

## Clerk Village of Pinckney

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**From:** Kimberly Lim  
**Sent:** Wednesday, January 03, 2018 4:10 PM  
**To:** Clerk Village of Pinckney  
**Subject:** FW: Comments on Asset Management Plan WSSN 05322

Initial comments from DEQ...

Kimberly Lim, CPA  
Village Accountant  
Village of Pinckney

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**From:** Henderson, Shannon (DEQ) [mailto:HendersonS8@michigan.gov]  
**Sent:** Wednesday, December 27, 2017 4:24 PM  
**To:** Kimberly Lim <Accountant@villageofpinckney.org>  
**Cc:** DPW Village of Pinckney <DPW@villageofpinckney.org>  
**Subject:** Comments on Asset Management Plan WSSN 05322

Hello,

First, I would like to commend you for getting in the Asset Management Plan in before the January 1 deadline even though you had a late start (and you got it in before some of the other water systems in my district). It looks really well-put-together.

That being said, I do have some comments to give regarding the Asset Management Plan. You do not need to have a revised version submitted based on these comments by January 1; you are already in compliance with the deadline by sending in the draft I have already reviewed. My understanding is that the comments from DEQ are meant to give recommendations for constant improvement. Some of the financial specialists from the DWRP loan section will be reviewing the financial aspects of your Asset Management Plan and submitting comments of their own.

In the Level of Service Goals section, there should be a description of the process used to develop the service goals. This can be something as simple as "the goals are set by the council" or however it is you decide on which goals to set.

In the Capital Improvement Plan section, the CIP only shows up to 6 years of projects. A CIP should usually also have a plan (however tentative) for 20 years out as well.

I hope you find these comments helpful. Let me know if you have any questions.

Thank you,

Shannon Henderson, EIT  
Environmental Engineer  
Drinking Water and Municipal Assistance Division  
Department of Environmental Quality  
517-539-1687



VILLAGE OF  
**PINCKNEY**

## **Asset Management Plan – Water System**



UPDATED: December 2017

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# INTRODUCTION

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This Asset Management Plan is for the Village of Pinckney - Water and describes how the utility will manage the infrastructure assets. Customer service demands and regulations require utilities to actively manage drinking water assets through careful maintenance, repair and replacement decisions. This plan is an effective tool for combining technical, management and financial practices to ensure that the level of service required by the community is provided at the appropriate cost.

The plan has the following purposes:

1. To demonstrate responsible management of the drinking water assets
2. To communicate and justify funding requirements indicated by the plan
3. To provide a management roadmap for the utility
4. To serve as a link between the Village of Pinckney Water System and its customers

The Asset Management Plan contains an overview of the utility, mission statement, level of service agreement, critical asset list, operation and maintenance strategy, capital investment program, and financial strategies.

## **Mission Statement**

The mission statement defines the goals of the Village of Pinckney and is the guide for the level of service goals.

### The Village of Pinckney Mission Statement

The mission of the Village of Pinckney Council and Offices is to serve the residents of the Village with integrity and respect; practice responsible management of our common funds and resources; conduct business with transparency and accountability; maintain the quality of life through public safety and security; preserve the historic nature of the Village and welcome progress with vision; ensure that all issues are addressed with honesty and fairness.

### The Village of Pinckney Water System mission statement

*We commit to improving and maintaining the public health protection and performance of our drinking water plant and distribution utility assets, while minimizing the long-term cost of operating those assets. We strive to make the most cost-effective renewal and replacement investments and provide the highest-quality customer service possible.*

## **Asset Management Team**

The Village of Pinckney Water System has the equivalent of one full-time employee who performs day-to-day functions to keep the utility functioning properly. Together, the director and lead operator have volunteered as members of the asset management team. The team is responsible for preparing, implementing, and updating this plan.

To the extent that other staff are involved with this or other projects, the asset management team is responsible for coordinating such involvement in the developing and implementing this plan. More specific roles and responsibilities are listed in Table 1.

<b>Table 1: Waster Asset Management Team</b>			
<b>Name</b>	<b>Title</b>	<b>Organization</b>	<b>Role / Responsibility on Project</b>
Kimberly Lim	Accountant	Village of Pinckney	Accountant
Scott Mills	Director DPW	Village of Pinckney	Facility Manager
Mike Hughes	Lead Operator	Village of Pinckney	Head Operator
Linda Lavey	President	Village of Pinckney	Local Official
Rebecca Foster	Trustee	Village of Pinckney	Board Member

## **CURRENT STATE OF ASSETS**

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### **Overview**

The information in this section is based on the Water System Reliability Study prepared by the Village's contracted engineering firm, Wolverine Engineers & Surveyors, Inc., which was submitted to the Michigan DEQ in May 2016.

The Village of Pinckney, Michigan operates a municipal water distribution system that supplies potable water to most of the residents and businesses within the corporate boundary of the Village. The initial water system for the Village was constructed in 1991 including a water storage tank, a well house with two (2) wells and a distribution network consisting mainly of 8" to 16" ductile iron pipe. At the time of construction of the public system, there existed a private water system for the Portage Dells Subdivision located in the southeastern part of the Village. The private system was constructed in the mid 1970's and consisted of a well house (#1) and a distribution network of 6" and 8" Asbestos Cement Pipe serving approximately 70 homes. The private system was connected to the public system in 1991 and the private well house was maintained for emergency purposes. Well house #1 was abandoned in 2002 as a result of the Dexter Street water main construction and loop connection to the east side of the original private system.

### **Water system Time Line**

- 1976 - Private water system initial construction.
- 1976 - 1979 - Additions to private system network.
- 1991 - Construction of public water system (water storage tank, well house #2, distribution network).
- 1991 - Current - Additions to public system network.
- 2012 - Dexter Street water main and loop connection; Well House #1 was abandoned.
- 2015 – Current - Well house addition and chemical feed equipment

Currently, all water is supplied by the two (2) 500 gallons per minute (gpm) wells associated with Well House #2. The system overall is relatively new, well maintained and in good condition. The current demands on the system are 133 gpm (Avg), 430 gpm (Max) and an estimated 602 gpm (Peak). The current total capacity of the well pumps is 1,000 gpm with a firm capacity of 500 gpm. The future 20-year demands on the system are estimated at 191 gpm (Avg), 618 gpm (Max) and 866 gpm (Peak). Based on future population estimates and the current well production firm capacity, the pumps cannot meet the estimated current and projected peak hour flows or the projected 20-year maximum day flow. However, the water standpipe is of sufficient capacity to assist in providing flow for firefighting operations while also supplying system demands for the study period. Nearly all of the system has an available fire flow of more than 2,500 gpm with pressures ranging from 50-70 pounds per square inch (psi).

### **Water System and Components**

The existing municipal water system for the Village is comprised of two (2) wells that supply water through Well House #2, a water storage stand pipe, and a distribution network. The basic components of the system are summarized below in Table 2.

<b>Table 2: Existing Water System Components</b>	
<b>Well House (Marshall)</b>	
Wells (2)	500 gpm (ea)
<b>Storage Tanks</b>	
Howell Street	460,000 gal
<b>Water Main</b>	
6-inch	900 linear feet
8-inch	38,000 linear feet
12-inch	11,800 linear feet
16-inch	13,900 linear feet
Total Length of Water Main	64,600 linear feet
<b>Water Plant</b>	
Chemical Addition	

The system includes approximately 134 hydrants and 175 isolation valves. The water storage tank is an Agua-Stor 30-foot diameter, 84-foot high standpipe. The storage tank has a single 16" inlet pipe at the bottom center of the tank floor. Given the tank column height and the base elevation relative to the distribution network, the tank operates similar to an elevated storage tower. The tank was last inspected in 2014 and was found to be in good condition overall with repairs to interior and exterior caulking being performed in 2009. A new Cathodic Protection System was installed in June of 2016. The characteristics of the water main in the system are provided in Table 3, consisting of percentages according to material, size and age of the water main.

<b>Table 3: Water Main Inventory by Size, Material and Age</b>							
<b>Mains by</b>	<b>Material</b>	<b>%</b>	<b>Mains by</b>	<b>%</b>	<b>Mains by</b>	<b>Age</b>	<b>%</b>
	Ductile Iron	90	6"	2		0 to 10 years	10
	Asbestos Cement	6	8"	58		10 to 20 years	27
	HDPE	4	12"	18		20 to 30 years	56
			16"	22		30 to 40 years	7

See Appendix A for an asset inventory. The next step for the asset inventory is to detail the segments of water main and individual hydrants and valves. A system map is included with the Water System Reliability Study, copies of which are at Village Hall (220 S. Howell St., Pinckney) and the DPW Director’s office (1598 Patterson Lake Rd., Pinckney).

