STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

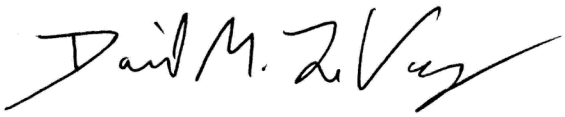
IN THE MATTER OF THE PETITION OF TRI-TOWNSHIP WATER CORPORATION FOR A NEW SCHEDULE OF RATES AND CHARGES	**)** **)** **)** **)**	**CAUSE NO. 45563-U**

REPORT OF THE INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR

In accordance with 170 IAC 14-1-4(a), the Indiana Office of Utility Consumer Counselor ("OUCC"), by counsel, hereby submits its Report consisting of the testimonies, including attachments, of Thomas W. Malan (Public's Exhibit No. 1), Carl N. Seals (Public's Exhibit No. 2) and Shawn Dellinger (Public's Exhibit No. 3) Comments the OUCC has received from consumers of this utility about the requested rate case increase have been incorporated as an attachment to Public's Exhibit No. 1.

Respectfully submitted

INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR



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CERTIFICATE OF SERVICE

This is to certify that a copy of the foregoing ***Report of the Indiana Office of Utility Consumer Counselor*** has been served upon the following counsel of record in the captioned proceeding by electronic service on September 14, 2021.

Jody Blasdel, Utility Manager
TRI-TOWNSHIP WATER CORPORATION
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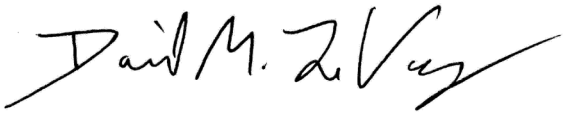

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STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

IN THE MATTER OF THE PETITION OF TRI-TOWNSHIP WATER CORPORATION FOR A NEW SCHEDULE OF RATES AND CHARGES	**))))**	**CAUSE NO. 45563-U**

TESTIMONY
OF
THOMAS W. MALAN

ON BEHALF OF THE
INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR

PUBLIC'S EXHIBIT NO. 1

September 14, 2021

TESTIMONY OF OUCC WITNESS THOMAS W. MALAN
CAUSE NO. 45563-U
TRI-TOWNSHIP WATER CORPORATION

I. INTRODUCTION

Q: Please State your name and business address.

A: My name is Thomas W. Malan, and my business address is 115 W. Washington St., Suite 1500 South, Indianapolis, IN 46204.

Q: By whom are you employed and in what capacity?

A: I am employed by the Indiana Office of Utility Consumer Counselor ("OUCC") as a Utility Analyst with the Water-Wastewater Division. My qualifications and experience are set forth in Appendix A.

Q: What relief is Applicant requesting?

A: Tri-Township Water Corporation ("Tri-Township" or "Applicant") is a small water utility with 3,885 customers, located in Dearborn and Franklin counties. Tri-Township's last rate order was issued approximately twenty years ago. Tri-Township asks the Indiana Utility Regulatory Commission ("IURC" or "Commission") to authorize an overall 50.57% rate increase, to be implemented in two phases. The Phase I increase would be a 25.81% increase over current rates and take effect when an order from the Commission is issued in this cause. The Phase II increase would be a 19.68% increase over Phase I rates and would take effect one year after the debt authorized in the cause has been issued. Tri-Township requests borrowing authority of $4.525 million, which OUCC witness Shawn Dellinger discusses in his testimony.

Q: What is the purpose of your testimony?

A: I present the OUCC's recommended overall rate increase of 46.60% to be implemented in two phases with a 20.93% Phase 1 rate increase and a 21.23% Phase 2 increase. My testimony and schedules present the OUCC's recommended operating revenue and operating expense adjustments. I discuss the OUCC's recommended rate case cost to be included in Applicant's borrowing authority. Finally, I include consumer comments regarding the Tri-Township cause (OUCC Attachment TWM-1).

Q: Describe the review and analysis you performed.

A: I reviewed Applicant's Small Utility Rate Application ("Application") dated June 16, 2021. I reviewed Applicant's 2016, 2017, 2018, 2019, and 2020 IURC annual reports. I prepared discovery questions and reviewed Applicant's responses. I participated in phone conferences with Utility Manager Jody Blasdel. I had phone conversations with Scott Hadler from Bakertilly, which is Applicant's Financial Advisor.

Q: Do you sponsor any schedules?

A: Yes. I sponsor the following schedules:

OUCC Schedule 1 – Comparison of Overall Revenue Requirements (page 1)
Comparison of Net Operating Income Adj (page 2)
Comparison of Phased Rev Requirement (page 3)

OUCC Schedule 2 – Comparative Balance Sheet as of December 31, 2018, 2019 and 2020

OUCC Schedule 3 – Comparative Income Statement for the Twelve Months Ended December 31, 2018, 2019, and 2020.

OUCC Schedule 4 – *Pro Forma* Net Operating Income Statement

OUCC Schedule 5 – OUCC Revenue Adjustments

OUCC Schedule 6 – OUCC Expense Adjustments
OUCC Schedule 7 – OUCC Debt Service
OUCC Schedule 8 – OUCC Debt Service Reserve
OUCC Schedule 9 – OUCC Tariff

Q: Please identify the attachments to your testimony.

A: I included the following attachments to my testimony:

OUCC Attachment TWM-1 – Comments from customers of Tri-Township

OUCC Attachment TWM-2 – Applicant's response to OUCC Data Request 1-22

OUCC Attachment TWM-3 – Applicant's response to OUCC Data Request 1-20

OUCC Attachment TWM-4 - Applicant's response to OUCC Data Request 1-21

II. OVERALL REVENUE REQUIREMENT

A. Overview of Tri-Township Case

Q: What revenue increase does Applicant propose?

A: Applicant requested an overall 50.57% revenue increase to generate $479,147 of additional operating revenue per year.

Q: What are the principal drivers of Applicant's proposed rate increase?

A: The principal drivers for this rate increase are (1) the yearly expense associated with $4.525 million requested borrowing, (2) a $103,336 annual increase to salaries and wages expense, and (3) a $64,588 increase to annual periodic maintenance expense.

B. Overview of OUCC's Case

Q: What revenue increase does the OUCC recommend?

A: Based on its review of Tri-Township's test year revenues, expenses, and expense adjustment, the OUCC recommends an overall revenue increase of 46.60% or $444,360 over current revenues.

Table 1: Comparison of Revenue Requirement

	Petitioner	OUCC	Ref	More (Less)
Operating Expenses	$ 932,794	$ 933,139	4	$ 345
Taxes other than Income	475	475	4	-
Extensions and Replacements	165,528	165,528	7	-
Debt Service	304,151	279,903	9	(24,248)
Debt Service Reserve	60,830	55,981	10	(4,849)
Total Revenue Requirements	1,463,778	1,435,026		(28,752)
Less: Interest Income	(11,629)	(11,629)	3	-
Net Revenue Requirements	1,452,149	1,423,397		(28,752)
Less: Revenues at current rates subject	(947,537)	(953,528)	4	(5,991)
Other revenues at current rates	(26,075)	(26,075)	4	-
Net Revenue Increase Required	478,537	443,794		(34,743)
Add: Additional IURC Fee	610	566		(44)
Recommended Increase	$ 479,147	$ 444,360		(34,787)
Recommended Percentage Increase	50.57%	46.60%		-3.97%

III. OPERATING REVENUE

Q: What level of present rate operating revenues does Tri-Township propose?

A: Tri-Township proposes present rate *pro forma* operating revenues of $973,612. This is the same as test year revenues as Applicant did not propose any revenue adjustment.

Q: Do you accept Tri-Township's proposed present rate operating revenues?

A: No. I recommend an adjustment to capture test year residential customer growth. I recommend *pro forma* operating revenues of $979,603, a $5,991 increase to test year operating revenues of $973,612.

Q: What is the purpose of a revenue normalization adjustment?

A: A utility can expect revenue to increase as customers are added due to growth. For example, if ten customers are added to a system at the end of the historic test year and each customer pays an average of $20 a month for water service, the utility can expect the ten additional customers to contribute $2,400 ($20/month x 12 months x 10 customers = $2,400) per year in additional revenue. Revenue normalization and growth adjustments adjust test year revenues to reflect *pro forma* revenues for the customers as of the last day of the historic test year. Excluding revenue from growth overstates the revenue increase required.

Q: How did you calculate the residential customer growth adjustment?

A: First, I calculated the average residential customer bill during the test year by dividing test year residential sales of $856,843 by the total number of test year residential billings of 22,737. The calculation results in an average residential customer bi-monthly bill of $37.68. To recognize the net additional bills due to

test year customer growth, I totaled the increase or decrease from billing period to billing period (159). Then I multiplied that number by the average residential bi-monthly bill. Using this method, I calculated an additional $5,991 per year in revenue due to growth in the residential customer class during the test year. (159 bills x $37.68 average bi-monthly bill = $5,991.) (OUCC Schedule 5, Adj. No. 1.)

Table 2: Average Residential Bill Calculation

Test Year Residential Sales	$ 856,843
Divided by: 12 Month Total # of Customers	22,737
Average Bill per Residential Customer	$ 37.68

Table 3: Residential Customer Growth Adjustment Calculation

	# of Residential Billings	(+ or -) # of Bills	Multiplier	Monthly Bills	Revenues
Jan-20	3,775	0	0	0	133,669
Mar-20	3,761	-14	1	-14	132,042
May-20	3,780	19	2	38	134,320
Jul-20	3,794	14	3	42	144,162
Sep-20	3,811	17	4	68	160,209
Nov-20	3,816	5	5	25	152,441
	22,737			159	856,843
Number of Additional Bills				159	
Times: Average Bill				37.68	
Adjustment Increase/(Decrease)					**$ 5,991**

IV. OPERATING EXPENSES AND TAXES

Q: What level of operating expenses does Tri-Township propose for Phase I?

A: Tri-Township proposes Phase I *pro forma* operating expenses of $932,888 an increase of $177,711 on test year operating expense of $755,177.

Q: What operating expense adjustments does Applicant propose in Phase I?

A: Tri-Township proposes five adjustments to test year operating expenses: (1) a $103,336 increase to salaries and wages, (2) a ($1,815) decrease to employee benefits, (3) a $29 increase to IURC fees, (4) a $3,241 increase to bad debt expense, and (5) a $64,588 increase to periodic maintenance expense. Tri-Township proposed a $8,332 increase to test year payroll taxes expense of $26,561.

Q: Does the OUCC accept Applicant's Phase I operating expense adjustments?

A: Yes.

Q: Do you propose additional adjustments to Applicant's Phase I expenses?

A: Yes. I recommend a system delivery adjustment to capture added expense related to my proposed growth normalization adjustment.

Q: What is a system delivery adjustment?

A: A system delivery adjustment captures the increase or decrease in variable expenses related to an increase or decrease in the amount of water sold and the number of customer billings. These variable costs include purchased power, chemicals, and postage. (See OUCC Schedule 6, Adjustment No. 1.)

Q: What system delivery adjustment do you recommend?

A: I recommend a $726 increase to test year operating expense. I calculated the system delivery adjustment by dividing the test year variable cost of purchased

power and chemicals, by the total water sold during the test year, to obtain a per gallon price for each variable cost. I multiplied the average bi-monthly residential demand of 9,555 gallons by the additional number of bills Tri-Township can expect over the next year due to growth. I then multiplied that value by the per gallon cost for purchased power ($.00041) and for Chemicals ($.00001) resulting in an additional cost of $634. It was also necessary to add additional postage cost, which I calculated by multiplying the current postage cost of $.58 by the additional yearly bills to yield $92. I recommend $726 (($.00041 x 9,555 x 159) + ($.00001 x 9,555 x 159) + ($.58 x 159) = $726) be added to test year expense to capture the increase in variable costs due to test year customer growth. (See OUCC Schedule 6, Adjustment No. 1.)

Table 4: System Delivery Adjustment Calculation

	Purchased Power	Chemicals	Postage
Test Year Expense	$ 106,764	$ 1,839	
Divided by: Sales Volumes	260,506,000	260,506,000	
Cost per Gallon	$ 0.00041	$ 0.00001	
Cost Per Bill			$ 0.58
Times Additional Gallons	9,555	9,555	
Times: Additional Bills	159	159	159
	$ 623	$ 11	$ 92
Adjustment Increase (Decrease)			$ 726

Q: What level of operating expenses does Tri-Township propose for Phase II?

A: Tri-Township proposes Phase II *pro forma* operating expenses of $933,580, which is an increase of $381 to Phase I operating expense of $933,199. (Tri-Township proposes a $381 increase to IURC fees expense in Phase II.)

Q: Does the OUCC accept Tri-Township proposed Phase II operating expense adjustments?

A: No. The increase to the IURC fee is already included as a component of the revenue requirement, as shown on OUCC Schedule 1 Phased In. Therefore, an adjustment for the additional Phase I IURC Fee would result in double recovery of that expense.

Q: Do you propose any additional operating expense adjustments to Applicant's Phase II?

A: No.

V. EXTENSIONS & REPLACEMENTS

Q: What level of annual E&R did Tri-Township propose in its revenue requirement?

A: Tri-Township proposed $100,000 of annual E&R be included in its Phase I revenue requirement and $165,528 of annual E&R be included in its Phase II revenue requirement.

Q: What *pro forma* E&R does the OUCC propose?

A: OUCC Witness Carl Seals presents the OUCC's analysis and review of Tri-Township's proposed capital asset management plan and extension and replacement revenue requirement. Mr. Seals recommends Applicant's proposed Phase I E&R revenue requirement of $100,000 and its proposed Phase II E&R revenue requirement of 165,528 be included in Applicant's rates.

VI. RATE CASE COSTS

Q: Did Applicant include estimated IURC Rate Case cost in the State Revolving Fund (SRF) borrowing?

A: Yes. Applicant included $59,325 of rate case costs for this small utility cause in its SRF borrowing. The following costs were provided in response to OUCC Data Request 1-22 (OUCC Attachment TWM-2).

IURC Rate Case:	
Financial Advisor	34,500
Engineer	2,325
Legal	10,000
IURC fees	2,500
Additional allowance	10,000
Total	$59,325

Q: Do you accept Applicant's estimated IURC Rate Case costs?

A: No. While I accept Applicant's estimated Engineering cost of $2,325, I disagree with the other rate case cost estimates, and I recommend a lesser amount be authorized.

Q: Please explain why you do not recommend approval of Applicant's estimated cost for Financial Advisor of $34,500?

A: This is only an estimate that Applicant created no later than when it filed its application. This is a small utility rate case designed to eliminate or avoid rate case cost. Further, this has not been a particularly complicated case when compared to other small utility rate cases.

Q: How much accounting cost has been incurred to date?

A: In OUCC Data Request 1-21 (OUCC Attachment TWM-4), the OUCC asked for support for the estimated accounting cost including invoices, but no invoices were provided. Therefore, we do not know the answer to that question.

Q: What Financial Advisor cost do you recommend?

A: I recommend estimated Financial Advisory fees of $20,000 be included in debt authorization. This level of Financial Advisory fee is more in line with similar charges in other Small Utility cases, where no testimony is filed, or Commission hearings conducted. Based on the OUCC's experience with such cases and our review of the other data requests provided, we estimated for purposes of setting rates in this case that a cost for accounting services of $20,000 should adequately reflect the reasonable costs that Applicant will have incurred by the end of the case.

Q: Please explain why you do not accept the inclusion of Applicant's $10,000 estimate of Legal cost.

A: Applicant provided no breakdown for this estimated cost when asked in Data Request 1-20 (OUCC Attachment TWM-3). Applicant provided no supporting invoices or engagement letter with an attorney when asked in discovery. Further, legal counsel has not been involved so far as we can detect in preparation of the application or responding to discovery. This estimated rate case cost should not be included as a part of debt authorization.

Q: Please explain why you do not accept Applicant's inclusion of an Estimated IURC fee?

A: Applicant included an estimated IURC fee of $2,500 in the borrowing authority. Except for the IURC fee that is calculated and included as part of the revenue requirement, the utility does not pay additional fees to the IURC. Therefore, the estimated $2,500 should not be included as a rate case cost.

Q: Please explain why the estimated cost for "Additional allowance" should not be included in Applicant's borrowing authority?

A: Tri-Township included $10,000 of estimated "Additional allowance" to be included in its borrowing authority as part of its rate case costs. Applicant provided no breakdown for this cost as requested in Data Request 1-20 (OUCC Attachment TWM-3). Further, Applicant provided no invoices or contract to support the estimated cost, as requested in Data Request 1-21 (OUCC Attachment TWM-4). Therefore, the estimated $10,000 of Additional allowance should not be included in the borrowing authority.

Q: Please summarize your adjustments to Applicant's rate case costs.

A: I recommend total rate case cost of $22,325 be included in Applicant's borrowing authority, $37,000 less than the $59,325 requested by Tri-Township. I recommend the rate case cost include $20,000 for financial advisory services, $14,500 less than the amount Applicant included. Further, I recommend the inclusion of $2,325 for engineering rate case cost be included in Applicant's borrowing authority. I recommend no allowance be included in Applicant's borrowing authority for legal, IURC fee, or additional allowances, a reduction of $22,500 from the amount Tri-Township included.

VII. RECOMMENDATIONS

Q: Please summarize your recommendations to the Commission.

A: I recommend the Commission approve an overall rate increase of 46.60%, a phase I increase of 20.93% and a Phase II increase of 21.23%.

I recommend the Commission approve the OUCC's residential growth adjustments of $5,991 increase to test year revenues.

I recommend the Commission approve the OUCC's system delivery adjustment of $726 increase to test year expense.

I recommend the Commission approve IURC Rate Case costs not to exceed $22,325.

Q: Does this conclude your testimony?

A: Yes.

APPENDIX A - QUALIFICATIONS

Q: Please describe your educational experience.

A: In December of 2002 I received a bachelor's degree in Business Administration focusing on Accounting from Indiana University Kelley School of Business. In December of 2012 I received my Master of Science in Accounting from Indiana University Kelley School of Business, Indianapolis Indiana.

Q: Please describe your professional experience.

A: I was hired as a Utility Analyst in Water / Wastewater division of the OUCC on April 30, 2018. Prior to being hired by the OUCC, I was the controller of All Trades Staffing. I have over fifteen years of accounting experience. I worked for several years as a Financial Analyst in the insurance and healthcare industries. I have participated in conferences and seminars regarding utility regulation, rate making and financial issues. I have completed the National Association of Regulatory Utility Commissioners (NARUC) Eastern Utility Rate School. I also regularly attend the National Association of State Utility Consumer Advocates (NASUCA) Accounting and Tax committee monthly meetings. In August of 2019 I completed the Annual Regulatory Studies Program from the Institute of Public Utilities at Michigan State University.

Q: Have you previously testified before the Indiana Utility Regulatory Commission?

A: Yes.

TRI-TOWNSHIP WATER CORPORATION
CAUSE NUMBER 45563 U

Comparison of Petitioner's and OUCC's Revenue Requirements

	Per Petitioner	Per OUCC	Sch Ref	OUCC More (Less)
Operating Expenses	$ 932,794	$ 933,139	4	$ 345
Taxes other than Income	475	475	4	-
Extensions and Replacements	165,528	165,528	7	-
Working Capital	-	-	8	-
Debt Service	304,151	279,903	9	(24,248)
Debt Service Reserve	60,830	55,981	10	(4,849)
Total Revenue Requirements	1,463,778	1,435,026		(28,752)
Less: Interest Income	(11,629)	(11,629)	3	-
Other Income			3	-
Add: Other Expenses				-
Net Revenue Requirements	1,452,149	1,423,397		(28,752)
Less: Revenues at current rates subject to increase	(947,537)	(953,528)	4	(5,991)
Other revenues at current rates	(26,075)	(26,075)	4	-
Net Revenue Increase Required	478,537	443,794		(34,743)
Add: Additional IURC Fee	610	566		(44)
Recommended Increase	$ 479,147	$ 444,360		$ 34,787
Recommended Percentage Increase	50.57%	46.60%		-3.97%

Current Rate for 5,000 Gallons	Proposed Petitioner	Proposed OUCC	OUCC More (Less)
Current Rate = $19.85	$ 29.89	$ 29.10	$ (0.79)

TRI-TOWNSHIP WATER CORPORATION
CAUSE NUMBER 45563 U

Reconciliation of Net Operating Income Statement Adjustments
***Pro-forma* Present Rates**

	Per Petitioner	Per OUCC	OUCC More (Less)
Operating Revenues			
Water Sales	$ -		$ -
Fire Protection	-	$ 5,991	5,991
Other Sales of Water	-	-	-
Late Fees	-		
Other Operating Revenues	-	-	-
Total Operating Revenues	-	5,991	5,991
O&M Expense			
Salaries and Wages	103,336	103,336	-
Employee Benefits	(1,815)	(1,815)	-
Purchased Power		623	623
Chemicals		11	11
Regulatory Commission Expense - Other	410	29	(381)
Bad Debt Expense	3,241	3,241	-
Miscellaneous Expense		92	92
Periodic Maintenance	64,588	64,588	-
Payroll Taxes	8,332	8,332	-
Total Operating Expenses	178,092	178,437	345
Net Operating Income	$ (178,092)	$ (172,446)	$ 5,646

TRI-TOWNSHIP WATER CORPORATION
CAUSE NUMBER 45563 U

Comparison of Applicant's and OUCC's
Phased Revenue Requirement

	Phase I				Phase II			
	Per Applicant	Per OUCC	Sch Ref	More (Less)	Per Applicant	Per OUCC	Sch Ref	More (Less)
Operating Expenses	$ 932,413	$ 933,139	4	$ (726)	$ 933,105	$ 933,393	4	$ (288)
Taxes Other than Income	475	475	4	-	475	475	4	-
Extensions and Replacements	100,000	100,000	APP	-	165,528	165,528	APP	-
				-	-	-		-
Debt Service	135,750	100,980	SD	34,770	304,151	279,903	SD	24,248
Debt Service Reserve	60,830	55,981	SD	4,849	60,830	55,981	SD	4,849
Total Revenue Requirements	1,229,468	1,190,575		38,893	1,464,089	1,435,280		28,809
Less Revenue Requirement Offsets:								
Interest Income	(11,629)	(11,629)	APP	-	(11,629)	(11,629)	APP	-
Net Revenue Requirements	1,217,839	1,178,946		38,893	1,452,460	1,423,651		28,809
Less: Rev not subj to increase	(26,075)	(26,075)			(26,075)	(26,075)		
Less: Rev @ current rates subj to inc	(947,537)	(953,528)	4	(5,991)	(1,192,075)	(1,153,125)	4	38,950
Net Revenue Increase Required	244,227	199,343		32,902	234,310	244,451		67,759
Net Revenue Conversion Factor	-	-		-	-	-		-
Additional IURC Fee	311	254		(57)	299	312		13
Recommended Increase	$ 244,538	$ 199,597		$ 44,941	$ 234,609	$ 244,763		$ (10,154)
Recommended Percentage Increase	25.81%	20.93%		4.88%	19.68%	21.23%		-1.55%

TRI-TOWNSHIP WATER CORPORATION
CAUSE NUMBER 45563 U

COMPARATIVE BALANCE SHEET
As of December 31,

ASSETS	**2020**	**2019**	**2018**
Utility Plant:			
Utility Plant in Service	$ 13,018,436	$ 12,909,900	$ 12,597,626
Construction Work in Progress			
Less: Accumulated Depreciation	(5,629,671)	(5,422,715)	(5,265,994)
Net Utility Plant in Service	7,388,765	7,487,185	7,331,632
Current Assets:			
Cash and Cash Equivalents	259,739	235,741	82,135
Working Fund	400	400	400
Temporary Cash Investment	853,831	694,424	818,847
Accounts Receivable	182210	178,024	174,016
Materials and Supplies	58390	55,144	49,622
Prepaids	27352	31,706	6,235
Other Current Assets			
Total Current Assets	1,381,922	1,195,439	1,131,255
Total Assets	$ 8,770,687	$ 8,682,624	$ 8,462,887

LIABILITIES	**2020**	**2019**	**2018**
Equity			
Retained Earnings	$ 5,239,006	$ 5,234,667	$ 5,101,083
Paid in Capital			
Total Equity	5,239,006	5,234,667	5,101,083
Contributions in Aid of Construction	2,740,742	2,741,150	2,688,552
Current Liabilities			
Accounts Payable	12,876	27,346	13,643
Customer Deposits	656,350	637,250	621,550
Current Portion of Long-term Debt			
Accrued Interest			
Accrued Wages			
Accrued Taxes	16,682	16,708	14,026
Misc. Current & Accrued Liab	26,831	25,503	24,033
Other Current Liabilities	712,739	706,807	673,252
Total Liabilities	$ 8,692,487	$ 8,682,624	$ 8,462,887

TRI-TOWNSHIP WATER CORPORATION
CAUSE NUMBER 45563 U

COMPARATIVE INCOME STATEMENT
Twelve Months Ended December 31,

	2020	2019	2018
Operating Revenues			
Water Sales	$ 916,773	$ 923,134	$ 891,477
Fire Protection			
Late Fees	2,139	4,445	4,999
Miscellaneous Service Revenues		12,224	8,829
Other Operating Revenues	54,700	111,142	78,697
Total Operating Revenues	973,612	1,050,945	984,002
Operating Expenses			
Salaries and Wages	338,533	323,073	298,158
Officers & Directors	8,325	8,950	8,625
Employee Benefits	82,961	85,242	76,224
Purchased Power	104,870	123,627	107,383
Fuel for Power Production	1,271	715	5,108
Chemicals	1,839	1,776	1,668
Materials and Supplies	5,411	1,826	7,649
Contractual Services - Accounting	7,050	7,050	7,050
Contractual Services - Legal	726	429	735
Contractual Services - Other	73,309	14,164	41,754
Transportation Expense	13,372	19,283	27,339
Insurance - General Liability	20,357	24,433	22,829
Insurance - Workman's Compensation	5,467	5,709	5,551
Insurance - Other	200	200	200
Advertising Expense	173	175	320
Regulatory Commission Expense - Other	1,141	1,120	
Miscellaneous Expense	63,136	51,457	48,580
Total O&M Expense	728,141	669,229	659,173
Depreciation Expense	225,725	240,247	237,876
Payroll Taxes	26,561	25,396	23,447
Other Taxes & Licenses	475	674	442
Total Operating Expenses	980,902	935,546	920,938
Net Operating Income	(7,290)	115,399	63,064
Other Income (Expense)			
Interest & Dividend Income	11,629	18,185	6,197
Total Other Income (Expense)	11,629	18,185	6,197
Net Income	$ 4,339	$ 133,584	$ 69,261

TRI-TOWNSHIP WATER CORPORATION
CAUSE NUMBER 45563 U

Pro-forma **Net Operating Income Statement**
Phase I

	Year Ended 12/31/2020	Adjustments	Sch Ref	*Pro forma* Present Rates	Adjustments	Sch Ref	*Pro forma* Proposed Rates
Operating Revenues							
Water Sales	$ 916,773			$ 916,773	$ 193,156		$ 1,109,929
Residential Normalization	-	$ 5,991	5-1	5,991	-		5,991
Other Sales of Water	28,625			28,625	5,993		34,618
Late Fees	2,139			2,139	448		2,587
Other Operating Revenues	26,075			26,075	-		26,075
Total Operating Revenues	973,612	5,991		979,603	199,597	1	1,179,200
O&M Expense							
Salaries and Wages	338,533	103,336	APP	441,869			441,869
Officers & Directors	8,325			8,325			8,325
Employee Benefits	82,961	(1,815)	APP	81,146			81,146
Purchased Power	104,870	623	(6-1)	105,493			105,493
Fuel for Power Production	1,271			1,271			1,271
Chemicals	1,839	11	(6-1)	1,850			1,850
Materials and Supplies	5,411			5,411			5,411
Contractual Services	-			-			-
Contractual Services	-			-			-
Contractual Services - Account	7,050			7,050			7,050
Contractual Services - Legal	726			726			726
Contractual Services - Other	73,309			73,309			73,309
Transportation Expense	13,372			13,372			13,372
Insurance - General Liability	20,357			20,357			20,357
Ins - Workman's Compensation	5,467			5,467			5,467
Insurance - Other	200			200			200
Advertising Expense	173			173			173
Regulatory Commission Expense	1,141	29	APP	1,170	254		1,424
Bad Debt Expense	-	3,241	APP	3,241			3,241
Rate Case Expense Amortization	-			-			-
Miscellaneous Expense	63,136	92	(6-1)	63,228			63,228
Periodic Maintenance		64,588	APP	64,588			64,588
Payroll Taxes	26,561	8,332	APP	34,893			34,893
Other Taxes & Licenses	475			475		1	475
Total Operating Expenses	755,177	178,437		933,614	254		933,868
Net Operating Income	$ 218,435	$ (172,446)		$ 45,989	$ 199,343		$ 245,332

TRI-TOWNSHIP WATER CORPORATION
CAUSE NUMBER 45563 U

Pro-forma **Net Operating Income Statement**
Phase II

	Year Ended 12/31/2021	Adjustments	Sch Ref	*Pro forma* Present Rates	Adjustments	Sch Ref	*Pro forma* Proposed Rates
Operating Revenues							
Water Sales	$ 1,109,929			#########	$ 226,152		$ 1,336,081
Fire Protection	5,991			5,991	1,254		7,245
Other Sales of Water	34,618			34,618	7,246		
Late Fees	2,587			2,587	542		3,129
Other Operating Revenues	26,075			26,075			26,075
Total Operating Revenues	1,179,200	-		1,179,200	244,763	1	1,372,530
O&M Expense							
Salaries and Wages	441,869	-		441,869			441,869
Officers & Directors	8,325			8,325			8,325
Employee Benefits	81,146	-		81,146			81,146
Purchased Power	105,493			105,493			105,493
Fuel for Power Production	1,271			1,271			1,271
Chemicals	1,850			1,850			1,850
Materials and Supplies	5,411			5,411			5,411
Contractual Services	-			-			-
Contractual Services	-			-			-
Contractual Services - Account	7,050			7,050			7,050
Contractual Services - Legal	726			726			726
Contractual Services - Other	73,309			73,309			73,309
Transportation Expense	13,372			13,372			13,372
Insurance - General Liability	20,357			20,357			20,357
Ins - Workman's Compensation	5,467			5,467			5,467
Insurance - Other	200			200			200
Advertising Expense	173			173			173
Regulatory Commission Expense	1,424			1,424	312		1,736
Bad Debt Expense	3,241			3,241			3,241
Rate Case Expense Amortization	-			-			-
Miscellaneous Expense	63,228			63,228			63,228
Periodic Maintenance	64,588			64,588			64,588
Payroll Taxes	34,893			34,893			34,893
Other Taxes & Licenses	475			475		1	475
Total Operating Expenses	933,868	-		933,868	312		934,180
Net Operating Income	$ 245,332	$ -		$ 245,332	$ 244,451		$ 438,350

TRI-TOWNSHIP WATER CORPORATION
CAUSE NUMBER 45563 U

OUCC Revenue Adjustments

(1)
Test Year Residential Normalization

To adjust test year residential water sales to normalize growth during the test year.

	Number of Residential Billings	(A) Increase (Decrease) in Number of Bills	(B) Multiplier	(A) x (B) Additional Monthly Bills	Revenues
Jan-20	3,775	0	0	0	133,669
Mar-20	3,761	(14)	1	(14)	132,042
May-20	3,780	19	2	38	134,320
Jul-20	3,794	14	3	42	144,162
Sep-20	3,811	17	4	68	160,209
Nov-20	3,816	5	5	25	152,441
	22,737			159	856,843

Number of Additional Bills	159
Times: Average Bill	37.68

Adjustment Increase/(Decrease) **$ 5,991**

Test Year Residential Sales	$ 856,843
Divided by: 12 Month Total # of Customers	22,737
Average Bill per Residential Customer	$ 37.68

TRI-TOWNSHIP WATER CORPORATION
CAUSE NUMBER 45563 U

OUCC Expense Adjustments

(1)
System Delivery Adjustment

To increase water production costs for customer growth during and after the test year.

	Purchased Power	Chemicals	Postage
Test Year Expense	$ 106,764	$ 1,839	
Divided by: Sales Volumes	260,506,000	260,506,000	
Cost per Gallon	$ 0.00041	$ 0.00001	
Cost Per Bill			$ 0.58
Times Additional Gallons	9,555	9,555	
Times: Additional Bills	159	159	159
	$ 623	$ 11	$ 92
Adjustment Increase (Decrease)			$ 726

TRI-TOWNSHIP WATER CORPORATION
CAUSE NUMBER 45563 U

Debt Service

To reflect the average amount of debt service required over a five year period.

	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Proposed SRF Bond		$279,903	$279,903	$279,903	$279,903	$ 1,119,612
	$ -	$279,903	$279,903	$279,903	$279,903	$ 1,119,612
Divide by 4 years						4
Average Annual Debt Service						$ 279,903
Phase I (Interest Only)						$ 100,980

TRI-TOWNSHIP WATER CORPORATION
CAUSE NUMBER 45563 U

Debt Service Reserve

To reflect the average amount of debt service reserve required over a five year period.

	Year 1	Year 2	Year 3	Year 4	Year 5	Largest Annual Amount
Proposed SRF Bonds		$279,903	$279,903	$279,903	$279,903	$ 279,903
	$ -	$279,903	$279,903	$279,903	$279,903	$ 279,903
Divide by 5 years						5
Average Annual Debt Service Reserve						$ 55,981

TRI-TOWNSHIP WATER CORPORATION
CAUSE NUMBER 45563 U

Current and Proposed Rates and Charges

	Current	Phase I			Phase II		
		Petitioner Proposed	OUCC Proposed	OUCC More (Less)	Petitioner Proposed	OUCC Proposed	OUCC More (Less)
First 2,000 gallons	$ 4.96	$ 6.24	$ 6.00	$ (0.24)	$ 7.47	$ 7.27	$ (0.20)
Next 5,000 gallons	3.31	4.16	4.00	(0.16)	4.98	4.85	(0.13)
Next 13,000 gallons	2.27	2.86	2.75	(0.11)	3.42	3.33	(0.09)
Next 15,000 gallons	1.76	2.21	2.13	(0.09)	2.65	2.58	(0.07)
All over 35,000 gallons	1.49	1.87	1.80	(0.07)	2.24	2.18	(0.06)
Service Charge							
5/8" or 3/4" (2,000 Gallons)	9.92	12.48	12.00	(0.48)	14.94	14.54	(0.39)
1" (3,224 Gallons)	13.97	17.58	16.89	(0.68)	21.03	20.48	(0.55)
1 1/4" (5,333 gallons)	20.95	26.36	25.34	(1.02)	31.54	30.71	(0.83)
1 1/2" (7,030 gallons)	26.54	33.39	32.10	(1.29)	39.96	38.91	(1.05)
2" (10,735 gallons)	34.95	43.97	42.27	(1.70)	52.62	51.24	(1.39)
3" (19,994 gallons)	55.97	70.41	67.69	(2.73)	84.27	82.05	(2.22)
4" (32,792 gallons)	78.49	98.75	94.92	(3.83)	118.18	115.07	(3.11)

Secretary of the Commission
IURC
101 W. Washington St. Suite 1500 East
Indianapolis, IN 46204

June 26, 2021

Dear Secretary,

Please accept this letter as a written protest of Tri-Township Water Corporation's request to increase my rates.

We/I believe that a 50% increase is ridiculous! No matter how Tri-Township Water Corp. spins the numbers, → a 50% increase is incredibly unfair to us middle class, working folks. Neither my spouse, nor myself, are able to attend a public hearing, because we have to work to pay our bills.

Having clean, potable water is an essential service (right?) but a 50% increase is totally unfair to citizens that are working hard, to make ends meet.

Please do not allow such a large increase!

In respectful protest,

Julie Sanker Bob Sanker

Julie + Bob Sanker

Mr & Mrs Robert Sanker, Jr
25127 Cider Circle Dr
West Harrison, IN 47060

July 3, 2021

Secretary of the Commission

IN Utility Regulatory Commission

101 W Washington St

Suite 1500 East

Indianapolis, IN 46204

To Whom It May Concern:

We realize there has not been an increase since 1996 but this increase of 25.82% and then 19.90% is pretty rough on those of us that are on fixed incomes. Not sure of where this extra income is going to come from. Could you possibly lower the percentages or make a gradual increase over a five year period. Too big a jump at one time.

Sincerely,

Byron Huff & Jaynie Huff

Byron and Jaynie Huff

1864 S Pointe Dr

Lawrenceburg, IN 47025

812-747-7680

From: Lois Jennings
To: UCC Consumer Info
Subject: Proposed rate increase by Tri-township Water
Date: Saturday, July 3, 2021 8:14:10 PM

I am writing this email to express my dismay with the increase of water charges by Tri-Township Water.

