family	12,615,100	3,776,700	2,925,300	608,400	4,342,900	961,800	0
4	Multi-Family	2,546,200	1,314,900	476,300	118,500	505,600	130,900	0
5	Commercial/Industrial	6,266,100	3,017,800	1,639,900	271,900	1,116,900	219,600	0
6	Seasonal	600,700	164,600	205,200	139,200	72,300	19,400	0
7	Total Regular Customers	22,028,100	8,274,000	5,246,700	1,138,000	6,037,700	1,331,700	0
	FIRE PROTECTION							
8	Detector Checks	612,900	4,800	161,400	113,800	180,400	70,000	82,500
9	Public Fire Hydrants	1,756,700	0	786,300	547,400	0	26,200	396,800
10	Private Fire Hydrants	346,300	0	155,000	107,900	0	5,200	78,200
11	Total Fire Protection	2,715,900	4,800	1,102,700	769,100	180,400	101,400	557,500
12	TOTAL	24,744,000	8,278,800	6,349,400	1,907,100	6,218,100	1,433,100	557,500
	Customer Class Detail							
	City Customers							
13	*Single Family*	*5,438,400*	*1,548,900*	*1,199,700*	*249,600*	*1,968,600*	*471,600*	*0*
14	*Multi-Family*	*1,265,600*	*647,900*	*234,700*	*58,400*	*260,100*	*64,500*	*0*
15	*Commercial/Industrial*	*3,930,600*	*1,924,000*	*1,045,600*	*173,300*	*660,600*	*127,100*	*0*
16	*Seasonal*	*303,500*	*79,300*	*98,800*	*67,000*	*47,100*	*11,300*	*0*
17	*Subtotal*	*10,938,100*	*4,200,100*	*2,578,800*	*548,300*	*2,936,400*	*674,500*	*0*
	City Fire Protection							
18	*Detector Checks*	*337,000*	*3,100*	*88,600*	*62,600*	*98,500*	*38,800*	*45,400*
19	*Public Fire Hydrants*	*826,600*	*0*	*370,000*	*257,600*	*0*	*12,300*	*186,700*
20	*Private Fire Hydrants*	*151,400*	*0*	*67,700*	*47,200*	*0*	*2,300*	*34,200*
21	*Subtotal*	*1,315,000*	*3,100*	*526,300*	*367,400*	*98,500*	*53,400*	*266,300*
22	*Total City Customers*	*12,253,100*	*4,203,200*	*3,105,100*	*915,700*	*3,034,900*	*727,900*	*266,300*
	Township Customers							
23	*Single Family*	*7,176,700*	*2,227,700*	*1,725,500*	*358,900*	*2,374,200*	*490,400*	*0*
24	*Multi-Family*	*1,280,800*	*667,100*	*241,700*	*60,100*	*245,500*	*66,400*	*0*
25	*Commercial/Industrial*	*2,335,500*	*1,093,800*	*594,400*	*98,500*	*456,400*	*92,400*	*0*
26	*Seasonal*	*296,900*	*85,300*	*106,300*	*72,100*	*25,200*	*8,000*	*0*
27	*Subtotal*	*11,089,900*	*4,073,900*	*2,667,900*	*589,600*	*3,101,300*	*657,200*	*0*
	Township Fire Protection							
28	*Detector Checks*	*275,900*	*1,700*	*72,800*	*51,200*	*81,900*	*31,200*	*37,100*
29	*Public Fire Hydrants*	*930,100*	*0*	*416,300*	*289,800*	*0*	*13,900*	*210,100*
30	*Private Fire Hydrants*	*195,000*	*0*	*87,300*	*60,800*	*0*	*2,900*	*44,000*
31	*Subtotal*	*1,401,000*	*1,700*	*576,400*	*401,800*	*81,900*	*48,000*	*291,200*
32	*Total Township Customers*	*12,490,900*	*4,075,600*	*3,244,300*	*991,400*	*3,183,200*	*705,200*	*291,200*

Table 14
Water Utility

Cost of Service Allocated to Customer Class
Test Year 2022

Line No.	Description	(1) Allocated Cost of Service	(2) Adjustments Fire Protection	(3) Adjustments Seasonal	(4) Adjusted Allocated Cost of Service	(5) Revenue Under Existing Rates	(6) Adjustment Indicated	(7) % Variance
	REGULAR CUSTOMERS							
1	Single Family	12,615,100	1,489,700	54,600	14,159,400	10,999,000	3,160,400	28.7%
2	Multi-Family	2,546,200	173,400	6,400	2,726,000	2,084,800	641,200	30.8%
3	Commercial/Industrial	6,266,100	383,100	14,000	6,663,200	4,987,200	1,676,000	33.6%
4	Seasonal	600,700	24,800	***(75,000)***	550,500	442,800	107,700	24.3%
5	Total Regular Customers	22,028,100	2,071,000	0	24,099,100	18,513,800	5,585,300	
	FIRE PROTECTION							
6	Detector Checks	612,900			612,900	493,900	119,000	24.1%
7	Public Fire Hydrants	1,756,700	***(1,756,700)***		0	0	0	NA
8	Private Fire Hydrants	346,300	***(314,300)***		32,000	32,000	0	0.0%
9	Total Fire Protection	2,715,900	(2,071,000)	0	644,900	525,900	119,000	22.6%
10	TOTAL	24,744,000	0	0	24,744,000	19,039,700	5,704,300	30.0%
	Customer Class Detail							
	City Customers							
11	*Single Family*	*5,438,400*	*675,300*	*24,800*	*6,138,500*	*4,259,100*	*1,879,400*	*44.1%*
12	*Multi-Family*	*1,265,600*	*89,200*	*3,300*	*1,358,100*	*971,900*	*386,200*	*39.7%*
13	*Commercial/Industrial*	*3,930,600*	*226,600*	*8,300*	*4,165,500*	*2,963,200*	*1,202,300*	*40.6%*
14	*Seasonal*	*303,500*	*16,200*	***(36,200)***	*283,500*	*195,000*	*88,500*	*45.4%*
15	*Subtotal*	*10,938,100*	*1,007,300*	*200*	*11,945,600*	*8,389,200*	*3,556,400*	*42.4%*
	City Fire Protection							
16	*Detector Checks*	*337,000*			*337,000*	*253,700*	*83,300*	*32.8%*
17	*Public Fire Hydrants*	*826,600*	***(826,600)***		*0*	*0*	*0*	*NA*
18	*Private Fire Hydrants*	*151,400*	***(137,400)***		*14,000*	*14,000*	*0*	*0.0%*
19	*Subtotal*	*1,315,000*	*(964,000)*	*0*	*351,000*	*267,700*	*83,300*	*31.1%*
20	*Total City Customers*	*12,253,100*	*43,300*	*200*	*12,296,600*	*8,656,900*	*3,639,700*	*42.0%*
	Township Customers							
21	*Single Family*	*7,176,700*	*814,400*	*29,800*	*8,020,900*	*6,739,900*	*1,281,000*	*19.0%*
22	*Multi-Family*	*1,280,800*	*84,200*	*3,100*	*1,368,100*	*1,112,900*	*255,200*	*22.9%*
23	*Commercial/Industrial*	*2,335,500*	*156,500*	*5,700*	*2,497,700*	*2,024,000*	*473,700*	*23.4%*
24	*Seasonal*	*296,900*	*8,600*	***(38,800)***	*266,700*	*247,800*	*18,900*	*7.6%*
25	*Subtotal*	*11,089,900*	*1,063,700*	*(200)*	*12,153,400*	*10,124,600*	*2,028,800*	*20.0%*
	Township Fire Protection							
26	*Detector Checks*	*275,900*			*275,900*	*240,200*	*35,700*	*14.9%*
27	*Public Fire Hydrants*	*930,100*	***(930,100)***		*0*	*0*	*0*	*NA*
28	*Private Fire Hydrants*	*195,000*	***(177,000)***		*18,000*	*18,000*	*0*	*0.0%*
29	*Subtotal*	*1,401,000*	*(1,107,100)*	*0*	*293,900*	*258,200*	*35,700*	*13.8%*
30	*Total Township Customers*	*12,490,900*	*(43,400)*	*(200)*	*12,447,300*	*10,382,800*	*2,064,500*	*19.9%*