The system as a whole is relatively new and is well monitored for maintenance needs. The Village upholds a high standard for water system components and construction practices and is diligent in obtaining detailed records of construction. The Village maintains a detailed GIS database of Village owned utilities including the entire water system with element locations and properties. The Village has contracted services for maintaining and updating the GIS database and maps.

**Water Supply**

The Village’s total capacity is 1,000 gpm (500 gpm firm) from the two wells supplying the Well House. The firm capacity is determined by taking the largest producing well out of service and then adding the production capacity of all the remaining wells in the system. Characteristics for the two (2) Wells are provided below in Table 4.

<b>Table 4: Well Characteristics</b>						
	<b>Permit Capacity (gpm)</b>	<b>Actual Capacity (gpm)</b>	<b>Total Dynamic Head (ft)</b>	<b>Well Depth (ft)</b>	<b>Horsepower</b>	<b>Status</b>
Well # 1	500	502*	191	200	40	Active
Well # 2	500	587**	156	200	40	Active
Totals	1,000	1,043				

\* 2013    \*\* 2015

Water supplied to the Well House is treated with Sodium Hypochlorite and Polyphosphate by chemical feed equipment stationed inside a 2015 addition to the Well House. The Village maintains a Wellhead Protection Plan (WHPP) which was last updated in 2015.

**Water Demand**

The Village has 678 water accounts. Based on meter size, it is estimated that there are 24 Commercial/Industrial accounts. Downtown businesses have small meters and low water use and are accounted for in the residential class. The DPW operates and maintains the water system and records daily water usage via a recently installed SCADA system. Monthly reports containing daily usage are submitted to the MDEQ for their records. The annual daily use records are summarized in Table 5 below and indicate the water use trend.

<b>Table 5: Pinckney Water Use</b>		
<b>Year</b>	<b>Average day</b>	<b>Maximum day</b>
2005	0.226 MGD (156.9 gpm)	0.537 MGD (372.9 gpm) [July]
2006	0.193 MGD (134.0 gpm)	0.481 MGD (334.0 gpm) [June]
2007	0.191 MGD (132.6 gpm)	0.468 MGD (325.0 gpm) [August]
2008	0.173 MGD (120.1 gpm)	0.453 MGD (314.6 gpm) [February]
2009	0.169 MGD (117.6 gpm)	0.516 MGD (358.3 gpm) [September]
2010	0.161 MGD (111.8 gpm)	0.619 MGD (429.9 gpm) [September]
2011	0.163MGD (113.2 gpm)	0.477 MGD (331.3 gpm) [June]
2012	0.184 MGD (127.8 gpm)	0.420 MGD (291.7 gpm) [July]
2013	0.163 MGD (127.8 gpm)	0.515 MGD (357.6 gpm) [September]
2014	0.146 MGD (101.4 gpm)	0.414 MGD (287.5 gpm) [September]
2015	0.145 MGD (100.7 gpm)	0.427 MGD (296.5 gpm) [September]
10 YEAR AVERAGE DAY 0.191 MGD (132.6 gpm)		
10 YEAR MAXIMUM DAY 0.619 MGD (429.9 gpm)		

Annual average water use has generally decreased since 2005 despite the population increase while the maximum day has varied.

Future water demand is typically calculated by projecting the population increase based on the trend over the past 30 to 40 years. Review of census data for the Village of Pinckney indicates that the population has steadily increased at approximately 2.4 % per year since 1970 with the greatest change between 1990 and 2000. For the purpose of this report, a round number increase of 2.0% annually is used to predict populations of the next twenty years.

The growth rate of 2.0% per year, was applied to the 2010 census population and was carried through to estimate the current population of 2,679. However, according to the Southeast Michigan Council of Governments (SEMCOG), the 2015 population has slightly decreased to 2,351 and SEMCOG further estimates the population to be 2,678 in 2040. This suggests an increase of 0.65% per year from 2015 and would result in the 5-year and 20-year projections to be 2,429 and 2,678, respectively. The Census population trend can be considered conservative as it is derived from past periods of economic prosperity and when the Village had ample land for development. Whereas, the SEMCOG population trend can be considered an extreme low growth rate. Therefore, this report utilizes a median of 2,515 for the current population and a median growth rate of 1.5% per year to predict future populations. Moreover, the Village is limited in future growth due to available lands within the corporate boundaries and the median growth used better represents the actual growth capability of the Village.

Using the same growth rate calculation, the projected 5-Year and 20-Year demands with respect to population increase are calculated based on the current Average Day and Maximum Day Demands in Table 5. However, about 140 homes (380 people) are currently not served by the

water system. Table 6 provides the current and projected demands and indicates the respective service population. As discussed in the Maintenance and Improvements Section, the 20-year planning period includes extending water main into a currently non-serviced area. The 20-year population and demand projections in Table 6 include this extension of the system.

<b>Table 6: Current and Projected System Demands</b>					
<b>Year</b>	<b>Population Total</b>	<b>Population Served</b>	<b>Average Day</b>	<b>Maximum Day</b>	<b>Peak Hour</b>
Current (Estimated)	2,515	2,140	191,500 gpd (133 gpm)*	619,200 gpd (430 gpm)**	866,900 gpd (602 gpm)***
5-Year	2,709	2,334	206,000 gpd (143 gpm)	667,000 gpd (463 gpm)	934,000 gpd (649 gpm)***
20-Year	3,387	3,271	275,000 gpd (191 gpm)	890,000 gpd (618 gpm)	1,247,000 gpd (866 gpm)***

\* 10 year Average Day (Table 5)

\*\* 10 year Maximum Day (Table 5)

\*\*\* Maximum Day x 1.4, Peaking Factor

Based on the demands calculated in Table 6 and the current firm system capacity of 500 gpm, the system supply cannot meet current estimated peak hour demands and the water tank would need to supplement a single operating pump. The Village will evaluate the capacity of the water system in ten years to verify population growth and water usage to determine if/when an additional well should be considered.

### **Water Loss**

The entire village is metered and the total amount of water billed for fiscal years 2011 – 2015 was compared to the water pumpage volume. An estimated water volume for the annual hydrant flushing program was also considered. The average water loss from 2011 – 2015 is approximately 10% of the pumpage volume. The amount of lost water could be attributed to the age of parts of the system and extended rigorous flushing of the hydrants (estimated at 2,300 gpm/hydrant for 2.5 minutes, 2 times per year). However, the estimated average water loss is within the expected and acceptable range for water loss for a system of this size.

## LEVEL OF SERVICE GOALS

The goal of the Village of Pinckney – Water System is to deliver safe drinking water by providing services that meet or exceed customer expectations and comply with federal regulations. This section describes the utility's Level of Service goals and the key performance targets for each of the level of service goal for present and future performance. The level of service describes the characteristics of utility's performance such as "how much", "of what nature", and "how frequently" about the service and the performance target define how each level of service will be measured. *The utility's progress toward meeting those goals will be reported annually.*

The target levels of service that the utility has chosen to meet are presented in Table 7. This table lists the Level of Service goals and measures the success of each goal.

<b>Table 7: Level of Service Goals</b>			
<b>Service Area</b>	<b>Levels of Service</b>		<b>Achieved</b>
	<b>Goal</b>	<b>Performance Targets</b>	
Safe Drinking Water	All federal and state water quality regulations will be met	Perform all required monitoring	Meets all performance objectives
Health and Safety	To provide a safe and injury free work place.	Conduct regular safety meetings.	Minor performance deficiencies
Service Quality	To provide excellent customer service.	All customer complaints will be investigated within 24 hours of reporting the complaint.	Minor performance deficiencies
Operator Certification	Must have operator in charge & backup operator on staff.	Maintain proper licenses.	Meets all performance objectives
Financial	Maintain adequate rates to support operations & capital outlay reserves	Review rates every budget year. Have a rate study done every 5 years.	Meets all performance objectives

The Village will continue to improve upon these goals as well as identify additional level of service goals for the water system.

## CRITICAL ASSETS

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Some assets are more important than others in making sure that customers receive safe drinking water. Therefore, the asset management team used the CUPSS software (developed by the U.S. Environmental Protection Agency) to identify and prioritize critical assets. The CUPSS software program will also help improve practices used for routine operation and maintenance. This process includes reviewing all assets and recording their conditions (likelihood of failure), criticality to the utility (consequence of failure) and redundancy (the number of back-up assets to help support each asset). This will ensure that the utility delivers the level of service described in the previous section.

In assessing whether or not an asset is a critical asset, the following questions were asked:

- How can assets fail?
- How do assets fail?
- What is the likelihood of failure? (Condition: Excellent, Fair, Good, Poor, Very Poor)
- What are the consequences of failure? (insignificant, minor, moderate, major, catastrophic)
- What does it cost to repair the asset?
- What are the other costs (social, environmental, etc.) that are associated with asset failure?