I understand that the last increase was in 1996. However an increase of 50% over the next two years is quite a drastic increase. So many of my basic necessities have increased since January. For example, gasoline is at $3.15 a gallon, up from 1.89 not even a year ago. Groceries are forecasted to increase from 25 to 30% this year. Prices have already increased at the grocery to 21% and it is only mid year.
My property taxes have increased almost 40% this year. Our local sewer company has also proposed an increase of our current bill.
Federal income tax increases are being proposed by the current administration.
My car insurance has increased by 5%.
All of these are basic needs for me. I am on a fixed income and as you can see all of the above items amount to a lot of dollars.
I understand that the water company wants an increase to build a water tower and improve the quality of water, however, they need to understand that so many of their customers' expenses are increasing too. There has to be a better solution or plan.
Maybe for some customers, it may not be a hardship, but it is for me.
Lois Jennings
1888 Sierra Lane Unit D
West HArrison Indiana 47060

From: noreply@formstack.com
To: UCC Consumer Info
Subject: Consumer Comment Cause # 45563-U
Date: Saturday, June 19, 2021 9:18:54 PM

Formstack Submission For: OUCC_Contact_2361 - COPY

Submitted at 06/19/21 9:18 PM

Title:	Mr.
Name:	William Bain
Email:	baincinc@yahoo.com
Address:	419 Muirfield Point Lawrenceburg, IN 47025
Telephone (Best number to reach you between 8:00 am and 4:00 pm, Eastern Time, Monday through Friday)::	(513) 748-1107
If providing comments on a specific case, please	

indicate the cause number and/or name of utility::	Tri-Township Water Corporation - Proposed Water Rate Increase
Your Comments::	I just received the notice regarding the proposed water usage rate increase. It is incredible to me that a rate increase has not been needed for 25 years but now we are going to raise rates by 50%. It seems that something should have been done long ago but now we are going to make up for lost time. How does someone on a fixed income pay for this increase, eat dog food, panhandle? The monopoly should not be able to arbitrarily pass along increases of 50%. Inflation has been negligible under the periods in question and even with the inflationary increases due to current administration this 50% increase is exorbitant. Please limit the increase to amounts more in line with inflation. Thank you. Concerned water consumer

From: noreply@formstack.com
To: UCC Consumer Info
Subject: OUCC_Contact_2361
Date: Thursday, July 22, 2021 9:28:29 AM

Formstack Submission For: OUCC_Contact_2361 - COPY

Submitted at 07/22/21 9:28 AM

Title:	Mr.
Name:	Keith Wheeler
Email:	kawkaw2@yahoo.com
Address:	3747 Autumn Way Lawrenceburg, IN 47025
Telephone (Best number to reach you between 8:00 am and 4:00 pm, Eastern Time, Monday through Friday)::	(513) 279-8159
If providing comments on a specific case, please	

indicate the cause number and/or name of utility::	IURC Cause No. 45563-U" or Tri-Township Water
Your Comments::	I find this rate increase way out of line given the changes that have occured since 1996. The utility has gained a huge increase in the number of users with very little increase in costs thus offsetting any increases in operating expenses. This increase is also out of line with what other utilities have done over the past 25 years. (eg Electric, Gas, etc) I understand they are also applying for long term debt of $5M which will eventually find it's way into operating costs, thus a further request for rate increases. This is based on needing a new water tower, etc. Why is it that whenever new construction requires additions to existing infrastructure the existing customers have to subsidize this increase versus the new customers that are driving it? Why don't those new customers have to pay for the increases themselves, they are the ones driving it. We are seeing this continually with everything, roads, utilities, schools. This rate increase should be denied.

From: noreply@formstack.com
To: UCC Consumer Info
Subject: OUCC_Contact_2361
Date: Tuesday, August 3, 2021 10:10:04 AM

Formstack Submission For: OUCC_Contact_2361 - COPY

Submitted at 08/03/21 10:09 AM

Title:	Mr.
Name:	Jeff Martin
Email:	jeffmartin47060@gmail.com
Address:	2210 old orchard drive west harrison, IN 47060
Telephone (Best number to reach you between 8:00 am and 4:00 pm, Eastern Time, Monday through Friday)::	(513) 338-6352
If providing comments on a specific case, please	

indicate the cause number and/or name of utility::	IURC Cause No. 45563-U
Your Comments::	I am a customer of Tri-Township Water. and have been for 16 years. I disagree with this high rate increase. Today in this economic environment it is not the time for a huge % increase. Considering the facts that the water has a noticeable chlorine smell , and that the water is extremely hard. Both should be addressed with any increase in revenue. When I moved into the neighborhood, I was shocked at the smell, and dismayed at the hardness. Both can be mitigated by Tri-Township. I called specifically regarding the hardness and they offered no solutions other than I pay for additional technology to lessen the hardness. So paying for substandard water, then paying to improve it. I do not agree that the rate increase should be approved for such an exorbitant amount. Increase the Tap in fee for new customers. With growth in the area the revenue will increase.

From: noreply@formstack.com
To: UCC Consumer Info
Subject: Tri-Township Comment
Date: Sunday, June 27, 2021 11:59:16 PM

Formstack Submission For: OUCC_Contact_2361 - COPY

Submitted at 06/27/21 11:59 PM

Title:	Mr.
Name:	Robert Morel
Email:	rl_morel@hotmail.com
Address:	2445 Old Orchard Drive West Harrison, IN 47060
Telephone (Best number to reach you between 8:00 am and 4:00 pm, Eastern Time, Monday through Friday)::	(812) 747-7173
If providing comments on a specific case, please indicate the cause number and/or name of utility::	45563-U Tri - Township Water Corporation
Your Comments::	I am requesting a public hearing on the 50.46% rate increase. Also request that the hearing be held in the service area.

From: Brande Issler
To: UCC Consumer Info
Subject: Tri-Township water corporation
Date: Monday, June 21, 2021 3:08:47 PM

Hello,

I am writing in concern to a letter that we received from Tri-township Water Corporation in Lawrenceburg (Bright) Indiana. They sent a letter to our community this weekend stating that they were raising our water rates 50%. Although it has been many years since they have raised, they do not provide any information on the reasoning behind a 50% increase at this time. I just wanted to be sure the state gets involved to ensure this is the correct increase!

Thank you,
Brande Issler

From: noreply@formstack.com
To: UCC Consumer Info
Subject: Tri-Township
Date: Sunday, July 11, 2021 11:16:19 AM

Formstack Submission For: OUCC_Contact_2361 - COPY

Submitted at 07/11/21 11:16 AM

Title:	Mr.
Name:	Robert Morel
Email:	rl_morel@hotmail.com
Address:	2445 Old Orchard Drive West Harrison, IN 47060
Telephone (Best number to reach you between 8:00 am and 4:00 pm, Eastern Time, Monday through Friday)::	(812) 747-7173
If providing comments on a specific case, please indicate the cause number and/or name of utility::	Case # 45563-U TRI Township Water Corp.
Your Comments::	Request a formal public hearing in the service area. They are asking for an increase of 50.46% . They are asking the current customers now to pay for their mismanagement over the past 25

years.

Q-1.22: Please explain and breakdown the $214,195 of "Legal, loan counsel, financial advisory and contingencies" on the "SCHEDULE OF ESTIMATED PROJECT COSTS AND FUNDING" found in Tri-Township Water's Accounting Work Papers.

Response: The $214,195 of legal, financial advisory and contingencies is comprised of the following:

IURC Rate Case:	
Financial Advisor	$34,500
Engineer	2,325
Legal	10,000 (estimate)
IURC fees	2,500 (estimate)
Additional allowance	10,000 (estimate)
Sub-total	$59,325
SRF Bond Issue (Estimates)	
Bond counsel	$50,000
Local counsel	10,000
Financial advisor	55,000
Parity report	5,000
SRF counsel	10,000
Rounding and contingencies	24,870
Sub-total	$154,870
Total	$214,195

Q-1.20: Please breakdown estimated rate case expense by consultant, including the number of hours and hourly rate estimated for each consultant or law firm. Please also state the services provided by each consultant.

Response: See response to question 1.22 (IURC Rate Case)

Financial advisor – The financial advisor provides financial planning, debt issuance planning, pro forma expense, revenue, replacement and improvements and rate calculation services. These services include preparation of the Small Utility Filing and the OUCC data responses and other services which may be required as part of the IURC Small Utility Filing.

Estimated Fees - $34,500
Average hourly rate - $250
Estimated number of hours – 135

Engineer – The consulting engineer provides engineering services related to the rate case. These services include providing periodic maintenance and replacement and improvement capital expenditure estimates for the Small Utility Filing and the OUCC data responses and other services which may be required as part of the IURC Small Utility Filing.

Estimated Fees - $2,325
Average hourly rate - $105 to $150
Estimated number of hours - 17

Legal counsel – Legal counsel provides legal and negotiation services related to the IURC Small Utility filing rate case.

Estimated Fees - $10,000
Average hourly rate – To be determined based on the legal services required
Estimated number of hours – To be determined based on the legal service required

Q-1.21: Please provide all contracts or agreements with each rate case consultant along with all invoices issued to date.

Response: See attachment "1.21 Rate Consultant Agreement".

SCOPE APPENDIX to
Engagement Letter dated: February 3, 2021
Between Tri-Township Water Corporation and
Baker Tilly US, LLP

RE: Proposed Financial Advisory Services – IURC Small Utility Rate Case Filing

DATE: February 3, 2021

This Scope Appendix is attached by reference to the above named engagement letter (the "Engagement Letter") between Tri-Township Water Corporation (the "Client") and Baker Tilly US, LLP and relates to services to be provided by Baker Tilly Municipal Advisors, LLC.

SCOPE OF WORK

Baker Tilly Municipal Advisors ("BTMA") will perform the following services:

A. Preliminary Financial Plan for Project (Municipal Advisory Services)

BTMA agrees to furnish and perform the following services with respect to the preliminary study for the proposed Utility improvement project (the "Project").

1. Analyze from available records, historical recorded financial information for the most recent calendar year (the "test year").

2. Detail from available records, a schedule of flow of funds for the test year for the purpose of determining trends, amounts of revenue, operation and maintenance expenses, debt service requirements and expenditures for improvements to the Utility property and plant.

3. Provide estimates of future annual revenue requirements for consideration by representatives of the Client.

4. Obtain information from the consulting engineer, attorneys and Utility officials in order to suggest to officials estimated project costs, including contract amounts, land, contingencies, engineering and inspection costs, legal and accounting costs, administrative and other costs in connection with the Project.

5. Analyze various financing alternatives available to the Utility including:

   a. Competitive Sale of a loan or interim notes.

   b. Indiana State Revolving Loan Fund Program (SRF) or Rural Development (RD).

   c. Other revenues of the Utility.

   d. Available cash on hand.

6. Work with the engineer and officials on developing project costs and funding estimates based on alternative projects of varying size.

7. Estimate the rates and charges necessary to fund projects of varying size as estimated in 4 above to assist the Utility in selecting the appropriate scope of project.

8. Estimate the possibility of doing the Project in phases and estimate the rates and charges necessary for each phase of the Project.

9. Meet with the Client to discuss findings and recommendations.

10. Prepare a written report for the Utility.

B. Analysis of Costs and Revenues (Rate Analysis) (Municipal Advisory and Consulting Services)

BTMA agrees to furnish and perform the following services with respect to the financial studies conducted for the Water Utility and the development of rates and charges estimated to be adequate to provide for the necessary revenue requirements.

1. Analyze from available records historical balance sheets and/or historical recorded financial information for a period of two (2) calendar years with the most recent calendar year being the "test year."

2. Detail from available records a schedule of flow of funds for the past two (2) calendar years for the purpose of determining trends, amounts of revenue, cash operation and maintenance expenses, debt service requirements, and expenditures for improvements to the Utility property and plant.

3. Analyze expenses of the test year in order to locate and adjust items which should be properly capitalized, expensed or reclassified.

4. Analyze accounts, invoices and pertinent documents, and interview Client personnel and/or consulting engineers made available by the Client to determine possible changes in expenses and the possible effects of those changes.

5. Obtain information from Client officials, engineers and/or other available sources to suggest adjustments to test year cash operating expenses such as additional labor, power costs, chemical costs, additional taxes and other fixed, known and measurable expense changes.

6. Schedule monthly revenues of the test year in order to locate and adjust unusual and significant fluctuations in such revenue.

7. Prepare amortization schedules of presently outstanding funded debt of the Utility extending over the life of the remaining years of payment, and obtain information from documents relating to such funded debt.

8. Obtain information from the rate tariffs and loan documents now in effect.

9. Assist in the development of a capital improvements program and determine alternative financial programs leading to the obtaining of funds necessary to meet the capital improvement requirements through funds now available and/or future revenues of the system and/or the use of debt financing.

10. Provide alternative estimates of future annual revenue requirements for consideration by the Client.

11. Calculate the potential increase in commodity costs, both interim and final, from the Client's wholesale supplier and include the increased cost in the study to be incorporated in the form of a wholesale tracking factor.

12. Schedule monthly revenue generated from wholesale tracking factors, which will be subject to an across-the-board rate adjustment.

SCOPE APPENDIX to
Engagement Letter dated: February 3, 2021
Between Tri-Township Water Corporation and
Baker Tilly US, LLP

13. Analyze the sufficiency of current revenues and suggest across-the-board increase(s) in rates and charges to meet the estimated future annual revenue requirements.

14. Prepare comparative information concerning the present and possible future rate structure of the Client in comparison with other utilities in Indiana.

15. Meet with the officials of the Client to discuss findings and recommendations.

16. Assist the Client with the preparation of an IURC small utility filing report summarizing the results of BTMA's studies for submission to the Client, and once approved submit on behalf of the Client to the IURC.

17. Provide financial information (including a new schedule of rates and charges, if required) to the Client's attorney for the preparation of resolutions as may be required.

C. Additional Services required for the Indiana Utility Regulatory Commission ("IURC") approval

1. If necessary, meet with the Office of the Utility Consumer Counselor's ("OUCC") staff and IURC's staff to discuss the financial exhibits and to make available copies of our work papers in support of the Utility's case-in-chief.

2. Assist in the preparation of all cost of service, rate design and financing related responses to discovery requests from the OUCC and/or IURC.

3. Assist in the preparation and review of any settlement agreements and/or final orders from the IURC.

Nonattest Services

As part of this engagement, we will perform certain nonattest services. For purposes of the Engagement Letter and this Scope Appendix, nonattest services include services that the *Auditing Standards* refers to as nonaudit services.

We will not perform any management functions or make management decisions on your behalf with respect to any nonattest services we provide.

In connection with our performance of any nonattest services, you agree that you will:

- Continue to make all management decisions and perform all management functions, including approving all journal entries and general ledger classifications when they are submitted to you.
- Designate an employee with suitable skill, knowledge, and/or experience, preferably within senior management, to oversee the services we perform.
- Evaluate the adequacy and results of the nonattest services we perform.
- Accept responsibility for the results of our nonattest services.
- Establish and maintain internal controls, including monitoring ongoing activities related to the nonattest function.

SCOPE APPENDIX to
Engagement Letter dated: February 3, 2021
Between Tri-Township Water Corporation and
Baker Tilly US, LLP

Compensation and Invoicing

BTMA's fees for services set forth in the Scope Appendix will be:

	Service	Fees
A.	Preliminary Study	$4,500
B. – C.	IURC Small Utility Filing Services	Time & Expense* Estimated fees $25,000 - $30,000

*BTMA's fees will be billed at BTMA's standard billing rates based on the actual time and expenses incurred.

Standard Hourly Rates by Job Classification
1/1/2021

Partners / Principals / Directors	$240.00	to	$500.00
Managers	$200.00	to	$325.00
Senior Consultants	$150.00	to	$250.00
Consultants	$135.00	to	$200.00
Municipal Bond Disclosure Specialists	$120.00	to	$190.00
Support Personnel	$110.00	to	$150.00
Interns	$90.00	to	$110.00

- *Billing rates are subject to change periodically due to changing requirements and economic conditions. Actual fees will be based upon experience of the staff assigned and the complexity of the engagement.*

The above fees shall include all expenses incurred by BTMA with the exception of expenses incurred for mileage which will be billed on a separate line item. No such expenses will be incurred without the prior authorization of the Client. The fees do not include the charges of other entities such as rating agencies, bond and official statement printers, couriers, newspapers, bond insurance companies, bond counsel and local counsel, and electronic bidding services, including Parity®. Coordination of the printing and distribution of Official Statements or any other Offering Document are to be reimbursed by the Client based upon the time and expense for such services.

SCOPE APPENDIX to
Engagement Letter dated: February 3, 2021
Between Tri-Township Water Corporation and
Baker Tilly US, LLP

Conflicts of Interest

Attachment A to the Engagement Letter contains important disclosure information that is applicable to this Scope Appendix.

We are unaware of any additional conflicts of interest related to this Scope Appendix that exist at this time.

Termination

This Scope Appendix will terminate according to the terms of the Engagement Letter.

If this Scope Appendix is acceptable, please sign below and return one copy to us for our files. We look forward to working with you on this important project.

Sincerely,

Douglas L. Baldessari, Partner

Signature Section:

The services and terms as set forth in this Scope Appendix are agreed to on behalf of the Client by:

Name: Kendall J. Tipton
Title: PRESIDENT
Date: 2/10/21

STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

IN THE MATTER OF THE PETITION OF TRI-TOWNSHIP WATER CORPORATION FOR A NEW SCHEDULE OF RATES AND CHARGES	**))))**	**CAUSE NO. 45563-U**

TESTIMONY
OF
CARL N. SEALS

ON BEHALF OF THE
INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR

PUBLIC'S EXHIBIT NO. 2

September 14, 2021

TESTIMONY OF OUCC WITNESS CARL N. SEALS
CAUSE NO. 45563-U
TRI-TOWNSHIP WATER CORPORATION

I. INTRODUCTION

Q: Please state your name and business address.

A: My name is Carl N. Seals, and my business address is 115 West Washington Street, Suite 1500 South, Indianapolis, Indiana 46204.

Q: By whom are you employed and in what capacity?

A: I am employed by the Indiana Office of Utility Consumer Counselor ("OUCC") as Assistant Director in the Water/Wastewater Division. My qualifications and experience are set forth in Appendix A.

Q: What is the purpose of your testimony?

A: I discuss Tri-Township Water Corporation's (hereinafter "Tri-Township" or "Applicant") proposed capital improvement projects, revenue requirement for extensions and replacements, and request to recover periodic maintenance expenses.

Q: What have you done to prepare your testimony?

A: I reviewed Tri-Township's Small Utility Rate Application ("Application") and its Indiana Utility Regulatory Commission ("IURC" or "Commission") Annual Reports for years 2016 through 2020. I wrote data requests and reviewed Tri-Township's responses. I reviewed the Commission's final orders in Tri-Township's most recent cases (see Table 1). I reviewed reports Tri-Township filed with the Indiana Department of Environmental Management ("IDEM"), which I accessed on IDEM's Virtual File Cabinet. Finally, on August 13, 2021, Marcus Turner, Chief Technical Advisor with the Indiana Utility Regulatory Commission and I met with Tri-Township's Utility Manager Jody Blasdel and

Board President Randy Lyness and toured Tri-Township's facilities. Pictures of those facilities appear as OUCC Attachment CNS-1.

Table 1

Cause No.	Request	Date Filed	Date Ordered	Percent Increase
42604	Financing	3/26/2004	5/26/2004	none
40327	Rates & Financing	11/1/1995	4/17/1996	26.57%

Q: Does your testimony include attachments?

A: Yes. My testimony includes the following attachments:

- OUCC Attachment CNS-1 – Pictures taken during site visit;
- OUCC Attachment CNS-2 – Utility Dashboard;
- OUCC Attachment CNS-3 – Utility Profile, and
- OUCC Attachment CNS-4 – Preliminary Engineering Report.

II. TRI-TOWNSHIP WATER SYSTEM

Q: Please describe Tri-Township's characteristics.

A: According to its annual reports, Tri-Township is a not-for-profit water utility organized in 1963, originally serving 341 customers.[1] Tri-Township currently provides water service to approximately 3,890 water customers primarily in Logan, Harrison and Miller Townships in Dearborn County (the original three townships), as well as Highland Township in Franklin County. This service area includes the communities of Bright, Logan and Dover. The utility's office is located at 24192 State Line Rd, Lawrenceburg, Indiana. Its service infrastructure consists of two groundwater plants, rated at 0.864 and 1.728 million gallons per day respectively,[2] approximately 121 miles of PVC and ductile iron ("DI") mains with diameters of 1-1/4" to 16 inches, two booster stations, and five storage tanks, further

[1] 2020 IURC Annual Report, page E-2.
[2] 2020 IURC Annual Report, page W-8.

detailed in Table AA. Tri-Township's 2020 IURC Annual Report sets forth some general operating statistics, which I summarize in OUCC Attachment CNS-2. Tri-Township has a retail water use agreement with each of the three bulk water purchasers and sells water to the bulk water purchasers at the same retail tariff rate as for all retail water customers.[3]

Q: Has Tri-Township made many improvements since its last rate case.

A: As detailed in OUCC Attachment CNS-3, including pages from the Utility Profile section of Tri-Township's 2020 IURC Annual Report, Tri-Township made several improvements to its system since its last rate case.[4] These improvements include replacement of a treatment plant and source of supply, a new 500,000-gallon tank, several water main extensions to serve new homes, the replacement of small mains and the addition of fire hydrants to certain areas.

Q: What is Tri-Township's water storage capacity?

A: Relying on three elevated storage tanks and two ground storage tanks located throughout its system, Tri-Township has a total storage capacity of 1.7 million gallons. Comparing average sales in 2020 of 0.712 million gallons per day[5] with this storage capacity shows

[3] Tri-Township 2021 Preliminary Engineering Report, Chapter 2-6.

[4] Tri-Township received approval for its last rate increase on April 17, 1996, in Cause No. 40327. Subsequent to that, in Cause No. 42604 ordered May 26, 2004, Tri-Township received authority to issue bonds without any rate impact.

[5] 260,506,000 gallons sold/366 days = 711,765 gallons per day sold. Total 2020 sales from 2020 Annual Report.

that Tri-Township easily meets the Ten States Standards recommendation that total water storage meet average day demand.[6]

Table 2

Tank	Description	Capacity	Installed	Last Painted
Morgan Road	Ground	300,000	1974	2011
Dover	Elevated	100,000	1979	1994
Main Office	Ground	300,000	1979	1994
Henderson Rd	Elevated	500,000	1987	2002
Justis Rd	Elevated	500,000	2000	2000

The Preliminary Engineering Report prepared for Tri-Township indicates "effective elevated water storage volume of 1,100,000 gallons."[7]

Q: Please discuss "water loss" as it pertains to Tri-Township's operations.

A: IURC annual reports define "water loss" as the difference between total water pumped and purchased and the total amount of water sold to customers or used for backwash, flushing mains, street cleaning/sewer flushing, or other authorized consumption. Water loss may reasonably be attributed to leaks and inaccurate measurement of consumption.

Q: How does water loss affect a utility's costs and operations?

A: Whether finished water is metered, used for operations or lost through leaks, the cost to produce the water is already included in the utility's test year operating expenses. But the

[6] According to the Recommended Standards for Waterworks, A Report of the Water Supply Committee of the Great Lakes – Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers (2012), Part 7 Finished Water Storage, Section 7.0.1(a) Sizing states: "The minimum storage capacity (or equivalent capacity) for systems not providing fire protection shall be equal to the average daily consumption. This requirement may be reduced when the source and treatment facilities have sufficient capacity with standby power to supplement peak demands of the system."

[7] This total excludes ground storage tanks located at the Morgan Road and Main Office booster stations.

cost to produce water that is lost through leaks is a cost paid by all customers through higher rates.

Q: How does replacing inaccurate meters benefit a utility's operations?

A: Inaccurate meters are typically underreporting flow. While replacing inaccurate meters does not affect the cost of producing the water, it avoids subsidization among customers and allows the utility to both recognize more accurately the amount of water that is being lost through leaks and measure its success in mitigating that problem.

Q: What is Tri-Township's water loss?

A: According to its IURC annual reports, since 2016, Tri-Township's water loss values have ranged from 7.6% to 10%. While this is an acceptable range for water loss, it does appear from the trend line shown on OUCC Attachment CNS-2 that the trend in increasing.

Q: Do you have any concerns regarding Tri-Township's level of lost water?

A: No, not at this time. Tri-Township has completed the American Water Works Association Water Audit and has received validation[8] according to Mr. Blasdel.

III. SITE VISIT

Q: Please describe your site visit to Tri-Township's system.

A: On August 13, 2021, Marcus Turner of the IURC and I visited Tri-Township's system to meet with its personnel and observe first-hand Tri-Township's operations and assets. We met at the Utility's office with its Utility Manager, Jody Blasdel and Corporation President Randy Lyness. What we discovered was a very well-maintained small utility system, as

[8] "A Level 1 water loss audit validation aims to identify, and appropriately correct for, inaccuracies in water loss data and audit methodology where realistic and verify the selection of correct data validity grades for the data entries. The main benefit of completing a water loss audit validation by a third-party expert or trained industry professional is to improve the accuracy of water loss audit data. The IFA will call for Certified Validators to follow the most recent Water Research Foundation's Validation manual." (From https://www.in.gov/ifa/water-loss-audits/)

shown in pictures included as OUCC Attachment CNS-1. Inventory and equipment were well-organized and above-ground assets such as package plants, tanks and booster stations were clean and appeared to be well-maintained. Mr. Blasdel explained that the level of care in the interiors was due in part to his efforts to keep the interiors de-humidified, but it was clear he and his staff pay attention to the finer details of maintaining Tri-Township's facilities. Tri-Township's adoption of global positioning system ("GPS") and geographic information systems ("GIS") to enable the accurate location and storage of data on assets and the use of drive-by, radio read meters are additional examples of useful technology not always found in smaller utilities.

IV. EXTENSIONS AND REPLACEMENTS

Q: What extensions and replacements revenue requirement does Tri-Township propose?

A: According to its Small Utility Rate Application, Schedule 7, Tri-Township requested $100,000 for its annual extensions and replacements ("E&R") revenue requirement for Phase I, and $165,528 for Phase II. From its workpapers and from my discussions with utility management, I determined the following types of projects and expenditures are being considered:

Table 3

Item	2022	2023	2024	Total
New equipment storage building		100,000		100,000
Roof replacement		63,651		63,651
Replace 1,200 meters	60,000	60,000		120,000
Standby generators			46,667	46,667
E32 excavator		4,000		4,000
763 Bobcat skid steer	75,000			75,000
Conkhite trailer	6,000			6,000
Ford F-350			50,000	50,000
Ford F-250		50,000		50,000
Ford F-150		45,000		45,000
Total	141,000	322,651	96,667	560,318

Q: Did you request additional information regarding each of these proposed projects?

A: Yes. I received additional information on each of the projects through data requests and through discussions with Tri-Township's Manager. Based on the information I was provided, each of these projects is reasonable and will enhance the utility's ability to effectively and efficiently serve its customers.

Q: How does Tri-Township's proposed extensions and replacements revenue requirement compare to depreciation expense?

A: Applying the composite depreciation rate of 2.0% to Tri-Township's depreciable Utility Plant in Service ("UPIS") results in a *pro forma* test year depreciation expense of $260,369 as noted in Small-Utility Rate Application, Schedule 7 (Phase I). Tri-Township's requested E&R revenue requirements of $100,000 in Phase I and $165,528 for Phase II are both less than what Tri-Township could include as its *pro forma* depreciation expense if it were a municipal utility.

Q: Do you have any recommendations regarding Applicant's proposed E&R revenue requirement based upon its historical expenditures?

A: Yes. Based on my review of Tri-Township's application, responses to data requests and discussions with Tri-Township staff, I recommend that the Commission approve Tri-Township's requested $100,000 for Phase I and $165,528 for Phase II E&R revenue requirements.

V. OPERATION AND MAINTENANCE EXPENSES

Q: Is it reasonable for Tri-Township to incur expenses to perform periodic maintenance?

A: Yes. It is appropriate for Tri-Township to incur reasonable expenses to perform periodic maintenance on its wells, filters, and storage tanks. Periodic maintenance helps utility facilities to operate properly and realize reasonably expected service lives.

Q: Did Tri-Township make adjustments to its test year operation and maintenance ("O&M") expenses to recover periodic maintenance expense?

A: Yes. Tri-Township's adjustments to periodic maintenance expense included adjustments for tank maintenance, well maintenance and filter media replacement. Tri-Township did not incur any of these expenses during the test year and as such proposes to adjust its test year expenses for periodic maintenance by $64,588.

Q: Did Tri-Township provide cost support for its proposed periodic maintenance expense?

A: Yes. As with extensions and replacements, I received additional information on each of the projects through data requests and through discussions with Tri-Township's Manager. It is interesting to note that in its request for tank maintenance expenses that Tri-Township is not simply applying a "one-size-fits-all" approach to maintenance intervals but is instead proposing to perform tank maintenance at intervals of 15 or 20 years, depending upon the tank in question. (See Table 4 reproduced from Applicant's workpapers and received in response to OUCC Data Request 1-28.)

Table 4

TRI-TOWNSHIP WATER CORPORATION
2021 WATERWORKS IMPROVEMENTS
SUMMARY OF STEEL TANK & PACKAGE WATER PLANT MAINTENANCE COST ITEMS

ITEM	TANK OR WATER TREATMENT PLANT INFORMATION			LAST TIME	PAINTING	COST	
NUMBER	NAME	TYPE	CAPACITY	PAINTED	FREQUENCEY	TOTAL	ANNUALY
1	Office	Ground	300,000	1994	20-years	$133,600	$6,680.00
2	Morgan Road	Ground	300,000	2011	15-years	$133,600	$8,906.67
3	Dover	Sphere Elevated	100,000	1994	20-years	$185,000	$9,250.00
4	Henderson Rd.	Multi-Column Elevated	500,000	2002	20-years	$253,500	$12,675.00
5	Justis Road	Multi-Column Elevated	500,000	2000	20-years	$253,500	$12,675.00
6	Jamison Road	Aeralator	600 gpm	2004	20-years	$22,000	$1,466.67
7	Cedar Grove	Aeralator	1,200 gpm	2008	15-years	$36,000	$2,400.00
TOTAL COSTS						**$959,200**	**$54,053.33**

Tank inspection reports were also requested and received and indicated all tanks to be in generally good condition at the time of March 2019 inspection.

Q: Do you have any recommendations regarding Tri-Township's proposed periodic maintenance expense?

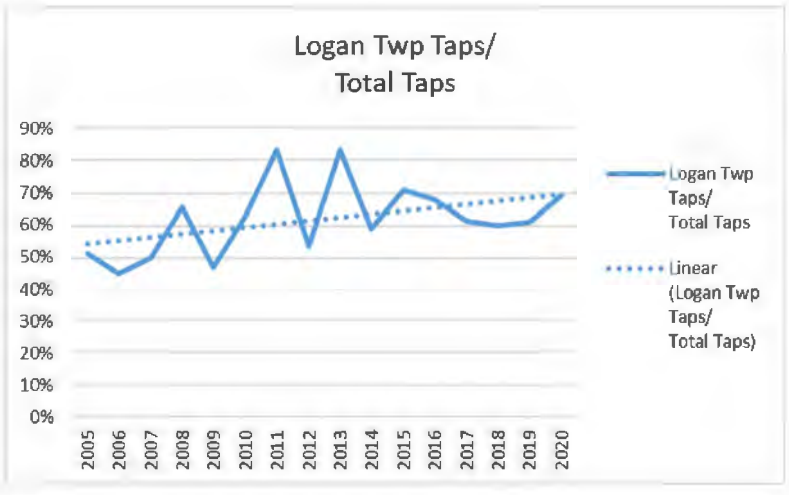
A: Yes. Based on my review, Tri-Township is doing a good job maintaining its tanks through regular periodic maintenance. I recommend the Commission approve Tri-Township's periodic maintenance adjustment of $64,588. In addition, to promote its continued good practices, I recommend that the tank maintenance funds be placed in a restricted account to assure that they are available when needed.

VI. CAPITAL IMPROVEMENT PROJECTS

Q: Please discuss the Capital Improvement Projects appearing on Schedule 9 of Tri-Township's Small Utility filing.

A: Tri-Township proposes to add a new million-gallon storage tank in Logan Township, as well as two distribution system improvements along North Dearborn Road and State Line Road. The new tank will supplement storage in the one of the fastest-growing portions of Tri-Township's system. (Table 5 shows Logan Township growth relative to the rest of the system.) The main projects will replace six-inch cast iron pipes with twelve-inch ductile iron and improve flows from the Morgan Road Booster Station and Office Booster Station.

Table 5



Q: Did Tri-Township have a Preliminary Engineering Report prepared for this project?

A: Yes, Robert E. Curry and Associates, Inc. prepared a Preliminary Engineering Report ("PER") for Tri-Township detailing the proposed million-gallon tank and replacement main projects.[9] The PER discusses the need for the projects and shows a Total Estimated Project Cost of $4,535,805.

Q: Do you have any recommendations regarding Tri-Township's Capital Improvement Projects?

A: Yes. I recommend the Commission approve Tri-Township's proposed Capital Improvement Projects.

VII. SUMMARY OF RECOMMENDATIONS

Q: Please summarize your recommendations:

A: I recommend the following:

1) The Commission approve the $64,588 periodic maintenance expense adjustment shown in Schedule 6(f) and the Commission require Tri-Township to place these funds in a restricted account to be used for future tank maintenance expenses.

2) The Commission approve a revenue requirement for extensions and replacements of $100,000 in Phase I, and $165,528 in Phase II.

Q: Does this conclude your testimony?

A: Yes.

[9] The PER appears as OUCC Attachment CNS-4.

VIII. APPENDIX A

QUALIFICATIONS

Q: Please describe your educational background and experience.

A: In 1981 I graduated from Purdue University, where I received a Bachelor of Science degree in Industrial Management with a minor in Engineering. I was recruited by the Union Pacific Railroad, where I served as mechanical and maintenance supervisor and industrial engineer in both local and corporate settings in St. Louis, Chicago, Little Rock and Beaumont, Texas. I then served as Industrial Engineer for a molded-rubber parts manufacturer before joining the Indiana Utility Regulatory Commission ("IURC") as Engineer, Supervisor and Analyst for more than ten years. It was during my tenure at the IURC that I received my Master of Health Administration degree from Indiana University. After the IURC, I worked at Indiana-American Water Company, initially in their rates department, then managing their Shelbyville operations for eight years, and later served as Director of Regulatory Compliance and Contract Management for Veolia Water Indianapolis. I joined Citizens Energy Group as Rate & Regulatory Analyst following the October 2011 transfer of the Indianapolis water utility and joined the Office of Utility Consumer Counselor in April of 2016. In March 2020 I was promoted to my current position of Assistant Director of the Water and Wastewater Division.

Q: Have you previously testified before the Indiana Utility Regulatory Commission?

A: Yes, I have testified in telecommunications, water and wastewater utility cases before the Commission.