Table 15
Water Utility

Calculation of Water Rates - "Regular Customers"
Test Year 2022

Line No.	Description	(1) Commodity Charges: Allocated Cost of Service $	(2) Commodity Charges: Billable Units cu meters	(3) Commodity Charges: Cost of Service Rate $/cu meter	(4) Meter & Service Charges: Allocated Cost of Service $	(5) Meter & Service Charges: Billable Units eq conn	(6) Meter & Service Charges: Cost of Service Rate $/eq conn	(7) Billing Charges: Allocated Cost of Service $	(8) Billing Charges: Billable Units bills	(9) Billing Charges: Cost of Service Rate $/bill
	REGULAR CUSTOMERS									
1	Single Family	7,365,000	9,604,400	0.767	5,832,600	42,280	137.95	961,800	149,100	6.45
2	Multi-Family	1,916,100	3,344,100	0.573	679,000	4,922	137.95	130,900	20,296	6.45
3	Commercial/Industrial	4,943,600	7,674,800	0.644	1,500,000	10,874	137.94	219,600	34,036	6.45
4	Seasonal	434,000	418,700	1.037	97,100	704	137.93	19,400	3,000	6.47
5	Total Regular Customers	14,658,700	21,042,000	*0.697*	8,108,700	58,780	*137.95*	1,331,700	206,432	*6.45*

Meter Service Charges ->

Meter Size (inches)	Billing Costs $/bill	Meters and Services Costs $/eq conn/yr	Equivalent Meter and Service Ratio	Total **Quarterly** Service Charge $/bill	Total **Monthly** Service Charge $/bill
5/8"-3/4"	6.45	137.95	1.0	40.94	17.95
1"	6.45	137.95	1.4	54.73	22.54
1-1/2"	6.45	137.95	1.8	68.53	27.14
2"	6.45	137.95	2.9	106.46	39.79
3"	6.45	137.95	11.0	385.81	132.90
4"	6.45	137.95	14.0	489.28	167.39
6"	6.45	137.95	21.0	730.69	247.86
8"	6.45	137.95	29.0	1,006.59	339.83

Table 16
Water Utility
Calculation of Water Rates - Fire Protection
Test Year 2022

		(1)	(2)	(3)	(4)	(5)	(6)
	Adjusted Unit Cost Calculations		Commodity Charges	Meters & Service Charges	Billing Charges	Fire Protection Charges	Total
	Initial Allocations						
1	Allocated Revenue Requirements		280,000	180,400	70,000	82,500	612,900
2	Units		12,200	1,756	10,844	845	
3	Unit Costs		22.951	102.73	6.46	97.63	
	Initial Allocations						
4	Commodity Rate - Commercial		0.644				
5	Commodity Revenue		7,900				
6	Additional Revenue via Service Charges		***(272,100)***		272,100		0
7	Rate Design Revenue Requirements		7,900	180,400	342,100	82,500	612,900
8	Units		12,200	1,756	10,844	845	
9	Unit Costs		0.644	102.73	31.55	97.63	

Rate Design

	Detector Check Size (inches)	Billing Costs /bill	Meters and Services Costs /eq conn/yr	Equivalent Meter and Service Ratio	Fire Protection Costs /eq hyd	Equivalent Hydrant Ratio	Total Service Charge /bill
	Monthly						
10	4"	31.55	102.73	1.4	97.63	0.363	46.49
11	6"	31.55	102.73	1.8	97.63	1.000	55.10
12	8"	31.55	102.73	2.9	97.63	2.053	73.08
13	10"	31.55	102.73	11.0	97.63	3.586	154.89
	Quarterly						
14	4"	31.55	102.73	1.4	97.63	0.363	76.37
15	6"	31.55	102.73	1.8	97.63	1.000	102.19
16	8"	31.55	102.73	2.9	97.63	2.053	156.14
17	10"	31.55	102.73	11.0	97.63	3.586	401.58

Table 17
Water Utility
Comparison of Existing and "Ultimate" Water Rates
Test Year 2022

Line No.		(1) Existing Rates $/unit	(2) Ultimate Rates $/unit	(3) Variance $/unit	(4) % Variance
	Commodity Charges - $/cu mtr				
	City Customers				
1	Single Family	0.496	0.767	0.271	54.6%
2	Multi Family	0.405	0.573	0.168	41.5%
3	Commercial	0.454	0.644	0.190	41.9%
4	Seasonal	0.741	1.037	0.296	39.9%
	Township Customers				
5	Single Family	0.660	0.767	0.107	16.2%
6	Multi-Family	0.465	0.573	0.108	23.2%
7	Commercial	0.522	0.644	0.122	23.4%
8	Seasonal	0.988	1.037	0.049	5.0%
	Fire Protection Detector Checks				
9	City Customers	0.449	0.646	0.197	43.9%
10	Township Customers	0.518	0.646	0.128	24.7%

Table 17
Water Utility
Comparison of Existing and "Ultimate" Water Rates
Test Year 2022

Line No.		(1) Existing Rates $/unit	(2) Ultimate Rates $/unit	(3) Variance $/unit	(4) % Variance
	Meter Service Charges - $/bill				
	City Customers - Quarterly				
11	5/8"-3/4"	30.70	40.94	10.24	33.4%
12	1"	41.19	54.73	13.54	32.9%
13	1-1/2"	51.70	68.53	16.83	32.6%
14	2"	80.54	106.46	25.92	32.2%
15	3"	271.86	385.81	113.95	41.9%
16	4"	355.85	489.28	133.43	37.5%
17	6"	531.46	730.69	199.23	37.5%
18	8"	732.14	1,006.59	274.45	37.5%
	City Customers - Monthly				
19	5/8"-3/4"	13.18	17.95	4.77	36.2%
20	1"	16.69	22.54	5.85	35.1%
21	1-1/2"	20.19	27.14	6.95	34.4%
22	2"	29.82	39.79	9.97	33.4%
23	3"	100.65	132.90	32.25	32.0%
24	4"	126.89	167.39	40.50	31.9%
25	6"	188.10	247.86	59.76	31.8%
26	8"	258.03	339.83	81.80	31.7%
	Township Customers - Quarterly				
27	5/8"-3/4"	33.51	40.94	7.43	22.2%
28	1"	45.30	54.73	9.43	20.8%
29	1-1/2"	57.09	68.53	11.44	20.0%
30	2"	89.52	106.46	16.94	18.9%
31	3"	326.53	385.81	59.28	18.2%
32	4"	414.47	489.28	74.81	18.0%
33	6"	619.67	730.69	111.02	17.9%
34	8"	854.18	1,006.59	152.41	17.8%
	Township Customers - Monthly				
35	5/8"-3/4"	13.86	17.95	4.09	29.5%
36	1"	17.79	22.54	4.75	26.7%
37	1-1/2"	21.72	27.14	5.42	25.0%
38	2"	32.53	39.79	7.26	22.3%
39	3"	112.13	132.90	20.77	18.5%
40	4"	141.60	167.39	25.79	18.2%
41	6"	210.38	247.86	37.48	17.8%
42	8"	288.99	339.83	50.84	17.6%

Table 17
Water Utility
Comparison of Existing and "Ultimate" Water Rates
Test Year 2022

Line No.		(1) Existing Rates $/unit	(2) Ultimate Rates $/unit	(3) Variance $/unit	(4) % Variance
	Fire Protection				
	Quarterly Detector Checks - Service Charges - $/bill				
43	City Customers				
44	4"	51.76	76.37	24.61	47.5%
45	6"	62.57	102.19	39.62	63.3%
46	8"	88.72	156.14	67.42	76.0%
47	10"	253.70	401.58	147.88	58.3%
	Township Customers				
48	4"	64.16	76.37	12.21	19.0%
49	6"	85.45	102.19	16.74	19.6%
50	8"	129.26	156.14	26.88	20.8%
51	10"	328.70	401.58	72.88	22.2%
	Monthly Detector Checks - Service Charges - $/bill				
52	City Customers				
53	4"	34.16	46.49	12.33	36.1%
54	6"	41.64	55.10	13.46	32.3%
55	8"	56.83	73.08	16.25	28.6%
56	10"	120.80	154.89	34.09	28.2%
	Township Customers				
57	4"	39.88	46.49	6.61	16.6%
58	6"	48.10	55.10	7.00	14.6%
59	8"	64.71	73.08	8.37	12.9%
60	10"	133.52	154.89	21.37	16.0%
	Fire Hydrants - $/hydrant/year				
61	Public	0.00	0.00	0.00	NA
62	Private	40.00	40.00	0.00	0.0%