When considering factors in assessing the likelihood of failure there are many aspects to bear in mind. The historical data such as the age, the material used, when and who installed it as well as who supervised the project, and the manufacturer, are all important features. We look at the environmental factors such as soil conditions, surface conditions, and ground water tables as well as the quality of the water. Pinckney is made up of a sandy soil and not found to be aggressive and most of our distribution system is made up of resilient ductile iron pipe. Another factor in assessing is our operational data such as flow, maintenance and repair records. We have daily/weekly/monthly/yearly maintenance checklists, as well as pumpage reports. We exercise every valve in our system annually and keep records of them. Every hydrant is flushed twice a year; repairs are made when needed and records are kept. We have visually inspected coupons from our water mains from various projects and they have shown no signs of wear. Pinckney's water system as a whole is not very old, but we do realize that all assets will reach their life expectancy, and with preventative maintenance, inspections, knowledge of the system, we are confident that we will extend the life expectancies of our assets; and the fact that there has never been any water main breaks to date, we feel that our system is in very good shape.

When considering factors in assessing the consequence of failure we think about the impact on our community, and on how it may affect the environment. See Appendix B for a list of the critical assets.

NOTE: The replacement date on some of the assets has passed. This is due to the formula in the CUPSS program based on Year Installed and Estimated Useful Life. Due to the Village's aggressive maintenance schedule asset lives have been extended and we need to take a closer look at the data entered into the program.

## **MINIMUM LIFE CYCLE COSTS**

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Operations & maintenance (O&M), personnel, and the capital budget account for a majority of a water system's expenses. O&M consists of preventive and emergency/reactive maintenance. The strategy for O&M varies by the asset, criticality, condition and operating history. Asset management enables a system to determine the lowest cost options for providing the highest level of service over time. An asset management program helps make risk-based decisions by choosing the right project, at the right time, for the right reason.

Preventive maintenance is the day-to-day work necessary to keep assets operating properly, which includes the following:

- Regular and ongoing annual tasks necessary to keep the assets at their required service level
- Day-to-day and general upkeep designed to keep the assets operating at the required levels of service
- Tasks that provide for the normal care and attention of the asset including repairs and minor replacements

Preventive maintenance is carried out because of a planned maintenance program (such as regularly scheduled asset repairs) and historically problematic operations (such as blockages and root infestation). Equipment must be maintained according to manufacturer's recommendations to achieve maximum return on investment. By simply following the manufacturer's suggested preventive maintenance the useful life of equipment can be increased 2 to 3 times when compared to run till failure. Communities that have included preventive maintenance practices in their operating budget can achieve positive returns from a relatively small additional investment.

Appendix C shows the Village's daily and weekly preventive maintenance schedule and Appendix D shows the Village's monthly and yearly preventive maintenance schedule, both are based on best management practices and manufacturer's recommended servicing intervals.

## **CAPITAL IMPROVEMENT PLAN (CIP)**

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The Village of Pinckney - Water capital improvement program (CIP) plan is the description of future capital projects. Capital improvement projects generally create or purchase a new asset that previously did not exist or they upgrade and improve an existing capacity. Additionally, rehabilitation expenditures do not increase the asset's design capacity but restores an existing asset to its original capacity. Projects can result from growth or environmental needs, such as the following:

1. Expenditure that purchases or creates a new asset or in any way improves an asset beyond its original design capacity
2. Upgrades that increase the capacity of the asset
3. Construction designed to produce an improvement in the standard operation of the asset beyond its present capacity
4. Rehabilitation involving improvements and realignment or restores the assets to a new or fresh condition

The Village of Pinckney 2018-2023 Water Capital Improvement Plan follows. The 2019 – 2024 CIP is in draft form and is scheduled to be approved by Council in January 2018. The entire Capital Improvement Plan for the Village can be found on the Village's website [www.villageofpinckney.org](http://www.villageofpinckney.org)

## WATER CAPITAL PROJECTS SUMMARY

The Village obtains its potable water from two 500 gpm production wells located in the northeast portion of the Village. The wells were constructed in 1991. Treatment of the Village's raw water is performed at the well house. The treatment consists of adding polyphosphate for iron sequestration and sodium hypochlorite for disinfection. An expansion and upgrade of the wellhouse was completed in November 2015. The Village has a single 460,000 gallon water storage tank, constructed in 1991. The Village's distribution system contains about 11.5 miles of water main, the majority of which was constructed in 1990-91 with some older main constructed in 1974.

The Village is in the very early stages of developing an asset management plan for to better plan for the upcoming needs of the water system. The 5-year rate study will be updated in FY 2016-17 to ensure the Village is charging appropriate rates to cover operations, in addition to near-term and future capital improvements and any related debt service.

Water capital projects represent additions or improvements to the system as well as equipment used in operating the system. The total estimated cost of all water capital projects in the six year plan is \$232,000 and is summarized below.

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
	'17/18	'18/19	'19/20	'20/21	'21/22	'22/23	
<b>Water</b>							
Hydrants	\$ 3,000	\$ 3,000	\$ 3,000	\$ 3,000	\$ 3,000	\$ 3,000	\$ 18,000
Meter Replacements	\$ 1,500	\$ 1,500	\$ 1,500	\$ 1,500	\$ 1,500	\$ 1,500	\$ 9,000
Onan Generator (Diesel)			\$ 60,000				\$ 60,000
Pick-up Truck (2014 Ford)				\$ 40,000			\$ 40,000
MXU replacements	\$ 6,000	\$ 7,000	\$ 8,000	\$ 8,000	\$ 9,000	\$ 9,000	\$ 47,000
Well/Pump #2 Maintenance		\$ 24,000	\$ 12,000				\$ 36,000
Well/Pump #1 Maintenance			\$ 12,000				\$ 12,000
Sensus Handheld Meter Reader	\$ 4,000						\$ 4,000
Walve Wrench Turner		\$ 6,000					\$ 6,000
<b>Water Total</b>	<b>\$ 14,500</b>	<b>\$ 41,500</b>	<b>\$ 96,500</b>	<b>\$ 52,500</b>	<b>\$ 13,500</b>	<b>\$ 13,500</b>	<b>\$ 232,000</b>

The individual project pages follow:

**Capital Improvement Plan**  
**Village of Pinckney, Michigan**

'17/'18 thru '21/'22

**Project #** WATER-002  
**Project Name** Hydrants

**Type** Equipment      **Department** Water  
**Useful Life** 20 years      **Contact** DPW DIRECTOR  
**Category** Water      **Priority** 3 Important



**Description**  
 replace 2 hydrants per year  
 cost approx \$1500 each

**Justification**  
 Due to wear & tear and breakage

Expenditures	Prior	'17/'18	'18/'19	'19/'20	'20/'21	'21/'22	Future	Total
Construction		3,000	3,000	3,000	3,000	3,000	9,000	24,000
<b>Total</b>		<b>3,000</b>	<b>3,000</b>	<b>3,000</b>	<b>3,000</b>	<b>3,000</b>	<b>9,000</b>	<b>24,000</b>

Funding Sources	Prior	'17/'18	'18/'19	'19/'20	'20/'21	'21/'22	Future	Total
Water Fund		3,000	3,000	3,000	3,000	3,000	9,000	24,000
<b>Total</b>		<b>3,000</b>	<b>3,000</b>	<b>3,000</b>	<b>3,000</b>	<b>3,000</b>	<b>9,000</b>	<b>24,000</b>

**Budget Impact/Other**



**Capital Improvement Plan**  
**Village of Pinckney, Michigan**

'17/'18 thru '21/'22

Project #	<b>WATER-006</b>
Project Name	<b>Onan Generator (Diesel)</b>

Type	Equipment	Department	Water
Useful Life	15 years	Contact	DPW DIRECTOR
Category	Equipment: Water	Priority	3 Important

<b>Description</b>
Originally purchased in 1991 located at wellhouse

<b>Justification</b>
May be able to extend useful life and delay replacement. Will determine as it gets closer

Expenditures	Prior	'17/'18	'18/'19	'19/'20	'20/'21	'21/'22	Future	Total
Equip/Vehicles/Furnishings				60,000				60,000
<b>Total</b>				<b>60,000</b>				<b>60,000</b>

Funding Sources	Prior	'17/'18	'18/'19	'19/'20	'20/'21	'21/'22	Future	Total
Water Fund				60,000				60,000
<b>Total</b>				<b>60,000</b>				<b>60,000</b>

<b>Budget Impact/Other</b>

**Capital Improvement Plan**  
**Village of Pinckney, Michigan**

'17/'18 thru '21/'22

**Project #** WATER-007  
**Project Name** Pick-up Truck - 2014 Ford

Type Equipment Department Water  
 Useful Life 7 years Contact DPW DIRECTOR  
 Category Vehicles Priority 3 Important



**Description**  
 replacement truck/plow for 2014 F250  
 Purchased March 2014  
 original cost 32,627, increased 3%/yr to estimate replacement cost