Tri-Township Office

Cedar Grove Plant

Cedar Grove Plant High Service Pumps

Cedar Grove Plant Aeralater Interior

Jamison Road Plant

Jamison Road Plant high service pumps

Jamison Road Plant Aeralater Interior

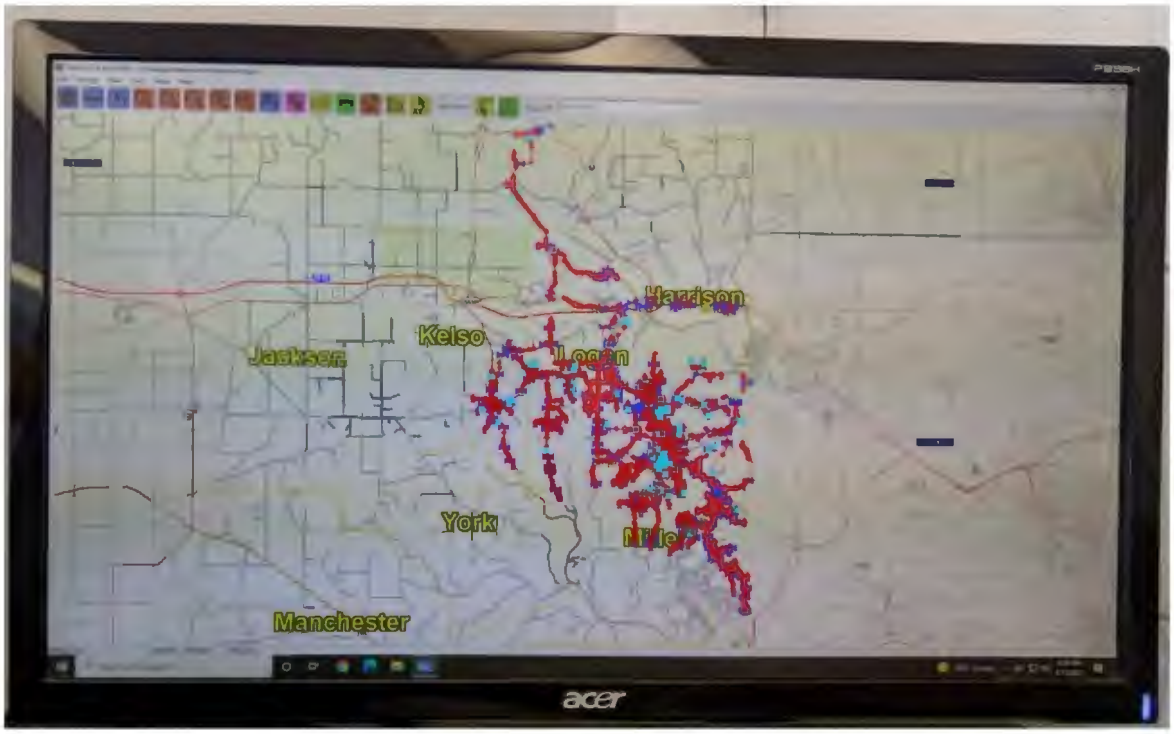
Morgan Road Booster Station, tank

Morgan Road Booster Station pumps

Henderson Tank

Justis Road (L) and Dover (R) tanks

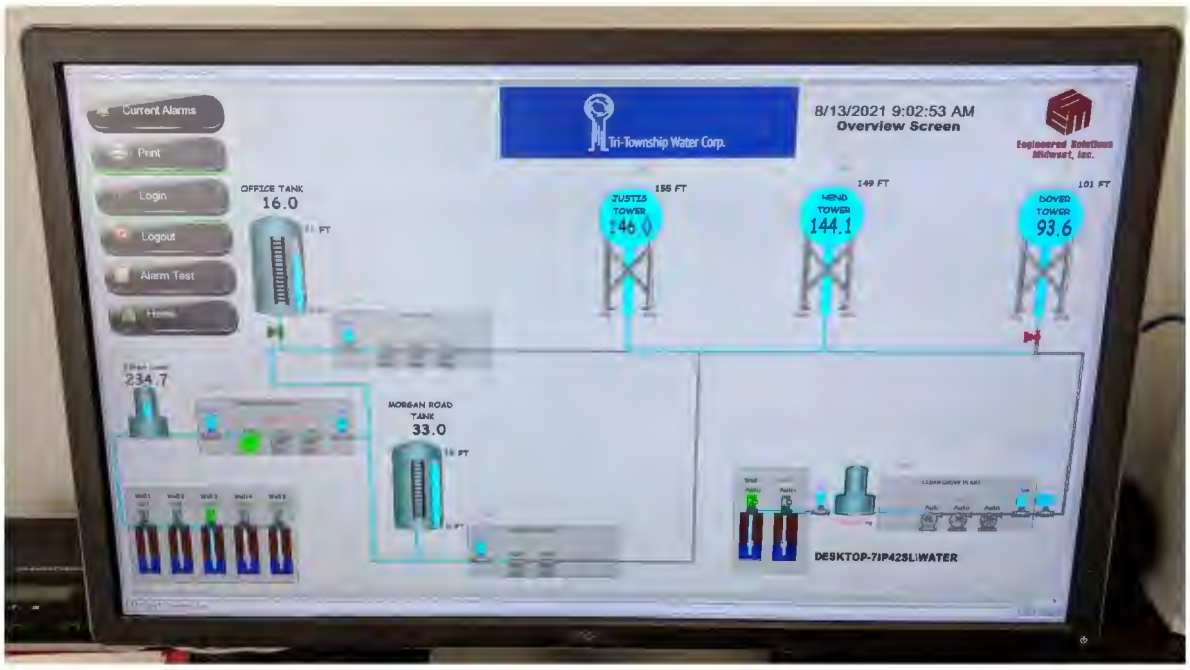
Office Tank



GIS system overview

Example photograph of pit/meter location in GIS system

Garage, equipment, material storage



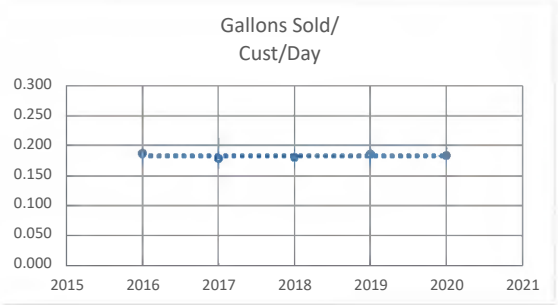
SCADA overview screen

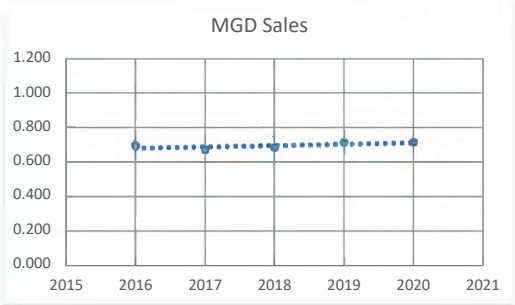
Utility Dashboard
Tri-Township Water Corporation
Cause No. 45563-U

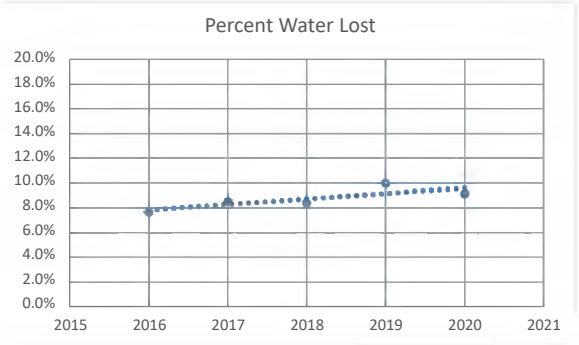
Year	W-1 Customers Year-End	W-6 Total Pumped & Purchased	W-6 Total Sold	Non-Revenue (C - D)	W-6 System Usage	Water Loss (E - F)	Percent Loss (G / C)	Average MGD	Gallons Sold/ Cust/Day	W-6 Main Breaks
2016	3,714	282,763	253,803	28,960	7,348	21,612	7.6%	0.693	0.187	32
2017	3,756	275,243	244,497	30,746	7,326	23,420	8.5%	0.670	0.178	24
2018	3,797	279,006	249,166	29,840	6,464	23,376	8.4%	0.683	0.180	7
2019	3,841	300,211	259,607	40,604	10,725	29,879	10.0%	0.711	0.185	12
2020	3,890	297,797	260,506	37,291	10,127	27,164	9.1%	0.712	0.183	16

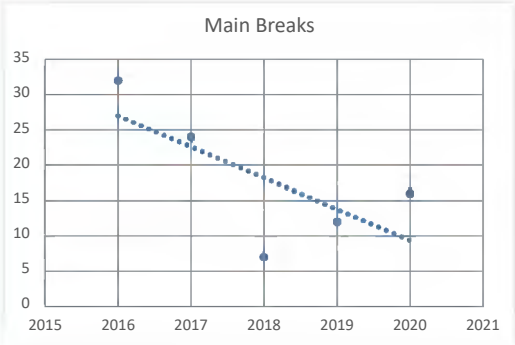
average mgd 2020	0.712 mgd
avg gals/cust/mo 2020	5,581 gals
average mgd 5 yrs	0.694 mgd

All reported in thousand gallons unless otherwise noted
System usage includes water used for firefighting, backwashing, main flushing, etc.
Source: IURC Annual Reports









Dashed lines shows results of linear regression (trend) over period shown

Tri-Township Water Corporation NAME OF UTILITY	YEAR OF REPORT December 31, 2020

DIRECTORY OF PERSONNEL WHO CONTACT THE STATE REGULATORY COMMISSION

YOU HAVE ERRORS THAT NEED TO BE CORRECTED!

NAME OF COMPANY REPRESENTATIVE (1)	TITLE OR POSITION (2)	ORGANIZATIONAL UNIT TITLE (3)	USUAL PURPOSE FOR CONTACT WITH THE COMMISSION (4)
Jody E. Blasdel	Utility Manager		Verfiy rules & regulations
Kathy Busken	Office Manager		Verfiy rules & regulations
Melissa S. Scholl	Attorney	Melissa S. Scholl, Law Office 812-637-6543	Legal Representation
Stephanie M. Bauer	CPA	Bauer CPA 812-932-1399	Annual Audit
Robert E. Curry	Engineer	Robert E. Curry & Associates 317-745-6995	Engineering Matters

(1) Also list appropriate legal counsel, accountants and others who may not be on general payroll.
(2) Provide individual telephone numbers if the person is not normally reached at the utility.
(3) Name of company employed by if not on general payroll.

UTILITY PROFILE

Provide a brief narrative utility profile which covers the following areas:

A. Brief utility history
B. Public services rendered
C. Major goals and objectives
D. Major operating divisions and functions
E. Current and projected growth patterns
F. Major transactions having a material effect on operations
G. List Counties served
H. Affiliate Organization Chart *(if applicable)*

Corporation started in 1963, serving 341 customers. 1979 expansion program allowed the Corporation to serve 1,100 customers. Current customer growth is approximately 100 per year. Current customer base approximates 3,500 customers.
Summary of past growth projects:
May 1993 - installed 8" water main on State Line Road
1995 - purchased property for a new well field and treatment plant to a) expand service and b) hold a secondary source of water
1997 - completed new well field, treatment plant & distribution mains
2000 - new 500,000 gallon water storage tank was built to supply better service & more water storage; a new residential development was completed to serve 140 lots
2001 - a 6500' water main extension of 8" & 12" main was completed to serve an industrial park; a new residential development was completed to serve 120 lots; an extension of 1200' was completed on Walt Paner Road - 6" main
2002 - replaced 1000' of 2" PVC with 6" PVC in Brightwoods Subdivision, made a 6" and 4" connection to replace 2" connection to better supply these 100 homes; replaced old 1 1/4" water line in Deer Trail, small 5 lot subdivision with 4" PVC
2003 - installed 530' of 8" PVC for Inghams Mill Condos (24 units), 1980' of 6" PVC for Gobblers Knob Extension; phass II of Brookestone Way & Olde Orchard Subdivisions 1440' of 8" PVC - 2500' of 6" PVC' serving 120 new home sites, Skeens Lands Subdivision installed 700' of 4" PVC to serve 4 lots; rehabilitated Morgan Road Booster Station - new pumps & motors, piping & all new electric service and controls

UTILITY PROFILE, continued

2004 - replaced 25 year old Jamison Road Steel Package Treatment Plant with new package plant; increased detention time and aerolator; installed 10,000' of 8" DI water main to serve new Sugar Ridge residential development -315 units; installed 6" PVC main in Harely Springs, Phase IV - 2,833' to serve 40 lots; completed Phase IV of Park Place Subdivision - 1,485' of 8" PVC and 480' of 6" PVC and 150' of 4" PVC to serve 40 more lots; installed 834' of 6" PVC to serve Moser Family Division, 5 lots and completed Brookestone Way Phase III - 1,195' of 6" PVC and 240' of 4" PVC to serve 32 additional lots; wired Jamisone Plant and Wellfield for portable generator connections with switchable disconnects; began installing radio read meter reading system

2005 - added three new fire hydrants along existing 10" main on Jamison Road for fire protection and better flushing capabilities; completed third and final phase of Rocky Mountain Estates with 1200' of 4" PVC and 1000' of 6" PVC with hydrants and valves to serve 42 additional lots; installed 289' of 8" DI with hydrants and valves to serve 34 condo units at the Villas of Sugar Glenn; continue installing radio read meter reading system

2006 - added 1,710' of 8" PVC with 2 fire hydrants and 4 - 8" valves for the Phase III of Olde Orchard Subdivision; purchased 10 acres of future well field property close to our existing Jamison Well Field and Plant; completed intalling our radio read meter reading system

2007 - installed auxillary power equipment at Cedar Grove Treatment Plant; Barber Acres Subdivision - installted 2,725' - 8" DI & 1,360' - 8" PVC with hydrants & valves to serve seven lots; Hidden Acres Phase I - installed 2, 740' - 8" PVC & 800' - 6" PVC & 450' - 4" PVC with hydrants & valves to serve 30 lots

2008 - completed Hidden Acres Subdivision Phase I; installed 1,080' - 8" PVC; 794' - 6" PVC; 430' - 4" PVC with hydrants and valves to serve 30 lots

2009 - Added 2 fire hydrants & 2 air releases to our 16" main from Cedar Grove Plant to Gaynor Ridge.

2010 - Replaced well pumps in #1 & #2 wells at Cedar Grove & rehabilitated #1 well at Cedar Grove.

2011 - Rehabilitated the interior and exterior of the Morgan Road gound tank; replaced motor #1 well at Cedar Grove; completed updated replacement of radio read meter registers

2012 - Subdivision addition- Morgan's Ridge Phase 3 -1620' of 6" PVC main with 3 new Fire Hydrants & 2-6" gate valves. Rolling Hills Subdivision - Replaced 450' of 2" PVC with 6" PVC, 1 new 6" gate valve, 1 new Fire Hydrant, & 2 new 2" gate valves to complete loop. Replaced 3800' of water main for County Road relocation project with 3090' of 6" PVC and 640' of 6" DI water main along with 3-new Fire Hydrants & 3 new 6" valves. Extended 710' of 4" PVC water main on a Rural Rd. to serve 2 new customers. Rebuilt pump & motor for the # 3 high service pump at the Cedar Grove Plant. Installed Generator at the Main Office for back up power. Replaced filter media & support gravel at the Jamison Rd. Treatment Plant.

2013 - Intersection of Jamison & Schaich Roads added 2 Valves to isolate sections - installed 692' of 12" DI & 668' of 8" DI along with 2-new fire hydrants, 2- 12" gate valves, & 3-8" gate valves along with a pressure reducing station to serve the Whitewater Mill Industrial Park.

2014 -Hidden Lane Subdivision added 465 feet of 6 inch pvc -1- 6 inch valve and - 1- 5 1/4 inch fire hydrant. Along Harrison/Brookville Rd installed 599 feet of 12 inch DI with 1-5 1/4 inch fire hydrant and 4-4inch valves & 2- 4 inch meters in a vault for an emergency connection with the City of Harrison, Ohio.

Continued Next Sheet

UTILITY PROFILE, continued

2015 - Tri-Township rebuilt 2 of the 3 High Service Pumps & Motors (#1 & #3) at the Jamison Plant. We replaced 2- 50 year old Mains on Morgan Rd a total of 12,276 ft. of 6" & 2" replaced with 12"DI & 6" PVC with this project we also reset 24 existing meter settings to connect them to the new mains. For the road construction in the downtown Bright area we replaced 2200 ft. of 8"-6"- & 4" mains with a new 12" & 8" mains to the outer edge of the new county R/W so our older mains did not end up under the new pavement. We also reset 30 existing meter settings to connect them to the new water mains.

2016 - Tri- Township rebuilt the 3rd of of the High Service Pumps (#2) at the Jamison Plant & replaced the motor. We installed 100' of new 4" PVC to serve one residence on St Rt # 1.
6" PVC water main to serve phase 4 of the Morgan's Ridge Subdivision serving 21 additional new lots. We then installed 2000' of 8" PVC & 572' of 6" PVC to serve Phase 1 of Woodridge Estates with 44 new lots. We relocated 280' of 2" PVC on Davidson Rd.

2017 - Cleaned Well # 4 Jamison Well Field, 461 ft of 6" DI to serve new fireworks store - 1171 ft of 6" DI extension to serve 2 existing homes - Evans Rd extension 1986 ft of 6" PVC to serve 4 new customers.

2018 - White Pines Subdivision Phase # 1 & # 2 1810 ft. of 8" PVC & 388 ft. of 4" PVC to serve 19 new lots. 250 ft. of 4" PVC to serve 2 addtional customers on Justis Rd. 47 ft of 8" DI for fire main to serve Brighton Mills commerical property. Morgans Ridge Phase 6 - 700 ft. of 6" PVC to serve 16 additional lots. Augusta Point installed 840 ft of 8" PVC to serve 24 new lots.

2019 - State Rd # 1 North 85 ft. 4" PVC extension to serve 1 additional home. Steele Rd extension 185 ft. of 4" PVC to serve 1 additional home. Woodridge Estates Phase 2 679 ft of 8" PVC & 519 ft. of 6" PVC and 1-8" valve along with 3- fire hydrants. Relocation of water mains for State Line/ Georgetown Road project. Replaced 470' of 8":PVC & 6" CI with 470' of 12" DI Relocated 220' of 6" PVC & relocated 1370' of 8" PVC. Along with 3 - new Fire Hydrants & 2- 6" Valves & 3- 8" Valves & reset 18 meter services.

2020 - Worked on relocation plans for future road /bridge projects, Worked toward obtaining a piece of property for a future water tower site. Replaced over 250 residential water meters.Completed restoration of water main projects from late 2019.

TRI-TOWNSHIP WATER CORPORATION
24192 State Line Road
Lawrenceburg, Indiana 47025
Phone (812) 637-1039
Fax (812) 637-4641

April 30, 2021

DWSRF Program Administrator
State Revolving Fund Loan Program
100 N. Senate Ave. Rm 1275
Indianapolis, IN 46204

RE: Tri-Township Water Corporation
Preliminary Engineering Report

DWSRF Program Administrator:

This letter serves as a transmittal letter for the Tri-Township Water Corporation's Preliminary Engineering Report (PER) for the Drinking Water System.

Tri-Township Water Corporation (TTWC) authorizes Curry & Associates, Inc. to submit the PER on behalf of the TTWC. Two hard copies and one electronic copy will be submitted on our behalf by Curry & Associates, Inc., under separate cover.

Thank you for your assistance in this matter.

Sincerely,

Randall Lyness

Randall Lyness
Tri-Township Water Corporation President

Tri-Township Water Corporation

PRELIMINARY ENGINEERING REPORT

CURRY & ASSOCIATES, INC.

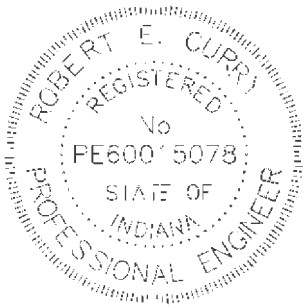
CONSULTING ENGINEERS & ARCHITECTS

Curry & Associates, Inc.
110 Commerce Drive
Danville, Indiana 46122

April 30, 2021

Tri-Township Water Corporation

PRELIMINARY ENGINEERING REPORT



Curry & Associates, Inc.
Engineers & Architects
110 Commerce Drive
Danville, Indiana 46122

April 30, 2021

Tri-Township Water Corporation
2021 Preliminary Engineering Report

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CHAPTER 1: PROJECT LOCATION

1.1 Current and Future Service Areas

Tri-Township Water Corporation (TTWC) is a not-for-profit water utility that serves potable water to approximately 3,890 water customers. The utility was organized in the mid-1960s and began serving its customers in 1966. The service area of Tri-Township Water Corporation commences at the Indiana/Ohio state border. Interstate Highway 74 extends across the entire norther portion of Tri-Township's service area. Customer growth within Tri-Township's service area has grown rapidly because its proximity to employment in Ohio and more particularly the City of Cincinnati. The presence of I-74 has greatly enhanced migration of people into TTWC's service area. The number of water customers has increased from 334 in 1966 to 3,890 in the year 2020.

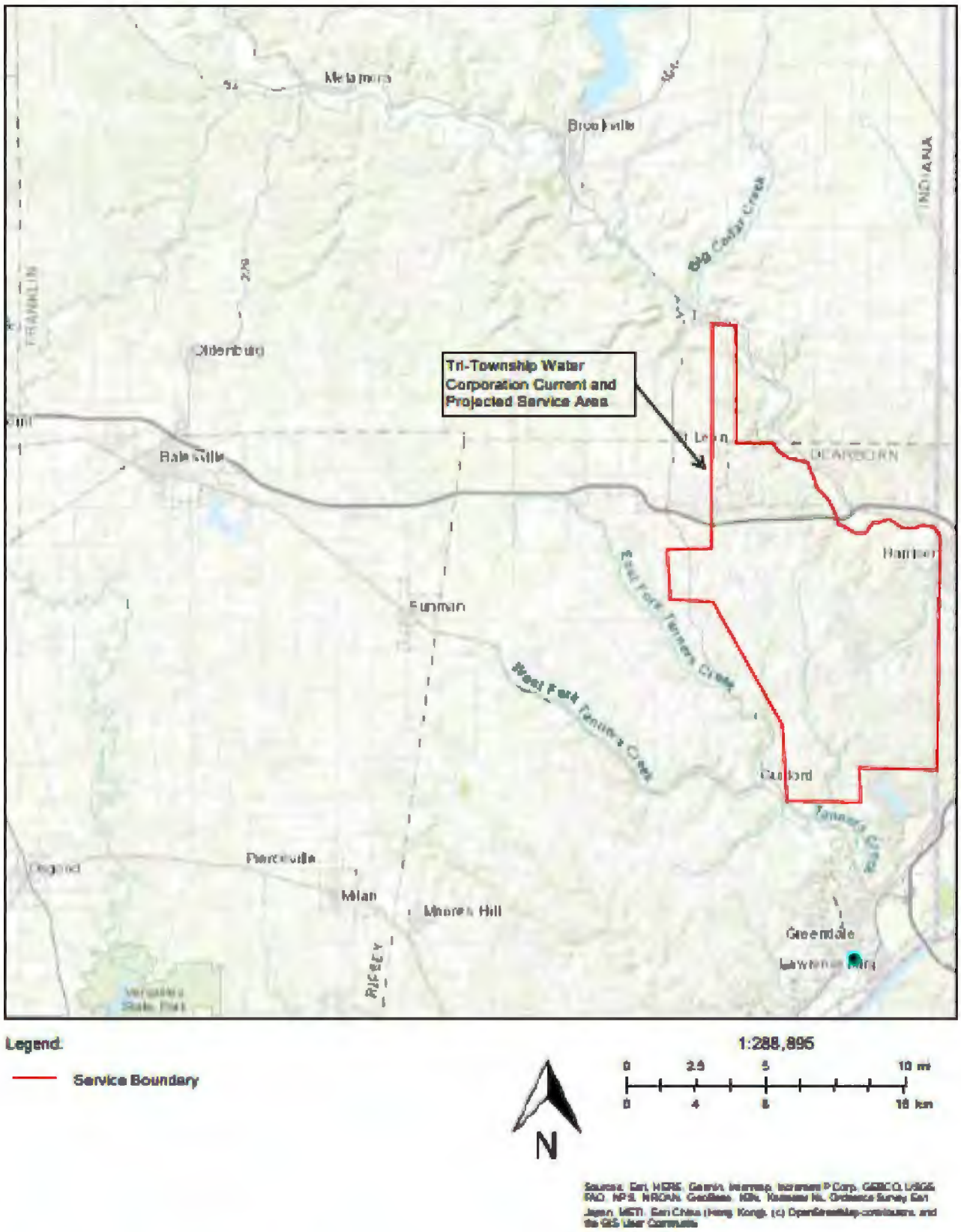
The service area of Tri-Township Water Corporation has remained nearly constant over its operational history. Tri-Township operates primarily in the townships of Logan, Harrison and Miller in Dearborn, County. In recent years water service has been extended into Highland Township in Franklin County. Historically, the primary customers of the utility have been rural homeowners; however, recently there has been a slight increase in commercial development in Bright, Indiana, and industrial development along U.S. 52 near Harrison, Indiana.

Tri-Township's service area has been relatively constant and is expected to remain the same as currently served in the future. This water service area generally consists of the eastern part of Dearborn County in the area east of S.R. 1 and extending to Indiana/Ohio State Line. Expansion of Tri-Township's service area is generally restricted by the presence of North Dearborn Water Company on the west, Franklin County Water Company on the north, Valley Rural Water Company on the south and the Ohio State Line on the east. The existing service area is not expected to expand in the future, as the utility is bounded on all sides by other existing water utilities and the Ohio State Boundary Line.

The current boundaries of Tri-Township Water Corporation contain many acres of flat to slightly rolling land ideally suited for residential development. Throughout the history of TTWC new subdivisions have started and grown over various locations within the utilities service area. The trend for increased residential development is ongoing to this day and is currently in process of returning to its historical pace of growth.

Figure 1.1.1 - Tri-Township Water Corporation General Location

Figure 1.1.2 Topographic Map, Service Boundary



1.2 Project Areas

The proposed project areas include:

1. Construction of a new 1,000,000-gallon elevated water storage tank to be located north of Logan, Indiana south of the intersection of Whites Hill Road and Gaynor Ridge Road.

1a. Construction of a new 12" ductile iron water main from the existing 16" water transmission main located at the intersection of Gaynor Ridge Road and Whites Hill Road to the proposed 1,000,000-gallon elevated water storage tank along with fittings, valves and fire hydrants.

2. Construction of a new 12" ductile iron water main along North Dearborn Road from State Line Road to Henderson Road.
3. Construction of a new 12" ductile iron water main along State Line Road from Sneakville Road north to North Dearborn Road.
4. Roof Replacement at Office, Maintenance Building, Jamison Road Water Plant and at Cedar Grove Water Treatment Plant.
5. Installation of stationary standby power generators for Office as well as the Jamison Road Water Treatment Plant.
6. Construction of new equipment storage building at TTWC Office.

Table 1.2.1 below lists where the proposed project locations will be. Topographical Maps included in Appendix A illustrate the location of where the projects will take place.

Table 1.2.1: Summary of Proposed Waterworks Improvements Project Locations

Description	USGS Quad Map Name	Civil Township	Township, Section and Range
Construction of a new 1-MG Elevated Water Storage Tank Address: 2664 Winter Hill Road West Harrison, IN 47060	Cedar Grove	Logan, Dearborn County	T 7 N, R 1 W, Sec 21
Construction of a new 12-inch D.I. Water Main at intersection of Gaynor Ridge Road and Whites Hill Road	Cedar Grove	Logan, Dearborn County	T 7 N, R 1 W, Sec 20, 21, 28
Construction of new 12-inch D.I. water main along North Dearborn Road from State Line Road to Henderson Road	Guilford, Hooven	Logan, Dearborn County; Harrison, Dearborn County	T 7 N, R 1 W, Sec 28, 27, 26
Construction of a new 12-inch D.I. water main along State Line Road	Hooven	Harrison, Dearborn County	T 7 N, R 1 W, Sec 27, 34
Installation of Generator & Replacement of Shingles on Office & Maintenance Building	Hooven	Harrison, Dearborn County	T 7 N, R 1 W, Sec 34
Installation of Generator & Replacement of Shingles on Jamison Road Water Treatment Plant	Hooven	Harrison, Dearborn County	T 7 N, R 1 W, Sec 24
Replacement of Shingles on Cedar Grove Water Treatment Plant	Cedar Grove	Whitewater, Franklin County	T 8 N, R 1 W, Sec 18
Construction of New Equipment Storage Building	Hooven	Harrison, Dearborn County	T 7 N, R 1 W, Sec 35

Figure 1.2.1 Location of Proposed Water Storage Tank

Figure 1.2.2 Location of Proposed Maintenance Building

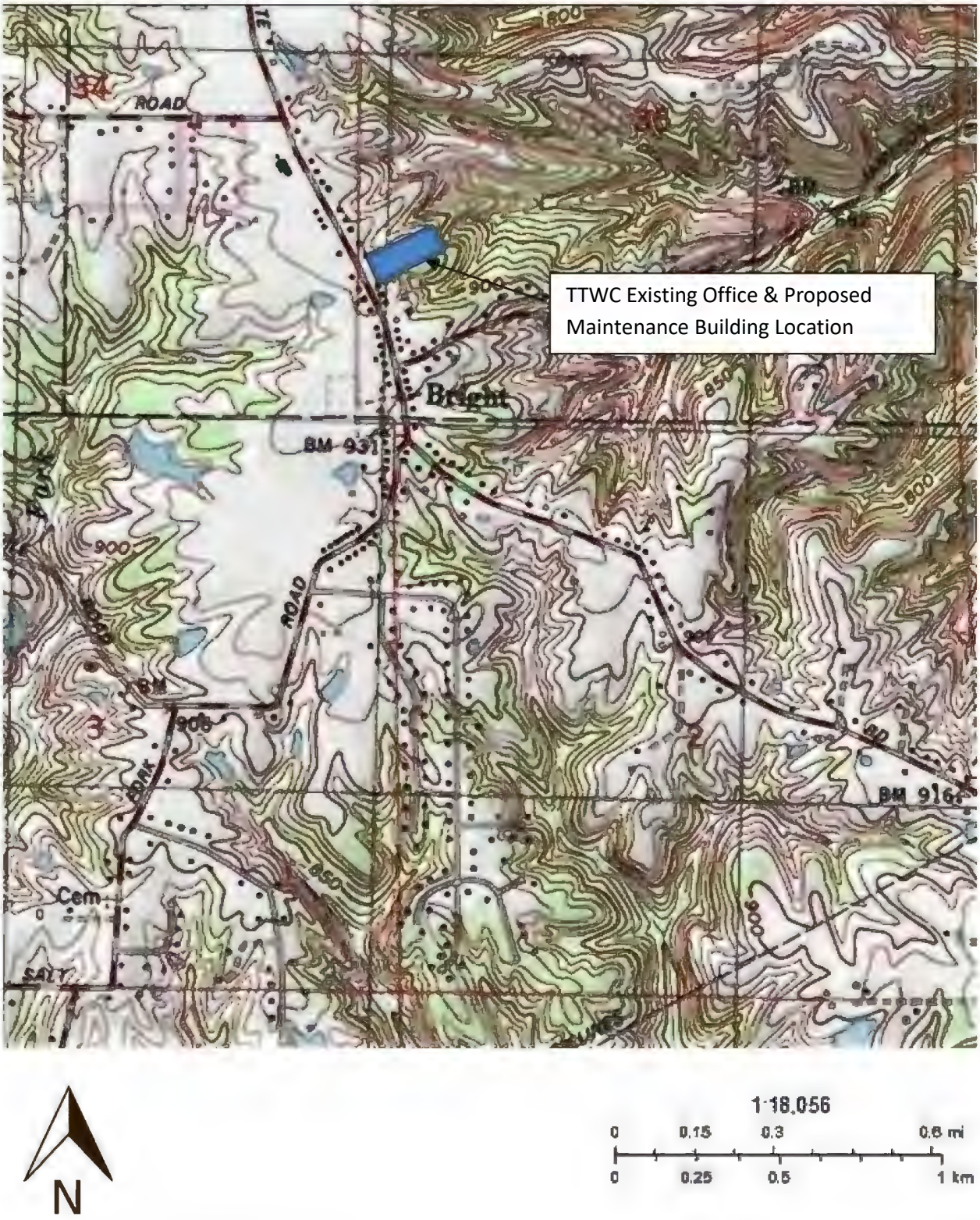


Figure 1.2.3 Location of Proposed 12-inch Water Main

Site Control Requirements

The Tri-Township Water Corporation owns and has legal access to the land where a majority of the proposed project will take place. Some existing easements will allow for construction of new water mains in some locations; however, new easements for water main construction will be required in some project areas.

1.3 IFA Regional Planning Meeting

Tri-Township Water Corporation attended one of the IFA Regional Planning Meetings; therefore, the Water Corporation has fulfilled the March 1, 2021 requirement.

CHAPTER 2: CURRENT NEEDS

2.1 CURRENT POPULATION

As of 2020, Tri-Township Water Corporation serves water to approximately 3,890 service connections, which is equivalent to a population of approximately 9,725 people. The customer base is predominately single-family residences; however, in recent years an industrial park has opened on U.S. 52 west of Harrison, Ohio, which has started to develop. A small amount of commercial growth in the Bright, Indiana started within the past 10-years.

The Tri-Township Water Corporation was named after the three townships in Dearborn County which were planned to be the original water service area. In general, a small area of water service is provided to water to customers in a portion of Franklin County. These townships served by Tri-Township Water Corporation, and greater Dearborn County, have shown an increasing population growth pattern. Currently, TTWC serves water in the original three townships of Logan, Harrison, and Miller plus Kelso Township. The Communities of Bright, Logan and Dover are major communities located in Tri-Townships service area. Table 2.1.1 shows the historical population data for the service area townships in Dearborn County. The population growth rate has been very similar in the service area and with the surrounding areas, particularly over the period of 1990-2010. The overall average annual population growth for this region has been a relatively high percentage for the period of 1990 - 2010.

TABLE 2.1.1 Population Data for Service Area from 1910 Through 2010

	Townships Served in Dearborn County					Change Per Decade	
Year	**Logan**	**Miller**	**Harrison**	**Kelso**	**Total**	**Population**	**Percent Change**
1910	553	889	1,007	970	2,419	n/s	
1920	558	839	878	995	3,270	851	35.2%
1930	546	769	949	931	3,195	-75	-2.3%
1940	569	786	1,033	928	3,316	121	3.8%
1950	579	986	1,145	993	3,703	387	11.7%
1960	673	1,455	1,531	1,176	4,835	949	35.0%
1970	797	1,676	1,761	1,452	5,686	1,132	23.4%
1980	1,657	2,903	1,801	1,706	8,067	2,381	41.9%
1990	2,129	4,761	2,421	1,819	11,130	3,063	38.0%
2000	2,513	8,605	3,108	1,912	16,138	5,008	45.0%
2010	3,541	9,810	3,204	2,341	18,896	2,758	17.1%
Average Yearly Growth	**30 People**	**89.2 People**	**22 People**	**14 People**	**155 People**	**1,410 People**	

2.2 WATER PUMPAGE AND CONSUMPTION

Table 2.2.1 provides a total annual water pumpage from 2005 through 2020. This total flow is the summation of the volume of water entering the water distribution system as measured by the master water meters at each of the two water treatment plants.

TABLE 2.2.1 Annual Water Pumpage and Customer Growth 2005 Through 2020

YEAR	ANNUAL PUMPAGE	CHANGE	PERCENTAGE CHANGE	AVERAGE DAILY PUMPAGE	CUSTOMERS ADDED
2005	330,999,000			906,847	150
2006	327,309,000	-3,690,000	-1.11%	896,737	133
2007	363,260,000	35,951,000	10.98%	995,233	60
2008	310,603,000	-52,657,000	-14.50%	850,967	32
2009	303,448,000	-7,155,000	-2.30%	831,364	17
2010	323,616,000	20,168,000	6.65%	886,619	19
2011	321,121,000	-2,495,000	-0.77%	879,784	12
2012	334,370,000	13,249,000	4.13%	916,082	13
2013	303,995,000	-30,375,000	-9.08%	832,863	18
2014	302,666,000	-1,329,000	-0.44%	829,222	22
2015	282,249,000	-20,417,000	-6.75%	773,285	38
2016	282,763,000	514,000	0.18%	774,693	22
2017	275,243,000	-7,520,000	-2.66%	754,090	57
2018	279,006,000	3,763,000	1.37%	764,400	40
2019	300,211,000	21,205,000	7.60%	822,496	54
2020	297,797,000	-2,414,000	-0.80%	815,882	49
TOTAL	**4,938,656,000**	**n/a**	**n/a**	**13,530,564**	**736**
AVERAGE	**308,666,000**	**n/a**	**n/a**	**845,660**	**46**

Table 2.2.1 is an accurate representation of the annual customer growth for the most recent 15-year period but it isn't representative of the customer growth of the past 55-years nor for normal future growth. Customer growth in the time period represented in Table 2.2.1 is influenced by the depressed overall economic condition prevalent in the mid-west during the period of 2007 - 2015.

Table 2.2.2 provides a summary of monthly water pumpage, consumption and loss for the year 2020. The average gross water loss in 2020 was 12.52% and the average net lost water was 9.12%. Gross water loss is the water quantity difference between water pumped into the system and water recorded as sold through a meter:

Gross Lost Water = Gross Water Pumped – Water Sold
Gross Percent Lost Water = Lost Water ÷ Total Pumpage

TABLE 2.2.2: TTWC 2020 Monthly Water Pumpage, Sales and Loss

	Total Pumpage (gallons)	Total Sales (gallons)	Lost Water (gallons)	Gross Percent Lost Water
January	22,444,000	20,103,000	2,341,000	10.43%
February	21,338,000	20,103,000	1,235,000	5.79%
March	22,968,000	19,550,000	3,418,000	14.8%
April	23,296,000	19,550,000	3,746,000	16.08%
May	26,286,000	19,792,000	6,494,000	24.70%
June	28,603,000	19,792,000	9,811,000	17.69%
July	30,250,000	21,564,500	8,685,500	28.71%
August	27,346,000	21,564,000	5,800,000	5.46%
September	26,799,000	25,307,000	1,492,000	5.01%
October	23,911,000	25,307,000	+1,396,000	+5.83%
November	22,077,000	23,936,500	+1,859,500	+7.78%
December	22,479,000	23,936,000	+1,457,500	+6.48%
Total	**297,797,000**	**260,506,000**	**37,291,000**	**12.52%**
Average Month	**24,750,000**	**21,708,833**	**3,107,583**	**12.50%**
Average Day	**815,883**	**713,715**	**102,167**	**12.52%**

TTWC's gross average lost water rate for 2020 was approximately 12.52% and their net water loss after subtracting water main flushing, filter backwash water, storage tank cleaning, firefighting and fire hydrant testing is 9.12%. This is a very good lost water rate for a rural system, particularly for a utility serving such a large area with hilly and often rocky terrain. TTWC is making additional efforts of replacing water meters at an accelerated pace to further reduce lost water.

Tri-Township reads the customers water meters every two months and they record their total water pumpage every month. Therefore, for purposes of calculating lost water an average monthly consumption must be established as half of the bi-monthly customers consumption.

The lost water during the summer months isn't representative of lost water due to flushing water mains, hydrant flow testing and cleaning tanks that typically occurs in the spring and fall.

Table 2.2.3 provides additional detail concerning "accounted for" and "un-accounted for" lost water, Note that Table 2.2.2 indicates total pumpage, sales and loss. This table includes the estimated "accounted for lost water" from flushing, fire department use and leaks. The "Lost Water" column in Table 2.2.1 includes all "accounted for" and "un-accounted for" lost water. TTWC tracks "accounted for lost water," and is reported as follows:

TABLE 2.2.3 Summation of "Accounted for Water"

Source of "Accounted for Lost Water"	Total Volume of Water
Water Filter Backwash	4,627,000 gallons
Water Main Flushing	2,800,000 gallons
Fire Fighting & Hydrant Testing	1,500,000 gallons
Tank Cleaning	1,200,000 gallons
Total "Accounted for Lost Water"	**10,127,000 gallons**

The lost but accounted for water represents the difference between 12.50% gross lost water in table 2.2.2 and the 9.12% net lost water identified above.

- The "accounted for lost water" for 2020 is equal to approximately 3.38%.
- TTWC's adjusted lost water rate for 2020 was 9.12% (un-accounted for lost water)

Lost water should be monitored on a continual basis, and be an ongoing priority for the water utility. The proposed project will help to reduce lost water, as described below.