Table 18
Water Utility

Typical Customer Water Bills Under Existing and "Ultimate" Rates
Test Year 2022

Line No.	Customer Class	Meter Size	Water Use	Bill Under Existing Rates	Bill Under *"Ultimate"* Rates	Increase (Decrease)	Percent Increase (Decrease)
			cu mtr	$	$	$	%
	CITY CUSTOMERS - QUARTERLY						
1	Single Family	5/8"-3/4"	0	30.70	40.94	10.24	33.4%
2	Single Family	5/8"-3/4"	*51.3*	56.14	80.29	24.15	43.0%
3	Single Family	5/8"-3/4"	70	65.42	94.63	29.21	44.6%
4	Single Family	1"	100	90.79	131.43	40.64	44.8%
5	Multi Family	1"	300	162.69	226.63	63.94	39.3%
6	Commercial	1"	750	381.69	537.73	156.04	40.9%
7	Commercial	2"	2,250	1,102.04	1,555.46	453.42	41.1%
8	Seasonal	1-1/2"	100	125.80	172.23	46.43	36.9%
9	Seasonal	2"	300	302.84	417.56	114.72	37.9%
	CITY CUSTOMERS - MONTHLY						
10	Multi Family	1"	100	57.19	79.84	22.65	39.6%
11	Multi Family	2"	200	110.82	154.39	43.57	39.3%
12	Commercial	2"	500	256.82	361.79	104.97	40.9%
13	Commercial	4"	3,000	1,488.89	2,099.39	610.50	41.0%
14	Commercial	6"	20,000	9,268.10	13,127.86	3,859.76	41.6%
15	Seasonal	2"	400	326.22	454.59	128.37	39.4%
	TOWNSHIP CUSTOMERS - QUARTERLY						
16	Single Family	5/8"-3/4"	0	33.51	40.94	7.43	22.2%
17	Single Family	5/8"-3/4"	*51.3*	67.37	80.29	12.92	19.2%
18	Single Family	5/8"-3/4"	70	79.71	94.63	14.92	18.7%
19	Single Family	1"	100	111.30	131.43	20.13	18.1%
20	Multi-Family	1"	300	184.80	226.63	41.83	22.6%
21	Commercial	1"	750	436.80	537.73	100.93	23.1%
22	Commercial	2"	2,250	1,264.02	1,555.46	291.44	23.1%
23	Seasonal	1-1/2"	100	155.89	172.23	16.34	10.5%
24	Seasonal	2"	300	385.92	417.56	31.64	8.2%
	TOWNSHIP CUSTOMERS - MONTHLY						
25	Multi-Family	1"	100	64.29	79.84	15.55	24.2%
26	Multi-Family	2"	200	125.53	154.39	28.86	23.0%
27	Commercial	2"	500	293.53	361.79	68.26	23.3%
28	Commercial	4"	3,000	1,707.60	2,099.39	391.79	22.9%
29	Commercial	6"	20,000	10,650.38	13,127.86	2,477.48	23.3%
30	Seasonal	2"	200	230.13	247.19	17.06	7.4%

Table 19
Water Utility
Development of 2021 Water Rates

Line No.		(1) Existing Rates $/unit	(2) *Indexed Adjustment for 2021* *1/2 of Adj from Table 17*	(3) **Proposed 2021 Rates** $/unit *[1] * (1+[2])*	(4) *Projected* Test Year 2022 Rates *from Table 17*
	Commodity Charges - $/cu mtr				
	City Customers				
1	Single Family	0.496	*24.4%*	**0.617**	0.767
2	Multi Family	0.405	*18.9%*	**0.482**	0.573
3	Commercial	0.454	*19.1%*	**0.541**	0.644
4	Seasonal	0.741	*18.3%*	**0.877**	1.037
	Township Customers				
5	Single Family	0.660	*7.8%*	**0.711**	0.767
6	Multi-Family	0.465	*11.0%*	**0.516**	0.573
7	Commercial	0.522	*11.1%*	**0.580**	0.644
8	Seasonal	0.988	*2.4%*	**1.012**	1.037
	Fire Protection Detector Checks				
9	City Customers	0.449	*19.9%*	**0.539**	0.646
10	Township Customers	0.518	*11.7%*	**0.578**	0.646

Table 19
Water Utility
Development of 2021 Water Rates

Line No.		(1) Existing Rates $/unit	(2) *Indexed Adjustment for 2021* *1/2 of Adj from Table 17*	(3) **Proposed 2021 Rates** $/unit *[1] * (1+[2])*	(4) *Projected* Test Year 2022 Rates *from Table 17*
	Meter Service Charges - $/bill				
	City Customers - Quarterly				
11	5/8"-3/4"	30.70	*15.5%*	**35.45**	40.94
12	1"	41.19	*15.3%*	**47.48**	54.73
13	1-1/2"	51.70	*15.1%*	**59.52**	68.53
14	2"	80.54	*15.0%*	**92.60**	106.46
15	3"	271.86	*19.1%*	**323.86**	385.81
16	4"	355.85	*17.3%*	**417.27**	489.28
17	6"	531.46	*17.3%*	**623.16**	730.69
18	8"	732.14	*17.3%*	**858.47**	1,006.59
	City Customers - Monthly				
19	5/8"-3/4"	13.18	*16.7%*	**15.38**	17.95
20	1"	16.69	*16.2%*	**19.40**	22.54
21	1-1/2"	20.19	*15.9%*	**23.41**	27.14
22	2"	29.82	*15.5%*	**34.45**	39.79
23	3"	100.65	*14.9%*	**115.66**	132.90
24	4"	126.89	*14.9%*	**145.74**	167.39
25	6"	188.10	*14.8%*	**215.92**	247.86
26	8"	258.03	*14.8%*	**296.12**	339.83
	Township Customers - Quarterly				
27	5/8"-3/4"	33.51	*10.5%*	**37.04**	40.94
28	1"	45.30	*9.9%*	**49.79**	54.73
29	1-1/2"	57.09	*9.6%*	**62.55**	68.53
30	2"	89.52	*9.1%*	**97.62**	106.46
31	3"	326.53	*8.7%*	**354.93**	385.81
32	4"	414.47	*8.7%*	**450.32**	489.28
33	6"	619.67	*8.6%*	**672.89**	730.69
34	8"	854.18	*8.6%*	**927.26**	1,006.59
	Township Customers - Monthly				
35	5/8"-3/4"	13.86	*13.8%*	**15.77**	17.95
36	1"	17.79	*12.6%*	**20.02**	22.54
37	1-1/2"	21.72	*11.8%*	**24.28**	27.14
38	2"	32.53	*10.6%*	**35.98**	39.79
39	3"	112.13	*8.9%*	**122.07**	132.90
40	4"	141.60	*8.7%*	**153.96**	167.39
41	6"	210.38	*8.5%*	**228.35**	247.86
42	8"	288.99	*8.4%*	**313.38**	339.83

Table 19
Water Utility
Development of 2021 Water Rates

Line No.		(1) Existing Rates $/unit	(2) *Indexed Adjustment for 2021* *1/2 of Adj from Table 17*	(3) **Proposed 2021 Rates** $/unit *[1] * (1+[2])*	(4) *Projected* Test Year 2022 Rates *from Table 17*
	Fire Protection				
	Quarterly Detector Checks - Service Charges - $/bill				
43	City Customers				
44	4"	51.76	*21.5%*	**62.87**	76.37
45	6"	62.57	*27.8%*	**79.96**	102.19
46	8"	88.72	*32.7%*	**117.70**	156.14
47	10"	253.70	*25.8%*	**319.19**	401.58
	Township Customers				
48	4"	64.16	*9.1%*	**70.00**	76.37
49	6"	85.45	*9.4%*	**93.45**	102.19
50	8"	129.26	*9.9%*	**142.07**	156.14
51	10"	328.70	*10.5%*	**363.32**	401.58
	Monthly Detector Checks - Service Charges - $/bill				
52	City Customers				
53	4"	34.16	*16.7%*	**39.85**	46.49
54	6"	41.64	*15.0%*	**47.90**	55.10
55	8"	56.83	*13.4%*	**64.44**	73.08
56	10"	120.80	*13.2%*	**136.79**	154.89
	Township Customers				
57	4"	39.88	*8.0%*	**43.06**	46.49
58	6"	48.10	*7.0%*	**51.48**	55.10
59	8"	64.71	*6.3%*	**68.77**	73.08
60	10"	133.52	*7.7%*	**143.81**	154.89
	Fire Hydrants - $/hydrant/year				
61	Public	0.00		0.00	0.00
62	Private	40.00	*0.0%*	**40.00**	40.00