**Justification**

Expenditures	Prior	'17/'18	'18/'19	'19/'20	'20/'21	'21/'22	Future	Total
Equip/Vehicles/Furnishings					40,000			40,000
<b>Total</b>					40,000			40,000

Funding Sources	Prior	'17/'18	'18/'19	'19/'20	'20/'21	'21/'22	Future	Total
Water Fund					40,000			40,000
<b>Total</b>					40,000			40,000

**Budget Impact/Other**



**Capital Improvement Plan**  
**Village of Pinckney, Michigan**

'17/'18 thru '21/'22

Project # **WATER-011**  
 Project Name **Well/Pump #2 Maintenance**

Type Maintenance Department Water  
 Useful Life 6 years Contact DPW DIRECTOR  
 Category Water Priority 3 Important

**Description**  
 Cleaning of well, due every 5-6 years  
 Last done in July 2015, due in July 2020  
 Vendor used: Peerless Midwest  
 Pump rebuilt in August 2009. Due in 2019 (est. \$24,000)

**Justification**

Expenditures	Prior	'17/'18	'18/'19	'19/'20	'20/'21	'21/'22	Future	Total
Maintenance			24,000	12,000			12,000	48,000
<b>Total</b>			24,000	12,000			12,000	48,000

Funding Sources	Prior	'17/'18	'18/'19	'19/'20	'20/'21	'21/'22	Future	Total
Water Fund			24,000	12,000			12,000	48,000
<b>Total</b>			24,000	12,000			12,000	48,000

**Budget Impact/Other**

**Capital Improvement Plan**  
**Village of Pinckney, Michigan**

'17/'18 thru '21/'22

Project # **WATER-012**  
 Project Name **Well/Pump #1 Maintenance**

Type Maintenance Department Water  
 Useful Life 6 years Contact DPW DIRECTOR  
 Category Water Priority 3 Important

**Description**  
 Cleaning of well, due every 5-6 years  
 Last done in 2005, 2008, 2016  
 Vendor used: Peerless Midwest  
 Pump rebuilt in 2010, and Jan. 2016. due in 2026 at an estimated cost of \$25,000

**Justification**

Expenditures	Prior	'17/'18	'18/'19	'19/'20	'20/'21	'21/'22	Future	Total
Maintenance				12,000			37,000	49,000
<b>Total</b>				<b>12,000</b>			<b>37,000</b>	<b>49,000</b>

Funding Sources	Prior	'17/'18	'18/'19	'19/'20	'20/'21	'21/'22	Future	Total
Water Fund				12,000			37,000	49,000
<b>Total</b>				<b>12,000</b>			<b>37,000</b>	<b>49,000</b>

**Budget Impact/Other**

**Capital Improvement Plan**  
**Village of Pinckney, Michigan**

'17/'18 thru '21/'22

**Project #** WATER-014  
**Project Name** Sensus Handheld Meter Reader

**Type** Equipment                      **Department** Water  
**Useful Life** 5 years                      **Contact** DPW DIRECTOR  
**Category** Equipment: Water                      **Priority** 3 Important



**Description**  
 Handheld meter reader  
 Current one purchased in Dec 2012 for \$7,700  
 split 50:50 between sewer & water

**Justification**  
 Company may no longer support the old equipment

Expenditures	Prior	'17/'18	'18/'19	'19/'20	'20/'21	'21/'22	Future	Total
Equip/Vehicles/Furnishings		4,000						4,000
<b>Total</b>		<b>4,000</b>						<b>4,000</b>

Funding Sources	Prior	'17/'18	'18/'19	'19/'20	'20/'21	'21/'22	Future	Total
Water Fund		4,000						4,000
<b>Total</b>		<b>4,000</b>						<b>4,000</b>

**Budget Impact/Other**



## FUNDING STRUCTURE AND RATE METHODOLOGY

This section describes the water fund's financial condition and its strategy for future financing. Expenses greater than \$5,000 are considered capital costs. Capital costs are one-time expenses (not including labor) used to replace or upgrade a part of the utility or equipment used by the utility. Capital costs do not include any O&M costs.

Costs for water are funded through commodity rates (62%), base rates (32%) and fees and charges (6%). The authority to set rates is established by Ordinance section 51.10 (Appendix E). Rates for the fiscal year 2017 - 2018 are as follows:

Commodity rate	\$3.4141 per 1,000 gallons
Base rate	\$23.46

External financing for capital expenses exceeding \$100,000 will be financed through debt financing or installment purchase agreements for equipment. For details of capital projects, see the CIP plan in previous section.

In May 2017 the Village completed a rate study. The cash flow analysis from the study follows in Table 8 and has been updated with the FY 2016/17 audit the FY 2017/18 adopted budget.

	Audited 2016/17	Budget 2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
<b>Assumptions</b>							
Billing units	778	778	778	778	778	778	778
Base Rate (2% increase)	\$ 23.00	\$ 23.46	\$ 23.93	\$ 24.41	\$ 24.90	\$ 25.39	\$ 25.90
Volume sold - annual mgal	46,493	42,000	44,000	44,000	44,000	44,000	44,000
Commodity rate per mgal (2% incr.)	\$ 3.3472	\$ 3.4141	\$ 3.4824	\$ 3.5521	\$ 3.6231	\$ 3.6956	\$ 3.7695
<b>Revenues</b>							
Ready-to-serve	\$ 74,089	\$ 73,000	\$ 74,468	\$ 75,957	\$ 77,476	\$ 79,026	\$ 80,606
Commodity	170,602	143,000	153,227	156,291	159,417	162,605	165,858
Fees & other	25,913	15,100	15,100	15,100	15,100	15,100	15,100
<b>Total revenues</b>	<b>270,604</b>	<b>231,100</b>	<b>242,794</b>	<b>247,348</b>	<b>251,993</b>	<b>256,731</b>	<b>261,564</b>
<b>Total expenditures*</b>	<b>170,917</b>	<b>185,560</b>	<b>191,127</b>	<b>196,861</b>	<b>202,766</b>	<b>208,849</b>	<b>215,115</b>
Net operating revenue	99,687	45,540	51,668	50,488	49,227	47,882	46,449
Less: Estimated cash-fundd capital impr.	-	42,200	53,000	107,500	52,500	13,500	13,500
	\$ 99,687	\$ 3,340	\$ (1,332)	\$ (57,012)	\$ (3,273)	\$ 34,382	\$ 32,949
<b>Unrestricted cash &amp; investments</b>	<b>\$ 1,720,657</b>	<b>\$ 1,723,997</b>	<b>\$ 1,722,665</b>	<b>\$ 1,665,652</b>	<b>\$ 1,662,379</b>	<b>\$ 1,696,761</b>	<b>\$ 1,729,710</b>