Table 2.2.2 additionally provides the average monthly and average daily water pumpage and sales:

- 2020 Average Daily Water Pumpage = 815,883 gallons
- 2020 Average Daily Water Sales = 713,715 gallons
- 2020 Average Daily Water Loss = 102,167 gallons

A total of 260,506,000 gallons of water were sold by TTWC in 2020.

The peak day water pumpage for the year 2020 was 1,217,000 gallons in the month of June. This peak day pumpage day was the highest pumping rate in the past five-years. The average daily water pumpage in 2020 was 815,883 gallons. The Peak to Average ratio for water pumpage in 2020 was 1.49.

Current Peak: Average Ratio = Peak Day Pumpage ÷ Average Day Pumpage
= 1,217,000 ÷ 815,883 = 1.49 for 2020 Peak Day

Current Peak: Average Ratio = **1.49 Average for 2020**

2.2.1 Water Customers

The Tri-Township Water Corporation serves a combination of residential, commercial, institutional, and industrial water customers. Industrial customers are a new customer classification served by Tri-Township and it is currently a relatively small portion of the customer base. Table 2.2.5 provides a breakdown of the number of customers in each water user classification. This table also provides the percent of total water consumption and percentage of revenue by each water customer classification. The 12-month time period from January 1, 2019 thru January 1, 2020 was used for this table.

Table 2.2.4 Water Consumption and Revenue by Water Customer Classification

12-MONTH PERIOD FROM JANUARY 1, 2019 THRU JANUARY 1, 2020					
Water Customer Classification	**Water Consumption (gallons)**	**Percentage of Consumption**	**12-Month Revenue**	**Percentage of Annual Revenue**	**Price per 1,000 Gallons**
Residential	209,929,680	80.51%	$833,404.29	89.65%	$3.97
Commercial	21,498,790	8.24%	$45,515.30	4.90%	$2.12
Industrial	1,266,200	0.49%	$3,077.34	0.33%	$2.43
Multi-Family	9,382,690	3.60%	$15,768.05	1.70%	$1.68
Public-Government	1,513,220	0.58%	$3,949.04	0.42%	$2.61
Bulk Sales	17,170,620	6.58%	$27,871.24	3.00%	$1.62
Totals	**260,761,200**	**100.00%**	**$929,585.26**	**100.00%**	
Average Price Per 1,000 Gallons of Water Sold					**$3.56**

Table 2.2.4 suggests that bulk water sales represents 6.58% of the total water consumption during this 12-month period. Bulk water sales are typically water sales to other water utilities. Table 2.2.5 identifies the bulk water sales customers and the percentage of water sold to each bulk water customer.

Table 2.2.5 Tri-Township's Bulk Water Sales Customers & Consumption

12-MONTH PERIOD FROM JANUARY 1, 2019 THRU JANUARY 1, 2020					
Customer Type	**Meter Size**	**Gallons Consumed**	**Revenue from Water Sales**	**Revenue Per 1,000 Gallons**	**Percentage of Bulk Water Sales**
Valley Rural Water Co.	1"	385,140	$927.20	$2.41	3.33%
Valley Rural Water Co.	4"	76,280	$959.02	$12.57	3.44%
Twin Rivers Water Co.	2"	4,411,000	$7,873.87	$1.79	28.25%
North Dearborn (Mt. Pleasant)	3"	4,522,410	$7,101.15	$1.57	25.48%
North Dearborn (Georgetown)	2"	7,145,790	$11,010.00	$1.54	39.50%
TOTALS		**16,540,620**	**$27,871.24**		**100.00%**

Tri-Township Water Corporation has a retail water user agreement with each of the three bulk water purchasers and sells water to the bulk water purchasers at the same retail tariff rate as for all retail water customers.

Each of the three water for resale customers served by Tri-Township are generally small water users. Table 2.2.5 indicates total revenue generated from water sold to the bulk water customers was only 3% of the revenue and amounted to 6.58% of the gallonage of water sold. Two of these three customers serve unique portions of their respective utilities water service area that has water service issues. Therefore, TTWC is best suited to serve these utilities via a master water meter. The third bulk water customer is Twin Rivers Water Company, located in the State of Ohio. Twin Rivers is located in a remote hilly location that precludes the them from developing their own water source and from access any water utility located in the State of Ohio.

Table 2.2.6 provides a listing of Tri-Township's 10 largest water use customers in 2020. Tri-Township Water Corporation sold the 10 water 10-largest customers a total of $31,960.34 of water in 2020. The two largest customers, Tucker Property Management and Higher Ground Church Camp, purchased approximately 1.82% of all water revenue by TTWC in 2020. The bulk water customers produced 3.0% of total water sales in 2020 and the 10-largest water customers produced 3.44% of total revenue.

During the year 2020 approximately 90% of all water sold by Tri-Township Water Corporation was to residential water customers.

Table 2.2.6 Annual Water Sales Revenue by Tri-Township's 10 Largest Water Users in 2020

Rank	Customer	2020 Water Sales Revenue	Percent of Total Water Sales Revenue
1	Tucker Property Management	$10,180.50	1.10%
2	Higher Ground	$6,732.62	0.72%
3	Logan Elderly Housing	$3,364.98	0.36%
4	Hirlinger Motors	$2,392.48	0.26%
5	Larry Smith Farms	$2,332.47	0.25%
6	Whitewater Mill	$1,837.55	0.20%
7	Bright Elementary School	$1,527.53	0.16%
8	Bright & Kleen Car Wash	$1,360.31	0.15%
9	Bright Enterprises	$1,130.75	0.12%
10	Bright Market VP	$1,101.15	0.12%
	Total Water Revenue	$31,960.34	3.44%

2.3 EXISTING INFRASTRUCTURE

Tri-Township Water Corporation commenced water service to its customers in 1966. The existing waterworks consists of a mix of materials and components constructed during the period of 1966 through 2020. The water distribution system extends throughout the service area as indicated on Figure 1.1.1. The Jamison Road Well Field was constructed in 1965 along with the Morgan Road Water Treatment Plant. Later in 1978 the Morgan Road Water Treatment Plant was judged to lack sufficient production capacity and it was modified to be utilized as a water booster station. In 1978 a 600 gallons per minute water treatment plant was constructed adjacent to the Jamison Road Well Field. The Jamison Road Well Field and Water Treatment Plant are located on the extreme east side of Tri-Township's service area immediately adjacent to the state line with the State of Ohio. The Cedar Grove Well Field and Water Treatment Plant, constructed in 1996, are located in the extreme northern portion of TTWC's service area and in Franklin County. A visual survey of the water treatment plants, well fields and elevated water storage tanks indicates the entire waterworks has been satisfactorily maintained. Several major waterworks improvements have been made in recent years. Table 2.3.1 summarizes recent waterworks improvements accomplished by the Tri-Township Water Corporation.

Table 2.3.1 Schedule of Waterworks Improvements 2004 through 2020

2004 - replaced 25 year old Jamison Road Steel Package Treatment Plant with new package plant; increased detention time and aerolator; installed 10,000' of 8" DI water main to serve new Sugar Ridge residential development -315 units; installed 6" PVC main in Harely Springs, Phase IV - 2,833' to serve 40 lots; completed Phase IV of Park Place Subdivision - 1,485' of 8" PVC and 480' of 6" PVC and 150' of 4" PVC to serve 40 more lots; installed 834' of 6" PVC to serve Moser Family Division, 5 lots and completed Brookestone Way Phase III - 1,195' of 6" PVC and 240' of 4" PVC to serve 32 additional lots; wired Jamisone Plant and Wellfield for portable generator connections with switchable disconnects; began installing radio read meter reading system

2005 - added three new fire hydrants along existing 10" main on Jamison Road for fire protection and better flushing capabilities; completed third and final phase of Rocky Mountain Estates with 1200' of 4" PVC and 1000' of 6" PVC with hydrants and valves to serve 42 additional lots; installed 289' of 8" DI with hydrants and valves to serve 34 condo units at the Villas of Sugar Glenn; continue installing radio read meter reading system

2006 - added 1,710' of 8" PVC with 2 fire hydrants and 4 - 8" valves for the Phase III of Olde Orchard Subdivision; purchased 10 acres of future well field property close to our existing Jamison Well Field and Plant; completed intalling our radio read meter reading system

2007 - installed auxillary power equipment at Cedar Grove Treatment Plant; Barber Acres Subdivision - installted 2,725' - 8" DI & 1,360' - 8" PVC with hydrants & valves to serve seven lots; Hidden Acres Phase I - installed 2, 740' - 8" PVC & 800' - 6" PVC & 450' - 4" PVC with hydrants & valves to serve 30 lots

2008 - completed Hidden Acres Subdivision Phase I; installed 1,080' - 8" PVC; 794' - 6" PVC; 430' - 4" PVC with hydrants and valves to serve 30 lots

2009 - Added 2 fire hydrants & 2 air releases to our 16" main from Cedar Grove Plant to Gaynor Ridge.

2010 - Replaced well pumps in #1 & #2 wells at Cedar Grove & rehabilitated #1 well at Cedar Grove.

2011 - Rehabilitated the interior and exterior of the Morgan Road gound tank; replaced motor #1 well at Cedar Grove; completed updated replacement of radio read meter registers

2012 - Subdivision addition- Morgan's Ridge Phase 3 -1620' of 6" PVC main with 3 new Fire Hydrants & 2-6" gate valves. Rolling Hills Subdivision - Replaced 450' of 2" PVC with 6" PVC, 1 new 6" gate valve, 1 new Fire Hydrant, & 2 new 2" gate valves to complete loop. Replaced 3800' of water main for County Road relocation project with 3090' of 6" PVC and 640' of 6" DI water main along with 3-new Fire Hydrants & 3 new 6" valves. Extended 710' of 4" PVC water main on a Rural Rd. to serve 2 new customers. Rebuilt pump & motor for the # 3 high service pump at the Cedar Grove Plant. Installed Generator at the Main Office for back up power. Replaced filter media & support gravel at the Jamison Rd. Treatment Plant.

2013 - Intersection of Jamison & Schaich Roads added 2 Valves to isolate sections - installed 692' of 12" DI & 668' of 8" DI along with 2-new fire hydrants, 2- 12" gate valves, & 3-8" gate valves along with a pressure reducing station to serve the Whitewater Mill Industrial Park.

2014 -Hidden Lane Subdivision added 465 feet of 6 inch pvc -1- 6 inch valve and - 1- 5 1/4 inch fire hydrant. Along Harrison/Brookville Rd installed 599 feet of 12 inch DI with 1-5 1/4 inch fire hydrant and 4-4inch valves & 2- 4 inch meters in a vault for an emergency connection with the City of Harrison, Ohio.

2015 - Tri-Township rebuilt 2 of the 3 High Service Pumps & Motors (#1 & #3) at the Jamison Plant. We replaced 2- 50 year old Mains on Morgan Rd a total of 12,276 ft. of 6" & 2" replaced with 12"DI & 6" PVC with this project we also reset 24 existing meter settings to connect them to the new mains. For the road construction in the downtown Bright area we replaced 2200 ft. of 8"-6"- & 4" mains with a new 12" & 8" mains to the outer edge of the new county R/W so our older mains did not end up under the new pavement. We also reset 30 existing meter settings to connect them to the new water mains.

2016 - Tri- Township rebuilt the 3rd of of the High Service Pumps (#2) at the Jamison Plant & replaced the motor. We installed 100' of new 4" PVC to serve one residence on St Rt # 1. 6" PVC water main to serve phase 4 of the Morgan's Ridge Subdivision serving 21 additional new lots. We then installed 2000' of 8" PVC & 572' of 6" PVC to serve Phase 1 of Woodridge Estates with 44 new lots. We relocated 280' of 2" PVC on Davidson Rd.

2017 - Cleaned Well # 4 Jamison Well Field, 461 ft of 6" DI to serve new fireworks store - 1171 ft of 6" DI extension to serve 2 existing homes - Evans Rd extension 1986 ft of 6" PVC to serve 4 new customers.

2018 - White Pines Subdivision Phase # 1 & # 2 1810 ft. of 8" PVC & 388 ft. of 4" PVC to serve 19 new lots. 250 ft. of 4" PVC to serve 2 addtional customers on Justis Rd. 47 ft of 8" DI for fire main to serve Brighton Mills commerical property. Morgans Ridge Phase 6 - 700 ft. of 6" PVC to serve 16 additional lots. Augusta Point installed 840 ft of 8" PVC to serve 24 new lots.

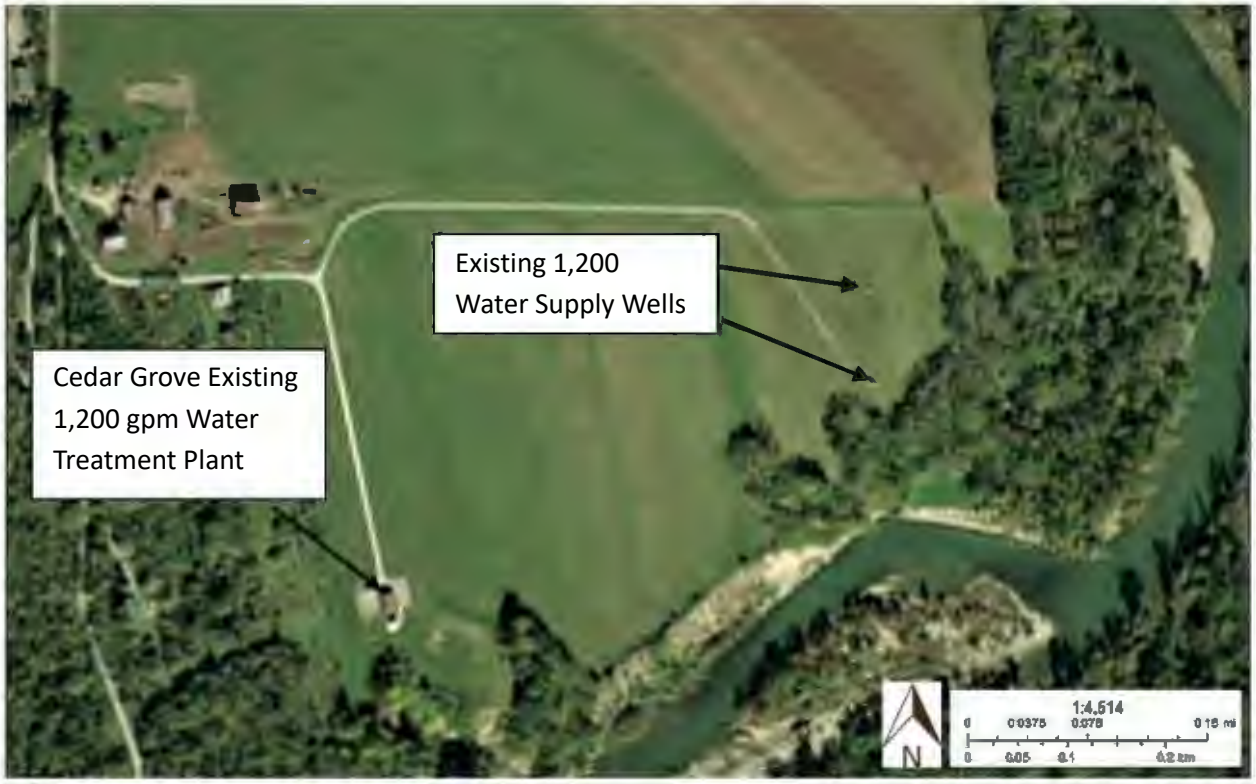
2019 - State Rd # 1 North 85 ft. 4" PVC extension to serve 1 additional home. Steele Rd extension 185 ft. of 4" PVC to serve 1 additional home. Woodridge Estates Phase 2 679 ft of 8" PVC & 519 ft. of 6" PVC and 1-8" valve along with 3- fire hydrants. Relocation of water mains for State Line/ Georgetown Road project. Replaced 470' of 8":PVC & 6" CI with 470' of 12" DI Relocated 220' of 6" PVC & relocated 1370' of 8" PVC. Along with 3 - new Fire Hydrants & 2- 6" Valves & 3- 8" Valves & reset 18 meter services.

2020 - Worked on relocation plans for future road /bridge projects, Worked toward obtaining a piece of property for a future water tower site. Replaced over 250 residential water meters.Completed restoration of water main projects from late 2019.

2.4 Water Supply

The utility operates from a pair of well fields located several miles apart, but located along the Whitewater River. Figure 2.4.1 shows the location of the Cedar Grove Well Field and Figure 2.4.2 shows the location of the Jamison Road Well Field.

Figure 2.4.1 Existing Cedar Grove Well Field & Water Treatment Plant



Since the original well were drilled in 1966 some wells have been abandoned and other wells have been added. The Cedar Grove Well Field is the most recent of the two well fields and it was constructed in 1996.

Figure 2.4.2 Jamison Road Well Field & Water Treatment Plant

Table 2.4.1 provides a summary of the four water supply wells in the Jamison Road Well Field and the two water supply wells in the Cedar Grove Well Field along with the age of each well and its current pumping capacity.

Both well fields are constructed adjacent to the Whitewater River in a sand and gravel aquifer that parallels the river.

Table 2.4.1 Summary of Jamison Well Field and Cedar Grove Well Field Maximum Daily Water Production and IDEM Rated Daily Capacity

Well Designation Name	Year Constructed	Diameter	Pumping Rate (gallons/day)
Jamison Well #2	1979	18" x 72"	216,000 gallons
Jamison Well #3	1980	18" x 72"	561,600 gallons
Jamison Well #4	1979	18" x 72"	561,600 gallons
Jamison Well #5	1980	16"	561,600 gallons
Total Jamison Well Field Daily Production			**1,980,800 gallons**
Jamison Well Field Rated Capacity			**1,419,900 gallons/day**

Well Designation Name	Year Constructed	Diameter	Pumping Rate (gallons/day)
Cedar Grove Well #1	1996	16" x 24"	1,728,000 gallons
Cedar Grove Well #2	1996	16" x 24"	1,728,000 gallons
Total Cedar Grove Well Field Daily Production			**3,456,000 gallons**
Cedar Grove Well Field Rated Capacity			**1,728,000 gallons/day**

- **Current Design Raw Water Rated Capacity from Both Well Fields = 3,400,000 gpd**
- **Current Well Fields Capacity Operating 20-Hours Per Day = 2,720,000 gpd**
- **Current Peak Day Water Production 1,217,000 gpd**

The combined capacity of the Jamison Well Field and the Cedar Grove Well Field has a 20-hour per day production capacity of 2,720,000 gallons per day as compared to a maximum day finished water production of 1,217,000 gallons per day. These two well fields serve two water treatment plants with a combined production capacity of 1,800 gallons per minute or 2,160,000 gallons per day based on 20-hours per day production capacity.

The existing water supply wells have ample capacity to satisfy peak day pumpage and to satisfy the production capacity of the water treatment plants they serve. However, it should be noted that the Jamison Well Field contains wells that are 40-years old or older. A typical life for water supply

wells is 40-years and these wells need to be closely observed for performance and planned for future replacement.

The Table 2.4.2 provides a summary of the wells in the Jamison Well Field:

Table 2.4.2 Jamison Well Field Technical Details

Well Number	**No. 5**	**No. 2**	**No. 3**	**No. 4**
Well Field Well Field Designation	Jamison Well	Jamison Well	Jamison Well	Jamison Well
Year Constructed	1980	1979	1980	1979
Well Construction	Natural/Steel	Gravel Pack/Steel	Gravel Pack/Steel	Gravel Pack/Steel
Rated Capacity	38.8 gal. / ft	45 gal. / ft	120 gal. / ft	172.3 gal. / ft
Actual Capacity	543 gpm	150 gpm	635 gpm	517 gpm
Depth of Wells	61.75 ft	40.5 ft	54.5 ft	50 ft
Diameters of Wells & Pack	16” No Pack	72" - 18"	72" -18"	72" - 18"
Pump – GPM	390 gpm	150 gpm	390 gpm	390 gpm
Motor – HP	30 h.p.	30 h.p.	25 h.p.	15 h.p.
Yields of Wells in GPD	561,000	216,000	561,600	561,600
Auxiliary Power	New Portable Generator Set Proposed for These Wells			
Date Well was Last Tested	11/21/2014 – Not in service	11/20/2014	5/18/2017	
Date Well was Last Cleaned	11/6/2014 – Not in service	11/13/2014	5/18/2017	
Planned Future Well Cleaning Date	2022	2021-2022	2025	

Table 2.4.3 provides a summary of the wells in the Cedar Grove Well Field:

Table 2.4.3 Cedar Grove Well Field Technical Details

Well Field Designation	**Cedar Grove**	**Cedar Grove**
Year Constructed	1996	1996
Rated Capacity	85.7 gal. / ft	66.6 gal. / ft
Actual Capacity	1200 gpm	1200 gpm
Depth of Wells	152 ' 10"	166' 10"
Diameters of Wells	24" - 16"	24" - 16"
Pump – GPM	1,200 gpm	1,200 gpm
Motor – HP	60 h.p.	60 h.p.
Auxiliary Power	Yes	Yes
Date Well was Last Tested	9/29/2010	12/11/2014
Date Well was Last Cleaned	7/9/2010	12/1/2014
Planned Future Well Cleaning Date	2025	2029

All six (6) existing wells are equipped with vertical turbine pumps with above grade discharge heads. Wells located within the 100-year flood plain and are located on well towers to place the top of the well casing 3'-0" above the 100-year flood elevation. Discharge heads of the two wells in the Cedar Grove Well Field are substantially above the 100-year flood elevation and are not on elevated platforms. Each well has a valve vault with a check valve and gate valve. All the wells pump raw water from the water pumping level in the well to the top of the aerator at the water treatment plant. The water supply well water pumping level elevation varies between the two well fields.

None of the wells have any particularly characteristic that inhibits their function. However, periodic well cleaning is an essential activity to achieve proper well function. Well cleaning is performed periodically based on results obtained from periodic overboard pumping well tests to determine well yield and pumping level. Historically, all wells have provided a satisfactory result in water production after chemical and or mechanical well cleaning.

TTWC performs excellent well maintenance and well performance monitoring. The wells and pumps traditionally are inspected by Bastin Logan Water Supply Contractors that performs maintenance services on the wells and water treatment plant. Table 2.3.3 and Table 2.3.2 provide details of when the wells were last tested and last cleaned for both the Jamison Well Field and the Cedar Grove Well Field. Also, provided is the date for planned well cleaning.

Water Supply Current Needs
Tri-Township has sufficient raw water supply to meet their current demands, and they are closely monitoring the older wells to detect any age related well deterioration that can be identified and corrected promptly. Tri-Township has planned for their future water supply needs. TTWC has purchased the right and entered into a formal agreement with the Hamilton County Ohio, Parks Department to enable TTWC to construct water supply wells on property owned by the Hamilton County Parks Department. TTWC has test drilled the property in Ohio to verify availability of a future water supply. However, TTWC is not currently actively pursuing construction of any new wells on the property in Ohio.

2.5 Distribution System

Water Mains
The Tri-Township Water Corporation serves water over a very large area. In general, the service area commences at the Ohio State Line and extends westward to State Road One. With the exception of a small number of water customers, I-74 is the northern boundary of TTWC's distribution system. When Tri-Township Water Corporation commenced operation in 1966, they could not anticipate the residential growth created by I-74 and the desirability of their community for residents from the State of Ohio. Growth resulting to TTWC's service area, because of its proximity to the City of Cincinnati, has placed capacity constraints on the utilities original water distribution system. Consequently, the utility serves the residential water customers of many subdivisions that consume approximately 90% of the utilities annual water production

The utility has approximately 121.1 miles of water mains that range in size from 1-1/4" PVC to 16" ductile iron, 16" PVC, and two booster stations. The original water distribution system contained several feet of 2-1/2" diameter PVC small and other nonstandard water mains. At this time 2.2% of the overall water distribution system consists of these originally installed 2-1/2" diameter water lines. Table 2.4.2 provide the approximate lengths of various water main sizes in the distribution system. These lengths are based on records maintained and upgraded annually by Tri-Township Water Corporation. Approximately 22% of the system mains are 8" diameter or larger transmission mains and 78% of the lines are 6" diameter or smaller distribution system mains.

Table 2.5.1 provides a detailed summary of all the water mains and water lines currently owned and operated by Tri-Township Water Corporation. This table lists the quantity, by feet of length, of water mains ranging in diameter from 1-1/4" through 16". Further, water main materials are designated for each diameter and length of water line or water main.

Every customer served water by TTWC has a water meter and all water meters have drive-by automatic meter reading heads. Many water meters were completely replaced when the drive-by meter reading system was installed. Customer's water meters are read every two-months.

Table 2.5.1 Summary of Water Main Materials & Diameters in Distribution System

January 1, 2021								
Dia. & Type	**RT. #1**	**RT. #2**	**RT. #3**	**RT. #4**	**RT. #5**	**RT. #6**	**Total Feet**	**Percentage**
1-1/4" PVC	0	0	1,680	0	0	0	1,680	0.26%
1-1/2" roll pla.	0	0	0	0	0	0	0	0.00%
1-1/2" PVC	340	0	11,862	1,130	2,019	0	15,351	2.40%
2" PVC	14,909	23,554	8,533	28,953	28,178	0	104,127	16.28%
2-1/2" PVC	0	7,860	804	2,721	2,663	0	14,048	2.20%
3" PVC	0	746	0	0	0	0	746	0.12%
4" PVC	18,172	20,544	13,081	19,550	22,012	0	93,359	14.60%
4" C.I.	4,643	3,342	597	0	0	0	8,582	1.34%
6" PVC	19,603	4,009	23,422	31,014	29,328	5,766	113,142	17.69%
6" C.I.	12,121	235	5,741	8,493	24,785	0	51,375	8.03%
6" D.I.	684	0	1,224	0	640	461	3,009	0.47%
8" PVC	23,489	12,168	21,620	27,255	19,074	9,062	112,668	17.62%
8" C.I.	0	0	0	3,063	0	0	3,063	0.48%
8" D.I.	9,123	425	119	0	0	4,102	13,769	2.15%
10" PVC	0	0	0	1,416	0	0	1,416	0.22%
10" D.I.	0	0	17,430	11	0	0	17,441	2.73%
12" PVC	0	0	0	0	0	1,757	1,757	0.27%
12" D.I.	1,587	0	1,000	8,929	0	17,174	28,690	4.49%
16" PVC	0	0	0	0	0	38,020	38,020	5.95%
16" D.I.	0	0	0	225	0	16,980	17,205	2.69%
Total Feet	**104,671**	**72,883**	**107,113**	**132,760**	**128,699**	**93,322**	**639,448**	**100.00%**
Total Miles	**19.8**	**13.8**	**20.3**	**25.1**	**24.4**	**17.7**	**121.1**	

Gate valves and fire hydrants in Tri-Townships distribution system also range in age from 1-year old to 55-years old. Each year every gate valve is exercised to verify the valves ability to function. Table 2.5.2 provides a listing of the quantity of gate valves, fire hydrants, fire hydrants and pressure reducing valves. All fire hydrants and flush hydrants have auxiliary gate valves to isolate the hydrant.

Table 2.5.2 Valve and Hydrant Inventory

Component	Quantity
Gate Valves	610
Fire & Flush Hydrants	998
Pressure Reducing Valves	10 +/-

The components of the distribution system constructed in the past 30 years are generally in very good condition. However, there are locations in a portion of the original distribution system that were constructed with non-standard diameter water mains, water main materials not suitable for their application. Also, with the initial installation of the distribution system there were occasions when improper construction procedures were utilized. Rock is commonly encountered, during construction, in many locations within the water distribution system. There appears to be evidence of inadequate care in installation of water mains in rock, when the system was originally installed. Since the beginning of TTWC there has been numerous leaks caused by water mains laying directly on rock. These locations have caused frequent water main breaks, resulting in significant amounts of lost water.

Some of the original water mains installed in 1966 were cast iron and have deteriorated due to corrosion attack in the aggressive soils is certain locations. Many of the originally installed water mains had sufficient flow capacity when they were installed. However, now, 55-years later, their diameter is too small to accommodate distribution system flow demands. The number of water customers served by these original water mains has increased by a factor of 1000% since the original water mains were first installed. The average service life of the cast iron water mains is estimated to be 50-years and all the cast iron water mains have been in service for 55-years.

2.5.1 Water Leak and Water Main Repair Records

TTWC maintains excellent detailed records of each water main repair listing the following:

1. Location of leak
2. Date of request for underground location of utilities
3. Date of repair
4. Type of Leak
5. Cost to repair leak
6. Estimate of gallons of water lost due to leak

Tables 2.5.3, 2.5.4 and 2.5.5 provide a detailed listing of the water main leaks experienced by Tri-Township Water Corporation in the years 2018, 2019 and 2020.

Table 2.5.3 Leak Repair Records for Year 2018

Tri-Township Water Corporation - Leak or Repair Records			2018		
Location of leak	Underground Locate Info	Date of Repair	Type Of Leak	Repair by & Cost	Est. Gallons Lost
Ed Schweinfus 26348 East Rolling Dr. 42-454000	1/3/2018 9:00 AM 18/0102/1954	1/3/2018	2" PVC main - Reset Tap - Removed Smith Blair saddle installed Ford 2" brass saddle & new corp stop - setter & pit - put cts comp setter on customers existing service	TTW Main - Meter 4' 6" Video $548.00	10,000
William Kraus rental 25700 St. Rd. # 1 52-563400	Emergency	1/13/2018	2- leaks on 6" CI Main 18" apart 1- leak crack with pipe - notched each end of crack to prevent crack from going further.each leak installed ford 6' X 12" SS FC RC for DI/CI These clamps start 4' north of St.Johns Tap 7 goes to 6' north	TTW- $350 Dover Water - $600 Total $950	40,000
David Fugate 999 Losekamp Rd 32-360400	1/22/2018 8:30 AM 18/0118/1913	1/22- 23/ 2018	1 1/2" PVC main Approximately 20' past fugate driveway added 1 1/2" Ball curb valve in CI Box just past Electric pole w/ 2- 1 1/2" harco DI IPS male adapters & 101" of 1 1/2" PVC with a bell	TTW $ 1370	10,000
25700 State Route # 1 Hyd. # H05-0100	3/9/2018 - 3/22/2018 18/0306/2088	3/14/2018	Replace fire hydrant 5 1/4" - 42" bury cut out old 6" slip tee & 6 X 4 reducer & removed old clow eddy hydrant. Installed new 6" MJ tee 41" of 6" DI & 1-6 X 12 Solid sleeve coupling - 2- 6X 12 AC 6" DI MJ mueller gate valve & 2005 mueller rebuilt hyd.	TTW - $ 560 Dover Water $1,090 Total $1,650	10,000
5687 N. Dearborn Rd Old N. Dearborn School Farthest West Entrance Valve # Mo5-0260	4/25/20180- 5/7/2018 18/0504/4073	5/7/2018	Replaced packing & bonnett bolts with stainless steel bolts & made red rubber gasket for top packing plate	TTW 616.50	0
683/728 Bond Rd 11-165000	4/26/2018-5/9/2018 18/0423/3350	5/8/2018	Remove dead tap cap corp stop on 4" CI main - GPS corp stop for future loacating 4" brass saddle & corp stop turned off & capped locate 13' 6" east of concrete drive at 683 Bond Rd	TTW $ 548	0
25658 State Route # 1 William Kraus Rental 52-563800	4/30/2018-5/14/2018 18/0426/4127	4/30/2018	6" CI Main reset tap Direct tap flare corp stop used 3/4" corp stop 90 flare X comp new tubing w/ locate wire new setter & pit - placed setter directly on customer 3/4" copper also found split in 6" CI - 6' North of this tap - installed 6"X 12" FCRC SS - new meter base	TTW Main - Meter 5' $ 822	10,000

Table 2.5.4 Leak Repair Records for Year 2019

Tri-Township Water Corporation - Leak or Repair Records				2019	
Location of leak	Underground Locate Info	Date of Repair	Type Of Leak	Repair by & Cost	Est. Gallons Lost
21599 Jackson Ridge Rd Stanley Beeler was location # 21-211100 Now 21-210800	Dover Water Locate	1/10/2019	Replaced 2 " wheel valve with 2" Mueller gate valve w/ ci valve box 24" bottom & 16" Top Relocated existing tap to the new end of the Jackson Ridge 2" PVC main.	TTW Main - Meter 5' 6" $411.00	0
Gobblers Knob near Evans Rd		1/11/2019	16" main Split 20' used 20' of 16" C905 PVC & 2- 16" X 15" MJ DI solid sleeves	TTW -$1570 Dover Water - $1280 Total - $ 2850	200,000
Across from 24049 State Line Rd Dan's Garage East Side of Road	1/19/2019- 2/1/2019 19/0116/1077	1/24/2019	Removed grote trading post dead 3/4" tap & meter, capped comp. corp stop at 12" DI main with Ford Brass Corp Stop Cap & turned off Corp Removed pit , setter, & meter	TTW - $274.00	0
Across From 950 N. Deargorn Rd Brian Cook 41-401300	2/4/2019 - 2-15/2019 19/0131/2485	2/13/2019	1 1/2" pvc leaking at glue joint used 2- 1 1/2" GJ repair couplings & 15.75" of 1 1/2" PVC	TTW - $411.00	10,000
858 East Michael Dr George Zurweller Jr. 11-156400 M. Struble 861 E Michael Dr 11-155800	2/21/2019 - 3/5/2019 19/0215/2441	2/21/2019	Reset Tap 2" PVC New Pit,setter, saddle, & corp stop. For Zurweller - new saddle, corp stop, & 3/4" comp coupling for Struble.	TTW - Video Main - Meter 12' $ 548.00	5,000
Across the Road from 24623 Mt. Pleasant Rd at Fire Hydrant (Beck Farm)	5/28/2019-6/10/2019 19/0523/1989		Repair Auxillary Valve to fire hydrantDid not receive parts in time called in locates later see sheet 2	TTW- 0	0
23280 State Line Rd Amy Mueller (R) Herb Crockett renter 11-170800	6/12/2019 - 6/28/2019 19/0612/2499	6/13/2019	6" CI Main Rotted on bottom Installed 6" X 12" SS FC RC all gravel backfill	TTW - $548.00	5,000
22163 Meadow Ridge Dr Dave Pitsticks 11-132800	called in by homeowner	7/2/2019	small leak in unkown 2 " PVC dug up by Dave Pitstick & Devin Steele split in 2" PVC SW bell Replaced 18.25" of pipe with 2-2" GJ repair couplings. Found 2" SW Tee 4' toward Georgetown Rd & 9' off edge of pavement	Steele- $325 TTW - $ 160 Total - $485.00	20,000
across the Road from 308 Bond Rd 11-163000	7/8/2019 - 7/18/2019 19/0702/6174	7/9/2019	4" CI Main leak at 4" CI Valve replaced all bonnett bolts & packing gland bolts w/SS made new rubber flat gasket for packing gland replaced operating hold downn bolt w/ 7/16" X 2" Carbon steel not SS all gravel backfill	TTW-$835.00	5,000

Table 2.5.5 Leak Repair Records for Year 2020

Tri-Township Water Corporation - Leak or Repair Records				2020	
Location of leak	Underground Locate Info	Date of Repair	Type Of Leak	Repair by & Cost	Est. Gallons Lost
24631 State Line Rd Gary Noel 31-328700	1/2/2020 - 1/22/2020 20/0102/0547	1/16/2020	No leak found Dug up Tap & Casing on 6" CI main side & found drainage water from west(meterside) draining thru & along casing backfilled with 73 limestone.	Main - Meter Existing 42' 6" TTW - $ 501.00	0
1068 Jamison Rd Marc Ernst 32-359990		1/2/2020	10" DI Bell & Spicot rotted- cut out & installed 28.25" of 10" DI with 2 - 10" X 12 DI solid sleeves with Standard MJ Glands	TTW-1002.00 Dover Water 600.00 Total $ 1,602.00	150,000
Along St. Rd # 1 at 25752 Sawmill Rd. Joan Brewers 51-558000	20/0105/0040 Emergency Locate	1/5/2020	6" CI Main Cracked installed 6" X 12" all SS FC Ford Repair Clamp	TTW 270.00 Dover Water 860.00 Total $ 1,130.00	50,000
3175 N. Dearborn Rd Carol Strathman Barn 42-445900	20/0105/0100 Emergency Locate	1/6/2020	6" CI Main cracked athorse barn 6" X 1" Tap Removed saddle installed 6" X 12" All SS FC ford RC retapped main just west of repair clamp w/6" X 1" brass saddle& 1" ball corp stop CC x Comp reconnected 1" CTS tubing directly to corp stop -- 1" tubing in 1.5" PVC casing--- did not reset setter pit & lid	Main - Meter 21' TTW $1,336.00	75,000
Repair to valve North Dearborn Rd	Slivka west of driveway	1/6/2020	M04-0360 Repalced Packing gasket & bolts and hold down bolt all SS	TTW $ 210.00	0
Repair to valve North Dearborn Rd	Klings Field	1/7/2020	M04-0340 Repalced Packing gasket & bolts and hold down bolt& bonnett bolts all SS	TTW $ 334.00	0
Intersection Henderson Rd & North Dearborn Rd	2/4/2020 - 2/18/2020 20/0131/0619	2/20/2020	Fire Hydrant hit by vehicle Installed 6" ancor swival 90 out of 10X6 tee installed new mueller 6" valve then 6 X 18 Anchor coupling & used hydrant from State Line Rd realignment project.	TTW $ 1096.00	0
Ennis Ridge Rd at Flush Hydrant HFL05-0130	Emergency	2/14/2020	4" X 3" Pvc reducer split between Aux. valve & Flush Hydrant Replaced with 4" Spicot X 3" Bell DI Reducer & reset hydrant on 3" PVC	TTW $ 157.50 Dover Water $ 860.00 Total $ 1,017.50	40,000
West of 3175 N. Dearborn Rd Carol Strathman Barn	Emergency	Sunday 2/16/2020	Just west of barn drive way above counties 30" culvet 6" CI Main cracked around pipe Installed 6" X 12" SS FC RC for CI	Jody & Greg TTW - $ 375.00	100,000
Losekamp Rd-on the hiilside past Fugates	Emergency	3/16/2020	1 1/2" PVC glue joint puuled apart repaired with 2-1 1/2" GJ repair couplingsfor PVC & 21" of 1 1/2" PVC Pipe	TTW - $ 548.00	10,000
2665 Leah Dr next to lot 11 Hidden acres/Maxwell Con. H03-0102-25/HFL03-0157	Emergency3/18/2020 9:00 AM / 4/2/2020 20/0317/4307	3/18/2020	4 1/2" fire/flush Hydrant hit by concrete truck for maxwell construction Greg Cross 513-560-8022 Dug up reset hyrant,valve & valve box cut off 3.5" of 4" PVC new standard MJ gland,trans gasket & 4 bolts & nuts	TTW $ 479.50 Parts $ 17.73 Total $ 497.23	5,000

During the past three years there has been a total of 27 leak repairs to Tri-Townships water distribution system. The leaks are varied in their nature and there isn't a consistent pattern or type of leak that is common to all of the leaks. These three tables fail to confirm a consistent pattern of water main leaks.