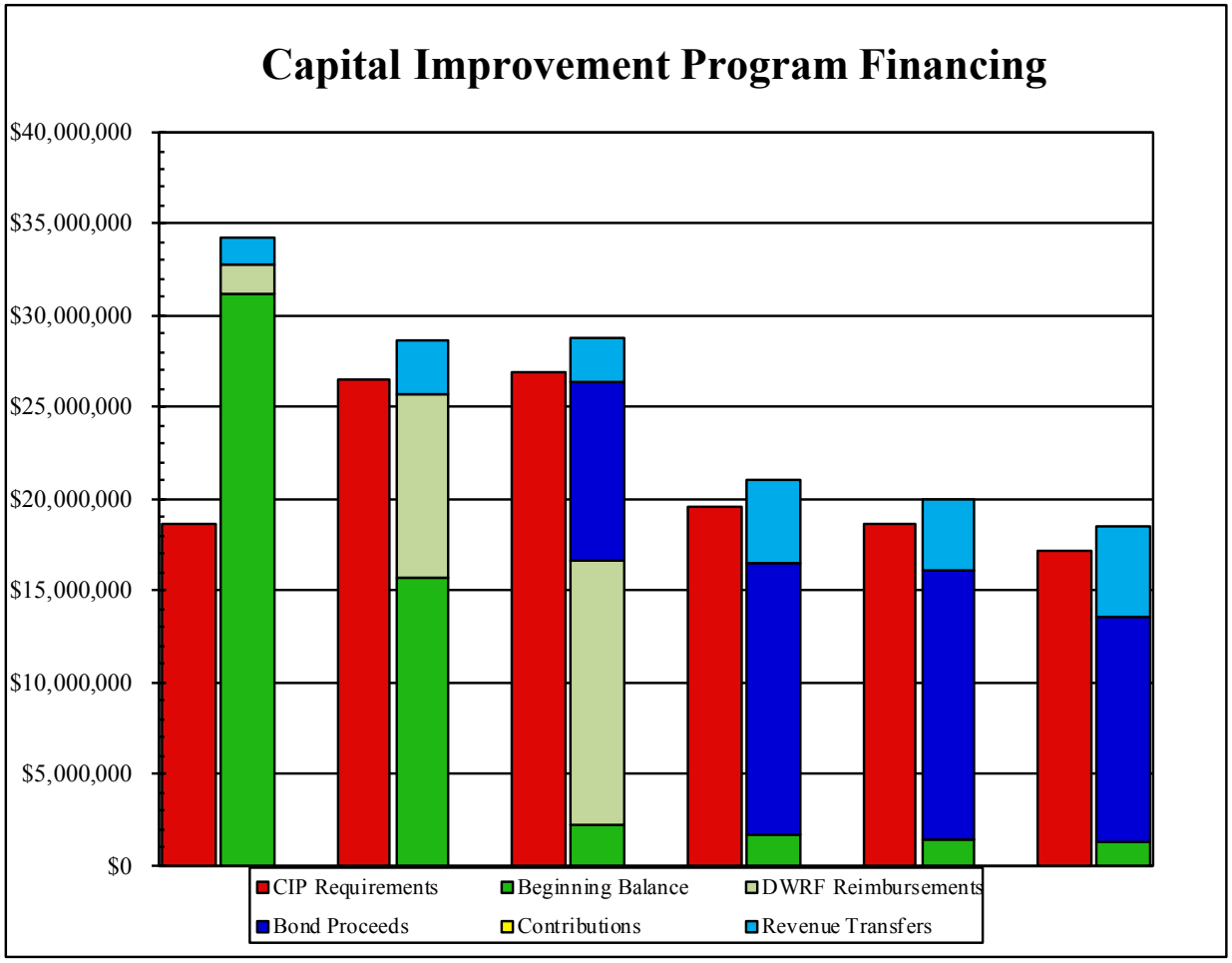
Table 20
Water Utility

Typical Customer Water Bills Under Existing and Proposed 2021 Rates

Line No.	Customer Class	Meter Size	Water Use	Bill Under Existing Rates	Bill Under Proposed Rates	Increase (Decrease)	Percent Increase (Decrease)
			cu mtr	$	$	$	%
	CITY CUSTOMERS - QUARTERLY						
1	Single Family	5/8"-3/4"	0	30.70	35.45	4.75	15.5%
2	Single Family	5/8"-3/4"	*51.3*	56.14	67.10	10.96	19.5%
3	Single Family	5/8"-3/4"	70	65.42	78.64	13.22	20.2%
4	Single Family	1"	100	90.79	109.18	18.39	20.3%
5	Multi Family	1"	300	162.69	192.08	29.39	18.1%
6	Commercial	1"	750	381.69	453.23	71.54	18.7%
7	Commercial	2"	2,250	1,102.04	1,309.85	207.81	18.9%
8	Seasonal	1-1/2"	100	125.80	147.22	21.42	17.0%
9	Seasonal	2"	300	302.84	355.70	52.86	17.5%
	CITY CUSTOMERS - MONTHLY						
10	Multi Family	1"	100	57.19	67.60	10.41	18.2%
11	Multi Family	2"	200	110.82	130.85	20.03	18.1%
12	Commercial	2"	500	256.82	304.95	48.13	18.7%
13	Commercial	4"	3,000	1,488.89	1,768.74	279.85	18.8%
14	Commercial	6"	20,000	9,268.10	11,035.92	1,767.82	19.1%
15	Seasonal	2"	400	326.22	385.25	59.03	18.1%
	TOWNSHIP CUSTOMERS - QUARTERLY						
16	Single Family	5/8"-3/4"	0	33.51	37.04	3.53	10.5%
17	Single Family	5/8"-3/4"	*51.3*	67.37	73.51	6.14	9.1%
18	Single Family	5/8"-3/4"	70	79.71	86.81	7.10	8.9%
19	Single Family	1"	100	111.30	120.89	9.59	8.6%
20	Multi-Family	1"	300	184.80	204.59	19.79	10.7%
21	Commercial	1"	750	436.80	484.79	47.99	11.0%
22	Commercial	2"	2,250	1,264.02	1,402.62	138.60	11.0%
23	Seasonal	1-1/2"	100	155.89	163.75	7.86	5.0%
24	Seasonal	2"	300	385.92	401.22	15.30	4.0%
	TOWNSHIP CUSTOMERS - MONTHLY						
25	Multi-Family	1"	100	64.29	71.62	7.33	11.4%
26	Multi-Family	2"	200	125.53	139.18	13.65	10.9%
27	Commercial	2"	500	293.53	325.98	32.45	11.1%
28	Commercial	4"	3,000	1,707.60	1,893.96	186.36	10.9%
29	Commercial	6"	20,000	10,650.38	11,828.35	1,177.97	11.1%
30	Seasonal	2"	200	230.13	238.38	8.25	3.6%

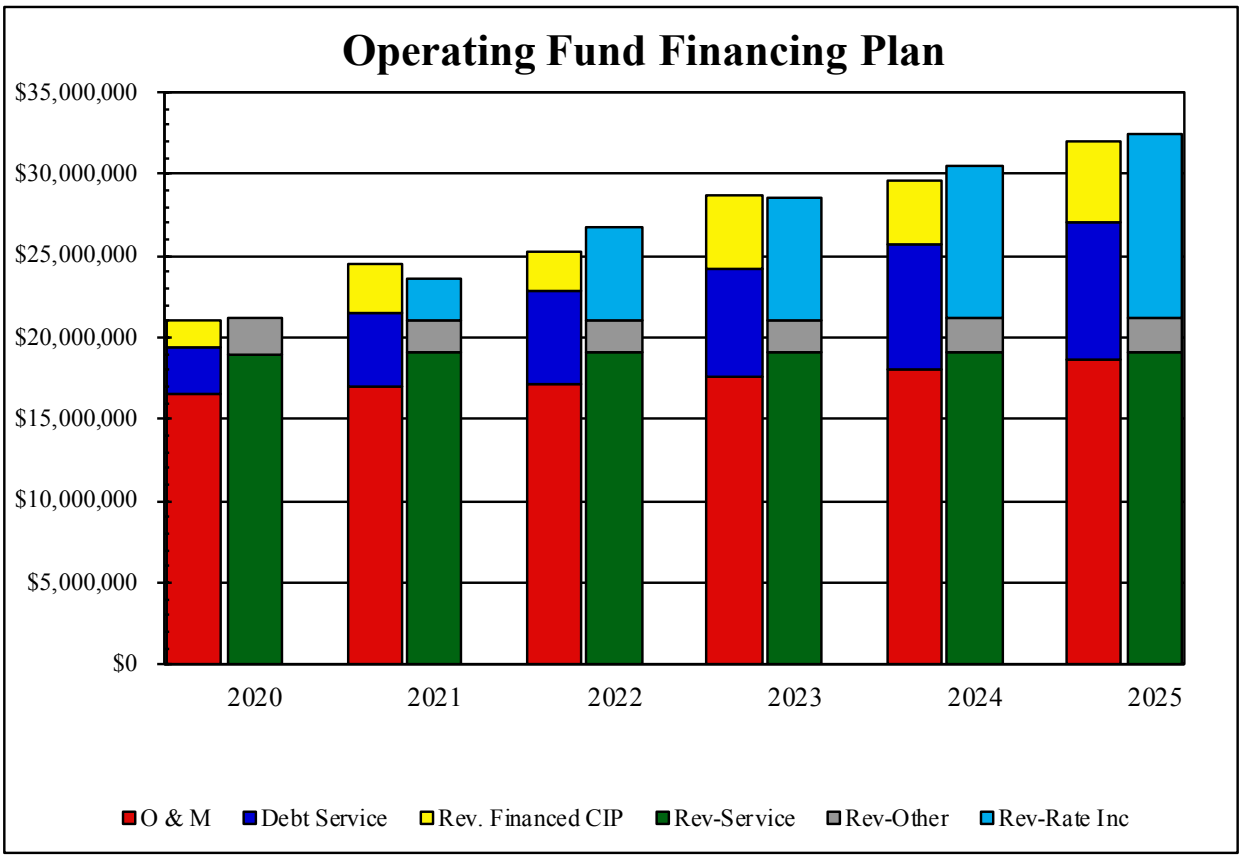
Appendix A
Financial Forecast Summary Exhibits