\* net of depreciation and capital outlay

# APPENDIX A. – Water Asset Inventory

AssetName*	Location*	AssetCategory*	AssetType*	Condition*	Redundancy*	AssetStatus*	Capacity*	CoF*	Installation Date*	ExpectedUs eLife*	ReplacementCos t*
#2 well casing	498 Kirkland Crt	Source	Pumping Equipment	Good	100%	Active	Fulsized	Major	01/01/1991	75.0	\$110,000.00
#2 well house building	498 Kirkland Crt	Pumping	Buildings	Good	100%	Active	Fulsized	Major	01/01/1991	50.0	\$60,000.00
#2 well pump	498 Kirkland Crt	Pumping	Pumping Equipment	Good	100%	Active	Fulsized	Major	01/01/1991	10.0	\$40,000.00
#2well motor	498 Kirkland Crt	Pumping Facility	Motor Controls / Drives	Excellent	100%	Active	Fulsized	Major	01/01/1991	20.0	\$6,000.00
#2 well motor disconnect	498 Kirkland Crt	Pumping Facility	Motor Controls / Drives	Good	100%	Active	Fulsized	Major	01/01/1991	30.0	\$500.00
#2 air relief 2"	498 Kirkland Crt	Pumping	Computer Equipment / Software	Good	100%	Active	Fulsized	Moderate	01/01/1991	25.0	\$3,000.00
#2 OCV 6" valve & control 6"piping from well #2 into ground up to well house #1	498 Kirkland Crt	Pumping	Valves	Good	100%	Active	Fulsized	Major	01/01/1991	25.0	\$3,000.00
Electrical wiring from well #2 to #1 well house	498 Kirkland Crt	Pumping Facility	Distribution / Collection Mains	Good	100%	Active	Fulsized	Major	01/01/1991	50.0	\$16,000.00
Security wiring from well #2 to #1 well house	498 Kirkland Crt	Pumping Facility	Transformers / Switchgears / Wiring	Good	0%	Active	Fulsized	Major	01/01/1991	50.0	\$6,000.00
#1 well house building	498 Kirkland Crt	Pumping	Security Equipment	Good	0%	Active	Fulsized	Major	01/01/2005	50.0	\$1,000.00
#1 well casing	498 Kirkland Crt	Pumping	Buildings	Good	50%	Active	Fulsized	Major	01/01/1991	50.0	\$150,000.00
#1 well pump	498 Kirkland Crt	Pumping	Pumping Equipment	Good	100%	Active	Fulsized	Major	01/01/1991	75.0	\$110,000.00
#1 well motor	498 Kirkland Crt	Pumping	Pumping Equipment	Good	100%	Active	Fulsized	Major	01/01/1991	10.0	\$40,000.00
#1 air relief	498 Kirkland Crt	Pumping	Motor Controls / Drives	Good	100%	Active	Fulsized	Major	01/01/1991	20.0	\$6,000.00
#1 OCV valve 6" & control	498 Kirkland Crt	Pumping	Pumping Equipment	Good	100%	Active	Fulsized	Moderate	01/01/1991	25.0	\$3,000.00
#1 PO4 pump & hardware	498 Kirkland Crt	Pumping	Valves	Good	100%	Active	Fulsized	Major	01/01/1991	25.0	\$3,000.00
#1 PO4 scale & controls	498 Kirkland Crt	Treatment Pumping Facility	Treatment Equipment	Excellent	100%	Active	Fulsized	Moderate	01/01/2015	10.0	\$3,000.00
#1 PO4 corporation valve	498 Kirkland Crt	Treatment	Treatment Equipment	Excellent	100%	Active	Fulsized	Moderate	01/01/2015	20.0	\$6,000.00
#2 PO4 pump & hardware	498 Kirkland Crt	Treatment Pumping Facility	Treatment Equipment	Excellent	100%	Active	Fulsized	Moderate	01/01/2015	20.0	\$200.00
#2 PO4 scale & controls	498 Kirkland Crt	Treatment	Treatment Equipment	Excellent	100%	Active	Fulsized	Moderate	01/01/2015	10.0	\$3,000.00
#2 PO4 corporation valve	498 Kirkland Crt	Pumping Facility	Treatment Equipment	Excellent	100%	Active	Fulsized	Moderate	01/01/2015	20.0	\$6,000.00
#1 mag meter 4"	498 Kirkland Crt	Pumping Facility	Treatment Equipment	Excellent	100%	Active	Fulsized	Moderate	01/01/2015	20.0	\$200.00
#2 mag meter 4"	498 Kirkland Crt	Pumping Facility	Treatment Equipment	Excellent	100%	Active	Fulsized	Moderate	01/01/2015	20.0	\$200.00
#1 waste valve 6"	498 Kirkland Crt	Pumping Facility	Meters	Good	100%	Active	Fulsized	Moderate	01/01/2015	10.0	\$3,500.00
#2 waste valve 6"	498 Kirkland Crt	Pumping Facility	Meters	Good	100%	Active	Fulsized	Moderate	01/01/2015	10.0	\$3,500.00
#1 waste valve 6"	498 Kirkland Crt	Pumping Facility	Valves	Good	100%	Active	Fulsized	Moderate	01/01/1991	50.0	\$3,000.00
#2 waste valve 6"	498 Kirkland Crt	Pumping Facility	Valves	Good	100%	Active	Fulsized	Moderate	01/01/1991	50.0	\$3,000.00

AssetName*	Location*	AssetCategory*	AssetType*	Condition*	Redundancy*	AssetStatus*	Capacity*	CoF*	Installation Date*	ExpectedUsefulLife*	ReplacementCost*
Waste valve catch basin	498 Kirkland Crt	Pumping Facility	Pumping Equipment	Good	0%	Active	Fullsized	Moderate	01/01/1991	50.0	\$10,000.00
#1 system valve 6"	498 Kirkland Crt	Pumping Facility	Valves	Good	100%	Active	Fullsized	Major	01/01/1991	50.0	\$3,000.00
#2 system valve 6"	498 Kirkland Crt	Pumping Facility	Valves	Good	100%	Active	Fullsized	Major	01/01/1991	50.0	\$3,000.00
#1 CL2 pump & hardware	498 Kirkland Crt	Treatment Pumping Facility	Treatment Equipment	Excellent	100%	Active	Fullsized	Major	01/01/2015	10.0	\$3,000.00
#1 CL2 scale & controls	498 Kirkland Crt	Treatment Pumping Facility	Treatment Equipment	Excellent	100%	Active	Fullsized	Major	01/01/2015	20.0	\$6,000.00
#1 CL2 corporation valve	498 Kirkland Crt	Treatment Pumping Facility	Treatment Equipment	Excellent	100%	Active	Fullsized	Major	01/01/2015	20.0	\$200.00
#2 CL2 pump & hardware	498 Kirkland Crt	Treatment Pumping Facility	Treatment Equipment	Excellent	100%	Active	Fullsized	Major	01/01/2015	10.0	\$3,000.00
#2 CL2 scale & controls	498 Kirkland Crt	Treatment Pumping Facility	Treatment Equipment	Excellent	100%	Active	Fullsized	Major	01/01/2015	20.0	\$6,000.00
#2 CL2 corporation valve	498 Kirkland Crt	Treatment Pumping Facility	Treatment Equipment	Excellent	100%	Active	Fullsized	Major	01/01/2015	20.0	\$200.00
#1 & #2 system "T" 6"x6"x8" CL2 analyzer	498 Kirkland Crt	Treatment Pumping Facility	Mains	Good	0%	Active	Fullsized	Major	01/01/1991	75.0	\$1,500.00
Pressure transducer	498 Kirkland Crt	Treatment Pumping Facility	Treatment Equipment	Excellent	0%	Active	Fullsized	Minor	01/01/2015	10.0	\$4,000.00
Water Heater	498 Kirkland Crt	Pumping Facility	Buildings	Excellent	0%	Active	Fullsized	Major	01/01/2015	10.0	\$3,000.00
Emergency eye wash & shower	498 Kirkland Crt	Pumping Facility	Buildings	Excellent	0%	Active	Fullsized	Minor	01/01/2015	15.0	\$1,000.00
Tempered water valve	498 Kirkland Crt	Pumping Facility	Pumping Equipment	Excellent	0%	Active	Fullsized	Moderate	01/01/2015	20.0	\$1,500.00
Fused Main Disconnect	498 Kirkland Crt	Pumping Facility	Valves	Excellent	0%	Active	Fullsized	Minor	01/01/2015	20.0	\$1,500.00
Onan Automatic transfer switch > surge protection	498 Kirkland Crt	Pumping Facility	Transformers / Switchgears / Wiring	Good	0%	Active	Fullsized	Major	01/01/2015	30.0	\$1,000.00
Manual transfer switch & plug >surge protection	498 Kirkland Crt	Pumping Facility	Transformers / Switchgears / Wiring	Good	0%	Active	Fullsized	Major	01/01/2015	10.0	\$5,000.00
Onsite Generator 150K Onan	498 Kirkland Crt	Pumping Facility	Transformers / Switchgears / Wiring	Good	0%	Active	Fullsized	Major	01/01/2015	30.0	\$1,500.00
Portable 150K generator Pump #1 Power Flex Full Feature Disconnect & Power Flex VFD	498 Kirkland Crt	Pumping Facility	Switchgears / Wiring	Good	50%	Active	Fullsized	Major	01/01/1991	25.0	\$55,000.00
Pump #1 Line Filter	498 Kirkland Crt	Pumping Facility	Generators	Excellent	0%	Active	Fullsized	Major	01/01/2015	25.0	\$90,000.00
	498 Kirkland Crt	Pumping Facility	Motor Controls / Drives	Excellent	100%	Active	Fullsized	Major	01/01/2015	10.0	\$5,000.00
	498 Kirkland Crt	Pumping Facility	Transformers / Switchgears / Wiring	Excellent	100%	Active	Fullsized	Major	01/01/2015	10.0	\$1,500.00