Booster Stations

TTWC has two (2) actively used booster stations that are critical to the function of their waterworks. The Morgan Road Booster Station was originally as part of the Morgan Road Water Treatment Plant constructed in 1966. This water treatment plant was rated at 150 gpm and was retired in 1978 due to insufficient water production capacity. At that time the high service pumps were converted to function as a water booster station. The Morgan Road Booster Station takes suction from a 300,000-gallon capacity ground level water storage tank that was originally a clearwell for the original Morgan Road Water Treatment Plant. The second water booster station is located in a room in the rear of Tri-Township's Office in Bright, Indiana. The Office Water Booster Station also takes suction from a 300,000-gallon ground level water storage tank located at the rear of Tri-Township's office building. Both water booster stations discharge into the water distribution system and fill designated elevated water storage tanks. Both of these booster stations are in excellent condition and meet all current capacity needs. No addition booster stations are needed.

Table 2.5.6 provides a detail listing of the pumps and motors at the Morgan Road Booster Station and at the Office Booster Station.

TABLE 2.5.6 TTWC SCHEDULE OF BOOSTER STATION PUMPS & MOTORS

	BOOSTEER STATION LOCATION	
Motors	Morgan Rd. (2)	Main Office (3)
Manufacturer	Baldor	U.S. Motor
Type	Vert. Solid Shaft	Vert. Hollow Shaft
Rated Horsepower	25 hp	1-20 hp & 2-25 hp
Pumps		
Manufacturer	Sterling Peerless	Layne Bowler
Type	Centrifugal	Vertical
Capacity in GPM	350 gpm	300 gpm
Average Number of Hours	Alternated	Alternated
Operated Per Day (Hrs)	1.5 hrs./day	5.0 hrs./day
Auxiliary Power	Wired for Portable Generator	None

The Jamison Road Water Treatment Plant, the Office Booster Station and the Morgan Road Booster Station all lack standby generators for electric power during a power outage.

Distribution System Current Needs

Due to customer growth and service their location in the service area, changes have occurred in the hydraulics of Tri-Township's water distribution. These changes have created a deficiency in the ability of distribution system. The deficiencies developed into an inadequacy of water carrying capacity of the 6" cast iron water transmission mains installed in 1966. These 6" water mains are situated in the heart of the water transmission main system and function as a bottle neck in the movement of water. Due to their small diameter the original 6" diameter water mains can only carry a limited volume of water.

A second change that occurred to the water transmission system is construction of a 10" ductile iron water main installed in 1978 that caries water from the Jamison Road Water Treatment Plant to the 300,000-gallon ground level Office Water Storage Tank and the 6" water main to the Morgan Road Water Booster Station. Both of these water mains are fed from the 10" ductile iron water main. Consequently, due to the 6" diameter and 10" diameter being fed from a 10" water main the pipeline friction in the two water mains caused water flow to be directed 30% to the Morgan Road Ground Level Tank and 70% to the Office Ground Level Water Storage Tank.

A portion of this bottle neck, was alleviated in the year 2015 when Tri-Township Water exended $564,936.00 of accumulated available funds to remedy the bottle neck. This project consisted of construction of a new 12" water main commencing at the Jamison Road Water Treatment Plant and extending south to Kolb Road and extending from Kolb Road to the 300,000-ground level water storage tank at Morgan Road. This project consisted of the following water main diameters and lengths.

Table 2.5.7 Summary of Water Transmission Improvements Performed in 2015

Material	Diameter	Length
SDR 21 PVC	6 inches	3,252 feet
PC 350 Ductile Iron	12 inches	8,510 feet

The water transmission main installed in 2015 solved the issue of providing flow from the Jamison Road Water Treatment Plant to the Morgan Road Water Storage Tank. However, the complete solution to this situation involves continuing to extend a new 12" PC 350 ductile iron water main from the Morgan Road Booster Station west along Morgan Road to North Dearborn Road and along North Dearborn Road to Henderson Road. This proposed water main extension parallels an existing 6" cast iron water main installed in 1966.

Completion of the second phase of the water transmission main will involve construction of approximately 8,150 lineal feet of 12" PC 350 ductile iron water main. The proposed water main route is along a county road that is rolling and has several driveways to cross.

Also, a new 12" ductile iron water main is needed to on State Line Road from North Dearborn Road south to Sneakville Road. The connection at Sneakville Road connects to an existing 12" water main continuing south on State Line Road and to an existing 8" water main on Sneakville Road.

Construction of the two recommended 12" ductile iron water transmission mains will create the link between the Office Booster Station, the Henderson Road Elevated Tank, existing water mains directed south to the Justis Road Elevated Tank and existing water mains directed west to the Henderson Road Elevated Water Storage Tank. The proposed water transmission main will essentially form a central hub in the Tri-Township water distribution system that will efficiently move water in all directions from Bright, Indiana.

2.6 Water Treatment

The utility operates a two (2) water treatment plants. The oldest constructed in 1978 is known as the Jamison Road Water Treatment Plant. The Jamison Road Water Treatment Plant is a package Aeralater Plant and was originally rated at 600 gallons per minute. In 2004 it was necessary to replace the Jamison Road Water Plant due to corrosion of the steel plant bottom plate, under drain and cell divider walls. All of the existing original water treatment plant components such as water plant building, high service pumps, electrical, chemical feed, backwash recycle and electrical components were reused when the package water plant was replaced. The replacement package water treatment plant is rated at 700 gallons per minute but continues to operate at 600 gpm because of reuse of the existing water plant components. Treated water effluent quality benefits from additional aeration, detention and filter area provided by the 700 gpm replacement water plant.

The Cedar Grove Water Treatment Plant is the newest water treatment plant, and was constructed in 1996. The Cedar Grove Water Plant is also an Aeralater type package steel water treatment plant. This water treatment plant is located in Franklin County north of Tri-Township's primary service area. However, several residential water customers, along the 16" water transmission main, receive water service from the water transmission main that extends from the Cedar Grove Water Treatment Plant to Tri-Township's primary water service area.

Raw water from each of the well fields contains objectionable levels of iron and manganese. Raw water hardness is approximately 320 milligrams per liter at both water treatment plants. Both water treatment plants utilize the same water treatment process consisting of aeration, detention and filtration. This water treatment process is a very common process for the purpose of iron and manganese removal. To date there is a low concentration of Ammonia in all wells.

Each water plant is circular in layout and contains four cells each with gravity flow filters. The steel filters extend outside the wall of the masonry water treatment plant. The water plant building and

Aeralater water plant is connected by an enclosed walkway. The filters at the Jamison Road Water Treatment Plant operate at a maximum rate of 600 gallons per minute and the filters at Cedar Grove Water Treatment Plant operate at 1,200 gallons per minute. Filter face piping, in each water treatment plant, has all pneumatically operated valves. The filter backwash process operates automatically after manual initiation by the water treatment plant operator. The filter control panel operates the entire sequence of valve operation for each filter cell until all cells are backwashed. Currently, both water treatment plants have a combined capacity of approximately 2,592,000 gallons per day based on the maximum filter rate. However, for purposes of IDEM-rated capacity one filter must be removed from operation leaving a capacity of 1,200 gallons per minute, or nearly 1,728,000 gallons per day. These flow rates are based on 24-hour per day operation rather than 20-hours per day.

Backwash water from the Jamison Road Water Treatment Plant is discharged into a settling basin to allow the iron oxide and manganese oxide to settle. After settling the backwash water is pumped back into the raw water supply to the water treatment plant. This procedure allows all backwash water to be recycled to produce finished water. Recycling of backwash water at this location is essential due to the limited land area available and the land use around the water treatment plant.

Backwash water from the Cedar Grove Water Treatment Plant is discharged into a large absorption pond where the water percolates through the soil leaving the iron oxide and manganese oxide trapped in the sandy soil in the pond bottom. This backwash water disposal process works efficiently in the sandy and gravely surface soils at this water plant site. The water plant site consists of several acres of relatively flat mowed grass area.

The Jamison Road Water Treatment Plant has three high service pumps each rated at 300 gallons per minute and the Cedar Grove Water Treatment Plant has three high service pumps each rated at 600 gallons per minute. The high service pumps are sized to allow highest pumping rate high service pump to be out of service and the plant would be able to function at total plant capacity of either 600 gpm at Jamison Road and at 1,200 gpm at Cedar Grove.

The chemical feed portion of the water treatment process is the same at both the Jamison Road Water Treatment Plant and at the Cedar Grove Water Treatment Plant. Chlorine is utilized for both pretreatment and post treatment in both water plants.

The Cedar Grove Water Treatment Plant has a standby power generator set located in the water treatment plant building. This generator set is diesel powered. An automatic transfer switch starts the generator set whenever the incoming electric power, from the electric company, is interrupted. This generator set is in excellent condition. The generator set enables the water treatment plant to continue to operate the water supply wells, water treatment plant and high service pumps. During a power outage the water treatment plant can process and pump water to the distribution system at the rate of 1,200 gallons per minute.

The Jamison Road Water Treatment Plant, constructed in 1978, doesn't have a permanently mounted standby power.

Filters at both water treatment plants are periodically opened and examined for condition of the media in terms of quantity of media and looseness of media. Support gravel and filter media in the filters are examined to make sure they are not cemented due to calcium hardness. Any filters that is slightly low on anthracite filter media cap has additional Anthracite added to each filter as needed. In general, filters at both water treatment plants appear to be in good condition and are functioning as intended.

In terms of maintenance and painting the prefabricated steel Aeralater water treatment plant is much like a steel elevated water storage tank The Jamison Road Water Treatment Plant was last painted in 2004 when it was constructed and is projected to need repainting in the year 2024. The Cedar Grove Water Treatment Plant was last painted when it was constructed in 1996 and is planned to be repainted in 2028.

Water Treatment Current Needs

Currently, both water treatment plants are performing satisfactorily. IDEM's last Sanitary Survey Inspection revealed limited minor items. However, by current standards of reliability there is a major concern with respect to standby electric power. There are two critical locations that currently lack standby electric power. These locations need standby electric power is as follows:

1. Jamison Road Water Treatment Plant and Well Field
2. Office Water Booster Station

The Jamison Road Water Treatment Plant and Well Field utilize the same main breaker and they have a manual transfer switch to allow switching from electric power from the electric utility to standby electric power generated on site. This location needs a permanent standby power generator and automatic transfer switch set mounted adjacent and outside of the water treatment plant building. Due to the steep and curvy route to the Jamison Road Water Plant there would be many obstacles to delivery of a portable generator to this location during a snow or ice storm.

The second location where standby electric power is needed is at the Office Water Booster Station. The entire electric supply for this booster station and the water company office is served by the same main breaker. A new permanently installed standby power diesel generator set is recommended for the Tri-Township Office Booster Station and the balance of the office's electrical requirements. This generator set can be located on the south side of the office building and can be fueled by the natural gas supply that is present along State Line Road adjacent to the office building. With this generator set and the generator set at Jamison Road operational a total of 600 gallons per minute could be produced during an electric power outage.

To summarize two new permanent diesel-powered generator set is needed, one to serve the Jamison Road Water Plant and one to serve the Office Booster Station.

2.8 Water Storage

A summary of TTWC's existing water storage tanks is provided below in Table 2.8.1.

Table 2.8.1 Summary of Water Storage Tanks

Tank Name	Capacity (gallons)	Function	Type	Year Built	HWL Elevation	Last Painted
Morgan Road	300,000	Booster Pump Supply	Ground	1974	980 msl	2011
Main Office	300,000	Booster Pump Supply	Ground	1979	958 msl	1994
Dover	100,000	Distribution System Supply	Single Pedestal	1979	1081 msl	1994
Henderson Rd.	500,000	Distribution System Supply	Multi-column	1987	1081 msl	2002
Justis Road	500,000	Distribution System Supply	Multi-column	2000	1083 msl	2000

Table 2.8.1 indicates that the water distribution system currently has an effective elevated water storage volume of 1,100,000 gallons. The 300,000-gallon Morgan Road ground level water storage tank, constructed in 1974, is the oldest water storage tank and was originally the clearwell for the Morgan Road Water Treatment Plant. The 300,000-gallon Office Water Storage Tank, constructed in 1978, is also a ground level tank. Both of the ground level water storage tanks serve to supply water to the suction side of either the Morgan Road or the Office Water Booster Stations. Both of these ground tanks fail to meet the criteria for serving as an elevated water storage tank.

The following figures show the location of each of the water storage tanks:

Figure 2.8.1 existing Henderson Road 500,000-gallon multi-column elevated water storage tank.
Figure 2.8.2 existing TTTWC Office 300,000-gallon ground level water storage tank and booster.
Figure 2.8.3 existing Morgan Road 300,000 ground level water storage tank and booster station.
Figure 2.8.4 existing Justis Road 500,000-gallon multi-column elevated water storage tank.
Figure 2.8.5 existing Dover 100,000-gallon single pedestal elevated water storage tank.

Figure 2.8.1 Existing Henderson Road 500,000 Gallon Elevated Water Tank

Figure 2.8.2 Existing TTWC Office, Booster Station, 300,000 Gallon Ground Level Tank

Figure 2.8.3 Existing Morgan Road Booster Station & 300,000 Gallon Water Tank

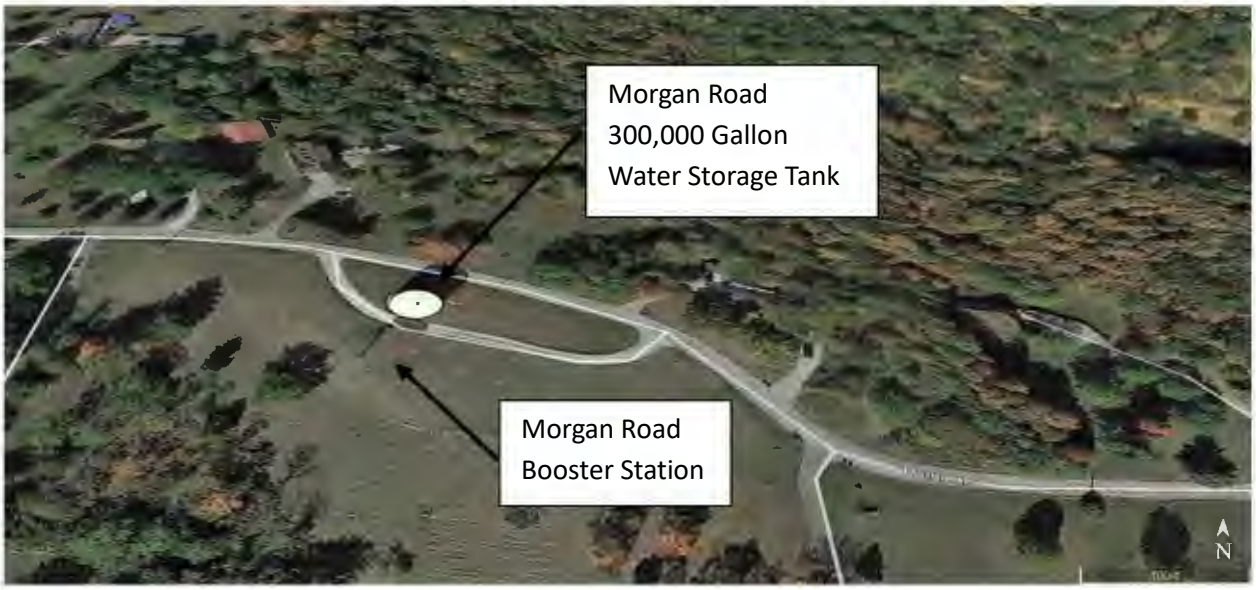


Figure 2.8.4 Existing Justis Road 500,000 Gallon Elevated Water Storage Tank

Figure 2.8.4 Dover 100,000 Gallon Elevated Water Storage Tank

Tank Maintenance

TTWC routinely performs periodic maintenance to each of their water storage tanks. This maintenance ranges from washing sediment and mold from the exterior of the tanks to draining and performing complete tank interior washout. American Suncraft, a tank maintenance contractor, performs tank interior cleaning and tank painting. TTWC utilizes their own personnel to perform washing of tank interior. Mick Clouse Inspection Service inspected all five water storage tanks during the month of March in the year 2019.

Water Storage Current Needs

In the year 2020 TTWC pumped an average of 815,883 gallons per day and had a ratio of average day to peak day pumpage of 1.49. Therefore, peak day pumpage is approximately 1,216,000 gallons per day. In the month of July, 2020 the total monthly pumpage was 30,250,000 gallons for an average day pumpage of 976,000 gallons per day. Currently maximum day pumpage currently exceeds the existing elevated water storage by 116,000 gallons. By the year 2040 average day pumpage is estimated to exceed TTWC current elevated water storage capacity.

A new 1,000,000-gallon elevated water storage tank is recommended to meet the growing demand in the TTWC distribution system. Further, this tank should be located in a position in the water distribution system to receive water from the Cedar Grove 1,200 gpm water treatment plant and distribute water throughout the water distribution system and to supply water to the other three elevated water storage tanks. The proposed elevated water storage tank site is north of the community of Logan and has all the qualities desirable to the function efficiently in accomplishing the needs of TTWC's water distribution system.

2.9 System Components

SCADA
TTC updated their SCADA system over the last few years, and it is operating very well.

Water Metering Needs in Distribution System
Accuracy of measuring customers water consumption is extremely important to the efficient operation of a waterworks. Tri-Township has a residential water meter replacement program that has been ongoing for several years. However, at this time they need to accelerate to keep pace with the water meter replacement schedule. This acceleration of water meter replacement will assure older water meters are replaced to improve accuracy of measuring water sold and to replace old meters that are fabricated with lead components.

All of the current water meters are automatic drive-by type and are manufactured by Neptune Meter Company. In the past the automatic drive by water meter reading heads were installed on the existing water meters. This was accomplished by removing the existing meter register heads and replacing them with new automatic meter reading heads. At this time Tri-Township needs to replace approximately 1,200 of the meter bodies and reinstall the automatic meter reading heads.

2.9.1 Equipment Storage Facilities

TTWC has outgrown their current equipment and material storage space. They lack adequate space for their maintenance equipment and large waterworks material components. TTWC has a maintenance facility at the office complex. However, there is no space available for storage of equipment. As a result of their lack of storage space it is necessary to store construction and maintenance equipment outdoors.

There is sufficient space immediately east of the existing maintenance building to construct a 40’ by 50’ pole building. This building would be a simple wood frame pole barn with lockable enclosure, metal exterior and no wall insulation. A concrete floor with floor drains would be installed. Since the building would not be heated there would be no plumbing fixtures included in building.

2.9.2 Roof Replacement for Waterworks Buildings

The useful life of the shingle roof on the Office Building, Maintenance Building, Cedar Grove Water Plant and Jamison Road Water Plant have been exceeded or they are very near the end of their useful life. Therefore, it is imperative these roofs be replaced to avoid water damage to the buildings and their contents of mechanical and electrical equipment.

CHAPTER 3: FUTURE SITUATION

3.1 Projected Growth

3.1.1 Population

The population in Dearborn County and the Tri-Township's service area has steadily grown over the past 55 years, as shown in Table 2.1.1. For planning purposes for the next 20 years, the past 20 years are particularly relevant. The average annual population growth rate for the four townships served by TTWC was 3.5% for the period of 1990 – 2010. Because of the available developable land and the historically desirable qualities of Tri-Township service area this population growth rate is considered reasonable for projecting population growth in the TTWC service area over the next 20 years. As stated previously, the outer boundaries of the TTWC distribution system are not expected to expand due to the presence of neighboring water utilities and the fact the east boundary of the service area is the State of Ohio. However, there is a large quantity of developable land within the TTWC service area which will provide potential for substantial customer growth.

The current population served by TTWC is approximately 9,725. Based on historic population growth rate, the population of the service area could grow by 6,800 people over the next 20 years, to 16,525 in the year 2041. That is an overall increase in population served of 70%.

Historic Customer Growth 2005 to 2020 = 46 Customers Per Year

Projected Customers for 2041 = Current Customers + Projected Customer Growth
4,810 Customers for 2041 = 3,890 Current Customers + 920 Increased Customers

When considering population growth projections for the service area, it should be noted that TTWC does not serve all existing residents within their service area. There is a limited amount of residential homes within the service area that are not currently served by TTWC, which may be added as new customers in the future. Growth to serve existing population within the service area is not captured in the population projection alone. Some of the existing population could become a new customer to TTWC in the future. Kelso Township appears to be the township with the greatest number of new homes currently being constructed.

3.1.2 Customers

TTWC has grown from 334 customers in 1966 to over 3,890 in 2021. Over their 55 years of service, the utility's number of customers has increased by 3,556. The 3,556 increase in number of customers yields a historic annual average increase in customers of 65 customers per year. Table 2.2.1 provides customer by year, and average annual growth rate for each year for the past 15-years. This time period is representative of the historic growth or potential customer growth in TTWC because of the economic conditions during the time period from 2005 through 2020.

The average annual customer growth for the period of 2005 to 2020 was 46 customers per year. The highest annual growth was 150 customers in 2005 followed by 133 customers in 2006. The lowest rate of increase in water customers occurred in in 2011 and 2012 when the increase in customers ranged from 12 to 13 customers per year. Based on the historical sustained growth, and current growth trends, 46 customers per year annual growth is recommended for the 20-year planning horizon. Based on the current number of customers, that growth rate is equal to 46 customers per year.

3.1.3 Projected Growth

The above sections utilize historical growth rates for population and customers to project future growth. The rate of population growth is projected to continue at 3.5% for the TTWC service area. The projected annual customer growth rate is also projected at 46 per year. Based on the good historical data for TTWC customer growth, it is recommended that the customer growth projections are used as the most appropriate means of projecting future growth. A customer growth rate of 46 customers per year is recommended for the 20-year planning horizon. This projection results in an additional 920 customers over the next 20-years. The projected number of customers in 2041 is 4,810.

3.2 20-YEAR DESIGN FLOW PROJECTIONS

The recommended 20-year design flows are based on customer growth projections and historical water usage. The annual customer growth is projected to be approximately 46 per year over the next 20 years. For planning purposes, it is estimated that TTWC's percapita water demand will remain constant over the next 20-years. Therefore, future water demand will be based solely on increase in population in the service area and the resulting increase in water customers. Table 3.2.1 provides a summary of current and projected water pumpage.

Table 3.2.1: TTWC Current and Projected Water Pumpage

Parameter	Current (Year 2020)	Projected (Year 2041)
Average Daily Pumpage (gpd)	815,882	1,387,000
Average Daily Sold (gpd)	713,715	1,213,315
Domestic (84.69%)	630,150	882,210
Commercial (8.24%)	15,050	21,070
Industrial (0.49%)	0	0
Wholesale (6.58%) (domestic)	358,380	512,732
Average Daily Lost Water (gpd)	102,167	173,685
Percent Lost Water	12.5%	12.5%
Peaking Factor	1.49	1.49
Peak Daily Pumpage	1,215,664	2,066,630
Peak Hour Peaking Factor	2.0	2.0
Peak Hour Pumping Rate*	1,133 gpm	1,926 gpm

Peaking Factor using Peak Month divided by Average Month

**Peak Hour Pumping Rate = (Avg Day Pumpage X 2.0) ÷ 1440 gpm*

The lost water rate is projected to stay the same as currently experienced, however, if this is successfully reduced the average and peak daily pumpage shall be reduced accordingly. The distribution of Domestic, Commercial and Industrial water users is projected to remain consistent with current conditions, as identified in Chapter 2.

3.3 20-YEAR WATER SYSTEM NEEDS

The TTWC's current water system needs are described in Chapter 2. Projected future needs are described in this section. The selection of these projects is based on operational needs recognized by utility staff and consulting engineers. A combination of maintenance history, field experience, and actual system hydraulics substantiate the needs. Based on current knowledge the TTWC water system has and will have, during the 20-year study period, adequate capacity to distribute and treat all demand from the 20-year service area without chronic operational problems.

3.3.1 Water Supply

The existing water supply wells are 40-years of age or older. In terms of normal useful life of a water supply well this age would be near the end of their normal expected life. However, all of TTWC's wells are functioning in a satisfactory manner. Recent videos taken of the well screens and casings suggests the wells are in good condition for their age. With continued maintenance and periodic cleaning, all the wells should continue to be serviceable for the near to intermediate term. Therefore, no additional improvements or expansion of the well fields is necessary.

3.3.2 Water Treatment

The water treatment facilities consist of a 700 gpm water plant that was renovated in 2004 and a 1,200 gpm water treatment plant constructed in 2004. Both of these water treatment plants are fully operational and effectively perform their design water treatment functions. Both of these water treatment plants have been well maintained and all components of the water plants are fully functional. The anticipated normal useful life of a steel package water treatment plant is from 25-years to 35-years. However, the life of a steel package water treatment plant is the function of several variables such as electrolysis and water chemistry. Continued good maintenance will extend the operational life of the existing facility through the near to intermediate planning horizon. Equipment replacements, filter media replacement, painting and general maintenance will be required to keep the plants in good operation.

Based on current projections, the TTWC water treatment plants have sufficient capacity to meet the projected needs of their service area for the near to intermediate term. The greatest need at this time is to replace the fiberglass shingle roofs on the Jamison Road Water Treatment Plant and the Cedar Grove Water Treatment Plant.

3.3.3 Distribution System

Key components of the water distribution system installed in 1966 are inadequate in terms of their ability function hydraulically. Certain 6" cast iron water mains, installed in 1966, have evolved into critical water transmission mains. Further, these existing 6" cast iron water mains are 55-year old and have become a maintenance concern due to water main breaks.

TTWC has been aware of the need to upgrade the 6" water main on State Line Road and on North Dearborn Road for the past 20-years. TTWC has followed of a master plan of replacing this 6" cast iron water main with 12" ductile iron water main in phases where water main relocation projects have occurred. The first section of 6" water main replaced with 12" water main was on State Line Road from Sneakville Road to the Office Water Booster Station. The second phase of 6" water main replaced with 12" water main was from the Office Booster Station south across the entire down north-south length of Bright along State Line Road. Advance planning and replacement of these two sections of water main has been very beneficial in moving water north and south in the distribution system from North Dearborn Road throughout the distribution system.

The balance of 6" water main on State Line Road and on North Dearborn Road between the Morgan Road Booster Station and the Office Booster Station and Henderson Road Tank needs to be replaced. With this upgrade to the distribution system's water transmission mains water will flow unrestricted from the Morgan Road Booster Station and from the Office Booster Station to effectively flow water in all directions north and south along State Line Road and feeding east and west along North Dearborn Road and Sneakville Road.

Table 3.3.1 provides a preliminary cost estimate to construct a new 12" ductile iron water main along North Dearborn Road from Henderson Road to the Morgan Booster Station. The existing 6" cast iron water main will continue to be utilized and the services off of the 6" water main will remain in service.

Table 3.3.1: Preliminary Opinion of Probable Construction Cost
Alternative 2: Replace Existing 6" C.I. Water Main With New 12" D.I. Water Main On North Dearborn Road From Henderson Road. to State Line Road

ITEM NO.	DESCRIPTION OF WORK	QTY.	UNITS	UNIT PRICE	TOTAL COST
1	12" PC 350 D.I. Water Main	2,800	Lineal Ft.	$74	$207,200
2	Connections East & West End	2	Each	$4,500	$9,000
3	12" M.J. Gate Valve & Valve Boxes	4	Each	$4,500	$18,000
4	Ductile Iron Fittings	1	Lump Sum	$45,000	$45,000
5	Std Fire Hydrants & Aux. Valves	3	Each	$4,800	$14,400
6	Surface Restoration	2,800	lineal Ft.	$3	$7,000
7	Special Crossing State Line Road	1	Lump Sum	$4,500	$4,500
8	Special Cr0ossing Morgan Road	1	Lump Sum	$4,500	$4,500
TOTAL PRELIMINARY CONSTRUCTION COST ESTIMATE					**$309,600**

Table 3.3.2 provides a preliminary construction cost estimate to construct a new 12" ductile iron water main along State Line Road from North Dearborn Road to Henderson Road. The existing 6" cast iron water main will continue to be utilized and the services off of the 6" water main will remain in service.

Table 3.3.2: Preliminary Opinion of Probable Construction Cost
Alternative Replace Existing 6" C.I. Water Main With New 12" D.I. Water Main
12" Ductile Iron Water Main On State Line Road from North Dearborn Rd. to Henderson Rd.

ITEM NO.	DESCRIPTION OF WORK	QTY.	UNITS	UNIT PRICE	TOTAL COST
1	12" PC 350 D.I. Water Main	4,970	Lineal Ft.	$74	$367,780
2	Connections North & South End	2	Each	$4,500	$9,000
3	12" M.J. Gate Valve & Valve Boxes	5	Each	$4,500	$22,500
4	Ductile Iron Fittings	1	Lump Sum	$30,000	$30,000
5	Std Fire Hydrants & Aux. Valves	3	Each	$4,800	$14,400
6	Surface Restoration	4,970	lineal Ft.	$3	$12,425
7	Special Crossing Sneakville Road	1	Lump Sum	$4,500	$4,500
8	Special Crossing North Dearborn Road	1	Lump Sum	$4,500	$4,500
TOTAL PRELIMINARY CONSTRUCTION COST ESTIMATE					**$465,105**

3.3.4 Water Storage

TTWC currently has elevated water storage tanks with a capacity of 1.1 MG, not including the two 300,000 ground level water storage tanks that provide suction to the two water booster stations. Both of the ground level water storage tanks serve a few customers however for practical purposes they provide no elevated storage. The combined total effective elevated water storage in the distribution system is 1.1 MG. The projected average daily water pumpage for 2040 is 1.387,000 gallons per day. The current storage tanks do not have the capacity to meet the projected demand in 2041.

Continued inspection and maintenance are essential to the long-term sustainability of the existing water storage tanks. Regular inspection of the water storage tanks should be performed every 3 – 5 years.

Based on current projections, with the addition of the proposed new water storage tank 1,000,000-gallon elevated water storage tank, TTWC will have sufficient capacity to meet the projected 20-year needs. Figure 3.3.3.1 is a location map of the proposed 1,000,000-gallon elevated water storage tank. Note the Board of Directors of TTWC has purchased land for tank site and secured soil borings for the tank. Table 3.3.3 provides a preliminary construction cost estimate of $2,654,900 for the proposed elevated tank which includes cost water mains necessary to connect proposed tank to the existing water distribution system.

Table 3.3.3: Preliminary Opinion of Probable Construction Cost
Alternative 1: New 1,000,000 Gallon Elevated Water Storage Tank
1,000,000-Gallon Composite Tank With Concrete Pedestal & Welded Steel Storage Vessel

ITEM NO.	DESCRIPTION OF WORK	QTY.	UNITS	UNIT PRICE	TOTAL COST
1	Site Work Excavation & Grading	1	Lump Sum	$95,000	$95,000
2	Concrete Footing & Foundation	1	Lump Sum	$550,000	$550,000
3	Steel Fabrication & Delivery	1	Lump Sum	$650,000	$650,000
4	Erection of Water Storage Tank	1	Lump Sum	$745,000	$745,000
5	Tank Coatings	1	Lump Sum	$285,000	$285,000
6	16" Ductile Iron Water Mains	1,800	lineal Ft.	$95	$171,000
7	D.I.M.J. Fittings	1	Lump Sum	$12,000	$12,000
8	16" Gate Valves & Valve Boxes	6	Each	$5,400	$32,400
9	Standard Fire Hydrant	3	Each	$4,500	$13,500
10	Concrete Splash Block	1	Lump Sum	$3,000	$3,000
11	Base Elbow and Yard Piping	1	Lump Sum	$35,000	$35,000
12	Electrical	1	Lump Sum	$45,000	$45,000
13	SCADA Installation	1	Lump Sum	$18,000	$18,000
TOTAL PRELIMINARY CONSTRUCTION COST ESTIMATE					**$2,654,900**

3.3.5 Water Standby Power Stationary Generator Sets

Permanent standby electric power is needed at two locations within TTWC's waterworks. These locations are at the TTWC's Office and Office Booster Station as well as at the Jamison Road Well Field and Water Treatment Plant. Both of these locations are critical to providing a continuous reliable water supply to TTWC's customers in the event of an electric power outage. Standby power was a non-essential component in 1966 when the waterworks was started, however today a continuous water supply is an essential component of daily living.

The construction cost of providing standby electric power at the two current locations, that lack standby power, is $140,000.

3.3.6 Equipment Storage Building

A pole barn construction with metal clad roof and siding is proposed to be constructed at the TTWC Office to provide storage of equipment. This building would be basic in construction and would enable the operations personnel to store equipment inside when not in use. This building would provide protection from the elements as well as potential vandalism. TTWC's equipment consists of excavation equipment with complex hydraulic and electronic controls that are subject to degradation when stored outside. This building would be located immediately adjacent to the existing Maintenance Building for convenience of access to tools and parts needed to perform maintenance on stored equipment.

The proposed 40' x 50' equipment storage building would be constructed on the same site as the TTWC Office and Maintenance Building. The overall area of this building would be 2,000 square feet and at a cost of $50.00 per square foot the total building cost is estimated to be approximately $100,000.

3.3.7 Accelerate Residential Water Meter Replacement

TTWC has endeavored to replace ¾" residential water meters at a continuous pace. As they evaluate their progress it is apparent they aren't achieving the progress that is desirable. This process doesn't require the complete replacement of the water meters. However, only the meter body is necessary to replace and the meter head can be reused due to its condition. A total of approximately 1,200 residential water meter bodies need to be replaced. The approach to this would be to purchase the water meter bodies at approximately $65.00 each and contract with local contractors to install the water meter bodies at a cost of approximately $35.00. The total cost of this item of improvement is estimated to be $120,000.

CHAPTER 4: EVALUATION OF ALTERNATIVES

4.1 NO ACTION ALTERNATIVES

Under the "No Action" alternative, Tri-Township Water Corporation would continue with status quo operation of both their water treatment and distribution systems. This alternative would not prepare them for aging infrastructure, compliance issued and long-term needs.

The "No Action" alternative does not prepare the Water Corporation for long-term compliance issues. "No Action" will not prepare the Water Corporation to adequately treat water needs and could lead to public health concerns associated with distribution and treatment.

The "No Action" alternative selection does not have environmental impacts caused by construction. TTWC would not experience any capital or O&M costs with the "No Action" alternative; however, the Water Corporation would be avoiding long-term compliance and service area needs.

The "No Action" is not a viable alternative. Action must be taken in order to prepare for the future. The "No Action" is rejected and not considered further.

4.2 WATER STORAGE ALTERNATIVES

The purpose of this section is to evaluate feasible alternatives for addressing the utility's needs.

The proposed 1,000,000 water storage tank is situated in a location that enables it to receive water from the 1,200 gpm Cedar Grove Water Treatment plant and to flow water to all three existing elevated water storage tanks. The proposed tank is centrally located with respect to the area of rapid growth, and additional water storage is needed. The property for the proposed elevated water storage tank has been purchased and the site has sufficient area for the tank. The tank site has characteristics in terms of elevation to produce the desired distribution system pressure. Soil borings at the tank site were performed preliminary to purchase of the tank. Soils at the proposed tank site are suitable to support the proposed tank.

Alternatives for addressing this issue include:

1. Construction of New 1,000,000-Gallon Elevated Water Storage Tank - Composite Tank with Welded Steel Storage Vessel.

2. Construction of New 1,000,000-Gallon Elevated Water Storage Tank - Composite Tank with Bolted, Glass Fused-to-Steel Storage Vessel.

3. Construction of New 1,000,000-Gallon Elevated Water Storage Tank - Single Pedestal Sphere Tank.

Alternative 1A: New Composite Tank with Welded Steel Storage Vessel
(To be funded by long term borrowing)

A. Description

This alternative consists of a large diameter reinforced concrete center pedestal with the tank vessel constructed of welded steel.

B. Design Criteria

The steel portion of the tank would require a paint coating system on the interior and exterior of the tank. This type of tank requires re-coating to maintain integrity of the steel. The paint coatings are required every 15 – 20 years, and are costlier than the Alternative #2 maintenance. These tanks do tend to be more aesthetically pleasing than the Alternative #2 Tank.