Water Utility Financial Plan Summary



	2020	2021	2022	2023	2024	2025
CIP Req't	18,593,300	26,468,100	26,979,400	19,554,900	18,685,900	17,181,100
Sources						
Beg Balance	31,247,600	15,687,800	2,198,700	1,751,700	1,454,700	1,357,900
DWRF Reimb	1,500,000	10,000,000	14,469,700	0	0	0
Bond Sale	0	0	10,000,000	15,000,000	15,000,000	12,500,000
less: Issue Exp	0	0	(220,000)	(295,000)	(295,000)	(257,500)
Revs / Op Funds	1,533,500	2,979,000	2,282,700	4,552,900	3,884,100	4,938,600
CIAC	0	0	0	0	0	0
Total Sources	34,281,100	28,666,800	28,731,100	21,009,600	20,043,800	18,539,000
End Balance	15,687,800	2,198,700	1,751,700	1,454,700	1,357,900	1,357,900

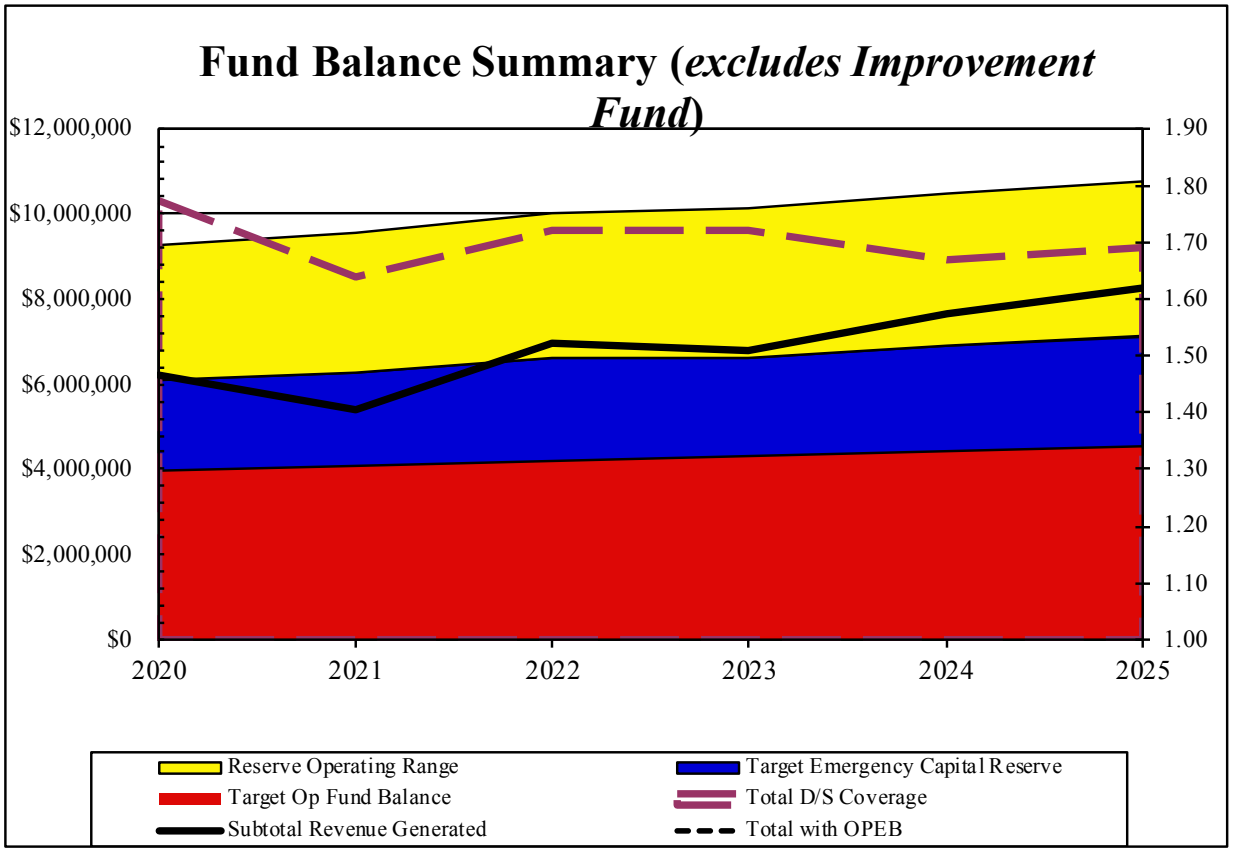
Water Utility Financial Plan Summary



	2020	2021	2022	2023	2024	2025	
Revenue							
Rates	18,925,300	19,039,700	19,039,700	19,039,700	19,039,700	19,039,700	
Rate Increases	***0.00%***	***14.00%***	***14.00%***	***7.00%***	***7.00%***	***7.00%***	59.2%
Rate Increases	0	2,665,600	5,704,300	7,436,400	9,289,700	11,272,800	
Other	2,200,000	1,943,000	1,972,700	2,041,200	2,105,600	2,177,500	
Total Revenue	21,125,300	23,648,300	26,716,700	28,517,300	30,435,000	32,490,000	
Revenue Req'ts							20%
O&M *	16,499,300	17,043,600	17,162,400	17,616,600	18,083,800	18,564,400	
Debt Service	2,957,300	4,411,400	5,722,800	6,512,800	7,570,000	8,408,000	
Rev. Financed C	1,646,100	3,060,700	2,349,000	4,621,000	3,954,200	5,010,700	
Total Rev Req'ts	21,102,700	24,515,700	25,234,200	28,750,400	29,608,000	31,983,100	
Balance - Rsrvs	22,600	(867,400)	1,482,500	(233,100)	827,000	506,900	
DS Covg	177%	164%	172%	172%	167%	169%	

** Includes OPEB Debt Service and Contributions and PILOT*

Water Utility Financial Plan Summary



	2020	2021	2022	2023	2024	2025
Fund Balance Mins						
Operating Fund	3,969,100	4,105,100	4,215,600	4,329,200	4,446,000	4,566,100
Emerg Cap	2,127,000	2,138,600	2,404,600	2,315,700	2,453,800	2,544,200
Subtotal	6,096,100	6,243,700	6,620,200	6,644,900	6,899,800	7,110,300
Range Max	9,525,750	9,852,300	10,117,500	10,390,050	10,670,400	10,958,700
Projections						
Operating Fund	3,803,900	2,936,500	4,419,000	4,185,900	5,012,900	5,519,800
Emerg Cap	2,381,400	2,463,100	2,529,400	2,597,500	2,667,600	2,739,700
Subtotal	6,185,300	5,399,600	6,948,400	6,783,400	7,680,500	8,259,500
DS Covg	177%	164%	172%	172%	167%	169%
Rate Increase	***0.00%***	***14.00%***	***14.00%***	***7.00%***	***7.00%***	***7.00%*** *59.2%*

Appendix B
Water Capital Asset Summary

Appendix B - Schedule of Public Water System Current Capital Assets

Total Asset Value	6/30/2019 Data			
Category	Original Cost	Accumulated Depreciation	Net Book Value	Annual Depr Expense
Water Pumping	39,505,397	22,438,197	17,067,200	649,331
Elevated Storage Tank	8,077,412	3,784,152	4,293,259	194,022
Transmission Mains	11,930,082	4,702,353	7,227,729	228,667
Dist Mains - City	20,979,690	6,811,713	14,167,977	355,298
Dist Mains - Twp	42,464,150	17,272,628	25,191,522	793,935
Service Conn - City	18,472,885	5,784,963	12,687,922	325,184
Service Conn - Twp	26,072,252	9,437,366	16,634,887	468,221
Water Metering Devices	8,886,854	6,354,950	2,531,904	323,136
Hydrants - City	3,513,394	1,133,925	2,379,469	65,261
Hydrants - Twp	6,796,844	2,364,818	4,432,027	131,233
Water General	7,819,876	4,778,150	3,041,726	186,013
Administration	197,592	193,195	4,397	2,485
Total	194,716,429	85,056,410	109,660,019	3,722,787
Wholesale Service Assets	67,530,359	35,896,047	31,634,312	1,260,518
Retail Service Assets - City *	47,409,396	16,908,076	30,501,321	907,311
Retail Service Assets - Twps *	79,776,674	32,252,287	47,524,387	1,554,957
Total	194,716,429	85,056,410	109,660,019	3,722,787