AssetName*	Location*	AssetCategory*	AssetType*	Condition*	Redundancy*	AssetStatus*	Capacity*	CoF*	Installation Date*	ExpectedUsefulLife*	ReplacementCost*
Pump #2 Power Flex Full Feature Disconnect & Power Flex VFD	498 Kirkland Crt	Pumping Facility	Motor Controls / Drives Transformers /	Excellent	50%	Active	Fullsized	Major	01/01/2015	10.0	\$5,000.00
Pump #2 Line Filter	498 Kirkland Crt	Pumping Facility	Switchgears / Wiring Transformers /	Excellent	100%	Active	Fullsized	Major	01/01/2015	10.0	\$1,500.00
100A Fused main disconnect	498 Kirkland Crt	Pumping Facility	Switchgears / Wiring Transformers /	Good	0%	Active	Fullsized	Major	01/01/1991	30.0	\$1,000.00
Power Transformer 208/120V Power Panel & Breakers	498 Kirkland Crt	Pumping Facility	Switchgears / Wiring Transformers /	Excellent	0%	Active	Fullsized	Major	01/01/2015	30.0	\$3,000.00
24 VDC Power Supply Either net switch Plc to VFD 1 & 2	498 Kirkland Crt	Pumping Facility	Switchgears / Wiring Transformers /	Good	0%	Active	Fullsized	Major	01/01/2015	30.0	\$2,000.00
	498 Kirkland Crt	Pumping Facility	Switchgears / Wiring Transformers /	Good	100%	Active	Fullsized	Major	01/01/2015	10.0	\$300.00
PLC	498 Kirkland Crt	Pumping Facility	Computer Equipment / Software	Excellent	100%	Active	Fullsized	Major	01/01/2015	15.0	\$300.00
	498 Kirkland Crt	Pumping Facility	Computer Equipment / Software	Excellent	0%	Active	Fullsized	Major	01/01/2015	15.0	\$1,500.00
Red Lion HDMI Interface	498 Kirkland Crt	Pumping Facility	Computer Equipment / Software	Fair (Average)	100%	Active	Fullsized	Major	01/01/2015	15.0	\$2,000.00
	498 Kirkland Crt	Pumping Facility	Computer Equipment / Software	Excellent	100%	Active	Fullsized	Major	01/01/2015	15.0	\$500.00
2 AC Input Cards	498 Kirkland Crt	Pumping Facility	Computer Equipment / Software	Excellent	100%	Active	Fullsized	Major	01/01/2015	15.0	\$500.00
2 Analog Input Cards	498 Kirkland Crt	Pumping Facility	Computer Equipment / Software	Excellent	100%	Active	Fullsized	Major	01/01/2015	15.0	\$500.00
1 Analog Output Cards	498 Kirkland Crt	Pumping Facility	Computer Equipment / Software	Excellent	0%	Active	Fullsized	Major	01/01/2015	15.0	\$500.00
24 VDC Power Supply	498 Kirkland Crt	Pumping Facility	Transformers / Switchgears / Wiring	Fair (Average)	100%	Active	Fullsized	Major	01/01/2015	15.0	\$200.00
	498 Kirkland Crt	Pumping Facility	Sensors	Fair (Average)	0%	Active	Fullsized	Major	01/01/2015	15.0	\$100.00
Ice Cube Relays 6 total	498 Kirkland Crt	Pumping Facility	Security Equipment	Fair (Average)	0%	Active	Fullsized	Major	01/01/2012	15.0	\$3,000.00
Radio & Antena & Mount	498 Kirkland Crt	Pumping Facility	Transportation Equipment	Fair (Average)	0%	Active	Fullsized	Major	01/01/2015	15.0	\$100.00
12 VDC Power Supply	498 Kirkland Crt	Pumping Facility	Security Equipment	Excellent	0%	Active	Fullsized	Major	01/01/2015	3.0	\$300.00
Uninterruptable Power Source	498 Kirkland Crt	Pumping Facility	Buildings Concrete & Metal Storage Tanks	Excellent	0%	Active	Fullsized	Moderate	01/01/2015	10.0	\$3,000.00
Explosion proof heater	498 Kirkland Crt	Storage	Liquid Waste Handling & Disposal	Good	0%	Active	Fullsized	Major	01/01/1991	75.0	\$1,400,000.00
WATER TOWER	130 W. Depot St.	Storage	Liquid Waste Handling & Disposal	Good	0%	Active	Fullsized	Moderate	01/01/1991	20.0	\$10,000.00
Overflow Drain Storm pipe and manholes for tower drain	130 W. Depot St.	Storage	Liquid Waste Handling & Disposal	Good	0%	Active	Fullsized	Moderate	01/01/1991	20.0	\$75,000.00
6" tower drain	130 W. Depot St.	Storage	Liquid Waste Handling & Disposal	Good	0%	Active	Fullsized	Moderate	01/01/1991	50.0	\$5,000.00

AssetName*	Location*	AssetCategory*	AssetType*	Condition*	Redundancy*	AssetStatus*	Capacity*	CoF*	Installation Date*	ExpectedUsefulLife*	ReplacementCost*
Tower drain valve 8" & gatewell	130 W. Depot St.	Storage	Valves	Good	0%	Active	Fullsized	Moderate	01/01/1991	20.0	\$10,000.00
Tower Isolation valve 16" butterfly & gatewell (transd.)	130 W. Depot St.	Storage	Valves	Good	0%	Active	Fullsized	Major	01/01/1991	20.0	\$15,000.00
Tower Distribution Isolation valve 16" butterfly & gatewell	130 W. Depot St.	Distribution	Valves	Good	0%	Active	Fullsized	Major	01/01/1991	20.0	\$15,000.00
Automatic transfer switch	130 W. Depot St.	Storage	Generators	Excellent	0%	Active	Fullsized	Major	01/01/2015	10.0	\$1,000.00
Manual transfer switch & Plug Site Generator	130 W. Depot St.	Storage	Generators	Good	0%	Active	Fullsized	Major	01/01/2015	30.0	\$1,000.00
Portable Generator	130 W. Depot St.	Storage	Generators	Excellent	50%	Active	Fullsized	Major	01/01/2015	15.0	\$5,000.00
Cathodic Protection & Controls Service entrance breaker panel	130 W. Depot St.	Storage	Concrete & Metal Storage Tanks	Excellent	0%	Active	Fullsized	Moderate	01/01/2015	10.0	\$60,000.00
SOA	130 W. Depot St.	Storage	Transformers / Switchgears / Wiring	Good	0%	Active	Fullsized	Major	01/01/2015	30.0	\$500.00
PLC	130 W. Depot St.	Storage	Computer Equipment / Software	Good	0%	Active	Fullsized	Major	01/01/2015	15.0	\$1,500.00
Analog input card	130 W. Depot St.	Storage	Computer Equipment / Software	Good	0%	Active	Fullsized	Major	01/01/2015	15.0	\$500.00
Ethernet Switch	130 W. Depot St.	Storage	Computer Equipment / Software	Good	0%	Active	Fullsized	Major	01/01/2015	15.0	\$300.00
3 - Ice cube relays	130 W. Depot St.	Storage	Computer Equipment / Software	Good	0%	Active	Fullsized	Major	01/01/2015	15.0	\$100.00
Power Supply	130 W. Depot St.	Storage	Computer Equipment / Software	Good	0%	Active	Fullsized	Major	01/01/2015	15.0	\$100.00
Digital Level Display	130 W. Depot St.	Storage	Computer Equipment / Software	Good	0%	Active	Fullsized	Major	01/01/2015	15.0	\$500.00
Power Supply	130 W. Depot St.	Storage	Computer Equipment / Software	Good	0%	Active	Fullsized	Major	01/01/2015	15.0	\$100.00
Radio & Antenna	130 W. Depot St.	Storage	Computer Equipment / Software	Good	0%	Active	Fullsized	Major	01/01/1991	15.0	\$3,000.00
Control Panel Heater	130 W. Depot St.	Storage	Computer Equipment / Software	Good	0%	Active	Fullsized	Moderate	01/01/1991	5.0	\$200.00
Transducer/Plumbing	130 W. Depot St.	Storage	Computer Equipment / Software	Good	0%	Active	Fullsized	Major	01/01/1991	5.0	\$1,500.00
Heater for Transducer	130 W. Depot St.	Storage	Computer Equipment / Software	Good	50%	Active	Fullsized	Moderate	01/01/1991	5.0	\$500.00
900' of 6" watermain	Village of Pinckney	Distribution	Mains	Good	0%	Active	Fullsized	Major	01/01/1991	35.0	\$72,000.00
38,000' of 8" watermain	Village of Pinckney	Distribution	Distribution / Collection Mains	Good	0%	Active	Fullsized	Major	01/01/1991	35.0	\$3,420,000.00
11,800' of 12" watermain	Village of Pinckney	Distribution	Distribution / Collection Mains	Good	0%	Active	Fullsized	Major	01/01/1991	35.0	\$1,180,000.00

AssetName*	Location*	AssetCategory*	AssetType*	Condition*	Redundancy*	AssetStatus*	Capacity*	CoF*	Installation Date*	ExpectedUsefulLife*	ReplacementCost*
13,900' of 16" watermain	Village of Pinckney	Distribution	Distribution / Collection Mains	Good	0%	Active	Fullsized	Major	01/01/1991	35.0	\$1,668,000.00
134 hydrants & branch valve	Village of Pinckney	Distribution	Hydrants	Good	0%	Active	Fullsized	Moderate	01/01/1991	40.0	\$268,000.00
175 isolation valves	Village of Pinckney	Distribution	Valves	Good	0%	Active	Fullsized	Moderate	01/01/1991	35.0	\$2,187,500.00
Hand Held devise for reading meters	Village of Pinckney	Distribution	Computer Equipment / Software	Good	0%	Active	Fullsized	Moderate	01/01/2015	5.0	\$5,500.00
Computer used to do billing	220 S. Howell St.	Distribution	Computer Equipment / Software	Good	0%	Active	Fullsized	Moderate	01/01/2015	5.0	\$10,000.00