The TTWC would realize the following benefits from construction of the 1,000,000-gallon elevated water storage tank at the proposed site:

1. A new 1,000,000-gallon tank will provide an additional water storage to meet the future average day storage criteria.
2. The composite tank has a concrete base with tank on top. Concrete base will be approximately 44' in diameter, and provide additional enclosed space inside the tank support pedestal that can be used for storage or other needs.
3. The smaller footprint of this tank is an advantage over Alternative #2 and would be beneficial to this site.
4. Steel water storage vessel will need to be painted every 20 years. Every other coating will likely require sandblasting to bare metal. When blasting is not required, the tank can be prepared and over-coated.

C. Map

The location of the proposed water storage tank is shown in mapping located in Appendix B.

D. Environmental Impacts

All construction will occur on property currently owned by TTWC. The location where the tank has not been previously disturbed. Soil borings have been completed showing that it is suitable for the structure. The location where the proposed tank will tie into the existing distribution system has been previously disturbed where current distribution system components are present. No impacts to the floodplain are anticipated. No negative environmental impacts are expected.

E. Land Requirements

As stated previously, TTWC already owns the property where the proposed water storage tank would be located. No property acquisition or easements are required.

F. Potential Construction Problems

There are no known potential construction problems for this project.

G. Sustainability Considerations

a. Water and Energy Efficiency

The proposed project will not impact water or energy efficiency.

b. Green Infrastructure

The proposed project does not include any green infrastructure components.

H. Cost Estimates

The preliminary opinion of probable construction cost for Alternative No. 2 is $2,654,900. The project budget shall additionally include construction contingency of $398,000 (15%). Preliminary opinion of probable construction cost is estimated to be $3,052,900.

Table 4.2.1 provides a detailed cost estimate for construction of a 1,000,000-gallon composite type elevated water storage tank. This tank will have a large diameter reinforced center column and a welded steel water containment vessel.

Table 4.2.1: Preliminary Opinion of Probable Construction Cost
Alternative 1: New 1,000,000 Gallon Elevated Water Storage Tank
1,000,000-Gallon Composite Tank With Concrete Pedestal & Welded Steel Storage Vessel

ITEM NO.	DESCRIPTION OF WORK	QTY.	UNITS	UNIT PRICE	TOTAL COST
1	Site Work Excavation & Grading	1	Lump Sum	$95,000	$95,000
2	Concrete Footing & Foundation	1	Lump Sum	$550,000	$550,000
3	Steel Fabrication & Delivery	1	Lump Sum	$650,000	$650,000
4	Erection of Water Storage Tank	1	Lump Sum	$745,000	$745,000
5	Tank Coatings	1	Lump Sum	$285,000	$285,000
6	16" Ductile Iron Water Mains	1,800	lineal Ft.	$95	$171,000
7	D.I.M.J. Fittings	1	Lump Sum	$12,000	$12,000
8	16" Gate Valves & Valve Boxes	6	Each	$5,400	$32,400
9	Standard Fire Hydrant	3	Each	$4,500	$13,500
10	Concrete Splash Block	1	Lump Sum	$3,000	$3,000
11	Base Elbow and Yard Piping	1	Lump Sum	$35,000	$35,000
12	Electrical	1	Lump Sum	$45,000	$45,000
13	SCADA Installation	1	Lump Sum	$18,000	$18,000
TOTAL PRELIMINARY CONSTRUCTION COST ESTIMATE					**$2,654,900**

This alternative is recommended to be bid as an alternative. This would be a very good tank for TTWC, but the lifecycle costs are a concern. If this tank is bid as an alternative, the actual bid costs can be factored in and a new lifecycle cost comparison shall be performed.

Alternative 1B: New Composite Tank with Bolted, Glass Fused-to-Steel Storage Vessel (To be funded by long term borrowing)

A. Description

This alternative consists of a composite tank with bolted, glass fused-to-steel water storage vessel.

B. Design Criteria

The TTWC would realize the following benefits from construction of a 1,000,000-gallon elevated water storage tank at the proposed site.

1. A new 1,000,000-gallon tank will provide an additional 1,000,000 gallons of water storage.
2. The composite tank has a concrete base with tank on top. Concrete base will be approximately 44' in diameter, and provide 1,500 square feet of enclosed space that can be used for storage or other needs.
3. Bolted, glass fused-to-steel tank is a low maintenance tank. The panels are factory coated with a long-life glass fused coating that does not have to be painted over time. Maintenance for this type of tank includes sealing the panel joints every 15 years +/-. This provides a lower lifecycle maintenance cost.
4. Tank mixing shall be provided to prevent stagnation in the water tank, which contributes to loss of water quality.

C. Map

The location of the proposed water storage tank is shown in mapping located in Appendix B.

D. Environmental Impacts

All construction will occur on property currently owned by TTWC. The location where the tank has not been previously disturbed. Soil borings have been completed showing that it is suitable for the structure. The location where the proposed tank will tie into the existing distribution system has been previously disturbed where current distribution system components are present. No impacts to the floodplain are anticipated. No negative environmental impacts are expected.

E. Land Requirements

As stated previously, TTWC already owns the property where the proposed water storage tank would be located. No property acquisition or easements are required.

F. Potential Construction Problems

There are no known potential construction problems for this project.

G. Sustainability Considerations

a. Water and Energy Efficiency

The proposed project will not impact water or energy efficiency.

b. Green Infrastructure

The proposed project does not include any green infrastructure components.

H. Cost Estimates

The preliminary opinion of probable construction cost for Alternative No. 1B is $2,200,000. The project budget shall additionally include construction contingency of $330,000 (15%), and non-construction costs of $440,000 (20%). The preliminary opinion of probable project cost is $2,970,000.

Table 4.2.2: Preliminary Opinion of Probable Construction Cost
Alternative 1B: New 1,000,000 Gallon Elevated Water Storage Tank
Concrete Pedestal & Bolted Glass Fused Steel Tank Bolted

ITEM NO.	DESCRIPTION OF WORK	QTY.	UNITS	UNIT PRICE	TOTAL COST
1	Site Work Excavation & Grading	1	Lump Sum	$95,000	$95,000
2	Concrete Footing & Foundation	1	Lump Sum	$550,000	$550,000
3	Steel Fabrication & Delivery	1	Lump Sum	$600,000	$600,000
4	Erection of Water Storage Tank	1	Lump Sum	$625,000	$625,000
5	Tank Coatings	1	Lump Sum	$0	$0
6	16" Ductile Iron Water Mains	1,800	lineal Ft.	$95	$171,000
7	D.I.M.J. Fittings	1	Lump Sum	$12,000	$12,000
8	16" Gate Valves & Valve Boxes	6	Each	$5,400	$32,400
9	Standard Fire Hydrant	3	Each	$4,500	$13,500
10	Concrete Splash Block	1	Lump Sum	$3,100	$3,100
11	Base Elbow and Yard Piping	1	Lump Sum	$35,000	$35,000
12	Electrical	1	Lump Sum	$45,000	$45,000
13	SCADA Installation	1	Lump Sum	$18,000	$18,000
TOTAL PRELIMINARY CONSTRUCTION COST ESTIMATE					**$2,200,000**

This alternative is recommended to be implemented. This alternative would provide significant operational benefits and improve reliability and control of service. It will be easy to implement on land controlled by TTWC, with no negative environmental impacts.

Alternative 1C: Single Pedestal Sphere Tank
(To be funded by long term borrowing)

A. Description

This alternative consists of a single pedestal sphere tank to be utilized for water storage.

B. Design Criteria

The TTWC would realize the following benefits from construction of the 1,000,000-gallon elevated storage tank:

1. A new 1,000,000-gallon tank will provide an additional 1,000,000 gallons of water storage.
2. The pedestal tank has a smaller footprint than tank alternatives 1 and 2, with a small base that does not have any usable interior space.
3. The steel water storage tank will need to be painted every 15-years to 20-years. Every other coating will likely require sandblasting to bare metal. When blasting is not required, the tank can be prepared and over-coated. Tank coatings for this type of tank are more expensive than Alternative #2 because there is more steel surface area.

C. Map

The location of the proposed water storage tank is shown in mapping located in Appendix B.

D. Environmental Impacts

All construction will occur on property currently owned by TTWC. The location where the tank has not been previously disturbed. Soil borings have been completed showing that it is suitable for the structure. The location where the proposed tank will tie into the existing distribution system has been previously disturbed where current distribution system components are present. No impacts to the floodplain are anticipated. No negative environmental impacts are expected.

E. Land Requirements

As stated previously, TTWC already owns the property where the proposed water storage tank would be located. No property acquisition or easements are required.

F. Potential Construction Problems

There are no known potential construction problems for this project.

G. Sustainability Considerations

i. Water and Energy Efficiency

The proposed project will not impact water or energy efficiency.

ii. Green Infrastructure

The proposed project does not include any green infrastructure components.

H. Cost Estimates

The preliminary opinion of probable construction cost for Alternative No. 1C is $2,350,000. The project budget shall additionally include construction contingency of $352,500 (15%), and non-construction costs of $470,000 (20%). The preliminary opinion of probable project cost is $3,172,500.

Table 4.2.3: Preliminary Opinion of Probable Construction Cost
Alternative 1C: New 1,000,000 Gallon Single Pedestal Sphere Tank
Fabricated Steel Welded Single Pedestal Spheroidal Water Storage Tank

ITEM NO.	DESCRIPTION OF WORK	QTY.	UNITS	UNIT PRICE	TOTAL COST
1	Site Work Excavation & Grading	1	Lump Sum	$95,000	$95,000
2	Concrete Footing & Foundation	1	Lump Sum	$425,000	$425,000
3	Steel Fabrication & Delivery	1	Lump Sum	$650,000	$650,000
4	Erection of Water Storage Tank	1	Lump Sum	$550,000	$550,000
5	Tank Coatings	1	Lump Sum	$300,000	$300,000
6	16" Ductile Iron Water Mains	1,800	lineal Ft.	$95	$171,000
7	D.I.M.J. Fittings	1	Lump Sum	$12,000	$12,000
8	16" Gate Valves & Valve Boxes	6	Each	$5,400	$32,400
9	Standard Fire Hydrant	3	Each	$4,500	$13,500
10	Concrete Splash Block	1	Lump Sum	$3,100	$3,100
11	Base Elbow and Yard Piping	1	Lump Sum	$35,000	$35,000
12	Electrical	1	Lump Sum	$45,000	$45,000
13	SCADA Installation	1	Lump Sum	$18,000	$18,000
TOTAL PRELIMINARY CONSTRUCTION COST ESTIMATE					**$2,350,000**

The following table provides a preliminary lifecycle cost comparison of the three tank alternatives.

Figure 4.2.4: Lifecycle Cost Comparison of New 1,000,000-Gallon Tank Alternatives

Property	Alt #1B Composite with Bolted Glass Fused-to-Steel	Alt. #1A Composite with Painted Steel	Alt. #1C Single Pedestal Sphere
Est. Construction Cost	$2,654,900	$2,200,000	$2,350,000
Maintenance Period for Coating/Sealing[1]	15-20 years[2]	15-20 years	15-20 years
Tank Pedestal	Concrete (44' diameter)	Concrete (36' diameter)	Welded Steel Column Pipe
Head Range	37 feet	35 feet	40 feet
20-Year Maintenance (2040)	$32,000 (sealant)	$155,000 (overcoat)	$180,000 (overcoat)
40-Year Maintenance (2060)	$32,000	$220,000	$260,000
60-Year Maintenance (2080)	$32,000	$155,000	$180,000
Calculated Present Worth for 60 Years Maintenance[3]	$66,036	$364,027	$425,838
Calculated Net Present Worth Tank = Bid + Present Worth for Maintenance Costs	**$2,266,036**	$2,364,027	$2,400,838
Cost above Least	$0	$97,990	$134,800

Notes:
[1]Maintenance period for the coatings specified was 15 – 20 years. There are alternate coatings that can provide 18 – 20 year coatings. The upgraded coatings system cost is approximately 15% - 20% increase for the upgraded coating system for the first coating, and provide an additional 5 ± years of service life.
[2]Although the glass fused-to-steel does not require coating maintenance, the seams inside the tank are caulked, and the caulking needs to be replaced every 15 – 20 years.

4.3 Evaluation Of Distribution System Alternatives

Alternative 2: Construct A New 12-inch Water Main Along North Dearborn Road from State Line Road to Henderson Road

(To be funded by long term borrowing)

A. Description

This project would replace an existing 6-inch water main line with a 12-inch water main along North Dearborn Road from State Line Road to Henderson Road.

B. Design Criteria

Construction of the new 12-inch water main would involve the installation of approximately 2,800 lineal feet of 12- inch D.I. pipe, various fittings, and hydrants. Two special crossings would be required.

C. Map

The location of the proposed water main replacement is shown in mapping located in Appendix B.

D. Environmental Impacts

All construction will occur in close proximity to the existing water main where practicable. Some of the project route may be determined "not previously disturbed". Two special crossings of roadways are required and necessary permitting would be attained to do so. Special crossings of roads will have no negative environmental impact. Some additional property easements may be required. There will be no impacts to the floodplain. No negative environmental impacts are expected.

E. Land Requirements

The proposed improvements will take place adjacent to existing water mains. Existing easement will be used to the extent possible, and some new easement may be required.

F. Potential Construction Problems

There are no known potential construction problems for this project.

G. Sustainability Considerations

c. Water and Energy Efficiency

The proposed project will not impact water or energy efficiency.

d. Green Infrastructure

The proposed project does include any green infrastructure components. The Green Infrastructure Checklist is included in Appendix C.

H. Cost Estimates

The preliminary opinion of probable construction cost for Alternative No.2 is $309,600. The project budget shall additionally include construction contingency of $46,400 (15%). The preliminary opinion of probable project cost is $356,000.

Table 4.3.1: Preliminary Opinion of Probable Construction Cost
Alternative 2: Replace Existing 6" C.I. Water Main With New 12" D.I. Water Main On North Dearborn Road From Henderson Road. to State Line Road

ITEM NO.	DESCRIPTION OF WORK	QTY.	UNITS	UNIT PRICE	TOTAL COST
1	12" PC 350 D.I. Water Main	2,800	Lineal Ft.	$74	$207,200
2	Connections East & West End	2	Each	$4,500	$9,000
3	12" M.J. Gate Valve & Valve Boxes	4	Each	$4,500	$18,000
4	Ductile Iron Fittings	1	Lump Sum	$45,000	$45,000
5	Std Fire Hydrants & Aux. Valves	3	Each	$4,800	$14,400
6	Surface Restoration	2,800	lineal Ft.	$3	$7,000
7	Special Crossing State Line Road	1	Lump Sum	$4,500	$4,500
8	Special Cr0ossing Morgan Road	1	Lump Sum	$4,500	$4,500
TOTAL PRELIMINARY CONSTRUCTION COST ESTIMATE					**$309,600**

Alternative 3: Construct A New 12-inch Water Main Along State Line Road from Sneakville Road North to North Dearborn Road
(To be funded by long term borrowing)

A. Description

This project would replace an existing 6-inch water main line with a 12-inch water main along State Line Road from Sneakville Road north to North Dearborn Road.

B. Design Criteria

Construction of the new 12-inch water main would involve the installation of approximately 4,970 lineal feet of 12- inch D.I. pipe, various fittings, and hydrants. Two special crossings would be required.

C. Map

The location of the proposed water main is shown in mapping located in Appendix B.

D. Environmental Impacts

Proposed construction will occur adjacent to the existing water main. Two special crossings of roads are required, the necessary permitting would be attained to do so. Special crossings of roads will have no negative environmental impact. Some of the project route may be determined "not previously disturbed". Some additional property easements may be required. No impacts to the floodplain are anticipated. No negative environmental impacts are expected.

E. Land Requirements

The proposed improvements will take place adjacent to existing water mains. Existing easement will be used to the extent possible, and some new easement may be required.

F. Potential Construction Problems

There are no known potential construction problems for this project.

G. Sustainability Considerations

e. Water and Energy Efficiency

The proposed project will not impact water or energy efficiency.

f. Green Infrastructure

The proposed project does include any green infrastructure components. The Green Infrastructure Checklist is included in Appendix C.

H. Cost Estimates

The preliminary opinion of probable construction cost for Alternative No.3 is $465,105. The project budget shall additionally include construction contingency of $69,800 (15%). The preliminary opinion of probable project cost is $534,905.

Table 4.3.2: Preliminary Opinion of Probable Construction Cost
Alternative Replace Existing 6" C.I. Water Main With New 12" D.I. Water Main
12" Ductile Iron Water Main On State Line Road from North Dearborn Rd. to Henderson Rd.

ITEM NO.	DESCRIPTION OF WORK	QTY.	UNITS	UNIT PRICE	TOTAL COST
1	12" PC 350 D.I. Water Main	4,970	Lineal Ft.	$74	$367,780
2	Connections North & South End	2	Each	$4,500	$9,000
3	12" M.J. Gate Valve & Valve Boxes	5	Each	$4,500	$22,500
4	Ductile Iron Fittings	1	Lump Sum	$30,000	$30,000
5	Std Fire Hydrants & Aux. Valves	3	Each	$4,800	$14,400
6	Surface Restoration	4,970	lineal Ft.	$3	$12,425
7	Special Crossing Sneakville Road	1	Lump Sum	$4,500	$4,500
8	Special Crossing North Dearborn Road	1	Lump Sum	$4,500	$4,500
TOTAL PRELIMINARY CONSTRUCTION COST ESTIMATE					**$465,105**

4.4 EVALUATION MAINTENANCE ALTERNATIVES

Alternative 4: Roof Replacement at Office, Maintenance Building, Jamison Road Water Plant and Cedar Grove Water Treatment Plant
(To Be Funded by Owner's Capital Improvements Program)

A. Description

This project would include replacing the roof of the TTWC Office, Maintenance Building, Jamison Road Water Plant and Cedar Grove Water Treatment Plant.

B. Design Criteria

Shingle roofs on these four buildings have exceeded their useful life and need replacement.

C. Map

The location of the proposed roof replacement is shown in mapping located in Appendix B.

D. Environmental Impacts

All construction will occur within the footprint of existing buildings. No exaction is required. No additional property easements are required. No impacts to the floodplain are anticipated. No negative environmental impacts are expected.

E. Land Requirements

The proposed improvements will take place within the existing building foot print. No property acquisition or easements are required.

F. Potential Construction Problems

There are no known potential construction problems for this project.

G. Sustainability Considerations

g. Water and Energy Efficiency

The proposed project will not impact water or energy efficiency.

h. Green Infrastructure

The proposed project does not include any green infrastructure components.

H. Cost Estimates

Total roof replacement construction cost is estimated to be $63,651. The project budget shall additionally include construction contingency of $9,500 (15%). The preliminary opinion of probable project cost is $73,151.

Table 4.4.1: Preliminary Opinion of Probable Construction Cost
Alternative 4: Roof Replacement at Office, Maintenance Building, Jamison Road Water Plant and Cedar Grove Water Treatment Plant

ITEM NO.	DESCRIPTION OF WORK	QTY.	UNITS	UNIT PRICE	TOTAL COST
1	Main office and Maintenance Building Re-Roofing	3,650	Square Ft	$5.57	$20,325
2	Cedar Grove WTP Re-Roofing	2,175	Square Ft	$5.49	$11,950
3	Jamison Road WTP Re-Roofing	1,640	Square Ft	$5.55	$9,100
4	Office Maintenance Building	4,050	Square Ft	$6	$22,275
TOTAL PRELIMINARY CONSTRUCTION COST ESTIMATE					**$63,651**

Alternative 5: Installation of Stationary Standby Power Generators at the Office and Jamison Road Water Treatment Plant

(To Be Funded by Owner's Capital Improvements Program)

A. Description

This project would include installing stationary standby power generators at the Office and Jamison Road Water Treatment Plant.

B. Design Criteria

These generator sets are essential to satisfy current day demands for water production when the electric utility is non-functional for any reason. One generator set is for the Jamison Road Water Treatment Plant so it and its well field can continue to operate and produce 600 gallons per minute of finished water into the distribution system. The second generator set is to be located at the Office Booster Station to enable this booster station to pump water from the Jamison Road Water Treatment Plant to the Office Booster Station which would pump into the distribution system. These improvements will increase the reliability of water delivery to the customers of Tri-Township Water Corporation.

Each location where standby power generators are proposed to be installed have unique electrical conditions that will require modifications to the power transfer devices and to the power distribution panel. Voltage requirements at the Jamison Water Plant and the Jamison Well Field are different and will require transformers to adjust the voltage to the needed voltage.

C. Map

The location of the standby power generators is shown in mapping located in Appendix B.

D. Environmental Impacts

All construction will occur within the footprint of existing buildings. No exaction is required. No additional property easements are required. No impacts to the floodplain are anticipated. No negative environmental impacts are expected.

E. Land Requirements

The proposed improvements will take place within the existing building foot print. No property acquisition or easements are required.

F. Potential Construction Problems

There are no known potential construction problems for this project.

G. Sustainability Considerations

i. Water and Energy Efficiency

The proposed project will not impact water or energy efficiency.

j. Green Infrastructure

The proposed project does not include any green infrastructure components.

H. Cost Estimates

Standby generator sets, installation and electrical modifications at each location is estimated to have a total construction cost of $180,000. The project budget shall additionally include construction contingency of $27,000 (15%). The preliminary opinion of probable project cost is $207,000.

Alternative 6: Replacement of 1,200 Residential Customer Water Meters
(To Be Funded by Owner's Capital Improvements Program)

A. Description

This project would include installing 1,200 new ¾" water meters to replace existing old water meters that are believed to be unregistering. TTWC has a water meter replacement program that has exceeded their ability to keep current. Therefore, there are 1,200 water meters that should have been replaced. This project will enable TTWC to replace all of these water meters at a faster pace.

B. Design Criteria

TTWC is very concerned about the accuracy of their customer's water meters. Many of the 1,200 water meters are over 10-years old and are suspect to reading less than actual customer consumption. Further, these old meters have Lead casings which need to be replaced to comply with USEPA regulations concerning Lead. Greater accuracy will enable TTWC to better account for water pumped and water sold. With this information TTWC will be able to more accurately allocate resources to detect sources of lost water.

C. Map

The location of the replacement water meters is generally spread uniformly throughout the water distribution system and will be based of recorded age of water meters.

D. Environmental Impacts

All construction will occur within the customers' existing water metering pit. No excavation is required. No additional property easements are required. No impacts to the floodplain are anticipated. No negative environmental impacts are expected.

E. Land Requirements

The proposed improvements will take place within the existing water meter foot print. No property acquisition or easements are required.

F. Potential Construction Problems

There are no known potential construction problems for this project.

G. Sustainability Considerations

a. Water and Energy Efficiency

The proposed project will impact water efficiency because of better means of account for water entering the water distribution system and water consumed by water customers. The objective is for all water customers to pay for the volume of water utilized and not waste water due to underbilling of water customers.

b. Green Infrastructure

The proposed water meter replacement project qualifies as Green Infrastructure as it serves to reduce unaccounted for water loss.

H. Cost Estimates

The ¾" water meters are planned to be purchased for $65.00 each and the labor cost to install the new water meter is estimated to be $35.00. Therefore, the estimated total cost of installing each water meter is $100 and the total cost of replacement of 1,200 meters is $120,000. A construction contingency of $18,000 should be included to cover potential additional costs. There would be no non-construction costs associated with this work if performed by the utility as a Capital Improvements Project.

Alternative 7: Construction of New Equipment Storage Building
(To Be Funded by Owner's Capital Improvements Program)

A. Description

This project would include construction of a 2,000 square foot pole construction building with steel wall panels and concrete floor. This building will serve as a shelter for construction equipment owned by TTWC. The primary purpose of this building is to protect construction equipment from deterioration due to weather exposure to setting outside. Construction equipment consists of small excavators, skid loaders and backhoes which have sophistical electrical and mechanical components. Protection of this equipment is expected to extend the equipment life and make it more reliable when required for operation.

B. Design Criteria

TTWC has accumulated all the necessary construction equipment needed to operate their utility in an efficient manner. Further, they believe proper storage of this equipment when it is idle is a very important aspect of equipment ownership. Reliability of this equipment is very important to TTWCs ability to respond to their customers needs in a timely manner.

C. Map

The location of the proposed equipment storage building is at the site of the TTWC Office Building and Maintenance Building on property currently owned by TTWC.

D. Environmental Impacts

All construction will occur adjacent to an existing office building and a maintenance building. The site is currently a mowed lawn and gravel parking lot.

E. Land Requirements

The proposed improvements will not require land but will utilize a portion of land acquired in 1968 for the TTWC office and booster station.

F. Potential Construction Problems

There are no known potential construction problems for this project.

G. Sustainability Considerations

k. Water and Energy Efficiency

The proposed project will not directly impact water and energy efficiency.

l. Green Infrastructure

The proposed project does not include any green infrastructure components.

H. Cost Estimates

The 2,000 square feet equipment storage building is planned to be very basic in construction with the primary purposes of protection of equipment and protection from theft and vandalism. The total cost of the equipment building construction includes site work, minimal electrical and a slight retaining wall is estimated to be $100,000 plus a 15% construction contingency for an estimated total project cost of $115,000.

4.5 REGIONALIZATION ALTERNATIVE

The water service operates primarily in the townships of Logan, Harrison and Miller in Dearborn County and Highland township in Franklin County. The service area generally consists of the eastern part of Dearborn County in the area east of S.R. 1 and extending to Indiana/Ohio State Line. Expansion of Tri-Township's service area is generally restricted by the presence of North Dearborn Water Company on the west, Franklin County Water Company on the north, Valley Rural Water Company on the South and the Ohio State Line on the east.

TTWC's wellfield has a dependable supply of water which is treated and pumped to customers from the water treatment plants. TTWC has all of the water resources, infrastructure and staff necessary to responsibly and reliably serve their water customers. Regionalization in terms of selling the utility to another entity is not recommended or necessary.

CHAPTER 5:
EVALUATION OF ENVIRONMENTAL IMPACTS

5.1 Environmental Resources Present

Land use within the Water Corporations service are is primarily domestic with a few small commercial establishments. A majority of the project areas occur within the footprint of existing facilities and right-of-way areas. Some existing easements will allow for construction of new water mains in some locations; however, new easements for water main construction will be required in some project areas.

The following discusses direct and indirect impacts on the environment that the feasible alternatives may cause with the Tri-Township Water Corporation service area. Alternatives selected for environmental review include all projects in Chapter 4. Figures utilized for Environmental Review for the purposed improvements are provided in Appendix A.

5.1.1 Disturbed/Undisturbed Land

The location of the proposed tank has not been previously disturbed. Several areas of the water system were previously disturbed during initial construction of the facilities and underground piping. All construction will occur in close proximity to the existing water main where practicable. Some of the project route may be determined "not previously disturbed". Some additional property easements may be required. An archeological reconnaissance will be performed on undisturbed land.

5.1.2 Historical and Architectural Resources

The following resources have been reviewed to determine potential impacts to historical and architectural sites:

1. Indiana Department of Natural Resources (IDNR) Indiana Historic Buildings, Bridges and Cemeteries Map
2. Nation Park Service National Register of Historic Places database
3. Nation Park Service National Historic Landmarks database

No impacts are anticipated to historic structures as work is anticipated to take place within the footprint of existing facilities, in easement or road right-of-way areas.

5.1.3 Wetlands

No portion of the improvements project should be located in a wetland area. However, if wetlands are encountered, construction impacts will be temporary and all areas will be restored and native seed mix will be used to reestablish vegetation. Any mitigation measures to lessen and compensate for wetland impacts cited in comment letters from the Indiana Department of Natural Resources (IDNR) and the U.S. Fish and Wildlife Service (USFWS) will be implemented. Maps of the Water Corporation facilities in relation to wetlands and water improvements are located in Appendix A.

5.1.4 Surface Waters

It is anticipated that surface water quality will remain the same as before the water system improvements were completed. Two special crossings are required, the necessary permitting would be attained to do so. All comments from the USFWS and IDNR regarding any stream crossings, if deemed necessary, will be incorporation into the construction plans.

5.1.5 Groundwater

The proposed project will not affect groundwater. Dewatering is not expected. The project will not impact a sole source aquifer.

5.1.6 100-Year Floodplain and Floodway

No portion of the improvement's project should take place within the 100-year flood plain. Maps of the Water Corporation's facilities in relation to floodplains are located in Appendix A.

5.1.7 Plants and Animals

The project will be implemented to minimize impact to non-endangered species and their habitat. Mitigation measures cited by the IDNR and USFWS during the environmental review process will be implemented as necessary.

5.1.8 Prime Farmland

The project will be submitted to the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) for their evaluation. No impacts to prime farmland are anticipated. Erosion control mitigation measures will be implemented as required by necessary permits. No impact of karst or bedrock areas on the project are anticipated.

5.1.9 Air Quality

No adverse impact to air quality is anticipated. Mitigation measures to reduce noise, dust, and airborne contaminants will be implemented as required by necessary permits.

5.1.10 Open Space and Recreation Opportunities

The construction and operation of the proposed project will neither create nor destroy open space or recreational opportunities.

5.1.11 Lake Michigan Coastal Program

The proposed project will not affect the Lake Michigan Coastal Zone.

5.1.12 National Natural Landmarks

The proposed project will not impact any National Natural Landmarks.

5.1.13 Secondary Impacts

The utility will ensure that future development, as well as future infrastructure projects connecting to SRF-funded facilities will not adversely affect wetlands, wooded areas, steep slopes, archaeological/historical/structural resources, or other sensitive environmental resources. The utility will require new drinking water infrastructure projects to be constructed within the guidelines of the U.S. Fish and Wildlife Service, IDNR, IDEM, and other environmental review authorities.

5.1.14 Mitigation Measures

The Tri-Township Water Corporation will take mitigation measures to avoid/lessen erosion, siltation, air quality impacts, impacts to wooded or scrub/shrub, wetland areas, steep slopes, etc., and other temporary or long-term negative impacts. All disturbed areas will be graded and seeded to prevent erosion, and returned to original condition. Erosion control measures shall be implemented to prevent sediment transport into water ways. All mitigation measures cited by the IDNR, IDEM, USFWS, and Army Corps of Engineers will be implemented.

CHAPTER 6: SELECTED PLAN

6.1 General

The proposed water system improvements project consists of the following recommended alternatives to be included in a long-term debt project:

- Alternative 1A: New Composite Tank with Welded Steel Storage Vessel
- Alternative 2: Construct a New 12-inch Water Main Along North Dearborn Road from State Line Road to Henderson Road
- Alternative 3: Construct a New 12-inch Water Main Along State Line Road from Sneakville Road North to North Dearborn Road

Alternatives 4 – 7 are additionally recommended. These projects are recommended to be performed on a planned annual basis through the utility's Capital Improvements Program.

6.2 Preliminary Project Design

6.2.1 Alternative 1A: New Composite Tank with Welded Steel Storage Vessel

The proposed project would involve the construction of a new 1,000,000-gallon elevated water storage tank located near the intersection of Whites Hill Road and Gaynor Ridge Road. This new tank shall be constructed on the property purchased by TTWC for construction of a new elevated water storage tank.

The new Elevated Storage Tank will meet the following current and long-term needs:

- Increased water storage capacity to more appropriately meet the future demand for water.
- Improve fire protection in growth area.
- Add waterworks reliability in the event of an interruption in system pumping capacity.

Table 6.2.1: Preliminary Opinion of Probable Construction Cost Alternative 1A: New 1,000,000 Gallon Elevated Water Storage Tank 1,000,000-Gallon Composite Tank With Concrete Pedestal & Welded Steel Storage Vessel					
ITEM NO.	**DESCRIPTION OF WORK**	**QTY.**	**UNITS**	**UNIT PRICE**	**TOTAL COST**
1	Site Work Excavation & Grading	1	Lump Sum	$95,000	$95,000
2	Concrete Footing & Foundation	1	Lump Sum	$550,000	$550,000
3	Steel Fabrication & Delivery	1	Lump Sum	$650,000	$650,000
4	Erection of Water Storage Tank	1	Lump Sum	$745,000	$745,000
5	Tank Coatings	1	Lump Sum	$285,000	$285,000
6	16" Ductile Iron Water Mains	1,800	lineal Ft.	$95	$171,000
7	D.I.M.J. Fittings	1	Lump Sum	$12,000	$12,000
8	16" Gate Valves & Valve Boxes	6	Each	$5,400	$32,400
9	Standard Fire Hydrant	3	Each	$4,500	$13,500
10	Concrete Splash Block	1	Lump Sum	$3,000	$3,000
11	Base Elbow and Yard Piping	1	Lump Sum	$35,000	$35,000
12	Electrical	1	Lump Sum	$45,000	$45,000
13	SCADA Installation	1	Lump Sum	$18,000	$18,000
TOTAL PRELIMINARY CONSTRUCTION COST ESTIMATE					**$2,654,900**

6.2.2 Alternative 2: Construct a New 12-inch Water Main Along North Dearborn Road from State Line Road to Henderson Road

The proposed project would replace an existing 6-inch water main line with a 12-inch D.I. water main along North Dearborn Road from State Line Road to Henderson Road. The replacement of the main line would allow the distribution system to function properly hydraulically, reducing bottlenecks in the system. The existing 6-inch water main is also aging and in need of replacement.

Table 6.2.2: Preliminary Opinion of Probable Construction Cost
Alternative 2: Replace Existing 6" C.I. Water Main With New 12" D.I. Water Main
On North Dearborn Road From Henderson Road. to State Line Road

ITEM NO.	DESCRIPTION OF WORK	QTY.	UNITS	UNIT PRICE	TOTAL COST
1	12" PC 350 D.I. Water Main	2,800	Lineal Ft.	$74	$207,200
2	Connections East & West End	2	Each	$4,500	$9,000
3	12" M.J. Gate Valve & Valve Boxes	4	Each	$4,500	$18,000
4	Ductile Iron Fittings	1	Lump Sum	$45,000	$45,000
5	Std Fire Hydrants & Aux. Valves	3	Each	$4,800	$14,400
6	Surface Restoration	2,800	lineal Ft.	$3	$7,000
7	Special Crossing State Line Road	1	Lump Sum	$4,500	$4,500
8	Special Cr0ossing Morgan Road	1	Lump Sum	$4,500	$4,500
TOTAL PRELIMINARY CONSTRUCTION COST ESTIMATE					**$309,600**

6.2.2 Alternative 3: Construct a New 12-inch Water Main Along North State Line Road from Sneakville Road North to North Dearborn Road

The proposed project would replace an existing 6-inch water main line with a 12-inch D.I. water main along North State Line Road from Sneakville Road North to North Dearborn Road. The replacement of the main line would allow the distribution system to function properly hydraulically, reducing bottlenecks in the system. The existing 6-inch water main is also aging and in need of replacement.

Table 6.2.3: Preliminary Opinion of Probable Construction Cost Alternative 3: Replace Existing 6" C.I. Water Main With New 12" D.I. Water Main 12" Ductile Iron Water Main On State Line Road from Sneakville Road North to North Dearborn Road					
ITEM NO.	**DESCRIPTION OF WORK**	**QTY.**	**UNITS**	**UNIT PRICE**	**TOTAL COST**
1	12" PC 350 D.I. Water Main	4,970	Lineal Ft.	$74	$367,780
2	Connections North & South End	2	Each	$4,500	$9,000
3	12" M.J. Gate Valve & Valve Boxes	5	Each	$4,500	$22,500
4	Ductile Iron Fittings	1	Lump Sum	$30,000	$30,000
5	Std Fire Hydrants & Aux. Valves	3	Each	$4,800	$14,400
6	Surface Restoration	4,970	lineal Ft.	$3	$12,425
7	Special Crossing Sneakville Road	1	Lump Sum	$4,500	$4,500
8	Special Crossing North Dearborn Road	1	Lump Sum	$4,500	$4,500
TOTAL PRELIMINARY CONSTRUCTION COST ESTIMATE					**$465,105**

6.3 Project Schedule

A preliminary project schedule is provided in Table 6.3.1.

Table 6.3.1 Project Schedule

Project Component	Anticipated Date
Submit PER to SRF	April 2021
Funding Agency PER Approval	May – July 2021
Begin Engineering and Design	July 2021
Submit Permit Application to IDEM	November 2021
Advertise for Bids	January 2022
Receive Bids	February 2022
Close Loan	March 2022
Contract Award	April 2022
Begin Construction	April 2022
Complete Construction	2022-2023

6.4 Permit Requirements

The proposed project will require a construction permit from the IDEM. An IDEM Rule 5 permit may be required for soil erosion control. INDOT and county highway department permits may be required for construction in road right-of-way.

6.5 Sustainability Considerations

6.5.1 Water and Energy Efficiency

The proposed system improvements will replace portions of TTWC aging infrastructure but it is not anticipated that significant water and energy efficiency benefits will occur as a result.

6.5.1 Green Infrastructure

The Green Project Reserve Sustainability Incentive Clean Water Checklist will be completed and amended to this PER and located in Appendix B. The proposed project includes approximately 1.8 miles of ductile iron (DI) water main pipe. Ductile iron pipe is made using recycled materials, and is a recyclable product. DI pipe categorically meets the criteria of green infrastructure.

6.6 Contract Operations

Contract operations are not being considered at this time. The Tri-Township Water Corporation will continue to complete all operations with in house staff.

6.7 Total Project Cost Estimate

The preliminary opinion of probable total project cost is $4,535,805. This includes construction contingency funds and non-construction costs. Table 6.7.1 provides a detailed summary of costs.