** Assumes a 50/50 split of Water Metering Devices, which are not tracked by location*

Contributed Asset Value	6/30/2019 Data			
Category	Original Cost	Accumulated Depreciation	Net Book Value	Annual Depr Expense
Water Pumping	1,124,471	667,069	457,402	17,619
Elevated Storage Tank	0	0	0	0
Transmission Mains	7,641,345	2,982,443	4,658,903	146,889
Dist Mains - City	8,884,748	2,845,984	6,038,764	152,769
Dist Mains - Twp	39,060,365	15,874,739	23,185,626	742,867
Service Conn - City	11,127,825	4,412,874	6,714,951	176,479
Service Conn - Twp	24,283,987	9,005,764	15,278,224	439,618
Water Metering Devices	0	0	0	0
Hydrants - City	1,449,363	457,053	992,310	27,526
Hydrants - Twp	6,016,080	2,165,506	3,850,573	115,080
Water General	0	0	0	0
Administration	0	0	0	0
Total	99,588,184	38,411,432	61,176,752	1,818,847
Wholesale Service Assets	8,765,816	3,649,511	5,116,304	164,508
Retail Service Assets - City *	21,461,936	7,715,911	13,746,025	356,774
Retail Service Assets - Twps *	69,360,432	27,046,009	42,314,423	1,297,565
Total	99,588,184	38,411,432	61,176,752	1,818,847

** Assumes a 50/50 split of Water Metering Devices, which are not tracked by location*

Appendix B - Schedule of Public Water System Current Capital Assets

Net Local Asset Value	6/30/2019 Data			
Category	Original Cost	Accumulated Depreciation	Net Book Value	Annual Depr Expense
Water Pumping	38,380,926	21,771,128	16,609,798	631,712
Elevated Storage Tank	8,077,412	3,784,152	4,293,259	194,022
Transmission Mains	4,288,737	1,719,910	2,568,826	81,778
Dist Mains - City	12,094,942	3,965,729	8,129,213	202,530
Dist Mains - Twp	3,403,785	1,397,890	2,005,896	51,069
Service Conn - City	7,345,060	1,372,089	5,972,971	148,705
Service Conn - Twp	1,788,265	431,602	1,356,663	28,603
Water Metering Devices	8,886,854	6,354,950	2,531,904	323,136
Hydrants - City	2,064,031	676,871	1,387,159	37,735
Hydrants - Twp	780,765	199,311	581,453	16,153
Water General	7,819,876	4,778,150	3,041,726	186,013
Administration	197,592	193,195	4,397	2,485
Total	95,128,246	46,644,978	48,483,267	1,903,940
Wholesale Service Assets	58,764,543	32,246,536	26,518,007	1,096,010
Retail Service Assets - City *	25,947,460	9,192,164	16,755,296	550,537
Retail Service Assets - Twps *	10,416,242	5,206,278	5,209,964	257,393
Total	95,128,246	46,644,978	48,483,267	1,903,940

** Assumes a 50/50 split of Water Metering Devices, which are not tracked by location*

Water Utility
Development of Capital Asset Values for Cost of Service
Test Year 2022
1 - Summary of Detailed Capital Asset Data

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
		Original Cost			Accumulated Depreciation			Original Cost Less Depreciation			Annual Depreciation Expense		
			Funding			Funding			Funding			Funding	
Line No.		Total	CIAC	Local	Total	CIAC	Local	Total	CIAC	Local	Total	CIAC	Local
	ASSET DATA @ 12/31/19												
1	Water Pumping	39,505,397	1,124,471	38,380,926	22,438,197	667,069	21,771,128	17,067,200	457,402	16,609,798	649,331	17,619	631,712
2	Elevated Storage Tank	8,077,412	0	8,077,412	3,784,152	0	3,784,152	4,293,259	0	4,293,259	194,022	0	194,022
3	Transmission Mains	11,930,082	7,641,345	4,288,737	4,702,353	2,982,443	1,719,910	7,227,729	4,658,903	2,568,826	228,667	146,889	81,778
4	Dist Mains - City	20,979,690	8,884,748	12,094,942	6,811,713	2,845,984	3,965,729	14,167,977	6,038,764	8,129,213	355,298	152,769	202,530
5	Dist Mains - Twp	42,464,150	39,060,365	3,403,785	17,272,628	15,874,739	1,397,890	25,191,522	23,185,626	2,005,896	793,935	742,867	51,069
6	Service Conn - City	18,472,885	11,127,825	7,345,060	5,784,963	4,412,874	1,372,089	12,687,922	6,714,951	5,972,971	325,184	176,479	148,705
7	Service Conn - Twp	26,072,252	24,283,987	1,788,265	9,437,366	9,005,764	431,602	16,634,887	15,278,224	1,356,663	468,221	439,618	28,603
8	Water Metering Devices	8,886,854	0	8,886,854	6,354,950	0	6,354,950	2,531,904	0	2,531,904	323,136	0	323,136
9	Hydrants - City	3,513,394	1,449,363	2,064,031	1,133,925	457,053	676,871	2,379,469	992,310	1,387,159	65,261	27,526	37,735
10	Hydrants - Twp	6,796,844	6,016,080	780,765	2,364,818	2,165,506	199,311	4,432,027	3,850,573	581,453	131,233	115,080	16,153
11	Subtotal	186,698,960	99,588,184	87,110,777	80,085,065	38,411,432	41,673,633	106,613,896	61,176,752	45,437,144	3,534,289	1,818,847	1,715,442
12	Water General	8,017,469	0	8,017,469	4,971,345	0	4,971,345	3,046,124	0	3,046,124	188,498	0	188,498
13	TOTAL	194,716,429	99,588,184	95,128,246	85,056,410	38,411,432	46,644,978	109,660,019	61,176,752	48,483,267	3,722,787	1,818,847	1,903,940
	FORECASTED EXISTING ASSET BALANCES @12/31/2022												
14	Water Pumping	39,505,400	1,124,500	38,380,900	24,969,500	735,300	24,234,200	14,535,900	389,200	14,146,700	634,100	17,200	616,900
15	Elevated Storage Tank	8,077,400	0	8,077,400	4,559,200	0	4,559,200	3,518,200	0	3,518,200	193,600	0	193,600
16	Transmission Mains	11,930,100	7,641,300	4,288,800	5,617,000	3,570,000	2,047,000	6,313,100	4,071,300	2,241,800	228,700	146,900	81,800
17	Dist Mains - City	20,979,700	8,884,700	12,095,000	8,228,800	3,455,500	4,773,300	12,750,900	5,429,200	7,321,700	354,200	152,300	201,900
18	Dist Mains - Twp	42,464,200	39,060,400	3,403,800	20,417,000	18,816,200	1,600,800	22,047,200	20,244,200	1,803,000	785,800	735,100	50,700
19	Service Conn - City	18,472,900	11,127,800	7,345,100	7,070,200	5,109,800	1,960,400	11,402,700	6,018,000	5,384,700	320,900	174,000	146,900
20	Service Conn - Twp	26,072,300	24,284,000	1,788,300	11,298,400	10,752,800	545,600	14,773,900	13,531,200	1,242,700	465,800	437,300	28,500
21	Water Metering Devices	8,886,900	0	8,886,900	7,321,200	0	7,321,200	1,565,700	0	1,565,700	230,500	0	230,500
22	Hydrants - City	3,513,400	1,449,400	2,064,000	1,391,900	565,900	826,000	2,121,500	883,500	1,238,000	64,400	27,200	37,200
23	Hydrants - Twp	6,796,800	6,016,100	780,700	2,886,200	2,622,700	263,500	3,910,600	3,393,400	517,200	130,300	114,300	16,000
24	Subtotal	186,699,100	99,588,200	87,110,900	93,759,400	45,628,200	48,131,200	92,939,700	53,960,000	38,979,700	3,408,300	1,804,300	1,604,000
25	Water General	8,017,500	0	8,017,500	5,640,400	0	5,640,400	2,377,100	0	2,377,100	173,900	0	173,900
26	TOTAL	194,716,600	99,588,200	95,128,400	99,399,800	45,628,200	53,771,600	95,316,800	53,960,000	41,356,800	3,582,200	1,804,300	1,777,900

Water Utility
Development of Capital Asset Values for Cost of Service
Test Year 2022
2 - Impact of CIP Expenditures