## APPENDIX B. – Critical Water Asset Inventory

Asset	Asset Type	Year Installed	Condition	CoF	Capacity	Risk	Replacement Date
Tower Isolation valve 16" butterfly & gatewell (transd.)	Valves	01/01/1991	Good	Major	Fullsized	High Risk – Immediate Attention	02/01/2017
Radio & Antenna	Computer Equipment / Software	01/01/1991	Good	Major	Fullsized	High Risk – Immediate Attention	02/01/2017
Transducer / Plumbing	Computer Equipment / Software	01/01/1991	Good	Major	Fullsized	High Risk – Immediate Attention	02/01/2017
Tower Distribution Isolation valve 16" butterfly & gatewell	Valves	01/01/1991	Good	Major	Fullsized	High Risk – Immediate Attention	02/01/2017
100A Fused main disconnect	Transformers / Switchgears / Wiring	01/01/1991	Good	Major	Fullsized	High Risk – Immediate Attention	02/01/2021
Tower drain valve 8" & gatewell	Valves	01/01/1991	Good	Moderate	Fullsized	High Risk – Immediate Attention	02/01/2017
Control Panel Heater	Computer Equipment / Software	01/01/1991	Good	Moderate	Fullsized	High Risk – Immediate Attention	02/01/2017
Storm pipe and manholes for tower drain	Liquid Waste Handling & Disposal	01/01/1991	Good	Moderate	Fullsized	High Risk – Immediate Attention	02/01/2017
Overflow Drain	Liquid Waste Handling & Disposal	01/01/1991	Good	Moderate	Fullsized	High Risk – Immediate Attention	02/01/2017
11,800' of 12" watermain	Distribution / Collection Mains	01/01/1991	Good	Major	Fullsized	High Risk – Immediate Attention	02/01/2026
900' of 6"	Distribution	01/01/1991	Good	Major	Fullsized	High Risk – Immediate Attention	02/01/2026

Asset	Asset Type	Year Installed	Condition	CoF	Capacity	Risk	Replacement Date
watermain	/ Collection Mains					Immediate Attention	
13,900' of 16" watermain	Distribution / Collection Mains	01/01/1991	Good	Major	Fullsized	High Risk – Immediate Attention	02/01/2026
38,000' of 8" watermain	Distribution / Collection Mains	01/01/1991	Good	Major	Fullsized	High Risk – Immediate Attention	02/01/2026
Uninterruptable Power Source	Security Equipment	01/01/2015	Excellent	Major	Fullsized	High Risk – Immediate Attention	02/01/2018
175 isolation valves	Valves	01/01/1991	Good	Moderate	Fullsized	High Risk – Immediate Attention	02/01/2026
Onsite Generator 150K Onan	Transformers / Switchgears / Wiring	01/01/1991	Good	Major	Fullsized	High Risk – Immediate Attention	02/01/2017
Electrical wiring from well #2 to #1 well house	Transformers / Switchgears / Wiring	01/01/1991	Good	Major	Fullsized	High Risk – Immediate Attention	02/01/2042
134 hydrants & branch valve	Hydrants	01/01/1991	Good	Moderate	Fullsized	High Risk – Immediate Attention	02/01/2031
Heater for Transducer	Computer Equipment / Software	01/01/1991	Good	Moderate	Fullsized	High Risk – Immediate Attention	02/01/2017
6" tower drain	Liquid Waste Handling & Disposal	01/01/1991	Good	Moderate	Fullsized	High Risk – Immediate Attention	02/01/2042
Waste valve catch basin	Pumping Equipment	01/01/1991	Good	Moderate	Fullsized	High Risk – Immediate Attention	02/01/2042
Radio & Antena & Mount	Security Equipment	01/01/2012	Fair (Average)	Major	Fullsized	Medium Risk – Aggressive Monitoring	02/01/2027
WATER TOWER	Concrete & Metal Storage Tanks	01/01/1991	Good	Major	Fullsized	Medium Risk – Aggressive Monitoring	02/01/2068
#1 & #2	Distribution	01/01/1991	Good	Major	Fullsized	Medium	02/01/2068

Asset	Asset Type	Year Installed	Condition	CoF	Capacity	Risk	Replacement Date
system 'T' 6"x6"x8"	/ Collection Mains					Risk – Aggressive Monitoring	

# APPENDIX C

Month: \_\_\_\_\_ thru \_\_\_\_\_ Yr: \_\_\_\_\_  
WSSN 5322

Raw Samples now labeled:  
 Pump 1 = WLOO1 / Pump 2 = WLOO2

## Village Water System Daily and Weekly Maintenance checklist

New address  
**498 Kirkland Court**

Daily Check = Fill out appropriate forms	Mon.	Tues.	Wed.	Thurs.	Fri.
<b>Check chlorine and PO4 equipment</b>					
Read pounds of daily usage from CL2 and PO4 pumps used from all tanks					
Check lines and pumps for leaks, noises, and Primed					
*Purge chem. Pumps once a week; run pumps continuously 10 minutes; 5 before 5 after					
Check daily residuals=Free chl. & PO4 every day; Confirm accuracy of CL2 analyzer. Turn a pump on for 10 minutes before sampling [*Chl. Tot. by Fri.]					
<b>Pumps and Controls</b>					
Check Alternating Switch					
Check pumps for unusual noises					
Read K. W.					
Read numbers on flow recorder (Mag meters)					
Before leaving Check <b>operating switches are in auto position</b>					
Check control (VFD) panel switches are in the correct Position					
Check heaters keep around 60 degrees					
On the <b>RED LION push ENTRY alarm box when arriving and departing; Confirm everything is in AUTO.</b>					
<b>Weekly Check</b>					
<b>Tue</b> Check lightning resistor light and circuit board					
<b>Tue.</b> Check oil in motors					
<b>Tue. &amp; Fri.</b> Check well house #2					
<b>Tue. &amp; Fri.</b> Check packing on pumps					
* <b>Tue.-Fri.</b> Check on Tower and Generator; fill out form					
* <b>Tues.-Fri.</b> Sample distribution (chlorine and PO4 residual)					
* <b>Tues.-Fri.</b> Check heater in vault at tower					
* <b>Tues.-Fri.</b> Check heater in control panel at tower					
* <b>Tue.-Fri.</b> Check oil, coolant, belts, on generator; fill out form					
*Turn operating switches to "off" before starting generator.					
*Before starting Generator; push the Halt Dialer box on the Red Lion display					
* <b>While Generator is running;</b> Turn operating switch pump #1 and #2 to hand to put generator under a load to check operations then back to "off" when done. <b>Before leaving put switches back to "auto" and reset Dialer.</b>					
* <b>Fri.</b> Check Well Static and Draw down					
Initials					

**\*Get Weekly check list done by Friday; if time or weather allows do it throughout the week.**

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

When **Chlorine** is low call Alexander Chemical (800)348-8827 order (4) 55 gallon drums of 12.5% sodium hypochlorite.

When **PO4** is low call Elhorn engr. 517)676-3786 Order (6) 30 gal. drums

Before leaving make sure all switches are in the **auto position**, reset the **security alarm**, and that the **doors** and **gates** are **locked**.

# APPENDIX D - Village Water System Monthly and Yearly Maintenance Schedule

Signature: \_\_\_\_\_ Quarterly: \_\_\_\_\_ DATE: \_\_\_\_\_

JAN FEB MAR | APR MAY JUN | JUL AUG SEP | OCT NOV DEC

PUT GENERATOR UNDER ALOAD	X	X	X	X	X	X	X	X	X	X	X	X
GENERAL OVERALL INSPECTION EVERYTHING	X	X	X	X	X	X	X	X	X	X	X	X
CHECK CONTROLS/RADIO AT TOWER/WELL HOUSE	X	X	X	X	X	X	X	X	X	X	X	X
CHECK HEATER IN VAULT	X	X	X	X						X	X	X
VOLTAGE AND AMPERAGE CHECK			X			X			X			X
FLUSH and REPAIR HYDRANTS				X					X			X
VALVE MAINTENANCE AND REPAIRS										X		
MAKE SURE HYDRANTS ARE PUMPED OUT									X			X
MAKE SURE VAULTS ARE PUMPED OUT									X			X
CLEAN SCREEN ON OVC VALVE			X						X			
CHECK PUMP PACKING			X		X			X		X		
GREASE PUMPS IF NEEDED			X					X				
CHANGE OIL IN MOTORS								X				
CHANGE OIL AND FILTERS ON GENERATOR if not done in maintenance								X				
Clean corp.			X			X			X			X
CL2 Analyzer INLINE FILTER cleaned and Line flushed	X	X	X	X	X	X	X	X	X	X	X	X
Replace Chlorine and PO4 foot Valve when needed								X				
Change tubing on chem pumps annually								X				
Thorough inspection of Chlorine Pumps								X				
Thorough inspection PO4 Pumps								X				
PUMP OUT OVERFLOW at TOWER									X			
READ METERS THE LAST WEEK OF THE MONTH			X			X			X			X
Check Tower panel light and emergency light (reset button)	x	x	x	x	x	x	x	x	x	x	x	x
SAMPLE DISTRUBITION SYSTEM FIRST WEEK OF	X	X	X	X	X	X	X	X	X	X	X	X
Run safety eye wash and shower	X	X	X	X	X	X	X	X	X	X	X	X
Test PO4 total Dist. And Plant	X	X	X	X	X	X	X	X	X	X	X	X