Table 6.7.1 Preliminary Estimate of Probable Project Costs
For Proposed Projects to be funded through SRF Loan Program

Component	Cost
Construction Costs	
Alternative 1A New Composite Tank	$2,654,900
Alternative 2 New 12-inch Water Main Along North Dearborn Road	$309,600
Alternative 3 New 12-inch Water Main Long State Line Road	$465,105
Total Estimated Construction Cost	$3,429,605
Recommended Contingency (10%-15%)	$514,200
Total Estimated Construction Costs with Contingency	**$3,943,805**
Non-Construction Costs	
Design, Bidding & Contract Administration	$307,000
Engineering Planning - PER	$25,000
Geotechnical Engineering – Borings & Report	$5,000
Archaeological Investigation	$5,000
Construction Observation	By owner
Bond Counsel	$60,000
Specialized Tank Inspections	$15,000
Financial Advisor	$50,000
State Revolving Fund Fees	$10,000
Asset Management Planning	$25,000
IURC Rate Case Related Professional Services	$75,000
Labor Standards Administration	$10,000
Legal Counsel	$5,000
Total Estimated Non-Construction Costs	**$592,000**
Total Estimated Project Cost	**$4,535,805**

CHAPTER 7:
LEGAL, FINANCIAL & MANAGERIAL CAPABILITIES

7.1 Resolutions

The PER will be presented at a public hearing in May-June, 2021 and the public given an opportunity to ask questions or give comments. During the hearing/Board Meeting the PER Approval and Signatory Authorization resolutions will be passed by the Tri-Township Water Corporation. Copies of the required resolutions will be amended to Appendix B.

7.2 SRF Project Cost/Financing Information

The utility has completed the required Table VII-SRF Project Financing Information form. A copy of the form can be found in Appendix B.

7.3 Asset Management Plan

Tri-Township Water Corporation will develop an Asset Management Program that meets the requirements defined by the State Revolving Fund's Asset Management Program Guidelines pursuant to Indiana Code 5-1.2-10-16 and will submit a completed AMP Certification Form Prior to request for final disbursement related to the primary project.

7.4 Inter-local Agreements

Agreements to sell water to Twin Rivers Water Co., North Dearborn Water Corporation and Valley Rural Water Corporation will be gathered and amended to this PER as needed.

7.5 Land Acquisition

Some existing easements will allow for construction of new water mains in some locations; however, new easements for water main construction will be required in some project areas.

CHAPTER 8: PUBLIC PARTICIPATION

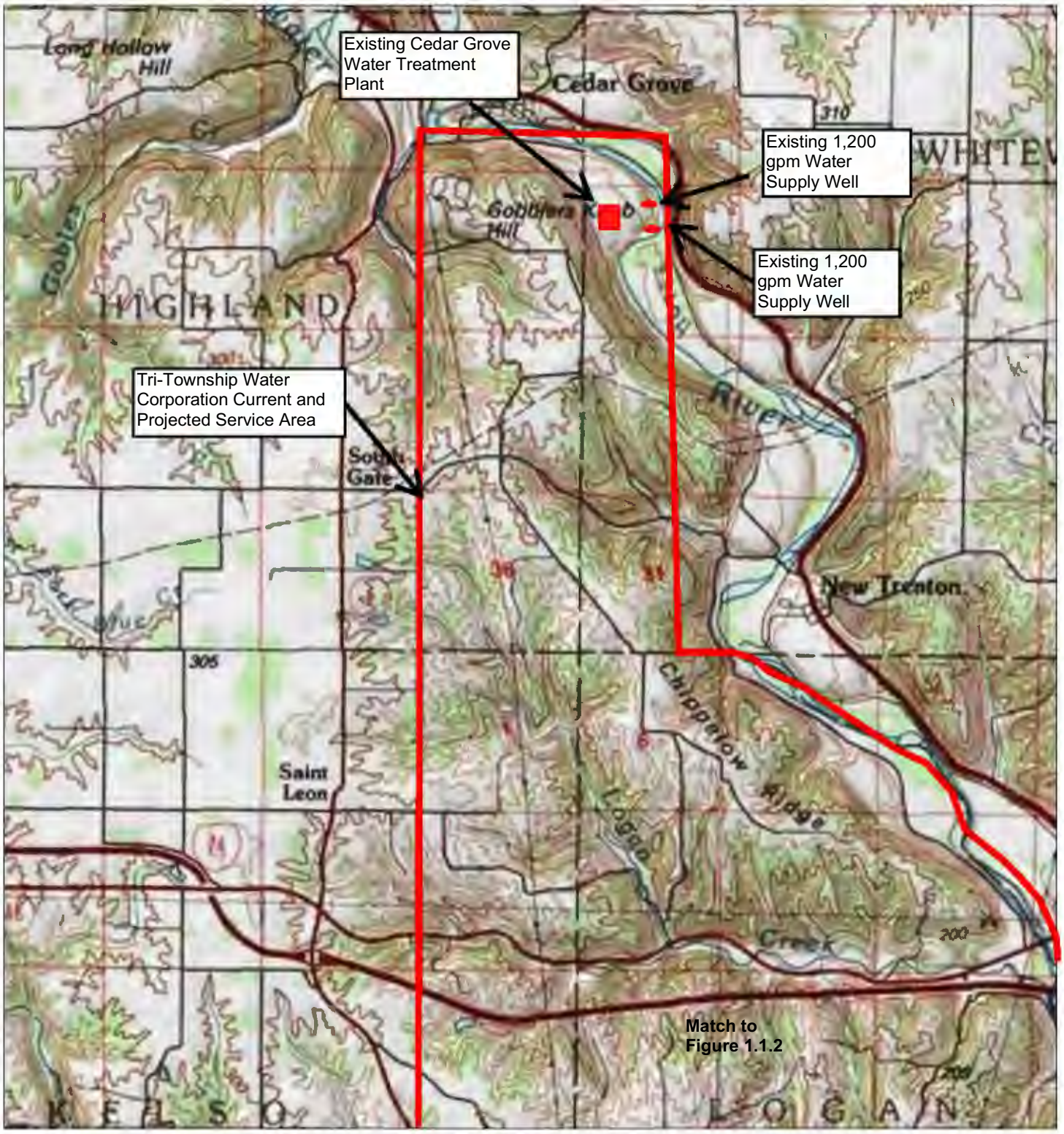
8.1 General

Tri-Township Water Corporation will hold a public hearing in May-June, 2021. The advertisement will be published in the local newspaper of circulation in to notify system users of a public hearing to present the recommended improvements to Tri-Township Water Corporation water system. The notification will inform the public that a copy of the PER will be available at the utility offices for review at least 10 days prior to the hearing. A copy of the notice of public hearing and the affidavit form will be amended to Appendix C. A copy of the sign-in sheet and meeting minutes and other documentation will be located in Appendix C.

Mailing labels for interested parties will be amended to Appendix C.

Appendix A

Figure 1.1.1 Tri-Township Water Corporation System North Portion USGS Map



Legend:

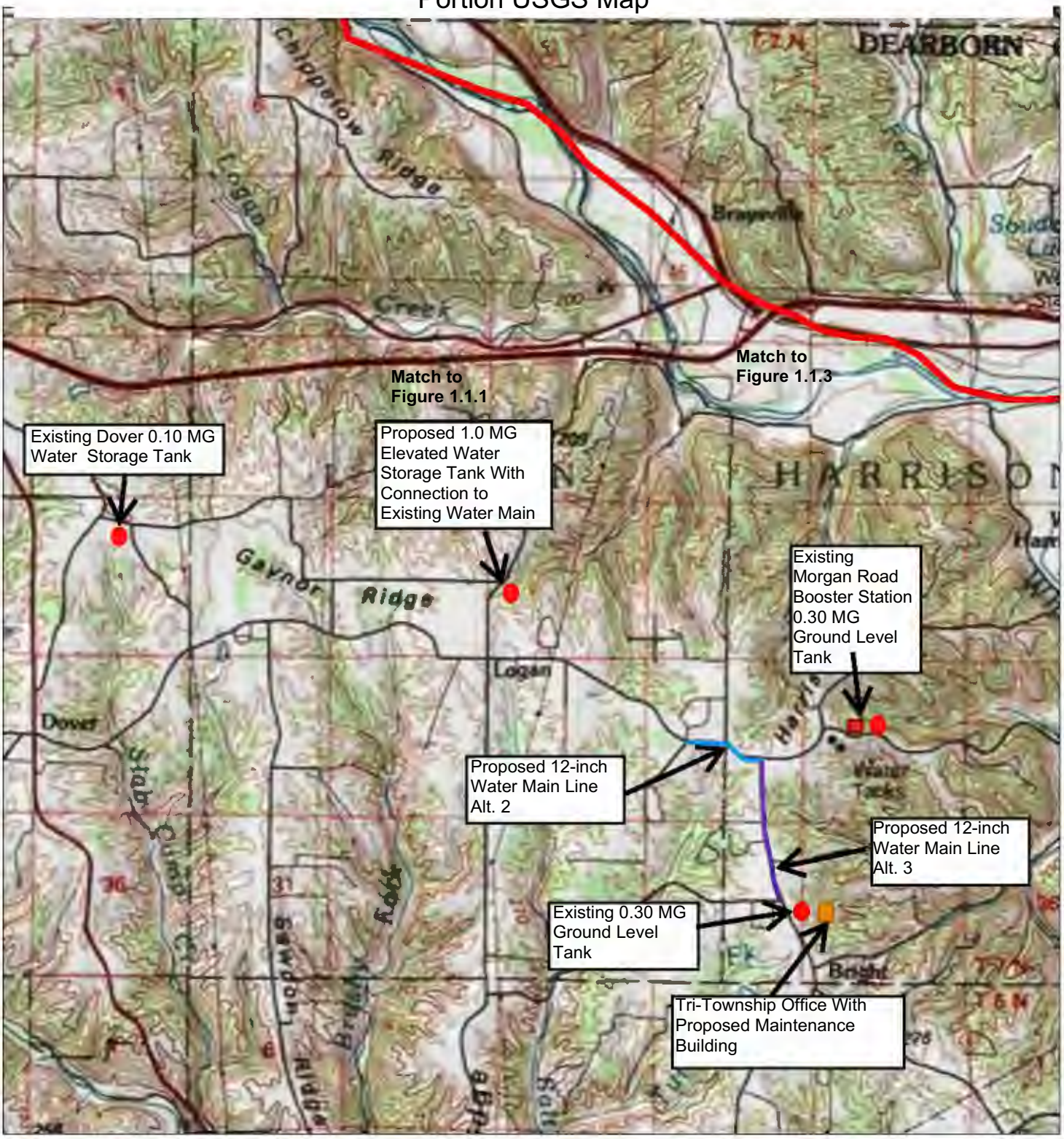
- Service Boundary
- Existing Water Treatment Plant
- Existing Well

1:72,224

0 0.5 1 2 mi
0 1 2 4 km

N

Figure 1.1.2 Tri-Township Water Corporation Proposed Water Project Central Portion USGS Map



Legend:

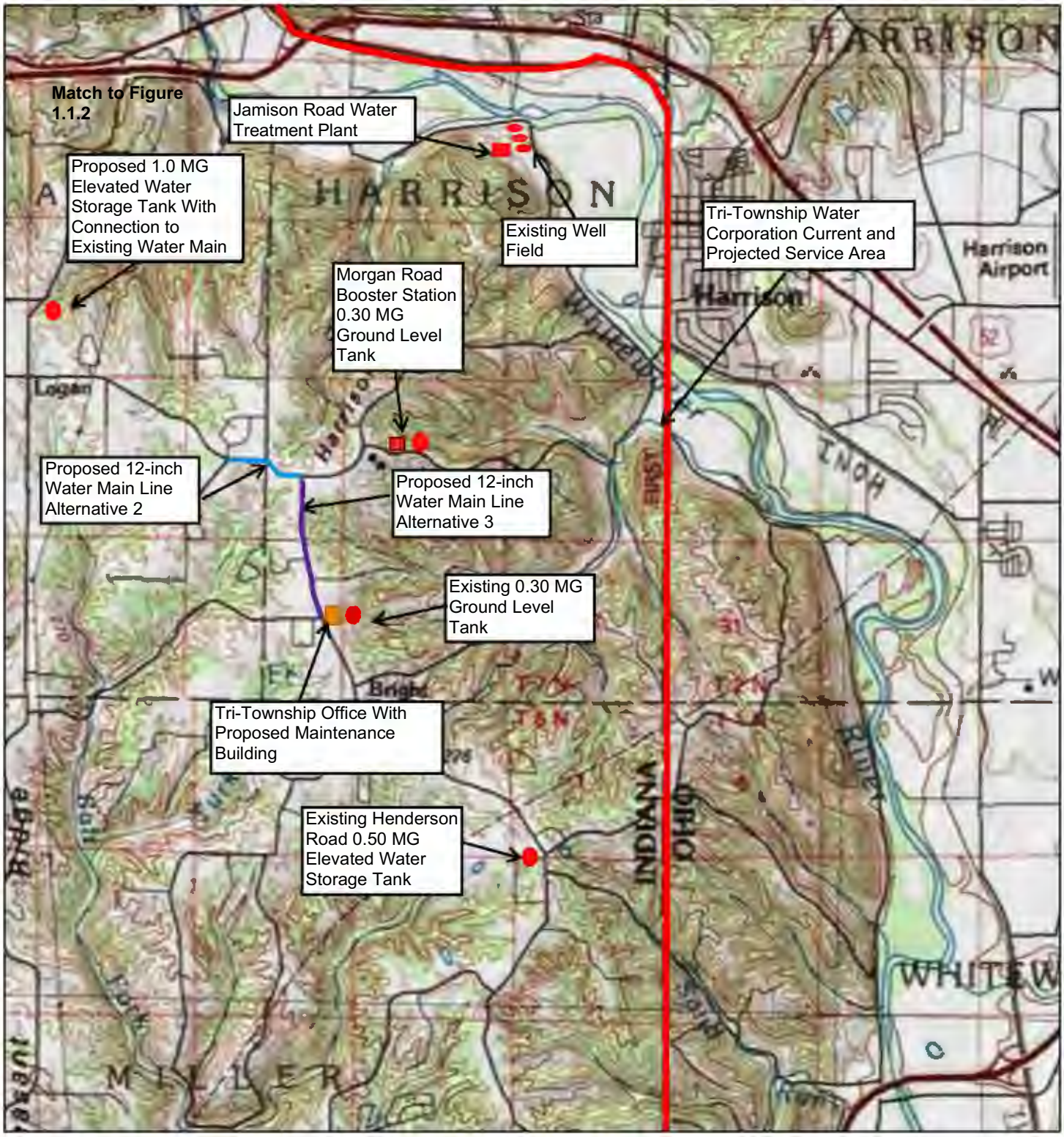
- Proposed Water Main Line Alt. 2
- Proposed Water Main Line Alt. 3
- Existing Water Storage Tank
- Existing Booster Pump Station
- Proposed Maintenance Building Addition
- Service Boundary

1:72,224

0 0.5 1 2 mi
0 1 2 4 km

N

Figure 1.1.3 Tri-Township Water Corporation Proposed Water Project Eastern Portion USGS Map



Legend:

- Proposed Water Main Line Alt. 2
- Proposed Water Main Line Alt. 3
- Existing Water Storage Tank
- Existing Booster Pump Station
- Proposed Maintenance Building Addition

1:72,224

0 0.5 1 2 mi
0 1 2 4 km

N

Figure 1.2.1 Tri-Township Proposed Cedar Grove Water Treatment Plant Roof Replacement Wetland & Floodplain Map

Legend:

- Wetlands NWI (USFWS)
- Wetlands Project Metadata NWI (USFS)
- Streams (NHD)
- Rivers (NHD)
- Lakes (NHD)

1:4,000

0 0.0325 0.065 0.13 mi

0 0.05 0.1 0.2 km

N

U.S. Geological Survey
U.S. Fish and Wildlife Service (USFWS),National Standards and Support Team,National Wetlands Inventory (NWI)
Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.

Figure 1.2.2 Tri-Township Water Corporation Proposed Elevated Water Storage Tank Wetlands & Floodplain Map

Legend:

- Streams (NHD)
- Rivers (NHD)
- Lakes (NHD)

Floodplains - FIRM (Mar 2020)

- Floodway
- 1% Annual Chance Flood Hazard
- 0.2% Annual Chance, Protected by Levee
- 0.2% Annual Chance Flood Hazard
- Wetlands NWI (USFWS)
- Wetlands Project Metadata NWI (USFS)
- 2017 Orthophotography - Placeholder
- Proposed Elevated Water Storage Tank
- Proposed 12-inch Water Main
- Existing 16-inch Water Main

1:2,000

0 0.015 0.03 0.06 mi

0 0.0275 0.055 0.11 km

N

U.S. Geological Survey
U.S. Fish and Wildlife Service (USFWS),National Standards and Support Team,National Wetlands Inventory (NWI)
Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.

Figure 1.2.3 Tri-Township Water Corporation Office Building Roof Replacement & Proposed Maintenance Building Floodplain & Wetland Map

Legend:

- Wetlands NWI (USFWS)
- Wetlands Project Metadata NWI (USFS)
- Streams (NHD)
- Rivers (NHD)
- Lakes (NHD)

1:2,000

0 0.015 0.03 0.06 mi

0 0.0275 0.055 0.11 km

N

U.S. Geological Survey
U.S. Fish and Wildlife Service (USFWS),National Standards and Support Team,National Wetlands Inventory (NWI)
Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.

Figure 1.2.4 Tri-Township Water Corporation Proposed 12- inch Water Mains Wetland & Floodplain Map

Legend:

- Wetlands NWI (USFWS)
- Wetlands Project Metadata NWI (USFS)
- Streams (NHD)
- Rivers (NHD)
- Lakes (NHD)
- Proposed 12-inch Main Line Alt. 2
- Proposed 12-inch Main Line Alt. 3

1:16,000

0 0.125 0.25 0.5 mi

0 0.2 0.4 0.8 km

N

U.S. Geological Survey
U.S. Fish and Wildlife Service (USFWS),National Standards and Support Team,National Wetlands Inventory (NWI)
Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.

Figure 1.2.5 Tri-Township Water Corporation Proposed Jamison Road Water Treatment Plant Roof Replacement Wetland & Floodplain Map

Legend:

- Wetlands NWI (USFWS)
- Wetlands Project Metadata NWI (USFS)
- Streams (NHD)
- Rivers (NHD)
- Lakes (NHD)

1:1,000

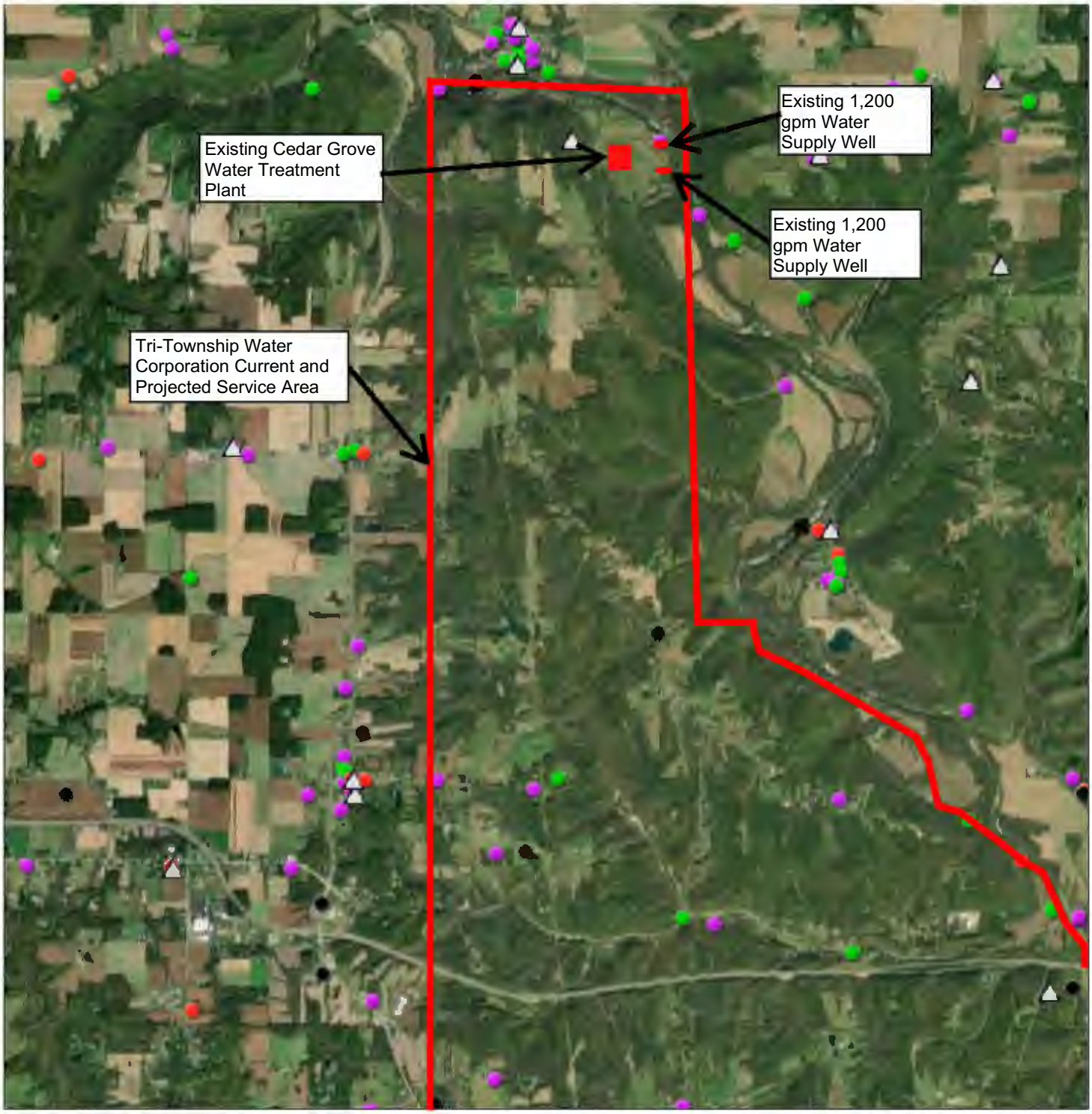
0 0.0075 0.015 0.03 mi

0 0.0125 0.025 0.05 km

N

U.S. Geological Survey
U.S. Fish and Wildlife Service (USFWS),National Standards and Support Team,National Wetlands Inventory (NWI)
Indiana Office of Information Technology, Indiana University Spatial Data Portal, UITS, Woolpert Inc.

Figure 1.3.1 Tri-Township Water Corporation Proposed Water System North Portion Historical Sites Map



Legend:

- Cemeteries
- **County Survey Sites**
  - Outstanding
  - Notable
  - Contributing
  - Non-Contributing
- Demolished
- **Historic Bridges**
  - Contributing
  - Demolished
- National Register Sites
- Service Boundary
- Existing Water Treatment Plant
- Existing Well

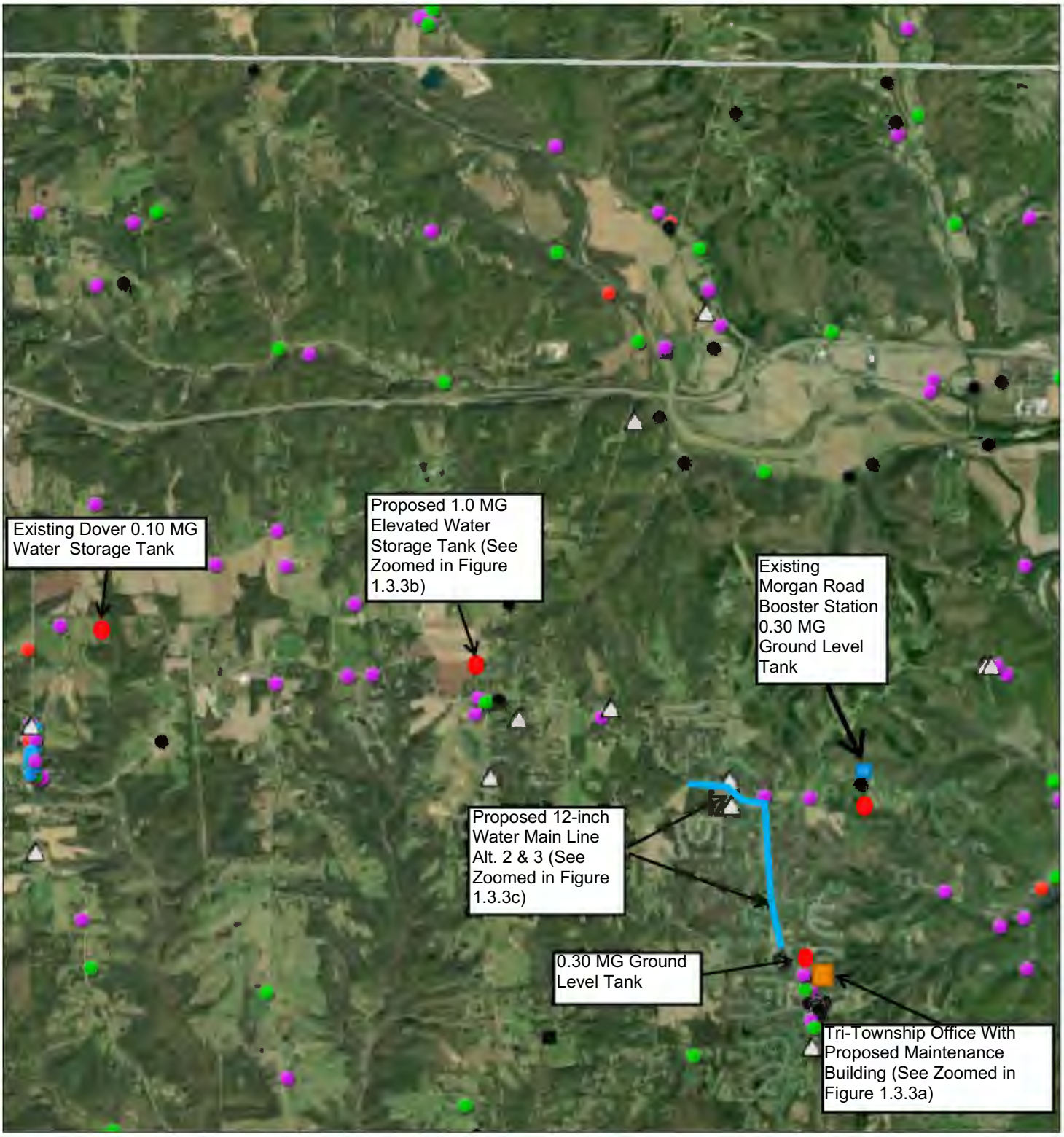
1:72,224

0 0.5 1 2 mi
0 1 2 4 km

N

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Figure 1.3.2 Tri-Township Water Corporation Proposed Water Project Central Portion Historical Sites



Legend:

- Cemeteries
- **County Survey Sites**
  - Outstanding
  - Notable
  - Contributing
  - Non-Contributing
  - Demolished
- **Historic Bridges**
  - Contributing
  - Demolished
- Proposed Water Main Line
- Existing Water Storage Tank
- Existing Booster Pump Station
- Proposed Maintenance Building Addition

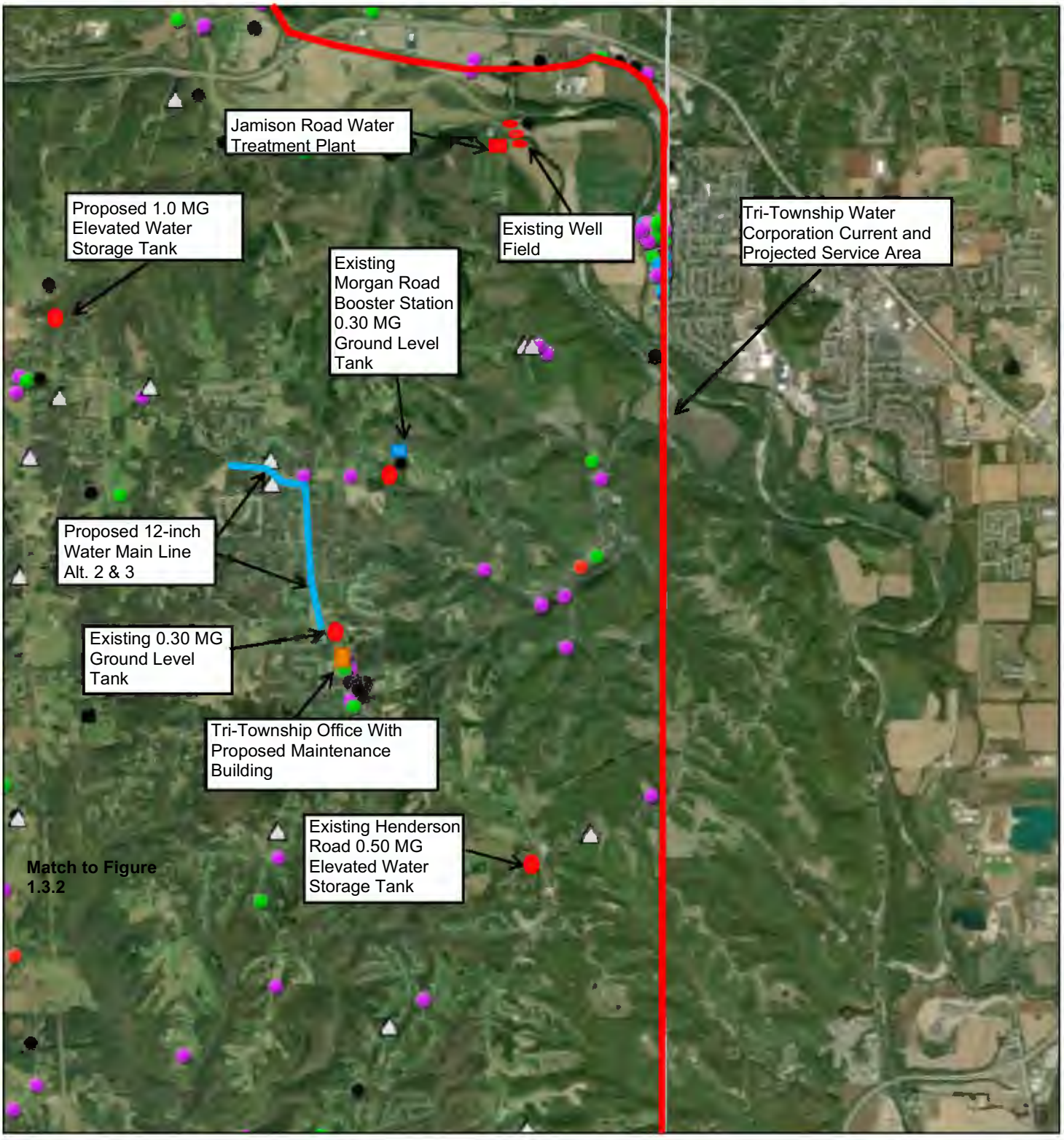
1:72,224

0 0.5 1 2 mi
0 1 2 4 km

N

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Figure 1.3.3 Tri-Township Water Corporation Proposed Water Project Eastern Portion Historical Sites



Legend:

- Cemeteries
- **County Survey Sites**
  - Outstanding
  - Notable
  - Contributing
- Non-Contributing
- Demolished
- **Historic Bridges**
  - Contributing
  - Demolished
- Proposed Maintenance Building
- Proposed Water Main Line
- Existing Water Storage Tank
- Existing Booster Pump Station

1:72,224

0 0.5 1 2 mi
0 1 2 4 km

N

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Figure 1.3.3a Tri-Township Water Corporation Office Building Roof Replacement & Proposed Storage Building Historical Sites Map

Legend:

County Survey Sites

- Notable
- Contributing
- Demolished
- Red: Red
- Green: Green
- Blue: Blue

1:2,257

0 0.0175 0.035 0.07 mi

0 0.03 0.06 0.12 km

N

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Figure 1.3.3b Tri-Township Water Corporation Proposed 1.0 MG Elevated Water Storage Tank Historic Sites Map

Legend:

County Survey Sites

- Notable
- Contributing
- Demolished
- Red: Red
- Green: Green
- Blue: Blue
- Proposed 1.0 MG Elevated Storage Tank
- Proposed 12-inch Water Main
- Existing 16-inch Water Main

1:9,028

N

0 0.075 0.15 0.3 mi

0 0.1 0.2 0.4 km

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Indiana DNR DHPA

Figure 1.3.3c Tri-Township Water Corporation Proposed 12-inch Main Line Historical Sites Map

Legend:

- Cemeteries

County Survey Sites

- Contributing
- Demolished
- Proposed 12-inch Main Line Alt. 2
- Proposed 12-inch Main Line Alt. 3

N

1:18,056

0 0.15 0.3 0.6 mi

0 0.25 0.5 1 km

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Indiana DNR DHPA
2019 Indiana Dept. of Natural Resources, DHPA

Figure 1.3.4 Tri-Township Water Corporation Proposed Cedar Grove Water Treatment Plant Roof Replacement Historic Sites Map

Legend:

Red: Red

Green: Green

Blue: Blue

1:4,514

0 0.0375 0.075 0.15 mi

0 0.05 0.1 0.2 km

N

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Indiana DNR DHPA
2019 Indiana Dept. of Natural Resources, DHPA

Figure 1.3.5 Tri-Township Water Corporation Proposed Jamison Road Water Treatment Plant Roof Replacement Historic Sites Map

Legend:

Red: Red

Green: Green

Blue: Blue

1:1,128

0 0.0075 0.015 0.03 mi

0 0.015 0.03 0.06 km

N

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Indiana DNR DHPA
2019 Indiana Dept. of Natural Resources, DHPA

Figure 1.4.1 Tri-Township Water Corporation Northern Portion Soils Map

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Dearborn County, Indiana
Survey Area Data: Version 21, Jun 3, 2020

Soil Survey Area: Franklin County, Indiana
Survey Area Data: Version 20, Jun 4, 2020

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 17, 2019—Dec 5, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AvA	Avonburg silt loam, 0 to 2 percent slopes	5.7	0.1%
BeD3	Bonnell silt loam, 12 to 18 percent slopes, severely eroded	1.7	0.0%
CaC2	Carmel silt loam, 6 to 12 percent slopes, eroded	4.0	0.1%
CaD2	Carmel silt loam, 12 to 18 percent slopes, eroded	8.3	0.1%
CaE2	Carmel silt loam, 18 to 25 percent slopes, eroded	7.8	0.1%
CcD3	Carmel silty clay loam, 12 to 18 percent slopes, severely eroded	13.4	0.2%
CcE3	Carmel silty clay loam, 18 to 25 percent slopes, severely eroded	2.3	0.0%
Ch	Chagrin silt loam, frequently flooded	1.4	0.0%
CnB2	Cincinnati silt loam, 2 to 6 percent slopes, eroded	2.4	0.0%
Ct	Cobbsfork silt loam, 0 to 1 percent slopes	0.4	0.0%
De	Dearborn silt loam, frequently flooded	1.9	0.0%
EcE2	Eden silty clay loam, 15 to 25 percent slopes, eroded	8.5	0.1%
EdE3	Eden flaggy silty clay loam, 15 to 25 percent slopes, severely eroded	4.4	0.1%
EdF	Eden flaggy silty clay, 25 to 50 percent slopes	33.5	0.4%
FoB2	Fox silt loam, 1 to 4 percent slopes, eroded	0.6	0.0%
PaE2	Pate silty clay loam, 18 to 25 percent slopes, eroded	0.8	0.0%
Pg	Pits, gravel	1.4	0.0%
RdG	Rodman sandy loam, 40 to 60 percent slopes	1.8	0.0%
RoA	Rossmoyne silt loam, 0 to 2 percent slopes	1.9	0.0%
RoB2	Nabb silt loam, 2 to 6 percent slopes, eroded	0.6	0.0%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
St	Stonelick sandy loam, 0 to 2 percent slopes, frequently flooded	7.3	0.1%
SwB2	Switzerland silt loam, 2 to 6 percent slopes, eroded	2.7	0.0%
SwC2	Switzerland silt loam, 6 to 12 percent slopes, eroded	16.1	0.2%
W	Water	10.4	0.1%
WbB2	Weisburg silt loam, 2 to 6 percent slopes, eroded	8.4	0.1%
WbC3	Weisburg silt loam, 6 to 12 percent slopes, severely eroded	6.1	0.1%
Subtotals for Soil Survey Area		**153.2**	**2.0%**
Totals for Area of Interest		**7,737.0**	**100.0%**