		CIP Expenditures			Capitalization Assumptions		12/31/2022 Asset Data					
		2020	2021	2022	In Svc	Life	Plant in Svc	CWIP	Cost	Acc'd Depr	OCLD	Depr
	PROJECTED ASSET ADDITIONS											
27	Water Pumping	6,687,300	2,647,600	11,501,200	50%	25	10,418,100	10,418,000	20,836,100	988,900	19,847,200	416,700
28	Elevated Storage Tank	2,215,600	1,672,300	845,900	50%	50	2,366,900	2,366,900	4,733,800	101,600	4,632,200	47,300
29	Transmission Mains	2,781,800	6,271,100	1,894,900	25%	50	2,737,000	8,210,800	10,947,800	105,500	10,842,300	54,700
30	Dist Mains - City	626,700	654,300	1,353,500	25%	50	658,600	1,975,900	2,634,500	29,700	2,604,800	13,200
31	Dist Mains - Twp	1,617,400	6,577,400	0	25%	50	2,048,700	6,146,100	8,194,800	69,500	8,125,300	41,000
32	Service Conn - City	1,908,600	6,039,400	5,126,300	100%	50	13,074,300	0	13,074,300	532,900	12,541,400	261,500
33	Service Conn - Twp	0	0	0	0%	50	0	0	0	0	0	0
34	Water Metering Devices	1,424,300	1,003,400	2,537,800	100%	15	4,965,500	0	4,965,500	760,700	4,204,800	331,000
35	Hydrants - City	95,000	100,300	253,800	0%	20	0	449,100	449,100	0	449,100	0
36	Hydrants - Twp	0	0	0	0%	20	0	0	0	0	0	0
37	Subtotal	17,356,700	24,965,800	23,513,400			36,269,100	29,566,800	65,835,900	2,588,800	63,247,100	1,165,400
38	Water General	1,236,600	1,502,300	3,466,000	100%	15	6,204,900	0	6,204,900	934,000	5,270,900	413,700
39	TOTAL	18,593,300	26,468,100	26,979,400			42,474,000	29,566,800	72,040,800	3,522,800	68,518,000	1,579,100

Water Utility
Development of Capital Asset Values for Cost of Service
Test Year 2022
3 - Consolidated Forecasted Data @ 12/31/2022

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
		Original Cost			Accumulated Depreciation			Original Cost Less Depreciation			Annual Depreciation Expense		
			Funding			Funding			Funding			Funding	
		Total	CIAC	Local	Total	CIAC	Local	Total	CIAC	Local	Total	CIAC	Local
1	Water Pumping	60,341,500	1,124,500	59,217,000	25,958,400	735,300	25,223,100	34,383,100	389,200	33,993,900	1,050,800	17,200	1,033,600
2	Elevated Storage Tank	12,811,200	0	12,811,200	4,660,800	0	4,660,800	8,150,400	0	8,150,400	240,900	0	240,900
3	Transmission Mains	22,877,900	7,641,300	15,236,600	5,722,500	3,570,000	2,152,500	17,155,400	4,071,300	13,084,100	283,400	146,900	136,500
4	Dist Mains - City	23,614,200	8,884,700	14,729,500	8,258,500	3,455,500	4,803,000	15,355,700	5,429,200	9,926,500	367,400	152,300	215,100
5	Dist Mains - Twp	50,659,000	39,060,400	11,598,600	20,486,500	18,816,200	1,670,300	30,172,500	20,244,200	9,928,300	826,800	735,100	91,700
6	Service Conn - City	31,547,200	11,127,800	20,419,400	7,603,100	5,109,800	2,493,300	23,944,100	6,018,000	17,926,100	582,400	174,000	408,400
7	Service Conn - Twp	26,072,300	24,284,000	1,788,300	11,298,400	10,752,800	545,600	14,773,900	13,531,200	1,242,700	465,800	437,300	28,500
8	Water Metering Devices	13,852,400	0	13,852,400	8,081,900	0	8,081,900	5,770,500	0	5,770,500	561,500	0	561,500
9	Hydrants - City	3,962,500	1,449,400	2,513,100	1,391,900	565,900	826,000	2,570,600	883,500	1,687,100	64,400	27,200	37,200
10	Hydrants - Twp	6,796,800	6,016,100	780,700	2,886,200	2,622,700	263,500	3,910,600	3,393,400	517,200	130,300	114,300	16,000
11	Subtotal	252,535,000	99,588,200	152,946,800	96,348,200	45,628,200	50,720,000	156,186,800	53,960,000	102,226,800	4,573,700	1,804,300	2,769,400
12	Water General	14,222,400	0	14,222,400	6,574,400	0	6,574,400	7,648,000	0	7,648,000	587,600	0	587,600
13	TOTAL	266,757,400	99,588,200	167,169,200	102,922,600	45,628,200	57,294,400	163,834,800	53,960,000	109,874,800	5,161,300	1,804,300	3,357,000

Water Resources Division
Performance Based Budgeting

Section B4

City of Kalamazoo-Water Resources Department Program Descriptions

Program	Description	Department	Division	Prog#	ProgID
After Hours - Service Turn Ons	Turn on water service for customers	Public Services	Water Distribution	557	1148
Cell Tower Oversight	Management of Water Supply Facilities as it Pertains to Cell Tower Operations and Their Contractors Accessing Our Facilities	Public Services	Water Pumping/Supply	847	1158
Chemical Treatment	Water Treatment additives at All Water Pumping Facilities	Public Services	Water Pumping/Supply	848	1159
City Infrastructure Strategic Planning	Administer, direct, revise, implement and monitor Environmental and Sustainable City Infrastructure Strategic Plan Initiatives	Public Services	Water Administration	819	1135
Curb Box Maintenance	Repair and Maintenance of the pipe in the yard that allows access to the on and off valve.	Public Services	Water Distribution	838	1149
Dispatch Services	Dispatch services related to water and wastewater field crews	Public Services	Water Distribution	1000	1156
Emergency Preparedness	Emergency response planning, on call support, preparedness, storm response	Public Services	Water Administration	9429	1142
Frozen Water Line Services	The unthawing of service lines due to the extreme cold of winter. May require digging up the entire service and replacing at a deeper level to avoid the harsh frost.	Public Services	Water Distribution	840	1150
General Pumping Facility Repair and Maintenance	Minor Repair and Maintenance to all General Pumping Facilities	Public Services	Water Pumping/Supply	851	1160
Hydrant Maintenance	Repair, maintain and exercising of hydrants. Repair and or replace hydrants that have been damaged by vehicles, etc.	Public Services	Water Distribution	842	1151
Main Valve Operation and Repair	Repair and maintenance of valves in the distribution system.	Public Services	Water Distribution	845	1153
Meter Maintenance	Maintenance of water meters	Public Services	Water Distribution	977	1155
Meter Reading	Meter read (re-read and final) for residential and commercial customers	Public Services	Water Distribution	554	1147
New Water Distribution, Supply, and Treatment Construction Engineering	Reviews plans for water system expansion. Designs and oversees the construction of new water distribution system	Public Services	Water Administration	932	1138
New Water Main & Service Inspection	Inspection of new water mains and service connections.	Public Services	Water Administration	975	1141
New Water Main Construction	Installation of new water main in the distribution system.	Public Services	Water Distribution	1138	1789
Ordinance Administration - General	Administer and monitor Public Services Department associated regulatory requirements	Public Services	Water Administration	826	1136
Public Education and Outreach	Create, update, respond to and manage Public Services Departments Divisions through various social media venues to fulfill regulatory requirements.	Public Services	Water Administration	808	1132
Public Services Administrative Support	Address various scheduling, conference rooms, and meeting set-up needs for the department. Various administrative tasks to support supervisors, managers, and the directors office.	Public Services	Water Administration	1135	1784
Records Management	Tracking, review, and oversight of department records	Public Services	Water Administration	933	1139
Service Agreements Administration	Administer, manage, prepare, monitor, approve, recommend and oversee franchise water agreements and associated rates.	Public Services	Water Administration	812	1133
Service Line Repair and Replacement	Repair and Replacement of Service lines that provide water to the home, business, etc.	Public Services	Water Distribution	846	1154
Site Plan Review	Review submitted site plans and require best management practices for conditions of approval in regards to environmental risk, and compliance to existing Ordinances and Performance Standards. (e.g. stormwater management).	Public Services	Water Administration	687	1131
Superfund Site Monitoring, Analysis and Compliance Reporting	As a member of the Auto Ion PRP Group, work directly with arrange for annual site groundwater sampling, review environmental monitoring data reports and participate in any meetings that may be scheduled by the lead responsible party.	Public Services	Water Administration	683	1130

City of Kalamazoo-Water Resources Department Program Descriptions

Program	Description	Department	Division	Prog#	ProgID
System Administration - SCADA / Control	Operation of Supervisory Control and Data Acquisition, Instrumentation of all Pump Stations, Booster/Bleeders, Water Storage Facilities and Associated Structures	Public Services	Water Pumping/Supply	862	1162
Utility Locating	State mandated Miss dig system	Public Services	Water Administration	941	1140
Water Main Breaks and Leak Repair	Crews respond and repair main breaks and leaks in the distribution system.	Public Services	Water Distribution	844	1152
Water Quality Administration	Testing and Performing Chemical Adjustments According to State and Federal Regulations and Evaluating Water Quality Concerns and Making Necessary Changes	Public Services	Water Administration	863	1137
Water Supply Controls and Operations	Operation of Water Supply Controls and Instrumentation, Automatically or Manually to Maintain Reliable and Safe Water Supply	Public Services	Water Pumping/Supply	855	1161
Water/Wastewater Rate Administration	Request, Administer, contract consultant, collate data and approve Water/Wastewater customer class rates inside the city and outside the city.	Public Services	Water Administration	816	1134
Well Maintenance & Replacement Program	Oversight and implementation of well maintenance and replacement plan and assist Water Operations & Maintenance with plan implementation through contract administration of related work and technical assistance.	Public Services	Water Pumping/Supply	665	1157