**PUMP #1** | **PUMP #2** | **Pump 1** | **GENERATOR** | **Pump 2**  
Mar | Jun | Sep | Dec | Mar | Jun | Sep | Dec

VOLTS PER LEG: 1-2 \_\_\_\_\_  
 1-3 \_\_\_\_\_  
 2-3 \_\_\_\_\_

AMP DRAW: LEG 1 \_\_\_\_\_  
 --- LEG 2 \_\_\_\_\_  
 LEG 3 \_\_\_\_\_

COMMENTS AND REPAIR PARTS NEEDED: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Revised 12-12-17

## APPENDIX E – Rate Setting Authority

### § 51.10 ESTABLISHMENT OF RATES; RATES AND CHARGES.

(A) *Establishment of cost of service.* The Village Council has determined that the purpose of water rates is to produce sufficient revenues each year to pay the costs of service. The costs of service to be paid from revenues shall include all of the following:

- (1) Operation and maintenance expenses;
- (2) Debt service expenses; and
- (3) Capital expenses not funded from bonded indebtedness.

(a) The rates to be charged for water service furnished by the Water Supply System shall be made against each lot, parcel of land or premises having any connection with the Water Supply System.

(b) The village shall periodically review rates, fees, rules and regulations of the Water Supply System. The review shall be completed not less than one time per fiscal year. The review will define actual expenses associated with the operation, maintenance and administration of the Water Supply System, as well as debt service requirements, repair and replacement costs. Results of the review shall be reported to the Village Council with recommendations for any adjustments.

(B) *Allocation of cost of service; user classification.* The Village Council has determined that not all classes of users of the Water Supply System cause the same costs of service. Based on independent investigation and on the advice of the village's independent engineering consultants, the Village Council has previously found and currently reaffirms that:

- (1) The commodity costs of water service for users of the Water Supply System located within the village are uniform among users in accordance with the volume of use. Accordingly, all classes of users located within the village shall pay the same rate per gallon of metered water for water supply services;
- (2) Certain indirect costs of providing water service, including size of the water service pipe, materials used, location of meters, size of storage and treatment facilities, maintenance and administrative overhead, vary according to the size of meters employed;
- (3) Users taking possession of previously undeveloped properties and users changing the nature and amount of use of the Water Supply System at renovated or expanded properties would not bear their proportionate share of the cost of capital improvements to the Water Supply System unless required to pay a capital connection fee; and
- (4) Certain types of property use require a reservation of a greater capacity of the Water Supply System than others. The Village Council has therefore developed the following classification of users which the Village Council finds is the most fair and accurate means of apportioning the indirect costs of providing service among different classes of users for purposes of calculating the readiness-to-serve charge and determining the relative demand on capacity of the Water Supply System among different classes of users for purposes of calculating the capital connection fee. For meters of the following sizes, the following meter equivalency ratios shall be used for purposes of allocating the amount of the indirect costs of service and determining the relative demand on capacity of the Water Supply System per meter size.

<i>Meter Size (Inches)</i>	<i>AWWA</i>
<i>Meter Capacity Ratio</i>	
5/8 and 3/4	1
1	2.5
1-1/2	5
2	8
3	17.5
4	30
6	62.5

(C) *Specific rates and charges.*

(1) *Commodity charge.* Every user shall pay a commodity charge for all water furnished by the Water Supply System. Except as otherwise provided in this subchapter, commodity charges for all water service shall be calculated on the basis of metered gallons of water consumed at rates determined by the Village Council and which fairly apportion the variable costs of providing water service to users of the Water Supply System.

(2) *Readiness-to-serve charge.* Every user shall pay a readiness-to-serve charge for water service on the basis of meter size in an amount and in the manner determined by the Village Council and which fairly apportions the fixed costs of providing water service for users of the Water Supply System.

(3) *Connection fee.* Each user connecting or reconnecting to the Water Supply System shall pay a connection fee equal to the actual cost of the material, labor, equipment and overhead related to the installation and inspection of the connection or re-connection as determined by resolution of the Village Council.

(4) *Capital connection fee.* The Village Council may, by resolution, establish a capital connection fee to defray or recover the cost of capital improvements which are acquired and constructed for the primary purpose of providing additional capacity determined by the village to be reasonably necessary to accommodate:

(a) New connections to the Water Supply System; or

(b) Modifications of existing connections for a use estimated to demand the reservation of greater capacity of the Water Supply System than previously required. Every person seeking to connect previously unconnected property to the Water Supply System, or to reconnect previously connected property to the Water Supply System for a use estimated to demand the reservation of greater capacity of the Water Supply System, may be required to pay a capital connection fee. A capital connection fee shall be established and managed as provided in this section.

1. *Calculation of estimated demand on capacity.* The estimated demand on capacity of a new connection to the Water Supply System (or modification of an existing connection to the Water Supply System) shall be based on the meter equivalency table set forth in division (B)(4) above.

2. *Calculation of capital cost requirements.* The capital costs to be defrayed or recovered through the imposition of the capital connection fee shall be determined annually by the village and shall be based on the estimated cost of capital improvements incurred or to be

incurred for the primary purpose of providing additional capacity determined by the village to be reasonably necessary to accommodate new connections to the Water Supply System, or modifications of existing connections for a use estimated to demand the reservation of greater capacity of the Water Supply System than previously required.

3. *Credits.* If the capital connection fee relates to an increase in demand on capacity, the village shall credit against the specific amount of the capital connection fee, the amount of any capital connection fee or similar charges previously paid for connection of that property to the Water Supply System.

(5) *Turn-on/turn-off fee.* Each user desiring to:

(a) Reinstate service which has been discontinued due to violations of the provisions of this subchapter; or

(b) Voluntarily discontinue or reinstate water service shall pay a fee for reinstating or discontinuing water service, as applicable, in an amount equal to the actual costs of the labor and administrative expenses as determined by resolution of the Village Council.

(6) *Meter charge.* Each user connecting to the Water Supply System shall pay the actual cost of the required meter and components plus a 10% fee for administration and handling. The meter charge shall be in addition to the connection fee and other fees and charges prescribed by this subchapter.

(7) *Fire hydrant rental charges.* Any person desiring to utilize any fire hydrant in the village shall make application to the village for the use, which application shall specify the hydrant or hydrants to be used, the length of time the hydrant(s) will be used and the purpose for which the hydrant(s) will be used. Village Council and/or the Department of Public Works Director shall have the authority to deny any application or grant said application in whole or limit the approval up to a certain amount of gallons. If the application is granted, the applicant shall submit a non-refundable rental charge plus a cash deposit for a temporary meter in amounts established by resolution of the Village Council. The fire hydrant connection and meter installation shall be made by the village. A hydrant usage charge, calculated on the basis of metered gallons of water consumed, shall be assessed at rates determined by resolution of the Village Council. Upon expiration of the rental period, the village shall remove the connection and temporary meter. The cash deposit shall be applied by the village to the payment of the hydrant usage charge and the excess amount of the deposit, if any, shall be refunded to the applicant. The purchaser is liable for any damage to the hydrant, Village equipment, or the surrounding area.

(8) *Annual fire suppression sprinkler line service fee.* Each user connecting or reconnecting a dedicated service line for fire suppression services shall pay an annual sprinkler line service fee on the basis of fire service line size in an amount and in the manner determined by the Village Council and which fairly apportions the fixed costs of providing fire suppression services to users of the Water Supply System.

(9) *Other fees.* The Village Council may, by resolution, establish certain additional fees as may be required to carry out the purposes of this subchapter.

(D) *Publication of rates.* Following approval from time to time by the Village Council of rates and charges or revisions thereto for use of the Water Supply System in accordance with this subchapter, the rates, as approved by the Village Council, shall be published once in a newspaper of general circulation in the village within 30 days of approval thereof.

(Ord. 69, passed 10-24-2005; Ord. 79, passed 2-25-2008; Ord. 138, passed 7-10-2017)