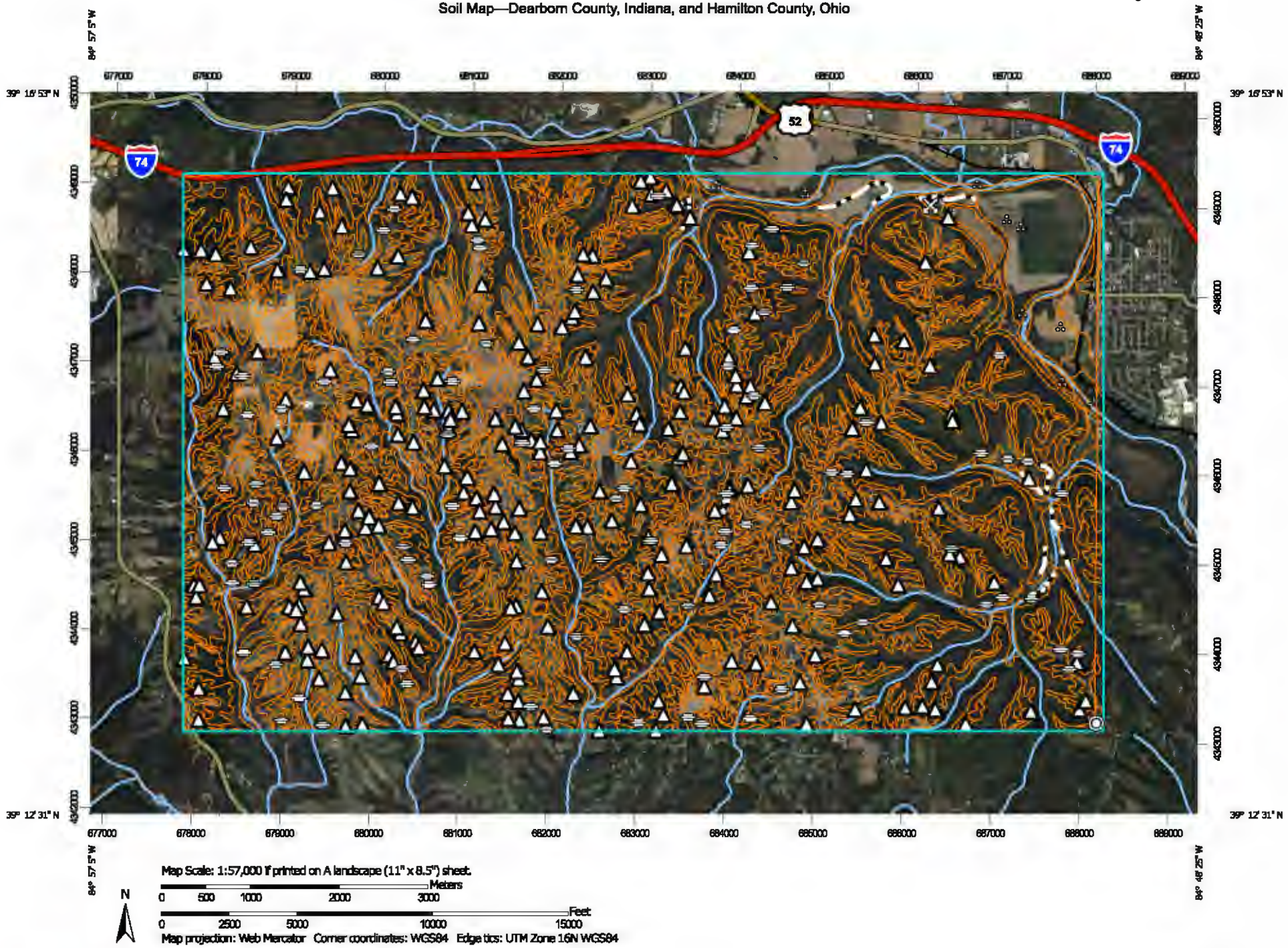
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AlA	Alvin sandy loam, 0 to 2 percent slopes	37.9	0.5%
AlB	Alvin sandy loam, 2 to 6 percent slopes	28.4	0.4%
AvA	Avonburg silt loam, 0 to 2 percent slopes	249.0	3.2%
BoC2	Bonnell silt loam, 6 to 12 percent slopes, eroded	37.5	0.5%
BoD2	Bonnell silt loam, 12 to 18 percent slopes, eroded	16.6	0.2%
BpD3	Bonnell clay loam, 12 to 22 percent slopes, severely eroded	0.1	0.0%
CbC2	Carmel silt loam, 6 to 12 percent slopes, eroded	984.0	12.7%
CkB2	Cincinnati silt loam, 2 to 6 percent slopes, eroded	77.9	1.0%
CkC2	Cincinnati silt loam, 6 to 12 percent slopes, eroded	2.3	0.0%
CkC3	Cincinnati silt loam, 6 to 12 percent slopes, severely eroded	66.4	0.9%
Cm	Cobbsfork silt loam, 0 to 1 percent slopes	142.0	1.8%
Db	Dearborn loam, frequently flooded	168.9	2.2%
EbE2	Eden flaggy silty clay, 15 to 25 percent slopes, eroded	666.1	8.6%
EdG	Eden flaggy silty clay, 25 to 50 percent slopes	2,195.9	28.4%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
ElA	Eldean loam, 0 to 2 percent slopes	80.8	1.0%
ElB	Eldean loam, 2 to 6 percent slopes	163.4	2.1%
FcB	Fincastle silt loam, 1 to 3 percent slopes	62.6	0.8%
FfA	Fincastle-Reesville silt loams, 0 to 1 percent slopes	3.1	0.0%
FxC3	Fox complex, 6 to 15 percent slopes, severely eroded	40.9	0.5%
Gd	Gessie loam, sandy substratum, rarely flooded	89.9	1.2%
Ge	Gessie loam, sandy substratum, occasionally flooded	217.8	2.8%
MmB2	Miami silt loam, 2 to 6 percent slopes, eroded	39.0	0.5%
MmC2	Miami silt loam, 6 to 12 percent slopes, eroded	2.2	0.0%
MmD2	Miami silt loam, well drained, 12 to 18 percent slopes, eroded	19.3	0.2%
MoC3	Miami clay loam, 6 to 12 percent slopes, severely eroded	64.7	0.8%
Mt	Moundhaven sandy loam, rarely flooded	50.7	0.7%
Mx	Moundhaven sandy loam, occasionally flooded	268.9	3.5%
OcA	Ockley loam, 0 to 2 percent slopes	244.1	3.2%
OcB2	Ockley loam, 2 to 6 percent slopes, eroded	79.1	1.0%
RkF	Rodman gravelly coarse sandy loam, 35 to 60 percent slopes	160.7	2.1%
RsA	Rossmoyne silt loam, 0 to 2 percent slopes	87.5	1.1%
RsB2	Nabb silt loam, 2 to 6 percent slopes, eroded	442.6	5.7%
RuB2	Russell silt loam, 2 to 6 percent slopes, eroded	36.6	0.5%
RvB	Russell silt loam, bedrock substratum, 2 to 6 percent slopes	4.8	0.1%
W	Water	158.6	2.0%
WsB2	Wellsburg silt loam, 2 to 6 percent slopes, eroded	444.9	5.8%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
WmB	Williamstown silt loam, 2 to 6 percent slopes, eroded	3.4	0.0%
WoB	Woolper silty clay loam, 1 to 6 percent slopes	108.5	1.4%
WrB	Wynn silt loam, 2 to 6 percent slopes	1.3	0.0%
WrC2	Wynn silt loam, 6 to 12 percent slopes, eroded	11.1	0.1%
XnA	Xenia silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes	12.3	0.2%
XnB2	Xenia silt loam, 2 to 6 percent slopes, eroded	11.7	0.2%
Subtotals for Soil Survey Area		**7,583.4**	**98.0%**
Totals for Area of Interest		**7,737.0**	**100.0%**

Figure 1.4.2 Tri-Township Water Corporation Central Portion Soils Map

Soil Map—Dearborn County, Indiana, and Hamilton County, Ohio



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Dearborn County, Indiana
Survey Area Data: Version 21, Jun 3, 2020

Soil Survey Area: Hamilton County, Ohio
Survey Area Data: Version 20, Jun 11, 2020

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 17, 2019—Dec 5, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AvA	Avonburg silt loam, 0 to 2 percent slopes	384.2	2.4%
BeC2	Bonnell silt loam, 6 to 12 percent slopes, eroded	36.4	0.2%
BeD2	Bonnell silt loam, 12 to 18 percent slopes, eroded	406.6	2.5%
BeD3	Bonnell silt loam, 12 to 18 percent slopes, severely eroded	322.1	2.0%
BeE	Bonnell silt loam, 18 to 35 percent slopes	139.3	0.9%
CaC2	Carmel silt loam, 6 to 12 percent slopes, eroded	1.2	0.0%
CaD2	Carmel silt loam, 12 to 18 percent slopes, eroded	738.8	4.6%
CaE2	Carmel silt loam, 18 to 25 percent slopes, eroded	131.2	0.8%
CcC3	Carmel silty clay loam, 8 to 12 percent slopes, severely eroded	5.1	0.0%
CcD3	Carmel silty clay loam, 12 to 18 percent slopes, severely eroded	1,084.3	6.7%
CcE3	Carmel silty clay loam, 18 to 25 percent slopes, severely eroded	54.6	0.3%
Ch	Chagrin silt loam, frequently flooded	151.1	0.9%
CnB2	Cincinnati silt loam, 2 to 6 percent slopes, eroded	560.6	3.5%
CnC2	Cincinnati silt loam, 6 to 12 percent slopes, eroded	293.9	1.8%
CnC3	Cincinnati silt loam, 6 to 12 percent slopes, severely eroded	16.1	0.1%
Ct	Cobbsfork silt loam, 0 to 1 percent slopes	16.2	0.1%
De	Dearborn silt loam, frequently flooded	125.5	0.8%
Df	Dearborn channery loam, frequently flooded	109.6	0.7%
EcE2	Eden silty clay loam, 15 to 25 percent slopes, eroded	836.0	5.2%
EdE3	Eden flaggy silty clay loam, 15 to 25 percent slopes, severely eroded	1,808.6	11.2%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
EdF	Eden flaggy silty clay, 25 to 50 percent slopes	4,191.2	26.1%
FoB2	Fox silt loam, 1 to 4 percent slopes, eroded	84.6	0.5%
Hu	Huntington silt loam, 0 to 2 percent slopes, frequently flooded	40.5	0.3%
Ju	Jules silt loam, frequently flooded	74.6	0.5%
MaB2	Markland silt loam, 2 to 12 percent slopes, eroded	18.2	0.1%
MaF2	Markland silt loam, 18 to 35 percent slopes, eroded	32.5	0.2%
MbD3	Markland silty clay loam, 6 to 18 percent slopes, severely eroded	5.3	0.0%
OcA	Ockley silt loam, 0 to 3 percent slopes	15.8	0.1%
PaD2	Pate silty clay loam, 12 to 18 percent slopes, eroded	39.9	0.2%
PaE2	Pate silty clay loam, 18 to 25 percent slopes, eroded	300.7	1.9%
RdG	Rodman sandy loam, 40 to 80 percent slopes	44.2	0.3%
RoA	Rossmoyne silt loam, 0 to 2 percent slopes	427.4	2.7%
RoB2	Nabb silt loam, 2 to 6 percent slopes, eroded	255.3	1.6%
St	Stonelick sandy loam, 0 to 2 percent slopes, frequently flooded	596.4	3.7%
SwB2	Switzerland silt loam, 2 to 6 percent slopes, eroded	80.0	0.5%
SwC2	Switzerland silt loam, 6 to 12 percent slopes, eroded	1,028.4	6.4%
SwC3	Switzerland silt loam, 6 to 12 percent slopes, severely eroded	99.0	0.6%
SwD2	Switzerland silt loam, 12 to 18 percent slopes, eroded	123.6	0.8%
Ud	Udorthents, loamy	15.7	0.1%
W	Water	157.1	1.0%
WbB2	Weisburg silt loam, 2 to 6 percent slopes, eroded	783.3	4.9%
WbC2	Weisburg silt loam, 6 to 12 percent slopes, eroded	232.5	1.4%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
WbC3	Wellsburg silt loam, 6 to 12 percent slopes, severely eroded	83.9	0.5%
Subtotals for Soil Survey Area		**15,952.0**	**99.2%**
Totals for Area of Interest		**16,076.9**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CdF	Casco loam, 35 to 70 percent slopes	0.8	0.0%
EcD	Eden silty clay loam, 15 to 25 percent slopes	4.3	0.0%
EcE	Eden silty clay loam, 25 to 40 percent slopes	32.2	0.2%
EdF	Eden flaggy silty clay loam, 40 to 60 percent slopes	10.9	0.1%
Ju	Jules silt loam, occasionally flooded	6.2	0.0%
PfC	Pate silty clay loam, 6 to 15 percent slopes	5.8	0.0%
St	Stonelick fine sandy loam, 0 to 2 percent slopes, frequently flooded	4.1	0.0%
SwC2	Switzerland silt loam, 6 to 15 percent slopes, eroded	6.1	0.0%
UAJXC	Urban land-Alfic Udarents-Fox complex, 0 to 12 percent slopes	3.8	0.0%
UASXC	Urban land-Alfic Udarents-Switzerland complex, 0 to 12 percent slopes	5.0	0.0%
UdMXCO	Urban land-Mollic Udarents complex, loamy substratum, 0 to 12 percent slopes, occasionally flooded	5.2	0.0%
UHJXAO	Urban land-Haplic Udarents-Jules complex, 0 to 2 percent slopes, occasionally flooded	9.3	0.1%
UHSXAF	Urban land-Haplic Udarents-Stonelick complex, 0 to 2 percent slopes, frequently flooded	0.9	0.0%
Ur	Urban land	14.0	0.1%
UrO	Urban land, 0 to 12 percent slopes, occasionally flooded	0.2	0.0%
UrUXCO	Urban land-Udorthents complex, 0 to 12 percent slopes, occasionally flooded	8.7	0.1%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
UwAXC	Urban land-Alfic Udarents complex, loamy substratum over outwash, 0 to 12 percent slopes	2.7	0.0%
W	Water	1.7	0.0%
Subtotals for Soil Survey Area		**122.0**	**0.8%**
Totals for Area of Interest		**16,076.9**	**100.0%**

Figure 1.4.3 Tri-Township Water Corporation Eastern Portion Soils Map

Soil Map—Dearborn County, Indiana, and Hamilton County, Ohio

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Dearborn County, Indiana
Survey Area Data: Version 21, Jun 3, 2020

Soil Survey Area: Hamilton County, Ohio
Survey Area Data: Version 20, Jun 11, 2020

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 28, 2019—Dec 5, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AvA	Avonburg silt loam, 0 to 2 percent slopes	45.2	0.7%
BeC2	Bonnell silt loam, 6 to 12 percent slopes, eroded	8.1	0.1%
BeD2	Bonnell silt loam, 12 to 18 percent slopes, eroded	116.2	1.9%
BeD3	Bonnell silt loam, 12 to 18 percent slopes, severely eroded	33.5	0.5%
BeE	Bonnell silt loam, 18 to 35 percent slopes	56.6	0.9%
CaC2	Carmel silt loam, 6 to 12 percent slopes, eroded	1.2	0.0%
CaD2	Carmel silt loam, 12 to 18 percent slopes, eroded	108.8	1.8%
CaE2	Carmel silt loam, 18 to 25 percent slopes, eroded	80.5	1.3%
CcC3	Carmel silty clay loam, 8 to 12 percent slopes, severely eroded	2.2	0.0%
CcD3	Carmel silty clay loam, 12 to 18 percent slopes, severely eroded	251.9	4.1%
CcE3	Carmel silty clay loam, 18 to 25 percent slopes, severely eroded	28.3	0.5%
Ch	Chagrin silt loam, frequently flooded	200.6	3.3%
CnB2	Cincinnati silt loam, 2 to 6 percent slopes, eroded	98.2	1.6%
CnC2	Cincinnati silt loam, 6 to 12 percent slopes, eroded	60.8	1.0%
CnC3	Cincinnati silt loam, 6 to 12 percent slopes, severely eroded	10.2	0.2%
Ct	Cobbsfork silt loam, 0 to 1 percent slopes	4.6	0.1%
De	Dearborn silt loam, frequently flooded	81.5	1.0%
Df	Dearborn channery loam, frequently flooded	43.1	0.7%
EcE2	Eden silty clay loam, 15 to 25 percent slopes, eroded	181.8	3.0%
EdE3	Eden flaggy silty clay loam, 15 to 25 percent slopes, severely eroded	472.0	7.7%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
EdF	Eden flaggy silty clay, 25 to 50 percent slopes	1,925.5	31.5%
FoB2	Fox silt loam, 1 to 4 percent slopes, eroded	91.4	1.5%
Hu	Huntington silt loam, 0 to 2 percent slopes, frequently flooded	40.5	0.7%
Ju	Jules silt loam, frequently flooded	116.1	1.9%
MaB2	Markland silt loam, 2 to 12 percent slopes, eroded	13.6	0.2%
MaF2	Markland silt loam, 18 to 35 percent slopes, eroded	32.5	0.5%
MbD3	Markland silty clay loam, 6 to 18 percent slopes, severely eroded	1.5	0.0%
OcA	Ockley silt loam, 0 to 3 percent slopes	18.8	0.3%
PaD2	Pate silty clay loam, 12 to 18 percent slopes, eroded	38.5	0.6%
PaE2	Pate silty clay loam, 18 to 25 percent slopes, eroded	269.3	4.4%
RdG	Rodman sandy loam, 40 to 80 percent slopes	48.1	0.8%
RoA	Rossmoyne silt loam, 0 to 2 percent slopes	71.5	1.2%
RoB2	Nabb silt loam, 2 to 6 percent slopes, eroded	22.9	0.4%
St	Stonelick sandy loam, 0 to 2 percent slopes, frequently flooded	862.5	14.1%
SwB2	Switzerland silt loam, 2 to 6 percent slopes, eroded	44.0	0.7%
SwC2	Switzerland silt loam, 6 to 12 percent slopes, eroded	316.6	5.2%
SwC3	Switzerland silt loam, 6 to 12 percent slopes, severely eroded	42.6	0.7%
SwD2	Switzerland silt loam, 12 to 18 percent slopes, eroded	4.4	0.1%
W	Water	141.9	2.3%
WbB2	Weisburg silt loam, 2 to 6 percent slopes, eroded	102.9	1.7%
WbC2	Weisburg silt loam, 6 to 12 percent slopes, eroded	28.9	0.5%
Subtotals for Soil Survey Area		**6,097.6**	**99.7%**
Totals for Area of Interest		**6,116.5**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
EcD	Eden silty clay loam, 15 to 25 percent slopes	0.8	0.0%
EcE	Eden silty clay loam, 25 to 40 percent slopes	4.4	0.1%
EdF	Eden flaggy silty clay loam, 40 to 60 percent slopes	2.6	0.0%
Ju	Jules silt loam, occasionally flooded	1.1	0.0%
PfC	Pate silty clay loam, 8 to 15 percent slopes	1.8	0.0%
St	Stonelick fine sandy loam, 0 to 2 percent slopes, frequently flooded	0.8	0.0%
SwC2	Switzerland silt loam, 8 to 15 percent slopes, eroded	0.8	0.0%
UAJXC	Urban land-Alfic Udarents-Fox complex, 0 to 12 percent slopes	0.3	0.0%
UdMXCO	Urban land-Mollic Udarents complex, loamy substratum, 0 to 12 percent slopes, occasionally flooded	1.3	0.0%
UHJXAO	Urban land-Haplic Udarents-Jules complex, 0 to 2 percent slopes, occasionally flooded	1.1	0.0%
UHSXAF	Urban land-Haplic Udarents-Stonelick complex, 0 to 2 percent slopes, frequently flooded	0.3	0.0%
Ur	Urban land	2.7	0.0%
UrO	Urban land, 0 to 12 percent slopes, occasionally flooded	0.0	0.0%
UwAXC	Urban land-Alfic Udarents complex, loamy substratum over outwash, 0 to 12 percent slopes	0.4	0.0%
W	Water	0.3	0.0%
Subtotals for Soil Survey Area		**18.7**	**0.3%**
Totals for Area of Interest		**8,116.5**	**100.0%**

Appendix B

DWSRF Loan Program
Financial Information Form

Proposed Project Costs:	
Supply / wells cost	$
Transmission / distribution System cost	$ 774,705
Treatment cost	$
Storage cost	$ 2,654,900
Subtotal construction cost	$ 3,429,605
Contingencies (should not exceed 10% of construction cost)	$ 514,200
Non-construction costs	$ 592,000
e.g., engineering, legal and financial services related to the project, land costs, start-up costs, and construction inspection	
Total Proposed Project Cost	$ 4,535,805
The following are not SRF Loan Program eligible:	
Previously funded SRF components that have not met useful life	$
Materials and work done on private property	$
Grant applications and income surveys done for other agencies	$
Expenses incurred as a part of forming a utility, Regional Sewer / Water District, or Conservancy District	$
Total Ineligible Costs	$ 0
List other grant / loan funding sources and amounts	
Other grants	$ 0
Other loans	$ 0
Hook-on fees	$ 0
Cash on hand	$ 0
Total Other Funding Sources	$ 0
Requested SRF Loan	$ 4,535,805
Estimated post-project user rate for 4,000 gallons	$ TBD
Anticipated SRF interest rate	2.0%

Financial Advisor:

Firm Contact_Baker Tilly_____

Name Doug Baldessari _____

Bond Counsel:

Firm Contact__Bose McKinney_____

Name_____

STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

IN THE MATTER OF THE PETITION OF TRI-TOWNSHIP WATER CORPORATION FOR A NEW SCHEDULE OF RATES AND CHARGES	**)** **)** **)** **)**	**CAUSE NO. 45563-U**

TESTIMONY
OF
SHAWN DELLINGER

ON BEHALF OF THE
INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR

PUBLIC'S EXHIBIT NO. 3

September 14, 2021

TESTIMONY OF OUCC WITNESS SHAWN DELLINGER
CAUSE NO. 45563-U
TRI-TOWNSHIP WATER CORPORATION

I. INTRODUCTION

Q: Please state your name and business address.

A: My name is Shawn Dellinger, and my business address is 115 W. Washington St., Suite 1500 South, Indianapolis, IN 46204.

Q: By whom are you employed and in what capacity?

A: I am employed by the Indiana Office of Utility Consumer Counselor ("OUCC") as a Utility Analyst in the Water/Wastewater division. My focus is on financial issues.

Q: Please describe your educational background and experience.

A: My credentials are set forth in Appendix A.

Q: What is the purpose of your testimony?

A: Tri-Township Water Corporation ("Applicant" or "Tri-Township") has requested authority to borrow funds from the State Revolving Fund ("SRF"). Tri-Township seeks rates for an annual debt service revenue requirement of $135,750 (Phase I). Thereafter, Tri-Township asks for authority to implement Phase II rates to meet an annual revenue requirement for debt service of $304,151. For both phases, Tri-Township also seeks authority to include in its rates an annual revenue requirement of $60,830 for debt service reserve. I recommend rates be based on lower assumed interest rates and a lower amount of assumed borrowing, and I explain why I make that recommendation. Based on my analysis, I recommend the Commission establish rates based on an annual debt service revenue requirement of $100,980 in Phase 1 and $279,903 in Phase 2. I also recommend

an annual debt service reserve revenue requirement of $55,981 for five years. I recommend the Commission require Tri-Township to lower its rates to reflect elimination of the debt service reserve revenue requirement once it has met that requirement. I recommend a true-up process so rates will conform to the actual terms of the debt once issued. I recommend Tri-Township be required to establish a restricted account for revenues in excess of costs if there is any material delay as to when it closes on its debt.

Q: What did you do to prepare your report?

A: I reviewed the Application. I prepared discovery questions and reviewed Applicant's responses to discovery. I participated in informal conference calls with Applicant.

II. DEBT SERVICE REVENUE REQUIREMENT

Q: Please describe Applicant's proposed debt service revenue requirement.

A: The Applicant proposes to recover annual debt service of $135,750 in Phase 1 and $304,151 in Phase 2. Applicant proposes that Debt Service Reserve be recovered at a $60,830 annual rate in both Phases. The assumptions behind these debt service numbers are not included in the application, but $4,525,000 principal amount is stated in the workpapers (Schedule of Estimated Project Costs and Funding). The assumed interest rate is 3%.

Q: Do you agree with this proposed debt service revenue requirement?

A: No. I propose rates be based on a lower interest rate. Also, as discussed by OUCC witness Thomas Malan in his testimony, the OUCC recommends Applicant's borrowing authority be set at $37,000 lower than what Applicant has proposed.

Q: What changes to interest rates are you recommending?

A: Applicant incorporates a 3% interest rate assumption in its debt calculation.[1] This rate appears to be based upon the program SRF rate of 2%, plus a 100 basis point addition to those base rates.[2] I propose a more moderate 25 basis point addition to the same 2% rate to address any changes in interest rates that might occur between now and when Applicant closes on the proposed debt. I refer to this addition as a timing allowance.

Q: Is this a typical addition for a timing allowance?

A: This is a slightly lower additional basis point addition than what I would typically incorporate into a more market driven rate, but the SRF Program rate is based on 90% of the AAA rate.[3] According to Value Line, the current interest rate for 25/30 year AAA bonds is 1.45% as of August 30, 2021. Therefore, the AAA interest rate would have to increase to approximately 2.22% before the SRF Program rate would increase above 2.0%.[4] My recommendation is based on the fact that SRF would not increase the Program rate from 2% until and unless there was an increase in AAA rates of more than 75 basis points.[5] Therefore, the 25 basis points I recommend actually addresses the risk that AAA rates would increase by more than 100 basis points in roughly six months from the date of

[1] Response to Data Request 2-23 included an Amortization table, which is included as OUCC attachment SD-1.

[2] The Program Rate may be found here: https://www.in.gov/ifa/srf/finance/summary-of-current-interest-rate-policy/ .

[3] "Interest rates are reset quarterly and are at or below 90% of the average 20-year AAA-rated, general obligation bond Municipal Market Data. Rates are further discounted based on the applicant's median household income (gathered from current census data) and local user rates." Interest rates are reset quarterly and are at or below 90% of the average 20-year AAA-rated, general obligation bond Municipal Market Data. Rates are further discounted based on the applicant's median household income (gathered from current census data) and local user rates.

[4] Broadly 2.22% times 90% = 2.0%. This is also based on a 25/30 year rate, rather than a 20 year which should be marginally lower. I do not have access to the Municipal Market Data rates that SRF utilizes.

[5] 1.45% for AAA rates as of 8/30 to 2.22% equals 77 basis point addition.

this report.

Q: If Applicant does not qualify for Program rates from SRF, will Applicant still be able to procure financing?

A: If the Applicant does not qualify for standard Program funding with the SRF, pooled financing through SRF would likely be available. Because interest rates for the Pooled Program are based on a pass through of the AAA rate, the 2.25% intertest rate I recommend would accommodate approximately a 75 basis point increase to the AAA rate.

Q: What revenue requirement do you recommend?

A: Based on the reductions to principal of $37,000 and the 2.25% interest rates I recommend for the setting of rates, the OUCC's proposed revenue requirement for debt service is $100,980 for the interest only period of the debt (Phase I) and $279,903 once principal payments begin (Phase II). Table SD-1 shows how I calculated this amount.[6]

Table SD-1

OUCC Proposal-Loan Details

Line #	OUCC Proposal			Source:
1	Principal	$ 4,525,000.00		Given
2	Reductions	$ 37,000.00		Malan Testimomy
3	Revised Principal	$ 4,488,000.00		Line 1-Line 2
4	Interest Rate	2.25%		Dellinger Testimony
5	Bi-Annual Interest Rate	1.13%		Line 4 / 2
6	Term (Years)	20		Given-Amortization Table
7	Term (Payments)	40		Line 6 * 2
8	Payment	$139,951.50		=PMT Formula
9	Payment-Annual	$279,903.00	Phase II	Line 8 * 2
10	Interest Only-Annual	$ 100,980.00	Phase I	Line 3 * Line 4
11	Debt Service Reserve Payment	$ 55,980.60		Line 26 / 5

[6] I use level payment assumptions, and I am not adjusting principal payments by $1,000 increments. Actual payments will be slightly different than what I propose even with the interest rate and principal assumptions, but any differences should be immaterial.

III. DEBT SERVICE RESERVE

Q: Does Applicant request a revenue requirement for debt service reserve?

A: Yes. Applicant requests a debt service reserve revenue requirement of $60,830.

Q: What amount of debt service reserve do you recommend in rates?

A: Based on my assumptions about potential changes in interest rates and incorporating the $37,000 decrease in borrowing discussed by Mr. Malan, I recommend an annual debt service reserve revenue requirement of $55,981.

IV. DISCUSSION OF PHASES REGARDING DEBT

Q: Please describe the anticipated debt offering and the difference for Phase I and Phase II.

A: Applicant proposes to increase its rates in two phases. For the first year of the debt, Tri-Township will make interest only payments. The anticipated timing of the bond closing is April 30, 2022. Therefore, the anticipated timing of the beginning of Phase II is April 30, 2023. There will be some modest delay between the issuance of an order in this cause and the closing on the debt. However, I recommend Applicant be authorized to begin collecting the debt service and debt service reserve revenue requirement for Phase I when as the order is issued in this cause. After the debt is issued, these rates should be trued-up to reflect the actual amount of debt service -- incorporating actual project costs, actual fees, and actual interest rates. One year after this closing, principal payments will begin pursuant to the anticipated terms of the borrowing. Applicant's Phase II rates should begin at that time.

V. TRUE-UP AND OTHER ISSUES

Q: How should Applicant be required to true-up its proposed annual debt service once the interest rates on its proposed debt are established?

A: The precise interest rates and annual debt service will not be known until Applicant's debt

has been issued. Therefore, Applicant's rates should be trued-up at that time to reflect the actual cost of the debt. I recommend the Commission require Applicant to file a report within thirty (30) days of the closing on its long-term debt issuance explaining the terms of the new loan, the amount of debt service reserve and an itemized account of all issuance costs (Specifically all costs included in the $214,195 "Legal, Loan counsel, financial advisory and contingencies" line item found in the "Schedule of Estimated Project Costs and Funding" section of Applicants workpapers.)[7] The report should include a revised tariff, amortization schedule and a calculation of the effect on rates, which should be presented in a manner similar to the presentation in the OUCC's schedules.

Q: The debt service reserve is anticipated to be fully funded by April of 2027. Do you recommend any actions at that time?

A: Once the Debt Service Reserve is fully funded, there will be no more expenses associated with the debt service reserve. At that point, Applicant should reduce its rates to eliminate the annual revenue by the amount of the debt Service Reserve annual funding amount.

Q: Should ratepayer protections be put in place for any delay in the closing of the loan?

A: Yes. The OUCC proposed rates are based on a debt service revenue requirement in Phase 1 of approximately $8,500 per month, with an additional $4,500 for the debt service reserve, for which there will be no corresponding expense until closing on the loan. If there is a delay of more than two months between when new rates have gone into effect and the closing on the debt, Tri-Township should establish a restricted account funded by the excess revenues collected without a corresponding expense. These funds should be restricted for use to fund the debt service reserve. As part of its post borrowing true-up, Tri-Township's annual debt

[7] Per Data Request 1-22, included as OUCC Attachment SD-2.

service reserve should be adjusted to reflect both the required balances needing to be funded as well as any amounts available from the restricted fund to prefund this required balance.

Q: How should disputes regarding Applicant's true up report be identified?

A: The OUCC should have twenty-one (21) days after service of the true-up to challenge Applicant's proposed true-up. Applicant should have twenty-one (21) days thereafter to file a response to the OUCC. Thereafter, the Commission should resolve any issue raised through a process it deems appropriate. Applicant's true-up report should repeat the time frames for objections or responses as established by the order in this cause.

Q: Should there be any exceptions to the requirement for a true-up?

A: Yes. If both parties state in writing that the increase or decrease indicated by the report need not occur because the increase or decrease would be immaterial, the true-up need not be implemented.

Q: What other conditions should be placed on Applicant's proposed debt issuance?

A: Financing authority should not continue indefinitely. Applicant expects to complete its requested borrowing in April of 2022. Applicant's financing authority should expire two years after a final order has been issued in this Cause.

VI. SUMMARY OF RECOMMENDATIONS

Q: Please summarize your recommendations to the Commission in this Cause.

A: I recommend the Commission authorize Applicant to borrow $4,488,000 from the State Revolving Fund. I recommend the Commission set the debt service revenue requirement at $100,980 for Phase 1 and $279,903 for Phase II subject to the true-up process described above. I recommend the Commission set the debt service reserve revenue requirement at $55,981 for both Phases the true-up processes described above. I recommend the Applicant

be required to adjust its rates when the debt service reserve has been fully funded, as discussed above.

Q: Does this conclude your testimony?

A: Yes.

Appendix A

Q: Please describe your educational background.

A: I graduated from Indiana University with a degree in Biology, a minor in Economics and a certificate from the Liberal Arts and Management Program (LAMP) which is an honors certificate program through the Kelley School of Business and the College of Arts and Sciences, at the time restricted to twenty five (25) students per year. I received my MBA from Indiana University with a concentration in finance. I am a member of Phi Beta Kappa honor society for my undergraduate studies and Beta Gamma Sigma honor society for my masters program. Although not specifically related to my educational background, I have been a member of Mensa for a number of years.

Q: Please describe your work experience.

A: My first jobs after graduating with my undergraduate degree were in New York in finance at Grant's Interest Rate Observer, which is a financial newsletter and Lebenthal and Co., which was a municipal bond brokerage. I worked at RCI Sales in Indianapolis, which was a manufacturers representative/distributor in the commercial and institutional plumbing space, as the owner for a number of years, leaving when I sold the company and merged it into a competitor. After receiving my MBA, I worked at Amazon as a financial analyst in their fulfillment division.

Q: How long have you been at the OUCC?

A: I have been a Utility Analyst II in the water division at the OUCC since December of 2019. My focus is financial issues, such as ROE's, Capital Structures, etc.

Q: Have you previously testified before the Indiana Utility Regulatory Commission?

A: Yes, I have testified before the commission regarding various aspects of finance.

TRI-TOWNSHIP WATER CORPORATION

SCHEDULE OF AMORTIZATION OF $4,525,000 PRINCIPAL AMOUNT OF PROPOSED WATERWORKS REVENUE BONDS OF 2022
Interest and Principal payable semi-annually January 1st and July 1st
Assumed interest rate as shown
Assumes bonds dated April 30, 2022

Payment Date	Principal Balance	Principal	Assumed Interest Rate	Debt Service		Bond Year Total
				Interest	Total	
	(------In $1,000's------)		(%)	(----------In Dollars----------)		
07/01/22	$4,525			$23,002.08	$23,002.08	
01/01/23	4,525			67,875.00	67,875.00	$90,877.08
07/01/23	4,525	$83	3.00	67,875.00	150,875.00	
01/01/24	4,442	85	3.00	66,630.00	151,630.00	302,505.00
07/01/24	4,357	86	3.00	65,355.00	151,355.00	
01/01/25	4,271	87	3.00	64,065.00	151,065.00	302,420.00
07/01/25	4,184	89	3.00	62,760.00	151,760.00	
01/01/26	4,095	90	3.00	61,425.00	151,425.00	303,185.00
07/01/26	4,005	91	3.00	60,075.00	151,075.00	
01/01/27	3,914	93	3.00	58,710.00	151,710.00	302,785.00
07/01/27	3,821	94	3.00	57,315.00	151,315.00	
01/01/28	3,727	95	3.00	55,905.00	150,905.00	302,220.00
07/01/28	3,632	97	3.00	54,480.00	151,480.00	
01/01/29	3,535	98	3.00	53,025.00	151,025.00	302,505.00
07/01/29	3,437	100	3.00	51,555.00	151,555.00	
01/01/30	3,337	101	3.00	50,055.00	151,055.00	302,610.00
07/01/30	3,236	103	3.00	48,540.00	151,540.00	
01/01/31	3,133	104	3.00	46,995.00	150,995.00	302,535.00
07/01/31	3,029	106	3.00	45,435.00	151,435.00	
01/01/32	2,923	107	3.00	43,845.00	150,845.00	302,280.00
07/01/32	2,816	109	3.00	42,240.00	151,240.00	
01/01/33	2,707	111	3.00	40,605.00	151,605.00	302,845.00
07/01/33	2,596	112	3.00	38,940.00	150,940.00	
01/01/34	2,484	114	3.00	37,260.00	151,260.00	302,200.00
07/01/34	2,370	116	3.00	35,550.00	151,550.00	
01/01/35	2,254	117	3.00	33,810.00	150,810.00	302,360.00
07/01/35	2,137	119	3.00	32,055.00	151,055.00	
01/01/36	2,018	121	3.00	30,270.00	151,270.00	302,325.00
07/01/36	1,897	123	3.00	28,455.00	151,455.00	
01/01/37	1,774	125	3.00	26,610.00	151,610.00	303,065.00
07/01/37	1,649	127	3.00	24,735.00	151,735.00	
01/01/38	1,522	128	3.00	22,830.00	150,830.00	302,565.00
07/01/38	1,394	130	3.00	20,910.00	150,910.00	
01/01/39	1,264	132	3.00	18,960.00	150,960.00	301,870.00
07/01/39	1,132	134	3.00	16,980.00	150,980.00	
01/01/40	998	136	3.00	14,970.00	150,970.00	301,950.00
07/01/40	862	138	3.00	12,930.00	150,930.00	
01/01/41	724	140	3.00	10,860.00	150,860.00	301,790.00
07/01/41	584	143	3.00	8,760.00	151,760.00	
01/01/42	441	145	3.00	6,615.00	151,615.00	303,375.00
07/01/42	296	147	3.00	4,440.00	151,440.00	
01/01/43	149	149	3.00	2,235.00	151,235.00	302,675.00
		$4,525		$1,615,942.08	$6,140,942.08	$6,140,942.08

Q-1.22: Please explain and breakdown the $214,195 of "Legal, loan counsel, financial advisory and contingencies" on the "SCHEDULE OF ESTIMATED PROJECT COSTS AND FUNDING" found in Tri-Township Water's Accounting Work Papers.

Response: The $214,195 of legal, financial advisory and contingencies is comprised of the following:

IURC Rate Case:	
Financial Advisor	$34,500
Engineer	2,325
Legal	10,000 (estimate)
IURC fees	2,500 (estimate)
Additional allowance	10,000 (estimate)
Sub-total	$59,325
SRF Bond Issue (Estimates)	
Bond counsel	$50,000
Local counsel	10,000
Financial advisor	55,000
Parity report	5,000
SRF counsel	10,000
Rounding and contingencies	24,870
Sub-total	$154,870
Total	$214,195