City of Kalamazoo-Water Resources Department Performance Based Budgeting (PBB)

Quartile	Program Name	Division	Program #	2018 Final Expense	2019 Final Expense	2019 Final Revenue	2020 Final Expense	2020 Final Revenue	Program Description
Non-Prioritized	ADMINISTRATIVE - Water			$ 1,382,196.00					General administrative tasks such as payroll, accounts payable, budget management, purchase orders, and requisitions
3	After Hours - Service Turn Ons	Water Distribution	557	$ 90,484.00	$ 175,275.00	$ 485,007.00	$ 175,275.00	$ 485,007.00	Turn on water service for customers
4	Cell Tower Oversight	Water Pumping/Supply	847	$ 19,283.00	$ 10,256.00		$ 10,256.00		Management of Water Supply Facilities as it Pertains to Cell Tower Operations and Their Contractors Accessing Our Facilities
2	Chemical Treatment	Water Pumping/Supply	848	$ 147,722.00	$ 136,629.00	$ 292,814.00	$ 136,629.00	$ 292,814.00	Water Treatment additives at All Water Pumping Facilities
2	City Infrastructure Strategic Planning	Water Administration	819	$ 89,948.00	$ 108,485.00	$ 152,773.00	$ 108,485.00	$ 152,773.00	Administer, direct, revise, implement and monitor Environmental and Sustainable City Infrastructure Strategic Plan Initiatives
3	Curb Box Maintenance	Water Distribution	838	$ 580,175.00	$ 394,825.00	$ 458,318.00	$ 394,825.00	$ 458,318.00	Repair and Maintenance of the pipe in the yard that allows access to the on and off valve.
4	Dispatch Services	Water Distribution	1000	$ 72,511.00	$ 63,578.00	$ 140,042.00	$ 63,578.00	$ 140,042.00	Dispatch services related to water and wastewater field crews
2	Emergency Preparedness	Water Administration	9429	$ 421,700.00	$ 267,386.00	$ 140,042.00	$ 267,386.00	$ 140,042.00	Emergency response planning, on call support, preparedness, storm response
3	Frozen Water Line Services	Water Distribution	840	$ 119,972.00	$ 175,687.00	$ 407,394.00	$ 175,687.00	$ 407,394.00	The unthawing of service lines due to the extreme cold of winter. May require digging up the entire service and replacing at a deeper level to avoid the harsh frost.
3	General Pumping Facility Repair and Maintenance	Water Pumping/Supply	851	$ 1,060,093.00	$ 2,432,424.00	$ 1,196,719.00	$ 2,432,424.00	$ 1,196,719.00	Minor Repair and Maintenance to all General Pumping Facilities
3	Hydrant Maintenance	Water Distribution	842	$ 626,501.00	$ 269,255.00	$ 528,411.00	$ 269,255.00	$ 528,411.00	Repair, maintain and exercising of hydrants. Repair and or replace hydrants that have been damaged by vehicles, etc.
1	Lead Service Replacement	Water Distribution	1115		$ 238,041.00		$ 238,041.00		20-Year program to replace all non-copper services
3	Main Valve Operation and Repair	Water Distribution	845	$ 524,781.00	$ 152,881.00	$ 168,050.00	$ 152,881.00	$ 168,050.00	Repair and maintenance of valves in the distribution system.
4	Meter Maintenance	Water Distribution	977	$ 104,919.00	$ 224,288.00	$ 521,973.00	$ 224,288.00	$ 521,973.00	Maintenance of water meters
4	Meter Reading	Water Distribution	554	$ 156,328.00	$ 171,831.00	$ 458,318.00	$ 171,831.00	$ 458,318.00	Meter read (re-read and final) for residential and commercial customers
2	New Water Distribution, Supply, and Treatment Construction Engineering	Water Administration	932	$ 182,085.00	$ 101,495.00	$ 229,159.00	$ 101,495.00	$ 229,159.00	Reviews plans for water system expansion. Designs and oversees the construction of new water distribution system
3	New Water Main & Service Inspection	Water Administration	975	$ 232,974.00	$ 261,493.00	$ 1,033,459.00	$ 261,493.00	$ 1,033,459.00	Inspection of new water mains and service connections.
3	Ordinance Administration - General	Water Administration	826	$ 70,046.00	$ 21,989.00	$ 38,193.00	$ 21,989.00	$ 38,193.00	Administer and monitor Public Services Department associated regulatory requirements
3	Public Education and Outreach	Water Administration	808	$ 126,177.00	$ 93,002.00	$ 38,193.00	$ 93,002.00	$ 38,193.00	Create, update, respond to and manage Public Services Departments Divisions through various social media venues to fulfill regulatory requirements.
3	Public Services Administrative Support	Water Administration	1135		$ 183,158.00		$ 183,158.00		Address various scheduling, conference rooms, and meeting set-up needs for the department. Various administrative tasks to support supervisors, managers, and the directors office.
2	Records Management	Water Administration	933	$ 433,334.00	$ 228,758.00	$ 534,704.00	$ 228,758.00	$ 534,704.00	Tracking, review, and oversight of department records
3	Service Agreements Administration	Water Administration	812	$ 139,753.00	$ 69,250.00	$ 101,848.00	$ 69,250.00	$ 101,848.00	Administer, manage, prepare, monitor, approve, recommend and oversee franchise water agreements and associated rates.
3	Service Line Repair and Replacement	Water Distribution	846	$ 1,469,003.00	$ 1,376,508.00	$ 3,009,472.00	$ 1,376,508.00	$ 3,009,472.00	Repair and Replacement of Service lines that provide water to the home, business, etc.
3	Site Plan Review	Water Administration	687		$ 26,534.00	$ 50,924.00	$ 26,534.00	$ 50,924.00	Review submitted site plans and require best management practices for conditions of approval in regards to environmental risk, and compliance to existing Ordinances and Performance Standards. (e.g. stormwater management).
3	Superfund Site Monitoring, Analysis and Compliance Reporting	Water Administration	683		$ 12,239.00		$ 12,239.00		As a member of the Auto Ion PRP Group, work directly with arrange for annual site groundwater sampling, review environmental monitoring data reports and participate in any meetings that may be scheduled by the lead responsible party.
3	System Administration - SCADA / Control	Water Pumping/Supply	862	$ 148,168.00	$ 142,730.00	$ 381,932.00	$ 142,730.00	$ 381,932.00	Operation of Supervisory Control and Data Acquisition, Instrumentation of all Pump Stations, Booster/Bleeders, Water Storage Facilities and Associated Structures
2	Utility Locating	Water Administration	941	$ 683,164.00	$ 340,140.00	$ 878,443.00	$ 340,140.00	$ 878,443.00	State mandated Miss dig system
2	Water Main Breaks and Leak Repair	Water Distribution	844	$ 999,796.00	$ 993,298.00	$ 2,334,875.00	$ 993,298.00	$ 2,334,875.00	Crews respond and repair main breaks and leaks in the distribution system.
2	Water Quality Administration	Water Administration	863	$ 390,068.00	$ 383,920.00	$ 432,856.00	$ 383,920.00	$ 432,856.00	Testing and Performing Chemical Adjustments According to State and Federal Regulations and Evaluating Water Quality Concerns and Making Necessary Changes
2	Water Supply Controls and Operations	Water Pumping/Supply	855	$ 1,366,553.00	$ 981,811.00	$ 1,222,181.00	$ 981,811.00	$ 1,222,181.00	Operation of Water Supply Controls and Instrumentation, Automatically or Manually to Maintain Reliable and Safe Water Supply
4	Water/Wastewater Rate Administration	Water Administration	816	$ 88,365.00	$ 28,306.00	$ 25,462.00	$ 28,306.00	$ 25,462.00	Request, Administer, contract consultant, collate data and approve Water/Wastewater customer class rates inside the city and outside the city.
3	Well Maintenance & Replacement Program	Water Pumping/Supply	665	$ 741,330.00	$ 583,742.00	$ 343,738.00	$ 583,742.00	$ 343,738.00	Oversight and implementation of well maintenance and replacement plan and assist Water Operations & Maintenance with plan implementation through contract administration of related work and technical assistance.

Acknowledgement of Annual Water Supply Billing

Section B5

Acknowledgement of Annual Water Supply Billing

The Michigan Safe Drinking Water Act, 1976 PA 399, as amended requires an annual fee be paid by each community water supply. The City of Kalamazoo acknowledges payment of the annual water supply fee.